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FOR OFFICIAL USE ONLY

MANUAL OF AUDIT
FOR
**SCIENTIFIC DEPARTMENTS/
ORGANIZATIONS**

O/o PRINCIPAL DIRECTOR AUDIT
SCIENTIFIC DEPARTMENTS
NEW DELHI

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TABLE OF CONTENTS

Sl.No.	Chapters	Page No.
	Preface	i-iv
1.	Introduction	1
2.	Authority for Audit	23
3.	General Principles and Rules of Audit	30
4.	Audit of Transactions	33
5.	Audit of Schemes/ Programmes/ Research and Development Projects, etc.	53
6.	Detailed instructions regarding Audit of certain Scientific Departments/ Autonomous Bodies	
	6.1 Ministry of Environment and Forests	63
	6.2 Ministry of New and Renewable Energy	96
	6.3 Ministry of Communications and Information Technology	141
	6.4 Ministry of Science and Technology	150
	6.5 Department of Ocean Development	179
	6.6 Department of Biotechnology	197
	6.7 Indian Council of Agricultural Research	208
	6.8 Council of Scientific and Industrial Research	251
	6.9 Indian Council of Medical Research	293
	6.10 Department of Scientific and Industrial Research	318
7.	Inspection and Local Audit	330
8.	Audit of Grants-in-aid	342
9.	Audit of Pay and Accounts Office	345
10.	Audit of Appropriation Accounts and Finance Accounts	349
11.	Audit of Autonomous Bodies and Processing of Separate Audit Reports	359
12.	Audit of Computerised System of Accounts	367

PREFACE

Science and Technology have become synonymous with economic development. The imperative need to give a special status to the Science and Technology (S&T) sector was acknowledged in the Science Policy Statement of 1958 and reiterated in the Technology Policy Statement of 1983. These statements broadly outline the policy direction and the objectives set by the Government for development of S&T in this country.

In view of the extremely diverse nature of scientific pursuits, the Government have created different specialized agencies since independence. Further, for speeding up the process of development, S&T areas are now required to be identified in the welfare components of the development projects to determine the kind of technology inputs that may be necessary. The investment in S&T is, therefore, much more than what may be directly visible. The quantum of S&T investment and efforts on the national scale assume greater proportion if the growth of expenditure on S&T and the proliferation of scientific departments in the various states are also considered.

The rapidly increasing funding for science and creation of diversified infrastructure for its application in different sectors of the economy puts additional demands on audit in seeing whether the public monies are being spent economically, efficiently and effectively. The task becomes more complex in view of the specialized and widely diversified nature of the activities as well as the executing agencies and the enormity of the area of operations. In this background it was considered necessary to set-up an organization which could take an integrated audit view of the various scientific activities for the Government of India. The office of the Principal Director of Audit, Scientific Departments was, therefore, created by the Comptroller and Auditor General of India as a unified organization for Scientific Audit in April 1986 with the responsibility for the audit of the scientific departments/ autonomous, scientific organizations/ institutions/ laboratories etc. of the Government of India.

Audit has often to face the contention that there is a considerable element of uncertainty or failure inherent in any research project and consequently it is neither feasible nor fair to audit science. It is also argued that the efforts of scientists cannot be evaluated by auditors who do not possess the requisite scientific capabilities and such evaluation can, therefore, only be done by peer group reviews. The arguments are at best facetious. Audit is, charged by the Constitution with the responsibility to see whether the monies appropriated from the public funds are spent judiciously to achieve the intended objectives. Science and technology become meaningless if these do not contribute towards increasing the productivity of the people and raising their standards of living. It is, therefore, essential that results of the research efforts are expeditiously translated into appropriate forms for their application. The scope of Scientific Audit, therefore, goes much beyond a peer group evaluation in examining whether the benefits of scientific research is flowing to the economy. While doing so Audit has also to examine the adequacy of the systems established and the extent of utilization of highly skilled human resources as well as that of costly and sophisticated equipment.

The above raises two important issues from the point of view of Audit. Firstly, in view of the complexity of the arrangements followed by different scientific departments in the pursuit of their goals viz. the mechanisms of commissions, departments, cluster of research laboratories, institutions, research groups, funding of research projects in universities and other educational institutions etc., it becomes imperative for the auditors of scientific activities to acquire familiarity with scientific terms, practices and environment of the auditee organizations. Both the auditors and scientists have to acknowledge the fact that they are not mutually exclusive groups but complement each other and should, therefore, interact continually.

The second issue relates to conducting of an audit to bring out the economy, efficiency and effectiveness of the investment in scientific activities. For doing so it is necessary to closely scrutinize the linkages between different research programmes and organizations, between basic research and application etc. This in turn connotes a shift from mere audit of transactions to audit of programmes. Audit has to see examine the

effectiveness of horizontal integration i.e., whether scientific research and development carried out by the various institutions/ laboratories etc. under the same organizations/ departments even at different geographical locations were well co-ordinated avoiding duplication of efforts and maximizing the benefits. Audit has also to check the effectiveness of vertical integration by scrutinizing the entire gamut of operations from process development to its commercialization often through the maze of the involvement of different organizations at different stages and determine whether the entire process was done in the most expeditious and cost-effective ways. Further, scientific departments enjoy liberal financial and administrative powers, which have not been extended to the civil departments. The departments also have special decision making structures different from the hierarchical mode of the civil departments. Scientific Audit has, therefore, to look beyond the routine audit of transactions relating to equipment, civil works, stocks and stores, contingencies, office expenses, cash book etc. common to audit of a civil department. However, in doing so Scientific Audit has to recognize the necessity to preserve the innovative spirit of scientific departments and guard against its transformation into the preservative spirit characteristic of civil departments.

Evolution of specialized techniques suited to the audit of scientific organization, therefore, becomes a necessity – more so, in the present context of increasing shift to the mission mode being adopted by the various departments for implementing their programmes. Audit will have necessarily to shift from audit of financial transactions to audit of programmes in order to be able to present a total picture of the achievements, shortcomings, strengths, weaknesses etc. of a programme/ organization. Audit has no alternative but to develop specialized techniques and skills.

Having recognized the need to develop specialized audit techniques suited to the audit of scientific organizations it becomes necessary to determine ways to upgrade the available auditing skills. This Manual is a step in that direction. While the audit checks prescribed in the CAG's MSO (Tech) are designed to determine the regularity, propriety etc. of the transactions and will have to be applied along with the other checks prescribed in other audit guides viz. MSO, GFR, etc. to the extent necessary, this Manual seeks to go

a step further in attempting to devise audit checks based on the peculiar features of a particular scientific organization.

This manual has been prepared to work as a guide in auditing. The Manual, however, does not contain guidelines for audit of the Department of Atomic Energy and Space, C-DOT and Geological Survey of India. The Manual also does not contain guidelines in respect of efficiency-cum-proprietary audit of Organisations as the procedures, etc. prescribed in the "Performance Auditing Guidelines" issued by the CAG of India is to be followed.

The authority for various paras of this Manual emanates basically inter-alia from the following Manuals/ Codes/ Rules, etc.:

- (i) CAG's Manual of Standing Orders (Audit)
- (ii) Orders issued by CAG's office, office of the erstwhile AGCWM
- (iii) Manual of instructions for audit of Autonomous Bodies
- (iv) Orders issued by Government of India from time to time
- (v) Receipt and Payment Rules
- (vi) Government Accounting Rules, 1990

These need to be referred as and when required to know the exact rule position.

Chapter-1

INTRODUCTION

1. The office of the Principal Director of Audit, Scientific Departments [PDA (SD)] was established in April 1986 for audit of Scientific Departments/ Organisations of the Union Government of India. This office has also the sole responsibility of conducting the audit of Scientific Departments covering four Central Ministries and three Departments and is also the sole auditor of seven autonomous bodies under the Scientific Departments. The Audit Reports of these autonomous bodies are prepared under section 19(2) and 20(1) of the CAG's (DPC) Act, 1971. The office is responsible for preparation of the Report of the Comptroller and Auditor General of India, Union Government (Scientific Departments).

Organisation

- 1.1 The office of the PDA (SD) is functioning from New Delhi with three Group Officers. There are three branch offices headed by Directors / Dy. Directors for Audit of Department of Atomic Energy at Mumbai, Department of Space at Bangalore and Kolkata. There are three Group Officers of the rank of Directors / Dy. Directors at the headquarters incharge of AMG-I and II & Environment.
- 1.2 The sanctioned strength vis-a-vis men-in-position of the Office as on 1st April 2007 is as detailed below:

Category	Sanctioned strength	Men-in-position
Sr. Audit Officers/ Audit Officers	46	41
Asstt. Audit Officers/ Section Officers	93	56
Sr. Auditors/ Auditors	207	170
Other staff	92	64
Group 'D'	50	40

- 1.3 The Outside Audit Department (OAD) is having three groups, AMG-I, AMG-II and Environment, which deals with the audit of Ministries/ Departments and Autonomous Bodies as per distribution of work. (AMG-I group has five Sr.AOs/ AOs, the AMG-II has also five Sr.AOs/AOs and Environment Audit has four Sr.AOs/ AOs dealing with local audit of Ministries/ Departments/ Appropriation and Finance Accounts, Autonomous Bodies, Separate Audit Reports, World Bank Projects.

The concerned group officers are to oversee the work done at Headquarters of OAD, by the Local Audit Parties and (Efficiency-cum-Performance (ECP) work like All India reviews, local reviews, audit of autonomous bodies.

1.4 Programming

1.4.1 List of Inspections/ Audits

- (a) Early in December each year section should bring upto date the list of all the auditee institutions both for Government and Non-Government Institutions, due to be carried out by this office during the ensuing financial year.

The list for Government offices shall be prepared and brought upto date with the help of Control Register of Audits. The list should include all audits due to be carried out during the current year but remaining outstanding besides the units normally due for audit in accordance with the roster of local audits. Where units included in the Control Register of Audit for the current year do not appear in the list of Drawing and Disbursing Officers, Ministries/ Departments and Principal Accounts Officers concerned, the reasons for their omission may be ascertained from the Ministries/ Departments, etc. concerned recording the same in the Control Register of Audits for the current year.

- (b) The list of non-Government inspections/ audits shall be prepared from the list of non-Government bodies or authorities; received from Ministries/ Departments and Principal Accounts Offices concerned and shall include.
- (i) Bodies or Authorities, as may fulfil the conditions envisaged in Section 14 of the CAG's (DPC) Act, 1971 as amended and selected in the manner laid down.
- (ii) Bodies or Authorities as are selected for local audit under Section 15 of the CAG's (DPC) Act, 1971 in the manner laid down.
- (iii) Bodies or Authorities the local audit of which is to be conducted by the Comptroller and Auditor General under provisions of the Acts applicable to such bodies or authorities.

1.4.2 Frequency (Periodicity) and duration of local audit

The frequency or periodicity of audit as also the duration of local audit of each office/ institution should be determined by the circumstances of each case.

Offices in which large amount of expenditure are involved may be audited annually while in other cases the interval between two successive audits may be longer than one year.

Local inspection should not be undertaken when the amount of expenditure to be audited is small. The aim should be to inspect in rotation all accounts in which the cost of inspection as compared with the expenditure to be audited is not disproportionately high.

1.5 Control Register of Audits

After the list of audits for the ensuing year is approved by the Pr. Director of Audit, all the units appearing in the list including the items of work as per Audit Plan should be noted category-wise (annual, biennial, etc.) with full particulars in columns 1 to 6 of the Control Register of Audits maintained by OAD Headquarters Section separately for each financial year in the proforma at Annexure-I of this chapter. In respect of bodies or authorities whose audit reports are to be submitted separately to the Government of India for being laid before Parliament, the target date of finalisation of the Audit Report should be noted conspicuously against these units so as to facilitate timely provision of their audit programme. Column 7 of this Register should be posted after the quarterly programme is approved and columns 8 to 11 should be posted on receipt of completion memo from the concerned audit party. Columns 12 and 13 shall be filled in on receipt of Inspection Reports relating to Institutions from which audit fee is recoverable. This register forms the basic and permanent record of the Inspection of various offices carried out by this office and as such should be maintained very carefully. The actual dates of audit should be carefully posted in column 8 against each office to avoid marking the same office twice for audit as also for keeping adequate distance between the two consecutive audits of the same office. The register should be submitted to Group Officer quarterly on 15th of June, September, December and March.

1.6 Preparation of quarterly inspection programme

Detailed quarterly programmes for local audits should be drawn up (based also on Annual Audit Plan) by 20th of February, May, August and November in respect of quarters ending June, September, December and March for approval of the Principal Director of Audit. While preparing the quarterly programme of local audits the following points should be borne in mind:

- (i) The local audit programme should be organised in such a way as to ensure that audit of bodies and authorities selected under Section 14 and 15 of the CAG's (DPC) Act, 1971, corporations and other institutions audit of which is entrusted under section 19/20 of the of the CAG's (DPC) Act, 1971 or under any law made by Parliament and reviews of schemes selected is completed according to prescribed schedule. The remaining staff should then be deployed on the normal OAD work to be phased in a suitable manner. The old yardsticks of fixed schedules of annual or biennial local audit in respect of Institutions have become obsolete and the concept of any 'arrears' in local audits would therefore not arise. All Institutions should, however, be covered in local audits over a period of time.
- (ii) In respect of non-Government offices / institutions which compile their annual accounts, the local audit thereof should not be taken up before such accounts are ready.
- (iii) As far as possible an office should be booked for audit in the quarter in which it normally falls due according to the frequency of audits.
- (iv) Important audits to be taken up during a particular quarter on which group officer would like to brief the Inspection Staff before taking up the audit of such offices/ institutions should be earmarked in consultation with him. The Inspecting Officers supervising such audits should be timely advised by OAD headquarters of the need of getting such briefing of the concerned programming section.
- (v) The party-wise quarterly programme should indicate in respect of each unit:
 - (a) Full name and complete postal address;
 - (b) Year/ years of account to be audited;
 - (c) Frequency of audit (annual, biennial, etc.)
 - (d) Dates of audit; and
 - (e) Number of party days allotted.
- (vi) The programme should be so arranged that expenditure on travelling allowance is kept down to the minimum. All the Inspections to be carried out in particular station or area should, so far as possible, be conducted during a single visit by a single inspection party. If, however, it is necessary to have more than one party working in the same station or area, such parties should, as far as possible, work at that station or area simultaneously, so that the Inspecting Officer/ Group Officer can supervise the work conveniently of more than one party.
- (vii) The tour programmes of field audit parties should be drawn up in the most economical manner so as to ensure maximum output. Pr. Director of Audit may at his discretion decide whether holidays are to be marked as transit days. Such decision will be taken while drawing up the tour programmes at the OAD headquarters after taking into account the importance of the holiday and convenience of the administration as well as of the staff.

- (viii) The office of the controlling officer should be taken up first when general offices under that are also to be inspected unless it involves expenditure on travelling allowance.
- (ix) The number of days to be allotted for a particular local audit of inspection, should be determined with reference to the experience gained in previous audit and the quantum of expenditure. The local Audit Officers should, therefore, at each audit carefully examine the volume of work involved and recommend reduction or increase as the case may be for future audits.

1.7 Intimation of dates of audit

- (i) Immediately after the quarterly programme is approved, a copy thereof should be sent to concerned Sections so that these Sections may take necessary steps to keep their records ready for being sent to or collected by the field audit parties.
- (ii) A copy of the approved party programme should also be supplied to the concerned Inspecting Officer AAO/ SO.
- (iii) Intimation of the date of Inspection should also be sent to the head of office to be inspected in the form at Annexure-II of this chapter as far as possible three weeks in advance of the actual date of commencement of audit of the concerned office so that request for postponement, if any, can be considered and necessary adjustment made without much disturbance to the schedule of audit programme.
- (iv) A copy of the programme of audit of offices/ Institution audited on behalf of other Pr. Accountants General/ Pr. Director of Audit should be supplied to the respective Audit Officers well in advance of the actual dates of audit of such offices/ institutions so as to enable them select the month/ months for detailed checks and intimate the same to this office alongwith relevant vouchers files, etc. for facility of local audit of such office/ institutions.

Note: Intimations regarding change of dates of audit of any office consequent upon grant of extension/ postponement or otherwise should be sent to the head of office concerned immediately.

1.8 Gazetted supervision of local audit

The tour programme of Inspecting Officers showing the parties to be supervised by each Inspecting Officer should be drawn up for each quarter alongwith the quarterly programme of local audit for the audit parties and got approved from the Group Officers/ Pr. Director of Audit. The following points should be borne in mind while preparing the tour programme of Inspecting Officers:

- (i) Except in case of very important audit generally 2 parties are given to the AO for supervision.
- (ii) As far as possible all new units should be supervised by Inspecting Officers excepting very minor and unimportant ones.
- (iii) No unit should be left unsupervised by an Inspecting Officer without the knowledge of the Group Officer.
- (iv) Group supervisory in-charge of outside audit shall on an average undertake a minimum of 7 days inspection in a month, which could be relaxed by the Pr. Director of Audit.
- (v) A copy of the tour programme of each Inspecting Officer should be supplied to him / her.

1.9 Records to be sent to the Audit Party

Following records should be made available to the field audit parties by the concerned sections at OAD (HQ) before the commencement of local audit:

- (i) File containing inspection reports for previous years in respect of which objections are still outstanding.
- (ii) Extracts from the Register of Important Points.
- (iii) List of objections treated as settled subject to verification during next audit.
- (iv) Audit note book/ Auditor's note book.
- (v) List of grants-in-aid and loans sanctioned by the office/ department being audited.
- (vi) Guard file containing inter-alia Act, Regulations governing Constitution, Powers and Organisation System of Accounts, etc. relating to the office/ institution concerned.

1.10 Staff requirement of OAD

By the first week of July each year OAD headquarters sections should put up to the Director for approval a note giving full justification for continuance of regular/ temporary staff beyond 28th/ 29th February. Likewise, for the continuance of annual temporary posts beyond this date, a note should be put up for seeking sanction of the Comptroller and Auditor General.

Besides the staff required for manning the headquarters section, the staff requirement in terms of standard audit parties shall be worked out by dividing the local audit party days for all units with this office by the actual number of working days in a financial year.

Standard audit party shall consist of three members as laid down in this Manual elsewhere.

Total number of party days shall be worked out by adding together the number of party days allotted for local audit of each unit in respect of all units with this office.

Actual number of working days in a financial year shall be taken as 283.

1.11 Daily diaries of Inspection Parties

All members of the audit parties including AAOs/ Section Officers should maintain diaries in form No. SY-324 (Annexure-II) indicating details of work done on each day. On completion of every audit (including audits of less than seven days' duration) these diaries should be submitted to the OAD (Headquarters) Section through the Inspection Officer who will scrutinise and attest the diaries prepared by members of his party.

On receipt in OAD (HQ) Section, these diaries should be scrutinised further and submitted to group officer.

A check register in form SY-325 (Annexure-III) should be maintained by OAD (HQ) section to watch the receipt of diaries.

1.12 Attendance Register

Each section/ audit party shall maintain an attendance register in which each member of the section/ party shall mark his attendance. The register should be closed in accordance with the instructions laid down in the Office Procedure Manual of this office.

1.13 Applicability of the Office Procedure Manual

The Office Procedure Manual and orders of general application in other manuals of this office shall also apply to the OAD staff, except to the extent this manual specifically authorises deviations from those orders.

1.14 Maintenance of guard files/ permanent general files

Government Offices – A guard file containing information on the following points will be maintained by the dealing auditor in each of the OAD sections in respect of each Government Office locally audited by this office.

- (a) Name of the office visited and its organisational set up indicating the staff strength under various categories.
- (b) Exact location of the office with telephone No.
- (c) Main activities in which the office is engaged.
- (d) Budgetary provisions under principal heads of account i.e. pay, TA, contingencies and schemes, etc.
- (e) The amount of expenditure incurred under each of the Principal heads, viz. TA, Contingencies and Schemes, etc.
- (f) Whether any internal check or inspection by the controlling Ministry exists. Scope of such internal check or inspection.
- (g) Social features and peculiarities of the office which specially deserve to be brought to notice of the inspecting staff.
- (h) Extracts of uncodified orders, with proper reference, which are of particular significance in conducting local audit of that office.
- (i) A resume of all the paragraphs relating to the office as have already been published in the Reports of the Comptroller and Auditor General, Union Government (Civil or Scientific) indicating full reference.

A similar resume for those already attempted to be published in the above Reports but dropped.

1.15 General Rules and Procedure for Audit Parties

1.15.1 Conduct of local audit

In discharge of the duties, the members of the local audit parties and the Inspecting Officers will be guided by the instructions contained in this Manual and other books of reference supplemented by orders/ instructions issued from time to time. The prescribed process of audit should be taken only as a guide to an intelligent audit and this should not be followed mechanically and should never be considered as limiting the duties of auditors.

The inspection staff should ensure that no point which prima-facie requires investigation is left out on the plea that it is not covered under the provisions contained in the Manual.

Before taking up the audit of a government office or body/ authority, the Inspecting Officer and local audit party should :

- (i) Study the documents at OAD headquarters relating to the office and make themselves conversant with its set up i.e. whether it is a Government office or a Body or an Authority. If it is a body or an authority, whether it has been set up under an Act of Parliament or as a registered society. The constitution of its governing body and general body, the functions entrusted to it and the system of finance obtaining in the office i.e. what makes up its receipts and how its money is expended, what system of accounts is being followed, what account books are prescribed and what are the details of its budget, etc. The Act of Parliament, Memorandum and Articles of Association, regulations, rules, etc. relating to the Body or Authority, the Annual Administrative Reports, the Department Manuals, delegation of financial powers relating to the office or any other publications or evaluation reports should be examined in addition to the Inspection Reports of previous years.
- (ii) Study the Comptroller and Auditor General's Secret Memorandum of Instructions which contains some important matters to which attention should generally be given by the local audit staff and the Inspecting Officer.
- (iii) Ensure that they are duly briefed by Group Officer and the OAD (headquarters) for important local audits.
- (iv) Ensure that the records, which are required to be received from OAD headquarters, have been received.
- (v) Call on the head of the office in the technical or administrative side at the very commencement of audit and seek his assistance in settlement of old objections, supply of records and information for the current audit and provision of accommodation and facilities for conduct of audit and also contact the officials directly concerned with audit namely Drawing and Disbursing Officer, Administrative Officer, Account Officer, etc.
- (vi) Obtain, in writing from the head of office an exhaustive list of the various fields of activities and records maintained so as to ensure that all fields of activities of the office inspected and all financial records maintained in the office are covered during local audit.
- (vii) Ensure that distribution of work among the members of local audit party including the items of work to be done personally by the Inspecting Officer is effected strictly in accordance with the existing provisions in CAG's MSO (Audit).

(viii) Examine the internal audit reports to ascertain:

- (a) Whether they contain matters suitable for incorporation in Audit Reports,
- (b) Whether adequate steps have been taken to prevent the recurrence of the irregularities,
- (c) Whether the results are brought to the notice of proper authority, and
- (d) Whether the defects pointed by the departmental inspecting staff are rectified promptly.

The inspecting staff shall also examine the system of internal audit in the light of the instructions issued by the Controller General of Accounts, in this regard, from time to time in order to ensure the efficiency and adequacy of the system and highlight in the inspection report any failure of internal audit, and

- (ix) Always bear in mind, while conducting local audit, the illustrative list of irregularities, which are likely to conceal frauds, etc. as detailed elsewhere in this Manual.

1.15.2 Calling for records

- (i) Asstt. Audit Officer/ Section Officer must call for in writing registers and other accounts records for audit purposes.
- (ii) The administrative authority is required to afford all reasonable facilities to the Audit Party for the discharge of its function and furnish all possible information required for the preparation of any official account or report, and shall not withhold any information, books or other documents required by the audit party. If any information, books or other documents or a part thereof, are of a secret nature they should be sent by name to the Director of Audit and he/she will deal with them in accordance with the standing instructions (vide Rules 10 and 11 of General Financial Rules 1963) for handling and custody of such documents.
- (iii) If records are not supplied within reasonable time or if there are any other serious hindrances to conduct of local audit, the Inspecting Officer should immediately report the matter personally or on phone to the Group Officer, followed by a detailed report in writing to the OAD headquarters, who would take up the matter with the head of office or higher authorities for the removal of hindrances or for suspension of local audit.

1.15.3 Period to be covered by local audit

Every local audit should cover transactions upto the month preceding the month in which the inspection takes place. The cash book should, however, be checked upto date.

1.15.4 Extension of time of local audit

Local audit/ inspection of offices/ bodies or authorities should be completed within time allotted because extensions of the allotted time not only leads to arrears in local audit but also entails delayed audit in other cases, disturbing the entire schedule of audit.

Where, however, an audit party faces, during the course of local audit difficulties which are likely to cause extension of existing time allotment and Inspecting Officer should immediately bring this fact to the notice of the Audit Officer (headquarters) of Director/ DD/ JD (Inspection) by phone, following it up with a note to the headquarters section concerned.

The audit party should assess the work load vis-a-vis the time allotted and request for extension

should be made within half the allotted period as it would otherwise be difficult for OAD headquarters section to make suitable arrangements.

If an extension is approved, local audit should be completed within the approved extension of time.

1.15.5 Review of the work done by the auditors during local audit by supervisory staff

At present the supervisory staff conducts only a general review of the work done by the Auditors during local audit. No record of the items of work specifically reviewed, the extent and the result of such a review is kept in any register or return. With a view to ensuring that the items of work allotted to the auditors have been checked adequately during the local audit it has been decided that the AAO/ SO incharge of the party (senior most among them in case there is more than one AAO/ SO) should conduct a test check of the work done by the auditors including the check of totals expected to be made by the latter. While recording a certificate of the general review the AAO/ SO should also specify the items test checked by him. The quantum of test check in this regard may be fixed by the Pr. Director of Audit/ Director of Audit according to local need.

1.15.6 Collection of information, copies of documents in support of objections, etc.

- (i) All objections detected during the course of local audit should be communicated to the head of the office inspected through audit Memorandum/ Half Margins issued over the signature of Inspecting Officer/ AAO/ SO. The Audit Memoranda/ Half Margins should be brief, precise and to the point. They should only seek confirmation/ information and not suggest any conclusion or pre-disposition on the part of the local audit party. Inspecting Officers should ensure that Half Margins on all important matters receive their approval. The return of these audit memoranda/ half margins within three days from the date of issue should be insisted upon and cases of delay should be promptly brought to the notice of the head of the office by Inspecting Officer.

Paras for draft inspection report should be prepared after considering the information/ arguments advanced in the replies to audit memoranda/ half margins. Where no replies are received, the para should be prepared on the information gathered from records.

- (ii) The Inspecting Officer and the audit party should try to get all information through accounts and other connected records and obtain explanations on the spot by personal discussions so that audit memoranda/ half margins are reduced to the minimum. The issue of audit memos/ half margins should mostly be confined to confirmation of objections.
- (iii) The finalisation of material on each objection should not be postponed until the final stages of local audit as this is likely to lead to accumulation of unverified data and it may not be possible to include these objections in the draft inspection report due to shortage of time towards the close of audit.
- (iv) In the case of audits of longer duration, advance copies of the paragraphs proposed to be included in the draft inspection report should be issued to the head of the office from time to time so that discussion of draft inspection report may not be postponed by the head of the office on ground that he requires time for studying the report prior to discussion.
- (v) The Inspection Officer should ensure that the paras which merits inclusion in the CAG's report are fully supported by attested copies (in quadruplicate) of all the documents referred to in the para, the views of the administration on the paragraph and other relevant facts and arguments so that these help the OAD (headquarters) in processing and finalisation of the paras for the audit report.

- (vi) When statistics are given in the draft inspection report, current years figures should also be given showing the upto date position in addition to the figures for year of account which is being audited.
- (vii) The amount of overpayments or other irregular payment which have to be kept under objection should be worked out to the extent feasible during the inspection itself and not left to be calculated by the office inspected and intimated to the audit later on.

The full financial implications of each objection, or approximate value thereof, calculated soon, the data in hand should be brought out in the inspection report to stress the significance and gravity of the audit objection.

- (viii) Where important initial records e.g. cash book, pass books, security registers, etc. are not maintained properly, the inspecting officer and the audit party, besides mentioning the technical defects and short comings in keeping these records, should make a probe to see if the defective maintenance or non-maintenance indicate any misappropriation etc.

1.15.7 Compilation of result of audit

The results of local audit are communicated through the Inspection Reports and the Test Audit Notes. Inspection Reports should include only important points and cases of serious financial irregularities should be addressed to higher authority, while test audit notes should be handed over on the spot to the head of offices. The money value of objections should be duly taken into account in considering their importance for inclusion in an Inspection Report and items involving only petty amounts need not ordinarily be included in it. Objections, which can not be settled locally so that correspondence on unimportant points and objections of routine nature may be reduced to the minimum. Inspection Reports should also briefly describe the general state of accounts and the nature of financial control in the office inspected disclosing any defects in system or errors in principles.

The results of each local audit should be compiled and sent to respective OAD headquarters section within three days from the date of completion of audit in the form of an Inspection Report together with the documents as prescribed elsewhere in the Manual.

1.15.8 Pattern of Inspection Reports and Audit Notes

The Inspection Report should be set forth in the following parts:

- (a) Part-I to be divided into three parts viz. Part I-A, Part I-B and Part I-C in the prescribed form (Annexure-IV).
- (b) Part-II to be sub divided into three sections viz. Section A, Section B and Section C.
- (c) Part-III Test Audit Notes.

OAD parties should broadly follow the pattern as detailed below while drawing up their reports of inspection of offices.

Part I-A may be further sub divided into (3) three sub-section.

- (i) **Introductory** – Containing the information regarding the date of commencement and completion of audit, the names, designation of the departmental officers and staff connected with the maintenance

of record/ account inspected.

- (ii) **General set up and activities** – In this section, the party should mention briefly about the general set up of the establishment and the nature and volume of its activities. If the drawing officer has a number of centres or subordinate units scattered all over where accounts records are kept, the number and type of such subordinate units should be brought out. Figures of total receipts and expenditure during say last 2-3 years, together with breakup under major heads (such as pay and allowances, contingencies, loans, grants for expenditure and main receipt heads for receipts) alongwith other remarks about the nature and volume of activities as also the total strength of establishment should also be indicated.

- (iii) **Internal checks and supervision, general state of records and observance of procedure**

The audit inspection reports at present very often mention only the dates of last inspection of the office by a superior officer. The audit party should in fact review the instructions issued for periodicity of inspection/ internal audit and checks to be exercised therein and adequacy thereof. They should study the actual position in regard to frequency and quality, etc. of departmental inspections/ internal audit for the last few years by various superiors departmental officer/ internal audit parties and give data in the form below for last 2-3 years.

Date of inspection/ internal audit	By whom done and designation	Whether written report issued. if so, the date
------------------------------------	------------------------------	--

They should study whether written reports are issued and are pursued properly, and whether these reports and other actions taken by higher authorities indicate that departmental inspection/ internal audits were effective and covered all important aspects and there was effective follow up action. If the position in this report cannot be gauged, a mention to this effect can be made.

In the same para, judging from the observations in the paras regarding contents of previous reports, state of internal check and supervision and from the findings of current audit, the audit party should also summarise its impressions about general state of affairs in the establishment audited and bring out whether there is need for detailed departmental investigations of the transactions of the unit audited. If there are no comments, nothing need be said.

Audit party should, of course, benefit from study of observations in such internal audit/ departmental inspection reports, particularly in taking matters of general procedural importance and points of potential draft para.

Part I-B

This part may be divided into two sub-sections i.e.:

- (i) Position of previous audit inspection reports.
- (ii) Position of maintenance of records and or their production to audit during previous and current audits.

(a) Drafting of sub-section (i) of Part I-B

- (i) One of the main functions of the local audit staff and inspecting officers is the review of old outstanding audit inspection reports during current audits to settle as many paras as possible in various ways and to bring important points to a head by further detailed investigations for possible comments in

audit reports.

- (ii) In regard to outstanding audit observations of the previous audit inspection report and the corresponding paras of the current report/ test audit notes, in which the former are incorporated should be indicated.

In such cases, the contents of the original para must be fully incorporated as a para or part of a para in the current report/ test audit note, with any additional facts that may come to light so that it is self contained, up to date and better developed and no reference to old report is necessary. At the end of the relevant para in the current report, reference to the para number and audit inspection report in which the matter was previously taken up should be invariably cited, stating that it will not be pursued from there.

Part I-C

Schedule of persistent irregularities

This should include irregularities which are being pointed out from time to time but which continue to persist although the Department/ Office, may at the time of earlier inspection, have noted the observations for future compliance. Mere reference to paras of previous audit inspection reports are not enough.

Part-II (Current Inspection Report)

Section-A – Consisting of major irregularities which are likely to materialise into draft paras for the audit reports.

Section-B – Consisting of irregularities which though not major, are to be brought to the notice of higher authorities and

Section-C – (i) Consisting of observations on General conditions of accounts and (ii) Remarks about the issue of test audit note.

Part-III (Test Audit Note)

Test audit note containing minor irregularities which can be set right by the head of office inspected without reference to higher authorities.

A schedule of items settled on spot should be attached to the test audit notes noting therein the procedural irregularities in respect of which the head of office has held out assurance about following correct procedure in future.

The test audit note (Part-III) accompanied by the schedule of items settled on the spot should be issued to the head of office inspected over the signature of the inspecting officer in the case of supervised audit and test audit accountant in other cases for necessary action and verification in subsequent audit.

A copy of the test audit note and schedule of items settled on the spot should also be sent to the headquarters along with the draft inspection report.

Note: The fact that a test audit note has been handed over on the spot for compliance should be mentioned in part-III of the inspection report.

1.15.9 Drafting of Inspection Reports

(Part-II and Part-III)

While drafting the inspection report following instructions should be kept in mind by the inspecting officer:

- (a) Audit inspection report must be drafted in half margin and on one side of the sheets of the uniform size. If a draft report is typed it should be in triple space. If it is hand written it should be ensured that the handwriting is easily legible and that there is sufficient space between the words and the lines to facilitate vetting. It must be ensured that the sentences are complete and grammatically correct.
- (b) No abbreviation should be used. If a set of words, for which an abbreviation is commonly used in the office locally audited, occurs repeatedly in the report, the words in full should be used on the first occasion, with the abbreviation in brackets, and thereafter only the abbreviation may be written.
- (c) The report should be couched in polite language. Offensive or strong words, sarcastic language etc. should on, no account figure in the report.
- (d) The heading of the paras should be suggestive of the content of audit objections. Such headings as 'Cash book', Bill Register, Vouching etc. should be avoided. The headings should be distinct and some space should be left between the headings and the draft of the para. Some space should also be left after a para ends, before giving the heading for the next para.
- (e) It is desirable that paras are arranged in order of their importance, and observations of similar nature are grouped together under a para to be suitably titled. Large number of paras do not by themselves lend credit to the work of the local audit staff. Minor isolated observations should be taken in test audit note.

In the case of Body/ Authority, the opening para should contain comments on the annual accounts followed by paras relating to observation on the accounts such as cash book irregularities, advances outstanding, non-realisation of receipts, stores accounts, physical verification of stores, equipment lying idle, etc. Then should follow paras of financial matters, such as comments on contracts schemes, etc. The third portion should consist of paras relating to personal claims such as pay fixation, medical reimbursement, house rent, overtime, etc.

- (f) For the sake of uniform presentation, the paras of the current report should be numbered in Indian numerals 1.2.3. Under a para, major sub-paras can be enumerated as 2.1, 2.2, 2.3 under a major sub-para further points can be made as (i), (ii), (iii) and further points can be enumerated in alphabets as (a), (b), (c).
- (g) The closing paras may relate to adequacy of internal check/ audit and supervision, general state of records and observance of procedure and give data in the form below for last 2-3 years.

Date of inspection/ internal audit	By whom done and designation	Whether written report issued, if so, the date
1	2	3

The field audit party/ parties should also draft the paras regarding position of records not maintained and/ or not produced to audit during previous audits and during current audit and effect on efficiency of audit.

- (h) The report should be brief one. A lengthy report, as compared to the material it contains, throws an unnecessary burden on OAD headquarters in vetting, typing and issue, and on the administrative authority in examination and furnishing replies. Brevity should be achieved by economy of words and avoidance of repetition, transferring individual irregularities of small monetary value of little significance to the Test Audit Note, and excluding objections not fully established or objections not involving financial or audit points.
- (i) Mention of the names of the officials should be avoided except in the case of personal claims etc.
- (j) No suppositions, assumptions or allegations should be included in the report only facts should be mentioned and inevitable conclusions drawn. There should be no reference to responsibility being fixed for any irregularity it is for the administrative authority to take action in this respect.
- (k) Paras in the draft inspection report should be self contained and written in simple language so that they are intelligible to one not familiar with the details of the working of the office locally audited and not fully conversant with audit language. It should be remembered that the paras are to be dealt with by higher administrative authorities and the concerned Ministries.
- (l) Each paragraph should first explain the transaction objected to, narrating the facts in the order of their occurrence, next the rules or orders infringed, then the nature of irregularity with it likely result, and lastly the action suggested/ required to be taken for removing the objection.
- (m) In the draft inspection report, it should be sufficient to state in the opening paragraph that a test audit was conducted without specifying the months for which the accounts were subjected to detailed check or other quantum of audit checks applied as these are to be kept secret. In the title sheet of the inspection report, however, these details may be given, if necessary.

1.15.10 Settlement of old objections

- (i) The Inspection Officer should take up the work relating to discussion of outstanding paras of previous inspection reports with the head of office and other concerned authorities soon after the audit commences and follow up the discussions with actual settlement of objections on the spot. This aspect of the inspecting office should devote considerable portion of his time and attention to this work. Any difficulty in getting cooperation from the administrative authority should be promptly brought to the notice of the Group Officer.
- (ii) When an objection of a procedural nature such as non-maintenance of a record or non-obtaining of a certificate relating to personal claims is outstanding in one or more previous inspection reports and the irregularity has continued during current audit also, the outstanding objections in previous

reports may be removed and a para included in the current report, mentioning that it was pointed out in earlier inspection reports. Occasion may, however, arise when an outstanding paragraph in a previous report may have to be examined at the time of current inspection and the original incorporated as a separate paragraph in part-II of the current report as a result of spot inspection and discussion.

It may be permissible to trust the outstanding objection appearing in the original report in such cases as settled but such a procedure should be adopted only in exceptional cases where outstanding paragraphs in a report are very few.

- (iii) Where, on receipt of a satisfactory reply from the office, objections pointing out over payments, short/ non-realisation of stores equipment and machinery, irregular purchases and other serious irregularities are treated as settled by OAD headquarters, "subject to verification at the time of next audit" and are abstracted on separate sheet for verification of compliance by the Inspecting Officer during local audit, the Inspecting Officer should verify compliance and record his remarks against each item in that sheet. In case, compliance stated to have been made is not in order, the objection should be included in the current inspection report.
- (iv) Objections which can be waived under the provisions of CAG's MSO (Audit) should not be embodied in the inspection report but should be put up to the Inspecting Officer for orders.
- (v) The Inspecting Officer, before treating objections in the previous inspecting reports as settled should ensure that the office concerned has furnished written reply/ explanation for each objection so settled and their reply is placed on record. Based on replies/ discussion with the authorities, he should also record brief justification for dropping the objection in the original inspection reports.

In no case should an outstanding objection be treated as settled merely by recording discussed and dropped.

- (vi) The main functions of local audit staff is a close review of old outstanding inspection reports to settle the paras and to bring important points to a head for further detailed investigations. The audit party shall closely review the position of pending audit inspection reports according to the guide lines prescribed.
- (vii) Where a large number of paras regarding non-production of records pertaining to previous local audits are shown as outstanding in Part-I of the current inspection report, all these cases should also be again listed in Part-II of the current inspection report regarding non-production of vouchers/ documents as to bring out the position prominently in a consolidated way including records not produced during current audit.
- (viii) Objections in the test audit notes of previous years, if not disposed off by the department, and if the points raised therein continue from year to year should be included in Part-I of the inspection report under the heading "Outstanding Test Audit Note Objections from the previous reports" and should be brought to the notice of higher authorities.

1.15.11 Discussion of Inspection Report

- (i) The draft inspection report should be discussed with the head of the office inspected or in his absence with his deputy on the technical or administrative side on the last day of audit of the office.

The discussion should not normally be postponed and the inspecting officer should make prior arrangements with the head of office or his deputy for discussion. The request for the discussion should be in writing. In cases where no time for discussion is given on the last working day or with in seven days thereof, a written intimation should be given that the report is being finalised without discussion and the report finalised accordingly. In local audits at outstations, the discussion should be held on the last day of audit and the report finalised on the last day of audit with or without discussion.

- (ii) In respect of all important audits, the inspecting officer should keep the Group Officer informed in advance on telephone of the date and time of discussion of the draft inspection report with the administrative authority so as to enable the Group Officer to be present at the time of discussion, if he so desires.
- (iii) At outstations, the draft inspection report in respect of audits completed before the arrival of the Inspecting Officer should be discussed with the administrative authority by the Inspection Officer and where no Audit Officer has been provided the draft inspection report should be discussed and finalised by the Asstt. Audit Officer/ Section Officer himself.
- (iv) The results of discussion should invariably be indicated against each para of the report. Where there is a difference of opinion, the reasons for not accepting the views of the head of the office or his deputy should be fully recorded against the relevant para.
- (v) The signature of the head of office or his deputy should be obtained on the original copy of the draft inspection report in token of his having perused and discussed the report.

1.15.12 Issue of Test Audit Note

In order that the test audit notes are effective, audit observations may be suitably grouped e.g. cases of recoveries could be taken up in one para. Cases of (a) wanting sanctions in minor cases (b) small shortages, losses, etc. (c) isolated discrepancies, could also be similarly grouped. The cases of wanting sanctions could further be grouped according to the authorities whose sanction for the items are required, observations of the previous test audit note which are not complied with, can be grouped with similar observations made during the current audit. The local audit parties should take pains for proper grouping and presentation of their observations so that these observations have proper impact on the executive. Such test audit note containing minor isolated observations/ irregularities, duly signed by the Inspecting Officer/ Asstt. Audit Officer or Section Officer (if the audit is not supervised by Audit Officer) should be issued on the spot to the head of the office inspected, or his deputy, after obtaining acknowledgement against Part-II-C of the audit inspection report.

The salient points of the test audit note should be summarised very briefly. Every effort should be made by field audit party to include isolated minor observations occurring in old outstanding reports and those detected during current audit, in test audit note. A compliance of the test audit note is required to be reported to the DD/ JDA, within one month of the date of issue of the test audit note. The action taken by the executive authorities/ units will be received during departmental inspections by higher authorities and during departmental internal audit.

In the case of super imposed audit of a Body/ Authority, a test audit note is not required to be prepared and handed over separately to the body/ authority for compliance. All objections should be included in the inspection report itself.

1.15.13 Documents to be appended with the Inspection Report

The following documents should invariably accompany the Inspection Report:

- (i) Title sheet in the prescribed form duly completed in all respects and signed by the Inspecting Officer/ Asstt. Audit Officer/ Section Officer.
- (ii) Four spare typed copies of Part-I of the Inspection Report as prepared by the Inspecting Officer.
- (iii) List of service books checked alongwith the list of service books in respect of the persons who are likely to retire during the next five/ six/ seven years, according as the local audit is annual/ biennial/ triennial.
- (iv) Four spare copies of all the appendices mentioned in Inspection Report/ Test Audit Note.
- (v) Four copies of the Annual Accounts duly signed in ink by the authorised officers of the Department/ Institutions alongwith certificate of audit duly recorded, on one copy, by the Inspecting Officer.
- (vi) List of challans as verified from the PAO's records where necessary.
- (vii) A statement showing inter-alia the details of sanction files in respect of grants-in-aid checked by the field audit party during the course of audit.
- (viii) A copy of test audit note delivered to office audited.
- (ix) Draft correction slip, if any, for incorporation and/ or substitution in OAD Manual.
- (x) Any other information/ documents/ statements required to be specifically furnished during the course of any particular local audit.
- (xi) Guard file relating to the audit visited for local audit, duly brought upto date.
- (xii) Distribution of work among the members of audit party in the prescribed form.
- (xiii) Certificate of loss.
- (xiv) Audit fee is recoverable from the Institution Inspected, copy of the audit fee memo (in duplicate) served on the Institution.
- (xv) A list of project/ schemes operated upon or sanctioned by the Ministry/ Department, which require a special review by ECPA.

(see para 1.5)

Control Register of Audit

Sl.No.	Name and complete address of the officer	Year of accounts last audited	Dates of last audit	Year of account due for audit	No. of party days allotted	Quarter in which provided for audit
1	2	3	4	5	6	7
Actual dates of audit and No. of party days taken for audit	Name of I.O. and other members of the party by whom audit completed	Budget of provision year-wise*	Actual expenditure year-wise*	Demand register of audit fee	Amount of audit fee, if recoverable	Remarks
8	9	10	11	12	13	14

(*) In the case of Government offices the figures are to be given for non-gazetted establishment and contingency.

Register of Audit paras/Reports

Sl. No.	AIR No. date of issue	Para No. outstanding before start of audit	Last reference from audit office	- Para No. not to be pursued from old reports				Para Nos. Remaining outstanding at close of audit
				Para Nos. settled at hqrs	Para Nos. Settled in current audit	Para Nos. Incorporated in		
						Current AIR	Current TAN	
1	2	3(a)	3(b)	4	5(a)	5(b)	5(c)	6

Brief of old outstanding objections

AIR Reference	Para No.	Nature/ brief of objection	Last reference from the office and/ or from executive	Comments

SY-324
(referred to in para 1.11)

Diary of Shri AAO/ Section Officer/ Auditor for the week ending (Friday), the
..... 19.....

Date	Date of week and hour of attendance	Name of Department/ Office Inspected	Details of work done

AAO/ Section Officer/ Auditor

Counter signed

The

(Inspecting Officer)

.....

.....

SY-325
(referred in para 1.11)

Check Register of Daily Diary of Shri AAO/ Section Officer/ Auditor

Month and year	Week ending	Holiday if any during week	Date on which diary is received	Name of office inspected	Period of audit	No. of working days taken up to the end of the week	Time allowed for the audit	Remarks
1	2	3	4	5	6	7	8	9

Chapter-2

AUTHORITY FOR AUDIT

2.1 This office is statutorily responsible for conducting local audit/ inspection of accounts and transactions of certain Ministries/ Departments of Central Government under the provisions of Section of 14, 15, 19 and 20 of CAG's (DP&CS) Act 1971 as amended.

2.2 The provision of the various Sections are discussed hereunder:

A. Audit under Section 14 of C&AG's (DP&CS) Act, 1971

Under Sub-section (1) of Section 14 of the C&AG's (DP&CS) Act, 1971, it is obligatory for Comptroller and Auditor General to audit all receipts and expenditure of any body or authority and to report thereon, if the body or authority has been substantially financed by grants or loans from the Consolidated Fund of India, or any State or any Union Territory having a Legislature. A body or authority is deemed to be so financed if the amount of grant or/and loan to it in a financial year is not less than Rs.25 lakhs and is also not less than 75 per cent of its total expenditure in that year. Audit under this Section is subject to the provisions of any law applicable to the body or authority, and will co-exist with and complement the audit arrangements, if any, that may be specified in such law.

Where the amount of grants and/ or loans is less than 75 per cent of its total expenditure during that year the Comptroller and Auditor General will audit all its receipts and expenditure with the previous approval of the President or the Governor of the State or the Administrator of the Union Territory, as the case may be, if the amount of such grants and/ or loans was not less than Rs. one crore. However, if the amount of grants and/ or loans is not less than Rs. one crore and also forms not less than 75 per cent of the total expenditure of the institution, it will attract audit by the Comptroller and Auditor General.

Once an institution comes under the audit of Comptroller and Auditor General by virtue of the provisions of Sub-section (1) or (2) of Section 14 such audit will, under Sub-section (3) ibid, continue for two subsequent years even if the conditions prescribed in Sub-section (1) and (2) ibid are not fulfilled in those years.

B. Audit under Section 15 of C&AG's (DP&CS) Act, 1971

Section 15 of the Act ibid describes the functions of the Comptroller and Auditor General in the case of a grant or loan given for any specific purpose from the Consolidated Fund of India or of a State or of a Union Territory having a Legislative Assembly to any authority or body. Under Sub-section (1) of Section 15 of the Act ibid, the Comptroller and Auditor General is responsible for scrutinizing procedures by which the authority sanctioning such grants or loans satisfies itself as to the fulfillment of the conditions subject to which such grants or loans were given. Such scrutiny by the Comptroller and Auditor General, however, is not attracted where the beneficiary body or authority is a foreign State or international organization. In other cases too, the President or the Governor of a State or the Administrator of a Union Territory having Legislative Assembly, as the case may be, may if he considers it necessary in the public interest, relieve the Comptroller and Auditor General from making such scrutiny. However, prior consultation with the Comptroller and Auditor General is necessary in these cases.

Sub-section (1) of Section 15 of the Act, ibid also confers on the Comptroller and Auditor General the right of access, for the purpose of scrutiny under that Sub-section, to the books and accounts of the beneficiary body or authority. However, according to Sub-section (2) ibid, if the beneficiary is a Corporation and its parent legislation provides for audit of its accounts by some other agency, the Comptroller and Auditor General can have the right of access to its books and accounts only if he is authorized so to do by the President or the Governor of the State or the Administrator of the Union Territory having a Legislative Assembly as the case may be. Such authorisation can be made only after consultation with the Comptroller and Auditor General and after giving a reasonable opportunity to the Corporation to make representations with regard to the proposal to give the Comptroller and Auditor General the right of access to its books and accounts.

C. Audit under Section 20 of C&AG's (DP&CS) Act, 1971

The provisions made in Section 20 of the C&AG's (DP&CS) Act, 1971 are in the nature of enabling provisions covering bodies and authorities which do not come under the audit of the Comptroller and Auditor General. Under Sub-section (1) of Section 20 of the Act, ibid the Comptroller and Auditor General is required to audit the accounts of any such body or authority, if requested so to do by the President or the Governor of a State or the Administrator of a Union Territory having a Legislative Assembly, as the case may be. Such a request can, however, be made only after consultation with the Comptroller and Auditor General. For conducting the audit, the Comptroller and Auditor General will have right of access to the books and accounts of the body or authority concerned. The Sub-section envisages that the terms and conditions on which the audit will be undertaken by him may be mutually agreed upon between him and the concerned Government. The standard terms and conditions has been laid down in this behalf by the Comptroller and Auditor General, which are also applicable to audit under taken by him under Sub-section (3) of Section 19 of the Act.

Under Sub-section (2) of Section 20 of the Act, ibid where the audit of accounts of a body or authority has not been entrusted to the Comptroller and Auditor General by law and he is of the opinion that such audit is necessary because a substantial amount has been invested in or advanced to the body or authority by the Central or State Government or by the Government of a Union Territory having a Legislative Assembly, he may propose to the President or the Governor of the State or the Administrator of the Union Territory having Legislative Assembly, as the case may be, that he may be authorized to undertake the audit. On such proposal, the Comptroller and Auditor General may be empowered to undertake the audit by the President, the Governor or the Administrator as the case may be.

The entrustment of audit to the Comptroller and Auditor General under Sub-section (1) or (2) of Section 20 of the Act, ibid is subject to two pre-conditions namely that the President or the Governor of the State or the Administrator of the Union Territory, as the case may be, is satisfied that it is expedient so to do in the public interest and that a reasonable opportunity was given to the concerned body or authority to make representations with regard to the proposal for such audit.

2.3 Audit Objectives and Scope

The audit of accounts of autonomous institutions under Section 14, 19 and 20 of the C&AG's (DP&CS) Act, 1971 falls under two categories, one for watch over utilization of financial assistance rendered by Government and the other for certification of annual accounts. Though the scope of audit under all the above sections can cover both aspects depending on the facts of each case, in practice, the certification of

annual accounts is undertaken only under the provisions of Section 19 and 20 of the Act, *ibid* while audit of utilization of Government assistance can be undertaken under all the sections. In the case of autonomous bodies which depend on Government to a considerable extent for financial assistance for execution of their schemes or to tide over ways and means difficulties, mere certification that the accounts present a true and fair picture of the body on a particular date, cannot be considered adequate for purpose of audit. It is essential in all such cases to go beyond the requirement of certification of annual accounts and to probe into aspects relating to efficiencies, performance, propriety etc. in relation to the utilization of the resources made available to them by Government. For all practical purposes no distinction need be drawn between "audit of receipts and expenditure" referred to in Section 14 of the Act, *ibid* and "audit of accounts" referred to in Section 19 and 20 of the Act, *ibid*.

In cases where any body or authority is having separate audit arrangement under the legislation constituting it, audit by Comptroller and Auditor General will co-exist therewith.

When audit in respect of an institution is taken up by the Comptroller & Auditor General its scope should be determined, after taking into account the existing audit arrangements and making a professional review of the prevalent audit systems.

The adequacy of the existing audit arrangements in respect of an institution is to be judged by (i) the regularity with which audit is conducted, (ii) the coverage of such audit, (iii) the qualifications and expertise of the audit personnel, (iv) the independence of the audit personnel, (v) the promptness in reporting the audit findings, (vi) the quality of audit reporting, and (vii) the action taken by the authorities to whom the audit findings are reported. Attention of the appropriate authorities should be drawn where the audit arrangements are not adequate and if need be and permissible, the audit should be taken up. It is not essential to take up detailed audit in cases where the audit arrangements are found to be adequate.

Whenever public moneys are involved, the Constitution and the C&AG's (DP&CS) Act, 1971 delineate the unique role of Comptroller & Auditor General in the audit of accounts. It is, however, not feasible or desirable that the audit of each individual transaction should be undertaken by him. Section 24 of the C&AG's (DP&CS) Act, 1971 authorises the Comptroller and Auditor General to dispense with, when circumstances so warrant, any part of detailed audit of any accounts or a class of transactions and to apply such limited checks in relation to such accounts or transactions as he may determine. The extent of audit to be undertaken is to be determined with reference to the circumstances of each case.

While the bulk of the work connected with the audit or check of individual transactions may be left to primary auditors, where appointed, our overall responsibility for regularity audit cannot be abrogated. Similarly, the aspects of economy, efficiency, effectiveness audit and evaluation of performance or achievements of the institution have to be looked into by Audit even where primary auditors have been appointed.

2.4 Procedure for taking up Audit

Section 14(2) of C&AG's (DP&CS) Act, 1971 empowers the Comptroller & Auditor General to audit with the prior approval of the President or Governor of a State or the Administrator of a Union Territory, having a Legislative Assembly the receipts and expenditure of any body or authority where the grants or loans to such body or authority from the Consolidated Fund(s) is not less than rupees one crore in a financial year. Similar provision to obtain prior authorisation exists in Section 20(2) of the Act, *ibid* in regard to audit to be undertaken in respect of the accounts of any body or authority. Again Sub-section (2) of Section 15 of the Act, *ibid* requires such prior authorization for exercising the right of access to the books and accounts of a Corporation for the purpose of his scrutiny under Sub-section (1) of Section 15

of the Act, *ibid*, if its accounts are audited by another agency under the provisions of the law establishing the Corporation. Suggestions for taking up audit under Section 14(2) or Section 20(2) of the Act, *ibid* or asking for right of access to the books of the concerned institution under Section 15(2) of the Act, *ibid* may be made, 'subject to specific or general approval of Comptroller and Auditor General, especially where:

- (i) control by the sanctioning agency is inadequate;
- (ii) the state of accounts is known to be unsatisfactory;
- (iii) there are chronic delays in finalisation, submission or audit of accounts;
- (iv) there are no arrangements for audit by an agency outside the control of the institutions;
- (v) there are persistent losses, in respect of institutions undertaking manufacturing or trading activities; and
- (vi) Government stands guarantee for large amounts even though the amount of grant, loan or investment, as the case may be, is small.

Any formal proposal for taking up audit of a body or authority under Section 14(2) or 20(2) of the Act, *ibid* or for securing right of access to the books and accounts of a Corporation under Section 15(2) of the Act, *ibid* should be preceded by a personal discussion by the Principal Director of Audit with the Finance Secretary and the Secretary of the concerned Department.

Whenever audit of any institution is taken up for the first time it is desirable that it is preceded by a personal discussion with the head of the institution and other senior officials in order that they do not entertain any apprehension regarding the purpose and scope of the audit.

2.5 Systems Approach to Auditing

The same systems approach should be adopted in regard to audit of accounts and of transactions of any institution, whether the audit is taken up as sole auditor or otherwise. As the first step, the adequacy of the various accounting systems and procedures, whether put down in the form of a manual or otherwise, should be examined and on that basis the extent of check of individual transactions should be determined. This is all the more necessary since generally only a small percentage of the transactions is checked in audit and audit cannot escape responsibility if significant deficiencies in the accounting systems and procedures lead to misuse or abuse of public moneys. Though audit cannot ensure against defalcations and frauds, the possibility of frauds and defects should be duly kept in mind while preparing for and conducting audit.

2.6 Audit Procedures

Sanctions constituting local bodies or funds ordinarily prescribe what classes of receipts are to be credited to them, what classes of expenditure are to be admitted against them and who will be the controlling authority. The Audit should see that in regard to receipts and expenditure the prescribed rules are followed and for this purpose he should require, in respect of all items of the account, sufficient information, either in the form of vouchers or in some other form as may be considered necessary in each case.

In the audit of these accounts Audit should not make independent enquiries of tax payers or of the general public unless such a procedure is expressly authorized by statutory regulations or executive orders.

2.7 Audit Reporting

Ordinarily, the Report of the Comptroller and Auditor General in relation to the accounts of a body or authority audited under Section 19 or 20 of the Act, *ibid* is required to be sent to the body or authority and the Government concerned unless a separate procedure has been laid down in the relevant Acts creating the body or authority. Under Section 19-A of the Act, *ibid* the reports of the Comptroller and Auditor General in relation to Corporations audited under Section 19 of the Act, are required to be submitted to the Government or Governments concerned for placing before Parliament/ State Legislature. In cases of bodies/ authorities audited under Section 20 of the Act, *ibid* the audit reports are placed before Parliament or State/ Union Territory Legislature where the relevant Act/ rules and/ or regulations governing the body or authority provide for such submission or where the Government concerned have decided to place them before Legislature.

In all cases where the Audit Reports are placed before Parliament/ State or Union Territory Legislature, the reports should be shown to the Comptroller and Auditor General at the draft stage. Simultaneously a copy may be sent to the body/ authority and Government concerned for their comments, if any. After the draft reports have been approved, these will be signed by the Principal Audit Officer unless the Act or rules made thereunder specifically provide for Comptroller and Auditor General's signature; and forwarded to Government for being placed before Parliament/ State Legislature.

No separate audit reports are issued in case of bodies/authorities audited under Section 14 of the Act, *ibid*. Important audit observations are incorporated in the conventional Audit Report submitted under Article 151 of the Constitution. Important comments in respect of audits under Sections 19 and 20 of the Act, *ibid* can also be incorporated in Conventional Audit Reports in addition to in separate audit reports.

2.8 Key Areas of Audit

2.8.1 Examination of Accounting Systems

It is necessary to examine whether the accounting systems provides *inter-alia* for:

- (i) proper accountal of receipts, expenditure and assets;
- (ii) recording of unrealized revenues and undischarged liabilities;
- (iii) general control over expenditure;
- (iv) sanctioning and incurring of expenditure, foregoing of revenues, or transfer/ disposal of assets;
- (v) safe custody of cash, stores and other assets;
- (vi) acceptable procedures for making purchases and entering into contracts, etc.

It should then be examined:

- (i) whether the institutions have proper organizational set-up for the discharge of accounting function;
- (ii) whether responsibilities for the performance of all duties necessary to carry out the accounting function are clearly defined and specifically assigned to appropriately qualified staff;

- (iii) whether the accounting system provides information necessary for
 - (a) efficient and economical management of the operations of the body and the resources entrusted to it;
 - (b) proper monitoring of the activities by Government which has a substantial stake in it; and
 - (c) meaningful evaluation of its achievements and shortcomings by outside agencies including Audit.

2.8.2 General checks to be carried out by Audit

The audit of the accounts of non-commercial autonomous bodies entrusted to the Comptroller & Auditor General under relevant Acts setting up these bodies should be conducted unless otherwise provided, in accordance with general principles and rules prescribed by the Comptroller and Auditor General to regulate the audit of Government accounts. These principles and rules are to be followed for audit of the accounts of any local fund, public or quasi-public fund or non-Government institution or any other body or authority also, unless otherwise provided. It should be ascertained *inter alia* that a proper system of accounts, control of expenditure and stores, internal check, service regulations and financial delegations exist and are being observed. The broad aim should be to ascertain how well these bodies are discharging their financial responsibilities and how far the funds placed at the disposal of such bodies are being utilized in fulfillment of the objects envisaged by Government. In this context, it should be examined whether:

- (i) the objectives of the organization have been clearly defined and in conformity with the Government's policies and decisions.
- (ii) policies and programmes are drawn up in accordance with these objectives and are being implemented by specific and well defined procedures.
- (iii) systems exist for collecting reliable progress reports on the implementation of the policies and programmes.
- (iv) progress is, from time to time, reported to the Governing body of the organization/. Government with adequate, timely and accurate reports.
- (v) an effective internal control exists over various areas of implementation to check leakage, loss, misutilisation of funds and wasteful expenditure etc.

Whenever scrutiny of the books and accounts of bodies and authorities receiving specific purpose grants/loans is taken up under Section 15 of the C&AG's (DP&CS) Act, 1971, it should be seen, that the body/ authority has complied with the prescribed procedure for reporting utilization and that the grants/loans have actually been utilized and the conditions governing the grant or loans have been duly observed.

2.8.3 Other Guidelines

Detailed instructions for the conduct of audit of bodies and authorities under the provisions of Sections 14, 15, 19 and 20 of the C&AG's (DP&CS) Act, 1971 are contained in the **Manual of Instructions for Audit of Autonomous Bodies**, and are supplemental to the provisions in this Manual.

2.9 Detailed instructions about audit approach, conduct of audit, reporting and settlement of objection are given elsewhere in this Manual.

Chapter–3

GENERAL PRINCIPLES AND RULES OF AUDIT

3.1 Introductory

The audit of transactions will vary from one organisation to another organisation depending upon the nature of transactions, the system of accounting and documents maintained in each organisation. However, the audit checks detailed in the following paragraphs are applicable to all classes of vouchers and expenditure.

3.2 Audit against sanctions to expenditure

3.2.1 Source

Financial powers delegated to different authorities of an organisation as described in the Memorandum of Association, Rules and/ or special orders issued by respective competent authorities.

3.2.1 Audit objective and scope

In audit, apart from seeing that an item of expenditure is covered by a sanction, either general or special, it has to be ensured that (a) the authority sanctioning it is competent to do so by virtue of the powers vested in it by the provisions of Rules and/or orders issued by competent authorities and (b) the sanction is definite and thus needs no further reference either to the sanctioning authority itself or to any higher authority for obtaining clarification thereon. Sanctions should be examined during local audit.

In the audit of sanctions to expenditure, the following guidelines should be observed:

- (a) If the sanctioning authority is vested with full powers in respect of a certain class of expenditure, a sanction issued by it can be objected to only on grounds of propriety.
- (b) If conditions are attached to the powers delegated to any authority, sanctions accorded under these powers can be objected to if it is found that such conditions have not been fulfilled.
- (c) It has to be ascertained that orders defining the powers of any authority in precise terms are obeyed exactly in every instance.
- (d) It has to be watched that expenditure sanctions are not split up to avoid the necessity of obtaining sanction of a higher authority.
- (e) Sanctions with long period of currency and sanctions of a permanent nature require to be reviewed periodically, so that, if for any reason it is felt desirable that the sanctioning authority should review them in the changed circumstances, etc., suitable action may be taken in the matter.
- (f) The scrutiny of sanctions should also cover the principles of propriety.

If certain conditions are to be fulfilled before a recurring charge is to be paid it should be seen in audit that the drawing officer has certified that the requisite conditions have been duly fulfilled. In case a recurring expenditure should not be incurred after the occurrence of a certain specified event, the drawing officer has to certify on the payment voucher that such an event has not yet

occurred.

It should be seen in audit that expenditure incurred is in accordance with the sanction authorising such expenditure.

3.3.1 Audit against Propriety

In addition to ensuring that the relevant rules and orders of competent authority have been observed and that there is no irregularity in respect of an item of expenditure, it is important to see that the broad principles of orthodox finance are borne in mind by the officers sanctioning and/ or incurring expenditure. This is called Propriety Audit.

3.3.2 Audit objective and scope

The following general principles which have been universally accepted as standards of financial propriety or standards of official conduct of financial administration should be applied in the course of audit:

- (1) The expenditure should not be prima facie more than the occasion demands. Every officer is expected to exercise the same vigilance in respect of expenditure incurred from public money as a person of ordinary prudence would exercise in respect of expenditure of his own money.
- (2) No authority should exercise its power of sanctioning expenditure to pass an order, which will be directly or indirectly to its own advantage.
- (3) Public money should not be utilised for the benefit of a particular person or section of the community unless:
 - (i) the amount of expenditure involved is insignificant; or
 - (ii) a claim for the amount could be enforced in a court of law; or
 - (iii) the expenditure is in pursuance of a recognised policy or custom.
- (4) No authority should sanction any expenditure which is likely to involve at a later date, expenditure beyond its own power of sanction.
- (5) The amount of allowances, such as travelling allowances granted to meet expenditure of a particular type should be so regulated that the allowances are not on the whole sources of profit to the recipients.

Any infringement of the principles enunciated above should be mentioned in the Separate Audit Report or the Inspection Report, as the case may be, and taken up with the authorities at appropriate levels.

3.4 Audit against Rules and Orders (Audit against Regularity)

It has to be noted that the transactions should conform to the provisions of several Codes, Manuals, Rules and Regulations, orders and instructions issued by Government and other competent authorities.

It has to be seen in audit that the transactions as evidenced by the documents audited, are in accordance with the prescribed Code, Rules, Manuals, Instructions, etc.

It is also important to ensure that rules and regulations are observed not merely in the letter but also in the spirit.

3.5 Audit against Provision of Funds

Every organisation is required to compile an annual budget indicating various sources of income, anticipated income from such sources, the expenditure planned against prescribed heads of account both revenue and capital. The budget so compiled must be approved by the competent authority, including where necessary, a revised estimate for the year in progress.

In Audit it has to be seen that:

- (i) proper control record is kept to watch the progress of income and expenditure against funds estimated for the purpose in the approved budget.
- (ii) variations between actuals and budget provisions are examined at appropriate levels and remedial action is taken where called for and reappropriation approved by specified authorities.
- (iii) final receipt and expenditure under several heads of account at the end of the year are duly examined with reference to final appropriation and variations are brought to notice of the apex bodies for information and regularisation where necessary; and
- (iv) money expended has been applied to the services and purposes for which funds have been provided in the budget and it does not exceed the provision made therefor.

3.6 Audit of Classification

It has to be verified in audit that the transactions are correctly classified in the accounts under appropriate prescribed heads of accounts in accordance with the budget provision and also general rules and regulations relating to classification of transactions.

Audit should also see that the major, minor and detailed heads of accounts as noted in the paid vouchers are authorised heads, classified according to the provisions made in the sanctioned annual budget under 'Plan' and 'Non-plan' and the expenditure which should have been classified under 'Capital' section of the account has not been classified under 'Revenue' and vice-versa.

Chapter-4

AUDIT OF TRANSACTIONS

4.1 Establishment Audit

Audit Objectives and Scope

4.1.1 The system of establishment audit consists essentially of following functions:

- (i) audit of sanctions to establishment, check of classification of expenditure on such establishment and audit of general or specific sanctions to pay and allowances,
- (ii) number audit or audit against sanctioned strength of the establishment,
- (iii) nominal audit or check of correctness of pay and allowances, drawn in the vouchers, and
- (iv) check of initial records such as cash books, office copies of establishment bills, acquittance rolls, treasury bill books, service books, leave accounts, etc. kept in departmental offices.

Source Documents

4.1.2 The important source documents to be checked in Audit are;

- (i) Cash Books
- (ii) Office copies of establishment bills
- (iii) Acquittance Rolls
- (iv) Treasury Bill Books
- (v) Service Books
- (vi) Leave Accounts
- (vii) Establishment vouchers received in Central Audit Section
- (viii) Sanction orders in respect of various allowances
- (ix) Employee module data in VLC package

4.1.3 Audit Approach

Audit has to provide assurance that claims preferred are in accordance with entitlement and rules in force.

4.1.4 Number audit or audit against sanctioned strength of establishment, nominal audit or check of correctness of pay and allowances drawn and check of initial records kept in departmental offices should be conducted in local audit.

4.2 Main points to be checked in different Audit Areas

4.2.1 Service Books

A Service Book in the form prescribed in the Service Rules is to be maintained by the head of office and kept in his custody for every non-gazetted government servant for whom it is prescribed under the orders of the Government concerned. For this purpose, a "Register of Service Books" should be maintained in which every entry should be made when new Service Book is opened or transferred from an other office. In this book every step in the government servant's official life should be recorded and each entry attested by such superior officer as may be prescribed by the Government. Particulars of transfer to foreign service and reversion therefrom, including the fact of recovery of pension and leave salary contributions will be recorded in Service Books by the Pay and Accounts Officer in the case of departments having separated Accounts Organisation and by the Accountant General (A&E) in other cases.

4.2.2 The Service Books of non-gazetted officers should be checked in local audit to ensure that they are kept in a satisfactory manner. Service Books are one of the important basic records, which are, *inter-alia*, required for determining the pensionary benefits of the employees. While checking the Service Books it should be seen that:

- (i) They are complete in all respects;
- (ii) That events affecting pension have been clearly spelt out along with the remarks of competent authority as to whether the period will or will not count for pension;
- (iii) A certificate to the effect that "Service up to _____ verified" with pay bills or other documents has been rendered by the Controlling Authority in such a manner that there are no missing links.
- (iv) LDCs are not to be considered for promotion before they either pass the type test or get exemption for typing test;
- (v) In the case of officers who are due to retire within the next 12 to 18 months, it should be specifically seen whether nominations regarding DCRG, GPF, etc. have been made and cases of omissions brought to the notice of head of the office; and
- (vi) Following entries should also be checked in Volume II of the Service books:
 - (a) Relaxation of age, educational qualifications, if any;
 - (b) Declaration regarding marital status;
 - (c) Declaration and acceptance of home town;
 - (d) Nomination of GPF;
 - (e) Nomination for DCRG;
 - (f) Details of family;
 - (g) Exercise of options in service matters;
 - (h) Condonation of break in service;
 - (i) Order regarding change in date of birth;
 - (j) Collateral evidence in respect of past service; and

4.3 Leave Accounts

The office in which the leave accounts of Government Servants are to be kept, the form in which they are to be maintained and the persons by whom the entries therein are to be attested are prescribed by Government. Before leave is sanctioned to a Government servant, the authority sanctioning the leave should either consult the leave account and satisfy himself that the leave is admissible or obtain a certificate to that effect from the officers entrusted with the attestation of the entries in leave account. To ensure the correctness of entitlement of leave, leave accounts should be closed regularly. In certain cases the rules prescribe that leave can be sanctioned only after obtaining a certificate of eligibility from the Accountant General (A&E)/ Pay and Accounts officer, e.g. study leave under Central Civil Services (Leave) Rules, 1972.

4.4 Payment of Leave Salary

The important points to be checked in audit of leave salary payments are:

- (i) Whether the leave salary of a non-gazetted Government servant is drawn over the signature of the head of his office, who is responsible for any over charge;
- (ii) In the case of a non-gazetted Government servant on leave preparatory to retirement, refused leave, terminal leave or such other leave on the expiry of which he/she is not expected to return to duty, whether the drawing officer had recorded a certificate on the leave salary bill that during the period for which leave salary is drawn he /she was not re-employed under Government, Local Fund or a private employer, after obtaining a declaration regarding non-employment from the non-gazetted Government servant; and
- (iii) Whether encashment of earned leave while availing Leave Travel Concession satisfies the following condition:
 - (a) encashment is for a maximum of 10 days;
 - (b) total leave so encashed during the entire career does not exceed 60 days in the aggregate;
 - (c) earned leave of at least an equivalent duration is also availed of simultaneously by the employee;
 - (d) balance of at least 30 days of earned leave is still available to the credit of the employee after taking into account the period of encashment as well as leave;
 - (e) the period of leave encashed shall be deducted from the quantum of leave that can be normally encashed by him at the time of superannuation; and
 - (f) A red ink entry in Service Book has been made at the time of availing LTC to ensure that the leave salary encashed at the time of superannuation including the leave salary encashed while availing the leave travel concession does not exceed 300 days or any other limit prescribed from time to time.

4.5 Establishment Bills

- 4.5.1 The main work involved in audit of establishment bills by number is to calculate separately the number of persons in each section of the establishment (excluding those on terminal leave, or on

joining time on transfer from one post to another),

- (i) drawing substantive pay (S)
- (ii) on leave or suspension (L) and
- (iii) drawing officiating pay (O) and ensure that
 - (a) in the case of establishments where officiating arrangements in leave vacancies are permissible, S+L and S+O are each within the sanctioned strength, and
 - (b) in case the sanctioned cadre contains its own leave reserve and no officiating arrangement is permissible, S+L+O does not exceed the sanctioned strength.

4.5.2 Nominal audit of pay and allowances drawn for individuals should be conducted with reference to the service rules and general and special orders of Government governing appointments, transfers, joining time, suspension, retirement, pay scales, different types of special pay and compensatory allowances and also with reference to the initial and primary records such as service books, increment certificates, orders of appointment/ promotion/ reversion, sanctions to leave, orders of suspensions, if any and the subsistence allowance granted, etc.

Apart from comparing the pay and allowances drawn by each Government servant in the pay bills of the month(s) selected for test audit with the corresponding entries in the Service books and checking the acquittance rolls to ensure that the pay and allowances drawn have been disbursed and proper acquittance obtained, the admissibility of pay and allowances drawn for each individual should be checked completely as indicated above.

4.5.3 In addition to the audit of pay and allowances drawn in the pay bills of establishment for the months selected for detailed audit, cases of increments sanctioned to the members of establishment and cases of fixation of pay on promotion or reversion during the period covered by local audit should also be test checked.

4.5.4 Check of fixation of pay on revision of time scales

When there is a general revision of pay, fixation of pay in such circumstances should be test checked in local audit with reference to service books. When, however, a new time scale is introduced or an existing time scales of pay is revised in isolated cases, the calculation of initial rates of pay and date(s) of next increment fixed for each incumbent should be scrutinized in the audit office, after calling Service Books and such other necessary particulars, or in local audit as is deemed convenient.

4.6 Audit of Government Servants Pay, TA, etc.

4.6.1 Audit Objectives and Scope

The objective of Audit is to ensure that:

- (i) the claim is against the sanctioned post to which the Government servant has been appointed and of which he is actually in charge and is carrying on his duties and responsibilities;
- (ii) the claim is in order and is admissible as per financial rules applicable to the claimant;
- (iii) the claim as admissible has been adjusted expeditiously in the initial accounts kept at the DDO level & booked in the Classified Account renderable to the Treasury or PAO or Accounts Officer as the case may be (wherever applicable); and

- (iv) the claim was a legitimate charge against which the provision of funds existed.

4.6.2 It should also be seen in Audit whether appointment made is valid or not. The procedure that should have been followed before making an appointment is not a matter in which Audit should delve. Unless there are any specific limitations in the powers, the appointments made should not normally be questioned. Failure to consult the Public Service Commission in cases where such consultation should be made under the provisions of the Constitution or under the rules framed thereunder does not make appointment so made as invalid.

Although there is an infringement of the regulations of the Public Service Commission made under the provisions of the Constitution in cases where appointments initially made for a period of six months have been extended without consulting the Commission and in case where fresh appointment of the same person to the same post has been made after six months without consulting the Commission, the failure to follow the provisions of the Commission's regulations does not make the appointments made by Government as invalid.

4.6.3 Audit Officers are not required to watch the observance of the provisions of the following nature:

- (i) rules relating to the representation of any particular community or any backward class of citizens,
- (ii) rules relating to the proportion to be observed in recruitment to services between personnel promoted from subordinate ranks and that recruited direct,
- (iii) rules relating to educational or other qualifications, or
- (iv) whether consultation with the Public Service Commission as required under the Constitution or the rules framed thereunder has actually taken place. It is for the Commission to point out in their Annual Report, the cases of failures of the Government in this regard.

4.6.4 Source Documents

The important source documents to be checked by Audit are:

- (i) Audit of Pay Bills is conducted with reference to Pay Slips and similar other pay authorisations issued by the competent authorities, Last Pay Certificates, sanctions in respect of Dearness Allowances and other Allowances issued by the competent authorities from time to time, History of Services and Personal Files
- (ii) Audit of TA Bills is conducted with reference to sanctions of tour programmes approved by the competent authorities, pay entitlements as per pay authorisations, TA claims register, budget allotment files.
- (iii) Service Books
- (iv) Leave Accounts
- (v) Sanctions to grant of fee, honoraria or other compensatory allowances
- (vi) Register of Medical Reimbursement to Gazetted Officers
- (vii) Gazetted Payment Registers is the chief record through which the payments of pay and allowances of Gazetted Officers are controlled by Accountant General (A&E). Detailed instructions regarding the form, opening and maintenance of the register are explained in

4.6.5 Audit Approach

Audit has to provide assurance that claims preferred are in accordance with entitlements and rules in force. If in sample checking, during audit scrutiny, incidents of irregularities are found to be significant as regards incorrect application of financial rules, approach of substantive testing viz., checking of all claims, should be adopted to conclude that irregularity committed was in general and not confined to a particular case. Then this approach should be extended to other auditee units of the Department horizontally and vertically to gain assurance about extent of irregularity.

4.6.6 Main points to be checked in different Audit Areas

(a) Audit of Pay Bills

The audit essentially consists in seeing that:

- (i) the title of the Government servant to the pay drawn by him;
- (ii) the pay claimed should be against a duly sanctioned post to which the Government servant has been appointed and he is actually in charge and the amount claimed by the Officer is admissible as per rules;
- (iii) no pay should be admitted for a Government servant beyond the date of his attaining the age of superannuation or on the expiry of a term of extension of service sanctioned by competent authority;
- (iv) the amounts drawn are in accordance with the payments authorized.

Note: If it appears that the payees are not, *prima-facie*, entitled to the amount authorized, the correctness of the authorization should be checked and mistakes, if any, pointed out.

- (v) in the case of first appointment, the bill is supported by a Health Certificate;
- (vi) except in cases of first appointment, every first payment to an individual by a Disbursing Officer is supported by a Last Pay Certificate;
- (vii) income tax and other recoveries have been made in accordance with the rules;
- (viii) in the case of a Government servant on leave who does not personally receive payment of leave salary, a life certificate is attached to the bill or the bill is endorsed to some well-known bankers or agents who have executed a General Bond of Indemnity for the refund of any over-payment; and
- (ix) the payments have been recorded in the Gazetted Entitlement Register.

In cases where the pay and allowances of Gazetted Officers are drawn in regular establishment pay bills by the Heads of Offices, the procedure prescribed for audit of establishment pay bills will be followed *mutatis mutandis* for the audit of pay bills relating to such Gazetted Officers.

(b) Check of Pay Fixation

In cases where the entitlement functions in respect of Gazetted Officers are carried out by the Accountant General (A&E), the pay of the Gazetted Government servant is fixed by the Accountant General (A&E) on first appointment or on appointment to a new post on a different scale of pay or when the scale of pay of the post held by the officer is revised. In other cases, pay fixation is done by the head of the office or in the departments having separated Accounts organisations, by the Accounts Officers concerned. It should be seen in audit that pay fixation had been done correctly in accordance with the rules applicable in each case.

Note: In cases where pay fixed by the separated accounts organization, the efficiency of Internal audit units will also come under check.

(c) Compensatory Allowances, Fee and Honoraria

In auditing sanctions to the grant of any Compensatory Allowances, Fee or Honoraria to Government servants, the following general conditions should be kept in view:

- (i) unless in any case it be otherwise distinctly provided, the whole time of a Government servant is at the disposal of the Government which pays him, and he may be employed in any manner required by proper authority, without claim for additional remuneration, whether the services required of him are such as would ordinarily be remunerated from the Consolidated Fund of India, or of a State or of a Union Territory Administration or from a Local Fund.
- (ii) the authority granting or permitting a Government servant to receive any honorarium or fee is required to pay due regard to the principle as indicated above and also to record reasons justifying the grant of the extra remuneration to the Government servant concerned.
- (iii) the amount of Compensatory Allowance is to be so regulated that the allowance is not on the whole a source of profit to the recipient

(d) Eligibility to House Rent and other compensatory allowances

Eligibility to House Rent and other compensatory allowances are determined with reference to rules and orders relating to such allowances. It should be seen in audit that:

- (i) the amounts drawn are in conformity with the rules and orders, and
- (ii) the claims are supported by the prescribed certificates, if any,

(e) Medical Attendance/ Reimbursement

The expenditure on account of Medical Attendance and treatment incurred by and to be reimbursed to Gazetted Government servants may be vouched to see that:

- (i) the claims are in accordance with the rules and orders of Government, and
- (ii) they are duly supported by proper certificates, receipts and vouchers in all cases.

(f) Travelling Allowance Bills

1. For audit of Travelling Allowance Bills, the following points should be seen by Audit:

- (i) the journey was actually performed,

- (ii) it was necessary and authorised by general or special orders of the competent authority,
 - (iii) it was performed as expeditiously as possible,
 - (iv) no bill has been submitted for it before.
 - (v) the amount drawn is correct with reference to rates and general conditions.
2. As some of the checks prescribed above cannot be exercised by an Audit Office independently, the duty of scrutiny of Travelling Allowance Bills is divided between the Controlling Officers and the Audit Officers. Audit should ensure that the scrutiny entrusted to the Controlling Officers under the rules of the Government in relation to these bills is exercised by them properly.
 3. In majority of the cases, countersignature of bills by the Controlling Officer is necessary. Countersignature does not dispense with the necessity for formal audit with reference to rates and general conditions. Ordinarily, the countersignature by the proper authority, or the signature of the drawing officer when a bill does not require countersignature, should be accepted as final evidence that the facts of the journey on which the claim is based are correct, and that the Controlling or the Drawing Officer, as the case may be, has exercised the scrutiny entrusted to him under the rules of the Government. Occasionally, a test check should be done to see that these officers scrutinize the bills properly.
 4. In auditing a bill, the pay shown should be checked with reference to the pay bills or Gazetted Entitlement Register, in cases where the amount of the allowance is dependent on pay. The daily allowance, mileage, etc. should be admitted according to the rates admissible under the rules and the railway, air or bus fares claimed should be checked with reference to the Railways Time Tables, Scheduled rates charged by the air company and bus fare tables respectively.

(g) Service Books and Leave Accounts

Service Books and Leave Accounts are maintained by the heads of offices in respect of Gazetted Officers whose pay and allowances are drawn and disbursed by them, as in the case of non-gazetted officers. The instructions regarding check of service books and leave accounts of non-gazetted officers *mutatis mutandis* to the service books and leave accounts of such Gazetted Officers.

(h) Pension Audit

1. Audit Objectives and Scope

The objectives of audit of pension are:

- (i) to verify that the qualifying conditions governing the grant of pension are fulfilled, and
- (ii) the amount of pension sanctioned and drawn is correct.

2. Source Documents

The source documents to be audited are enumerated below:

- (i) Service Book;

- (ii) Form-7 of the Central Civil Service (Pension) Rules, 1972;
- (iii) Pension Payment Order;
- (iv) Register of Pension Payment Orders;
- (v) Register of Anticipatory/Provisional Pension Payment Orders;
- (vi) Register of Gratuity Payment Orders;
- (vii) Register of Commuted Value of Pension Payment Orders;
- (viii) Register of Territorial and Political Pension Payment Orders;
- (ix) Pension Vouchers.

The above documents are to be checked in audit chronologically.

3. Audit Approach

Reports on the admissibility of claims for pension are prepared in the Accounts Offices and necessary authority for drawal of pension is issued by those offices. Two per cent of the pension and commutation of pension cases finalized in the A&E Office are to be checked in Central Audit.

Pension cases in their entirety should be checked in Audit wherever such checks are required to be done after the issue of authorisations by the departmental authorities with reference to the documents available in the pension files, viz., the Service Book, the first page of application form, statement of service, leave statement, etc.

In the case of pensions authorised by Pay and Accounts Officers, the Service Books and Service Records may not be available with the pension papers in those offices at the time of local audit. In such cases the check will, therefore, be conducted in the offices of both the Pay and Accounts Officer and the Drawing and Disbursing Officer. The check in the Pay and Accounts Offices will be broadly confined to the arithmetical accuracy of the calculations and general application of relevant rules and orders. During check of pension cases in these offices, the efficiency of internal audit units will also come under check.

4. Main points to be checked in different audit areas

The checks to be applied and the points to be seen during the check of pension cases are enumerated below:

- (i) the statement of service, statement of leave and period of foreign service, if any, with reference to the entries in the Service Book,
- (ii) whether the date of retirement/date of death shown in the pension papers tallies with that shown in the Service Book,
- (iii) whether the average emoluments have been worked out correctly on the basis of the entries in the Service Book,
- (iv) whether a note regarding issue of authorities has been kept in the Service Book,.

- (v) whether the claim for family pension/gratuity have been settled in accordance with the nomination obtained from the Government Servant,
- (vi) whether the amount of provisional pension and gratuity has been worked out correctly with reference to qualifying service etc.,
- (vii) whether the provisional pension sanctioned/authorised is restricted to the admissible period,
- (viii) whether the amounts required to be recovered from provisional pension and gratuity have been recovered,
- (ix) whether the amount of pension and gratuity has been worked out correctly with reference to average emoluments/emoluments last drawn as the case may be,
- (x) whether the amount of relief has been correctly allowed as on the relevant date,
- (xi) whether the amounts of pension and graded relief have been correctly rounded off,
- (xii) whether the authorisation of death gratuity in the absence of valid nomination to the beneficiaries is supported by legal documents,
- (xiii) whether the apportionment of the charge between central and state Governments has been indicated in the Pension Report,
- (xiv) whether the pension payments have been authorised strictly on the terms stated and to the persons named in the pension papers,
- (xv) whether in cases where there are unassessed dues, 10 per cent gratuity or Rs.1,000, whichever is less, has been withheld from gratuity/provisional gratuity, and
- (xvi) that the period for which family pension is admissible has been clearly worked out with reference to date of birth of children and has been correctly mentioned in the authority.

Note: While checking the application of relevant rules and orders during scrutiny of pension cases in Pay and Accounts Offices, the detailed checks mentioned at serial numbers (viii) to (xvi) will also be done.

5. Gratuity

During audit of gratuity payment vouchers it should be seen that the amount paid is that which has been authorised and that a proper receipt has been given by the person legally entitled to the gratuity or by his legal guardian/ heirs. In cases where the gratuity is authorized to be drawn and disbursed by the Head of the Office, the actual quittance of the payee obtained and recorded by the Head of Office should be checked at the time of local audit of the office.

6. Commutation of Pension

The authorisations issued should be checked by the Director (Audit), as in the case of authorisations for regular pension and gratuity. It should be seen that the commuted value has been correctly

calculated and authorised. Audit of commutation payment vouchers should be conducted with reference to the entries in the authorisation. The process of audit will be the same as in the case of gratuity payment vouchers indicated earlier.

Note: Commutations authorised by the Pay and Accounts Offices should be checked during local audit.

(i) **Audit of contingent expenditure**

A subordinate authority shall not incur contingent or miscellaneous expenditure except in accordance with Rule 96 to 123 of the Central Government Accounts Receipts and Payments Rules, 1983 relating to the general rules of procedure, different classes of the contingent charges and the conditions governing them. (Rule 10 of the Delegation of Financial Powers Rules, 1958 and Rules 90 to 97 of General Financial Rules, 1963)

1. Contingent vouchers

Contingent vouchers should be audited in accordance with the instructions in Rules 56 to 60 of the CGA (R&P) Rules, 1983 and MSO (Audit). The following should be seen in this regard:

- i) a single stamped receipt is obtained from payee in acknowledgement of payment against more than a voucher at a time, a reference is given on all concerned vouchers and the total amount of such vouchers agrees with amount for which acquittance is obtained.
- ii) pay has been drawn on bills for contingent charges and acquittances are traceable in the office acquittance roll.
- iii) all paid vouchers and sub-vouchers are stamped 'Paid' or so cancelled that they cannot be used a second time. Stamps affixed to vouchers are also cancelled so that they may not be used again.
- iv) all vouchers for purchase of stores bear certificate by the competent officer regarding entry of stores in the stock register. Such vouchers also bear certificates of the competent authority to the effect that the quantities of stores received were correct, their quality good, they were according to the approved specifications, where prescribed.
- v) suitable notes regarding payments having been made on various sub-vouchers are also kept on the relevant original indents and invoices/ bills to prevent payment.

2. Other contingent expenditure

Records relating to other items of contingent expenditure like, if any, should also be scrutinised in accordance with the rules orders, restrictions or scales laid down in schedules V and VI of the delegation of Financial Powers Rules, 1958 as amended from time to time subject to which such expenditure can be incurred.

(j) **Audit of Provident Fund Accounts of Group-D employees**

1. Provident Fund Account of Group-D employees are maintained by the heads of offices (..... Officers) with effect from 1st April 1960 (i.e. the subscription deducted from the pay for the month of March 1960 payable in April 1960), the procedure for the maintenance of such accounts by the heads of offices is detailed in Government of India, Ministry of Finance (Department of Expenditure) Memo No. 52(9)EV/60 dated 27.6.1960, as amended from time to time incorporated as Appendix 49 in Chaudhri's Compilation of CSRs, 1982 Edn.

- (vii) Loans ledgers and subsidiary registers

3. Main points to be seen in Audit:

The records are examined to see that:

- (i) The applications for loans are obtained in proper form and contain all the required details and documents essential for the sanction of loans.
- (ii) Loans to parties other than State Government wholly owned Government companies and local administration of Union Territories are sanctioned only against adequate security and the valuation of property offered as security is ordinarily at least 33-1/3 per cent more than the amount of loan and such property is free from encumbrance (Rule 158 of GFR's read with Government of India decision 3(a) 3(iii) below GFR's 155).
- (iii) The sanction for each loan exists and has been accorded by the competent authority.
- (iv) Security bonds obtained are kept in safe custody of a responsible officer.
- (v) The fact of payment is clearly recorded and acknowledgement obtained from the loanee.
- (vi) When the loan is disbursed in instalments the conditions stipulated for the release of each instalment are satisfied.
- (vii) Proper utilisation of loan is ensured by the sanctioning authority.
- (viii) The recovery of principal and interest is in accordance with the schedule laid down in the sanction and that in case of default, action is taken to recover the instalments with penal rate of interest fixed by the authority sanctioning the loan, and
- (ix) The loan ledgers and other subsidiary records are properly maintained in the prescribed forms.

4. Advances to Government Servants

The general conditions governing grant of various kinds of advances to Government servants are laid down in Section-I of the Chapter-14 of the General Financial Rules, 1963. The special conditions governing the each kind of advance are contained in Sections-III to XVI of Chapter-14 of the GFRs, 1963.

With effect from 1.7.1975 vide Ministry of Finance (Department of Expenditure) O.M. No. File(2)E-II(a)/74 dated 30.6.1975, the detailed accounts of all interest free advances and of interest bearing advances recoverable in less than 60 instalments, in respect of non-gazetted officers, and also of those gazetted officers, whose pay is drawn on establishment bill, are to be maintained by the departmental disbursing officers. These officers are expected to follow the following procedure.

Each drawing and disbursing officer should send a statement every month to his controlling officer, in respect of the transactions of the previous month, giving disbursements and recoveries for each

type of advance, including those paid to Gazetted Officers whose pay is drawn and disbursed by him in a suitable form prescribed by the Government. The controlling officer should reconcile monthly the figures of drawn and recoveries in respect of various advances with those adjusted in the books of the Pay and Account Office concerned. The balance worked out in respect of the each type of advance on the basis of departmental figures should also be reconciled periodically with those in the books of the PAO.

5. **Audit points to be seen**

In local audit it should be ensured that:

- (i) The advance has been sanctioned by the authority competent to sanction the advance;
- (ii) The sanctioning authority acted in conformity with the general or special conditions governing grant of the advance while sanctioning the advance, and
- (iii) In the case of advance for purchase of motor car/ motor cycle, etc.
 - (a) Agreement and mortgage bonds in appropriate forms envisaged in Rule 207 of the GFR's, 1963 have been executed by the concerned Government Servant.
 - (b) The motor car/ motor cycle purchased out of advance drawn from Government is comprehensively insured from the date of its purchase, and is to be kept so insured till the advance together with the interest thereon is fully repaid.
 - (c) A letter in form GFR 26 to the address of the insurance company with which the conveyance is insured is obtained.
 - (d) Mortgage bond is kept in the safe custody of the authority sanctioning the advance and is returned to the Government Servant duly cancelled only after obtaining the certificate from the Audit Officer of Principal Director to the effect that the advance has been fully repaid alongwith interest.
- (iv) The register and Broad Sheet in respect of each kind of advance are correctly maintained.
- (v) The Drawing and Disbursing Officer is sending every month the correct statements of the transactions of the previous month to his controlling officer, and
- (vi) The controlling officer is carrying on every month the reconciliation of the figures appearing in his records with those adjusted in the books of the PAO.

(I) **Festival Advance**

1. Rules regulating festival advances are contained in Section X of Chapter-14 of the General Financial Rules.

Points to be seen in Audit

2. In local audit the records maintained by the departmental authorities are examined to see that:
 - (i) the advance is not granted to a Government servant more than once in a calendar year, even if the festival qualifying for advance falls twice a year;
 - (ii) the advance is not paid to a Government servant while he is on leave preparatory to

retirement;

- (iii) The advance is not granted to a Government servant against whom a festival advance or an advance under Rule 246 of GFRs already granted to him is outstanding;
- (iv) The drawing officer is maintaining a register in the prescribed form.
- (v) All bills when drawn for payment of festival advances as also all recoveries of festival advances made from the pay bills are correctly noted in the register
- (vi) Whenever a Government servant is transferred to another office full particulars of the advance, if any, are correctly shown in his last pay certificate.

4.7 Audit of purchase of Stores

4.7.1 Audit of purchase of stores

As regards purchases of stores it has to be seen in audit that:

- (i) the purchases are properly sanctioned and are made in a most economical manner in accordance with the rules/ regulations and orders issued by the Government/ organisation. Audit must see that the purchase of stores have been made taking into account the workload of the division, the requirements should have been assessed on a realistic basis and funds were available for the procurement. It is also to be seen that the stores procured are of approved quality and specification.
- (ii) the rates paid agree with those shown in the contract or agreement made for the supply of stores.
- (iii) certificates of quality and quantity are furnished by the passing and receiving Government servants before payment is made;
- (iv) purchase orders have not been split up so as to avoid the necessity for obtaining the sanction of higher authority required with reference to the total amount of the orders;
- (v) the terms and conditions of the purchase orders are in accordance with the codal provisions and orders issued by the Government from time to time; and
- (vi) where advance payments have been made for supply of stores as per the terms of a contract or a Government order, it may be seen in Audit that necessary precaution has been taken to safeguard the interest of the Government and that the stores have been received within the stipulated period and the advance payments adjusted.

4.7.2 Audit of custody and issue of stock

As regards custody and issue of stores, it has to be seen in audit:

- (i) Whether physical verification of stores have been conducted regularly and discrepancy between the book balance and the ground balance has been reconciled promptly and shortages, if any, recovered from the official responsible;

- (ii) whether adequate precautionary measures were taken to guard against any possible misuse of the materials issued to contractors;
- (iii) whether effective follow up action is taken on the reports of physical verification of stores; for making good losses, shortages, pilferage etc., if any, and whether responsibility has been fixed on errant officers;
- (iv) whether adequate storage facilities and precautionary measures have been taken to protect stores from damages and undue deterioration;
- (v) whether efforts have been made to transfer surplus stores to other works/ divisions/ departments where they could be utilized; and whether surplus, obsolete and unserviceable stores specifying the full reasons for declaring them as such is promptly disposed off.
- (vi) it is to be ensured that all issues of materials are supported by proper indents and acknowledged by the recipients.

4.7.3 Audit of write-off/ disposal of stores

Regarding write-off/ disposal of stores, audit should check that:

- (i) Sanctions to write off of stores is accorded by competent authority.
- (ii) Audit will see that measures are taken to survey, segregate and consider the disposal of unserviceable, surplus and obsolete stores in accordance with the procedure prescribed by Government in this behalf.

4.7.4 Audit of stores management

Stores in many cases represent a locking up of capital which is not justifiable unless essential. In order to ensure economy in this respect, Audit will see that a stock limit has been fixed by the Government and that the balance in hand does not exceed the limits prescribed. Audit may scrutinize cases of purchases of stores without actual need or in excess of requirement resulting in accumulation of idle stock and consequential loss to the Government. Similarly, Audit may see cases of purchases less than the actual requirement, which may have adversely affected the progress of work and resulted in subsequent procurement at extra cost. It may also be seen that there is no rush of expenditure or fictitious booking at the fag end of the financial year only to exhaust the budget grants.

4.7.5 Audit of stores records

Audit should ascertain that all stores have been received in good condition and examined, counted, measured or weighed as the case may be while taking delivery and the goods are of approved quality, make and specifications and have been taken to Goods Received Sheets/ Bin cards and the previous balances correctly worked out are carried forward duly attested by a responsible officer. Audit should see that the Bin cards have been maintained in chronological order of receipts and issues and the Priced Stores Ledgers showing the value account of stores have been maintained.

Where a Priced Stores Account is maintained, Audit will see that:

- (i) the stores are priced with reasonable accuracy and the rates initially fixed are reviewed

from time to time and co-related with market rates and are revised where necessary;

- (ii) the value accounts tally with the accounts of works and of departments connected with stores transactions, that the total of the value account tallies with the outstanding amount in the general accounts and that the numerical balance of stock materials is reconcilable with the total of value balances in the accounts at the rates applicable to the various classes of stores; and
- (iii) steps are taken for the adjustment of profits or losses due to re-valuation, stock taking or other causes and that these are not indicative of any serious disregard of rules.

4.7.6 Physical verification of stocks/ stores

It is an important function of Audit to ascertain that the articles are counted periodically and otherwise examined to verify the accuracy of the quantity balance in the books. Audit shall not, except when specially authorised to do so, assume responsibility for the physical verification of stores. But it has the right to investigate the balances of stores and highlight discrepancies, if any, for corrective action. Audit has to see that a certificate of verification of stores is recorded periodically by a responsible authority, the system of verification adopted by the executive is adequate and proper, discrepancies found on stock taking are properly investigated and adjusted and wherever possible, the staff responsible for the verification is independent of the staff which is responsible for the physical custody of the stock or for keeping its accounts. It should also be seen that wherever practicable, verifiers of stock work directly under the control of the Government and not under the heads of the individual departments.

4.8 Works Audit

The expenditure on works can relate to execution of a project as a whole or execution of individual works or works relating to maintenance and repairs, both regular and special. The scientific autonomous bodies themselves execute their works with the help of their own wing of engineers, or private agencies and in other Government Departments, either through the State or Central Public Works Departments. The prescribed accounting procedure will have to be examined; to see that by and large, they are similar to those adopted by Government Public Works Divisions. Instructions given in the Manual of Standing Orders (Technical) Volume I relating to such audits may be applied *mutates mutandis* for audit of Works transactions of scientific autonomous bodies as well. In addition, the following general points may be seen:

- (i) whether the project as a whole has been approved by the competent technical authority and competent financial sanctioning authority?
- (ii) whether a time schedule for implementation has been drawn up, indicating the physical and financial target from time to time?
- (iii) whether for the several components of the projects required detailed plans and estimates have been drawn up in time, duly approved by the competent technically qualified authority specified for the purpose?
- (iv) whether the execution of the works was taken up as planned and whether flow of funds was as anticipated; if not, how far the works suffered on these accounts may be looked into?

- (v) whether the detailed drawings and designs, where required, were duly drawn up in time and furnished to the executing authorities and if not, what are the causes of delay?
- (vi) whether a proper procedure for award of contract is laid down and is duly observed?
- (vii) whether tenders are invited and properly scrutinized in time before decision is taken;
- (viii) whether the delays, if any, in preparation of plans and estimates, supply of detailed drawings and designs, invitation and acceptance of tenders, supervision of works under execution etc. have resulted in any loss, not only for the work as such, but also to the development of the organization itself or in execution of schemes taken up by the organization?
- (ix) whether payments to contractors were in time in accordance with the agreed procedure?
- (x) whether proper records of measurement exist and the records are compiled in time by qualified/ competent persons and are subject to adequate supervisory check?
- (xi) whether quantities of work executed compare favourably with the estimates and variations are examined and are justified?
- (xii) whether the extra items executed are such that they could not be anticipated and not those initially omitted from plans and estimates for tendering and whether the rate paid for them had been correctly assessed in accordance with the contract?
- (xiii) whether a proper record of completion exists and quality of work is subjected to adequate test, according to prescribed procedure and terms of contract?
- (xiv) in respect of contracts on "cost plus percentage" basis the control on quantity of work is quite adequate and there are no avoidable increases in quantity and there are no instances of use of costly items of work as substitution, resulting in avoidable increase in cost and consequent increase in the value of contract;
- (xv) in cases of contracts with architects, whether the terms are properly drawn up to protect the organization against wasteful expenditure, lack of timely supervision on the works by the architect, compensation for losses attributable to failures by architect etc;
- (xvi) whether funds from Government are obtained for works far in advance of needs and deposited back with Government for carrying out the works as deposit works? and
- (xvii) in respect of expenditure on maintenance and repairs, whether they are reasonable, justified and are not rectification of work/ design defects?

4.8.2 Measurement Books

- (i) MBs should be examined to see that they are maintained in the prescribed form and are carefully kept and the measurements are recorded therein in strict compliance with the laid down instructions.

- (ii) Details of measurements are clearly recorded and entries made in ink.
- (iii) The measurements connected with a work for which payments have been made have been crossed off to prevent possibility of double payments.
- (iv) There is no tampering of entries, by way of erasures or corrections/ over writings and all corrections are made neatly with proper attestation.
- (v) Payments on account of each measured work have been promptly made and the dates of measurement and payment as recorded in the measurement book agree with those noted on the vouchers.

4.8.3 Muster rolls and casual labour rolls

Audit has to see that:

- (a) the payments through muster rolls are made only to departmentally engaged labour and not to permanent or temporary employees.
- (b) labour engaged through a contractor is not paid through muster roll.
- (c) payment made is according to the prescribed daily labour rate.
- (d) the cost of work done by labour is not so large that it is in excess of the value of work done resulting in loss to Government or indicative of lack of close financial control.

4.8.4 Contractors ledger

It may be seen that:

- (i) It is properly maintained, closed and balanced as per instructions issued.
- (ii) The postings are made as and when the payments are made for works executed or for supplies made.
- (iii) All recoveries done are effected in each running account bill.
- (iv) Outstanding balances for a long period and minimum balances to be examined carefully.

4.8.5 Material-at-site accounts

Audit has to see that:

- (i) Accounts of materials issued to a work are properly maintained.
- (ii) Proper numerical account of the receipts, issues and balances of surplus materials at the site of completed works of dismantled materials are maintained.

4.8.6 Accounts of deposits

The following points need to be seen:

- (a) The register of deposits is maintained in the prescribed form.

- (b) Entries of credits and debits agree with the corresponding items in the cash book and refund voucher/ TE (JE)
- (c) Notes regarding repayment/ refunds are duly made and attested.
- (d) Outstanding balances are reviewed.

Chapter-5

AUDIT OF SCHEMES/ PROGRAMMES/ RESEARCH AND DEVELOPMENT PROJECTS, ETC.

5.1 Schemes and programmes

Each Ministry and Department of Government of India and the Autonomous Bodies are framing programmes/ schemes with reference to their mandate to be executed by the Ministry/ Department or Autonomous Bodies themselves or through outside agencies.

5.1.2 Scope of Audit

5.1.2.1 Transactions under a scheme/ programme are subjected to financial audit, which is mainly directed to check functional classification of transactions, their proper accounting and conformity to Acts, Rules and Regulations, Directives and prescribed procedures.

5.1.2.2 In addition, the scheme is subjected to a performance audit (also known as Value for Money Audit) aimed at carrying out a comprehensive appraisal of the scheme. Performance audit is an audit of the economy, efficiency and effectiveness (three Es) with which the auditee organisation uses its resources (physical, financial and manpower) in carrying out its responsibilities.

Economy is minimising the cost of resources used for an activity having regard to the appropriate quality.

Efficiency is the relationship between the output in terms of goods, services or other results and the resources used to produce them.

Effectiveness is the extent to which objectives are achieved and the relationship between the intended impact and the actual impact of an activity.

5.1.2.3 Preliminary study of the scheme, preparation of guidelines.

5.1.2.4 Review of the scheme proper by list check of the systems, developing audit findings.

5.1.2.5 Finalising/ drafting of review report.

5.1.3 Source documents

- (i) Detailed Project Reports
- (ii) Feasibility Reports
- (iii) Performance Budgets
- (iv) Annual Reports
- (v) Sanction of the Scheme
- (vi) Minutes of the meeting of the various committees

5.1.4 Main points to be seen in Audit areas

- (i) Approval of scheme is as per laid down norms and by the competent authority.
- (ii) How far the physical and financial targets have been achieved.
- (iii) How far the time schedules for implementation of various stages of the schemes have been adhered to.
- (iv) Whether avoidable, excess or infructuous expenditure has been incurred.
- (v) Extent of achievement of intended results.
- (vi) Study the monitoring system and its effectiveness.
- (vii) Cost or time overrun cases to be critically analysed to see that they are not due to inefficient handling, human errors or lapses or defective, inadequate or un-realistic/ defective estimates.
- (viii) Whether there has been any wasteful expenditure arising out of lack of co-ordination among the several agencies implementing the scheme.
- (ix) Whether a proper built in control mechanism exists to have an effective control over various areas to safeguard against possible leakages, losses, avoidable wasteful expenditure.
- (x) Cases of diversion of funds, wasteful or infructuous expenditure are to be critically analysed.
- (xi) How far the objectives of the schemes are achieved.
- (xii) Whether the social objectives have been achieved as contemplated, if not, reasons for non-achievement are examined and ascertained.
- (xiii) Whether the scheme was launched after adequate detailed investigation survey, etc. to consider its feasibility in the area selected for implementation.
- (xiv) Whether periodical progress reports are obtained and analysed.
- (xv) Whether the meetings of the various committees are held as required.
- (xvi) Study the minutes of meeting of the project approval Committees, Monitoring Committees and Evaluation Committees.
- (xvii) Whether technical estimates, detailed programmes, cost schedules, etc, have been framed are sanctioned by competent authorities and are adhered to.
- (xviii) Whether uninterrupted flow of funds, availability of land, labour, etc. ensured to keep up time schedules.
- (xix) Whether there have been excesses over estimates or undue savings, if so, what are the causes leading to them.
- (xx) Whether specified performance indicators exist to assess the performance.

5.2 Research and Development Projects

Research and Development (R&D) is central to promoting competitiveness in industry and more so in a technology intensive industry. New industrial and economic policy and process of liberalisation of the economy initiated in 1991, have exposed Indian Industry to international competition for the Indian industry to emerge as a global player, concerted and coordinated R&D effort by the Government industry and R&D institutions supported by a dynamic R&D policy and strategy is required.

5.2.1 Audit mandate

For audit purposes, Scientific and Technology efforts can be considered in two parts: one regarding the pure science research and the other technology development (including applied research). In case of technology development, there are two aspects: development of technology and transfer of technology. As far as the pure science research areas are concerned the effectiveness and impact cannot be measured easily. On the other hand, the efforts in the direction of technology development have generally to be need oriented. Most of the research efforts except those of fundamental nature should lead to generation of new processes, products, etc. which can be patented.

Another indicator of successful research activity is the number of research papers and books published. Apart from publishing a research paper, the impact of these research papers is significant.

5.2.2 Source documents

- (i) Minutes of the meeting of Research Committee, Review Committees, and Expert Committee, etc.
- (ii) Project Files
- (iii) Progress Reports
- (iv) Agreement with Institutions
- (v) Costing Records
- (vi) Budget Estimates and Actuals
- (vii) Monitoring Documents
- (viii) Sanction Letters

5.2.3 Points to be seen in Audit areas

- (i) Whether the project has been selected/ recommended after due scrutiny by the concerned Committees/ Boards and falls within the identified thrust areas.
- (ii) Study the minutes of the meetings of the Committees/ Boards.
- (iii) Whether there is reasonable time gap between the approval of project and issue of sanction letter.
- (iv) Whether the competence of the institution to carry out the work with its available infrastructure and other facilities have been taken into account before sanctioning the project.

- (v) System of monitoring and evaluation of the projects and follow up action on monitoring and evaluation reports.
- (vi) To scrutinise project proposals to understand the intended objectives. The cases of duplication of efforts/ overlapping of projects where two projects having similar objectives are being funded by the same department are to be seen.
- (vii) Has the project been completed within the original timeframe and report rendered and evaluated by scientific experts? If not, what went wrong with the project?
- (viii) What is the outcome of the project, achievement of the objectives and benefit accrued to the society.
- (ix) Money was spent actually on the project for intended scientific purposes and not frittered away in unnecessary purchases of equipment/ furniture.
- (x) Whether any equipment, etc. purchased after the closer of the project.
- (xi) Optimal utilisation of equipments.
- (xii) Is zero-based budgeting in operation for each project.
- (xiii) Projects continued far too long thereby outliving their usefulness/ validity.
- (xiv) Deviation cases alongwith justification of such deviation and approval of competent authority for such deviation.
- (xv) Manpower deployed on the project is proportionate to the size and magnitude of the project.
- (xvi) Are there any developments of scientific processes/ products stopped at the laboratory level and not translated/ converted in pilot stage production/ commercial production of technology not transferred for commercial purposes.
- (xvii) Check that periodical physical/ financial reports are submitted in time/ or as per laid down periods.
- (xviii) Whether the linkages with the users agencies are properly established.
- (xix) Whether projects are declared as complete without achieving the objectives.
- (xx) Release of funds is as per laid down rules and regulations.
- (xxi) Provisions of GFRs for release and utilisation of funds are adhered to.

5.3 Flexible Complementing Scheme for Scientists

5.3.1 Flexible Complementing Scheme is in operation in Scientific and Technological Departments for in-situ promotion of scientists/ technical personnel. Flexible Complementing Scheme is applicable

in all the Departments excepting the Department of Space, Atomic Energy and DRDO where the scheme of merit based promotion system continues. It is applicable only to scientists and technologists holding scientific posts in scientific and technology departments and who are engaged in scientific activities and services.

5.3.2 Criteria for identifying Institutions/ Organisations as Scientific and Technical Institutions

- (i) The Institutions referred to as S&T would be characterized by pursuit of excellence.
- (ii) They should be engaged in research, design, development or programme implementation, which would cover a broad spectrum of pure and applied research.
- (iii) The scientific culture is characterized by a few salient aspects, viz. the persons involved are highly qualified and skilled technical personnel, involved in creative and innovative activity.
- (iv) The criteria would cover the aims and objectives of the institution/ organisations, qualifications of the personnel, qualitative requirements for performance of various types of activities.

5.3.3 Scientific activities

Scientific activities covered for considering the applicability of the schemes are:

- (a) Fundamental/ basic research
- (b) Applied research
- (c) Experimental development, and
- (d) S&T activities, which are directly linked to R&D in terms of promoting the scientific activities and services.

5.3.4 Points to be seen in Audit

- (i) Applicability of the scheme in the institution is as per laid down criteria/ guidelines/ orders of the Government of India.
- (ii) Whether the scheme has been made applicable only to scientists and technologists holding scientific posts in scientific and technology departments and who are engaged in scientific activities and services.
- (iii) Whether scientists and engineers brought under the purview of the scheme have adequate qualifications and working experience as laid down.
- (iv) Whether laid down criteria for considering promotions under the scheme are scrupulously followed.
- (v) Whether the scheme has the approval of the competent authority.
- (vi) Instructions for manpower audit as contained in the CAG's MSO (Audit) ("Manpower Audit" chapter) will be applicable.

5.4 World Bank Assisted Projects

5.4.1 Audit Objectives and Scope

Detailed instructions exist for audit of World Bank assisted projects in the CAG's MSO (Audit), the salient points of which are described below:

Audit is responsible for reporting to the funding agency whether the implementing agencies have carried out expenditure on the scheme in accordance with the pattern specified in the staff appraisal report relating to the schemes and terms of such assistance and Government of India instructions and to identify matters relating to inadequacies in systems and control, cases of fraud or presumptive fraud, wasteful expenditure, failure of administration to take corrective action on recommendations contained in earlier report.

5.4.2 Source Documents

Staff appraisal reports, loan agreement, monthly account or financial statements and supporting vouchers, contracts relating to work, comments of World Bank.

5.4.3 Audit Approach

Local Audit is to look into eligibility of contractors, investment decisions and implementations, methods adopted in selecting contractors, review of viability of the project, review of the project management system to ensure that the work is properly and effectively supervised and executed and that there is accountability throughout the various stages of the project.

For some payments of miscellaneous nature, there is a sufficient voucher for the payment and that there is sufficient authority for making it.

5.4.4 Issue of Audit Certificate

While issuing audit certificate, it should be ensured that the expenditure is incurred for the purpose it is meant and conforms to the procedure and terms and condition of agreement and Government of India's instructions. All objections raised during local audit should also be mentioned in the Audit Certificate duly signed by Group Officer.

As per existing instructions issued by Ministry of Finance (Department of Economic Affairs), Statement of Expenditure (SoE) should reach the Principal Director (Audit) by 31st July following the close of financial year. Implementing agency is to obtain reconciled and verified SOE from Accountant General (A&E) so that Audit Certificate could be issued in time. There should be proper interaction between the Audit and Accounts and Entitlement office to avoid unnecessary delay.

The irregularities noticed during audit should be indicated in brief with Audit Certificate; instead of appending SoE and audit observations as Annexure to the Audit Certificate. Audit Certificate in the prescribed format should be issued on printed letter head in English only.

After the closure of every financial year; the audit certificate shall be issued within 9 months; i.e. certificate should be issued any time after receipt of SoE (which is as per Ministry of Finance orders upto 31st July but before 31st December.). The issue of the Audit Certificates is delayed

mainly due to non-receipt of the SoE's from the project implementing authorities and there is a general tendency to shift the responsibility for delay on Audit. To overcome this problem, timely and prompt action by taking up the matter with the appropriate authority should be initiated. Audit certificate should be issued to the project implementing authority under intimation to Ministry of Finance.

5.4.5 Main points to be checked in Different Audit Areas

The agreements for loan/development credit entered into by the International Bank for Reconstruction and Development and International Development Association with the Government of India for financing development projects to be implemented by departments of the Central Government and Autonomous Bodies, etc. include specific covenants for Accounts and Audit.

The World Bank has accepted, after going through the accounting and auditing arrangements in India, that the system ensured a satisfactory degree of financial discipline and, accordingly, accepted the Comptroller and Auditor General of India to be an independent auditor for the purposes of certification of accounts and issue of audit certificates in respect of projects being executed in India with World Bank financial assistance. The standard audit covenant in the loan agreements, in respect of projects executed by Government Departments and Corporations, the audit of which vests with the Comptroller and Auditor General, is met by the Principal Director General (Audit) by furnishing to the project authorities for onward transmission to the Bank, an integrated audit certificate within 9 months of the close of the financial year in the prescribed form based on irregularities noticed in Central Audit as well as local audit in relation to the accounts of these projects.

The annual accounts to be certified are the annual expenditure statements in respect of projects executed by Government Departments and the Accounts that are certified by Comptroller and Auditor General as sole auditors in respect of projects executed by other bodies and authorities. If any further details are required by the World Bank, these are to be furnished by the project authorities. The integrated Audit Certificate is considered adequate for the purposes of the World Bank and it would not be necessary for the Bank to await the all-inclusive Audit Report of the Comptroller and Auditor General submitted to the respective legislatures. As the Audit Certificate is not to be published and is in the nature of a document exchanged between the clients and the Bank, the Certificate should indicate, in brief, the amounts held under objection in relation to wanting vouchers, D.C. bills, sanctions etc. and misclassification, defalcation, over payments etc. that come to notice.

The World Bank gives aid in two ways:

- (i) Sanctioning and releasing an amount of expenditure in advance.
- (ii) Reimbursement of claim.

In India, reimbursement of claim system is adopted. Loans are repayable over 15 to 20 years with grace period of 3 to 5 years.

5.4.6 Project decision and implementation

The responsibility of identification, determination of feasibility of project; its execution and

administration rest with the borrower. However, an appraisal is carried out by the Bank with the assistance of the borrower to examine the economic, financial and technical requirement of the project which provides a basis for decision to support with a loan. The Staff Appraisal Report (SAR) includes a detailed explanation and assessment of the financial management system and any additional requirements for the particular project.

5.4.7 Audit of implementing Agencies

Funds from Bank loan may be disbursed only on account of expenditure for goods and services provided by nationals of, and produced in or supplied from Bank member countries. Under this policy, nationals of other countries or bidder offering goods and services from other countries should be disqualified from bidding from contracts intended to be financed wholly or in part from Bank loans.

The expenditure should be incurred as per terms and conditions of the World Bank which *inter-alia* requires:

- (i) utilisation of loan for the purpose projected and sanctioned for
- (ii) consideration of economy and efficiency, extra avoidable expenditure may therefore be objectionable for reimbursement from World Bank Loan. Cost over run due to non-completion of work in stipulated time may also be disputable claim for reimbursement from the Bank.
- (iii) non-denial of pre-qualification to a firm for reason unrelated to its capacity to supply the goods/ services in question except if the borrower country's commercial relations with that country to which that firm relates provided the bank is satisfied that such exclusion does not preclude effective competition.
- (iv) award of any contract is required to be strictly in accordance with loan agreement or guidelines.
- (v) Implementing agency not agreeing to any material modification or waiver of the terms and conditions of contract or extension of the stipulated time of performance which would effect the contract inconsistent with the provision of loan agreement.
- (vi) procurement of goods and services inconsistent with agreed procedure.

Observance of all the above conditions can be scrutinised and suitably commented upon by the local audit party, and the amount objected on any of the above conditions can be objected by Principal Director (Audit) for certification of SoE for the sake of reimbursement.

The items, which qualify or do not qualify for reimbursement generally are as follows:

- (i) amount recovered toward security deposit (SD) is not eligible. However, release of SD to the agencies is claimable.
- (ii) secured advance paid on material is not reimbursable.
- (iii) mobilisation advance paid to the agency is reimbursable.
- (iv) income tax/ sales tax recovered from contractor is claimable for civil work but not for

supplies.

- (v) foreign exchange on freight charges are eligible for reimbursement.
- (vi) local transportation charges are not reimbursable.
- (vii) insurance premium paid in foreign exchange are eligible for bank financing; self insurance and premium paid in local currency are ineligible unless explicitly provided in the loan agreement.
- (viii) the bank does not finance customs duties and other taxes imposed by borrowing country.
- (ix) all payment to consultants are made in accordance with contract provisions which normally specify currencies and mode of payment.
- (x) income tax and other duties paid to the consultant are not reimbursable unless specifically provided in the contract.

The above points are to be kept in mind for audit certification for reimbursement and are to be pointed out during central and local audit.

5.4.8 Audit Certificate

Where SoE procedure is used for loan disbursement, the SoE should be integrated to become a part of project financial statement.

During local audit, it is necessary to obtain a listing of all SoEs submitted during the period under review and for each expenditure perform the following:

- (i) evaluate the adequacy of the supporting documentation, which should normally include one or more of the following:
 - (a) procurement documents (bid documents, invitation, evaluation, award)
 - (b) purchase contract
 - (c) purchase order
 - (d) letter of credit
 - (e) supplier's invoice and certification of origin
 - (f) shipping or import documents and inspection certificates
 - (g) contractor's invoices or certificates
 - (h) other evidence of receipt of goods or services
 - (i) force account records
 - (j) recurrent cost records
 - (k) authorization for payment
 - (l) evidence of payment/bank statements
 - (m) accounting records of approvals, disbursements, and balances available

- (n) evidence that refunds have been made by suppliers and corresponding adjustments made in subsequent applications in instances where goods have been returned.
 - (ii) Ascertain that the expenditure was properly authorized and approved.
 - (iii) Verify that the expenditure is eligible for Bank disbursement under the loan agreements. Ineligible expenditures would include:
 - (a) duplicate invoices;
 - (b) payments made in advance of receipt of good or delivery of services, unless these payments are consistent with contract provisions and are established commercial practice;
 - (c) payments that should have been made under normal disbursement procedures with full documentation (e.g. payments against contracts subject to the Bank's prior review, or payments against contracts with values exceeding defined SOE limits; and
 - (d) payments for items that are not procured in accordance with the legal agreements, such as:
 - .. payments for items from countries that are not eligible under the Bank's Procurement Guidelines;
 - .. payments for items not specified in the procurement;
 - .. payments made prior to loan signing or before the eligible date specified for retroactive financing;
 - .. payments for items on the negative list or not on the positive list (for adjustment operation lending).
- (iv) verify the mathematical accuracy of the SOE.
- (v) agree the percentage used to determine the Bank's share of the total disbursements to the loan agreements. Verify that the proper amount was requested for reimbursement.
- (vi) summarize the results of the work performed on a summary form.
- (vii) notify borrower of all instances of negative findings.

It is advisable to draft Audit Inspection Report paras identifying specifically that the project/ work/ scheme is aided by World Bank/ External Agency where the implementing agency is executing other works besides World Bank aided works.

**DETAILED INSTRUCTIONS REGARDING AUDIT OF SOME
SCIENTIFIC DEPARTMENTS/AUTONOMOUS BODIES**

6.1 MINISTRY OF ENVIRONMENT AND FORESTS

- 6.1.1 The Ministry of Environment and Forests started functioning from January 1985. It is a nodal agency in the administrative structure of the Central Government for planning, promotion and co-ordination of environmental and forestry programmes. The Ministry's charge also includes environmental management to promote health considerations, to focus on poverty alleviation by enhancing access of the poor to natural resources for livelihood and to heighten the awareness regarding environmentally sound living process by focusing on nature-man synergy.

6.1.2 Objectives

The Ministry's main objectives are:

- (a) Generation and survey of flora, fauna, forests and wildlife;
- (b) Prevention and control of pollution;
- (c) Protection of environment and research related to these topics;
- (d) Aforestation and regeneration of degraded areas.

These objectives are being fulfilled through (i) environmental impact assessment, (ii) eco-regeneration, (iii) assistance to organisations implementing environmental and forestry programmes, (iv) promotion of environmental and forestry research, extension, education and training to augment the requisite manpower, (v) dissemination of environmental information, (vi) international co-operation, (vii) creation of environmental awareness among all sections of the country's population.

6.1.3 Organisation

The Ministry has four main wings, namely:

- (a) Environment
- (b) Forests and Wildlife
- (c) National Afforestation and Eco-Development Board (NAEB)
- (d) National River Conservation Directorate (NRCD)

It has six Regional Offices located at Bangalore, Bhopal, Bhubaneshwar, Lucknow, Shillong and Chandigarh.

The Ministry has also the following Subordinate Offices;

- (i) Botanical Survey of India
- (ii) Zoological Survey of India

- (iii) National Museum of National History
- (iv) Indira Gandhi National Forest Academy
- (v) Directorate of Forest Education
- (vi) Forest Surveys of India
- (vii) National Zoological Park.

6.1.4 Plan Outlays

Plan outlays for Environment and Forest Sector, which was Rs.797 crores in 7th Plan rose to Rs. 1797.50 crores and to Rs.3597.79 crores during the 8th and 9th plan respectively. The proposed outlay for 10th plan is Rs.9664.58 crores.

6.1.5 Manpower

The sanctioned strength of the Ministry including the National Afforestation and Eco-development Board and the National River Conservation Directorate at the Headquarters is **1181**.

6.1.6 Points to be seen in Audit

- (i) Whether the objectives of the Ministry are in conformity with the Government's policies and decisions.
- (ii) Whether the policies and programmes are drawn up in accordance with the stated objectives and are being implemented by specific and well defined procedures.
- (iii) Systems exist for collection of reliable progress reports on implementation of policies and programmes.
- (iv) Study the goals set by the Ministry and their achievements.
- (v) Study the approach paper to each five year plan detailing the objectives and steps taken to achieve the objectives.
- (vi) Examine the yearly plan targets and their achievements. Significant variations may be analysed in detail.

6.1.7 Activities of the Ministry

(A) Environment

The major programmes under environment are:

- (i) Abatement of Pollution
- (ii) Environmental Impact Assessment
- (iii) Hazardous Substances Management
- (iv) Eco-conservation and Surveys

(v) Environmental Education, Training and Information

(i) **Abatement of Pollution**

(a) Programmes relating to abatement of pollution include prevention and control of water and air pollution and control of pollution at source. The major thrust under the programme is on prevention and control of industrial pollution, vehicular pollution, noise pollution and other preventive and mitigative measures. These programmes are implemented through Central Pollution Control Board and State Governments.

(b) **Industrial pollution abatement through preventive strategies**

The scheme combines the earlier three schemes of Environment Audit, Adoption of Clean Technologies in Small Industries and Environmental Statistics and Mapping, which continued till 9th plan.

The policy statement for abatement of pollution lays emphasis on preventive aspects of pollution abatement and promotion of technological inputs to reduce industrial pollution.

The preventive strategies for abatement of industrial pollution include environment audit, waste minimisation, cleaner production and environmental management systems.

(c) **Common Effluent Treatment Plants (CETP)**

The concept of the CETP is to make a cooperative movement for the pollution control in small scale industrial sectors. The main objective of the CETP is to reduce the treatment cost to be borne by an individual member unit to a minimum while protecting the water environment to a maximum. Waste water treatment and water conservation are the prime objectives of the CETP.

The concept of CETP envisaged treatment of the effluent emanating from the clusters of compatible small-scale industries and burden of various Government Authorities working for controlling pollution and monitoring of water pollution control reduced on implementation and commissioning of CETPs. The CETPs is to be managed by a CETP company formed by the small-scale industrial units intending to construct a CETP.

(d) **Environmental Management in Heritage, Pilgrimage and Tourist Centres including Taj Protection**

The environment management of heritage, pilgrimage and tourist centres are taken up to prevent environmental degradation of these areas. The Ministry is already implementing Taj protection mission scheme at the total project cost of Rs.440 crores.

(e) **Assistance for abatement of pollution and environment policy and law**

The scheme meets the need to strengthen the various State Pollution Control Boards and State Environment Departments for enforcing the statutory provisions for taking up pollution abatement measures. The Central Government has been funding the State Pollution Control Boards and State Environment Department and other national research institutes to strengthen the State Departments of Environment. Assistance is provided for scientific analytic equipment that are expensive and hence cannot be procured by State Governments from its own funds. Grants are given to the State

Pollution Control Boards, Environment Departments of State Governments for equipment and specific studies and projects which are required to be completed within a specific time frame to meet the objective of policy statement for abatement of pollution.

Grants are also released to the State Pollution Control Boards, Environment Departments of State Governments with the aim to strengthen their capabilities in the form of equipment and assistance is also given for various environmental pollution control schemes and projects.

(f) Environment Policy and Law

Under this scheme the Ministry continues to carry out a regular assessment of legal and institutional framework and takes appropriate measures for safeguarding the environment through the process of amendment and review of the existing laws, rules, etc. as necessary.

Laws cannot remain static. Changing circumstances, judicial interpretations, unanticipated flaws, differing values require continuing assessment of the effectiveness of the legislative framework.

Under the scheme the Ministry has already initiated action for the amendment of the Environment (Protection) Act, 1986 and the Water Cess Act, 1977.

The following programmes are being handled under the scheme:

Trade and Environment

The objective of the scheme is to assist in increasing awareness and understanding of complex linkages between trade and environment; to contribute to building institutional capacity of various target groups (Government officials, industrial managers, export houses, industrial associations, academicians, NGOs, etc.); to deal with the trade and environment interface, inter-alia through providing information and relevant analysis to policy makers and the business sector; and to support the effective participation in deliberations, in the relevant international organisations and other sectors.

Labelling of Environment Friendly Products

The concept of Eco-Labelling is to encourage environmentally- friendly commodities in the market.

Any product, which is made, used or disposed off in a way that it significantly reduces the harm it would otherwise cause to the environment, could be considered as Environment Friendly Product.

The Government have instituted "ECO MARK" a scheme for labelling of environment friendly products in 1991, with a view to provide accreditation and labelling for household and other consumer products which meet certain environmental criteria along with quality requirements of the Indian Standards Institutes for that product.

(f)(i) Development and Promotion of Clean Technology

In the process of Socio-Economic development, natural resources are getting depleted at an accelerated pace. The pollution arising from such activities is an indicator of the mismanagement of our natural resources. The trends worldwide indicate that pollution control is giving way to strategies for pollution prevention through cleaner production with emphasis on cleaner technologies, modification of products, substitution of input material, better process control by improved operation and maintenance and on site recycling of wastes.

Cleaner technologies are practical application of knowledge, methods and means so as to provide the most rational use of natural resources and energy to protect the environment. They are based on improved manufacturing methods that require less raw material and energy to obtain outputs of better quality.

Source of the initiatives are:

- (a) Carrying capacity based Regional Development Planning
- (b) Life Cycle Assessment
- (c) Natural Resource Accounting
- (d) Sectoral Policy Harmonization
- (e) Promotion of Cleaner Technologies

(ii) Environmental Impact Assessment

The objective of impact assessment division is to assess the environmental impacts of development projects, which are referred to the Ministry. For ensuring optional utilization of natural resources, environmental impact assessment has been made mandatory for 30 categories of developmental activities since January 1994.

(iii) Hazardous Substances Management

The hazardous substances management division is the nodal point within the Ministry for management of chemical emergencies and hazardous substances with a view to promote safe management and use of hazardous substances including hazardous chemical and hazardous wastes, in order to avoid damage to health and environment. The Ministry is initiating various programmes with the following objectives:

- (a) Creation of infrastructure/ information base and human resource development for handling of chemical accidents and
- (b) Creation of structures in the States for hazardous substances management.

The thrust areas on which the activities are carried out are:

- (a) Chemical safety
- (b) Hazardous waste management and
- (c) Solid waste management Programmes carried out are:
 - (i) Chemical Safety Programmes
 - (ii) Hazardous Waste Management and
 - (iii) Solid Waste Management

(iv) **Conservation and Management of Mangroves, Coral Reefs**

- (a) The Ministry launched a scheme for conservation and management of mangroves and coral reefs in 1986 by taking into consideration the ecological and economic significance of mangroves and threats faced by them due to various anthropogenic activities.

Mangroves are salt tolerant plant communities occurring in sheltered coastal areas such as bays, estuaries, lagoons and cracks.

Coral reefs are massive limestones structure built up through the constructional cementing process and depositional activities of the animals of class Anthozoa as well as other calcium carbonate secreting animals. 30 mangrove and 4 coral reef areas in the country have been identified for intensive consideration and management. Main activities under the scheme include afforestation, regeneration, protection and conservation of mangroves through community participation, sustainable utilisation of these resources by promoting alternate livelihood options, training and capacity building, strengthening of infrastructure for effective implementation of the scheme, creation of database and networking with various institutions.

- (b) **Assistance to Botanical Garden and Centres for Conservation and propagation of endemic, rare and endangered plants**

The scheme on assistance to botanical gardens and centres for ex-situ conservation was initiated in 1992 to augment ex-situ conservation of rare endemic plants. Under the scheme one time financial assistance is provided to the existing botanical gardens for the management of their infrastructural facility.

- (c) **Biodiversity Conservation**

Biodiversity is defined as the variability among living organisms and the ecological complexes of which they are part including diversity within and between species and ecosystems.

The scheme on biodiversity conservation was initiated during 1991-92 to ensure co-ordination among various agencies dealing with issues relating to conservation of biodiversity and to review, monitor and evolve adequate policy instruments for the same. The main implementation measures for the CBD are through national strategies, legislation and administrative instruments to be developed in accordance with each country's particular conditions and capabilities.

- (d) **Taxonomy Capacity Building Project**

Taxonomy is the science, which helps in exploration, identification and description of living organisms. The All India Coordinated Project on Taxonomy (AICOPTAX) was started during the 9th plan. The aim of the project is to encourage excellence in the field of taxonomy and motivate the experts to undertake work in hitherto neglected groups of organism such as microbes, lower groups of plants, animals, etc. The scheme envisaged establishment of centre's for research in identified priority gap areas such as viruses, bacteria, microlepidoptera, lichens, gymnosperms, etc. The centres are supposed to undertake work related to research, education and training.

- (e) **National Natural Resource Management System (NNRMS)**

Objectives of the scheme are:

- (i) Optimal utilisation of the country's natural resources by a proper and systematic inventory of the resources availability.
- (ii) Reducing regional imbalances by effective planning and in tune with the environmental efforts.
- (iii) Maintaining the ecological balance with a view to evolve and implement environmental guidelines.

(f) Eco-Conservation and Surveys

The main activities under Eco-Conservation and Surveys are being looked after by the Botanical Survey of India (BSI), National Museum of Natural History (NMNH) and Zoological Survey of India (ZSI) and also through the co-operation of the State Governments.

6.1.8 Botanical Survey of India (BSI)

Botanical Survey of India established in 1890 is a subordinate office of the Ministry with Headquarters at Kolkata and circles and field offices at 9 centres in the country.

Objectives

The objectives of BSI are:

(a) Primary objectives

- (i) to survey the entire plant resources of the-country.
- (ii) to undertake and complete taxonomic studies of all the flora of the country.
- (iii) to list all endangered species, to undertake measures for their effective conservation and collect and maintain germ plasma and gene bank of endangered, threatened and vulnerable species.
- (iv) to bring out volumes of National Flora and State Flora of States/ Union Territories.
- (v) to identify, collect and preserve specimens of plants, which are economically and otherwise beneficial to human beings.
- (vi) to prepare national database on herbarium collections including types, live collections, plant genetical resources, plant distribution and nomenclature.

(b) Secondary Objectives

- (i) to undertake studies on selected critical and. fragile eco-systems.
- (ii) to undertake assessment of flora relating to environmental impact studies as may be specifically called for.
- (iii) to undertake ethno-botanical studies and evaluate plants of economic utility in areas specified by the Ministry.

- (iv) To carry out geobotanical studies in areas specified by the Ministry.

6.1.9 Zoological Survey of India (ZSI)

The ZSI was established in 1916, primarily to explore and survey the fauna of India. It has 16 regional and field stations spread all over India with Headquarters at Kolkata.

Objectives

The Objective of ZSI are:

(a) **Primary objective**

- (i) Exploration and survey of faunal resources
- (ii) Taxonomic studies
- (iii) Status survey of endangered species
- (iv) Publication of results through departmental journals
- (v) Publication of Fauna of India
- (vi) Maintenance and Development of National Zoological Collections
- (vii) Central referral, information, advisory services and library services.

(b) **Secondary objectives**

- (i) Maintenance of musea at Headquarters and regional station. .
- (ii) Environmental Impact Studies.

6.1.10 National Museum of Natural History (NMNH)

The NMNH was set up in New Delhi on 5th June 1978. It is devoted to non-formal environmental education. It has three regional museums at Mysore, Bhopal and Bhubaneshwar.

The main objective and programme of the NMNH and RMNH is targeted towards the overall objective of creating, 'environmental awareness' and 'conservation education' to prepare conscious citizenry and sensitize them towards the environmental issues and prepare them to halt and reverse the negative trends of environmental exploitation.

6.1.11 Environmental Research Promotion

(a) **Objectives and Scopes**

Environmental research and development programmes aim at developing strategies, technologies, methodologies, information and data dissemination for better environment management permitting sustainable development. These also seek to develop infrastructure and trained manpower for undertaking environment research. The R&D projects particularly aim at attempting solutions to the practical problems of resource management and provides necessary inputs for development and formulation of Action Plans for conservation of natural resources, and restoration and improvement of environmental quality, while permitting sustainable development.

The Ministry of Environment and Forests supports research in various universities, and colleges recognized by UGC, institutions of CSIR, ICAR, ICMR, ICSSR and recognized non-governmental scientific organizations. The environmental research in the Ministry is being supported under various sub-schemes, which are given below:

- (i) Environmental Research Programme (ERP)
- (ii) Ecosystems Research Scheme (ERS)
- (iii) Eastern and Western Ghats Research Program (E&WRP)
- (iv) Biosphere Reserves
- (v) Mangroves and Coral Reefs
- (vi) Wetlands
- (vii) National Natural Resources Management System (NNRMS)
- (viii) Ganga Action Plan / National River Conservation Programme

(b) Thrust Areas of Research

Ministry of Environment & Forests has been funding research in multi-disciplinary aspects of environmental & ecosystems protection, conservation and management at various universities, institutions of higher learning, national research institutes and non-governmental organizations. The primary objectives are to develop strategies, technologies and methodologies for better environment management and also create infrastructure and a pool of trained manpower to shoulder the responsibility of environmental management in the country. Environmental Research particularly aims at attempting solutions to the practical problems of resource management and provides necessary inputs for the twin objectives of conservation of natural resources and restoration of environmental quality.

The Research Division after Consultation with other divisions in the Ministry, experts on subject & gauging other emerging areas; has decided the following 21 thrust areas for priority action.

1. Development of biological & other interventions for pollution prevention and control, including waste recycling.
2. Development of strategies/technologies for prevention and/or control of pollution.

3. Clean Technologies for Sustainable Production Patterns
4. Restoration of degraded ecosystems
5. Conservation and enhancement of biological diversity.
6. Development of National Natural Resource Management System for accurate inventory of land, water, forests, mineral water, forests, mineral resources etc. and for monitoring changes in ecological systems.
7. Instrumentation Development
8. Climate Change
9. Development of biodegradable plastics/ eco-friendly alternatives
10. Health and toxicology
11. Research of land-use and land-use changes
12. Mining
13. Impact of Tourism, religious pilgrimage and development of eco-tourism
14. Impact of developmental activities on drinking water resources.
15. Habitat fragmentation, human nature interaction and management of wildlife with special attention to large mammals as well as rural and urban issue related to wildlife.
16. Monitoring and management of hazardous substances.
17. River conservation and aiming to maintain their pristine state.
18. Conservation, enhancement and utilization of forests and their resources.
19. Research on mountain ecosystems (excluding the mandate given to GBPHIED).
20. Research on Islands and Coastal Zones.
21. Research on Environmental Legislation/ Socio-economic issues.

Points to be seen in Audit

- (i) Review the mechanism of approval of different schemes/ programmes. Whether it is adequate and followed as laid down.
- (ii) Examine the physical and financial targets with reference to actual achievements. All wide variations may be critically examined.
- (iii) Is the existing monitoring mechanism of each scheme and programme adequate.

- (iv) EFC/ SFC memo of the scheme (wherever applicable) may be examined with special reference to cost over run, time over and rate of return if any. '
- (v) Examine that provisions of different legislations are effectively complied with.
- (vi) How far laid down objectives of the scheme/ projects have been achieved.

Common Effluent Treatment Plants

- (i) It may be seen in Audit that a grant from Central Government for setting up CETPs is limited to 25 per cent subject to matching contribution from State Governments.
- (ii) Study the SFC papers of the, scheme.
- (iii) Whether system exists to watch the progress of setting up of the plants.
- (iv) Examine whether the Ministry is ensuring that the State Pollution Control Board undertakes periodical monitoring of the operation, maintenance as well as statutory requirement of the individual CETP so as to control pollution from the small scale industrial units.
- (v) Whether the details of financial estimates of each project are reviewed after being appraised by the financial institutions and approved by the State Government and whether the system exists to examine the same in the Ministry.

Environmental Management in Heritage Pilgrimage and Tourist Centres including Taj Protection

- (i) Study the SFC/ EFC memo of each scheme.
- (ii) Taj Trapezium Zone Pollution (Prevention and Control) Authority for monitoring the implementation of various projects and Taj Protection Mission Scheme was constituted by the MoEF. Examine the performance of the Authority with reference to laid down functions and other obligations.
- (iii) A Mission Management Board under the Chairmanship of the Chief Secretary, Government of UP has been constituted to oversee the implementation, monitoring and review of the various programmes/ schemes formulated for the protection of the Taj Mahal. Review the functioning of the Board with the laid down norms.
- (iv) Examine the adequacy of the system in the Ministry regarding sanctioning of the projects submitted.

Industrial Pollution Abatement through preventive strategies

- (a) Study the policy statement for abatement of pollution.
- (b) Whether guidelines for certification bodies for conducting Environmental Management system audit

have been developed and are being followed.

- (c) Whether criteria for assessing the performance of certification bodies been developed.
- (d) Whether nodal environmental management system audits in selected sectors of the industry been conducted.
- (e) Whether environmental statement by polluting units seeking consent either under Air or Water and Hazardous wastes Acts and Rules submitted and evaluated, if so with what results.
- (f) Review agenda and minutes of Expert Committee meetings relating to effluent and emission standards for different categories of industries under the Environment (protection) Act, 1986.
- (g) Review the system of dealing with the industrial pollution complaints received from various individuals/ organisations/ NGOs etc.
- (h) Whether technical manuals on waste minimisation have been prepared.
- (i) Acts passed by the Ministry/ State Governments to prevent and control pollution, with a view to critically examine their adequacy and efficiency in controlling/ preventing pollution.
- (j) Action taken against defaulting units for non-installation of necessary pollution control equipment within a specified time period and by the identified highly polluting industries is to be looked into.

Assistance for abatement of pollution and environment policy and law

- (i) Examine that the grants were released to State Pollution Control Board, environment departments of State Governments after observing all the statutory rules and these were utilised as per laid down terms and conditions.
- (ii) What action has been taken by the Ministry to strengthen the existing laws and legal instruments so as to ensure that the strengthened legal regime not only deals with environment related offences speedily and effectively but also act as a deterrent.

Environment Impact Assessment

- (i) Study the appraisal procedures of the Ministry and comment on the adequacy/ efficiency of the same.
- (ii) Examine the minutes of the meetings of Experts Committee constituted for appraisal of projects alongwith reports of site visit if any.
- (iii) Reports on public hearing, if any, for special/ controversial projects may also be seen.
- (iv) Whether the time schedule laid down for completing the assessment has been adhered to.
- (v) Scrutinize the environment clearance with special reference to the conditions/ recommendations of appraisal committee.
- (vi) Study the manual of EIA prepared by the Ministry.

- (vii) In respect of post project monitoring of cleared projects, the following may be examined:
 - (a) Compliance to the conditions attached in clearance letters.
- (viii) Examination of half-yearly compliance reports after commissioning of the project by the Ministry.
- (ix) Monitoring of projects by six ROs of the Ministry and action taken on non-compliance cases.

Hazardous Substance Management

- (i) Whether studies on inventorisation of hazardous waste generation units, quantification of hazardous waste generated and practices adopted for hazardous waste management by various sectors in various States were completed and action taken on the findings may be seen in Audit.
- (ii) Whether the laboratory manual on characterisation and analysis of hazardous waste for regulatory agencies were prepared and acted upon.
- (iii) Whether a comprehensive national chemical profile based on the UNITAR guidance document prepared assessing the existing institutional, administrative, technical and legal infrastructure vis-a-vis 'the requirements of safe handling of chemical in a comprehensive manner for national chemicals management and safety'.
- (iv) Whether the implementation of the Manufacturing, Storage and Import of Hazardous Chemicals (MSIHC) Rules 1989 and the Chemical Accidents (Emergency planning, preparedness and response) Rules 1996 by State/ UT Governments are adequately pursued and monitored.
- (v) Study the report on status of isolated storages of chemicals and implementation of the fundings.
- (vi) Whether the enforcement of Public Liability Insurance Act, 1991 amended in 1992 is being pursued and monitored.
- (vii) Whether implementation of hazardous waste (management and handling) Rules 1989, the Biomedical waste (management and handling) Rules 1998 and the Batteries (management and handling) Rules 2001 are adequately monitored.
- (viii) Study the report of the High Powered Committee headed by Prof. M.G.K. Menon on Management of Hazardous Waste and action taken on its recommendations.
- (ix) Whether the monitoring of the Registered Units under the Scheme for "Registration of recycles/ Re-processors of wastes" as actual users having environmentally sound management facilities are done with a view to ensure that the conditions included in the registration letter are complied with by the units.
- (x) Study the system of implementation and monitoring of various provision of the Municipal Solid Wastes (Management and Handling) Rules 2000. The flyash Notification, 1999 and the Recycled Plastics Manufacture and Usage Rules 1999.

Points to be seen in Audit

Research and Development

- (i) Study the mechanism for project approval. Is it adequate.
- (ii) Projects approved fall within thrust areas and identified priority areas of each programme.
- (iii) Minutes of meetings of the following Committee may be examined:
 - (a) Environment Research Committee in case of Environment Research Programme
 - (b) Research Advisory Committee for Eco-system Research Scheme
 - (c) Expert groups on eastern and western ghats
 - (d) National expert advisory group on biosphere reserve
 - (e) National level committee on wetlands, mangroves and coral reef
 - (f) Standing Committee on Bio-resources and environment
- (iv) Is preference given to projects, which are likely to yield results of practical value in immediate future.
- (v) Is the research supported in most of the cases of applied nature and has linkages with the user agencies.
- (vi) Whether progress of research projects is constantly reviewed as per laid down norms and procedures.
- (vii) The project proposals are to be scrutinized to understand the intended objectives of the project.
- (viii) Audit should see that the milestones for each activity of the project alongwith the timeframes and cost outlays have been laid down in the projects approved.
- (ix) Whether the recommendations of the monitoring committees are communicated and complied with by the executing agencies.
- (x) Whether system exists for evaluation of completed projects by an independent agency.
- (xi) In case of completed projects, it may be ascertained whether the objectives of the project have been fully achieved.
- (xii) Steps taken to ensure the submission of final technical report by the PI.
- (xiii) Whether release of grant is as per laid down terms and conditions.
- (xiv) Cases where technology could not be developed due to significant deviation from the initial process/

procedure need to be highlighted.

- (xv) Whether mechanism of technology transfer exists.
- (xvi) Proper system exists to protect the intellectual property right and filing of patents.
- (xvii) Statutory terms and conditions for sanctioning of Government grants are followed.
- (xviii) High money value projects, terminated/ abandoned/ inordinately delayed projects maybe chosen for detailed individual scrutiny.
- (xix) All extension cases may be examined with reference to genuineness of ground and unavaoidable reasons.
- (xx) All research project, which are continued without any noticeable progress resulting in continued deployment of certain personnel, equipment may be examined in detail.

Eco-Conservation and Surveys

Audit to critically look into efforts of Ministry in mapping and exploring its natural diversity, collection and conservation of endangered species of plants and animals.

National Natural Resource Management System

- (i) Study the minutes of the meeting of Standing Committee on Bio-resources and Environments (SC-B) and action taken on their recommendations.
- (ii) For undertaking remote sensing based studies the SC-B has identified 49 priority areas. Action taken on priority areas may be seen in audit.
- (iii) How far objectives of NHRMS have been achieved.
- (iv) Whether the projects under the scheme are monitored by the SC-B and corrective measures taken on its suggestions.

6.1.12 Environmental Information System (ENVIS)

(a) Objectives and Scope

Environmental Information System (ENVIS) is a plan programme of the Ministry. ENVIS set up by the Ministry in 1982, is a decentralised system using the distributed network of data bases to ensure integration of national efforts in environmental information collection, storage, retrieval and dissemination to all concerned including policy planners, decision makers, research workers and the public. The objectives of ENVIS are:

(b) Long term

- ♦ To build up a repository and dissemination centre in Environmental Science and Engineering;
- ♦ To gear up modern technologies of acquisition processing, storage and retrieval and

dissemination of information of environment nature; and

- ◆ To support and promote research, development and innovation in environmental information technology.

(c) Immediate

- ◆ To provide national environmental information service, relevant to present needs and capable of development to meet the future needs of the users, originators, processors and disseminations of information.
- ◆ To build up storage, retrieval and dissemination capabilities with the ultimate objectives of disseminating information speedily to users.
- ◆ To promote national and international co-operation and liaison for exchange of environmental related information.
- ◆ To promote exchange of information amongst developing countries.

6.1.13 Grant-in-aid to Professional Societies and Institutions

(a) Objectives of the scheme

- (i) To utilise the expertise available with professional societies, voluntary organisations, institutions, etc., for developing various programmes and activities aimed at promoting environmental education and awareness.
- (ii) To support the development of exhibition galleries, interpretation centres and educational programmes relevant to ecology, wildlife and environment at or through museums/ science centres and other institutions.

Points to be seen in Audit

- (i) How far the objectives of ENVIS programmes have been achieved.
- (ii) Physical and financial targets of the programme to be reviewed with reference to actual achievement.
- (iii) Whether all the centres have developed their web-sites in their assigned areas.
- (iv) Examine the minutes of the Scientific Advisory Committee of environment. Is the Committee periodically monitoring the progress of ENVIS network and whether suggestions made by it are promptly carried out.
- (v) Examine that the quantum of recurring grant is fixed on the basis of the performance of the Centre and is released only after receipt of the statement of expenditure and UC of the previous grant released by the Ministry to the Centre.
- (vi) Whether the grantee organisation is furnishing yearly progress reports of the work done at the

ENVIS Centre.

- (vii) Whether the Ministry is getting the working of Centre reviewed by scientists/ specialists.
- (viii) Terms and Conditions of the grant are invariably followed as laid down in the GFR.

6.1.14 Environment Education

The ministry is promoting Environment Education and creation of awareness among all groups of the country's population through seminars, workshops, awareness campaigns and eco-clubs.

Four types of schemes are existing in this category:

- (i) Seminars, symposia and workshops
- (ii) Eco-clubs
- (iii) Grants-in-aid to professional societies / institutions
- (iv) National Environment Awareness Campaign

6.1.15 Seminars, Symposia and Workshops

Objectives of the scheme

The Ministry supports organisation of seminars, symposia, workshops etc. by educational institutions/ colleges, universities and NGOs on various topics related to environment. The objective is to provide common platforms for sharing knowledge and experience among scientists and environmentalists from various disciplines and' various technical environmental topics of current interest.

6.1.16 Eco-Clubs

Introduction

This scheme has been evolved to extend non-formal pro-active system of imparting environmental education to schoolchildren by involving them in various environmental activities.

Objectives

The objectives of the scheme are:

- ♦ To educate children about their immediate environment and the causes for its deterioration.
- ♦ To impart knowledge about the role of different factors in an eco-system, their inter-dependence and their need for survival through field visits and demonstrations.
- ♦ To mobilise youngsters by instilling in them the spirit of scientific enquiry into environmental problems.
- ♦ To involve students in environmental preservation efforts, however small these may be.

6.1.17 National Environment Awareness Campaign

The Ministry of Environment & Forests has been conducting a countrywide National Environment Awareness Campaign (NEAC) every year since 1986 with the aim of creating environmental awareness at the national level. Under the decentralised mechanism of conducting the campaign adopted since 1993-94, the responsibility of coordinating the campaign activities has been assigned to certain identified organisations designated as the Regional Resource Agencies (RRAs) for different regions of the entire country. These RRAs include reputed NGOs with substantial infrastructure, manpower and technical expertise, State Department of Environment and other autonomous organisations under the State / UT Governments.

6.1.18 Centres for Excellence

This scheme was started in 1983 for strengthening active research/ training groups in Universities and reputed Institutions including NGOs, professional organisations and other scientific and technological institutions working in fields of interest and relevance to the Ministry of Environment and Forests, selective support in the form of one time grant or annual recurring support is afforded to such groups specifically to develop them into advanced centres at the national level in a particular subject area.

6.1.19 National River Conservation Directorate (NRCD)

The NRCD, which functions under the Ministry is responsible for implementation of the River Action Plans. The River Action Plans were undertaken based on surveys conducted by the CPCB which identified 27 grossly polluted structure of major rivers of the country.

Objective

The main objective of the river action plans is to improve the water quality of the rivers to acceptable standard by preventing pollution load reaching the river by undertaking works like (i) interception and diversion works to capture the raw sewage flowing into the river through open drains and divert them for treatment, (ii) sewage treatment plant for treating the diverted sewage, (iii) low cost sanitation works to prevent open defecation on river banks, (iv) electric and improved wood based crematoria to conserve the use of wood and help in ensuring proper cremation of bodies brought to the burning ghat, (v) river front development works such as improvement of bathing ghats, etc. and (vi) other minor misc. works.

Various river action plans undertaken are:

Ganga Action Plan Phase-I - Since completed at the total cost of Rs.452 crores

Ganga Action Plan Phase-II - Launched and approved in stages between 1993 and 1996 for implementation. The total project cost is Rs. 1498.86 crores, which includes the following components:

(i)	Yamuna Action Plan	Approved cost Rs.732.05 crores
(ii)	Gomti Action Plan	Approved in April 1993 for Rs.61.11 crores
(iii)	Damodar Action Plan	Approved cost Rs.23.58 crores
(iv)	Ganga Action Plan-Main stem (GAP-II, MS)	

6.1.20 National River Conservation Plan (NRCP)

The NRCP was launched in 1995 to cover 23 major rivers in 10 States. Under this action plan pollution abatement works are to be taken up in 57 towns after merging of Ganga Action Plan Phase-II with NRCP, the approved cost of NRCP increased from Rs. 1830.56 crores to Rs.3329.42 crores covering pollution abatement works in 152 towns along polluted stretches of 27 rivers spread over 16 States.

Points to be seen in Audit

- (i) Review the minutes of meetings of National River Conservation Authority as well as Monitoring Committee of NRCA. Notes for Cabinet Committee on Economic Affairs.
- (ii) Examine the detailed project report of each project sanctioned.
- (iii) In respect of completed project the following points may be examined:
 - (a) Cost over run and time over run
 - (b) Achievement of objectives
 - (c) Operation and maintenance of assets created under the various schemes.
- (iv) Examine the schemes funded with external aid with reference to MoU signed.
- (v) Cases of diversion of funds for particular scheme utilised for other purposes by the State Government may be examined in detail.
- (vi) Cost sharing pattern of all works between Centre and States is maintained as 70:30.
- (vii) It was decided in 10th meeting of NRCA that public shall contribute not less than 10 per cent of total of operation and maintenance cost which amounts to about 5 per cent of the capital cost annually shall have to be provided by the State/ Local Bodies. Unless a commitment to this effect is available project proposals will not be sanctioned. Application of this decision may be watched in Audit.
- (viii) Report of Alternate Hydro Energy Centre, University of Roorkee in respect of requirement of funds for implementing schemes and NRCD may be studied.

(B) Forest

6.1.21 Integrated Forest Protection Scheme

- (a) This centrally sponsored scheme with 100 per cent financial assistance to the States and UTs is an amalgamation of schemes namely "Forest Fire Control and Management", National Forestry Action Plan" and "Infrastructure Development". The scheme envisages the following objectives:
- (i) To protect and conserve forests and facilitate implementation of the National Forestry Action Plan.
 - (ii) To develop infrastructure for forest protection and regeneration.
 - (iii) To prevent and control forest fires and devise test, demonstrate and implement principles and techniques of prevention, detection and suppression of forest fires with the help of watch towers, wireless sets, hand tools, etc. and by setting up an effective communication network.
 - (iv) To improve the productivity of forests by reducing the incidence and extent of fire damages.
 - (v) To monitor the impact of forests fire prevention, research on fire damages, data generation on forest fire and encourage participation of people in forest fire control.

Main components of the Scheme

- (i) Forest Fire Control and Management
- (ii) Infrastructure Development:
 - (a) Survey and Demarcation
 - (b) Strengthening of Infrastructure for forest protection

(b) Forest Fire Control and Management Scheme

The scheme envisages the following main objectives:

- (i) To prepare fire damages rating system and devise forest fire forecasting system in collaboration with National Centre for Medium Range weather forecasting, Department of Meteorology.
- (ii) To compile database on forest fires and assess the damage with the help of ESIJIFM and ICFRE.
- (iii) To prevent and control fires with a view to protect and conserve the forests, wildlife and environment.
- (iv) To devise, test, demonstrate and implement, principles and techniques of prevention, detection and suppression of forest fires with a combination of hand tools, mechanised equipment, watchtowers, wireless sets and other communication equipments involvement of JFM Committee, etc.

- (v) To monitor the impact of forest fire prevention activities, research and training if forest fire damages.
- (vi) To involve local people in protection of forests from fires under the Joint Forest Management Programme.
- (vii) To meet any emergency situation (e.g. hiring of helicopter and other machines) and take necessary steps in case if any large scale forest fire causing environment threat.

(c) Survey and Demarcation

For effective protection and also to avoid any undue harassment to the forest dwellers, it is necessary to get forest areas surveyed, notified and property demarcated. These activities to be carried out under this component.

Objectives

The scheme envisage the following main objectives:

- (a) To carry out detailed surveys of forest areas
- (b) To demarcate the forest boundaries and notify the forest areas
- (c) To carry out detailed field enumeration like measurement of diameter, height, crown density, basal area per ha. growing stock (species wise and class wise) including ground biodiversity to facilitate scientific management prescription including timber extraction.
- (d) To arrive at an estimate of the total growing stock of the territorial diversions in the States.
- (e) Preparation of working plans to arrive at sustainable management of the forests and private plantation, by prescribing yield regulations in time with the conservation, ecological, social and economic criteria.

Development of Forest Infrastructure

The objective of this component is to develop and strengthen forestry infrastructure for effective protection of the valuable forest wealth, conservation of biodiversity and environment protection.

(d) Survey and Utilisation

To conduct forest resources survey, the scheme "Forest Survey of India including application of Remote Sensing Techniques" is under implementation through Forest Survey of India - a subordinate office of the Ministry.

The scheme aims to achieve the following objectives:

- (i) assess the extent of forest cover and monitor on a two year cycle the broad changes in the forest vegetation cover of the country by using multi-satellite data on 1:2,50,000 scale to prepare area thematic maps of remote sensing data with maximum essential ground truth verification a ten year cycle (most ground truth verification would be done by respective States).

- (ii) collect, store and retrieve necessary forestry and forestry related data for National and State Level Planning and a computer based National Basic Forest Inventory System (NBFI)
- (iii) design methodologies relating to forest surveys and subsequent updating. This would include methodologies for:
 - (a) Vegetation mapping including thematic maps through the use of satellite imageries/ aerial photographs
 - (b) Ground truth verification and
 - (c) Growing stock and volume assessment
- (iv) impart training in application of remote sensing in modern forest survey techniques, to foresters at various levels of responsibility in the States/ UTs.
- (v) keep abreast of the achievement in remote sensing technology and also build up a strong research and development base in remote sensing in the field of forestry along with development of new algorithms software for both image processing and general application.
- (vi) support and oversee techniques/ inventory work undertaken by States/ UT Forest Department.

6.1.22 Forest Survey of India

- (a) Forest Survey of India (FSI) came into existence on June 1, 1981, as a successor to “Pre-investment Survey of Forest Resources”, a project initiated in 1965 by government of India and sponsored by FAO and UNDP.

(b) Mandate

The mandate of FSI is to:

- (i) prepare a comprehensive State of Forest Report (SFR) including National Vegetation Map once every two years.
- (ii) collect, store and retrieve necessary forestry and forestry related data for national and State level planning and to create a computer based National Basic Forestry Inventory System (NBFIS).
- (iii) design methodologies relating to forest surveys and subsequent updating.
- (iv) undertake work in regard to preparation of forest inventory in selected States/ Union Territories on agency basis till the establishment of their own resources survey units.
- (v) impart training in modern forest survey techniques to foresters at various levels of responsibilities in the States/ Union Territories/ Government of India.
- (vi) advise the States/ Union Territories on design and development of regional NBFIS.
- (vii) support and oversee techniques/ inventory work undertaken by State/ Union Territories

Forest Departments.

- (c) The FSI is headed by a Director. The headquarters is at Dehradun. FSI has four zones each headed by a Regional Director located at Shimla, Kolkata, Nagpur and Bangalore.

(d) **Points to be seen in Audit**

1. Study the guidelines, if any, issued by the Planning Commission and whether these are properly applied.
2. As per Tenth Five Year Plan document, thematic mapping activity to be taken only on demand basis, whether this is being put to practice?
3. How the activities of FSI are achieved by hiring manpower on contract basis, outsourcing of certain activities or by engaging consultants or by creating additional posts. In this respect study the Government sanction and economics of hiring vis-à-vis creation of additional posts.

6.1.23 Directorate of Forest Education

The Directorate of Forest Education is a subordinate office of the Ministry and is responsible for imparting training in Forestry to State Forest Service Officer and the induction training of Range Forest Officers promoted as Asstt. Conservator of Forests in the State Forest Services Cadres in the State Forest College viz:

State Forest Service College, Burnihat;

State Forest Service College, Dehradun; and

State Forest Service College; Coimbatore.

6.1.24 Forest Research, Education and Training

(i) **The Indian Council of Forestry Research and Education (ICFRE)**

ICFRE an autonomous organization of the Ministry is the focal point for forestry research, education and extension development in the country. The ICFRE is the pioneer body in conducting forestry research in the country with the mandate to formulate, organize direct and manage forestry research, transfer technologies developed to SFDs and other user agencies and impart forestry education.

The Council has eight research institutes and 3 advance centres namely:

1. Forest Research Institute, Dheradun.
2. Institute of Forest Genetics & Tree Breeding, Coimbatore.
3. Institute of Wood Science and Technology, Bangalore.

4. Tropical Forest Research Institute, Jabalpur.
5. Arid Forest Research Institute, Jodhpur.
6. Institute of Rain and Deciduous Forest Research, Jorhat.
7. Himalayan Forest Research Institute, Shimla.
8. Institute of Forest Productivity, Ranchi.
9. Institute of Social Forestry and Eco-Rehabilitation, Allahabad.
10. Institute of Forestry Research and Human Resource Development, Chhindwara,
and
11. Forest Research Centre, Hyderabad.

Activities of two Research Institutions viz., Forest Research Institute, Dehradun and Arid Forest Research Institute, Jodhpur are discussed below:

Forest Research Institute, Dehradun

Main activities of the Institute are:

1. Market price monitoring of 14 timber species from 10 markets and publication of information.
2. Development of packing boxes poplars.
3. Evaluation of gluing techniques and preservation treatment.
4. Factory trials for making pencil from poplar wood logs.
5. Developing designs of furniture from various woods.
6. Studies on storage on leguminous species of food and medicinal value.
7. Ecological monitoring in regeneration, mortality and bio-diversity in Garhwal, Himalayas.
8. Recycling of waste paper.
9. Studies on nursery and plantation diseases on woods.
10. Development of bio-pesticide from Karanj seed, Bio-degradable adhesive.
11. Natural dye.
12. Refining Jaltropha Oil.
13. Gum from Cassia tora seeds, and
14. Lactones from pine needles.

Arid Forest Research Institute, Jodhpur

The mandate of the Institute is to:

1. Screen the local trees species for tolerance of moisture stress.
2. Evaluation and develop irrigation water management for tree species and in different agro-forestry systems to maximize productivity.
3. To screen-these leaf fodder species for vegetative propagation and develop a technology for the mass multiplication of superior trees.
4. Develop tissue culture protocol in propagation of superior genotypes of fodder yield trees etc.

(ii) Indian Plywood Industries Research and Institute (IPIRTI)

IPIRTI, Bangalore is an autonomous organisation of the Ministry and a centre of expertise in Mechanical Wood Industry Technology Sector. It is equipped with modern facilities for research training in raw milling and plywood.

(iii) Indian Institute of Forest Management (IIFM)

IIFM, Bhopal an autonomous body of the Ministry, is involved in imparting education, training in forest management aimed at inculcation of professionalism to officers of IFS, State Forest Departments, Forest Development Corporations and Forest based industries.

(iv) Indira Gandhi National Forest Academy, Dehradun (IGNFA)

IGNFA constituted in the year 1987 is engaged in imparting induction training to IFS (Probationers) and in service training of one week/ two weeks to the in-service officers. Academy has started professional skills upgradation training for officers promoted to IFS from SFS.

Brief objectives/ activities of the academy are as under:

- (i) Conducting initial training of IFS probationers extended over a period of three years.
- (ii) Organising professional skills upgradation training programme for officers of SFS promoted into IFS.
- (iii) Conducting compulsory course for in service IFS officers at middle/ senior level.
- (iv) Organising seminar/ workshop on relevant sectoral issues, case studies, etc.

It is a subordinate office of the Ministry.

6.1.25 Points to be seen in Audit

- (i) Review the National Forest Policy 1988.
- (ii) Examine the physical and financial targets vis-a-vis their actual achievements.
- (iii) How far the objectives of each schemes are achieved.

- (iv) Thematic mapping activity by Forest Survey of India is taken only on demand basis.
- (v) Study National Forestry Action Programme formulated by the MoEF, a comprehensive strategic long term for the next twenty years to address the issues underlying the major problems of the forestry in line with the National Forestry Policy, 1988 and its implementation.
- (vi) EFC memo of Integrated Forest Protection Scheme may be critically examined.
- (vii) Examine that only items falling under Central Sector, component are funded by the Ministry under Forest Protection Scheme.
- (viii) Examine proposals approved under the Forest (conservation) Act 1980 for diversion of forest land for other purposes with reference to the recommendation of Advisory Committee, their processing at different levels, final forest clearance and post project clearance, monitoring through the regional offices and conditions laid down.
- (ix) The success of Joint Forest Management, as enumerated in National Forest Policy 1988 envisages peoples involvement in development and protection of degraded forest along with meeting their subsistence needs, is to be examined. Monitoring aspect of the scheme may also be reviewed.
- (x) The approach paper to the tenth five year plan approved by the National Development Council has proposed that the forest cover of the country should be increased to 25 per cent by 2007 and 33 per cent by 2012. Action taken by the Ministry to achieve the goal may be seen in Audit.

(C) **Wildlife**

6.1.26 The Ministry is persuing the following schemes under the wildlife sector:

- (i) Central Zoo Authority (CZA)
- (ii) Project Elephant
- (iii) Project Tiger
- (iv) Protection of wildlife outside protected areas
- (v) Development of National Parks and Sanctuaries
- (vi) Grant-in-aid to Wildlife Institute of India

(a) **Central Zoo Authority (CZA)**

The CZA was created in February 1992 under an Act of Parliament to stop the mushrooming of ill planned and ill conceived zoos, monitor and evaluate the existing zoos to suggest ways and means for improvement of the zoos. The authority is responsible for providing technical and financial assistance to the zoos to enable them to attain the stipulate standards under the zoo recognition rules and de-recognise the zoos, which are found to be non-viable. The functions assigned to the authority are stipulated in Section-38-c of wildlife (protection) Act 1972 as amended in 1991.

The plan scheme of National Zoological Park has been merged with CZA.

(b) Project Elephant

Project elephant was launched in February 1992 to assist the State, having free ranging populations of wild elephants to ensure long term survival of identified viable population of elephants in their natural habitats.

Objectives

Objectives of the scheme are:

- (i) Protection of elephants
- (ii) Protection and improvement of elephant habitat and corridors
- (iii) Welfare of domesticated animals
- (iv) Eliciting public cooperation

(c) Project Tiger

Project tiger, a centrally sponsored plan scheme was launched in 1973 with the objective to ensure maintenance of a viable population of tigers in India for scientific, economic, aesthetic, cultural and ecological values and to preserve for all time areas of biological importance as a national heritage for the benefit, education and enjoyment of the people. The main theme of the project tiger is to provide effective protection to the representative tiger habitats for overall biodiversity conservation apart from ensuring viable population of tiger, copredators and prey base, in different biogeographic zones.

(d) Protection of wildlife outside protected areas

The principal objective of the scheme is protection of wildlife- outside protected areas. Although forest area outside the protected areas is the abode of thick wildlife consisting both flora and fauna, unfortunately no appropriate mechanism or system for wildlife conservation and protection is in force at present in such areas. There is hardly any infrastructure, special staff or financial resource available for wildlife conservation in those areas and as a result conservation of wildlife in such areas continues to be totally neglected. This scheme endeavours to conserve and protect the wildlife in such areas.

(e) Development of National Parks and Sanctuaries

The objective of this scheme is:

- ♦ To assist the States in the development of national parks and sanctuaries through financial assistance
- ♦ To facilitate and encourage the States to expand the protected area network

- ◆ To create infrastructure facilities for better protection and management of these protected areas
- ◆ To provide financial assistance for training, capacity building and research studies

It is a scheme encompassing protection, habitat improvement, settlement of sight, eco-development infrastructure development, capacity building including research and training, eco-tourism, education and awareness, etc. Another important provision under this scheme is for relocation of villages falling within the protected areas to outside areas and settlement of rights. The component of special rehabilitation inputs for their conservation is also included.

(f) Wildlife Institute of India

The scheme was started in the year 1986. The main objectives of the scheme are:

- (i) To train managers and biologists in wildlife and protected area management as well as in wildlife research
- (ii) Training, education and extension of specialists for protected areas in eliciting public support for wildlife conservation
- (iii) Conducting and coordinating applied wildlife research and evolving-relevant techniques suited to Indian conditions
- (iv) Providing advisory and consulting services to the Central and State Governments.

6.1.27 Point to be seen in Audit in Wildlife

- (i) Audit should look into the wildlife (protection) Act 1972, the provisions of the convention on International Trade in endangered species and Export and Import Policy of India and their enforcement through the office of Regional Deputy Directors of Wildlife Preservation located at Delhi, Mumbai, Kolkata and Chennai with the help of state wildlife departments, the State Police Departments, BSF and Coast Guard.
- (ii) Examine the decision of the “special coordination and enforcement committee for strengthening measures for control of poaching and illegal trade in wildlife” and action taken on them.
- (iii) The Indian Board for wildlife is the apex body in the field of wildlife conservation in the country and headed by Prime Minister of India. In its meeting held in January 2002 adopted various resolutions. Action taken on the resolutions may be watched in audit. Some of the resolutions are given below:
 - (a) No diversion of forest land for non-forest purposes from critical and ecologically fragile wildlife habitat shall be allowed.
 - (b) Land falling within 10 km of the boundaries of National Parks and Sanctuaries should be notified as eco-fragile zones under section 3(v) of the Environment (Protection) Act and Rule 5 subrule 5(viii) and (PQ) the Environment (Protection) Rules.
 - (c) No commercial mono-culture to replace natural forests.

- (d) A working group shall be constituted to monitor implementation of wildlife action plan.
- (iv) Study the new Wildlife Action Plan (2002-2016) and strategies adopted and implemented.
- (v) Funding under various schemes is per laid down norms.
- (vi) Study the evaluation reports of the various projects/ schemes carried out by the experts.
- (vii) Study minutes of Administrative Committee and Technical Committee under Central Zoo Authority and Steering Committee of Project Elephant.
- (viii) Study the adequacy of monitoring mechanism of various scheme.
- (ix) Examine that wildlife institute of India's training capacity is optimally utilised.

(D) National Afforestation and Eco-development Board

6.1.28 The National Afforestation and Eco-development Board (NAEB) was constituted in the Ministry of Environment and Forests in August 1992 as a sequel to the formation of the separate Department of Wastelands Development in the Ministry of Rural Development and the transfer of NWDB to that Department. NAEB was given the task of promoting afforestation, tree planting, ecological restoration and eco-development activities in the country with special attention to degraded forest areas and lands adjoining forest areas, national parks, sanctuaries and other protected areas, as well as the ecologically fragile areas like the Western Himalayas, Aravallis, Western Ghats, etc.

The mandate of the NAEB is to:

- ◆ Evolve mechanisms for ecological restoration of degraded forest areas and adjoining lands through systematic planning and implementation in a cost effective manner;
- ◆ Restore through natural regeneration or appropriate intervention the forest cover in the country for ecological security and to meet the fuelwood, fodder and other needs of the rural communities;
- ◆ Restore fuelwood, fodder, timber and other forest produce on the degraded forest and adjoining lands in order to meet the demands for these items;
- ◆ Sponsor research and extension of research findings to disseminate new and proper technologies for the regeneration and development of degraded forest areas and adjoining lands;
- ◆ Create general awareness and help foster people's movement for promoting afforestation and eco-development with the assistance of voluntary agencies, non-government organisations, Panchayati Raj Institutions and others and promote participatory and sustainable management of degraded forest areas and adjoining lands;
- ◆ Coordinate and monitor the Action Plans for Afforestation, tree planting, ecological restoration and eco-development; and
- ◆ Undertake all other measures necessary for promoting afforestation, tree planting, ecological restoration and eco-development activities in the country.

The Board has seven Regional Centres located in universities and national level institutions. These centres help NAEB in promoting extension of replicable technologies and for dissemination of research findings. They provide technical and extension support to the State Forest Departments in preparing projects for regeneration of degraded forests and adjoining lands with people's participation and also act as a forum for the exchange of ideas and experiences amongst the States of the region as well as across the regions. These centres also carry out problem specific studies, as well as evaluation of NAEB programmes in the field and organise training programme and workshops.

Schemes implemented by NAEB are:

National Afforestation Scheme

The Salient features of the scheme are:.

- (a) Micro-planning-exercise would be core element of the strategy;
- (b) Decision making at the level of the community in respect of choice, of species to be planted, the component of the scheme to be implemented;
- (c) That the programme would be 100 per cent funded by Government of India as a Central Sector Scheme;
- (d) Increased allocation for 'entry point activities' component to mobilise all stakeholders/ the community and to compensate the community for the loss due to closure (in particular to those enjoying traditional right to forest produce)

The programme is to be implemented through a two-tier set up comprising Forest Development Agencies (FDAs) and Joint "Forest Management Committees (JFMCs)

The points to be seen and checks to be exercised in Audit are as indicated in paras 5.1.4 and 5.2.3.

(a) Forest Development Agency (FDA)

FDA will be constituted at the territorial/ wildlife forest division level in all 775 such divisions in the country by the end of the 10th plan.

(b) Joint Forest Management Committees (JFMCs)

The JFMCs would be registered with the conservators of forests and would be the implementing agency at the grass root level. Each JFMC is to cater a village and those Committee would be in the vicinity of forest areas.

(c) The Greening India Programme

The programme would include tree planting in degraded non-forest land over 1.25 m ha and tree planting under agro-forestry/ farm forestry over 0.20 m ha per annum amounting to total of 1.45 m.ha. per annum non-forest land under these will be brought under tree cover mainly by the private sector.

(d) National Action Programme to Combat Desertification

The UN Convention to Combat Desertification (UNCCD) was adopted on 17th June 1994 and India is a party to the convention. The MoEF is the nodal agency and a national focal point for the implementation of the UNCCD in the country. Accordingly a National Action Programme finalised to be implemented over a period of 20 years with the following objectives:

- ◆ Community based approach to development
- ◆ Activities to improve the quality of life of the local communities
- ◆ Awareness raising
- ◆ Drought management preparedness and mitigation
- ◆ R&D initiatives and interventions which are locally suited
- ◆ Strengthening local self governance leading to empowerment to the local communities

Grants-in-aid to Voluntary Agencies

The Board provides financial assistance to NGOs and Voluntary Agencies for afforestation and tree planting activities. The objectives of the scheme are:

- (i) Development of wastelands adjoining forest areas through afforestation and soil and moisture conservation measures
- (ii) Development of grasses, and fodder including silvopasture
- (iii) Promoting involvement of people in the afforestation programme.

Issues to be seen in Audit.

A National Forestry Action Programme was drawn up with objective of enhancing the contribution of forestry and the resources to ecological stability and people centred development through qualitative and quantitative improvement in the forest resources. Five inter-related basic issues as mentioned below have been identified which formed the basis of the programme:

- (a) Protect existing forest resources
- (b) Improve forest productivity
- (c) Reduce total demand
- (d) Strengthen policy and institutional framework
- (e) Expand forest area

In Audit implementation of the programme may be analysed.

Review the targets of setting up of FDA and JFMC with reference to their achievement.

- (iii) Study the guidelines for National Afforestation Programme Scheme for implementing the various projects sanctioned and its application by the implementing agency.
- (iv) Examine that all the funds are released through FDA and deposited in a separate account.
- (v) Whether the FDA is submitting a comprehensive, quarterly report and annual report on progress of works and utilisation of funds in respect of all village forest committee to State Forest Department and the NAEB, MoEF.
- (vi) Whether the centrally sponsored schemes are concurrently evaluated. If so, the action taken on the findings may be watched in Audit.
- (vii) Whether every year 10 per cent districts of the country are selected with appropriate regional distribution for evaluation of the afforestation activities taken up by evaluation reports are analysed in NAEB.
- (viii) Review the physical and financial targets vis-a-vis their achievement.
- (ix) Regarding grant-in-aid scheme, all audit points relating grant audit are to be seen.

6.1.30 International Co-operation Activities

International Co-operation Division is a nodal agency within the Ministry for coordinating for all bilateral and multilateral cooperation including inter-alia the United Nations Environment Programme, South Asia Cooperative Environment Programme, follow up of action to the United Nations. Conference on Environment and Development including Agenda 21. The subjects of the Commission of Sustainable Development and of the Council of the Global Environ Facility are also within the mandate of the IC Division,

The Ministry also functions as the nodal agency and participates actively in international agreements relating to environment such as the convention on international trade in-endangered species, convention on wetlands of international importance, convention on the conservation of migratory species of wild animal, vienna, convention for the protection of the ozone layer Montreal Protocol on substances that deplete the ozone layer, conventions on Biological diversity and climate change, the Basel convention on Transboundary Movement of Hazardous Substances, convention to combat desertification.

Audit Points

Audit to look into international agreement, to see how country's interests are safeguarded through these accords. Measures taken by the Ministry to respect its various international commitments are to critically analysed.

6.1.31 Civil Construction Unit

Civil Construction Unit was created during 1987 in the Ministry for better coordination of execution of works. Unit is catering to construction work of all the main and attached offices under the Ministry such as BSI, ZSI, NMNH, IGNFA and autonomous bodies funded by the Ministry like ICFRE, GB Pant Institute of Himalayan Environment and Development, IIFM and IPRTI.

There are three divisions looking after construction activities. Two divisions are located at Delhi for works in Northern Region and one is located at Bangalore for works under Southern region. The works under Western and Eastern region are executed through CPWD and monitoring is done by this unit. To have effective control on construction activities, the sub-divisions are located at Delhi, Shimla, Dehradun, Jabalpur, Bhopal, Allahabad, Bangalore and Coimbatore.

Instructions given in the Manuals relating to works audit are to be applied for audit of the unit.

6.2 MINISTRY OF NEW AND RENEWABLE ENERGY

6.2.1 Ministry of Non-Conventional Energy Sources (MNES), now Ministry of New & Renewable Energy (MNRE) was initially established on 6th September 1982 as a Department functioning under Ministry of Energy with the goal to promote the development and utilisation of New and Renewable Technologies in the country. In 1992 the Department was upgraded into a separate Ministry of Non-Conventional Energy Sources (MNES) to develop various areas of renewable energy.

As the focus shifted towards market orientation and commercialisation of New and Renewable Sources of Energy (NRSE) technologies, the Ministry was restructured on the basis of end-use application of technologies in July 1993. There is thus a horizontal integration of various technologies to serve different energy needs thereby achieving the objectives of the Ministry.

6.2.2 Charter of MNRE

Under the Allocation of Business Rules, the MNRE has been assigned the following specific subjects:

- (i) Research and development of biogas and programmes relating to biogas units;
- (ii) Commission for Additional Sources of Energy (CASE);
- (iii) Solar energy including Solar Photo-Voltaic (SPV) devices and their development, production and application;
- (iv) All matters relating to small/ mini/ micro hydel projects of and below 25 mw capacity;
- (v) Programme relating to improved chullas and research and development thereof;
- (vi) Indian Renewable Energy Development Agency;
- (vii) Research and development of other non-conventional/ renewable sources of energy and programmes relating thereto;
- (viii) Tidal Energy;
- (ix) Integrated Rural Energy Programme (IREP);
- (x) Geothermal energy.

6.2.3 Structure of the Ministry

The Ministry is structured to serve the twin objectives of increasing the contribution of renewable sources in meeting the growing energy needs of the community and mitigating the environmental hazards posed by projects based on forest fuels. It functions through various Divisions besides the Commission for Additional Sources of Energy (CASE) and three specialised technical institutions.

6.2.4 Organisation

The Ministry is broadly organised into six groups dealing with Rural Energy, Solar Energy, Power from renewable, Energy from Urban and Industrial Wastes, New Technologies and Administration and Co-ordinations. Each group is headed by Advisers and Additional/ Joint Secretary. Programmes divisions under the group are headed by Directors. Integrated Finance division is headed by Joint Secretary and Financial Adviser.

6.2.5.1 Regional Offices

To have an effective implementation, promotion and monitoring of new and renewable energy programmes, the Ministry has nine regional offices located at Ahmedabad, Bhubneshwar, Chandigarh, Chennai, Bhopal, Hyderabad, Guwahati, Lucknow and Patna.

6.2.5.2 Functions of Regional Offices (ROs)

The main functions of ROs are:

- (a) Implementation of MNRE assisted sponsored projects/ programmes in States/ UTs - Liaison with the State Government, Nodal Agencies, Voluntary Agencies towards the objectives.
- (b) Close interaction with MNRE (HQs) in the quarterly review meeting and provide feedback for overall planning and implementation.
- (c) Monitoring/ inspection of ongoing and already completed projects and systems, programmes, etc. with the objectives of ensuring their operation with optimal efficiency.
- (d) Co-ordination and assistance towards plan/ project formulation implementation and monitoring of State Programmes.
- (e) Co-ordination regarding publicity awareness, seminars, conferences, workshops and exhibitions, etc.
- (f) Tendering advice and information to current and prospective users of new and renewable sources of energy applications/ systems, etc.
- (g) Motivating industrial establishments/ potential users for adopting new and renewable sources of energy devices.
- (h) Identification of new thrust areas for R&D. Liaison with nodal agencies, R&D organisation, etc. towards that objectives.
- (i) To assist MNRE in project formulation/ assessment, etc. of MNRE assisted projects in the States/ UTs.
- (j) Promotion and publicity of IREDA schemes, etc.

6.2.6 Commission for Additional Sources of Energy (CASE)

The CASE was established in March 1981 with full executive and financial power on the lines of the Atomic Energy Commission and Space Commission to oversee the development of new energy sources in the country.

6.2.6.1 Organisation of CASE

The CASE consists of Chairman, who is the Secretary, Ministry of New & Renewable Energy and six members consisting of Secretaries, Department of Electronics, DoE, Ministry of Power, Ministry of Science and Technology, Planning Commission, Department of Rural Development, and Ministry of Environmental and Forests

Joint Secretary, MNRE is the Secretary of CASE.

6.2.6.2 Functions

The Commission shall be responsible for:

- (a) formulating policies and programmes for development of new and renewable sources of energy;
- (b) coordinating and intensifying research and development activities in new and renewable sources of energy;
- (c) ensuring implementation of governments policies in regard to all matters concerning new and renewable sources of energy; and

Within the limits of the budget provisions, approval by Parliament, the Commission shall have the powers of the Government of India both administrative and financial for carrying out its work.

Broad areas of responsibilities of the Commission are given below:

- (i) Plan, initiate financially support, monitor and undertake integrated national research and development programmes involving government labs, public and private sector companies and academic institutions aimed at generating all the knowledge necessary for production programmes in:
 - (a) development of appropriate technology for harnessing solar energy;
 - (b) development of wind energy;
 - (c) development of bio-mass and bio-conversion technology;
 - (d) development of centralised energy systems; and
 - (e) other new areas as may be entrusted.
- (ii) Survey the R&D work done by various agencies.
- (iii) Function as the national agency for internal cooperation in the field of new and renewable energy sources.

- (iv) Interface research and development with production by amongst other measures:
 - (a) promoting the acquisition of technical capability and providing finances for design and engineering of pilot plants and prototype production facilities.
 - (b) taking special steps such as subsidies to ensure that the high cost of limited volume production does not become an obstacle to start commercial manufacture of products based on local know – how.
- (v) Survey, plan and approve and undertake programmes in the public, private and small scale sectors for production of materials, components, equipment and systems for commercial exportation of know-how in areas of alternative energy sources in consultation with other ministries and industries.
- (vi) Recommend to government various incentives measures for commercial use of the new and renewable energy technologies by industries.
- (vii) Function as a data bank on all aspects of new and renewable energy sources and advice government on import of technology in the area of new and renewable sources of energy.
- (viii) Be responsible for operating all necessary industrial and import licensing policy and procedures as far as the industries in the new areas are concerned.
- (ix) Develop and coordinate with other agencies schemes oriented to the needs of rural India keeping in view the rural sources of energy available and train manpower for operating decentralised system of energy.

6.2.7 Specialised Technical Institutions

The MNRE has set up three specialised technical institutions to constantly work, inter-alia, on upgradating technology, ensuring reliability of the systems through testing, standardisation and certification and developing designs to suit specific needs of different sectors and target groups. The three institutions are:

- (i) Solar Energy Centre (SEC), Gurgaon
- (ii) Centre for Wind Technology (C – WET), Kayathar, Tamil Nadu
- (iii) Sardar Swaran Singh National Institute of Renewable Energy (SSS – NIRE) – Kapurthala Road, Jalandhar, Punjab

6.2.8.1 Programmes

The Ministry is implementing broad-based programmes covering the whole spectrum of renewable energy sources. The programmes seeks, inter-alia, supplementing conventional fossil fuel based power, reaching electricity to the unreached, meeting the rural energy needs for a variety of applications like pumping of water for irrigation, drying of farm produce, etc. promoting improved chulhas and biogas plants to reduce the drudgery of rural women and minise the health hazards arising from indoor pollution and recovering energy from the urban, municipal and industrial wastes. In addition, exploitation of chemical sources, geo-thermal energy, ocean energy and biofuels for automotive application is envisaged under the Ministry programmes.

Group-wise programmes of the Ministry are given below:

6.2.8.2 Rural Energy

- (i) National Project on Biogas Development renamed for Tenth Five Year Plan plan as National Programme on Bioigas and Manure Management.
- (ii) Community, institutional and nigh-soil based biogas plants (CBP/ IBP/ NBP) programme. (slated for transfer to state sector in Tenth Plan)
- (iii) R&D in biogas.
- (iv) Rural Energy Entrepreneurship and Institutional Development Scheme (REEID).
- (v) National programme on improved chulah. (slated for transfer to state sector in Tenth Plan)
- (vi) National Project on Clean Energy Services for Rural Areas Scheme (NPCES).
- (vii) Women and Renewable Energy Development Scheme (WRED).
- (viii) Integrated Rural Energy Programme (IREP).

6.2.8.3 Solar Energy

- (i) Solar Thermal Energy Programme;
- (ii) Solar Photo-Voltaic Programme (SPV);
- (iii) Village Electrification;
- (iv) SPV Water Pumping Programme;
- (v) Water Pumping Windmills, Small Aerogenerators and Hybrid Systems.

6.2.8.4 Power Group

1. Power from Renewables

- (a) Wind Power Programme
- (b) Solar Power Programmes (SPV) Power Programme and Solar Thermal Power Programme
- (c) Biomass Power Programme
- (d) Biomass Gasifier Programme
- (e) Small Hydro Programme

2. Energy from Waste

Energy recovery programme from urban and industrial wastes.

3. New Technologies

- (i) Chemical Sources of Energy (Fuel Cell)
- (ii) Hydrogen Energy
- (iii) Alternative fuel for surface transportation
- (iv) Geothermal Energy
- (v) Ocean Energy
- (vi) Biofuels

Programmes and schemes of the Ministry are approved by the CASE. Once the programme/scheme is approved, all the projects coming under them are sanctioned after getting the approval of Programme Advisory Committee of the concerned group/ division.

6.2.9 Budget

The utilisation of gross budgetary support of Rs.134 crores in the Sixth Five Year Plan in renewable energy sector rose to a level of Rs.1755 crores in the Ninth Plan. However, the plan allocations during the Ninth Plan was Rs.3800 crores and proposed allocation for Tenth Plan is Rs.10289.33 crores.

The comparative groups details of budget allocated during Ninth Plan and the proposed during Tenth Plan are given below:

(Rs. in crores)

Group/ programmes	Ninth Plan Allocations	Tenth Plan Proposed
Power generation	626	1732
Solar photo voltaic	290.5	980
Solar thermal energy	340	219
Village electrification	0	1380
Rural energy programmes	401	760
IREP	53	300
Wind pump	8	28
New technology	25	324

The strength of the establishment for the Ministry as on 1.3.2001 was 412.

6.2.10 Planning and Coordination Division

The Planning and Coordination division is responsible for:

- ◆ preparation of the Annual Plans and the Five Year Plans besides periodic review of their implementation,
- ◆ coordination of physical as well as financial matters relating to Parliament i.e. Parliament Questions, meetings of the Standing Committee of Energy, VIP references, etc.
- ◆ coordination among the various programmes/ divisions within the Ministry as well as other Ministries/ Departments and the Planning Commission, etc.
- ◆ preparation and sending of monthly reports to the PM's office and the Cabinet Secretariat, a report to the Home Ministry/ Department of Development of Northeast for Northeastern States and reports to other Ministries/ Departments concerned.

6.2.11 Points to be seen in Audit

- (i) Policies and programmes are drawn up in accordance with the mandate of the Ministry and are being implemented by specific and well defined procedures.
- (ii) Whether adequate steps have been taken in achieving the 3 major thrust areas i.e. (a) meeting minimum rural energy needs, (b) electrification of 18000 remote villages through decentralised energy supply, and (c) grid quality power generation.
- (iii) Study the renewal energy policy statement of the Ministry as and when approved by the Government with a view to see that the policies and programmes being pursued are in accordance with it.
- (iv) Whether the Ministry is performing all the functions.
- (v) Examine the agenda and minutes of the CASE meetings. Whether prompt action is taken on the recommendation of CASE.
- (vi) Whether all the matters which fall within the perview of the CASE are put up to the CASE and approvals obtained.
- (vii) In the Tenth Five Year Plan document, the Ministry has identified the following constraints in the rapid implementation of the renewable energy programmes:
 - (a) Financial – Renewable energy technologies being capital intensive, State and Central Government are not able to provide adequate financial resources.
 - (b) Lack of favourable power purchase policy.
 - (c) Demand – Because of high price per unit and low reliability, sufficient demand has not been generated.

- (d) Inadequate budgetary support.
- (e) Professional human resource base – sufficient skilled manpower is not available.

Efforts made by the Ministry to overcome these constraints may be enquired.

- (viii) Study the NRSE potential and achievement. Whether achievement is as per target laid down.
- (ix) Whether the progress of implementation of various programmes approved by the CASE are reviewed during its meeting.
- (x) Generally review the papers i.e. agendas, minutes, etc. relating to the Annual Renewable Energy Conference and important points, if any, noted for detailed examination.
- (xi) Monthly reports sent by the Ministry – Planning and Co-ordination Division to MNO and the Cabinet Secretariat may be generally reviewed.
- (xii) Periodic review of annual and the Five year plan undertaken by the Planning and Co-ordination Division may be generally studied.

6.2.12 Rural Energy Group

The following programmes schemes are being carried out under Rural Energy Group:

- (a) National biogas and manure management programme;
- (b) Pilot schemes on rural energy entrepreneurship and institutional development;
- (c) Women and renewable energy development;
- (d) National project on clean energy services for rural areas; and
- (e) Special area demonstration programme.

6.2.13 Biogas Development Programme

Biogas development programme was promoted by the MNES through three major schemes viz.

- (i) Construction of family type biogas plants under national project on biogas development-commenced in 1981-82 and continued till Ninth Plan period.
- (ii) Construction of large size biogas Plants, under Community, Institutional and Night-soil based Biogas Plants (CBP/ IBP/ NBP) programme – initiated in the year 1982-83 and slated for transfer to State sector in Tenth Plan.
- (iii) Research and development on biogas.

On the basis of recommendation of the Sub-Group on rural energy, formed to assist the working group constituted by the Planning Commission for preparation of 10th Five Year Plan proposal for the MNRE to converge the three above mentioned programmes i.e. NPBD, CBP/ IBP/ NBP and R&D on biogas, a modified scheme entitled “National Biogas and Manure Management Programme (NBMMP)” is proposed for the Tenth Plan.

6.2.13.1 Objectives

The objectives of the NBMMP are to:

- (a) provide clean and cheap source of biogas energy;
- (b) produce and use enriched organic manure and develop residue management systems for value added products;
- (c) improve sanitation and hygienic by attaching household and community toilets;
- (d) mitigate drudgery of women and girl children and generate employment in rural area; and
- (e) sponsor R&D projects for design improvement, intermediate high rate bio-reactors, cost reduction, gas production efficiency, gas and manure products utilisation for economic benefits, gas purification, gas containerization, crop residue management etc.

6.2.13.2 Implementation

A multi – agency approach will be invogue. Besides the state nodal department/ agencies and corporate bodies and the registered societies, the KVIC, Animal Welfare Board of India, Regional and National level NGOs, will implement the programme. The involvement of Panchayats would be increased both on selection of the beneficiary and monitoring the programme.

6.2.13.3 Implementation Strategies

The focus of implementation strategy will be the following:

- (a) Multi-model and multi agency approach.
- (b) Whole village coverage saturation approach.
- (c) Focus on entrepreneurship development, strengthening of manufacturing units and micro-enterprises.
- (d) Concurrent monitoring and evaluation by independent agencies.
- (e) Co-ordination – State and district level coordination Committees.

6.2.13.4 Monitoring and Evaluation

Two tier monitoring system – first tier by the State nodal departments and programme implementing agencies for 100 per cent physical verification at block level and random inspection at district and State level. Second tier inspection of randomly selected districts by ROs of MNRE and Biogas Development and Training Centre.

6.2.13.5 Financial Assistance

Subsidy is provided on (a) small capacity biogas plants, (b) medium size biogas plants, (c) large size biogas plants, (d) night soil based biogas plants, (e) project based financial support for large biogas system for production and marketing of electricity and manure at the rate stipulated from time to time. Central assistance for (i) turn key job fee, (ii) repair and revival of biogas plant, (iii) training courses, (iv) service charges/ staff support, (iv) project contingency to medium and large size plant, (vi) publicity, (vii) technical back up support and training, (viii) utilisation of biogas plant slurry for value added products, (ix) interest subsidy to micro and manufacturing units is also provided.

6.2.13.6 Point to be seen in Audit

(a) Programme

- (i) Whether the objectives of the programme are being achieved.
- (ii) Whether the physical and financial targets are met. If there is wide variation, examine the reasons for the same.
- (iii) Study the agreements with various implementing agencies.
- (iv) Since the funds are released through the implementing agencies, examine whether adjustment accounts of the funds are rendered promptly.
- (v) Examine the Report of the Programme Evaluation Organisation of the Planning Commission who took up evaluation study of biogas plants set up during 1995-96 to 1999-2000 covering 19 States.
- (vi) Monitoring
 - (a) Whether 100 per cent physical verification at block level and random inspection at the District and State level by the State Nodal Departments and programme implementing agencies was conducted.
 - (b) Whether inspection by ROs of MNRE and Biogas Development and Training Centres also carried out.
 - (c) Whether results of physical verification and inspections effectively persued.
 - (d) Whether concurrent monitoring system implemented.
 - (e) Whether the States carried out evaluation studies once in two/ three year by independent organisations.

(b) Financial Incentives

It may be ensured that:

- (a) subsidy is paid in accordance with instructions issued by the Ministry from time to time,
- (b) rate of subsidy is strictly adhered to,

- (c) advance release of subsidy is not resorted to,
- (d) whether biogas development and training centres have been established in the major States. Whether recurring and non-recurring grants are given as per laid down norms and terms and conditions of issue of grant are followed,
- (e) since service charges to State nodal agencies and implementing agencies are linked to achieving certain physical targets, it may be test checked that the same are paid as per laid down norms,
- (f) check that the payment of other financial assistance/ incentives is as per laid down norms,
- (g) check that the interest subsidy to micro enterprises and manufacturing units on bank loans is as per laid down norms,
- (h) financial assistance paid for holding various training course may be test checked with the laid down terms and conditions. How the MNES is ensuring the benefits of holding these training courses may be gone into,
- (i) In respect of projects sanctioned for implementation in various States, the following broad points may be seen:
 - (i) Projects are duly approved by the competent authority
 - (ii) Availability of raw material i.e. dung, water, etc. is ensured.
 - (iii) Adherence of time schedule for installation of the plants.
 - (iv) Non-completion and non-commissioning of plants.

6.2.14 National Project on Clean Energy Services for Rural Areas (NPCES)

- (a) It is a scheme to be implemented in the high focus areas such as NE region States, Islands, J&K, hilly Districts of UP/ Uttarakhand, Chota Nagpur region, Sunderban and Sagar Islands in West Bengal, KBK region in Orissa, Jaisalmer and Barmer region of Rajasthan Baster tribal region of Chhattisgarh during the Tenth Plan period. Its objectives are to:
 - (i) prepare and implement renewable energy projects for cost effective utilisation and conservation of resources;
 - (ii) motivate establishing of user cooperatives and self help groups under the supervision of non-governmental organisations and entrepreneurs to ensure people's participation;
 - (iii) capacity building for implementation, training, maintenance servicing and awareness raising; and
 - (iv) R&D and demonstration projects on integration of various bio-field based thermal energy systems.

This programme is to implemented in village cluster exclusively in High Focus Areas and each cluster of village panchayat and would cover promotion of energy system and devices.

(b) Pattern of Financial Assistance

- (i) Central Financial assistance on project cost sharing basis with State Governments and UT Administration.
- (ii) Annual maintenance charges for a period of 5 years on a 50:50 basis.
- (iii) Full financial assistance for training courses.
- (iv) Project based Central Financial Assistance to State and District level institutions and NGOs for training, publicity and project formulation.

(c) Monitoring and Evaluation

Programme in each cluster of village panchayat will be monitored on a quarterly basis and will also be evaluated by an independent organisation at the end of the second and fifth year of the 10th five year plan period.

(d) Points to be seen in Audit

- (i) How far objectives of the programme have been achieved.
- (ii) Projects sanctioned under the programme have the approval of competent authority.
- (iii) Achievement of physical and financial targets.
- (iv) Monitoring is done on quarterly basis.
- (v) Agreements with implementing agencies in NGOs, Panchayats, entrepreneurs and self help groups and State and district level technical institutions for implementing energy projects in a cluster of villages and imparting of technical training respectively.
- (vi) Programme is evaluated by an independent organisation at the end of 2nd and 5th year of implementation.
- (vii) Various financial assistance are rendered after observing the laid down norms and other conditions.

6.2.15 Rural Energy Entrepreneurship and Institutional Development (REEID)

- (a) The scheme on REEID was initiated in the year 2000-2001 with the following objectives:
- (i) create entrepreneurship in the rural energy sector at the local level;
 - (ii) strengthen entrepreneurship development centres in different States for providing training, management skills, support for project formulation, maintenance services and expert management and consultancy;
 - (iii) assess and develop market in the rural energy sector through market surveys, development of bankable model projects, cost benefit analysis of projects and preparation and distribution of best practice manuals and guides;

- (iv) organise entrepreneurship awareness camps and technology based entrepreneurship development programmes;
- (v) develop and promote linkages amongst rural energy entrepreneur, renewable energy industries, financing institutions including IREDA and State nodal departments and nodal agencies;
- (vi) involve non-government organisation in promoting, facilitating and establishing rural energy enterprises; and
- (vii) establish energy sales and service outlets in rural areas.

The overall objectives of the scheme is to create entrepreneurship in the rural energy sector at the local level. Emphasis of the scheme is on creation of skilled manpower, marketing, quality installation and maintenance service of renewable energy systems in rural areas.

(b) Central Financial Assistance

Central financial assistance is to be provided for:

- (i) Entrepreneurship Awareness Camp (EAC)
- (ii) Entrepreneurship Development Programme (EDP)
- (iii) Core organisation assistance to selected institution
- (iv) Financial incentives to rural energy entrepreneurs for acquiring technology, getting certification from Bureau of Indian Standards (BIS), preparing project proposal, training, etc.
- (v) Rural Energy Entrepreneurs and Consumer Facilitation Counter
- (vi) Support market surveys, studies on financial/ economic analysis of renewable energy systems participation in exhibitions, workshops etc.
- (vii) Interest subsidy

(c) Monitoring and Evaluation

The programme will be monitored on a half yearly basis and will be evaluated in two years by an independent organisation.

(d) Points to be seen in Audit

- (i) How far the objectives of the scheme have been achieved.
- (ii) Achievement of physical and financial targets each year.
- (iii) Financial assistance provided for EAC, EDP, core organisation support institutions and for ECFC is per laid down procedure and norms.
- (iv) All the proposals have the sanction of the competent authority.

- (v) Since the scheme is implemented by involving SNAs, NGOs, Entrepreneurship Development Centres, management institutions and other technical institution agreements or understanding reached with them many be reviewed.
- (vi) Whether the programme is monitored both by the State Nodal Departments and Agencies and RO of the Ministry at laid down intervals.
- (vii) The scheme is required to be evaluated by an independent organisation once in two years, whether this has been effected.

6.2.16 Integrated Rural Energy Programme (IREP)

- (a) The IREP aims developing the planning and institutional capabilities at the State, District and Block levels to formulate and implement arealised micro level energy plans and projects for promoting the utilisation of a optimum mix of various energy sources. The IREP envisages large scale participation of the people in the planning and implementation of the programme through the involvement of Panchayats, NGOs and other institution. It also envisages the setting up and strengthening of the mechanism for effectively linking micro level planning for rural energy with national and state level planning for energy and economic development.

A total of 860 blocks have been sanctioned. As per performance budget 2002-03, the IREP will not be implemented as a centrally sponsored scheme during 10th five year plan. A provision of Rs.5 crores has been made during 2002-03 to meet spill over liabilities.

(b) Points to be seen in Audit

The programme was evaluated under an UNDP funded project entitled "Analysis of IREP and development of capacity building strategy" during 1999-2000. Main findings and recommendations may be critically analysed. Reasons for non-implementation of the scheme during 10th Plan period may also be ascertained. Whole scheme may be reviewed in view of huge investment gone into this scheme.

6.2.17 Women and Renewable Energy Development (WRED)

- (a) The scheme on WRED was started in 2000-2001 with the following objectives:
 - (i) Empowerment of rural women through promotion, marketing, utilisation and management of renewable energy systems and devices;
 - (ii) Establishment of renewable energy sales and servicing outlets managed by women at local level;
 - (iii) Organisation of women self help groups to arrange construction and maintenance servicing of improved chullas, biogas plants, solar lanterns, solar cookers etc. besides undertaking energy plantations in waste land for fuel wood production and organising annual maintenance contracts for renewable energy systems, etc.
 - (iv) Imparting of training in the construction, operation, repair and maintenance of various kinds of renewable energy systems relevant for women;

- (v) Recognition of entrepreneurship and research capabilities among women through awards and certificate of merit; and
- (vi) Publication of training and best practices manuals and publicity and awareness generation materials including audio-visual aids, on renewable energy systems especially for women.

State nodal departments and agencies, KVK, academic institutions and NGOs are involved in implementing the scheme.

(b) Central Financial Assistance

The Central Financial Assistance are given for organising orientation/ training course, establishing of renewable energy sales and servicing outlet and grant to serve as a revolving fund to self help groups for arranging maintenance, servicing of renewal energy devices and systems.

6.2.18 Special Area Demonstration Programme (SADP)

- (a) An energy park scheme was taken up during 1994-95 under SADP for setting up energy parks at educational institutions and institutions where there is a large inflow of public. The main aim of the scheme is to create awareness and give publicity among the students, teachers, urban and rural people about the use benefits of renewable energy systems and devices by demonstrating them in the energy parks.

The energy park scheme is being implemented through the State Nodal Agencies/ Department.

The energy park scheme envisages 100 per cent funding (max Rs.1000 lakhs) towards procurement of the system and devices and their installation as one time funding.

The concerned State implementing agencies are given a fixed amount per park for monitoring the progress of the implementation of the park.

For maintenance of parks, a percentage of the capital cost of the systems and devices is given for a period of 4 years starting from 2nd year on case to case basis.

(b) Points to be seen in Audit

- (i) Setting up energy parks have the approval of the competent authority.
- (ii) Achievement of physical and financial targets each year.
- (iii) Since 100 per cent funds are provided by the MNES to State Nodal Agencies to meet the renewable energy systems/ devices and their installation in the energy parks, it may be examined whether mechanism exists in the Ministry for watching the progress of setting up of the energy parks and utilisation of funds to the intended purposes.
- (iv) Maintenance cost and monitoring charges are paid after proper verification.
- (v) Whether monitoring of the energy park scheme is being done by MNES and concerned State Nodal Agency and whether the monitoring system is effective.
- (vi) Whether MNES of their own conduct evaluation studies of the functioning of the systems vis-à-vis their utilisation.

- (vii) Whether the programme is being evaluated through independent agencies. If so, the report relating to it may be examined.

6.2.19 Solar Energy Group

6.2.19.1 Solar Thermal Energy Programme

- (a) A solar thermal extension programme was launched in 1984 under which several types of solar thermal systems were promoted in the country by providing subsidy to both individual and institutional users. The products promoted were solar water heaters, solar dryers, solar stills and solar cookers. On review in 1993 the central subsidy on solar water heaters and solar cookers was withdrawn in 1993 and 1994 respectively and instead incentives in the forms of soft loan and tax benefits introduced.

(b) Objective

The main objectives of the solar thermal energy programme are to:

- (i) develop reliable efficient and cost effective solar thermal technology and products through R&D.
- (ii) promote the wide spread utilisation of solar thermal systems like water heaters, air heaters/dryers through soft loan and tax benefits.
- (iii) evaluate field performance of newer technologies, new applications and innovative designs through a demonstration programme.
- (iv) promote utilisation of solar water heaters by demonstrating their utility in the NE States, Sikkim, J&K and the Islands under a cost sharing arrangement.
- (v) promote solar efficient building design concept in the country through training and education, awareness promotion and demonstration.
- (vi) ensure quality of products through standard, testing, training and consultancy provisions.
- (vii) review relevant bye-laws for incorporating provision for solar assisted energy conservation measures.

The programme is being implemented through State Nodal Agencies, IREDA, Commercial Banks, Scientific Institutions.

It has five components viz. Solar Thermal Extension Programme (Solar Water Heating, Solar Air Heating), Solar Cooker Programme, Solar Building Programme, R&D Programme and Aditya Solar Shops.

(c) Thrust Areas of the Programme during 10th Plan Programme

- (i) Market development and commercialization of solar thermal technologies like solar water heater, solar air heater, solar cookers, solar building etc. through provision of soft loans and financial assistance for demonstration projects.
- (ii) Development of new and emerging technologies and processes not hitherto develop and on improvement of available technologies.

- (iii) To facilitate sale of different renewable energy products, servicing of the devices.
- (iv) R&D, training and education, human resource development, dissemination of information, awareness creation, etc.

6.2.19.2 Solar Water Heater

(a) Interest Subsidy Scheme

The soft loan programme under an interest subsidy scheme is implemented through IREDA and public sector banks. While IREDA provides loan directly and through its financial intermediaries for deployment of solar thermal products like solar water heaters, solar air heaters and solar distillation system of any capacity. The banks provides loans only for solar water heaters upto a maximum capacity of 2000 litres per day. The upper limit of loans to be extended by banks, IREDA or any other financial institution at reduced interest rates under the scheme will be 85 per cent of the ex-factory or ex-showroom cost of the system.

6.2.19.3 Solar Cooker Programme

Under the market – oriented programme, box solar cookers are being promoted through promotional and loan schemes of the Ministry. In the promotional scheme, financial support is provided to State Nodal Agencies for organising publicity, cooking demonstrations/ competitions, training, developing marketing network and repair and servicing facilities at sales outlets and establishing solar food stalls. The manufacturers are supported on a 50 per cent cost sharing basis in the loan scheme, interest free loans are made available to bulk users and to individuals through banks. The Ministry is promoting through special demonstration programme under cost sharing basis for installation of concentrating type solar cookers such as Dish Solar Cooker, Community Solar Cooker, Solar Steam Cooking System.

6.2.19.4 Solar Building

Under this programme, financial assistance is being provided by the Ministry to specialised organisation for conducting workshops, seminars, training and refresher courses for creating awareness and providing information about the technology to engineers, students and potential house owners. Provision is also kept to provide financial assistance for constructing such building in the government and semi-government sector.

6.2.19.5 Aditya Solar Shops

To make the renewable energy products easily available to people and provide them easy after sale repair services, the Ministry is promoting the establishment Aditya Solar Shops. The shops are established by State Nodal Agencies or the manufacturers' association or NGOs. The Ministry provides a one time grant for the establishment of these solar shops and a small recurring grant for the initial two years of operation, publicity grant is also provided.

6.2.20 Regional Test Centres

Six Regional Test Centres have been established by the Ministry in addition to this Solar Energy Centre, Gurgaon for testing the products of various manufacturers as per BIS Standards and providing the requisite technical information to various implementing and user agencies.

6.2.21 Points to be seen in Audit

- (i) Policies and programmes drawn are not in variance with the thrust areas.
- (ii) Efforts made to achieve the objectives, how far the Ministry is successful in achieving the objectives.
- (iii) Study the MoUs with bank and other programme implementing agencies.
- (iv) Regarding interest subsidy scheme the following points may be looked into:
 - (a) Test check the lending rate of the banks with reference to guidelines issued by the RBI.
 - (b) Banks provide loans only for solar water heaters upto a maximum capacity of 2000 litres per day.
 - (c) The MNES makes the payments/ grants on account of interest subsidy for the period of loans.
 - (d) The upper limit of loans i.e. 85 per cent of the cost to be extended by banks, IREDA, etc. at reduced interest rates under the scheme is followed.
 - (e) Additional amount of Rs.3000 to the banks as promotional incentive/ business development charge for each loan disbursed is used for specified purposes.
- (v) Check that the financial assistance from the Ministry for the demonstration programme is extended only to institutions, hostels, hospitals, etc.
- (vi) Enquire whether the implementation of the soft loan scheme through banks ever reviewed by a Committee. If so, examine the reports.
- (vii) Whether the monitoring and evaluation mechanism of the programmes exists and is adequate.
- (viii) Achievement of physical and financial targets.
- (ix) In respect of recurring and non-recurring grants given for establishing Aditya Solar Energy all stipulated terms and conditions of issuing and utilisation of such grants are followed:
- (x) Whether mechanism exists in the Ministry to watch the performance of Aditya Solar Shops.
- (xi) In respect of soft loans scheme, the system of making payment to the banks and its utilisation may be examined.

6.2.22 Solar Photovoltaic Programme (SPVP)

- (a) Solar photovoltaic technology enables direct connection of sunlight into electricity without any moving parts and without causing pollution. The SPV programme of the Ministry has resulted in significant technological developments and widespread field level demonstration and utilisation of SPU technology for various applications. The most common systems deployed under this programme are portable solar lanterns fixed type solar home systems, street lighting systems and stand – alone, small capacity, village level power plants. A new component of solar generators is also proposed to be initiated.

(b) **Objectives**

The main objectives of SPV programmes are to:

- (i) continue R&D and engineering efforts with a view to lowering the cost of production and increasing the efficiency of the SPV systems.
- (ii) promote the use of SPV systems, like solar latrines, solar home systems, street lighting systems and small village level power plants and seed the market through a well coordinated demonstration and utilisation programme.
- (iii) bring the benefits of SPV electrification to unelectrified villages and hamlets.
- (iv) continue demonstration of the newly developed SPV system, for a wide range of applications.
- (v) encourage the establishment of marketing network infrastructure for the installation, maintenance and monitoring of SPV systems by the manufacturer in order to provide efficient after sales services.
- (vi) promote awareness about the technology and its applications.

(c) **Implementation**

The programme to be implemented through the State Nodal Agencies, NGOs, PSUs, Aditya Shops and other shops authorised by the MNES from time to time.

(d) **Central Financial Assistance**

Central financial assistance in the shape of central subsidy and service on solar lantern, home lighting system/ solar home system, street lighting system and power plant and other systems is extended by the Ministry. For North-Eastern Region including Sikkim the quantum of subsidy is at higher rate as compared to other general areas. For solar generators the Ministry would provide interest subsidy to implementing organisations.

(e) **Points to be seen in Audit**

- (i) How far the objectives of the programme are achieved.
- (ii) Projects sanction under the programme are duly approved by the competent authority, completed in stipulated timeframe and their objective achieved.
- (iii) It may be seen in audit that the quantum of central subsidy for each system is as per stipulated guidelines and extended to only to the eligible categories. Commercial organisations are not covered under the subsidy scheme.
- (iv) The programme implementation organisations are responsible for implementation of the projects as per the prescribed provisions and for the submission of monthly progress reports during the implementation phase and periodic reports thereafter on the performance of the systems. Whether this is being followed in practice. If so, whether the system exists in the Ministry to review the reports.

- (v) Whether the system installed are inspected by officials of the ROs of MNES.
- (vi) Whether the system installed are inspected by independent professional organisation.
- (vii) Whether physical and financial targets are laid down, if so, compare them with actual achievements.

6.2.23 Programme on Solar Photovoltaic Water Pumping Systems for Agriculture and related uses

- (a) A programme for the deployment of solar photovoltaic water pumping systems for agriculture and related uses was launched by the Ministry during 1993-94.

(b) Objectives

Following are the broad objectives of the programme:

- (i) to promote commercialisation of photovoltaic pumping systems and their large scale use
- (ii) to strengthen the production base in the country for silicon wagers, solar cells, photovoltaic modules and pumps.
- (iii) to improve the efficiency of PV modules and pumps through upgradation of technology.
- (iv) to achieve reduction in cost of PV through support measures including concessional finance arrangements for manufacturers and users.

(c) Implementation

The programme is implemented through IREDA and the State Nodal Agencies.

(d) Financial Assistance

Subsidy in the form of subsidised rate per peak watt of the photovoltaic array used with pumping system with a maximum limit per system is provided. Provision of soft loan and interest subsidy also exist.

(e) Points to be seen in Audit

- (i) Efforts made in the fulfillment of the objectives and its actual achievement.
- (ii) Whether physical and financial targets are fixed every year, if so, compare it with actuals.
- (iii) The subsidy rate of Rs.110 per peak watt of the photovoltaic array used with the pumping system subject to maximum of Rs.2,50,000 per system is provided by the Ministry. It may be seen that adequate scrutiny system exists in the Ministry for the release of subsidy and the prescribed limits are observed.
- (iv) Check that the release of interest subsidy to IREDA is for soft loans at specified rates to users and financial intermediaries only on 90 per cent of remaining unsubsidised prices of the pumping system and other conditions, if any.

- (v) Check that financial assistance for the uses of North Eastern States and Sikkim is maximum of 90 per cent of the approved ex-works costs of the SPW water pumping system provided the implementation of the scheme is directly undertaken by the State Nodal Agency. SPV water pumping installed by the manufacturers and the financial intermediaries are not eligible this financial assistance.
- (vi) Check that the system of reimbursement of expenses on publicity and awareness campaigns are adequate and limits/ conditions prescribed are observed.
- (vii) Check that the programme is monitored by IREDA and is also conducting physical verification of the systems and whether the officials of the Ministry are visiting installation sites for inspection.
- (viii) Performance evaluation of the pumps is also carried out by private agencies, where reports may be reviewed.

6.2.24 Water Pumping Wind Mills, Small Aero Generators and Hybrid Systems

- (a) The programme on small wind energy systems is aimed at promoting the development technologies for harnessing the wind energy potential for water pumping wind mills, small generation using water pumping wind mills, small aerogenerators in battery charging mode and wind PV hybrid systems.

The MNRE has been implementing the programme since 1993. The main components of the programme are (a) R&D, (b) support to industry, (c) field demonstration and performance evaluation of small wind energy systems and hybrid system through subsidy.

(b) Objectives

The objectives of the programme are to:

- (i) support research and development to improve the designs and efficiency of water pumping windmills, small aerogenerators and hybrid systems and also make them cost effective.
- (ii) support field testing, demonstration, strengthening of the manufacturing base and awareness campaign for water pumping windmills, small aerogenerators and hybrid system.

The programme is implemented through state nodal agencies.

(c) Financial Assistance

For windmills the Ministry is providing cost, which vary with the type of windmill installed. The Ministry also gives grants varying from 50 per cent to 80 per cent of the ex-works cost of installation for small aerogenerators and hybrid system by various Central/ State Government Organisations, Panchayats, NGOs, as well as individuals and industrial users.

(d) Points to be seen in Audit

- (i) Review the physical as well as financial targets of both wind pump and aerogenerator and hybrid systems vis-à-vis their achievement, wide variation cases may be critically examined.
- (ii) Whether the Ministry is successful in achieving the objectives of the programme.

- (iii) The projects sanctioned have the approval of competent authority and that system exists in the Ministry to watch the successful completion of the projects.
- (iv) Check that the proposals in respect of windmills received clearly indicate the total cost, subsidy to be provided by Central and State Governments and the user share.
- (v) Check that 80 per cent of the Central subsidy (in the range of Rs.20000 – Rs.45000 per wind pump depending upon the model) is to the State nodal agencies in respect of copy of purchase order and the balance after installation and physical verification of windmills by the representatives of the State nodal agency.
- (vi) Check that project feasibility report relating to small aerogenerator and hybrid systems is invariably received with the proposal.
- (vii) Check that central subsidy on small aerogenerator/ hybrid system which is 50 per cent of ex work cost of the system, limited to Rs.2 lakhs per kw for community application and direct use by the Central/ State Governments and 50 per cent of ex works cost and limited to Rs.1.25 lakh per kw to private users including individuals is provided.
- (viii)
 - (a) Whether the programme is properly monitored by the implementing agencies as well as regional offices of MNES.
 - (b) Whether the monitoring system is adequate.
 - (c) Whether the programme has been evaluated by any independent agency. If so, review its reports.

6.2.25 Power from Renewable Sources

Power generated from non-conventional renewable sources has assumed significance in the context of environmental hazards posed by the excessive use of conventional fossil fuels. Renewable energy technologies have proved viable for power generation not so much as a substitute but as a supplement to convention power generation. Renewable energy resources, which we have in abundance, such as solar, wind, biomass, small hydro, etc. are non-depletable and can effectively meet energy demand and are environmentally benign. Special emphasis has, therefore, been given to the generation of good quality power from renewable sources of energy. The renewable energy power sector include Wind Power, Small Hydro Power, Biomass Power, Biomass Gasifiers, Solar Power programmes.

MNRE has issued guidelines to all the States on policies for power generation from renewable sources of energy with a view to encourage commercial development in this sector.

6.2.26 Wind Power Programme

- (a) The wind power programme is aimed at catalysing commercialisation of wind power on large scale by cost effective generation of grid quality power. It was initiated towards the ends of the Sixth Five Years Plan in 1983-84.

The programme includes:

- (i) Survey and assessment of wind resources

- (ii) **Research and development support**
- (iii) **Implementation of demonstration and private sector projects**
- (iv) **Development of infrastructure**
- (v) **Development of capability and capacity for manufacture, installation, operation and maintenance of wind electric generators and policy support.**

The wind resource assessment programme is being implemented by the Centre for Wind Energy Technology (C-Wet) in coordination with the State Nodal Agencies.

The programme for demonstration wind farms was initiated in 1985. The demonstration projects are implemented through the State Governments, State Nodal Agencies or State Electricity Boards.

Fiscal and financial incentives like 100 per cent accelerated depreciation, income tax holiday, concessional custom duties, excise duty exemption are available.

(b) Points to be seen in Audit

- (i) **Whether physical and financial targets are laid down and the same are achieved.**
- (ii) **As most of the capacity addition has been achieved through commercial projects by private investors and budgetary resources were mainly utilized for a limited number of demonstration projects and other support activities such as wind resource assessment and R&D, the following points may be seen:**

(a) Resource Assessment

Resource Assessment activities are carried out by C-Wet a technical institution of the Ministry, through projects in coordination with State Nodal Agencies. Hence

- (i) **scrutinize all the projects with reference to its (a) objectives, (b) time and cost over run, and (c) feasibility.**
- ii) **See whether mechanism has been involved in the Ministry to watch the progress of the projects sanctioned.**
- iii) **Whether the Master Plan for all the potential sites prepared.**
- iv) **Whether wind monitoring and mapping stations are promptly closed down after collection and analysis of data.**

(b) Demonstration Programme

- (i) **Review all the new demonstration projects sanctioned by the Ministry.**
- (ii) **Whether earlier project sanctioned have been successfully completed carried out and whether mechanism exist for monitoring the progress of implementation of demonstration projects.**

- (iii) For demonstration projects central financial assistance is rendered in the shape of sharing the cost of the project. The release and utilisation of financial assistance as per laid down financial rules is to be seen.

6.2.27 Solar Power Programme

- (a) Under the Solar Power Programme grid quality power generation based on solar thermal and solar photovoltaic technologies is being supported. Under the grid interactive Solar Photovoltaic Power (SVP) programme of projects address "niche" applications, namely, voltage support in the rural grids, peak load sharing in urban centres and diesel saving in island/ remote locations. Under the solar thermal power programme the Ministry proposes to set up a 140 mw Integrated Solar Combined Cycle (ISCC) power project at Mathaina, Jodhpur.

(b) Objective and scope

The main objectives and scope of the solar power programmes are to:

- (i) carry out R&D in the area of power electronics, grid interfacing, system design, etc. for grid interactive solar power projects.
- (ii) establish solar observations at a few sites with a view to collect data for planning solar power projects.
- (iii) design, install and operate SPV power plants in grid interactive mode at different location in the country in association with State Electricity Boards, State Nodal Agencies and private utilities.
- (iv) establish a 140 mw integrated solar combined cycle power project at Mathania, Jodhpur.
- (v) evaluate technical performance, reliability, cost and economics of grid interactive SPV system.
- (vi) promote information dissemination and manpower development.

The SPV power projects will be implemented through State Nodal Agencies, SEBs, private electric utilities and industry.

The Mathania project will be implemented as a centrally assisted project by Rajasthan State Power Corporation Limited.

(c) Points to be seen in Audit

- (i) Achievement of physical and financial targets
- (ii) Review the efforts made in achieving the objective of the programme
- (iii) Review all the projects sanctioned by the competent authority.
- (iv) Whether performance evaluation and monitoring of the projects undertaken with a view to assess their technical and economic viability.
- (v) Whether financial i.e. 2/3rd of the project cost subject to a maximum of Rs.2 crores for a 100 kwp system is provided after observing all the rules of financial propriety.
- (vi) Whether adequate monitoring mechanism exists in the Ministry for watching the progress of the projects already sanctioned.

6.2.28 Small Hydro Power Programme

- (a) Small Hydro Power (SHP) programme is one of the thrust areas of power generation from renewable energy sources. SHP projects have the potential to provide energy in remote and hilly areas where extension of grid system is either not possible or is uneconomical.

The Ministry, since 1989, has been responsible for the development of SHP projects upto 3 mw station capacity only. To provide a greater thrust and focussed attention to the SHP sector, the subject of SHP upto 25 mw has been transferred from the Ministry of Power to MNES w.e.f. 29th November 1999. New strategy drawn up in May 2000 envisages the development of SHP projects mostly as commercial projects with private sector participation.

SHP programme of the MNRE envisages the following objectives:

- (i) Strengthen resource assessment programme and create SHP database on GIS platform for the country.
- (ii) Use of state of the art SHP equipment, plant automation, standardization for optimum utilisation of resources.
- (iii) To facilitate private sector participation in the SHP sector through policy interventions, fiscal and financial incentives.
- (iv) Encouragement to local bodies, village panchayats, NGOs and other to set up micro hydel projects for remote and isolated village electrification.
- (v) Facilitate State Governments or creating suitable power evacuation facilities for effective development of SHP project.
- (vi) Facilitate international assistance/ institutional financing in the SHP sector.
- (vii) Accelerate renovation and modernization of existing SHP stations.
- (viii) Provide suitable support to the State Governments for completing ongoing SHP projects.
- (ix) Establishment of a national small hydro power centre for promoting R&D, testing, technical services, training etc.

(b) Financial Assistance

The details of the various financial incentives schemes for SHP sector are as follows:

Incentives Under Small Hydro Power Programme

Schemes	Areas	Below 500 kw	500 kw upto 1 mw	Above 1 mw and upto 5 mw	Above 5 mw and upto 15 mw	Above 15 mw and upto 25 mw
Survey and Investigation	Plain	Upto Rs. 0.75 Lakhs		Upto Rs. 1.00 Lakhs	Upto Rs. 1.50 Lakhs	---
Detailed Project Report	Hilly	Upto Rs. 1.00 Lakhs		Upto Rs. 2.00 Lakhs	Upto Rs. 3.00 Lakhs	2
	Plain	Upto Rs. 0.75 Lakhs		Upto Rs. 1.00	Upto Rs. 1.50 Lakhs	---
	Hilly	Upto Rs. 0.75 Lakhs		Upto Rs. 1.00	Upto Rs. 2.00 Lakhs	---
Interest Subsidy for Commercial Projects	Plain	5.00 per cent		2.50 per cent	2.00 per cent	1.50 per cent
	Hilly NE region	7.50 per cent		5.00 per cent	3.00 percent	2.00 per cent
Capital Subsidy for Govt. Sector Projects	NE Region, Sikkim	90 per cent cost of the project upto Rs. 75000 kw	90 per cent cost of the project upto Rs. 60000 kw	75 per cent cost of the project upto Rs. 45000 kw	Equipment cost + 25 per cent of Civil Cost limited to Rs. 22.50 crores/ project	Nil
	Middle Himalayas, Ladakh, A&N	Equipment cost + 50 per cent of Civil Cost upto Rs. 45000 kw cent of Civil Cost upto Rs. 3.00 crores/ mw		Equipment cost + 25 per cent of Civil Cost limited to Rs. 15 crores/ project	Equipment cost + 25 per	Nil
	Other Areas (only notified hilly regions)	Equipment cost + 50 per cent of civil cost upto Rs. 30000/ kw cent of Civil Cost upto Rs. 1.5 crores per MW		Equipment cost + 25 per cent of Civil Cost limited to Rs. 7.5 crores/ project	Equipment cost + 25 per	Nil
Renovation and modernisation of Old Projects		upto Rs. 2 crores/ mw			Limited to Rs. 10 crores/ project	Nil
Development / upgradation of water mills						
Mechanical Mode						
Mechanical/ Electrical mode		Rs. 30000 Rs. 60000				

(c) UNDP/ GEF Hilly Hydro Project

The Ministry is implementing a UNDP/ GEF technical assistance project on optimising development of small hydro resources in Himalayan and Sub Himalayan regions of the country.

(d) Points to be seen in Audit

- (i) Review efforts made in achievement of programme objectives.
- (ii) Review achievement of physical and financial targets of the programme.
- (iii) For Detailed Survey and Investigation (DSI) and Detailed Project Report (DPR) preparation the Ministry is providing financial assistance upto Rs.3 lakhs and Rs.2 lakhs respectively. In connection with this scheme the following points may be looked into:
 - (a) System of selection of agencies and potential sites for DSI and DPR study is adequate and sanction of competent authority is taken in all the cases.
 - (b) How the financial incentive is released i.e. after receipt of reports and their examination in the Ministry or by the experts or otherwise
 - (c) How the DSI and DPR reports are utilised.
- (iv) Capital subsidy scheme for SHP projects in the government sector
 - (a) Examine the projects sanctioned under this scheme with special reference to DPR, cost vis-à-vis subsidy, target date and actual date of completion.
 - (b) Whether subsidy is released after observing laid down general financial rules.
 - (c) Whether system exists in the Ministry for monitoring the progress of sanctioned projects.
 - (d) Whether the capital subsidy scheme is reviewed from time to time if so, to what effect
- (v) Interest subsidy for commercial projects by private sector
 - (a) Review the agreement with financial institutions who are providing soft loans at specified rates.
 - (b) Whether any upper limit of loans to be extended by financial institutions is fixed.
 - (c) Whether system exists in the Ministry to monitor the payments to the parties as well to the financial institutions.
 - (d) Check that all the projects sanctioned for availing interest subsidy scheme has the sanction of the competent authority.
- (vi) Critically examine all the projects sanctioned under the scheme of renovation and modernisation of old SHP stations.

6.2.29 Biomass Power Programme

Biomass is available in India in large quantities in the form of agricultural forestry and agro industrial use. According to estimates, the country has a biomass power potential of about 19500 mw.

To tap this large potential a National Programme of Power/ Co-generation is being implemented.

It consists of (i) Biomass based Power Generation, (ii) Biomass/ Bagasse based co-generation, (iii) research and development and (iv) biomass resource assessment.

The programme (i and ii) intends to create conducive conditions for utilisation of biomass such as straws, stalks, stems and fines, agro industrial processing residues and woody biomass for power generation through various conversion technologies such as combustion, gasification, incineration, pyrolysis, etc. using steam/ gas turbines dual fuel engines, gas engine or combinations thereof either in power alone or in co-generation mode. The minimum capacity of 1mw grid interfaced is covered under programme.

The national programme is mainly aimed at establishing techno-commercial feasibility and viability of power generation from biomass materials.

6.2.30 Biomass Resource Assessment Programme

- (a) The programme aims at developing a Biomass Resource Atlas (GIS mapping) based on biomass resource assessment studies in different agro climatic regions of the country.

(b) Fiscal Incentives

The promotion of biomass based power generation in the country is being encouraged through favourable policy regions at the State and Central levels. A package of fiscal incentives such as concession in custom duties, exemption from excise duty and central sales tax, tax holiday, accelerated depreciation etc. is extended for commercial projects.

(c) Implementation

These programmes are being implemented with the active involvement of the State Nodal Agencies, State Governments, SEBs, Industry, manufacturers, developers, entrepreneurs, R&D institutions, consultants and experts.

6.2.31 Biomass Gasifier Programme

- (a) Biomass had been a major energy source prior to the discovery of fuels such as coal and petroleum. It is still being widely used among rural communities in the developing country to meet their energy needs. Biomass besides used in solid form can be converted into gases through the gasification route. Biomass gasifiers convert solid biomass (woody and powdery) materials such as wood, agricultural and agro-industrial wastes into producer gas through thermochemical gasification process. The producer gas could either be burnt directly for thermal applications or be used for replacing diesel oil in dual fuel engines for mechanical and electrical applications.

The biomass gasifier programme is being implemented with the following objectives:

- (a) to develop and promote conversion and utilisation technologies, such as biomass briquetting and gasification for various end use applications in rural and urban sectors.
- (b) R&D on biomass production and gasification.

The scheme also augment the sufficient surplus power of using biomass gasifier technology through grid in order to optimize utilisation of power. The focus of new strategy will be on promotion of village electrification projects based on biomass gasifier systems and its project based application in various sets of industries for which package of industries have also been developed.

The national biomass gasifier programme is implemented through State Government Nodal Departments and State Nodal Agencies.

(b) Financial Incentive

As per performance budget 2002-03 of capital subsidy scheme for industrial use will be discontinued and instead interest subsidy through financial institutions introduced. In case of village electrification projects it is proposed to provide capital subsidies, with higher component of subsidy i.e. 90 per cent MNRE share and 10 per cent state share.

(c) Points to be seen in Audit

- (i) Study the physical and financial targets fixed for each programme vis-à-vis their achievement. Does the physical achievement commensurate with the money spent.
- (ii) Efforts made in achieving the objectives of each programme. Projects sanctioned under each programme fall within overall objective and its achievement.
- (iii) Financial incentive such as interest subsidy, capital subsidy are released only after observing the existing financial rules and after safeguarding the interest of the Government as well as observing of different restrictions/ norms prescribed by the Ministry.
- (iv) Study the MoU signed with different financial institutions.
- (v) Projects sanctioned have the approval of competent authority cost and time overrun cases may be thoroughly scrutinized.
- (vi) System exists for keeping in details of projects sanctioned, money released, documents obtained and related relevant information specially in respect of National Biomass Gasifier Programme.
- (vii) Regarding monitoring and evaluation the following points may be kept in view:
 - (i) Whether proper feedback on progress of implementation, post installation of the project is provided by the State Nodal Agencies to MNRE.
 - (ii) Whether implementing agencies are closely monitoring the functioning of projects supported under the programmes and reports on a half-yearly basis in a prescribed proforma at least for the first two years after commissioning of each system.
 - (iii) Whether the officer of the Regional Office of the Ministry monitor the progress of implementation of the projects and furnish post installation performance reports to Ministry.
 - (iv) Whether officers of the Ministry from Headquarters also undertake visits/ inspections of various projects.
 - (v) Whether the programmes have ever been evaluated by independent agencies, if so, study their reports.

6.2.32 Village Electrification Programme

- (a) About 18000 villages in the remote areas in the country are difficult and uneconomical to be electrified through conventional grid extension. It is, however, possible to electrify these villages through decentralized generation through locally available renewable energy options like Solar Photovoltaics (SPV), Small Hydro and biomass resources. It is proposed to electrify all these 18000 village by the year 2012. 90 per cent of the capital investment needed for setting up projects will be funded through central grant and the balance capital fund and funds required for O&M are to be met by the States/ promoters/ beneficiaries. The programme was launched by the Ministry in the year 2001-02.

(b) Points to be seen in Audit

- (i) Programme as approved by the CASE/ EFC may be examined. Audit may be done with reference to programme objective and various assumptions made.
- (ii) Achievement of yearly physical and financial targets may be analysed.
- (iii) Each project sanctioned may be examined with reference to its objectives, physical and financials targets and their achievement.

6.2.33 Energy from Waste Group

With rapid urbanization, industrialization and changes in the pattern of civic life, the generation of waste in the urban and industrial sectors is increasing day by day in the country. A potential for generating about 1000 mw of power from urban and municipal wastes and about 700 mw from industrial wastes is estimated for the country.

The Ministry has identified "Energy Recovery from Wastes" as one of its thrust area activities and is implementing following two programmes for recovery of energy from urban and industrial waste:

- (i) National Programme on Energy Recovery from Urban and Industrial Wastes.
- (ii) UNDP/ GEF project on "Development of High rate Biomethanation Process".

6.2.34 National Programme on Energy Recovery from Urban and Industrial Wastes

- (a) The main objectives of the programme are:

- (i) Creation of conducive conditions and environment with financial and fiscal regime to promote, develop and demonstrate the utilisation of wastes for recovery of energy and resources;
- (ii) Improvement in the waste management practices through adoption of renewable energy technologies for processing and treatment of wastes prior to disposal;
- (iii) Promotion of setting up projects for recovery of energy from wastes from urban municipal and industrial sectors.

(b) Financial Incentives

- (i) Commercial projects

Interest subsidy with a maximum limit depending upon the type of projects is extended.

(ii) Demonstration projects

Financial assistance upto 50 per cent of capital cost of the project limited to Rs.3 crores per MW.

(iii) Power generation at sewage treatment plants:

Financial assistance of upto 50 per cent of the incremental capital cost.

(iv) Urban local bodies and Municipal Corporations

Financial incentive @ Rs.15 lakhs per MW for providing garbage free of cost at the project site and land on long term basis on nominal lease rent. However, the incentive is reduced to 50 per cent in case of generation of power from fuel or fuel from waste.

(v) State Nodal Agencies

Incentive @ Rs.5 lakh per MW for promotion, coordination and monitoring of projects.

(vi) Preparation of detailed project report and techno economic feasibility reports

50 per cent of the cost subject to a maximum limit of Rs.2 lakh.

(vii) Resource assessment studies

Financial assistance can be provided, if necessary.

(viii) Promotional activities

Financial assistance is provided for organising training courses, business meets, national workshops and seminars, creation of awareness and publicity.

(c) UNDP/ GEF assisted project

The UNDP/ GEF assisted project on "Development of High Rate Biomethanation Process", which was started in September 1994 and duration of 5 years has been extended upto December 2002, MNES share of the project is Rs.23.5 crores

(d) Implementation

The programme for promotion of Waste to Energy (WTE) projects is being implemented through State Nodal Agencies, Government Departments and agencies, Urban Local Bodies, Industries, Technology Providers, Consultants, entrepreneurs.

(e) Points to be seen in Audit

- (i) Achievement of yearly physical and financial target set by the Ministry.
- (ii) Efforts made to achieve the laid down objective and with results thereof.

- (iii) Financial incentives are paid only after observing the Governments Financial Rules, norms and conditions prescribed by the competent authority and maintenance of adequate record.
- (iv) Review all the sanctioned projects with reference to their feasibility reports, cost contents, liability of the Ministry, installation and commissioning, monitoring agencies' responsibility, expectations and actual achievements, etc.
- (v) Adequacy of monitoring mechanism at Ministry and field level.

6.2.35 New Technology Group

The MNRE is implementing the following programme on various new technologies namely:

- (a) Chemical sources of energy
- (b) Hydrogen energy
- (c) Alternative fuel for surface transportation
- (d) Geothermal energy
- (e) Tidal energy

As part of these programmes, research, development and demonstration projects are initiated at various research, scientific and educational institutes, universities, national laboratories, industry, etc.

These projects are helping in the development of indigenous research and industrial base, expertise, trained manpower and prototypes/ systems/ devices in the country.

6.2.36 Chemical Sources of Energy (Fuel Cells)

- (a) Fuel cells produce electricity, employing reaction between hydrogen and oxygen gases, electrochemically. Fuel cells are efficient, environmentally benign compact, modular and reliable for power generation and automotive applications. Different types of fuel cells are being produced and used for power generation are the proton exchange membrane fuel cells (PEMFCs), phosphoric acid fuel cells (PAFCs), molten carbonate fuel cells (MCFCs), solid oxide fuel cells (SOFCs), Direct methanol fuel cells (DMFCs) and alkaline fuel cells (AFCs).

(b) Programme Objectives

- (i) Support for research development and demonstration of fuel cell technologies and system.
- (ii) Support for R&D projects in order to develop reliable, efficient, durable and cost effective fuel cell power systems.
- (iii) Support for demonstration and field testing of fuel cells for stationary as well as mobile power generation applications.
- (iv) Support for projects and activities relating to awareness creation through education, training, etc. and for organisation of business meet/ seminars/ symposia in the area of fuel cells.

6.2.37 Hydrogen Energy Programme

- (a) Hydrogen can be produced through biological conversion of various organic effluents and wastes and also through electrolysis of water using renewable energy. Byproducts like hydrogen gas, which is available from several chemical processes, plants or industry, can also be utilised as a fuel.
- (b) **Programme Objectives**
 - (i) Support for R&D projects on production, storage and utilisation of hydrogen as a fuel.
 - (ii) Support for demonstration proposals for utilisation of hydrogen as a fuel for stationary, portable and automotive applications.
 - (iii) Support for projects and activities related to awareness promotion about hydrogen energy through education, training and for organisation of business meet, seminars/ conferences/ symposia in the area of hydrogen.

6.2.38 Alternative Fuel for Surface Transportation Programme

- (a) As part of this programme, the MNES is implementing research development projects on development of advanced batteries, super capacitors and components of electric vehicles (EVs).

The Ministry is supporting projects at different institutions and industries for the development of EVs related aspect such as the development of AC vector controlled drive with IGBT inverter, high energy and power density nickel metal hydride and lithium batteries for battery powered vehicles.

- (b) **Objectives**

- (i) Support for R&D projects on advanced high energy density batteries, ultra capacitors, control systems and other components for battery operated electric and hybrid electric vehicles
- (ii) Support for pilot projects for battery operated vehicles for field performance evaluation.
- (iii) Support for projects and activities related to awareness promotion about hydrogen energy through education, training and for organisation of business meet, seminars/ conferences/ symposia in the area of electric vehicles.

6.2.39 Geothermal Energy

- (a) Geothermal energy is a clean and renewable energy source, which is being utilised in different parts of the world for power generation and direct heat application. A systematic efforts to explore and lap the geothermal energy source in India commenced with the setting up of a hot spring committee in 1963, which indentified nearly 340 hot springs in the country.

Project earlier taken up by MNES demonstrated the application of geothermal fluids for small scale power generation and in poultry farming and greenhouse cultivation.

The emphasis of the geothermal energy programme during the tenth plan will be to conduct detailed reconnaissance studies to assess the potential of deeper reservoirs and to develop one or two geothermal fields at full potential for power generation in prospective areas.

(b) Objectives

- (i) carry out field reconnaissance surveys/ studies.
- (ii) develop one or two geothermal fields to their full potential.
- (iii) develop/ deeply effective exploration methods and creat infrastructure for deep drilling of geothermal resource.
- (iv) popularize and maximise the utilisation of geothermal energy for its direct use by installing site specific demonstration projects.
- (v) develop a strong R&D network in the country.
- (vi) formulate a policy for finance, joint venture with private/ foreign entrepreneurs for development and operation of geothermal projects in the country.

6.2.40 Ocean Energy

- (a) The ocean contains renewable energy in the form of temperature gradients, waves, tides and ocean energy is considered to be one of the viable, alternate renewable energy resources, which could be economically exploited for different uses in a environmental friendly manner. The realisation of power from ocean at present is limited because of large technological gaps and limited resources.

(b) Objectives

- (i) carryout surveys/ studies to assess the potential sites for exploitation of ocean energy - Ocean Thermal Energy Conversion (OTEC), wave and tidal energy for power generation.
- (ii) develop the site at Durgaduani Creeks for installation of 3 mw tidal power plant for power generation.
- (iii) organise national/ international seminars on tidal energy.

6.2.41 Bio-Fuels

- (a) As a renewable domestic energy sources, bio-fuels have been found to be an alternative which can be used 5 to 10 per cent blend in petrol for vehicles to conserve petrol, improve urban air quality and reduce emissions of green house gases. In view of the world wide demand for energy and concern for environmental safety, there is a need to search alternative fuels to petrol and diesel for their use in automobiles.

(b) Objectives

- (i) carry out detailed studies on the characteristics of different petro-crops.
- (ii) develop technology to convert different vegetable oils to bio-fuel.
- (iii) conduct field trials for the successful demonstration of the use of bio-fuels as transport fuel.
- (iv) develop strong R&D network in the country for the development of this resource.
- (v) create awareness on different aspects of the use of bio-fuels as transport fuels through seminars/ symposia and field demonstrations.

(c) Points to be seen in Audit

- (i) Utilisation of financial outlay for each technology with reference to programme objectives may be critically examined.
- (ii) Projects sanctioned for demonstration, detailed survey and feasibility, studies, development, demonstration and performance evaluation, field testing under different technology may be reviewed critically.
- (iii) Whether satisfactory monitoring mechanism exists in the Ministry to watch progress of different aspects of technologies.

6.2.42 Technology Information Forecasting, Assessment and Databank (TIFAD)

- (a) The TIFAD scheme provides for taking up various activities in this area in the MNES and providing grants-in-aid to state nodal agencies for installation of VSAT/ ISDN connectivity, server, PCs, PIS and software for establishment of the Renewable Energy Network (RENET). TIFAD division was set up based on the recommendation of the National Task Force on Information Technology and Software Development set up by the Prime Minister.

(b) Objectives

Main objectives of the TIFAD scheme are:

- (i) Creation of computerisation and information technology facilities for Ministry headquarters, its ROs and the solar energy centre.
- (ii) Creation of facilities for internet/ internet access and establishing linkages with the technology institutions/ technology providers in the areas of renewable energy nationally and globally through VSAT systems, modems and other IT tools.
- (iii) Creation and updation of databases/ databanks and establishment of the technology information system in the area of renewable energy in the country.
- (iv) Involving as well as providing guidelines and financial support to nodal agencies, industries, technology institutions, consultants and NGOs, involved in the area of renewable energy in the country, for creation IT facilities, databanks and maintaining minimum standards.
- (v) Creation of facilities and development of software for establishment of Management Information Systems (MIS) and computerised on-line electronic monitoring of projects and programmes in the area of renewable energy in the country.
- (vi) Taking up studies for technology information forecasting technology, assessment and databank.
- (vii) Taking up studies of the assessment of specialised manpower requirement of development and utilisation of renewable energy in the country.
- (viii) Co-ordination with TIFAC in DST for creation of databases, technology forecasting, technology assessment patent matters etc. and with the Scientific Advisory Committee (SAC).
- (ix) Co-ordination with NIC, Department of Personnel, Department of Statistics and the PMO on Information Technology and creation/ transfer of data.

The scheme is to be implemented by the TIFAD division of the Ministry through State Nodal Agencies, R&D/Technology Institutions.

(c) Points to be seen in Audit

- (i) Efforts made to achieve the objectives of the scheme are sufficient and facilities created are functional and utilised to the optimal level.
- (ii) As per scheme the creation of computerisation and IT facilities and establishment of RENET will be facilitated by Committees, constituted for purchase/ upgradation of computers and peripherals. Agenda and minutes of the Committee's meeting may be examined to see that their recommendations are carried out or not.
- (iii) It may also seen in Audit that establishment of RENET through VSAT data communication system at the end of different nodal agencies is undertaken through NIC and other professional agencies.
- (iv) Grants-in-aid to SNA is as per norm prescribed and utilised for the intended purpose.

6.2.43 Business Development and Export Promotion in Non-conventional Energy Scheme

- (a) Despite commendable achievements in the area of NCE during the past decade and a half, there has been a growing feeling that the expansion and further broad basing of NCE technologies is being hampered due to lack of 'Market Demand' for these technologies (and the resultant products) from within and outside the country.

Appreciating the fact that Indian NCE industry would require some support from the Government of India for facilitating the export of their NCE products/ devices/ systems, the Ministry decided to launch from the financial year 2000-2001 onwards a scheme on "Business Development and Export Promotion in Non-conventional Energy".

(b) Objectives

The objectives of the scheme are as follows:

- (i) develop an industry/ product database and information system in the field of NCE.
- (ii) promote business/ market development in India.
- (iii) promote expansion of the market for NCE products, technologies and services, especially in the neighboring and other developing countries.
- (iv) set up an export promotion and business/ market development cell in the Ministry.
- (v) initiate the process for the setting up of an "Export Promotion Council for Non-conventional Energy", in collaboration with the Ministry of Commerce and Industry.

(c) Points to be seen in Audit

Efficiency of the scheme may be examined with special reference to achievement of the objectives.

6.2.44 Non-conventional Energy Technology Commercialisation Fund (NETCOF)

- (a) Despite major advances in the renewable energy sector, the country's NCE industry is not able to support the commercialisation of new technologies as it is not able to attract enough investments because of the risks involved in the interested areas. To promote investment in the sector, with the approval of the CASE a fund called NETCOF has been created which will primarily support the commercialisation of indigenous or imported technologies through equity, loan, etc. or a suitable mix of these.

(b) Objectives

The objectives of the scheme are as under:

- (i) support the commercialisation of indigenously developed NCE technologies.
- (ii) support the setting up of pilot plants for the manufacture of NCE systems/ products/ devices, with a view to expedite their commercialisation.
- (iii) support rapid commercialisation of imported NEC technology for wide spread domestic use.
- (iv) Adoption/ modification to processes/ products based on imported technology to enable to adapt to the domestic as well as the international market.
- (v) Development of innovative products/ technologies which are in early stages of their life cycle but hold substantial potential for growth and return.

Proposal under this scheme to be evaluated and approved for funding by the NETCOF committee, which consists of technical and financial experts and is headed by the Secretary of the Ministry.

The Fund has been set up with an initial corpus of Rs.2 crores to be augmented with yearly budgetary support. It is expected that the returns on investment and interest would be adequate to ensure that the funds grows and becomes self sustaining in the long term.

The fund is managed by IREDA.

A NETCOF cell has been created in the Ministry to exclusively look after the implementation of the scheme and also function as the secretariat to the NETCOF committee.

All the projects sanctioned under the scheme shall be monitored by a project review and monitoring committee which is to be headed by the Secretary of MNES. The Committee will monitor the financial and physical performance of the projects.

(c) Points to be seen in Audit

- (i) Examine the extent to which the objectives of the scheme are achieved.
- (ii) Review the agenda and minutes of NETCOF committee.
- (iii) Funds of the scheme are kept in separate account and interest earned to be credited to this annually.

- (iv) Monitoring of the projects is adequately done by project review and monitoring committee.
- (v) Only projects, which help in achievements of the objectives are sanctioned.

6.2.45 State Nodal Agencies in North-Eastern States including Sikkim and in new created States

- (a) In order to implement non-conventional energy programmes effectively in north-east, the Ministry approved a scheme during 1998-99 for providing central financial assistance for setting up and strengthening State Nodal Agencies (SNAs) in the north-eastern States including Sikkim.

Under this scheme, central financial assistance is provided to the SNAs for non-recurring expenditure like construction of office building, office equipments and recurring expenditure for salaries, office expenses, etc.

The Ministry also decided to provide financial support to the newly created States viz. Uttaranchal, Chhattisgarh & Jharkhand for setting up independent SNAs in these States on the financial pattern similar to the scheme.

These SNAs would also impart training for capacity building to tap various non-conventional energy sources by way of undertaking training programmes in their respective States.

(b) Points to be seen in Audit

- (i) Issue of recurring and non-recurring grants as per norms fixed and after obtaining the approval of competent authority.
- (ii) All the standard terms and conditions of grants as laid down in GFR are observed.
- (iii) Systems exists in monitoring the progress of utilisation of grants.
- (iv) Whether the operation of the schemes has given the desired results

6.2.46 International Relation Division

International Co-operation Programme

- (a) Non-conventional energy occupy a strategic position in the search for sustainable energy solutions. Non-conventional energy is a relatively new field of technology needing techno-economic interaction with international community. India realises the vital need for international co-operation, interaction of Indian programme with bilateral and multilateral programmes and regional initiatives in popularising renewable energy.

(b) Objectives

International co-operation activities in non-conventional energy are aimed at sharing of experiences and expertise with other countries, promoting scientific and research co-operation in technologies of interest to the country and mobilisation of financial resources for various programmes and for promoting human resource development in the field of non-conventional energy.

(c) Activities

- (i) Multilateral cooperation includes activities implemented jointly (AIJ) under United Nations Frame Works Convention on Climate Change (UNFCCC), projects assisted by UNDP/GEF, and projects assisted by Asian Development Bank.

- (ii) Bilateral Cooperation with China, Australia, Kazakista, Germany, Myanmar, and Japan.
 - (iii) Training for the participants from developing countries.
 - (iv) Capacity building on project formulation for international funding.
 - (v) GoI/ UNDP rural energy programme support.
- (d) **Points to be seen in Audit**
- (i) Study the MoU/ agreements signed with UNDP, GEF, World Bank, and bilateral cooperation agreement signed with different foreign countries.
 - (ii) Examine the project sanction with reference to the terms and conditions of loan and credit agreements as well as detailed project reports or EFC Memos.
 - (iii) All cases of cost over run and time over run may be critically examined.
 - (iv) Scientists and technologists are deputed abroad for training, study tour/ conference/ seminar/ workshops. In this connection it may be seen that their objectives have been achieved and benefits assured have been translated into action. Whether feedback/ tour reports are received from the participant.
 - (v) System of imparting training to the participants from other developing countries may be examined.

6.2.47.1 Scheme for Industry/ Institution participation in Research and Development Projects in MNES

MNES announced a new R&D policy and strategy in May 1994. The salient features of the new strategy are as follows:

- (i) R&D for technology development should by and large be industry driven and goal oriented.
- (ii) Specific scientific and technical goals should be defined and involvement of industry and scientific establishments should be secured in such a way that the results of scientific effort would naturally feed into the technology development effort.
- (iii) R&D institutions should take cognizance of technological developments elsewhere and if technologies are available on commercial terms they may be assessed thereby avoiding what sought be case of 're-involving the wheel'.
- (iv) Indigenous R&D efforts should concentrate on development of new and emerging technologies and processes.
- (v) R&D projects will be considered on priority in areas related to MNES programmes and sponsored by MNES.
- (vi) Instead of number of expert panels and advisory committees in each of the technology areas there will be single apex committee for the Ministry as a whole to evaluate and clear R&D projects.

- (vii) Programme divisions will interact with industries and R&D organisations and solicit appropriate proposals in the priority areas.
- (viii) Processes of R&D projects are encouraged to develop consortium proposals with the involvement of industry and R&D institutions and enter into suitable understanding with regard to cost sharing and technology transfers arrangements and seek MNES support which may be necessary.
- (ix) Recognised institutions/ establishments are likely to be assigned specific tasks for undertaking identified R&D activities with clear understanding on the achievement of results in a time bound manner.

In pursuance of the new R&D strategy, an apex R&D advisory committee has been constituted comprising of eminent personalities in the areas of research including industry, academic institution, national labs, IITs, etc. to evaluate and clear R&D projects submitted by R&D institutions and industries and sponsored by various programme divisions of the Ministry. The Committee also discusses and recommends R&D strategies and priorities.

6.2.47.2 Thrust Areas

The Ministry has identified thrust areas in which R&D efforts are required in different areas:

1. Rural Energy

- (a) Reduction in the capital cost of biogas plants;
- (b) development of materials and techniques which are amenable for local level fabrication to reduce the time of installation;
- (c) diversification of feed stocks to utilise alternate biomass wastes along with cattle dung for setting up household biogas plants;
- (d) value added products using biogas slurry manner;
- (e) development of biogas micro turbines and engines;
- (f) local power grids compatible with dual fuel engines and gas engines/ turbines;
- (g) corrosion resistant paints and sealant for biogas plants component;
- (h) incorporation of advanced bio-reactor techniques in institutional biogas plants for improving efficiency;
- (i) removal of hydrogen sulphide from biogas produced in night soil based biogas plants.

2. Solar Energy

Solar photovoltaic

- (i) Development of crystalline silicon thin films layers, low cost substrates for deposition of films and fabrication of solar cells

- (ii) Development of multi-junction amorphous silicon solar cells/ modules, pilot plant demonstration.
- (iii) Development of process technology for polycrystalline thin film solar cells/ modules, pilot plant demo.
- (iv) Development of devices based on new materials/ concepts
- (v) Improvement in efficiency of PV modules to 12-13 per cent at commercial level.
- (vi) Improvement in PV module technology to achieve life expectancy of >25 years, higher packing density, suitability for solar roofs, etc.
- (vii) Development of light weight and/ or flexible substrate modules for use in solar centres and similar applications.
- (viii) Improvement in system designs for various PV lighting systems, including development of a new design of electronics used in solar lanterns and other lighting systems.
- (ix) Development of high efficiency balance of systems like inverters, charge controllers, power conditioning units.
- (x) Development of high efficiency and higher capacity motor pumps for use in PV water pumping systems.

3. Solar Thermal

- (i) Upgradation of solar water heating technology
- (ii) Development of compact built in-storage type water heating system
- (iii) Upgradation and fine-tuning of concentrating solar cooking technologies.
- (iv) System designing and engineering for solar water heating system to be installed in multistoried buildings.
- (v) Development and field trial of advanced solar water distillation systems with the goal of providing an alternative for drinking water supply.
- (vi) Development of solar detoxification systems different kind of effluents.
- (vii) Development of protocols for soil solarization for different agroclimatic regions of the country as an alternative to chemotherapy.
- (viii) Development of systems designs for solar space conditioning units based on evaporative cooling and solar chimney.
- (ix) Development of solar thermal – PV hybrid system
- (x) Development of materials for effective utilisation of solar thermal energy.
- (xi) Development of solar thermal pumps

- (xii) Development of concentrating collectors for medium temperature applications.
- (xiii) Development and standardisation of solar drying system for different application.

4. **Urban and Industrial Wastes**

- (i) Production of solid, liquid or gaseous fuels (producer gases, methane, etc.) from municipal, urban and industrial biomass wastes and organic effluents (as a replacement of petroleum fuels [LPG] etc. for industrial/ urban applications) for mechanical, electrical or thermal energy application.
- (ii) Biomethanation of semi-solid organic residues including medium/ high rate of anaerobic digestion covering the following wastes/ conversion rates/ application basis:

(a) **Wastes/ resources**

- ◆ Urban (municipal solid and liquid) wastes
- ◆ Industrial/ agro industrial wastes/ residues
- ◆ Other biomass wastes/ materials (e.g. hospital wastes, fruit and vegetable wastes etc.)

(b) **Conversion routes**

- ◆ Bio-chemical (bio-methanation, microbial hydrogen production, etc.)
- ◆ Thermal (combustion incineration, etc.)
- ◆ Physical/ thermophysical (densification, pulverisation, beneficiation, etc.)
- ◆ Acquaculture/ biomass cultivation

(c) **Application**

- ◆ Thermal
- ◆ Power generation
- ◆ Cogeneration
- ◆ Services
- ◆ Any combination of the process

(d) **Power**

Bagasse based co-generation

Bagasse drying

Development of design of dryers

Status report on bagasse drying

Bagasse storage and boiling bagasse

Development of bagasse storage for year round operation

Fluidised bed boiler for bagasse

Standardisation of design for drying bagasse through fluidisation techniques

Gasification of bagasse

Design of gasifiers, gas cleaning, etc. for generation of power and steam through gas turbine route.

Energy Conversation

Steam savings techniques in sugar mills and process improvements

Development of dual fuel boilers

Standardisation of design of boilers for firing bagasse and other agro-waste like cane trash for power generation during non-crushing season

Optimum sizing of pipe network in sugar industry

Detailed study in old/ modern sugar mill for optimum sizing of piping network, status report on use of various kinds of pumps and recommendations for proper selection of pumps in sugar mills

Biomass combustion based power generation

Biomass drying

Development of designs of dryers

Biomass storage techniques

Development of biomass storage techniques, preventing fire hazards, etc.

Biomass combustion techniques

Standardisation of designs of boilers for different agro wastes

Wind power

Assistance to Indian industry to indigenise the manufacture of wind electric generators

Development of rotor blades for wind electric generators

Development of variable speed wind electric generators

Small Hydro

- ◆ Appropriate technology for ultra low head SHP development

- ◆ Appropriate and state-of-art equipments for portable hydel sets for remote applications
- ◆ Appropriate technology for water mills for power generation
- ◆ Standardisation of equipments hill areas SHP application
- ◆ Low cost high efficiency load controllers

(e) Research and Development

- (i) Renewable energy resources assessment study
- (ii) Field evaluation studies for renewable energy devices already installed to provide feedback for R&D objectives.

(f) New Technology

- (i) Pivotal scale production of hydrogen from water using off-peak power, preferably at non-grid connected power plants
- (ii) Power production from geo-thermal energy on consortium basis/ independently by private sectors with MNES assistance in terms of soft loan/ fiscal incentives.
- (iii) Techno-economic feasibility studies/ market survey projects in the areas of hydrogen and geo-thermal energy
- (iv) Electric vehicles and alternate and surface transportation
- (a) Development of High Energy Density batteries for action purpose
- (b) Development of a light-weight chasis suitable for use in battery operated vehicles

6.2.47.3 Points to be seen in Audit

- (i) All the R&D projects sanctioned have the approval of the R&D advisory committee of the Ministry.
- (ii) R&D projects approved falls within identified areas or proposals directly related to an activities/ programmes of the Ministry and hold promise for commercialisation in near future.
- (iii) Besides (ii) above whether following points were kept in view while evaluating the proposals:
 - (a) Nature and degree of innovative content in relation to State of art.
 - (b) Track record of participants in terms of technological infrasture base, skills, manufacturing and marketing capability.
 - (c) Availability of financial resources for sharing the cost of project.
- (iv) MNES financial support is clearly indicated and is provided to meet the expenditure on:

- (a) raw materials, components and other development expenditure for organising prototypes or building up of pilot plant and experimentation thereof, for upscaling of optimization of process.
- (b) product/ process simulation/ know how studies
- (c) Consumables and other operational parts involved in experimental work
- (d) testing and evaluation fixed price/ users price
- (e) Consultancy/ technical assistance from national R&D organisation/ institution.
- (v) Right on commercialisation of the know how is clearly spelt out in the sanction order.
- (vi) Whether the objectives of the R&D project is clearly mentioned in the sanction order
- (vii) Funds are released in installments, subsequent releases are made after reviewing the progress of the project and utilisation of funds released earlier.
- (viii) Whether progress report on physical and financial progress of the project as stipulated in the sanction order is timely submitted. On completion of the project a detailed completion report incorporating the achievement of the objectives is also received.
- (ix) Whether the time schedule laid down for the execution of the project strictly followed. All cases of extension may be critically examined with reference to genuiness grounds of extension unavoidsness.
- (x) All standard terms and conditions of the grant as prescribed in GFR are invariably followed.
- (xi) In there any research project which is continued without any noticeable progress.
- (xii) Whether system exist for evaluation of results of research and proper utilisation and evaluation done within reasonable time.

6.2.48 Patent Facilitation Cell

Renewable energy patent facilitation cell has been created in the TIFAD Division of the Ministry for handling intellectual property rights matters more aggressively and effectively, so as to safeguard national interest in the area of technology development vis-à-vis other global technology develops.

6.3 MINISTRY OF COMMUNICATIONS & INFORMATION TECHNOLOGY

Department of Information Technology (DIT)

6.3.1 Department of Information Technology (DIT) is the executing agency for performing secretariat functions and implementing the policies drawn by the Ministry of Communications & information Technology.

Objectives

6.3.2 DIT is responsible for formulation, implementation and review of National Policies in the field of Information Technology, Silicon facility, Computer based information, technology and processing including hardware and software, standardization of procedures and matters relating to International Bodies, Promotion of knowledge based Enterprises, Internet, e-Commerce and Information Technology Education. DIT is responsible for all matters relating to development of Electronics and coordination amongst its various users.

For achieving its objectives DIT has taken three prolonged strategy viz. (1) Supporting technology development, (2) Setting up of critical infrastructure and (3) Formulating policies conducive to industrial growth.

6.3.3 Organisational Structure

The organisational chart of DIT is given in Annexure-1 to this Chapter:

6.3.4 R&D Activities

Department of Information Technology (DIT) is responsible for promotion of research and development in electronics and related fields in the country. Accordingly DIT has been providing financial support to projects/ schemes for undertaking research/ development in the areas of Information Technology, Micro-electronics, Industrial Electronics, Strategic Electronics, Consumer Electronics, Materials and Components as well as applications of Electronics in various socio-economic and business sectors. A large number of academic institutions, industries and research labs with geographical distribution, spread all over the country, have implemented projects and programs supported by DIT. DIT continues to pursue its efforts in promotion of indigenous technologies in identified PRIORITY AREAS. In order to optimally utilize the funds available projects directly relevant to industry are given preference.

The expressed vision, vision objective and activities taken up for achieving these objectives are given in brief:

6.3.5 Vision of DIT

(a) Expressed vision of DIT is to make India an IT Super Power by the Year 2008.

(b) Vision Objectives

Following are the objective of this vision:

- ◆ Creation of Wealth
- ◆ Employment Generation
- ◆ IT led Economic Growth

(c) **Role of the Department of IT**

DIT defined the following roll for itself:

- ◆ Pro-active facilitator
- ◆ Pro-active motivator
- ◆ Pro-active promoter
- ◆ Spread of IT to masses and
- ◆ Ensure speedy IT led development

(d) **Functions**

Different functions of DIT:

- ◆ Policy matters relating to Information Technology.
- ◆ Promotion of knowledge-based enterprises.
- ◆ Development of electronics and coordination amongst its various users.
- ◆ All matters relating to the personnel under the control of the Department.
- ◆ Coordination of requirements relating to electronics processing equipment (computers).
- ◆ All matters pertaining to silicon facility.
- ◆ All matters concerning computer based information, technology and processing including hardware and software, standardization of procedures and matters relevant to international bodies such as IFP, IBI, ICC.
- ◆ Promotion of the Internet.
- ◆ Promotion of E-Commerce.
- ◆ Promotion of Information Technology education and Information Technology based education.
- ◆ National Informatics Centre.
- ◆ Electronics and Computer Software Export Promotion Council.

(e) **Points to be seen in Audit**

- (i) Study the polices statement of the Ministry as and when approved by the Government with a view to see that the policies and programmes being pursued are in accordance with it.

- (ii) The minutes of meetings of apex bodies should be examined and seen that policies and programmes are drawn up in accordance with the mandate of the Ministry/Department and are being implemented by specific and well defined procedures.
- (iii) Whether the Department is performing, all the functions assigned to it?
- (iv) Whether adequate steps have been taken by the implementing bodies in DIT in achieving targeted result, in the major thrust areas identified by apex bodies?

6.3.6 Execution of functions

1. The functions of Department of Information Technology are managed by different divisions/ product groups (as indicated in the organizational structure) and two attached offices i.e.

- (i) Standardisation, Testing and Quality Certification (STQC) &
- (ii) National Informatics Centre (NIC)

2. National Informatics Centre (NIC)

The organizational set up of NIC encompasses its Headquarters at New Delhi, State Units in all the 29 State capitals and 6 Union Territory Headquarters and District centres in more than 540 Districts of India. The Organization employs a large pool of efficient technical manpower. At the NIC Headquarters, a large number of Application Divisions exist which provide total Informatics Support to the Ministries and Departments of the Central Government. NIC computer cells are located in almost all the Ministry Bhawans of the Central Government and Apex Offices including the Prime Minister's Office, the Rashtrapati Bhawan and the Parliament House. Apart from this, NIC has various Resource Divisions at the Headquarters, which specialize into different areas of IT and facilitate the Application Divisions as well as other NIC Centres in providing state-of-the-art services to the Govt. At the State level, NIC State Centres provide informatics support to their respective State Government and at the District level lie the NIC District Informatics Offices which strive hard to provide effective informatics support to the Development, Revenue and Judiciary administration of the District. In order to promote Information Technology in the country, focussing on INTERNET Technology based Value-added Services in the area of Industry, Business and Commerce, NIC has also established 22 National Information Technology Promotional Units (NITPUs) at major industrial/ Commercial cities viz.- Ahmedabad, Bangalore, Bhopal, Bhubaneswar, Calcutta, Chandigarh, Chennai, Guwahati, Hyderabad, Jaipur, Kanpur, Kochi, Lucknow, Ludhiana, Mumbai, Nagpur, Panipat, Patna, Pune, Shimla, Tripur and Vishakapatnam. These centres provide Video-conferencing facilities, EDI services and other INTERNET Technology based Services over NICNET.

3. Autonomous Societies of DIT

DIT also executes its functions through the following seven autonomous societies and five public sector undertakings. DIT provides grant-in-aid for recurring & non-recurring expenditure.

- (i) ERNET India
- (ii) Centre for Development of Advanced Computing (C-DAC)
- (iii) Centre for Materials for Electronics Technology (C-MET)

- (iv) DOEACC Society
- (v) Society for Applied Microwave Electronics Engineering and Research (SAMEER)
- (vi) Software Technology Parks of India (STPI)
- (vii) Electronics and Computer Software Export Promotion Council (ESC)

Note: Electronics Research & Development Centre, India (ER&DCI), National Centre for Software Technology (NCST) and Centre for Electronics Design and Technology, India (CEDTI) were merged with C-DAC.

4. Audit Points

Grants received by the autonomous body are either for its recurring maintenance expenditure or for execution of schemes or for acquisition of certain capital assets of a non-recurring nature. In all cases the accounts must be so drawn up as to facilitate not only identification of the source and object of grant but also to indicate the purposes for which these grants have been utilized. For this purpose, normally the sanctions issued for payment of grants provide for maintenance of separate accounts. It may be noted that the intention under such directive is to maintain separately identifiable heads of accounts for transactions of the respective grants within the annual accounts and not the maintenance of multiplicity of annual accounts for each grant, to be separately certified. It may be noted that the multiplication of number of accounts has the inherent danger of certain accounts not being made available for audit for a considerable period due to ignorance of audit regarding existence of such accounts. In the circumstances, one of the basic points to be seen in the format of accounts of any autonomous body, is to ensure that the format is so drawn as to indicate source of each grant and its utilization of specified purposes separately in the accounts. Scrutiny of transactions relating to payment of grants and its utilization is one of the most important points of audit of autonomous bodies and in this audit, it is necessary to look into the following points: -

- (i) The amount of grant payable to the autonomous body for each of the purposes has been correctly assessed, after taking into account all income adjustable towards limiting of the grant, in accordance with the guidelines, rules and prescribed procedures for assessment of the grant.
- (ii) In respect of maintenance grants it is limited to the net deficit and the expenditure on several items has been incurred in accordance with the scales laid down therefore.
- (iii) Grants remaining unutilized at the end of each year had been duly taken into account before determining the grant payable in the subsequent years and amount paid was not far in excess or advance of the requirements.
- (iv) The conditions attached to the grant, before and after release are duly fulfilled.
- (v) The prescribed periodical returns are correctly compiled and supplied and a review thereof either with reference to the returns of other records does not indicate any deviation of purpose of grant or irregularities in utilization of the grant.
- (vi) The objectives of schemes for which grants are paid, are being achieved and a periodical review is being conducted, with the knowledge of the grant sanctioning authority for assessing the progress, future needs and changes and due approval is taken for modifications, increase in cost, etc.

- (vii) The income, expected to be realized by assets acquired and schemes executed in past with assistance from Government, is actually being realized and to that extent, if so anticipated, the dependence on Government for maintenance has been reduced without increase in liability of Government.

6.3.7 Public Sector Undertakings of DIT

The following are the Public Sector Undertakings under the administrative control of the DIT:

- (i) Electronics Trade and Technology Development Ltd (ET&T)
- (ii) Semiconductor Complex Ltd.(SCL)
- (iii) Media Lab Asia
- (iv) National Informatics Centre Services Inc. (NICSI)
- (v) National Internet Exchange of India (NIXI)

6.3.8 Selection of Projects and Monitoring their Progress

- (a) DIT provides financial support in the form Grant-in-aid, interest free loan or refundable grant-in-aid.

There are different Advisory Councils with the objectives to select proposals, schemes and programmes for funding R&D projects through different divisions of DIT and monitoring their progress.

(b) Audit Points

For Grant-in-aid

1. Project Approval & Agreement/ MOU Process

- (i) Whether the Steering Committee/ project approval Committee obtained required information/data and evaluated the proposal for their scientific, technological, commercial and financial merits and capability & expertise of the organization(s) involved in the proposed action network.
- (ii) Audit should also verify that the project approval/ monitoring committees looked into the following aspect in respect of different category of projects:
 - (a) the research work proposed in the scheme/ project does not in any way duplicate the work already done or being carried out elsewhere on the subject.
 - (b) The same project has not been submitted to any other agency/ agencies for financial support.
 - (c) The emoluments for the manpower proposed in the project proposal were those admissible to persons of corresponding status employed in the institute/university or as per the Ministry of Information Technology guidelines.
- (iii) Background information on the developments in the field, in India and abroad.

- (iv) Whether grantee institution agreed before the project was approved by DIT to undertake the financial and other management responsibilities of the project?
- (v) Whether the grantee institution to which the investigators belonged agreed before approval of the project that the equipment, other basic facilities and such other administrative facilities as per terms and conditions of the grant would be extended to investigator(s) throughout the duration of the project and was actually extended during the tenure of project?
- (vi) Whether MOU provided the right of the Govt. of India (Deptt. of Information Technology) to call for drawings, specifications and other data necessary to enable the transfer of know-how to other parties and supply all the needed information by the concerned Institute/university at the request of the Department of Information Technology which will ensure confidentiality?
- (vii) Whether assurance was obtained from the grantee institution to which grant-in-aid is proposed to be sanctioned by DIT for a project that it would not entrust the implementation of the work of the project to another institution and divert the grant without expressed permission of DIT?
- (viii) Study the MOU with various implementing agencies in respect of multi-agency projects. And verify whether the agreement clearly defined the responsibilities and obligations of all the parties involved in the project, terms & conditions, financial arrangements, modalities of collaboration, intellectual property rights, monitoring mechanism?
- (ix) Whether terms of MOU provided Government's right to the assets procured out of the grant-in-aid of DIT and : clause against disposal of, or encumbrment or utilization of such assets for purposes other than those for which the grant has been sanctioned?
- (x) Has any clause been included in the MOU that should at any time grantee institution ceases to exist, such assets etc., shall revert to DIT;
- (xi) Whether the terms of agreement have been finalized in consultation with Department of Law?

2. At monitoring stage

- (i) Whether the grantee institution/ PI furnished progress-cum-achievement report on the work of the project every six months?
- (ii) Whether the concerned Project Monitoring Committee met regularly and reviewed progress of the projects and gave directives wherever necessary?
- (iii) Whether the grantee institution sent to DIT a list of assets at the end of each financial year as well as at the time of seeking installments of grant?
- (iv) Whether the Institute furnished to the Deptt. of Information Technology a Utilization Certificate and an audited statement of expenditure with the comments of the auditor regarding the observance of the conditions governing the grant within six months following the end of the relevant financial year as well as a consolidated statement of expenditure at the end of the completion of the project?

- (v) Whether the project-implementing Institute maintained a separate audited account for the project?
- (vi) Whether any part or whole of the grant was kept in a bank account earning interest and if so, was the interest earned from such deposit reported to the Deptt. of Information Technology and was the amount of interest adjusted from subsequent instalment of grant-in-aid?

3. On completion/ closure of the Project

- (i) Had the grantee institution obtained any other financial assistance or received grant/loan from any other Agency/ Ministry/ Department for this project? If so, whether prior approval of Department of Information Technology was obtained?
- (ii) Whether the grantee institution rendered progress-cum-achievement reports at interval of not exceeding six months on the progress made on all aspects of the project including expenditure incurred on various approved items during the tenure of the project?
- (iii) Had the grantee institution made efforts to protect intellectual property generated out of the project in consultation with IPR Cell, DIT by filing patents, registering copyrights etc. before making it public by publishing in the technical journals and books, presenting findings in Conferences etc.
- (iv) Had the intellectual property and the rights associated with the project been assigned to DIT? In cases where the fundings have been done jointly with other organisations, had the IP rights been appropriately shared?
- (v) Whether any part or whole of the grant received from DIT was kept in a bank account earning interest? If so, whether the same was reported to DIT and was treated as a credit to the grantee and adjusted from subsequent instalment of the grant?
- (vi) Whether sale proceeds of components, prototype, pilot project etc. fabricated as a result of the development of the project arising directly from funds granted by Department of Information Technology remitted to the Department?
- (vii) Whether the grantee institution maintained separate audited account for the project and whether any officer or any nominee of DIT inspected the books of the accounts?
- (viii) Whether investigators/Institutes acknowledged the financial support received from the Deptt. of Information Technology while publishing papers based on the research work done under Deptt. of Information Technology research scheme?
- (ix) In case the grantee institution was not in a position to execute or complete the project, whether entire amount of grant received by it has been refunded to Govt. of India (Department of Information Technology)? Have any penalty been imposed for delay, if any, in refund of the amount?
- (x) If the Investigator to whom a grant for a project was sanctioned left the institution where the project was being implemented, had he submitted complete and detailed report of the work done by him on the project and the money spent till the date of his/ her release and arranged to refund the unspent balance, if any?

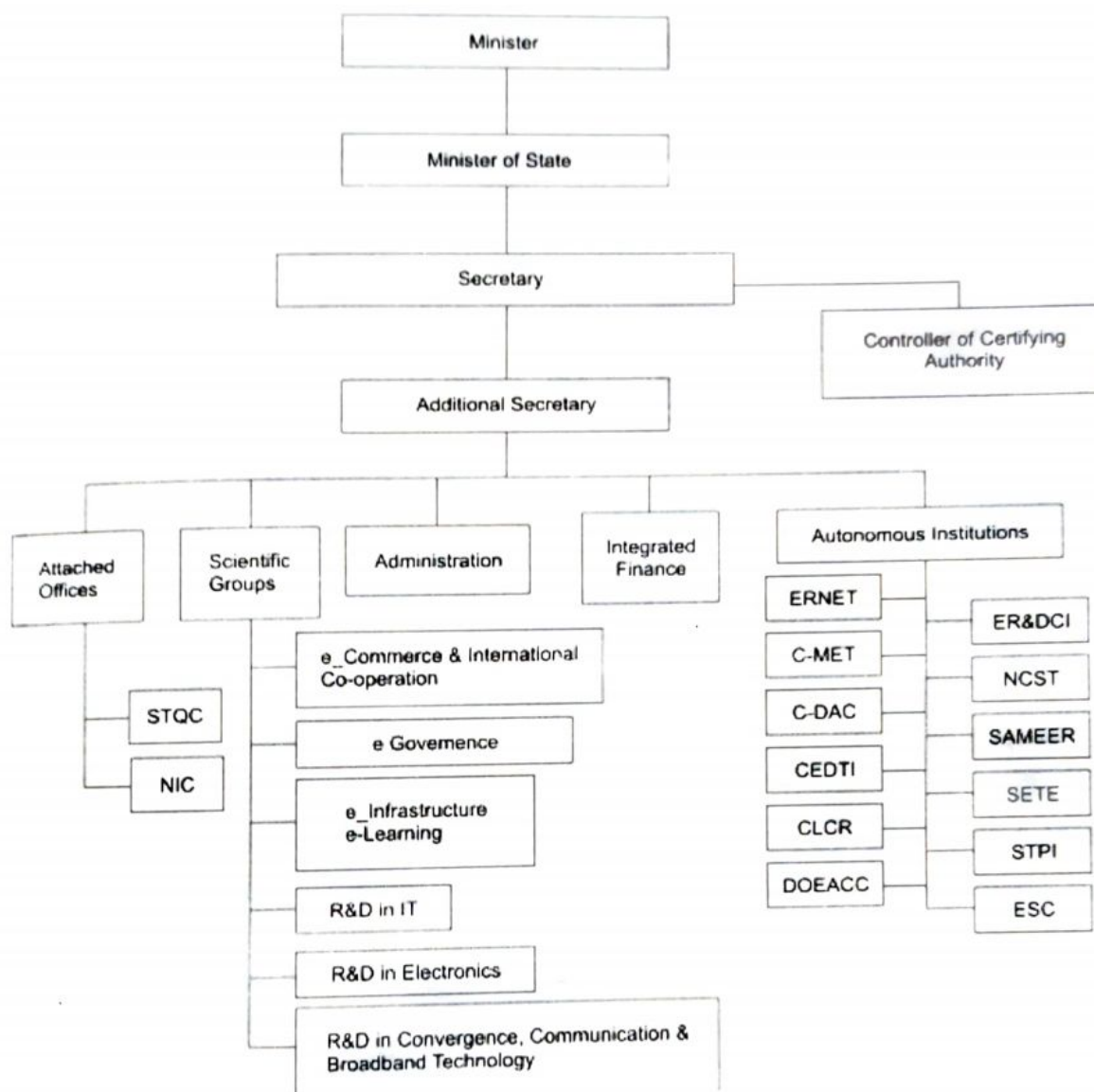
- (xi) Whether portion of the grant which was not required for expenditure for the approved purposes was surrendered to DIT?
- (xii) Since the know-how generated through Grant-in-aid project of DIT is the property of DIT, whether receipts by way of sale of know-how transfer, royalties training etc., was actually accrued to DIT? Whether any part of such receipts was allowed to be retained by the grantee organization?

4. **Audit Points for the Loan/ Refundable Grant-in-aid**

All the points mentioned for scrutiny of Grant-in-aid projects are equally applicable for Loan/ refundable Grant-in-Aid Projects. In addition following points are also to be looked into:

- (i) Whether loanee furnished bank guarantee for the amount of Loan/ refundable grant-in-aid before the same was released?
- (ii) Whether the bank guarantee was encashed for violation of any conditions of the loan?
- (iii) Whether the loan amount was utilised for the project within the time specified by DIT until and unless extended by DIT depending on the merit of the case?
- (vi) Whether any penalty clause was incorporated in the agreement specifying the damage/ penal interest to be levied for delayed completion/ not completing the work/ leaving the project in midway/ late refund of Loan/ refundable grant-in-aid?
- (v) Whether the loanee could complete the process of commercial production of the know-how developed within two years from the date of completion? If not, whether DIT had taken any action to exercise its right to license the technology to others after the period of two years or even earlier if the loanee did not opt to exploit the technology, on mutual terms and conditions?
- (vi) Whether capability of the party to whom the technology was licensed had been examined before finalizing the deal?
- (vii) Whether terms of royalty were finalized judiciously without any undue favour to the licensee?

Organisation Chart of DIT



6.4 MINISTRY OF SCIENCE AND TECHNOLOGY

6.4.1 The Ministry of Science and Technology is mainly responsible for formulation of policy and guidelines on Science and Technology, promotion of new areas of S&T in which a number of Institutes/ Departments have interest and capabilities, scientific and technological surveys, R&D activities, international scientific and technological cooperation, promotion of S&T and its application to the development of the nation.

Ministry of Science and Technology comprises three Departments viz.:

- (i) Department of Science and Technology;
- (ii) Department of Scientific and Industrial Research; and
- (iii) Department of Biotechnology.

6.4.2 Department of Science and Technology

6.4.2.1 Department of Science & Technology (DST) was established in May 1971 with the objective of promoting new areas of Science & Technology and to play the role of a nodal department for organising, coordinating and promoting S&T activities in the country. The DST has the major responsibilities for specific projects and programmes as listed below:

- (a) Formulation of policy statements and guidelines on Science and Technology and their implementation.
- (b) Providing Secretariat support to National Council for S&T Communication (NCSTC), National S&T Entrepreneurship Development Boards (NSTEDB)
- (c) Promotion of new areas of Science and Technology
- (d) Survey of India, National Atlas and Thematic Mapping Organisation and India Meteorological Organisation.
- (e) Annual Session of the Indian Science Congress Association.
- (f) Coordination of areas of Science and Technology in which a number of Institutions and Department's have interest and capabilities.
- (g) Sponsoring Scientific and Technological Surveys, research and development.
- (h) Grants to National Research Institutions, Scientific associations and Scientific Bodies,
- (i) All matters concerning domestic technology particularly, the promotion of ventures involving the commercialization of such technology other than those under the Department of Scientific and Industrial Research.
- (j) International Scientific and Technological Affairs including:
 - (i) The negotiation and implementation of Scientific and Technological cooperation agreements and responsibility for Scientific and technological aspects of the activities of international organizations; and
 - (ii) Appointment of scientific Counselors abroad; These functions are carried out by the Department in close cooperation with the Ministry of External Affairs
- (k) Matters commonly affecting scientific and technological institutions, e.g., financial, personnel, purchase and import policies and practices.

- (i) All other measures needed for the promotion of Science and technology and their application for the development of the nation.
- (ii) The foregoing list covers mainly four different types of activities:
 - (1) The first category covers the activities being undertaken by the organizations directly under the charge of the Department – these organizations are: Survey of India, National Atlas and Thematic Mapping Organisation, India Meteorological Department, National Centre for Medium Range Weather Forecasting and the Science Counselors in the Indian Missions at Washington, Moscow, Tokyo and Bonn.
 - (2) The second type covers formulation and funding of scheme for promotion and research and development, in S&T disciplines. The scheme cover areas like promotion of new areas of Science and Technology under the major scheme for Multi-disciplinary Research in High Priority Areas, Earth and Atmospheric Sciences and Engineering Sciences; Instrument Development, National Information Management System on Science and Technology, Regional Sophisticated Instrumentation Centres, etc.
 - (3) In the third type there are a number of scientific Organisations/ Institutions, which are registered as Societies under the Societies Registration Act, 1860 and are largely supported by the Department of Science and Technology. These are:
 - (A) Indian Association for the Cultivation of Science, Calcutta.
 - (B) Bose Institute, Calcutta.
 - (C) Raman Research Institute, Bangalore.
 - (D) Indian Institute of Astrophysics, Bangalore.
 - (E) Indian Institute of Geomagnetism, Mumbai.
 - (F) Indian Institute of Tropical Meteorology, Pune.
 - (G) Birbal Sahni Institute of Palaeobotany, Lucknow.
 - (H) SN Bose National Centre for Basic Sciences, Calcutta.
- (I) Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram (declared as an Institute of National Importance by an Act of Parliament from March, 1981).
 - (J) Agharkar Research Institute, Pune
 - (K) Wadia Institute of Himalayan Geology, Dehradun
 - (L) Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore
 - (M) Indian National Science Academy, New Delhi
 - (N) Indian Academy of Sciences, Bangalore
 - (O) Indian Science Congress Association, Calcutta
 - (P) National Academy of Science (India), Allahabad
 - (Q) Indian National Academy of Engineering, New Delhi
 - (R) Technology Information, Forecasting and Assessment Council, New Delhi
 - (S) Vigyan Prasara
 - (T) Technology Development Board

- (U) International Advanced Research Centre for Powder Metallurgy and New Materials, Hyderabad
- (V) National Accreditation Board for Testing and Calibration Laboratories, New Delhi.

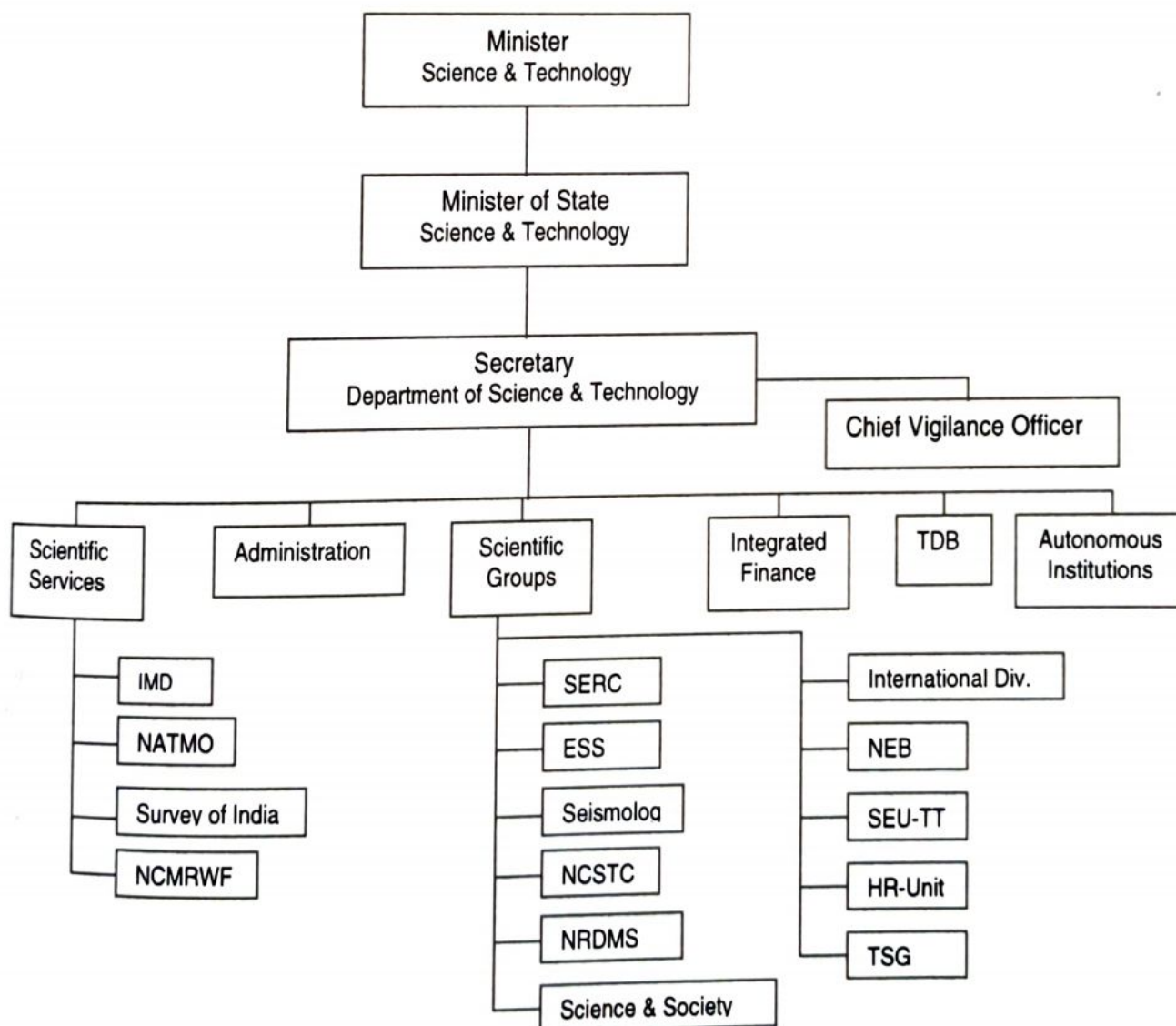
- (4) The fourth category covers international scientific institutions such as;
- (i) the Centre for Science and Technology for Non-Aligned and Other Developing Countries, New Delhi,
 - (ii) Indo-French Centre for the Promotion of Advanced Research, New Delhi.

6.4.3 Science Councilors Abroad

The Department of S&T has four science councilors posted in the Embassies of India in Washington, Moscow, Tokyo and Bonn with necessary supporting staff. The councilors attend to work arising from several Ministries/ Departments of the Government of India as well as other agencies. They also gather useful information on latest trends on scientific and technological research and development in the countries of their accreditation.

6.4.4 The organisational chart of the Department is given below:

Organisational Structure



6.4.5 Human Resource (Staff Position)

DST has a total of 232 officers and 403 non-gazetted staff on its roll.

6.4.6 Recruitment & Promotion

Rules & procedure of Govt. of India for recruitment & promotion of Central Govt. employees are equally applicable for recruitment to ministerial and non-gazetted staff in DST. Flexible Complementing Scheme for Scientists in various scientific departments modified on the recommendation of the Fifth Central Pay Commission is applicable for in-situ promotion of scientists/ technical personnel in DST.

6.4.7 Conditions of Services of Officers & Staff

DST being a Central Govt. Department, the Central Civil Services (Classification, Control & Appeal) Rules, and the Central Civil Services (Conduct) Rules, apply,

6.4.8 Purchase Procedure & Financial Rules

All rules, regulations and procedures of Govt. of India are applicable in DST for procurement of stores and all financial transactions.

6.4.9 Budget

Present budget outlay of DST is between Rs. 830 to Rs. 1000 crore.

6.4.10 R&D Programmes of DST

The following activities are in operation in DST for promoting S&T activities in the country:

1. Scientific & Engineering Research
2. Technology Development
3. S&T and Socio Economic Development
4. International S&T Cooperation

Detailed R&D activities are given in Annexure-I to this Chapter.

1. Science and Engineering Research Council (SERC)

- (a) The Science and Engineering Research Council (SERC) is the apex body through which the Department of Science and Technology (DST), Govt. of India promotes R&D programmes in newly emerging and challenging areas of science and engineering. SERC is composed of eminent scientists, technologists drawn from various universities/ national laboratories and industries. This Council is assisted by Programme Advisory Committees (PACs) in various disciplines of Science & Engineering. As a part of its Science and Engineering Research Council Programme, the Department of Science & Technology considers time-bound research proposals for financial support. SERC provides an integrated and cohesive approach for supporting R&D Programmes.

Broadly, the objectives of the SERC are as follows:

- ◆ To promote research in newly emerging and frontier areas of science and engineering including multidisciplinary fields.
- ◆ To selectively promote the general research capability in relevant areas of science and engineering taking into account capability of the host institutions.
- ◆ To encourage young scientists to take up challenging R&D activities.
- ◆ To give special encouragement to active scientists from relatively small and less endowed University Departments and Institutions.

SERC activities may be classified under the following broad disciplines:

- ◆ Chemical Science
- ◆ Earth & Atmospheric Science
- ◆ Engineering Science
- ◆ Life Science
- ◆ Mathematical Science
- ◆ Physical Science

(b) Objectives

The main thrust of the scheme is to ensure intensification of scientific research in selected areas of great relevance and potential for scientific and technological development of the country through:

- ◆ creation of core groups/units around an outstanding scientist;
- ◆ setting up of national facilities in areas of high priority;
- ◆ evolving nationally coordinated programmes in multi-disciplinary areas of high priority;
- ◆ Training to Young Scientists to pursue R&D in these areas.

(c) Composition of SERC

The SERC is formed with 20 to 25 persons of excellence in different disciplines of Science & Engineering in India. The Secretary, DST is the ex-officio Chairman.

SERC is assisted by Programme Advisory Committees (PACs) in various disciplines of science & Engineering formed with experts in the relevant disciplines. Presently there are 18 PACs as shown in Annexure-II.

(d) Programme approval & monitoring process

Approval Process

All R&D project proposals for financial assistance are received in SERC secretariat and from there the proposals are either sent to related PAC secretariat or transferred to other relevant S&T agencies or DST Schemes depending upon the nature of projects. The preliminary scrutiny of proposals relevant to the objectives of DST is done by the respective PAC secretariat. After preliminary scrutiny the accepted proposals are sent to more than three referees who are experts in the concerned discipline of science or engineering. The proposals along with the comments received from the experts (referees) is placed in the PAC meeting. The Principal Investigator, (who submitted the project proposal) if felt necessary, may be invited to give a presentation on the project before the

PAC. After viewing the presentation and taking into consideration the comments of referees, PAC may take the following decision:

- (i) Revise the estimated budget (cost) of the projects. The project's recommended cost not exceeding Rs. 15,00,000/-, may either be approved or rejected or if felt necessary, suggested for reformulation.
- (ii) Refer all project proposals recommended cost of which exceed Rs. 1500000 to SERC.

At SERC

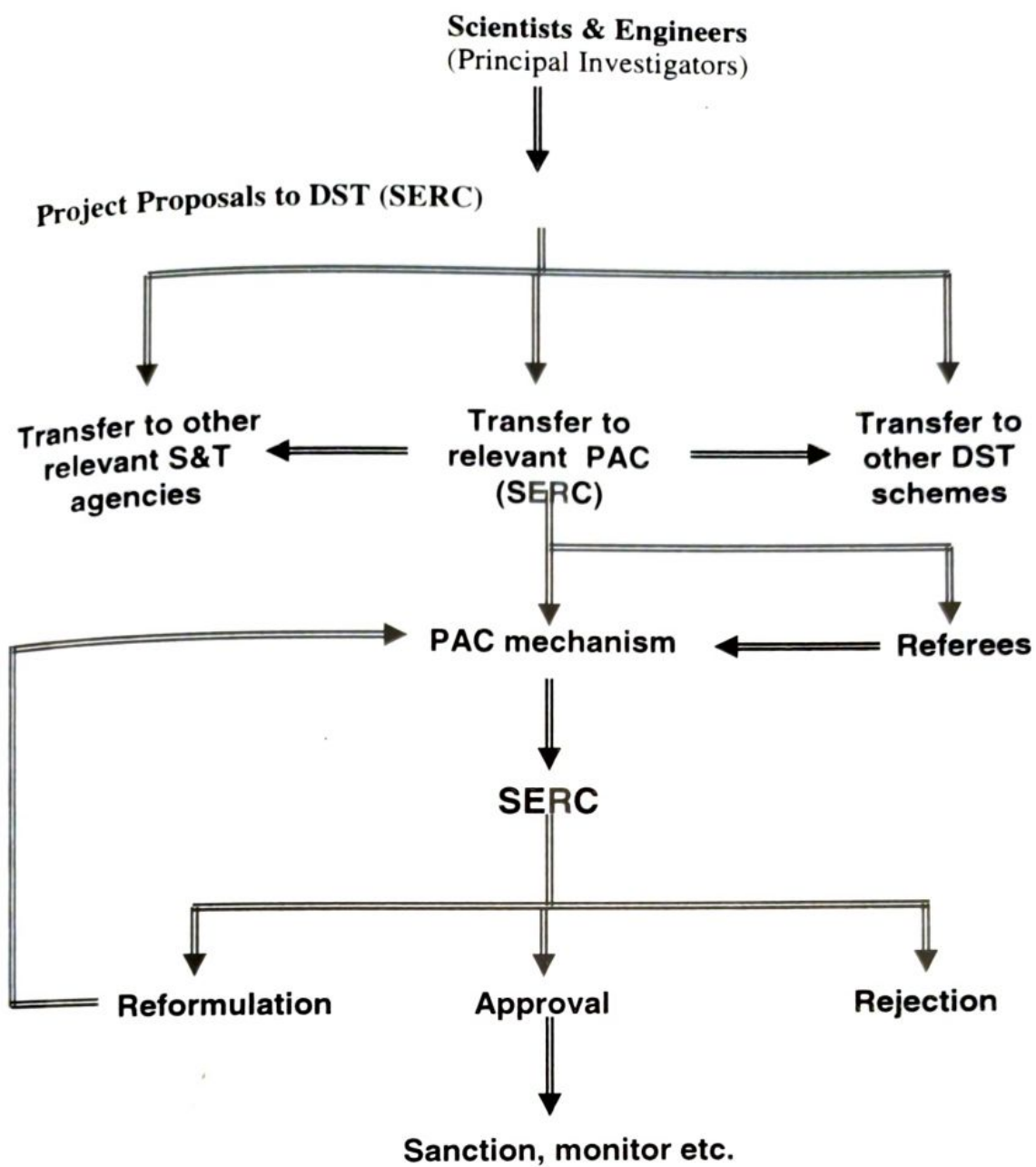
- (i) For review, the SERC invites the Chairman (if he is not a member of SERC) or any other expert of the concerned PAC to give a presentation on the project. Taking care of all aspects SERC may suggest reformulation of the project including estimated cost of the project and send back the proposal to PAC for further action.
- (ii) After due consideration the SERC may approve, reject or suggest reformulation of the project.

Once the project is approved by the SERC or the PUC, as the case may be, sanction orders indicating all terms & conditions for the operation of the project is issued by SERC secretariat with the formal approval of the Secretary, DST. Duration of such projects is 3 years, which is reckoned from the date of receipt of cheque for the 1st installment of grant. The grant is released with the concurrence of the Financial Adviser and approval of Secretary, DST.

The detailed terms & conditions for financial support by DST for such projects are given in the 'Guidelines for Implementing Research Projects' available in the *Website: serc.dst.org*.

(e) Monitoring Process

The projects are reviewed twice – once in intermittent period and finally 3 months before the date of close of the project. The progress of projects are reviewed through the same channel and in the same manner as was done before its approval. The channel through which the projects are approved and their progress are reviewed is shown in the diagram below:



(g) Audit Points

Project Approval & Agreement/ MOU Process

- (i) Whether the SERC/ PAC obtained required information/data and evaluated the proposal for their scientific, technological, commercial and financial merits and capability & expertise of the organization(s) involved in the proposed action network?
 - (ii) Audit should also verify that the project approval / monitoring committees looked into the following aspects in respect of different category of projects:
 - (a) the research work proposed in the scheme/project does not in any way duplicate the work already done or being carried out elsewhere on the subject.
 - (b) the same project has not been submitted to any other agency/ agencies for financial support.
 - (c) the emoluments for the manpower proposed in the project proposal were those admissible to persons of corresponding status employed in the institute/ university or as per the Ministry of Science & Technology guidelines.
 - (iii) Background information on the developments in the field, in India and abroad.
 - (iv) Whether grantee institution agreed to undertake the financial and other management responsibilities of the project before the project was approved by DST?
 - (v) Whether the grantee institution to which the investigators belonged agreed before approval of the project that the equipment, other basic facilities and such other administrative facilities as per terms and conditions of the grant would be extended to investigator(s) throughout the duration of the project and was actually extended during the tenure of project?
 - (vi) Whether MOU provided the right of the Govt. of India (Deptt. of Science & Technology) to call for drawings, specifications and other data necessary to enable the transfer of know-how to other parties and supply all the needed information by the concerned Institute/university at the request of the Department of Science & Technology which will ensure confidentiality?
 - (vii) Whether assurance was obtained from the grantee institution to which grant-in-aid is proposed to be sanctioned by DST that it would not entrust the implementation of the work of the project to another institution and divert the grant without expressed permission of DST?
 - (viii) Study the MOU with various implementing agencies in respect of multi-agency projects and verify whether the agreement clearly defined the responsibilities and obligations of all the parties involved in the project, terms & conditions, financial arrangements, modalities of collaboration, intellectual property rights and monitoring mechanism?
 - (ix) Whether terms of MOU provided Government's right to the assets procured out of the grant-in-aid of DST and a clause against disposal of, or encumbrance or utilization of such assets for purposes other than those for which the grant had been sanctioned?
 - (x) Has the clause been included in the MOU which states that should at any time grantee institution ceases to exist, such assets etc., shall revert to DST;
 - (xi) Whether the terms of agreement have been finalized in consultation with Department of Law?
- (h) At monitoring stage**
- (i) Whether the grantee institution /PI furnished progress-cum-achievement report on the work of the project every six months?

- (ii) Whether the concerned **Project Monitoring Committee** met regularly and reviewed progress of the projects and gave directives wherever necessary?
- (iii) Whether the grantee institution sent to DST a list of assets at the end of each financial year as well as at the time of seeking instalments of grant?
- (iv) Whether the Institute furnished to the Deptt. of Science & Technology a Utilization Certificate and an audited statement of expenditure with the comments of the auditor regarding the observance of the conditions governing the grant within six months following the end of the relevant financial year as well as a consolidated statement of expenditure at the end of the completion of the project?
- (v) Whether the project-implementing Institute maintained a separate audited account for the project?
- (vi) Whether any part or whole of the grant was kept in a bank account earning interest and if so, was the interest earned from such deposit reported to the Deptt. of Science & Technology and was the amount of interest adjusted from subsequent installment of grant-in-aid?
- (vii) Had the grantee institution obtained any other financial assistance or received grant/loan from any other Agency/Ministry/Department for this project? If so, whether prior approval of Department of Science & Technology was obtained?
- (viii) Whether the grantee institution rendered progress-cum-achievement reports at interval of not exceeding six months on the progress made on all aspects of the project including expenditure incurred on various approved items during the tenure of the project?
- (ix) Had the grantee institution made efforts to protect intellectual property generated out of the project in consultation with IPR Cell, DST by filing patents, registering copyrights etc. before making it public by publishing in the technical journals and books, presenting findings in conferences, etc.
- (x) Had the intellectual property and the rights associated with the project been assigned to DST? In cases where the fundings have been done jointly with other organisations, had the IP rights been appropriately shared?
- (xi) Whether sale proceeds of components, prototype, pilot project etc. fabricated as a result of the development of the project arising directly from funds granted by Department of Science & Technology were remitted to the Department?
- (xii) Whether investigators/ Institutes acknowledged the financial support received from the Deptt. of Science & Technology while publishing papers based on the research work done under Deptt. of Science & Technology research scheme?
- (xiii) In case the grantee institution was not in a position to execute or complete the project, whether entire amount of grant received by it has been refunded to Govt. of India (Department of Science & Technology)?
- (xiv) If the Investigator to whom a grant for a project was sanctioned left the institution where the project was being implemented, had he submitted complete and detailed report of the work done by him on the project and the money spent till the date of his/her release and arranged to refund the unspent balance, if any?
- (xv) Whether portion of the grant which was not required for expenditure for the approved purposes surrendered to DST?
- (xvi) Since the know-how generated through Grant-in-aid project of DST is the property of DST, whether receipts by way of sale of know-how transfer, royalties training etc. actually accrued to DST? Whether any part of such receipts allowed to be retained by the grantee organization?

6.4.11 Scientific Services

The following are the departments/bodies through which the DST provides scientific services to the nation. DST has the responsibility for formulating the policies and programmes of these departments/ bodies and for their implementation. These responsibilities are discharged through respective councils under the chairmanship of the Secretary DST.

- (i) India Meteorological Department
- (ii) National Atlas and Thematic Mapping Organisation
- (iii) Survey of India
- (iv) National Centre for Medium Range Weather Forecasting

(i) India Meteorological Department

The India Meteorological department was established in 1875. It is the National Meteorological Service of the country and the principal government agency in all matters relating to meteorology, seismology and allied subjects.

Mandate

- ♦ To take meteorological observations and to provide current and forecast meteorological information for optimum operation of weather-sensitive activities like agriculture, irrigation, shipping, aviation, offshore oil explorations, etc.
- ♦ To warn against severe weather phenomena like tropical cyclones, duststorms, heavy rains and snow, cold and heat waves, etc., which cause destruction of life and property.
- ♦ To provide meteorological statistics required for agriculture, water resource management, industries, oil exploration and other nation-building activities.
- ♦ To conduct and promote research in meteorology and allied disciplines.
- ♦ To detect and locate earthquakes and to evaluate seismicity in different parts of the country for development projects.

Organisation

The Director General of Meteorology is the Head of the India Meteorological Department, with headquarters at New Delhi. There are 4 Additional Directors General at New Delhi and 1 at Pune. There are 20 Deputy Directors General of whom 10 are at New Delhi.

For the convenience of administrative and technical control, there are 6 Regional Meteorological Centres, each under a Deputy Director General with headquarters at Mumbai, Chennai, New Delhi, Calcutta, Nagpur and Guwahati. Under the administrative control of Deputy Director General, there are different types of operational units such as Meteorological Centres at state capitals, Forecasting Offices, Agrometeorological Advisory Service Centres, Flood Meteorological Offices, Area Cyclone Warning Centres and Cyclone Warning Centres.

The Council for Meteorology and Atmospheric Sciences (CMAS) under the chairmanship of Secretary, Department of Science and Technology, has the responsibility for formulating the policies and programmes of IMD and for their implementation.

Points to be seen in audit

- (a) The minutes of meetings of Council for Meteorology and Atmospheric Sciences (CMAS) should be examined and seen that policies and programmes are drawn up in accordance with the mandate of the Department and are being implemented by specific and well defined procedures.

- (b) Whether the implementing bodies in IMD have taken adequate steps in achieving targeted result in the major thrust areas identified by apex bodies.
- (c) Study the policies statement of the Department as and when approved by the Government with a view to see that the policies and programmes being pursued are in accordance with it.
- (d) Whether IMD is performing, all the functions assigned to it.
- (e) Whether all the matters, which fall within the preview of the CMAS and Executive Committees, are put up to these bodies/ committees and approvals/ recommendations obtained.
- (f) Examine the agenda and minutes of the CMAS and Executive Committees meetings. Whether prompt action is taken on the recommendation of these committees.
- (g) Whether the implementing Divisions furnished progress report of work on the project periodically to the monitoring authorities.
- (h) Whether the monitoring authorities met, reviewed progress of the projects from time to time and gave directions wherever necessary.

(ii) National Atlas and Thematic Mapping Organisation

The origin of the National Atlas Organisation dates back to the year 1956. It was renamed as the National Atlas and Thematic Mapping Organisation (NATMO) in 1978 to give the institution a broad based responsibility in the field of thematic cartography and geographical research. It is under the administrative control of the Department of Science & Technology of the Government of India. The main office or the headquarters is in Calcutta.

Major Functions

- ◆ Compilation of the National Atlas of India
- ◆ Preparation of the National Atlas maps in regional languages.
- ◆ Preparation of thematic maps based on research studies on environmental and associated aspects and their impact on social and economic development
- ◆ Any other work entrusted by the central government or its agencies to NATMO
- ◆ Installation of automated Mapping System for increasing speed and efficiency in mapping
- ◆ Geographical Researches

(iii) Survey of India

- (a) Survey of India, the National Survey and Mapping Organization of the country under the Department of Science & Technology, is the oldest scientific department of the Govt. of India. It was set up in 1767.

In its assigned role as the nation's principal mapping agency, Survey of India bears a special responsibility to ensure that the country's domain is explored and mapped suitably to provide base maps for expeditious and integrated development and ensure that all resources contribute their full measure to the progress, prosperity and security of our country now and for generations to come.

Organized into 5 Directorates in 1950, mainly to look after the mapping needs of Defense Forces in North West and North East, the department has now grown into 18 Directorates spread in all parts of the country to provide the basic map coverage required for the development of the country. Its technology, latest in the world, has been oriented to meet the needs of defense forces, planners and scientists in the field of geo-sciences, land and

resource management. Various ministries are utilizing its expert advice in many sensitive areas including settlement of international borders, state boundaries and in assisting planned development of hitherto under developed areas.

Faced with the requirement of digital topographical data, the department has created three Digital centers during late eighties to generate Digital Topographical Data Base for the entire country for use in various planning process and creation of geographic information system. Its specialized Directorates such as Geodetic and Research Branch, Research & Development Directorate and Survey Training Institute have been further strengthened to meet the growing requirement of users community. The department is also assisting in many scientific programmes of the nation related to the field of geo-physics, remote sensing and digital data transfers.

(b) Organisations

Surveyor General's office is at Dehra Dun.

It has four zonal headquarters centers as shown below:

- ◆ Northern zone headquarters at Chandigarh
- ◆ Southern zone headquarters at Bangalore
- ◆ Eastern zone headquarters at Calcutta
- ◆ Western zone headquarters at Jaipur

(c) Activities/ charter of duties

The Survey of India acts as adviser to the Government of India on all survey matters, viz Geodesy, Photogrammetry, Mapping and Map Reproduction. However, the main duties and responsibilities of the Survey of India are enumerated below:

- ◆ All Geodetic Control (Horizontal and Vertical) and Geodetic and Geophysical surveys.
- ◆ All Topographical Control, Surveys and Mapping within India.
- ◆ Mapping and Production of Geographical Maps and Aeronautical Charts.
- ◆ Surveys for developmental projects.
- ◆ Survey of forests, cantonments, large scale city surveys, guide maps, cadastral surveys etc.
- ◆ Survey and Mapping of special maps.
- ◆ Spellings of geographical names.
- ◆ Demarcation of the External Boundaries of the Republic of India, their depiction on maps published in the country and also advice on the demarcation of inter-state boundaries.
- ◆ Training of officers and staff required for the department, trainees from Central Government departments and states and trainees from foreign countries as are sponsored by the Government of India.
- ◆ Research and Development in Cartography, Printing, Geodesy, Photogrammetry, Topographical Surveys and Indigenisation.
- ◆ Prediction of tides at 44 ports including 14 foreign ports and publication of Tide Tables one year in advance to support navigational activities.
- ◆ Scrutiny and Certification of external boundaries of India and Coastline on maps published by the other agencies including private publishers.

(iv) **National Centre for Medium Range Weather Forecasting (NCMRWF)**

(a) The National Centre for Medium Range Weather Forecasting is the premier institution in India to provide Medium Range Weather Forecasts through deterministic methods and to render Agro meteorological advisory services to the farmers. The centre offers challenging research opportunities in Numerical Weather Prediction, Diagnostic studies, Crop Weather Modeling and Computer science.

(b) **Objectives**

- ◆ Development of operational and regional scale numerical weather prediction(NWP) models for forecasting weather in medium range to inform and guide the farmers in advance to undertake various farming activities based on the expected weather
- ◆ Set-up the organisation fully equipped with state-of-the-art supercomputing infrastructure to develop suitable NWP models to issue medium range weather forecasts
- ◆ Set-up 127 agro meteorological advisory service (AAS) units, each unit representing one of the 127 agro climatic zones spread all over India, to prepare/ issue/ disseminate AAS bulletins based on weather forecasts and to provide user feedback as well
- ◆ Set-up satellite based V-SAT Network for enabling stable/fast dedicated communication with AAS units

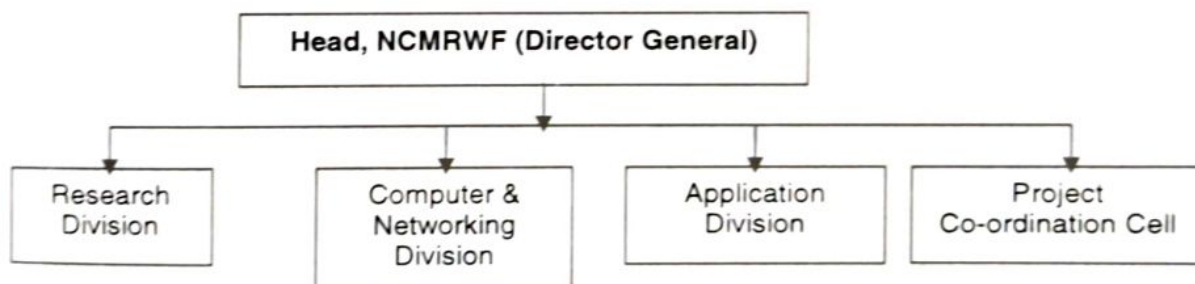
(c) **Research and Development**

At NCMRWF, R&D activities on various areas of meteorology are carried out to improve the quality of medium range weather forecasts. All the research efforts by the various scientists of NCMRWF lead to the development and improvement of the Operational Weather Forecast System of NCMRWF.

At NCMRWF, major Research and Development works are done by its three divisions.

- ◆ Research Division
- ◆ Computer& Network Division
- ◆ Application Division

(d) **The organizational structure of the NCMRWF is as follows:**



Administration & Finance

The administrative functions and financial transactions are done at Department of Science & Technology.

Approval & monitoring of R&D Project/ Plan Schemes

R&D Projects / Plan Schemes are sent to **Science and Engineering Research Council (SERC)**, Department of Science & Technology. SERC process all project / scheme proposals obtaining approval of the competent authorities. They also monitor their progress.

- (e) **Location – NCMRWF, Supercomputer Centre**, is presently located at Mausam Bhavan Complex, Lodi Road, New Delhi. (They are in the process of shifting in their new campus at **Sector-62, Noida, Uttar Pradesh.**)
- (f) **Audit Points** – Since all administrative functions and financial transactions are done at Department of Science & Technology and all R&D projects / schemes are processed, their audit scrutiny should also be done at the same manner as applicable to DST.

6.4.12 Other programmes/ activities of DST

Following are the programmes/ activities operating in DST for providing financial support for the R&D development in the country.

6.4.12.1 Intensification of Research in High Priority Areas (IRPHA)

In complimentary to the normal R&D projects, the Science and Engineering Research Council (SERC) also promotes programmes that provide for creation of core groups/ units, national facilities and nationally coordinative programmes in multidisciplinary areas of high priority under its IRHPA scheme. The proposals under the IRHPA programme are generated/ evolved by the DST through consultation with the peers in the field or through discussions at PAC level/ brain storming workshops, etc.

6.4.12.2 Integrated Science Olympiad Programme

A National Science Olympiad Programme covering Mathematics, Physics, Chemistry and Biology is operational in the country with the active support of Department of Science & Technology, Department of Atomic Energy and Ministry of Human Resource Development. The programme aims at promoting excellence in science among pre-university students and selecting teams to represent India at the respective International Olympiads.

6.4.12.3 Kishore Vaigyanik Protsahan Yojana (KVPY)

The Kishore Vaigyanik Protsahan Yojana is a programme initiated by the Government of India to encourage students of the Sciences, Engineering and Medicine to take up careers in research in these fields. The programme aims to identify and select students who demonstrate talent and aptitude, and encourage and assist them in pursuing research careers in their chosen fields. This programme hopes not only to assist the students to realize their potential, but also to ensure that the best scientific talent is tapped for research and development establishments in the country: A generous scholarship will be provided (up to the Pre-Phd level) to the selected students. In addition, summer programmes in prestigious research and education institutions in the country will be organized, and preferential access to facilities such as libraries, laboratories, museums, etc. will be provided.

6.4.12.4 Programs relating to Young Scientists and HR Development

- (a) SwarnaJayanti Fellowships
 - (b) Fast Track Proposals for Young Scientists
 - (c) Better Opportunities for Young Scientists in Chosen Areas of Science and Technology (BOYSCAST)
- (a) **SwarnaJayanti Fellowships**

Govt. of India had instituted a scheme "The Swarnajayanti Fellowships" to commemorate India's fiftieth year of Independence. Under this scheme a selected number of young scientists, with proven track record, are provided special assistance and support to enable them to pursue basic research in frontier areas of science and technology. The fellowships

are scientist specific and not institution specific, very selective and have close academic monitoring.

(b) **Fast Track Proposals for Young Scientists**

The Science and Engineering Research Council (SERC), Department of Science & Technology, in order to provide quick research support to **young scientists below the age of 35 years**, has introduced a new fast track mechanism. Scientists is encouraged, under the scheme, to pursue research of high standard in frontier areas of science and engineering, subject to peer review and other suitable mechanisms. Funding under this programme is limited to a sum up to Rs. 10 lakhs, which include recurring costs (Fellowship, consumables, travel and contingency) and equipment (less than Rs.5.00 lakhs). Scientists, if not holding regular positions, can draw a fellowship of Rs.15,000/- per month. The support will be provided for a period not exceeding three years.

(c) **Boyscast Fellowship Scheme**

This provides opportunities to young scientists for visits to state -of- the art international R&D institutions in order to have training in frontline chosen areas of S&T. The duration of the fellowship is 3-12 months and it is awarded to scientists not exceeding 35 years of age.

6.4.12.5 Earth System Sciences (ESS)

The Earth System Sciences (ESS) deal with all R&D programmes related to Earth and Atmospheric Sciences..

Objectives

- ♦ Through the above programmes seismic network over the Himalayan region has been augmented and upgraded. Efforts are on to further expansion of seismic network over the Himalayan region as well as in the peninsular shield area.
- ♦ Through the DCS programme, deep structural configuration of Indian Lithosphere along selected transects are being undertaken.
- ♦ The primary objective of the Monsoon and Tropical climate is to understand the weather and climate over all Indian region especially for the monsoon period and thereby improving the forecasting skills.
- ♦ Efforts are on to establish the relationships between various weather parameters and crop growth and yield for various major crops in India.
- ♦ Under Himalayan glaciology, glaciers in the Himalayan region are being studied by organising expeditions and also conducting systematic observations over selected glaciers.

6.4.12.6 Seismicity Programme

Recognizing the importance of earthquake studies in the Himalayan region, the Department of Science & Technology had initiated a multi-institutional and multi-disciplinary programme in 1982. With increasing scientific demand in the field of seismology, DST has set up an independent division for seismology in the early 2001. Following major programmes have been taken up by this division:

- ♦ Himalayan seismicity programme
- ♦ Peninsular shield seismicity
- ♦ National Programme on Global Positioning System (GPS)

6.4.13 Recent initiatives of DST

1. **Jai-Vigyan Technology Mission project on Natural Hazard Assessment in Himalaya**

Jai-Vigyan Technology Mission Project was launched in 2000 with a view to promote S & T activities on priority basis. The project is overseen by Project Monitoring Committee. The following are the activities approved under this mission mode project.

- ◆ Setting up of six new seismological observatories in the North Eastern Region.
- ◆ Establishment of Geophysical Research Laboratory at Allahabad.
- ◆ Geotechnical investigations for landslides control measures.
- ◆ Setting up of a composite multi-parametric geophysical observatory.

2. **Earthquake Risk Evaluation Center (EREC)**

An Earthquake Risk Evaluation Center is being established at India Meteorological Department, New Delhi. The main mandate of the center is to collate and integrate all the existing seismological and collateral geophysical data and prepare the earthquake risk maps for the country. The construction related activities of the permanent building is being initiated.

3. **Microzonation studies in Delhi region**

A comprehensive proposal on "seismic microzonation and GIS based studies for earthquake disaster management of Delhi region' has been evolved and submitted to Govt. of NCT of Delhi as a turnkey project. The project involves a multi-disciplinary and multi-institutional participation. The implementation mechanism is being worked out.

4. **Utilisation of the Scientific Expertise of Retired Scientists (USERS)**

The Department during the seventh five-year plan introduced the scheme Utilisation of the Scientific Expertise of Retired Scientists (USERS). The main objective of the scheme is to utilise expertise and potential of large number of eminent scientists in the country who remain active and deeply motivated to participate in S&T development activities even after their retirement.

5. **National Science & Technology Management Information System (NSTMIS)**

The National Science and Technology Management Information System (NSTMIS), a division of Department of Science and Technology (DST) has been entrusted with the task of building the information base on a continuous basis on resources devoted to scientific and technological activities for policy planning in the country.

6. **Regional Sophisticated Instrumentation Centres (RSICs)**

Sophisticated analytical instruments are required in many areas of modern scientific research for investigations and experimentation. A large number of institutions in our country either don't have these instruments or don't have adequate resources to procure, maintain and run them. These instruments are expensive and with our limited resources it is not possible to provide them for each project separately. Recognising the need for sophisticated analytical instruments, considering their non-availability at a large number of institutions and for optimum utilisation of available resources, the Department of Science & Technology (DST) initiated a programme 'Regional Sophisticated Instrumentation Centers (RSICs)', and set up Regional Sophisticated Instrumentation Centers (RSICs) and Sophisticated Instrumentation Facilities (SIFs) under it, in different regions of the country to provide the facilities of sophisticated analytical instruments to the scientists/users from universities/academic institutions, R&D laboratories and industries so that the non-availability of these instruments at their institutions may not

come in their way in pursuing important developments/R&D activities requiring such facilities.

7. **Fund For Improvement Of S&T Infrastructure In Universities And Other Higher Educational Institutions (FIST)**

In order to strengthening the existing S&T infrastructural support system in the universities and other related institutions with adequate funding and associated flexibilities, the Government of India has announced a major new initiative to rebuild the Science & Technology infrastructure titled "Fund for Improvement of S&T infrastructure in universities and higher educational institutions (FIST)".

Objectives & Nature of Support

This scheme would provide basic infrastructure and the enabling facilities and environment for promoting R&D in new and emerging areas and attracting fresh talent. The Nature of support under this scheme would cover the following elements:-

- (i) Provide optimal infrastructure facilities such as, adequate laboratory space, no break electric supply, cold rooms, water supply etc. Modernisation of laboratories for teaching and research: Refurnishing/establishing environmentally compatible and safe laboratories, that will meet GLP standards, among other things
- (ii) Acquisition of essential equipment and up-gradation of existing facilities and support for maintenance of sophisticated equipment;
- (iii) Ready access to information systems: Net-working and ready access to computational facilities, data bases, scientific journals, etc.;

Support for Seminar, Symposia & Journal

DST also gives support to S&T Professional Bodies & Scientific Institutions for Seminar, Symposia & Journal

8. **Partial Financial Assistance for Participation in Conferences Abroad**

The Department has a scheme under which, financial assistance towards travel cost, is considered for participation in International conference/ seminar/ symposium/ workshop, which are not sponsored by International Council of Scientific Unions (ICSU)- However, Young scientists up to the age of 35 years are also eligible to seek support even for ICSU Conferences, training courses and short-term schools. The scheme does not provide assistance towards maintenance, registration fee, airport tax, taxi fare and other cost. Only 50% of International air fare is given by the Department.

Points to be examined by the Audit

- (i) Whether the applicant was an Indian Scientist working in Educational/ Academic Institutions and Research Laboratories?
- (ii) Whether foreign governments, international organisations and other institutions under the aegis of multilateral, regional or bilateral arrangements and professional societies of international nature sponsored the conference?
- (iii) Whether Scientist essentially had an accepted paper for oral presentation as a single or lead author/ as a Keynote speaker; or invited as a session Chairperson?
- (iv) Whether preference was given to Keynote Speaker/ Chairperson?
- (v) Whether young Scientists were given preference over aged scientists?
- (vi) Whether letter of Invitation from organisers giving particulars such as abstract of the paper accepted for presentation along with the letter of its acceptance for an oral/ poster

presentation; as a keynote speaker/ chairperson etc. was furnished by applicant before approval of the grant.

- (vii) Whether any other national or international agency committed to bear partial cost of travel, registration and per diem? If so, whether a copy of the letter regarding such commitment was furnished by the applicant?
- (viii) Whether support was for actual return air fare (in economy /excursion class by Air-India) from the place of work in India to the venue of the conference/symposium, workshop or restricted to an amount after adjusting the partial cost of travel committed by other national or international agency?
- (ix) Had the applicant booked directly on a National Carrier i.e. Air India/ Indian Airlines, as the case may be, even to places where AIR India/ Indian Airlines flights do not operate?
- (x) Had the applicant availed of financial assistance from DST in the last three years?
- (xi) Whether the applicant has submitted any report about the benefit derived from the conference/ symposium, workshop with a certificate of utilization of travel grant.

6.4.14 Technology Development

In 1996, for the purposes of the development and application of indigenous technology in a dynamic economic environment, the Government of India enabled the placing of the proceeds of an existant cess on the import of technology into a fund called the Fund for Technology Development and Application. To administer the Fund, the Government also constituted a Technology Development Board on 1st September 1996, invoking the provisions of the Technology Development Board Act, 1995.

The Technology Development Board invests in equity capital or gives soft loans to industrial concerns and other agencies, as applicable, attempting development and commercial application of indigenous technology, or adapting imported technology to wider domestic application.

6.4.15 Audit Points

Audit should first examine the status of the applicant seeking funding from TBD

- (i) Whether the organization that sought fund was an enterprise or a co-operative or an agency, which has as the objective of development and application of technology-based product or service?
- (ii) Whether the project was for the commercialisation of technology developed by a domestic R&D institution of any one of the following category:-
 - ◆ National Laboratory
 - ◆ State laboratory
 - ◆ Academic institution
 - ◆ Co-operative Research Association
 - ◆ Registered R&D Foundation/Trust/Society
 - ◆ In-house R&D unit in industry recognised by Government,(Department of Scientific and Industrial Research - DSIR)
 - ◆ Scientific and Industrial Research Organisation recognised by Government (DSIR)

- ◆ Commercial R&D company recognised by DSIR

partner R&D institution?
In such a case had the enterprise applied, along with an agreement/ MoU with its

- (iii) Whether the enterprise had developed the technology with the assistance of an R&D institution (as listed (ii) above)?
- (iv) Whether it was a start-up company and/or technocrat-entrepreneur, with or without any other partners, in agricultural product processing, information technology or designing and developing special engineering products?
- (v) Whether it was an individual generator (e.g. inventor) or an industrial concern having legal title to domestically generated intellectual property?

Audit should also examine that project funded was of the following category which normally can be funded by TDB:

- ◆ Development and commercialisation of a new product/ process/ application through indigenous technology.
- ◆ Significant improvements in the existing product/ process/ application.
- ◆ Substantial quality upgradation, reduced material consumption, reduced energy consumption, cost reduction, improved competitiveness, improved ergonomics.
- ◆ Development and deployment of technology or design to satisfy existing occupational health and/ or safety standards, or improve upon them.
- ◆ Development and deployment of technology or design necessary to satisfy domestic or foreign environmental requirements or standards current or anticipated.
- ◆ Development and deployment of technology or design necessary to satisfy the requirements of domestic legislation, and/or decisions of the judiciary or product liability legislation in export markets.
- ◆ Adaptation/ modification to product/ process, which has been imported so as to make it suitable for wider domestic application.
- ◆ Replacement of imported raw materials/components with indigenous substitutes.
- ◆ Proving the socio-commercial viability of new and/or renewable sources of energy commercially delivered to consumers.
- ◆ Development of technology to meet the medical standards and proving socio-commercial viability of bio-medical equipment and devices.
- ◆ Hazardous, waste recycling management.

Whether activities/ expenditures funded was of the following nature, which could be funded by TDB?

- ◆ Development, test and evaluation necessary for establishing proof-of-applicability of product, process or application.
- ◆ Costs of a capital nature including cost of acquisition of technology of foreign origin, which is at "proof-of-concept" or design stage requiring substantial indigenous technology development.

- ◆ Fabrication, testing and trial of prototypes.
- ◆ Setting-up pilot/demonstration plant including testing and trials.
- ◆ Industrial product design.
- ◆ Field trials (including limited market development, except as stand-alone activity)
- ◆ Setting-up the first or demonstrator commercial scale manufacturing unit using the innovative technology.
- ◆ Cost of studies, surveys and blue or grey-collar training necessary or incidental to the above.
- ◆ R&D/ engineering consultancy for prototype/ pilot plant/ trials and testing.

6.4.16 Equity Participation

- (i) Whether the Board's funding was by way of investment in equity capital of the company, on its commencement, start-up and/or growth stages requirements as assessed by the Board and keeping in view the debt-equity ratio of the industrial concern?
- (ii) Whether Board's investment in equity shares of the company was upto the limit of 25 percent of the project cost, including margin money for working capital, provided such investment does not exceed the capital paid-up by the promoters.
- (iii) In the event of equity participation, had the Board reserved the right to nominate, from time to time, a person or persons to be a Director or Directors of the Board of Directors of the Company with the condition that such nominee Director(s) shall, however, not be required to hold qualification shares or shall not be liable to retire by rotation

6.4.17 Term Loan

- (i) Whether the loan was granted after taking into account the totality of the financial environment in which the enterprise is to operate and the amount of loan was limited to half of the estimated outlay on the activities eligible for funding.
- (ii) Had the enterprise produced evidence of arrangement for the remainder of the money required in the form of a commitment letter from a third party investor such as another established company, a venture capital company, financial institution or commercial bank?
- (iii) Had the rate of interest on loan been finalized before sanction of the loan?

6.4.18 Audit should also verify the following aspect

- (i) Whether project approval authorities evaluated the project for their scientific, technological, commercial and financial merits. Whether following evaluation criteria was critically examined:
 - ◆ the soundness, scientific quality and technological merit
 - ◆ the potential for wide application and the benefits expected to accrue from commercialisation
 - ◆ the adequacy of the proposed effort
 - ◆ the capability of the R&D institution(s) in the proposed action network

- ◆ the organisational and commercial capability of the enterprise including its internal accruals
 - ◆ the reasonableness of the proposed cost and financing pattern
- (ii) Whether the Committee visited the site of execution and gathered enough information/ data and evaluated the above aspect of the proposal?

6.4.19 Contractual matters

- (i) Whether a valid agreement was signed between DST and other parties involved in the project?
- (ii) Whether the terms & conditions of the agreement were finalised in consultation with the Department of Law?
- (iii) Whether the agreement clearly defined the responsibilities and obligations of all the parties involved in the project network and also terms & conditions, financial arrangements, modalities of collaboration, intellectual property rights, monitoring mechanism?
- (iv) Whether the agreement prescribed the accounting procedure for maintaining the accounts for the money released by DST?
- (v) Whether the right of the assets acquired out of DST grant during the course of implementation of the project has been defined in the agreement?
- (vi) Whether any clause has been included in the agreement to prevent the Executing Agency to transfer the project to any other organization?
- (vii) Whether agreement included a clause of regular reporting by the Executing Agency of the financial, technical & physical progress of the project?
- (viii) Whether situation in which DST reserves the right to terminate the project has been defined with clause to recover the money released for the project with interest?
- (ix) Whether the agreement provides adequate safeguard for recovery of the money invested by DST in case the executing agencies without any valid reasons abandon the project?
- (x) Whether the release of refundable grant-in-aid has been linked to the progress of execution?
- (xi) Whether the agreement provides clear pattern of sharing of benefits that may accrue from commercialisation of the end products and/ or refund of the grant sanctioned by DST with compensation?

6.4.20 Monitoring Process

- (i) Whether DST had set up a Project Review Committee (PRC) with experts from appropriate fields?
- (ii) Whether the financial, technical & physical progress reports and utilization certificates have been received regularly from the Executing Agency and submitted to Project Review Committee?
- (iii) Whether the PRC regularly met and reviewed the project and recommended its continuance?
- (iv) Whether suggestion, if any, made by the committee has been implemented by the Executing Agency?

- (v) Whether immediate action was taken to issue termination order if recommended so by the PRC?
- (vi) Whether there was any time over run or cost over run? If so, what was the justification?
- (vii) Whether PRC has approved extension of time and enhancement of the project cost in such cases?
- (viii) Whether the completion report along with audited accounts have been submitted promptly by the Executing Agency immediately on its completion?
- (ix) Whether PRC examined the completion report and accepted the same?
- (x) Whether the PRC or the experts nominated by PRC have visited the site of execution for physical verification during course of progress or before termination of a project or/ and after completion before taking the decision of continuance or termination or/ and completion, as the case may be, of a project?

The Board has also instituted two National Awards for the successful commercialisation of indigenous technology as per below:

- (i) Cash award of Rs.5 lakh each to
 - (a) An industrial concern, which has successfully commercialised
 - (b) The developer/ provider of such technology.
- (ii) Cash award of Rs.2 lakhs to an SSI unit, which has successfully commercialised a product based on indigenous technology.

6.4.21 Joint Technology Programme

(i) Inter-Sectoral Science & Technology Advisory Committee

In early 1980s, Government in pursuance of its policy of self-reliance felt that India was lagging behind in technology growth in the key sectors of economy. The perennial issue was how to make use of S&T in the pursuits of economic growth. Such deliberations led to a Technology Policy Statement, announced in 1983. The Technology Policy Implementation Committee (TPIC) in the Planning Commission then recommended setting up of Science & Technology Advisory Committees (STACs) in all socio-economic Ministries. DST was suggested as nodal agency, to oversee the programmes of STACs. DST took charge of this activity in 1988 and devised Terms of Reference and Model Composition of STACs in the Ministries. A coordinating committee IS-STAC, was set up within DST, Chaired by Secretary DST and comprising of Member Secretaries from all STACs.

Objectives

- (a) To provide inter-disciplinary inputs in the S&T programmes of socio-economic ministries.
- (b) To exchange information on work of STACs in different ministries.
- (c) To act as focal point for evolving multi-partnership Joint Technology Projects.
- (d) To organise Interactive Meets and undertake Studies in the area of common interest.

(ii) Drugs & Pharmaceutical Research

Objectives

Recognising the profound influence of R&D on the prospects and opportunities for the growth of the Indian Drug Industry, Department of Science and Technology (DST),

Government of India mounted the programme on drug development during 1994-95 for promoting collaborative R&D in drugs and pharmaceuticals sector with the following specific objectives:

- ◆ To synergise the strengths of publicly funded R&D institutions and Indian pharmaceutical industries.
- ◆ To create an enabling infrastructure, mechanisms and linkages to facilitate new drug development.
- ◆ To stimulate skill development of human resources in R&D for drugs and pharmaceuticals; and
- ◆ To enhance the nation's self-reliance in drugs and pharmaceuticals especially in areas critical to national health requirements.

6.4.22 Patent Facilitating Centre

Intellectual property protection plays a key role in gaining an advantageous position in the competitive technological game for achieving economic growth. Scientists would need information, orientation and facilities for protecting the products of their intellectual prowess. As a first step in this direction a Patent Facilitating Centre (PFC) was set up by Department of Science and Technology under Technology Information Forecasting and Assessment Council (TIFAC) in 1995. Major Indian scientific establishments have in-house facilities to provide patent support to their scientists. However, such facilities are not available to most of the academic sector and smaller scientific institutions whether in the central or the state sector. PFC was created as a single window facility to service the large clientele and reach out to remote universities and R&D centers. Scientists thus have a direct and easy access to PFC's complete coverage.

Objectives

- (i) Introducing patent information as a vital input in the process of promotion of R&D programmes
- (ii) Providing patent facilities to scientists and technologists in the country for Indian and foreign patents on a sustained basis.
- (iii) Creating awareness and understanding relating to patents and the challenges and opportunities in this area including arranging workshops, seminars, conferences, etc

6.4.23 S&T and Socio Economic Development

This programme is followed by the following:

- ◆ National Council for Science & Technology Communication (NCSTC)
- ◆ Science and Society
- ◆ National Science & Technology Entrepreneurship Development Board (NSTEDB)
- ◆ Natural Resources Data Management System (NRDMS)
- ◆ State Councils for Science & Technology

6.4.24 National Council for Science & Technology Communication (NCSTC)

The council is an apex organisation of the Government of India that endeavours to

- ♦ Popularise science and technology
- ♦ Stimulate scientific and technological temper
- ♦ Coordinate and orchestrate such efforts

Catalysed and supported by the Council can best be categorised as below:

- ♦ Research in thrust areas of science and technology communication;
- ♦ Development of scripts, films, video and radio programmes, books, slide sets, etc., on selected areas of science and technology;
- ♦ Training (short term) for school teachers and activists of science & technology based voluntary organisations in science communication;
- ♦ Development of science journalists through University Courses in Science and Technology Communication;
- ♦ Awards and recognition for outstanding science communicators;
- ♦ Networking and coordination with state councils and networks of s & t based organisations;
- ♦ Field programmes for demonstrating innovative ideas of science popularisation, outreach and extension activities including Children's Science Congress, Science Day celebration, promotion of voluntary blood donation programmes, environmental awareness and positive action, etc.

6.4.25 Science and Society

SSD has been set up under the department of Science and Technology established with the broad objectives of providing opportunities to motivated scientists and field level workers to take up action oriented and location specific projects aiming towards socio-economic upliftment of poor and disadvantaged sections of the society through appropriate technological interventions especially in the rural areas. Under this programme efforts have been made to associate concerned National Labs or other specialist S&T institutions with each major programme so as to build-in expert input, utilize national S&T infrastructure and link it up with grassroots S&T interventions/ initiatives.

6.4.26 National Science & Technology Entrepreneurship Development Board

The National Science and Technology Entrepreneurship Development Board (NSTEDB) was established by the Government of India in 1982 "as an institutional mechanism to promote gainful self-employment in the country and to link idle S&T manpower with the underutilised institutional credit facilities". The Board, which has a governmental structure, is serviced by the Department of Science and Technology. It has representation from socio-economic and scientific Ministries/ Departments.

6.4.27 Natural Resources Data Management System (NRDMS)

Natural Resources Data Management System(NRDMS) - an S&T programme of the Government of India has been launched by the Department of Science and Technology(DST) to catalyse the evolution of methodologies and techniques for formulating development strategies. In a scenario of large diversity of data sets, data users and data generating agencies, the programme aims at developing and demonstrating the use of spatial decision support tools for integrated planning and management of resources at the local level.

6.4.28 State Councils for Science & Technology - In Retrospect

The initiative to establish State Councils for Science & Technology was first taken in 1971. By the end of Fifth Five Year Plan, Karnataka, Kerala, Uttar Pradesh and West Bengal were the four States, who had established their State S&T Councils. While these few States responded to the idea of State S&T planning & promotion, it became clear that a sustained effort was needed to establish and develop the State Councils for Science & Technology. As a result, the process of impetus for State level planning and Promotion of Science & Technology began in the Sixth Five Year Plan (1980-85) and continued through the subsequent Five Year Plans. As a result of catalytic role played by DST and support received from the Planning Commission and States/ UTs, a stage has reached when State Councils have been set-up in all the States and UTs. Several States have also formed a separate Department of Science & Technology and /or S&T Secretariat. These State Councils are normally chaired by Chief Ministers of respective States or by an eminent scientist. All States and Union Territories by now have established their State level S&T structures and formulated their Five Year and Annual S&T plans.

6.4.29 DST's Role & Objectives

The Department of Science & Technology (DST), GOI, played a catalytic role by facilitating the State Governments in establishing and developing the State Councils on S&T and by providing support for their technical secretariats.

6.4.30 International S&T Cooperation

The Department is vested with the mandate to identify, facilitate, and promote international cooperation in the emerging and frontier areas of science and technology under bilateral, multilateral or regional framework. This has been achieved through a systematic attempt in promoting interactions between governments, academia, institutions and industries with specific focus on areas of common interests through a reciprocal arrangement that benefits both India and the partner country. India currently has S&T cooperation agreements with 57 countries. The programme provides for interactions through joint research projects, exploratory and project based visit, workshops, fellowships, training etc.

6.4.31 Autonomous S&T Institutions

Following are the Autonomous Institutions which are substantially funded by DST

- ◆ Agharkar Research Institute, Pune
- ◆ Birbal Sahni Institute of Palaeobotany, Lucknow
- ◆ Bose Institute, Kolkata
- ◆ Indian Association for the Cultivation of Science, Kolkata

- ♦ International Advanced Research Centre for Powder Metallurgy and New Materials, Hyderabad
- ♦ Indian Institute of Astrophysics, Bangalore
- ♦ Indian Institute of Geomagnetism, Mumbai
- ♦ Indian Institute of Tropical Meteorology, Pune
- ♦ Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore
- ♦ National Accreditation Board for Testing & Calibration Laboratories, New Delhi
- ♦ Raman Research Institute, Bangalore
- ♦ S.N. Bose National Centre for Basic Sciences, Kolkata
- ♦ Sreechitra Tirunal Institute for Medical Sciences & Technology, Thiruvananthapuram
- ♦ Technology Information, Forecasting & Assessment Council (TIFAC), New Delhi
- ♦ Vigyan Prasar, New Delhi
- ♦ Wadia Institute of Himalayan Geology, Dehradun

Professional Bodies

Indian National Science Academy, New Delhi

- ♦ Indian Academy Of Sciences, Bangalore
- ♦ Indian National Academy Of Engineering, New Delhi
- ♦ The National Academy Of Sciences, Allahabad
- ♦ The Indian Science Congress Association, Kolkata

6.4.32 Audit Points

There are 16 autonomous bodies and 5 professional bodies, which are substantially funded by DST through Grant-in-aid. Scrutiny of transactions relating to payment of grants to autonomous bodies and its utilization is one of the most important points of audit and it is necessary to look into the following points:

- (i) The amount of grant payable to the autonomous body for each of the purposes has been correctly assessed, after taking into account all income adjustable towards limiting of the grant, in accordance with the guidelines, rules and prescribed procedures for assessment of the grant.
- (ii) In respect of maintenance grants it is limited to the net deficit and the expenditure on several items has been incurred in accordance with the scales laid down therefore.
- (iii) Grants remaining unutilized at the end of each year had been duly taken into account before determining the grant payable in the subsequent years and amount paid was not far in excess or advance of the requirements.
- (iv) The conditions attached to the grant, before and after release are duly fulfilled.
- (v) The prescribed periodical returns are correctly compiled and supplied and a review thereof either with reference to the returns of other records does not indicate any deviation of purpose of grant or irregularities in utilization of the grant.

- (vi) The assets acquired out of grants, either then or in the past are continued to be utilized for the intended purpose and in respect of obsolete assets, they are duly disposed off and realizations credited to Government or adjusted against future grants.
- (vii) The objectives of schemes for which grants are paid, are being achieved and a periodical review is being conducted, with the knowledge of the grant sanctioning authority for assessing the progress, future needs and changes and due approval is taken for modifications, increase in cost, etc.

The income, expected to be realized by assets acquired and schemes executed in past with assistance from DST, is actually being realized and to that extent, if so anticipated, the dependence on Government (DST) for maintenance has been reduced without increase in liability of Government.

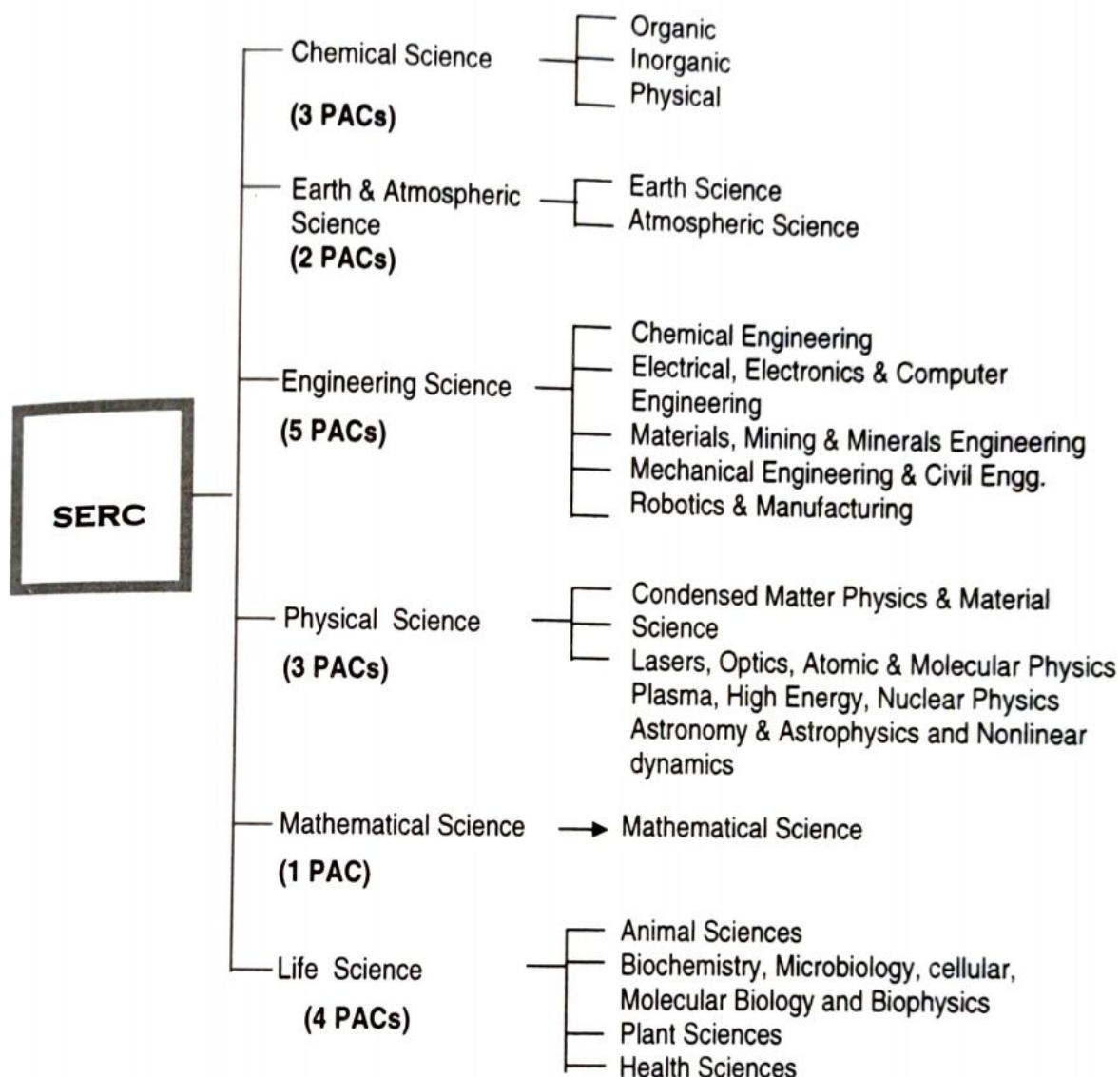
Scientific & Engineering Research

1. Science & Engineering Research Council
2. Intensification of Research in High Priority Areas (IRPHA)
3. Integrated Science Olympiad Programme
4. Kishore Vaigyanik Protsahan Yojana
5. Programs related to Young Scientist and HR Development.
 - (i) SwaranaJayanti Fellowships
 - (ii) Fast Track Scheme For Young Scientists (FAST)
 - (iii) Better Opportunities for Young Scientists in Chosen Areas of Science and Technology (BOYSCAST)
6. Earth System Sciences
7. Seismicity Programme
8. Utilization of the Scientific Expertise of Retired Scientists (USERS)
9. National Science & Technology Management Information System (NSTMIS)
10. Regional Sophisticated Instrumentation Centres (RSICs)
11. Fund for Improvement of S&T Infrastructure in Universities and other Higher Educational Institutions (FIST)
12. Assistance to Professional Bodies & Seminar/ Symposia
13. Partial Financial Assistance for Participation in Conferences Abroad

Composition of SERC

The SERC is formed with 20 to 25 persons of excellence in different disciplines of Science & Engineering in India. The Secretary, DST is the ex-officio Chairman.

SERC is assisted by Programme Advisory Committees (PACs) in various disciplines of Science & Engineering formed with experts in the relevant discipline. Presently there are 18 PACs as shown below:



6.5.1 The Department of Ocean Development (DoD) was created in July 1981 as a part of the Cabinet Secretariat directly under the charge of the Prime Minister with an aim of creating a deeper understanding of the oceanic regime of the northern and central Indian Ocean. It also aimed at the development of technology and technological aids for harnessing of resources and understanding of various physical, chemical and biological processes. DoD became a separate department from March 1982. It has been functioning as a nodal department for organising, coordinating and promoting ocean development activities in the country in line with the Ocean Policy Statement enunciated in 1982.

6.5.2 Ocean Policy Statement

The salient features of the Ocean Policy Statement relate to:

- (i) Need to map living resources, prepare an inventory of commercially exploitable fauna and to map and assess the availability of mineral resources from the deep sea.
- (ii) Optimum utilisation of living resources and sea weeds, exploitation of non-living resources such as hydrocarbons and heavy placer deposits, harnessing of renewable resources of ocean energy from the waves, temperature difference in water column etc.
- (iii) Technological advances geared to the utilisation and preservation of the marine environment.
- (iv) Research and development in basic ocean sciences.
- (v) Development of indigenous technology and setting up of infrastructure facilities and services to operate large sized fishing vessels.
- (vi) Development of technologies relating to instrumentation, diving systems, position fixing, materials development, oceanic data collecting devices, submersible, etc.
- (vii) Broadening and strengthening of available infrastructure facilities.
- (viii) Establishment of centralised data system with appropriate mechanism for collection, collation and dissemination of ocean related information both from indigenous and foreign sources.
- (ix) Training of skilled manpower and creation of self-reliant technological base.
- (x) Establishment of an integrated legal framework and commitment for its enforcement.
- (xi) Co-operation with both developed and developing countries.

6.5.3 Thrust Areas

The major thrust areas of the department are:

- (a) Development of technologies relating to seabed mining, extractive metallurgy.
- (b) Contribution towards front ranking research in polar sciences
- (c) Exploration of marine resources and their correlation with oceanographic parameters, studies to evolve exploration parameters and strategies.

- (d) Development of technologies and infrastructure for exploration and sustainable utilisation of marine living and non-living resources.
- (e) Developmental activities related to ocean integrated coastal and marine area management, coastal community development, ocean information services etc. with direct application to the welfare of the society.
- (f) Basic research in Ocean science and technology, human resource development, creation of Centres of Excellence in academic institutions and public awareness on the potential and uses of ocean.

6.5.4 Functions of the Department

The functions of the department includes:

- (i) Matters relating to the ocean and not specifically allocated to any Department/ Ministry.
- (ii) Policies including co-ordination, regulatory measures and development relating to ocean and covering:
 - (a) Research (including fundamental research) and the development of uses relatable thereto.
 - (b) Surveys of map and locate the availability of non-living resources.
 - (c) Technology Development.
 - (d) Collaboration, including technical collaboration and laws relatable to the above.
 - (e) Marine environment on the high seas.
 - (f) Development of appropriate skill and manpower.
 - (g) Promotion and consolidation of Antarctic Research.

6.5.5 Points to be seen in Audit

- (i) Policies and programmes are drawn up in accordance with ocean policy and thrust areas and are being implemented by specific and well defined procedures.
- (ii) System exists for collecting reliable progress reports and review thereof on the implementation of the policies and programmes.
- (iii) Progress is reported to the Planning Commission from time to time with timely and accurate reports.

6.5.6 Organisational set up

The organisational chart of DoD is given at Annexure-A of this Chapter.

The sanctioned strength of the department including administrative, technical and supporting staff is 181 in all grades. The Department has two attached offices viz. Sagar Sampada Cell, Kochi, renamed as 'Centre for Marine Living Resources and Ecology (CMLRE) and Project Directorate for Integrated Coastal and Marine Areas Management (ICMAM), Chennai, set up during 1997-98. At the headquarters, the department has a Project Cell for implementation of Polymetallic Nodules Programmes.

There are three autonomous societies under its administrative control viz. (i) National Institute of Ocean Technology (NIOT), Chennai, established in November 1993, (ii) National

Centre for Antarctic and Ocean Research (NCAOR), Goa, established in May 1998, and (iii) Indian National Centre for Ocean Information Services (INCOI), Hyderabad, set up in February 1999.

The plan outlay for the department's programme was about Rs.110.00 crores in the 6th five-year plan, which rose to Rs.510.62 crores during the 9th plan period.

6.5.7 Activities/ Programmes of the DoD

The underlying philosophy of the programmes and activities under taken by DoD is one of environment friendly exploration and sustainable utilisation of marine living and non-living resource for the socio-economic benefit of the country.

The department made its humble beginning with the introduction of programmes in polar science and polymetallic nodules. Subsequently, with the adoption of the Ocean Policy Statement, UN Conference on Environment and Development (UNCED) in 1992 and consequent to the coming into force of the UN Convention on the Law of the Sea (UNCLOS) in 1994, the activities of the department were expanded and oriented towards exploration and exploitation of marine living and non-living resources for socio-economic benefit and protection of the marine environment. Main programmes of the department are:

- (i) Polar Science and Antarctic Expedition.
- (ii) Marine living resources.
- (iii) Marine non-living resources.
- (iv) Marine Environment and Coastal Zone Management.
- (v) Ocean Observation and Information Services.
- (vi) Marine Research and Capacity Building.
- (vii) Coastal Community Programmes.
- (viii) Ocean awareness.
- (ix) International co-operation including delineation of outer limits of continental shelf.

The activities of the department are directed towards development, dissemination and use of the ocean science and technology, with the active participation and support of a large number of National Research Laboratories, educational/ academic institutions, private R&D institutions, industries, etc.

6.5.8 Polar Science (Antarctic Research) Programme

- (i) Antarctic a unique landmass 98 per cent of which is covered by ice was once contiguous with India as a part of Gondwana land. This seventh continent, much larger than India and China put together has been a source of interest for the inquisitive minds for a long time. Remote and extreme, the Antarctic is now emerging as an important key in the understanding of global and environmental concerns. Since 1981, DoD has been launching scientific research expeditions on annual basis to Antarctica to utilise its singular environment as a great natural laboratory for scientific investigations. The Antarctic Research Programme has taken the shape of a major national programme that has a distinct multi-institutional and multi-disciplinary approach. Till March 2002-03, 23 scientific expeditions have been launched including two expeditions to the southern oceans one to Weddel sea and another one for assessment of Antarctic krill, for carrying out research in ten thrust areas of polar science.

The main objectives of Indian Antarctic programme are:

- (a) To plan, promote, co-ordinate and execute the entire gamut of polar science and logistic activities of the country in order to ensure a perceptual and influential presence of India in Antarctica.
- (b) Uphold our strategic interests in the global framework of the nations in the southern continent and surrounding oceans expressed through our consultative status in the Antarctic Treaty.
- (c) As a treaty obligation, demonstrate India's sustained interest in Antarctica by conducting substantial scientific activities, such as the establishment of a scientific station or the despatch of annual scientific expeditions.

The policy of the DoD, which is the nodal agency responsible for planning and execution of Indian Antarctic Expeditions, is to conduct a careful balanced programme of contemporary science through which it is possible to maintain active and influential presence in the Antarctica. The department constantly keeps evolving scientific programmes, which are based on national priorities and contribute to global issues.

(ii) National Committee for Antarctic Programme (NCAP)

NCAP with the Secretary, DoD as Chairman and the Director, National Centre for Antarctic and Ocean Research as Member Secretary has 10 other members. The functions of the Committee are:

- (i) To review the achievement against the targets of each expedition under each discipline and recommend the remedial measures for follow up in the future expeditions for any shortcomings;
- (ii) To ensure institutional co-ordination and commitment as a part of multi-disciplinary and multi-institutional programme of Antarctic expedition;
- (iii) To monitor and advise core competence at NCAOR in the field of polar science;
- (iv) To review the progress of the Antarctic expeditions and recommend continuing dropping or taking of new scientific programmes at par with the international level;
- (v) To recommend the composition of Indian Antarctic expedition scientific team; and
- (vi) To recommend and monitor international collaborative programmes to be taken up by NCAOR in various disciplines.

Meetings

Three times a year.

(iii) Points to seen in Audit

- (i)
 - (a) Study the agenda and minutes of the NCAP.
 - (b) See that the recommendations made by the Committee are promptly carried out.
 - (c) Meetings of the Committee are held at regular intervals and all members are attending the meetings.
- (ii) Review the physical and financial targets of Antarctic programmes vis-à-vis its actual achievement.
- (iii)
 - (a) Agreements for chartering of ice class vessels and helicopters may be scrutinised.

- (b) Whether these are optimally utilised.
- (iv) It is stated in the Performance Budget booklet for the year 2002-03 that sixteen technical reports and over 300 scientific papers have been published in various national and international journals. In this connection, it may be enquired whether the technical reports have been subjected to peer review and what was the impact factor of scientific papers published.
- (v) How far the objectives of the Antarctic programmes have been achieved.
- (vi) Some of benefits of the Antarctic research to India as envisaged are:
 - (a) Studies of Antarctic meteorology with the aim to build a climatological data set for application in the prediction and forecast of Indian monsoons.
 - (b) Studies on human adaptations in cold and extreme conditions and this application to the frontier regions of the country.
 - (c) Identification of Antarctic microbes and its application for human and organic waste degradation in cold regions of Himalayas.
 - (d) Technology transfer on a commercial basis as a spin-off of the SODAR instrument developed in Antarctic for studying inland environmental pollution.
 - (e) Research and development in cold temperature technology in designing prototype toilet incinerators, generators and low temperature structure, used in Antartics to be deployed in colder regions of the country.
 - (f) Availability of trained manpower pool to work in extreme cold, harsh and isolated conditions can be generated from the expeditions.

It may be seen in Audit as to how far these benefits have accrued to India.

6.5.9 Marine Living Resources

(a) Assessment of Marine Living Resources

A multi-disciplinary and multi-institutional programme aimed at making an assessment of the marine living resources beyond 70 m depth within the Indian Exclusive Economic Zone (EEZ) and correlating the fish abundance/ availability with the oceanographic parameters was initiated during the 9th Five Year Plan (1997-98).

(b) Objectives of the programme

The major objectives of the programme are:

- (a) To have a realistic and reliable information on the potential of marine living resources in the Indian EEZ for sustainable development and management.
- (b) To augment the sea food production and thereby the income of the coastal fishing community and the fishing industry.

The following projects have been launched by the Department under this programme:

- (i) Assessment of environmental parameters and the marine living resources (primary and secondary) in the Indian EEZ and the role of Myctophid fauna in the mesopelagic habitat.
- (ii) Stock assessment, biology and resource mapping of deep sea shrimp, lobsters and fishes in the EEZ of India.
- (iii) Studies on Deep Scattering Layers (DSL).

- (iv) Harvest technology and catch composition of deep sea fishing resources in the Indian EEZ.
- (v) Investigation of Toxic Algal Blooms in the EEZ of India.
- (vi) Investigations on the benthic productivity in the EEZ of India.
- (vii) Development of Hydroacoustic techniques for fish and DSL biomass estimations.
- (viii) Predictive modelling for Marine Fisheries off Andhra Coast – A case study.

(c) **Research Advisory Committee for Marine Living Resources Programme (RAC - MLRP)**

With a view to advising the Department on all priority areas and policy matters covering the direction and conduct of further studies in these areas with a futuristic perspective as also to review the projects/ programmes a high level Research Advisory Committee for Marine Living Resources Programmes was constituted in February 2002 with Dr. S.A.H. Abidi, Member, ASRB, New Delhi as Chairman, Director, CMLRE, Kochi as Member Secretary and seven other members with the following terms of reference.

The Committee will:

- (i) Guide the Department in evolving programmes to associate academic institutions and motivating young scientists in MLR related oceanographic research as also in developing human resources to meet the need of R&D in the field of MLR.
- (ii) Evaluate the progress of MLR programmes undertaken by various participating organisations/ institutes. Advise directional changes, if any, for achieving the activities set in different programmes/ projects.
- (iii) Identify specific research programme on MLR considering the prevalent status of R&D endeavour in the field.
- (iv) Assess national facilities for conduct of advanced research and development activities on MLR and related fields and make recommendations to the Department for establishing/ facilitating the same.

Meeting

Thrice a year

(d) **Points to be seen in Audit**

- (i) Whether the projects are evaluated at regular intervals and recommendations of the evaluating authority are implemented promptly.
- (ii) Whether the projects undertaken fall within the broad framework of objectives of the programmes.
- (iii) Study the steps taken to augment the sea food production and consequent impact on the income of the coastal fishing community and the fishing industry.
- (iv) Study the yearly targets of each project and how far these are compared with actual results.
- (v) Whether findings under different projects were translating into action with promptitude.

6.5.10 Drugs from sea

1. The National Project on Drugs from Sea taken up by the Department during 1990-91, is a multi institutional project aiming at developing potential drugs and chemicals from the

marine flora and fauna. It is implemented by the participating institutes/ universities with Central Drug Research Institute, Lucknow as a nodal agency coordinating its execution. Under the project new samples of marine flora and fauna are collected and tested for various pharmacological activities.

Steering Committee (SC) on the National Project of Development of Potential Drugs from the Ocean

In order to monitor the programme for its effective implementation, a SC with a maximum of 10 members inclusive of 5 outside experts is constituted.

Functions of the Committee

2.
 - (i) Monitoring and evaluation of projects. Apprising the department of the overall progress of the project and that of the individual participating institutions, taking any such corrective measures as deemed fit for the successful implementation of the project.
 - (ii) Identify the major thrust areas for future development and the annual action plan of activities and make recommendations on the project proposals made by the project implementing institutions.
 - (iii) Provide guidance for the project implementation and for suitable coordination in execution.

The Committee will meet a maximum of two times a year.

3. Points to be seen in Audit

- (i) Study the agreement with the other participating institutes/ universities.
 - (ii) Whether the projects are monitored and evaluated by the SC and prompt action taken on its recommendation.
 - (iii) Study the physical and financial targets and how far these can be compared with the actual.
 - (iv) Whether guidelines for technology transfer have been laid down and Government's interest is safeguarded.

6.5.11 Marine Non-Living Resources

- (a) The Polymetallic Nodules programme envisages eventual exploitation of the nodules from the allotted 150000 sq km mine site in the Central Indian Ocean Basin. As per an international commitment to the International Seabed Authority, India has to relinquish 50 per cent of the total areas assigned after detailed survey and exploration and retain the remaining 50 per cent for future exploration and exploitation.

This programme consists of four major components viz. Survey and Exploration of nodules in the CIOB, Environmental Impact Assessment Study at the mine site, Development of Technologies for mining of nodules and Extraction of metals.

(b) Survey and Exploration

The Survey and Exploration endeavour is aimed at firmly establishing the nodule resource potential on the basis of progressive closer grid sampling and spot photographs. Topographs of the pioneer area have already been assessed. India has already relinquished 30 per cent of the surveyed area to ISBA.

(c) **Environment Impact Assessment Study (EIA)**

EIA study was initiated in 1996-97 in collaboration with Russian Experts to assess the environmental impact of large scale deep sea bed mining activity. Impact of simulated mining conditions is studied by disturbing the seabed by a special disturber from onboard a chartered vessel.

(d) **Technology Development – Mining**

Development of technologies for mining from the deep ocean is viewed as a contribution to the long-term objective. In 1996, India re-oriented its polymetallic nodule development programmes to establish the technologies in a phased manner with the initial efforts to demonstrate shallow bed mining technology in Indian seas up to 500 m depth.

Deep-sea technology and ocean mining group in NIOT is responsible for the development of technology for mining of polymetallic nodules from the sea bed and other under water components.

To further develop the technology for nodule mining at greater depth, a joint technology development agreement was concluded between NIOT (DoD) and University of Siegen (IKS), Germany in January 1998. Under this shallow bed technology up to 500 m depth in Indian waters will be demonstrated.

A mining system capable of operating at 600 m depth with a mining capacity of 25000 tonnes nodules per year has also been designed under the joint collaborative effort.

(e) **Technology Development – Metallurgy**

A semi-continuous demonstration pilot plant to process 500 kg per day of polymetallic nodules to validate the process package developed for extraction of metal values from nodules has been commissioned at Hindustan Zinc Ltd., Udaipur in 2000-2001. The DoD collects nodules for this demonstration plant.

(f) **Remotely Operable Vehicle (ROV)**

ROV capable of operating up to 250 m depth developed by Central Mechanical Engineering Research Institute, Durgapur (CMERI) as a part of the Polymetallic Nodule (PMN) Programme of DoD was tested in the sea off Chennai coast at 40 m depth.

(g) **Marine Non-Living Resources Standing Committee**

The Standing Committee will have a maximum of 9 members inclusive of 4 non-officials. The Committee will meet a maximum of three times a year and perform the following functions:

- (i) Review the progress and recommend measures for implementation of schemes under Marine Non-Living Resources Programme.
- (ii) Review all the components of polymetallic nodules programme.
- (iii) Review the status of work once in four months in respect of PMN Programmes carried out by different participating laboratories and highlight the accomplishments, identify gap areas, if any, and recommend future action plan.
- (iv) To review the project proposals in respect of all the components of PMN Programme during the plan period and to recommend future course of action to achieve the milestones on schedule, taking into consideration the recommendations arising out of the review of work so far completed.
- (v) To bring to the notice of the Department the critical issues, if any, recommending remedial actions to accomplish the task on schedule.

Points to be seen in Audit

- (h)
- (i) Examine the long term plan drawn by the DoD to fulfill its obligations as Pioneer Investor.
 - (ii) Polymetallic nodules on the ocean floor are considered to be a treasure house of much needed metals such as manganese, iron, nickel, copper, cobalt, lead, etc. Efforts made by the Department to exploit the resources may be studied.
 - (iii) Whether the Committee on MNLR is fulfilling its obligations and the recommendation made by it are implemented.
 - (iv) Study the agreement with Hindustan Zinc Ltd. where the pilot plant is set up. HZL was to partially finance the programme and be responsible to commission, maintain and operate the pilot plant. Whether the pilot plant has been commissioned within target dates and successfully operating.
 - (v) Whether yearly financial and physical targets have been achieved.
 - (vi) Study the agreement with University of Siegen, Germany for technology development for under water study.
 - (vii) Whether the project for under water mining system for manganese nodule from 600 m water depth was cleared by the Government and the progress made is as per schedule.
 - (viii) Study the performance of remotely operable vehicle. Is it as per expectations.

6.5.12 Marine and Coastal Area Management

1. Due to multi purpose uses of the coastal zone such as shipping, fishing, tourism, industrialisation and disposal of wastes, the stress on the coastal area is growing rapidly with developments taking place often in an unplanned fashion and unmindful of long term consequences. Coastal Ocean Monitoring and Production System (COMAPS) programme is designed to assess the status and likely trends in coastal marine environment quality and to contribute directly to the development of strategies for maximizing the economic benefits derived from the intelligent and sustainable use of marine environment and resources. The COMAPS programme is continuing from the year 1990-91.

The thrust of this programme is to elucidate the trends of increase and decrease of pollutants in the sea and also the processes associated with land and sea interface. Besides the studies on chemical, biological, microbiological parameters, a GIS based information system on sources of pollutants and a COMAPS database were introduced under this programme. The objectives of the COMAPS programme are to assess the health of our seas on a long-term basis and to facilitate the pollution control authorities to plan strategies required for management of pollution related issues like prescription of appropriate disposal standards as per the assimilation capacity of the receiving water bodies, water quality criteria, etc.

The investigations are made by the 11 institutions at about 82 locations.

2. **Committee on Coastal Ocean Monitoring and Predication System (COMAPS)**

Steering Committee on COMAPS has the following members:

- ♦ Chairman, Central Pollution Control Board as Chairman,
- ♦ Project Director, ICMAM, DoD, Chennai as Member Secretary,
- ♦ 15 Members and Project Coordinators of COMAPS and Modeling Programme as permanent invitees.

The Committee will perform the following functions:

- (i) Review the progress made under the programme and suggest ways and means for improvement of the activities.
- (ii) Finalise the annual cruise plans for the Coastal Research Vessels.
- (iii) Suggest inclusion of appropriate new programmes.

The Committee will meet at least once in three months.

3. **Points to be seen in Audit**

- (i) Examine the MoU's with the other institutions involved in this programme.
- (ii) Whether the monitoring done by 82 sampling stations is as per schedule.
- (iii) On the basis of data collected, coastal waters have been classified into areas of no concern, the areas that requires immediate attention and the areas of concern. In respect of latter two classifications, enquire about what concrete steps have been taken to mitigate the problems and what is the role of DoD in this regard.
- (iv) One of the component of COMAPS programme is Consulting Services, which is to be executed by NIOT. Examine the performance of NIOT and other related matters in this respect.
- (v) Review the agenda and minutes of the Steering Committee.
- (vi) Whether the Committee's meetings are held as stipulated and its recommendations implemented.

6.5.13 **Coastal Research Vessels**

- (a) Two Coastal Research Vessels (CRVs) namely Sagar Purvi and Sagar Paschimi built in India were acquired by DoD during 1996-97 for continuous collection of samples from the coastal areas for monitoring the pollution levels at different points. These vessels are being used for the coastal oceanographic research programmes of DoD and NIOT viz. COMAPS and ICMAM. These vessels are being operated, maintained and managed by the Vessel Management Cell set up in NIOT. The facilities on board CRVs are also used by other agencies.

(b) **Scientific and Technical Advisory Committee**

The Committee for CRVs led by Director, NIOT as Chairman, Vessel Manager, NIOT as Member Secretary and 7 other members perform the following functions:

- (i) Approve the cruise plans for both the vessels.
- (ii) Review the performance of the vessels against the approved schedules, review the work of operator of the vessel and suggest improvements.
- (iii) Review the performance of the scientific equipments and approve augmentation of facilities.

- (iv) Discuss and approve planned maintenance schedules of the vessels, major repairs for the vessels, dry docking repairs and augmentation and replacement of the condemned shipboard machinery and scientific equipments.
 - (v) Approve the budgetary requirements.
- The Committee is expected to meet thrice a year preferably in January, May and September.

Points to be seen in Audit

- (c)
 - (i) Review the agenda and minutes of the Committee.
 - (ii) Important decisions of the Committee may be examined critically.
 - (iii) Whether the cruise planned for the vessels commensurate with the capacity of the vessels.
 - (iv) Whether proper record is maintained for utilisation of CRV time.
 - (v) Vessel times are also made available to public and private sector. Examine how the hire charges are fixed, bills for recovery are promptly raised and recovered.

6.5.14 Integrated Coastal and Marine Area Management (ICMAM)

1. The ICMAM programme implemented from 1997-98 onwards has 2 major components viz. (i) capacity building, (ii) development of infrastructure for R&D and training.

The capacity building component is funded by the World Bank under an Environment Management Capacity Building Project of the Ministry of Environment and Forests. The World Bank provided an International Development Association (IDA) credit of Rs.23.65 crore to implement this component.

The broad objectives of the ICMAM capacity building components are:

- (a) To acquire knowledge relating to advanced tools and techniques for an integrated management of coastal and marine areas and development of expertise to use these tools to meet the present as well as future needs.
- (b) To enhance the capabilities of concerned government departments both central and state to deal with the various technical and management issues relating to the integrated management of coastal and marine environment through capacity building exercises like training, field exercises, etc.
- (c) Development of basic infrastructure and establish facilities to conduct survey, R&D and training on ICMAM related activities.
- (d) To develop capabilities in the coastal states and UTs for adoption of ICMAM through training.
- (e) To create a base for human resource development in the fields of ICMAM.
- (f) To ensure sustainable development and management of the ocean resources and enforcement of rules and regulations for regulation of ocean related activities in the ocean zone and make Indian oceans clean and productive.

2. Steering Committee on ICMAM

A Project Steering Committee to monitor various activities of capacity building component of ICMAM with Secretary, DoD as Chairman, Director and Project Director, DoD as Member Secretary and 7 other members perform the following functions:

- (i) Evaluate the financial requirements of projects.

- (ii) Evaluate the progress made under the projects particularly, the fulfillment of targets and accomplishment of objectives.
- (iii) Make recommendations for undertaking further investigation within the overall budget of the component.

3. Points to be seen in Audit

- (i) Study the MoU with the World Bank and examine the financial aspects including repayment of World Bank loan.
- (ii) Examine the evaluation and monitoring mechanism of the Projects.
- (iii) Examine the document giving the details of the project.
- (iv) Study the Expert Committee Report on Geographical Information System (GIS) based information system. Whether development of GIS based information system for all the identified sites has been completed and what action has been taken on the extensive studies made.
- (v) Whether the tasks of determination of waste assimilation capacity in Tapi Estuary and Ennore Creek and Hooghly estuary have been completed and action taken. Study the agreement on this subject.
- (vi) Whether guidelines have been developed for conducting.
 - (a) Environmental Impact Assessment (EIA) studies in the ports and harbours, marine transportation sectors, tourism related activities in the coastal marine areas, waste disposal from domestic and industrial sources including discharge of waste through pipelines and accepted for implementation.
 - (b) Peer review of draft EIA guidelines.
 - (c) Guidelines tested through case studies.
- (vii) (a) Study the agreement with Consultants appointed for development of model ICMAM plan for Chennai, Goa and gulf of Kutch.
 - (b) Examine the progress made in the development of model ICMAM plan at these three sectors.
- (viii) Whether the progress under the project 'Determination of Best-Designated Use Classification of Coastal Waters' is as per laid down target.
- (ix) Whether computing and training facilities at ICMAM – Project Directorate are optimally utilised.
- (x) Review the agenda and minutes of the Steering Committee.

6.5.15 Ocean Observation and Information Services (OOIS)

1. Ocean Observation and Information Services programme was launched in 1997-98 by restructuring and integrating some of the schemes implemented in the 8th Plan. The OOIS is aimed at (i) development of a wide range ocean atmospheric and coastal models, (ii) generation of algorithms for retrieval of satellite parameters, (iii) augmentation of ocean observations including insitu and satellite measurements, and (iv) operationalisation of ocean advisory services. The OOIS programme consists of four major components viz. Ocean Observing System (OOS), Ocean Information Services, Ocean Modeling and Dynamics and Satellite Coastal Oceanographic Research.

Committee on Ocean Observation and Information Services

2.

As per DoD O.M. No. DoD/IT/PMN/TADA/98 dated 21.11.2000 there would be one Committee on Ocean Observation and Information Services with a maximum of 10 Members inclusive of a maximum of 4 non-officials.

The Committee would meet a maximum of two times a year.

As per the above circular, all other Committees dealing with ocean observations and data and data products would be wound up. This Committee, however, had not been formed till July 2002 and all the Committees already in existence before issue of O.M. continued to operate.

The terms of reference of these Steering Committees of different projects such as INDOMOD, SATCORE, etc. are as follows:

- (i) Monitor the implementation of the project as per the schedule of activities given in the respective administrative approvals.
- (ii) Render advice and provide solutions to any problems or impediments coming in the way of timely completion of the projects.
- (iii) Provide advice on the necessary support and co-ordination from other agencies for smooth functioning of the programme.
- (iv) Advise on the development of user-friendly models and promotion of the utility of models envisaged under INDOMOD and SATCORE.

3. JGOFS and LOICZ Programmes

The Steering Committee of the JGOFS and LOICZ programmes have the following terms of reference:

- (a) Monitor the physical and financial progress of the project as per approved schedule of work.
- (b) Ensure that the methodologies adopted in the studies are comparable to the international standards.
- (c) Provide advice to ensure that the programme is implemented and the end products delivered within the approved period of project.
- (d) Recommend to the Government further action to be taken in the LOICZ programme on the basis of the project implementation, report to be submitted by the participating institutes.

4. Points to be seen in Audit

- (i) Review the agenda and minutes of the Committee.
- (ii) Whether the projects are regularly evaluated and monitored.
- (iii) Review the recommendations of group of experts in respect of ocean observations.
- (iv) Whether the target of deploying 48 drifting buoys has been achieved or not.
- (v) Critically examine the efforts made in respect of indigenisation of data buoy production, operation and management. In this respect agreement/ contracts entered with various concerns may also be examined.
- (vi) The objectives of XBT survey programmes are (i) to understand and document the evolution of upper ocean thermal structure, (ii) to establish the relation between upper ocean summer heating and ensuing monsoon activity, (iii) to establish the relation between the heat content in the upper layers after the monsoon cooling and post monsoon storms in the Bay of Bengal.

- (iv) To provide sea truth information on surface temperature profiles for validation and calibration of data derived from satellite sensors. How far the above objectives of the programmes are achieved.
- (v) Ocean Information Services was designated for generation/ dissemination of a wide range of data products and to provide services, such as coastal and ocean data, value added data products to the users. One of the objectives of the OIS programme is to provide need based ocean information, consultancy services to the corporate sector industries, state and central Government. Examine how far expectations under this programme have been achieved.

6.5.16 Marine Research and Capacity Building

- (a) The development in Ocean Science and Technology is linked with achievements in other science and technology areas. The research efforts should lead to fundamental understanding and ensure predictive capabilities. The thrust in the prompt programme of DoD is towards development and application of the OST for the social economic benefits of the society. To be self reliant, technologies have to be developed, tested and operated indigenously. Several new technologies will have to be commercialised and made cost effective. Creation of self reliant technologies base puts a heavy demand on fully trained personnel and creation of infrastructure and facilities, which have to be properly planned. Recognising the above, the DoD has formulated marine research and capacity building programmes with the active participation of educational institutions, national R&D laboratories and private and NGO research institutions.

(b) Objectives of the Programmes

- (i) To encourage research in newly emerging and frontline areas of marine chemistry, marine biology and microbiology, coastal zone management, marine archaeology, etc.
- (ii) To encourage research organisations, institutions, IITs, Universities to undertake projects with industrial tie ups.
- (iii) To generate reliable data and information system.
- (iv) To strengthen/ create infrastructure facilities in universities/ institutions/ organisations to generate manpower in the fields of marine science and technology.

For promotion of front ranking research in ocean science and technology and related human resource development, MoUs were signed with Ocean Science and Technology Cells (OSTCS) set up during 1997-98 in 9 disciplines in 9 different Universities and IITs. These cells were to grow into centres of excellence in the academic institutions in their respective field. Within the university system, OSTC is planned to function with certain autonomy under the guidance and direction of Management Board with respective VC as Chairman and eminent scientists and technologists and officials of the Department as members.

Terms of reference of the Management Board are:

- (a) To evolve the policy guidelines and procedures for OSTC to function as autonomous cell within the university framework of OSTC.
- (b) To review and recommend all proposals for further consideration to NSC and approval from DoD.
- (c) To periodically monitor the status and progress of the projects and schemes of the OSTC and guide the activities for successful implementation.

The Committee will meet at least one time in a quarter.

(c) **National Steering Committee for Centre of Excellence in Ocean Science and Technology (CEOST)**

National Steering Committee with Secretary DoD as Chairman; Director, DoD as Member Secretary and 14 others members will perform the following functions:

- (a) Lay down policies and guidelines and monitor, review the status and progress in implementing the CEOST scheme.
- (b) Advise the Department in all matters relating to capacity building in academic institutions.

The Committee shall meet at least three times in a calendar year.

(d) **Points to be seen in Audit**

- (i) Whether any laid down procedure for selection/ examination of the proposals exists and whether it has been followed in DoD.
- (ii) Whether guidelines for review, evaluation and monitoring of the projects have been issued and duly implemented.
- (iii) Since these are grants-in-aid projects it may be ensured that all the provisions of GFR are being followed.
- (iv) Whether the completed projects are subject to peer review or review by any expert committee.
- (v) Examine whether objectives of the completed project have been achieved.
- (vi) Whether guidelines for technology transfer have been laid down.
- (vii) Whether the clearance of the Department is obtained before publication of research papers.
- (viii) Whether prompt action is taken to recover the grant amount along with penal interest from the organisation who is unable to execute or complete the work.
- (ix) Study the MoU with different OSTCS.
- (x) Review the agenda and minutes of the Management Boards of OSTCS. Important points may be critically examined.
- (xi) Review the agenda and minutes of National Steering Committee.

6.5.17 Coastal Community Programmes

(a) **Shore to Fishing Vessel Communication System**

For demonstrating the usefulness of the communication system to the fishes folk who are at sea, 10 shore stations were to be set up under phase-II of the programme.

(b) **Island Development**

DoD approved the implementation of a multi institutional project for Island Development from January 1998 onwards with the main objective of development and dissemination of viable technologies for enhancement of marine living resources, ocean energy and coastal processes for pollution monitoring in the A&N Islands and other island groups for the benefit of island community at a total cost of Rs.133.24 lakh. Nodal agency for implementation of this project is NIOT with the participation of Department of Fisheries, Government of Tamil Nadu, Department of Fisheries, A&N Administration, University

of Madras, Department of Zoology, Chennai and the Aquaculture Condition of India, Chennai.

Under this programme viable technologies for enhancement of the lobster resources in the island groups are being developed through breeding, rearing and fattening of lobster and sea rendering and sea farming for the benefit of island community.

(c) Ocean Awareness

DoD takes part in fairs/ exhibitions and sponsors scientific seminars and symposia, workshops and conferences, every year, with a view to create an awareness among the common people and school children on the developments in the ocean science and technology areas and the importance of the ocean and its resources.

(d) Points to be seen in Audit

- (i) Whether all the stations under phase-I and II of the shore to fishing vessel communication system have been established and are operational. Whether the fisheries were adequately trained to handle the equipments. What are the feedback reports from the users of this programme.
- (ii) Examine the agreement with other participating agencies under Inland Development programme.
- (iii) Whether monitoring, evaluation and reviewing of procedure of the programme exists.
- (iv) Study the EFC/ SFC documents of the project.
- (v) Whether physical and financial targets of the project have been laid down and how far these compare with the actuals.
- (vi) Examine the system of dissemination of technologies developed to coastal community and entrepreneurs.
- (vii) Regarding sponsoring of conferences/ symposia/ workshop by DoD the following points may be looked into:
 - (a) Utilisation certificate alongwith detailed accounts/ statement of expenditure.
 - (b) Activity-wise reports of the conference/ symposia/ seminar/ workshop.
 - (c) Impact of holding of such function.
- (viii) How the funds released to various agencies are monitored by DoD.

6.5.18 Delineation of outer limits of continental shelf

1. Traditionally the coastal states had been claiming a few nautical miles into the sea. In accordance with the UN Convention on Law of the Sea (UNCLOS) now the states can establish 12 nautical miles of territorial sea and 200 nautical miles of EEZ from the baselines and there are no major technical difficulties in establishing the limits. The continental shelf is rich in non-living resources and minerals including hydrocarbons resources.

The UN Convention on the Law of the Sea stipulates that where the coastal state intends to delineate the outer limits of the continental shelf beyond 200 nautical miles, it shall submit particulars of such limits to the Commission on the Limits of Continental Shelf. alongwith the supporting scientific and technical data within 10 years of entry into the force of the convention for that state. The UNCLOS came into force in November 1994

and India ratified it in June 1995. As such, all the necessary data will have to be submitted to the CLCS by June 2005. If delineation is done properly India would be in a position to claim more than 1 million sq. km beyond the EEZ.

Several organisations such as ONGC, Geological Survey of India and National Geophysical Research Institute are expected to participate in this endeavour.

National Centre for Antarctic and Ocean Research, Goa is executing the programme on behalf of DoD.

A Committee on the limits of continental shelf with Secretary, DoD as Chairman, Programme Officer, DoD as Member Secretary and 7 other members shall advise in regard to all aspects of the delineation of outer limits of continental shelf programme.

Points to be seen in Audit

2.

- (i) Study the comprehensive programme for delineation of the outer limits of continental shelf devised based on the scientific and technical guidelines of the Commission of May 1999 and its implementation.
- (ii) Whether yearly financial and performance targets have been laid down and adhered to.
- (iii) Study the cruise plan and quality control guidelines prepared and how far the same have been put into practice.
- (iv) Examine the contract awarded for the marine surveys.
- (v) Examine the scope of the project, the type of data to be collected, the scientific and technical issues involved.
- (vi) Since this is a multi crore, multi-institutional endeavour, examine agreements with the institutions.

6.5.19 Departmental Ships

1. Fishery and Oceanographic Research Vessel Sagar Sampada

DoD acquired a multi-disciplinary research vessel, FORV Sagar Sampada in 1984 and it is utilised as a national facility by various institutions/ universities/ organisations in the country engaged in research and studies in the field. Sagar Sampada is facilitating multi-disciplinary scientific activities in the field of Fisheries and Oceanographic Research.

2. Sagar Sampada Scientific and Technical Advisory Committee

The Committee consists of a maximum of 9 members and performs the following functions:

- (a) Review and evaluate periodically the FORV Sagar Sampada based scientific programmes and suggest mid-term corrections, if any required;
- (b) Finalise the cruise programmes for a period of two years;
- (c) Periodically evaluate the utilisation of onboard facilities and suggest measures for the maximum utilisation of such facilities;
- (d) Periodically inspect and assess the status and functioning of all equipment and machinery onboard FORV Sagar Sampada and recommend upgradation, replacement, augmentation, condemnation as may be required.
- (e) Make recommendations to the Department for procurement of the spares and components for scientific equipments on board of the vessel.
- (f) Periodically evaluate the operation and maintenance services of the vessel and onboard scientific equipment and recommend payment to the contractor.

The Committee will meet thrice in a year preferably in January, May and September.

3. Points to be seen in Audit

- (i) Review the agenda and minutes of the meetings of the Committee.
- (ii) Whether the recommendations made by the Committee are promptly implemented.
- (iii) Whether the vessel time is optimally utilised and proper records in this respect are maintained.
- (iv) What is the arrangement with the institutions/ universities/ organisations for utilisation of the vessel? If it is on payment basis, examine how the rates are fixed, recoveries effected promptly.
- (v) Whether expenditure on repair and maintenance of the vessel and facilities is within the norms.
- (vi) Whether cruise programme as finalised has been undertaken successfully.
- (vii) Whether the Committee is performing all the functions as stipulated.
- (viii) Examine the agreement with Shipping Corporation of India (SCI) for operation and maintenance of the vessels. Whether the payments made to the SCI are as per agreement.

6.5.20 Oceanographic Research Vessel (ORV)

(a) Sagar Kanya

Sagar Kanya, a multi-disciplinary oceanographic research vessel was acquired by DoD in 1983. The survey and exploration of marine non-living resources is carried out by the vessel. The vessel is fitted with sophisticated facilities for carrying out research in the field of physical and chemical oceanography, marine biology, meteorology, marine geology, marine geophysics, etc.

(b) Sagar Kanya Scientific and Technical Advisory Committee

The Committee with maximum of 9 members inclusive of 4 non-official members will perform the following functions:

- (i) Review and evaluate periodically the ORV Sagar Kanya based scientific programme and suggest mid-term corrections, if any.
- (ii) Finalise the cruise programme for a period of two year.
- (iii) Periodically evaluate the utilisation of onboard facilities and suggest measures for the maximum utilisation of such facilities.
- (iv) Periodically inspect and assess the status and functioning of all equipment and machinery on board and recommend upgradation replacement, augmentation and condemnation as may be required consistent with the requirement of research programme and advancement in technology.
- (v) Make recommendations to the Department for procurement of the spares and components for satisfactory function of equipment on board.
- (vi) Periodically evaluate the operation and maintenance services of the vessel and onboard scientific equipment.

The Committee will meet thrice in a year.

(c) Points to be seen in Audit

As in the case of Sagar Sampda.

DEPARTMENT OF BIOTECHNOLOGY

6.6

6.6.1 The Department of Biotechnology under the Ministry of Science and Technology was set up in February 1986 to give a greater impetus to the development of biotechnology in the country. The objectives of the Department include development of products, processes and technologies whose large-scale applications would result in societal and economic benefits.

The main responsibilities of this Department are:

- (i) To evolve integrated plans and programmes in Biotechnology.
- (ii) Identify specific programmes of Research and Development and oversee related research and manufacturing activities for biologicals.
- (iii) Identify, set up and support centers of excellence for research and development in biotechnology and ensure proper dovetailing of these activities with national priorities.
- (iv) Act as a screening, advising and approving body of Government with regard to import and transfer of new technologies for the manufacture of biological and biotechnological products and their intermediates.
- (v) Evolve safety guidelines for biotechnology research, development and manufacturing in India.
- (vi) To act as the Central agency for the import of genetically manipulated materials, culture cells, specimens, tissue and biotech product including DNA and RNA of any type and for promoting their production in the country.
- (vii) Serve as the inter-ministerial and interagency nodal point for all specific international, bilateral and multilateral research and development collaboration in the area of biotechnology and act as the nodal point for all technology transfers in this area.
- (viii) Manufacture and application of cell-based vaccines.
- (ix) To evolve programmes of human resource development in the area of biotechnology.

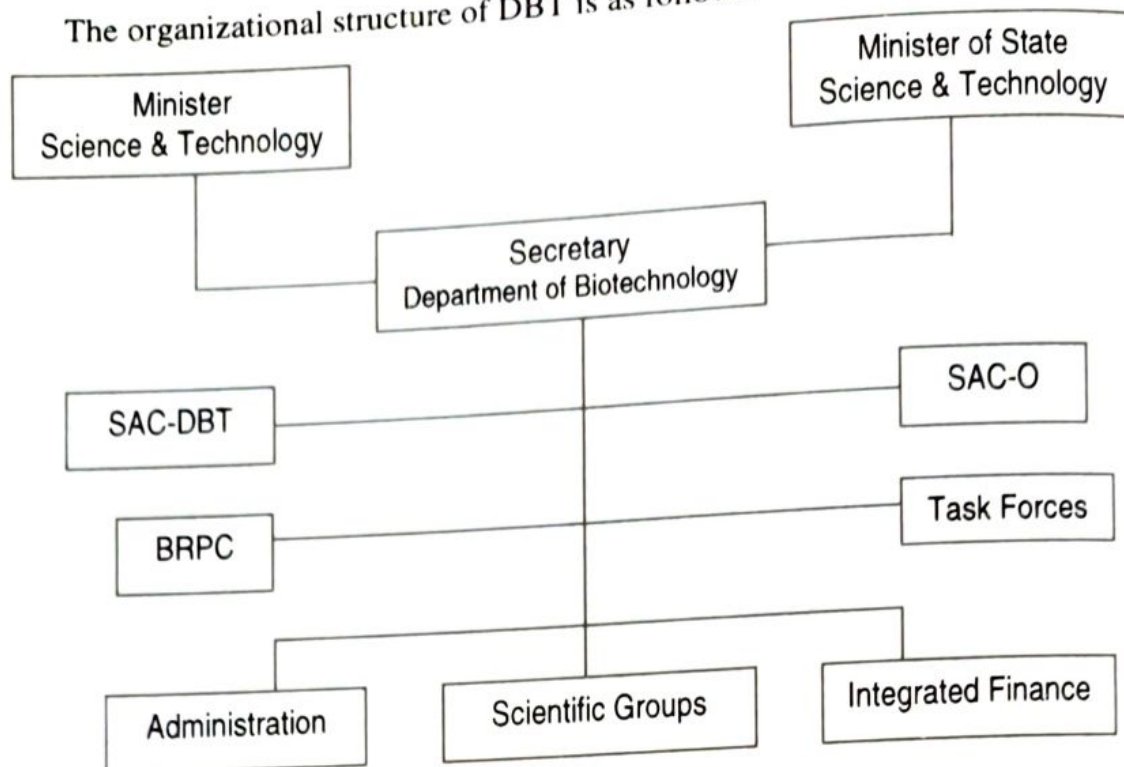
The biotechnology programmes are being implemented through a number of autonomous and statutory institutions and Universities to which assistance is provided by the Department by way of grants-in-aid. The Department is also looking after the work relating to the International Centre for Genetic Engineering and Biotechnology (ICGEB). The Six autonomous institutions established by the department under Societies Registration Act, 1860, include:

- (i) National Institute of Immunology (NII), New Delhi,
- (ii) National Centre for Cell Science (NCCS), Pune;
- (iii) Centre for DNA Finger Printing and Diagnostics, Hyderabad;
- (iv) National Centre for Plant Genome Research, New Delhi,
- (v) National Brain Research Centre, New Delhi,
- (vi) National Bio-resource Development Board.

A Public sector undertaking namely, the Bharat Immunologicals and Biologicals Corporation Ltd (BIBCOL), Bullandshahr is engaged in manufacturing Oral Polio Vaccine (OPV) and other immunologicals under Prime Ministers Technology Mission on Immunization, with a view to achieve self-sufficiency in manufacturing Oral Polio Vaccine.

6.6.2 Organisational Structure

The organizational structure of DBT is as follows:



6.6.3 Advisory Structures

The Department has been functioning with the advice of two-apex level Committees viz. Scientific Advisory Committee (SAC-DBT) and the Standing Advisory Committee-Overseas (SAC-O). The committees review on-going programmes, suggest new areas and are associated with the monitoring of inter-institutional and inter-disciplinary projects.

1. Scientific Advisory Committee (SAC-DBT)

The Committee reviews the activities of DBT in promotion and planned growth in biotechnology research and application, new initiatives and establishment of institutions/facilities. The Committee also reviews the existing policy guidelines on Bio-safety and IPR and makes recommendations in fine-tuning the regulations towards an expeditious clearance mechanism. The Committee also identifies the priority areas of research in biotechnology during the plan period taking into account the report of the Working Group on Biotechnology for the formulation of Plan.

2. Standing Advisory Committee Overseas (SAC-O)

The standing Advisory Committee (Overseas) of the Department has eleven eminent NRI Scientists as members. These members have expertise in the fields of Molecular Biology, Genetic Engineering, Molecular Physics, Microbial Technology, Plant Breeding, Genetics and Biochemistry. The Committee makes specific suggestions to improve the protocols and applications of the technology/ basic research.

6.6.4 Programme Implementing & Monitoring Committees

1. Biotechnology Research and Promotion Committee (BRPC)

BRPC is the apex committee of the Department, which considers, recommends and reviews the project proposals costing above Rs.1.00 core.

Task Forces

2. There are sixteen Expert Task Forces, which consider and review proposals in respective areas. The Task Forces meet approximately 2-3 times in a year to recommend new proposals and monitor the ongoing projects. The Task Forces also suggest Plan activities and priority areas.

For some major network programmes, Expert Committees, Programme Steering Committees, Project Advisory Committees and Programme Management Committees are constituted which meet periodically to monitor the progress and working mechanism.

National Bioethics committee on Human Genome, Genetic Research and Services

3. A National Bioethics Committee consisting of eminent scientists and representatives of various governmental organizations has been constituted. This Committee maintains liaison with the International Bioethics Committee and International Governmental Bioethics Committee located at Paris. The Committee also overviews the ongoing activities on human genome, genetic research and services including programmes on gene therapy. The Committee has prepared guidelines and policies titled 'Ethical policies on human genome, genetic research and services', which are being followed by the scientists who are supported by the Department.

6.6.5 Research and Development Programmes/ Schemes

The Department of Biotechnology considers financial support for grants-in-aid to various R&D institutions and Universities for Research and Development activities in Biotechnology. The broad categories under which programmes and projects are supported by this department are given below:

- (i) Research and Development
- (ii) Biotech Product, Process development, Technology Transfer
- (iii) Human Resource Development
- (iv) Centres Of Excellence
- (v) Biotechnology Information System (BTIS)
- (vi) International Collaboration
- (vii) Jai Vigyan National S&T Missions
- (viii) National Bioresource Board
- (ix) Patent Cell

(i) Research & Development:

Following are the areas included in this category-

- (a) Basic Research and Emerging Areas
- (b) Agriculture Biotechnology
- (c) Biological Control of Plant Pests, Diseases and Weeds
- (d) Biofertilizers
- (e) Tree and Woody species, application of Tissue Culture
- (f) Bioprospecting of Biological Wealth using Biotechnological Tools
- (g) Medicinal and Aromatic Plants

- (h) Seribiotechnology
- (i) Biodiversity Conservation and Environment
- (j) Medical Biotechnology and Immunodiagnostics
- (k) Human Genetics and Genome Analysis
- (l) Vaccine Research and Development
- (m) Animal Biotechnology
- (n) Aquaculture and Marine Biotechnology

(ii) Biotech Product, Process Development and Technology Transfer

This programme is to achieve the principal objective of DBT to promote development of technologies, processes and products through the sustainable use of biotechnologies for larger societal benefits in the country. Under this programme the department provides support for enabling technology transfer to industry for commercialization and large-scale. Following are the activities being undertaken in this area:

- (a) Tissue Culture Pilot Plant/Micropropagation Technology Park
- (b) Biotechnology based Programme for SC/ST
- (c) Biotechnology based Programme for Women and Rural Development
- (d) Biotech Process Engineering and Industrial Biotechnology
- (e) Food Biotechnology
- (f) Microbial Biotechnology
- (g) Technology Transfer
- (h) e-Biotech Commerce

(iii) Human Resource Development

An integrated Human Resource Development Programme is being implemented to generate adequate and appropriately trained personnel in the area of Biotechnology. Under this programme efforts are made to generate trained human resource for bringing excellence in the field of biotechnology and provide the skilled human resource for research and industry. The various schemes are:

- (a) Post-Graduate, Post-Doctoral and Post-M.D./ M.S. Programme
- (b) Biotechnology Associateships
- (c) Training Programmes
- (d) Visiting Scientist from Abroad Programme
- (e) Golden Jubilee Biology Scholarships
- (f) Golden Jubilee Biotechnology Fellowships
- (g) Popularisation of Biotechnology
- (h) Seminars/ Symposia/ Conferences

(iv) Centres of Excellence, Repositories and Biotech Facilities

The functions of this division are (a) Interaction with Industry; (b) services and supplies; (c) in-house R&D and (d) database development in the respective areas of specialization. The division is divided into three subdivisions.

- (a) Repositories
- (b) Programme Support & Centres for Excellence
- (c) Biotech Facilities

Biotechnology Information System (BTIS) – A National Bioinformatics Network

- (v) The Biotechnology Information System (BTIS) Programme of Department of Biotechnology was launched during the 7th Five Year Plan to harness the scientific knowledge in various inter-disciplinary areas of biotechnology. The programme is comprised of a distributed database and network system namely Biotechnology Information System Network (BTISnet). Under the BTISnet, the Distributed Centres were located in those cities and institutes where active research work in the area of Biotechnology was in progress. In the second phase, several sub centres were established in various Universities and Research institutes who were running major biotechnology programmes and projects.

International Collaboration Programmes

- (vi) The Department is pursuing International Cooperation programmes in biotechnology with both the developed and developing countries.

International Collaboration Programme has been classified under the following categories:

- ♦ Bilateral
- ♦ Association of South East Asia Nations
- ♦ Collaboration among the SAARC Countries
- ♦ G-15 Activities
- ♦ Farmer Centered Agricultural Resource Management (FARM)
- ♦ Jute Biotechnology
- ♦ International Centre For Genetic Engineering and Biotechnology (ICGEB), New Delhi

(vii) Jai Vigyan National Science & Technology Missions

As per this scheme, DBT is the nodal agency for coordinating the activities of Jai Vigyan National Science and Technology Mission projects taken up by all Science Ministries and Departments. These projects are with clear milestones and time schedules and with a clear focus on the S&T impact on the society in the following priority areas:

- ♦ Food Security
- ♦ Energy Conservation
- ♦ Disaster Management
- ♦ Health Care
- ♦ Biodiversity Conservation

(viii) National Bioresource Development Board

Hon'ble Finance Minister had, in his Budget Speech 1999, announced the setting up of a National Bioresource Development Board (NBDB) under the Chairmanship of the Hon'ble Minister of Science & Technology. Department of Biotechnology has formed the board and awaiting Government approval to its formation.

The terms of reference of the Board will be as given below :

1. To decide the broad policy framework for effective application of biotechnological and related scientific approaches for research & development and sustainable utilization of bioresources especially for the development of new products and processes.
2. To develop a scientific plan of action for contributing to the economic prosperity of the nation through accelerated research & development using the modern tools of biosciences. The scientific programmes to be undertaken under the guidance of the Board would be inter-disciplinary, inter-institutional, and time bound with clear-cut milestones. Some illustrative areas include:
 - (a) To evolve effective ex situ conservation strategies for bioresources of potential scientific and economic value,
 - (b) To develop predictive groupings of biological resources through well-established molecular lineages,
 - (c) To construct gene maps of bioresources that can be used for locating useful genes,
 - (d) To promote the use of biological software in the management of agricultural pests and pathogens,
 - (e) To promote value addition to bioresources,
 - (f) To train human resource for the achievement of above objectives,
 - (g) To strengthen bioinformatics vis-à-vis bioresources

A National Steering Committee has been constituted to support the activities of the Board.

(ix) Biotechnology Patent Facilitating Cell (BPFC)

Intellectual property protection plays an important role in gaining advantageous position in the competitive game for economic growth. As a step in this direction, a single window Biotechnology Patent Facilitation Cell was created by the Department of Biotechnology (DBT) at the Bio-informatics Division of the Department, in July 1999. Objective of this cell are as given below:

- (a) Creating awareness and understanding among biologists and biotechnologists, relating to patents and the challenges and opportunities in this area including arranging workshops, seminars, conference, etc., at all levels.
- (b) Introducing patent information as a vital input in the process of promotion of R&D programmes in biotechnology and biology.
- (c) Providing patenting facilities to biologists and biotechnologists in the country for filing Indian and foreign patents on a sustained basis.
- (d) Keeping a watch on development in the area of IPR and make important issues known to policy makers, bio-scientists, biotech industry, etc.

6.6.6 Type of R&D Projects

DBT deals with two categories of R&D projects (1) Generated Projects and (2) Invited Projects.

1. Generated Projects

With the aim of generating new knowledge for providing a base required for understanding the intricacies involved in any applied research, projects are generated in DBT on the priority areas of research in biotechnology identified by SAC-DBT and/ or SAC-O. These projects are generated on the recommendations of task forces and BRPC after brain storming sessions, interactive meetings and expert level consultations. These are normally multi agency projects. DBT identify appropriate scientist/experts from different organization and form a research team to carry out project and provide all technical and financial support.

2. Invited Projects

Projects are invited by press advertisement or received by interaction between Task Forces and scientists attached to Universities & Research Institutions on the priority areas of research in biotechnology identified by SAC-DBT and/ or SAC-O.

6.6.7 Categories of Projects Supported

The Department of Biotechnology broadly provides support to the following categories of R&D projects:

- (i) Research and Development projects, creation of infrastructure facilities, centres of Excellence in the identified areas and Demonstration Projects
- (ii) Biotechnology-based programmes for SC/ST population.
- (iii) Biotechnology-based programmes for Women and Rural Development
- (iv) Bioinformatics.
- (v) Human Resource Development in Biotechnology.
- (vi) Financial assistance for holding seminar/ symposium/ conference/ workshop on thrust areas of Biotechnology.
- (vii) Travel support

6.6.8 Points to be seen in Audit

- (i) Study the policy statements of the Ministry as and when approved by the Government with a view to see that the policies and programmes being pursued are in accordance with it.
- (ii) The minutes of meetings of SAC-DBT & SAC-O should be examined to see that policies and programmes are drawn up in accordance with the mandate of the Ministry/ Department and are being implemented by specific and well defined procedures.
- (iii) Whether the Department is performing, all the functions assigned to it?
- (iv) Whether adequate steps have been taken by the implementing bodies in DBT in achieving targetted results in the major thrust areas identified by apex bodies?
- (v) Whether all the matters, which fall within the perview of the SAC-DBT, SAC-O, BRPC & TASK FORCES, are put up to these bodies/ committees and prompt actions taken on the recommendation of these committees?

6.6.9 Project Approval & Agreement/MOU Process

- (i) Whether the Task Forces gathered enough information/data and evaluated the proposal for their scientific, technological, commercial and financial merits vis-a-vis the capability of the organization(s) involved in the proposed action network.
- (ii) Study the agreements/ MOU with various implementing agencies in respect of multi-agency projects. Verify whether the agreement clearly defined the responsibilities and obligations of all the parties involved in the project, terms & conditions, financial arrangements, modalities of collaboration, intellectual property rights and monitoring mechanism?
- (iii) Whether terms of agreement/ MOU provided the Government right to the assets procured out of the grant-in-aid of DBT and a clause included against disposal of, or encumbrance or utilization of such assets for purposes other than those for which the grant has been sanctioned.
- (iv) Whether the implementing Institute/ PI furnished progress report of work on the project every six months.
- (v) Whether any Scientists/ Specialists designated by DBT visited the Institute where the project was being implemented periodically for reviewing the progress of work and for suggesting such measures as to ensure early realisation of the objectives of the project.
- (vi) Whether the concerned Task Force/ Project Monitoring Committee reviewed the progress of the projects and gave directions wherever necessary atleast once in a year.
- (vii) Whether the implementing Institute sent to DBT a list of assets acquired out of the grant at the end of each financial year as well as at the time of seeking further instalments of the grant.
- (viii) Whether the Institute furnished to the Deptt. of Biotechnology a Utilization Certificate and an audited statement of expenditure in prescribed proforma duly signed by the P.I., the Head of the Institute and the Head of the Finance Wing, pertaining to the grant at the end of each financial year as well as a consolidated statement of expenditure at the end of the completion of the project.
- (ix) Whether the project-implementing Institute maintained a separate audited account for the project.
- (x) Whether any part or whole of the grant was kept in a bank account earning interest and if so, was the interest earned from such deposit reported to the Deptt. of Biotechnology.

Audit should also verify that the project approval/ monitoring committees looked into the following aspects in respect of different category of projects.

6.6.10 Research and Development projects, Creation of infrastructure facilities, Centres of Excellence in the identified areas and Demonstration Projects

Pre-approval Process

- (i) Whether the BRPC or the Task Force ensured that:
 - (a) the research work proposed in the scheme/ project does not in any way duplicate the work already done or being carried out elsewhere on the subject.

- (b) The same project has not been submitted to any other agency/ agencies for financial support.
 - (c) The emoluments for the manpower proposed in the project proposal were those admissible to persons of corresponding status employed in the institute/ university or as per the Ministry of Science & Technology guidelines.
 - (d) Background information on the developments in the field, viz, technology alternatives in India and abroad.
 - (e) Level of production technology (i.e. lab level, pilot plant level etc.
 - (f) Specification of the products wherever applicable. Main raw materials, chemicals and components used in production of product/development of process, and sourcing of the relevant equipment/machinery from India/abroad.
 - (g) What contribution in technology/ economic benefits the product/ process is expected to make. Market information on the existing products/ processes relevant to the invention.
 - (h) Advantage of the product/process in terms of technical superiority and cost effectiveness
- (ii) Whether market survey was done to assess the market requirement of the product/process?
 - (iii) Whether cost effectiveness was analysed to assess the market prospect of the end products/process?
 - (iv) Whether the Committee confirmed that necessary provision for the scheme/ project was made in the Institute/University/State budget to which investigators were attached in anticipation of the sanction of the scheme/ project by DBT.
 - (v) Whether institute/ university to which the investigators belonged agreed before the project was approved by DBT to undertake the financial and other management responsibilities of the project?
 - (vi) Whether the institute/ university to which the investigators belonged agreed before approval of the project that the equipment, other basic facilities and such other administrative facilities as per terms and conditions of the grant would be extended to investigator(s) throughout the duration of the project and was actually extended during the tenure of project?
 - (vii) Whether MOU/ agreement provided the right of the Govt. of India (Deptt. of Biotechnology) to call for drawings, specifications and other data necessary to enable the transfer of know-how to other parties and supply all the needed information by the concerned Institute/ university at the request of the Department of Biotechnology which will ensure confidentiality?
 - (viii) Whether assurance was taken from the Institute/ university to which grant-in-aid was proposed to be sanctioned by DBT for a project that it would not entrust the implementation of the work of the project to another institution and divert the grant without expressed permission of DBT?

6.6.11 Post approval process

- (i) If the project involved the utilisation of genetically engineered organism, was an application submitted by the investigators through his Institutional Biosafety

Committee declared that while conducting experiments, the Biosafety Guidelines of the Department of Biotechnology were followed in toto.

- (ii) If the project involved field trials/ experiments/ exchange of specimens, etc. verify whether ethical clearances were taken from concerned ethical Committees/ Competent authorities and the same were conveyed to the Department of Biotechnology before implementing the project.
- (iii) Has it been assured that any research outcome or intellectual property right(s) on the invention(s) arising out of the project would be taken in accordance with the instructions issued with the approval of the Ministry of Finance, Department of Expenditure and communicated to the investigating agencies? Had any follow up actions been taken on closure of such projects?
- (iv) Whether sale proceeds, if any, as a result of the development of the project arising directly from funds granted by the Deptt. of Biotechnology were reported to the DBT and any portion of such receipt allowed to be retained by the Institute for its utilisation for the project activities?
- (v) Whether investigators/ Institutes acknowledged the financial support received from the Deptt. of Biotechnology while publishing papers based on the research work done under Deptt. of Biotechnology research scheme?
- (vi) In case the grantee was not in a position to execute or complete the project, whether entire amount of grant received by it has been refunded to Govt. of India (Department of Biotechnology)?
- (vii) If the Investigator to whom a grant for a project was sanctioned left the institution where the project was being implemented, had he submitted complete and detailed report of the work done by him on the project and the money spent till the date of his/her release and arranged to refund the unspent balance, if any?
- (viii) Had the organisation maintained subsidiary accounts of the Govt. of India (DBT) grant and furnished it to the Audit Officer as and when the recurring and non-recurring expenditure exceeded the limits of Rs. 5.00 lakhs.

6.6.12 Biotechnology-based programmes for SC/ST population, Biotechnology-based programmes for Women and Rural Development

The project proposal specifically aimed at welfare of SC/ST population and weaker sections using biotechnological processes/techniques are accepted under this scheme.

6.6.13 Points to be examined by Audit

- (i) Whether the proposal/project focused on field demonstration/extension oriented activities with any need of R&D component?
- (ii) Had the project clearly brought out how it would benefit the targeted population?
- (iii) See if sophisticated and costly equipment were provided in case of any extension-oriented programme instead of (PI check) providing of marginal support for creating small infrastructure/ equipment, if it was absolutely essential.
- (iv) Please comment if the site for project implementation was concentrated at the PI's Institute rather than in the vicinity of the targetted population.
- (v) Whether efforts were made for the direct involvement of SC/ ST youths in the project so that technology transfer could be done effectively?

- (vi) Whether technology or extension programmes were selected taking into consideration local resources.
- (vii) Whether attention was paid to increase income generation in addition to their present occupation while implementing the project?
- (viii) Whether it was ensured that the project did not lead to environmental degradation or ecological imbalance. Whether assessment in this regard was submitted along with the project proposal?
- (ix) Whether it was ensured that the project was of employment/ revenue generating and not job displacing?

6.6.14 Travel Support for Attending International Conference/ Seminars/ Symposia/ Workshops

The Department of Biotechnology (DBT) under the scheme of Travel Support considers proposals seeking financial assistance from scientists involved in DBT-funded ongoing programmes/ projects for participation in international conferences/ seminars/ symposia/ workshops. The conference should be directly related to the projects and programmes identified by the Department.

6.6.15 Points to be examined by the Audit

- (i) Whether the applicants were actively involved in the implementation of DBT-funded ongoing programmes/ projects and their participation in the international conferences abroad directly benefited the projects/ programmes of the Department implemented by them and it was in furtherance to realising the objectives of such projects/programmes?
- (ii) Whether foreign governments, international organisations and other institutions under the aegis of multilateral, regional or bilateral arrangements and professional societies of international nature sponsored the conference?
- (iii) Whether Scientist essentially had an accepted paper for oral presentation as a single or lead author/ as a Keynote speaker; or invited as a session Chairperson?
- (iv) Whether preference was given to Keynote Speaker/ Chairperson?
- (v) Whether young Scientists were given preference over aged scientists?
- (vi) Whether letter of Invitation from organisers giving particulars such as abstract of the paper accepted for presentation along with the letter of its acceptance for an oral/poster presentation; as a keynote speaker/ chairperson etc. was furnished by applicant before approval of the grant.
- (vii) Whether any other national or international agency had committed to bear partial cost of Travel, Registration and per diem? If so, whether a copy of the letter regarding such commitment was furnished by the applicant?
- (viii) Whether support was for 100% actual return air fare (in economy/ excursion class by Air-India) from the place of work in India to the venue of the conference/ symposium, workshop or restricted to an amount after adjusting the partial cost of travel committed by other national or international agency?

6.7 INDIAN COUNCIL OF AGRICULTURAL RESEARCH

SECTION-I

6.7.1 The Indian Council of Agricultural Research (ICAR) is the apex organisation at the national level for promoting science and technology programmes in the field of agricultural research and education. The ICAR (formerly the Imperial Council of Agricultural Research) was set up on 16th July 1929 as a Registered Society under the Societies Registration Act, 1860, on the recommendations of the Royal Commission of Agriculture. The ICAR receives funds from the Government of India and from the proceeds of the Agricultural Produce Cess.

The research set up includes 45 Central Institutes (Annexure-I), 4 National Bureau (Annexure-II), 10 Project Directorates (Annexure-III), 30 National Research Centres (Annexure-IV), 82 All India Coordinated Research Projects (Annexure-V) and 12 Externally aided projects. These diverse institutions cover agricultural research in its wide sense including crops, veterinary and animal science, fisheries, agro-forestry, soil sciences, agricultural engineering and post harvesting technology, socio-economics and other relating disciplines as shown below:

Division	Institution	Project	National Bureau	NRC	Coordinated projects
Crop Science	10	5	1	6	33
Horticulture	8	1	--	10	16
Animal Science	7	2	1	6	7
Fisheries	6	--	1	1	--
Soils/ Agronomy/ Agro Forestry	7	2	1	3	16
Agricultural Engineering	5	--	--	--	10
Agricultural Extension	--	--	--	1	--
Social Sciences	1	--	--	1	--
Agricultural Education	1	--	--	--	--
	45	10	4	28	82

The ICAR maintains a network of 261 Krishi Vigyan Kendras and 8 Trainer's Training Centres along with 8 Zonal Coordinating Units for effective communication of research findings among the farmers. The ICAR has also built 120 Zonal Research Stations and 200 sub-stations.

The ICAR aids, promotes and coordinates agricultural education programmes at national level through State Agricultural Universities (SAU) in major States and Central Agricultural Universities established for North Eastern Hill (NEH) region to help and support human resource development needs of the region. ICAR is also offering post graduate degree programmes in addition to undertaking researches in four institutions viz. IARI, IVRI, NDRI and CIFE.

In discharging its role as a National Coordinating Agency in the field of Agricultural Research, the ICAR has also established linkages with the Planning Commission, DST, CSIR, ICNR, ICSSR, DAE, etc. on one hand and International Research Organisations and Institutions like FAO, UNDP, World Bank/ IDA, Asian Development Bank, etc. on the other.

6.7.2 Objectives

The basic objectives of the Council as mentioned in the Memorandum of Association are to:

- (a) undertake, aid, promote and coordinate agricultural and animal husbandry education, research and its application in practice, development and marketing in India and its Protectorates.
- (b) act as a clearing house of information not only in regard to research but also in regard to agricultural and veterinary matters generally.
- (c) establish and maintain a research and reference library in pursuance of the objects of the Society.

6.7.3 Mandate of ICAR

In order to fulfill the objects as contained in the Memorandum of Association (MoA) of the Society, the Council is authorised to:

- (i) plan, undertake, aid, promote and coordinate education, research and its application in agriculture, agro-forestry, animal husbandry, fisheries, home science and allied sciences.
- (ii) act as a clearing house of research and general information relating to agriculture, animal husbandry, home science and allied sciences and fisheries through its publications and information system and instituting and promoting transfer of technology programmes.
- (iii) provide, undertake and promote consultancy services in the field of education, research, training and dissemination of information in agriculture, agro forestry, animal husbandry, fisheries, home science and allied sciences.
- (iv) look into the problems relating to broader areas of rural development concerning agriculture including post-harvest technology by developing cooperative programmes with other organisations such ICSSR, CSIR, BARC and universities.

In view of the rapid changes taking place in the national and global agriculture and to deal with them effectively, the Council in its Vision document 2020 has proposed the certain revised mandate which inter-alia includes:

- (i) plan, conduct, aid, promote, and coordinate research, human resources development and technology generation, assessment and refinement for holistic advancement of the agriculture and allied discipline/ activities.
- (ii) act as a repository and provider of knowledge/ information.
- (iii) augment resources through consultancy/ contract research/ training on mandated subjects.
- (iv) develop linkages, interface and collaborative programmes with related national and international organisations/ agencies.

6.7.4 Points to be seen in Audit

- (i) How far the ICAR has been able to achieve the objectives.
- (ii) ICAR review committee under the Chairmanship of Dr. G.V.K. Rao in its report dated March 1988 recommended that the ICAR should concentrate on basic and strategic research or research on other problems of national importance. The

regional problems may be tackled by the ICAR only where these cannot be handled by the SAU/ State Agencies. The ICAR institutes should become centres of excellence and develop their national character in real spirit. Audit may enquire. Whether the recommendation of the review committee has been accepted, if so, what action has been taken?

- (iii) Enquire as to what action has been taken on the proposed mandate as included in Vision 2020 document.
- (iv) Whether objectives/ mandates of the Council are in line with the Agricultural Policy of the country.

6.7.5 Organisational setup

Members of the Society

The Society shall have the following members:

1. President – Minister for Agriculture.
2. Vice-President – State Minister for Agriculture.
3. Minister of Finance, Planning, Science and Technology, Education and Commerce.
4. Other Ministers in the Union Ministry of Agriculture.
5. Ministers in the States/ In-charge of Agriculture/ Animal Husbandry/ Fisheries.
6. Member of Planning Commission In-charge of Agriculture.
7. Six Ministers of Parliament.
8. Director General, ICAR.
9. All Secretaries in the Ministry of Agriculture.
10. Secretary Planning Commission.
11. Chairman, UGC.
12. Chairman, Atomic Energy Commission or Director, BARC.
13. Members, Finance, (Secretary/ Additional Secretary) in the Ministry of Finance Government of India.
14. Four Vice-chancellors of Agriculture Universities nominated by the President.
15. Five Technical representatives.
16. Fifteen Scientists.
17. Three representatives of Commerce and Industry.
18. One farmer from each region of the country and four representatives of rural interest, nominated by the President.
19. Four Directors of the ICAR Research Institutes, nominated by the President.
20. Secretary, ICAR.

6.7.6 Principal Executive Officer

Principal Executive Officer of the Society is Director General who is also the Secretary to the Government of India in the Department of Agriculture Research and Education.

6.7.7 Powers of Society

Full authority to perform all acts and issue such directions as may be considered necessary, incidental or conducive to the attainment of the objectives enunciated in Memorandum of Association of the Society.

6.7.8 Review of progress and performance of the Constitutional Units

The society shall review in its meeting at least once a year the programme and performance of the constituent units and give such policy directions, as it may deem fit to the Governing Body and the constituent units of the Society

Powers of the President, Director General Secretary of the Council are defined in Rule 19, 21, 22 and 23 respectively of the Rules and Regulations of the Society.

6.7.9 Governing Body

1. The Governing body is the Chief Executive and decision making authority of the ICAR. It shall have the following members from amongst the members of the Society:

- (i) DG – Chairman.
- (ii) Member, Finance.
- (iii) Secretary, Planning Commission.
- (iv) Secretary, Agriculture.
- (v) Chairman, UGC.
- (vi) Chairman, Atomic Energy Commission.
- (vii) Four Scientists including one Management Expert.
- (viii) Three Vice-Chairman of Agriculture Universities nominated by the President.
- (ix) Three Members of Parliament.
- (x) Three Farmers/ representatives of the rural areas nominated by the President.
- (xi) Three Directors of Research Institutes of the Council nominated by the President.
- (xii) Secretary, ICAR – Member Secretary.

2. Powers

Powers of the Governing Body are defined in Rule 38 of the Society's Rules and Regulations. The salient powers are reproduced below:

- (a) To exercise all executive and financial powers of the Society.
- (b) To consider and pass the annual and supplementary budgets.
- (c) To establish, maintain amalgamate and/ or close institutions, laboratories, offices and/ or hostels, etc.
- (d) to create posts, categorise posts and personnel in the Council.
- (e) To determine the conditions of service of the employees of the Council for their remuneration and define their duties.
- (f) To enter into arrangements with the GoI and through Government with foreign and international agencies and organisations, etc.

- (g) To appoint Boards, Committees, Sub-Committees and Banks for such purposes and periods and with such powers and on such terms as it may deem fit.
- (h) To dissolve and/ or substitute all and any Board Committee, Sub-Committee or Panel.

3. **Frequency of meetings**

At least once in each quarter of the year.

6.7.10 Standing Finance Committee

The functions of the Standing Finance Committee (SFC) are set out as follows in the Standing Finance Committee regulations made under Section 7(ii) of the Agricultural Produce Cess Act 1940.

- (i) To scrutinize the annual statement of income and expenditure of the Council and submit to the Governing Body with its recommendations.
- (ii) To examine the estimates of all research schemes of the Council.
- (iii) To scrutinize all proposals for the creation of class-I posts.
- (iv) To scrutinize all proposals for amendment of the Bye-laws of the Council affecting delegation of financial powers of the Governing Body.
- (v) To determine the order of priority in which the schemes should be financed by the Council and to submit that order of priority to the Governing Body.
- (vi) Such other functions in respect of financial matters as may be assigned to the Committee by the Governing Body of the Council.

SECTION-II

6.7.11 Research Projects

- (a) Fundamental and applied research is undertaken by the ICAR in traditional and frontier areas to offer solutions to problems relating to conservation and management of resources, productivity improvement of crops, animals and fisheries, etc. The research is undertaken for developing new technologies in agriculture and allied sectors and the Council performs the functions of introduction and exploration of genetic resources of plants animals and fisheries.

In scientific matters the Director General is assisted by 8 Dy. Directors General each in-charge of technical divisions at Headquarters viz. (i) Crop Sciences, (ii) Horticulture, (iii) Natural Resources Management, (iv) Agricultural Engineering, (v) Animal Sciences, (vi) Fisheries, (vii) Agricultural Education, and (viii) Agricultural Extension. The DDG's are responsible for the institutes, national research institutes and projects directorates in their respective fields. Scientific panels are constituted for each of the subject matter divisions.

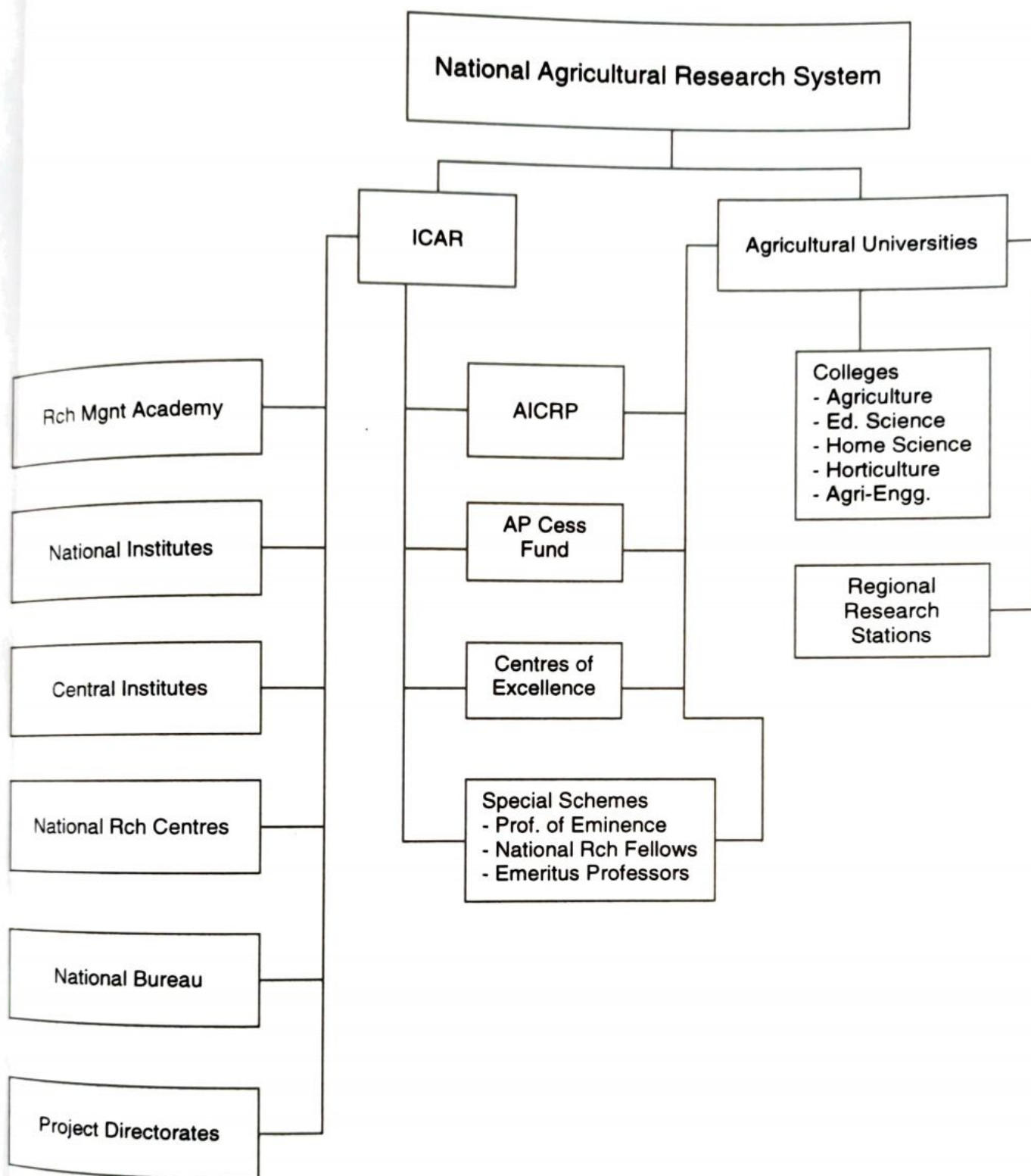
The national agricultural research activities under the ICAR is broadly divided into the following categories:

(i)	National Research Institutes	4
(ii)	National Academy of Agricultural Research Management	1
(iii)	Central Institutes	46
(iv)	National Bureau	4
(v)	Project Directorates	10
(vi)	National Research Centre	7
(vii)	All India Coordinated Research Project	82

Agricultural research is generally classified into 4 categories, one leading to the other. These are:

(i)	Basic research	It aims at the study of principles
(ii)	Strategic research	It aims at the study of processes or mechanisms
(iii)	Applied research	It aims at development of products of economic value
(iv)	Adaptive research	It studies the adaptability of products in different environments.

(b) **Agricultural Research System in India**



(c) Scientific Panels

Constitution

The Governing Body constitutes Scientific Panels (SP) for various disciplines as also inter-disciplinary panels for the purpose of:

- (i) considering research schemes and projects;
- (ii) advising the Governing Body on technical matters; and
- (iii) drawing attention to gaps in the current research and training efforts.

(d) Joint Panels

Joint Panels (JP) are also constituted by the Governing Body with other bodies like CSIR, ICMR, ICSSR, etc. either on cost sharing basis or cost free basis for one or more of the following purposes:

- (i) collaboration in research;
- (ii) inter-disciplinary examination of research schemes and projects;
- (iii) implementation of research schemes and projects; and
- (iv) coordination with various other scientific bodies and the UGC to avoid duplication and to bring about effective coordination in agricultural research.

The views, recommendations and reports of the Panels and the Joint Panels are placed before the Governing Body.

(e) Regional Committees

Regional Committees (RC) are constituted by the Governing Body to (i) review the status of agricultural research and education in the region and (ii) analyse, discuss in depth and make recommendations on the location specific problems of agriculture, animal husbandry, fisheries and forestry peculiar to that region.

The DG shall be the Chairman of these Regional Committees.

Meetings

The meetings of the Regional Committee shall be called atleast once in two years. The proceedings of the Regional Committees will be placed before the Governing Body.

6.7.12 Review System in Institutes

Each institution, depending upon its mandate is controlled and guided by DDG of one of the eight SMDs at ICAR (Headquarters). Each Institution is managed by a duly constituted body called Management Committee. Its functioning, policies programmes are also guided by Staff Research Council and Research Advisory Council.

6.7.13 Management Committee

Constitution

(i)

Each institute of the Council shall have a Management Committee (MC) consisting of the following members:

- ◆ Director of the Institute as Chairman,
- ◆ 11 Members, and
- ◆ Administrative Officer of the Institute as Member Secretary.

(Institutes shall also include National Research Centre, Project Directorates, Bureau or any other unit of the Council).

(ii)

Powers and Functions

The powers and functions of the Management Committee shall include:

- (i) consideration of proposals for five year plan and annual plan.
- (ii) periodical review of progress of development schemes.
- (iii) consideration of proposal for the annual budget.
- (iv) consideration of items of expenditure which are beyond the powers of the Director of the Institute.
- (v) policy issues relating to the Institute.
- (vi) consideration of action taken on the recommendations of the Grievance Cell and Institute's Joint Council.
- (vii) to conduct periodical reviews and assessment of the primary activities of the Institute and give directions.

(iii) Meetings

Two or three times in a year depending upon the actual need of the Institute. In case of IARI the meeting will be held in each quarter of the year.

6.7.14 Research Advisory Committee

(a) Constitution

Each Institute of the Council is having a Research Advisory Committee (RAC) consisting of the following members:

- (i) An eminent scientist from outside as Chairman.
- (ii) Members – 4-5 external experts.
- (iii) Director of the Institute – Member.
- (iv) DDG/ ADG concerned with Institute – Member.
- (v) Two persons representing agricultural/ rural interests on the Management Committee of the Institute – Member.
- (vi) One senior level scientist of the concerned Institute nominated by the Director – Member Secretary.

(b) Powers and Functions

- (i) To suggest research programmes based on the national and global context in the thrust areas.
- (ii) To review the research achievements of the Institute and to see that these are consistent with the mandate of the Institute.
- (iii) Any other function specifically assigned by DG, ICAR.

(c) Meetings

Once in a calendar year, in exceptional cases the RAC could be convened twice in a year.

6.7.15 Staff Research Council

1. Each institute of the Council has a Staff Research Council (SRC) with the Director of the Institute as Chairman and the following as members:

- (a) Joint Director (Research).
- (b) Heads of Divisions/ Sections.
- (c) All Principal Investigators of the Projects.
- (d) DDG/ ADG concerned with the Institute.

Scientist-incharge of the Research Management Unit at the Institute – Member Secretary.

2. Powers and Functions

- (i) Consideration and evaluation of the Research Projects (RPF-I). The Principal Investigator will make the presentation of the research project to the SRC. The SRC will recommend/ reject the research project along with its duration;
- (ii) Consideration and evaluation of the ongoing projects (RPF-II: Annual Research Progress Reports) after these have been assessed by an expert;
- (iii) Advise on the fostering of linkages between the groups/ divisions/ institute in respect of multi-disciplinary projects/ multi-locational projects;
- (iv) Monitor the follow up action on the recommendations of QRTS with respect to technical programmes of the Institute; and
- (v) Any other function as assigned to it by the Director of the Institute or the DG, ICAR.

3. Meetings

Twice in a calendar year.

6.7.16 Points to be seen in Audit

- (i) Review the agenda and minutes of Scientific Panels, Research Advisory Committee, Regional Committee, Staff Research Council, Management Committee and note down the important points for further scrutiny.
- (ii) Whether the meetings of SP, RAC, RC, SRC, BOM/ MC are held as per norms.
- (iii) Whether recommendations of the monitoring committee were communicated and complied with.
- (iv) Whether the proceeding of SRC/ RAC/ BOM/ MC were sent to the ICAR for approval and review by DG.

- (v) Whether the progress of each project is monitored and evaluated at laid down intervals by SRC/ RAC.
 - (vi) Whether objectives of the completed projects were achieved.
 - (vii) Whether research project files in three parts i.e. RPF-I – for project proposals, RPF-II – annual progress, RPF-III – final reports are maintained.
 - (viii) As per Rules of the Council before the new project is considered by the SRC, it will be examined by the Research Coordination and Management section/ unit of the Institute in respect of the importance of the problem, its design and final requirements. In this connection implementation may please be seen.
 - (ix) Enquire about the national priority of research in the field of agriculture determined by the National Council of Science and Technology. Whether the priorities for agricultural research determined by the ICAR for its Institute is in conformity with agricultural policy of the Government of India.
 - (x) Enquire how ICAR and its institutes ensure that there was no duplication of research work.
 - (xi) Whether the proceedings of the RAC meetings are critically examined by ICAR following its advice/ suggestions wherever necessary for effective achievement of the mandated activities.
 - (xii) Whether ICAR and its institutes have a system of peer review through which the contribution/ performance of individual scientists and contribution and functioning of the Institute as a whole is assessed.
 - (xiii) Review Committee has observed and recommended “Prima facie there is considerable duplication in research work being carried out by the former and new institutions. There is, therefore, an urgent need for the ICAR to take a fresh look at the mandate of each of its Institutes and take measures to suitably modify the mandate in the light of the establishment of new Institutes”. Action taken by ICAR in this respect may be examined in Audit.
- In this respect the following extract from IARI Vision 2020 is relevant “keeping in view its internal and external environments the Institute must give greater attention to strategic research and shed its unnecessary applied and adaptive researches to avoid duplication of efforts of the SAUs and commodity institutes of ICAR.
- (xiv) All the research work carried out within the Institutes of the ICAR should be on “Project Basis” within a specific timeframe. Cost scheduling has also been recommended by the Review Committee. Implementation of this recommendation may be watched in Audit.
 - (xv) Check how many projects were abandoned by the Institute and critically examine the reasons.
 - (xvi) It has been brought out in many reviews conducted by the international service for National Agricultural Research and other international institutions that a common cause for failure of many NARS is that the scientists do not undertake priority setting exercise to determine their research agenda. Solicit the comments from the organisation and see whether priority setting exercise has been undertaken or not.
 - (xvii) Proceedings of the Management Committee of the Institutes require approval of ICAR. All those cases wherever there was delay in communicating approval may be highlighted and scrutinize whether it has resulted in any adverse effect.
 - (xviii) Whether ICAR is taking prompt action in constituting the various Committees, after expiry of their term.

- (xix) The National ICAR Institutes are supposed to take up national problems while the regional Institutes address region specific problems. It is to be seen in Audit that there is no overlapping of the areas resulting in duplication.
- (xx) Review that subject matter specialists from outside the Institute representing all major disciplines are adequately represented in the RAC.
- (xxi) Enquire whether system of evaluating the extent of utilisation of developed technology which is the key indicator to the ultimate success or failure of the technology is there in the Institutes and taken into account by the SRC.
- (xxiii) All the major Institutes like IARI, IVRI, IIHR, CRRI, NDRI, etc. have revised their mandate and priorities and have come out with perspective plan document – Vision 2020. In this connection it may be enquired whether the institutes have re-aligned their on going programmes with the Vision 2020 perspective.

6.7.17 Quin-quennial Review (QRs)

1. The ICAR has established a tradition of QRs to provide a mechanism of transparency and accountability to the Governing Body of the ICAR. QRs are the responsibility of the concerned Director of the Institutions in collaboration with SMDs at ICAR (Headquarters) and are conducted for each Institution, once in five years. As each institution is functionally independent, QRs provide a measure of central oversight and serve as an essential component of ICARs monitoring and accountability system.

The five-year review is essential for monitoring the progress of research, its relevance and excellence and providing guidelines for the ICAR for taking steps for fulfillment of the mission and achievement of the goals of the institutes/ projects/ KVKs supported by it. For conducting the quin quennial review, ICAR will appoint a Committee of experts with an outstanding scientist as its Chairman. The review is conducted in accordance with the guidelines approved by the Governing Body of the ICAR.

2. Composition

The composition of the QRT is to be restricted to 5 to 6 eminent scientists including one management scientist/ specialist and the Chairman. In case of large institutes like IARI, IVRI and NDRI the number could increase to 9 and one of these members may be from international organisation or university.

Broadly QRT will look into the following areas:

- (i) Research achievements and their impact.
- (ii) Research relevance and budget allocation.
- (iii) Policies, priorities, strategies, effectiveness of working of the Staff Research Council, RAC and the Management Committee as well as the Consultative Machinery like Grievance Cell and Joint Staff Council.
- (iv) Relationship/ collaboration with SAUs and other stakeholders.
- (v) Linkages with clients/ users.
- (vi) Proposed changes in organisation, programmes and budget.
- (vii) Organisation and Management.
- (viii) Constraints.

Time Schedule

3. Actual review and submission of the Report to DG, ICAR – 5 to 6 months.

Completion of processing of QRT report at the ICAR (Headquarters) – 3 to 4 months.

Technical recommendations after approval by the DG are submitted to the Governing Body for consideration and approval. Similar action is taken on the recommendations involving policy directions. The recommendation after approval is sent to the concerned Director for implementation. The concerned ADG will monitor the follow up on the implementation of the recommendations.

Points to be seen in Audit

- 4.
- (i) See that QTRs are undertaken for each Institute once in five years.
 - (ii) Review by the team is submitted within the laid down timeframe.
 - (iii) Technical recommendations are submitted to the Governing Body for approval and are implemented.
 - (iv) Whether any follow up for implementation of the recommendations is taken by the SMD.

6.7.18 Revenue Generation Schemes

1. ICAR and its institutions are largely dependent on the budgetary support of Government of India. Because of economic crises in the country and combined scarcity of budgetary support resources, the need of the hour is to mobilise opportunities for resource generation within and outside the country. Realising the need for revamping the agricultural system in the wake of liberalisation process initiated by the Government of India and globalisation of markets, a Committee under the Chairmanship of Prof. S.S. Johl was setup to deliberate and provide guidelines on (a) individual and institutional consultancy both national and international, (b) system for training and fixing charges in imparting training with the country for various clients in India and abroad, (c) modalities for contract service/ contract research.

2. Consultancy

Consultancy services would involve scientific, technical, engineering or other professional advice/ assistance based on available knowledge/ expertise of the Institute preferably its thrust areas. All consultancy shall be institutional.

3. Categories of Consultancy

3.1 Advisory Consultancy

Advice provided to a client purely on the basis of available expert knowledge and experience of individual rendered, outside the ICAR and not envisaging use of facilities of the ICAR/ Institute and also not involving any kind of survey, detailed study or report preparation/ submission.

3.2 General Consultancy

Advice/ assistance based on the available knowledge/ expertise of the Institute and envisaging only minimum use of the ICAR/ Institute's facilities for essential experimentation needed to meet the objective of the consultancy assignment.

3.3 High Powered Advisory Committee

A High Powered Advisory Committee under the chairmanship of DG will be set up to monitor the progress in the implementation of consultancy services to decide policy issues. The Committee will also render advice in the selection of assignments and formulation of broad principles on various activities to be organised.

The Advisory Committee will meet quarterly.

3.4 Consultancy Processing Cell

There will be a Consultancy Processing Cell at Council's Headquarters as well as at the Institutes. The functions of CPC are to:

- (i) give broad guidelines for consultancy work;
- (ii) bring out consultancy information system, catalogues periodically;
- (iii) identify and prepare list of consultancy in different fields;
- (iv) Prepare a roster of available human resources on the basis of time schedule;
- (v) identify team for specific consultancy assignments, to coordinate work relating to consultancy assignments and periodic review of progress;
- (vi) prepare consultancy proposals.

Competent authority to approve consultancy

- 3.5 (i) Proposals not exceeding rupees one crore with:
- | | | |
|---------------------------------------|---|--------------------------|
| (a) Foreign agencies | } | DG, ICAR |
| (b) Multinational companies | | |
| (c) Multi-institutional consultancies | | |
| (d) All national agencies | } | Director of an Institute |
- (ii) Proposals exceeding Rs. one crore will be approved by the GB, ICAR Society.

Costing of Consultancy Projects

3.6

The costs of consultancy project will include:

- (i) Expenses connected with consultancy project
- (a) Cost of man-days of staff deployed
 - (b) Cost of physical inputs/ services/ utilities/ consumables/ raw material/ component
 - (c) Equipment usage cost/ cost of the equipment
 - (d) External payments envisaged
 - (e) Travelling expenses
 - (f) Contingencies (3 to 5 per cent of costs)
 - (g) Overhead costs (20 per cent of total cost)
- (ii) Intellectual fees/ consultancy fees – To be fixed by the individual scientist/ Director of the Institute depending on quantum and quality of assignment. However, the minimum charges will be equal to charges for man-days.
- (iii) Any other cost specific to the project.

3.7 Terms of payments

50 per cent of the fees to be paid at the time of commencement of the project. 35 per cent after submission of draft report and the balance 15 per cent immediately after the final submission of the report. Deferred payments to be backed by bank guarantees.

6.7.19 Points to be seen in Audit

- (a) Consultancy proposal has the approval of the competent authority.
- (b) Whether taking up the consultancy work has adversely effected the mandated activities of the Institute. Whether a proper balance of the manpower and other resources to be deployed on mandated activities, consultancy and technical services, etc. has been decided by the Management Committee and implemented.
- (c) Agenda and minutes of High Powered Committee may also be scrutinized.
- (d) Examine the performance of CPC at ICAR Headquarters and at the Institutes.
- (e) Check whether the consultancy proposals are processed within one month as envisaged in the guidelines.

- (f) Whether the following points were kept in view while considering the consultancy proposals.
- (i) Physical or other infrastructural facilities required for carrying out consultancy assignment are available at the institute or could be procured early.
 - (ii) Acceptance of consultancy assignment is befitting the academic status of the Institute.
 - (iii) Whether the return to the Council/ Institute is commensurate with the potential and likely gains to the client as a result of transfer of in-house technology.
- (g) Check whether an individual scientist is allowed to accept consultancy for a total period of 45 days in a calendar year or more.
- (h) Check that agreement for consultancy services is drawn in the prescribed format and signed.
- (i) Check that the intellectual fees/ consultancy fees generated are shared by the Consultants, Institutional fund and Staff Welfare Fund as per laid down percentages.
- (j) Check that the funds generated by the Institute under the following heads are utilised for the existing facilities, for creation of new facilities and for upgrading infrastructural facilities.
- (i) Overhead charges
 - (ii) Intellectual fees share
 - (iii) Any other cost specific to the project

6.7.20 System for training and fixing charges in imparting training within the country for various clients in India and abroad

- (a) Training is an important area where NARS scientists can effectively participate for technology transfer and utilisation of knowledge base available within the ICAR system. There is demand for such training and the persons who can impart training for various clients in India and abroad.

The Institute may conceive training programmes which could be organised for client etc. within the country and abroad on the basis of discussion at the Staff Research Council, dialogue with agriculture Business Organisation, Farmers Association, etc. and also within the ambit of the activities being carried out by the institutes as per their mandate.

The objective of the training programme should be clearly defined and also course Director or course Coordinator of each training programme identified.

- (b) **No. of trainees in a class**

The No. of trainees in a class should not exceed 20-30 with a minimum of 5.

- (c) **Budget**

An estimate of training costs will be prepared by the course Director on the basis of (i) Institutional charges, (ii) Honorarium for resource person and supporting staff, (iii) Lumpsum payment to course Director, (iv) Boarding and lodging charges of trainees, (v) Cost of transport facilities, and (vi) Overhead management charges – 30 per cent of total costs.

The budget is to be prepared keeping in view the following model training charges:

(i)	Boarding and Lodging	Foreign nationals	Indian clients
		Actual subject to a maximum of \$50/ trainee/ day	Actual subject to a maximum of Rs.200/ trainee/ day
(ii)	Training material	\$100/ trainee	Rs.1000/ Trainee
(iii)	Stationery	\$50/ trainee	Rs.500/ trainee
(iv)	(a) Honorarium to resource person	\$50/ lecture	Rs.1000/ lecture
	(b) Honorarium to supporting staff	\$10/ trainee	Rs.200/ trainee
(v)	Travel cost	\$200/ trainee	Rs.5000/ trainee
(vi)	Honorarium to course Director	\$400/ course	Rs.5000/ course
(vii)	Institution charges	\$300/ trainee	Rs.1000/ trainee

The course should accommodate a maximum of 20 foreign national trainees for duration of two week and 30 Indian trainees for a duration of two weeks.

Point to be seen in Audit

- (d)
- Training programme is duly approved by the competent authority.
 - How far the objective of the training programme was achieved?
 - How far the actual expenses compare to the budgeted expenses? Whether all the expenses of the institution are fully covered?
 - Are model training charges reviewed after every two years as stipulated in the guidelines?
 - Is the amount generated by way of institutional charges utilised by the Institute for enhancement of their capability further?
 - Honorarium paid to the Director of Institute has the sanction of DG, ICAR.
 - After the conclusion of the training programme is information furnished to the ICAR Headquarters in the proforma TR-IV?

6.7.21 Contract Research

- Contract Research comprises all research activities undertaken through specific contractual arrangements agreed upon for the purpose. Contract research are normally undertaken with private organisations, provided these fall within the mandated areas of the institute.

Contract research shall cover:

- Sponsored Projects** – Wholly funded by the client/ clients having specified research objectives and well defined expected project outputs/ results.
- Collaborative Projects** – Involve partial funding by the client and supplemented by provision of inputs such as expert manpower, production and fabrication of product in bulk for testing/ trials, infrastructural facilities, etc. These will also have well defined projects outputs/ results.
- Grant-in-aid Projects** – Involve by way of financial input, either in full or in part, assistance in kind e.g. equipment, training, etc. to supplement the institutional efforts in ongoing or new research projects or for creating new capabilities/ facilities.

2. Purpose of Contract Research

The contract research is to be taken for the following purposes:

- (i) Evaluation and verification of the technology/ process and product development including economic evaluation of new crop and animal varieties and farming practices.
- (ii) Refinement and upgradation of new package of practices, pilot plant development marketing research for crop varieties.
- (iii) Preparatory work for development and formulation of research project proposals.
- (iv) New products, process and technology development in emerging areas related to agriculture like disease diagnostic kits, tissue/ cell culture, etc.
- (v) Futuristic basis and applied research and generation of additional resources.

3. Competent authority for approval of contract projects

Budget	Competent authority
Upto Rs.10 lakhs	Director of the Institute
Upto Rs.25 lakhs	Managing Committee/ BOM
Above Rs.25 lakhs	DG, ICAR
Projects involving foreign clients and multi-institute inputs	DG, ICAR
Proposals taken/ coordinated by the staff at ICAR Headquarters	DG, ICAR

4. Monitoring

- (i) A Monitoring Committee will be responsible for monitoring and reviewing the progress of the project at suitable intervals.
- (ii) For long term projects (4-5 years) the MC will meet annually and others at least thrice during the tenure of the project – at the beginning, mid term and at the completion of the report.

5. Cost of contract research projects

The charges for contract research project will include:

- (i) **Expenses**
 - (a) Cost of man days of staff deployed (as prescribed from time to time by ICAR)
 - (b) Cost of physical inputs/ services/ utilities/ consumables/ raw materials/ components with 20 per cent overhead.
 - (c) Equipment usage cost/ cost of equipment procured specifically for the project
 - (d) External payment envisaged
 - (e) Contingencies 3-5 per cent of total project cost
- (ii) **Intellectual fee**

To be decided by the Competent Authority (minimum of 60 per cent of cost of man days of staff deployed).

Terms of payments

- 6. ♦ 50 per cent of the project charges to be received as an advance at the time of signing of agreement.
- ♦ 40 per cent at the draft report stage.
- ♦ 10 per cent prior to submission of the final results/ reports along with a certified statement of expenditure.

Points to be seen in Audit

- 7. (i) Whether check list of the proposed contract research project was prepared in the prescribed format.
- (ii) Whether the proposal was put up to the competent authority in prescribed proforma for approval of contract research project and approval accorded.
- (iii) Whether a MoU was signed between the Institute and the contracting party/ parties indicating the terms and conditions for undertaking the research and sorting the research output.
- (iv) Whether the project is monitored by the Monitoring Committee and progress reviewed at prescribed intervals. Whether suggestions made by it are carried out.
- (v) Whether the project leader has submitted the progress report at the end of every 6 months and final report at the conclusion of the project.
- (vi) Whether separate accounts of contract research schemes are maintained and monitored at regular intervals by Senior Finance and Accounts Officer of the Institute.
- (vii) As per guidelines the maximum amount of money receivable by an employees out of intellectual fees from contract project, contract service fee and licensing of intellectual property will not exceed Rs. one lakh per financial year or his/ her salary for that financial year whichever is less. Whether this limit is being adhered to by the Institute.
- (viii) Whether project charges have been deposited as per terms and conditions and all the deferred instalments of payments are backed by suitable bank guarantee.
- (ix) Whether suitable provision regarding payment of part work, compensation etc. has been made in the contract in the eventuality of adondoning or non-completion of the project.
- (x) Whether while finalising the contract it was ensured that the organisation entering the contract is competent to do so and in case of private organisation especially that the activity proposed for contract is permitted under the mandate of the organisation – antecedents and capabilities of the parties checked.

6.7.22 Contract Services

- (a) Contract services are meant to render to the clients/ customers, assistance of minor nature based on available knowledge, expertise, skills and facilitates of the institute. The main purpose of contract service is to provide support to the external agencies in its mandated area and mobilise resources for the Institute.

(b) Areas of Contract Service

Some areas are given below:

- (i) Testing and analysis of soil, water, feed, fertilizer, produce samples.
- (ii) Testing of insecticide/ pesticide brands.
- (iii) Analysis of disease problems and formulation of recommendations.
- (iv) Seed quality/ certification.
- (v) Fabricating analytical and field equipment.

Competent authority for approval is Director of the Institute and in the case of multi-institutional programmes/ ICAR Headquarters, DG, ICAR's approval is required.

The Director will draw up list of standard rates for each work taking into account estimated expenditure on (i) Man-power, (ii) cost of physical inputs/ services/ utilities, etc. (iii) equipment usage depreciation/ replacement costs (iv) any other out of pocket expenditure plus (v) intellectual fee.

(c) Points to be seen in Audit

- (i) Examine whether the actual expenditure on each component of the project worked out as per guidelines compares with the estimated expenditure; abnormal variations may critically be examined.
- (ii) Examine whether the list of rates are reviewed after every two years.
- (iii) Examine that the terms of payment i.e. 50 per cent as an advance, balance at the time of receipt of report/ results by the client, are strictly adhered to.
- (iv) Check that sharing of amount with staff is as per guidelines i.e. 10 per cent of the contract service fee or net surplus which ever is less.

6.7.23 Intellectual Property

1. (a) **Sponsored Research** – The ownership of IP generated will be of ICAR, which will obtain and maintain the relevant IP rights at its cost.
- (b) **Collaborative Research** – IP generated will be jointly owned and the expenses for obtaining and monitoring the IPR shared equally.
- (c) **Grant-in-aid Research** – IPR in case of government departments and agencies will be as per their standard terms and conditions and where the grantor has no standard conditions and for non-governmental agencies, ownership rights shall be that of ICAR.

2. Licensing of Intellectual Property

(a) Sponsored Research

- (i) The rights shall vest with the ICAR.
- (ii) The first right for commercial exploitation of intellectual property would be that of the sponsorer, to be exercised within 6 months failing which ICAR is free to license the intellectual property to others.

Collaborative Research

- (b) (i) The rights shall be jointly held by the ICAR and the Collaborator.
- (ii) First right for commercial exploitation is that of the collaborator failing which ICAR is free to license the intellectual property to others on terms to be mutually decided between the collaborator and the ICAR.

Grant-in-aid Research

- (c) Licensing rights in cases of government departments and agencies will be as per their standard terms and conditions and in other cases the licensing right shall be that of the ICAR.

Point to be seen in Audit

- 3. (i) Check whether all the intellectual property rights have been obtained and commercially exploited as per laid down guidelines.
- (ii) Fee charged for commercial exploitation of the intellectual property from the sponsorer is adequate and promptly received.
- (iii) Check that only 40 per cent of money realised from licensing of intellectual property is shared with the ICAR staff.

On the basis of the Committee's recommendations guidelines were issued by ICAR in February 1997.

Separate receipt and payment account each for (i) individual training/ consultancy/ contract research/ contract service scheme (ii) a consolidated receipt and payment account for income generated from Internal Resource Generation Schemes are required to be maintained.

6.7.24 Adhoc Research Schemes financed by ICAR from its AP cess fund

- (a) The ICAR sponsors and supports short term result oriented adhoc research schemes which aim at filling critical gaps in the specific scientific fields or in the resolution of problems limiting production in agriculture, animal husbandry, fisheries and allied subjects. These schemes identified by the Council are to be of regional nature, or national priorities on which work is not being done by the National Institutes. These can be sponsored besides ICAR and its institutes by NGOs, public, quasi public and private institutions.

The Adhoc Schemes are mostly sanctioned for a short period of three years and not beyond five years. These schemes are funded out of AP Cess Funds. In addition, AP Cess Funds could be utilised for funding unforeseen research programmes of urgent nature/ infra-structural needs of the Council.

The assistance is available for expenditure on salaries, specialized equipment, recurring contingencies, TA and in selected cases for small items of works.

All the schemes recommended for approval by the subject matter division shall require the concurrence of the Financial Adviser (Dare/ ICAR). On receipt of the concurrence of FA, sanction of the scheme upto Rs.50 lakhs will be issued with the approval of DDG concerned and schemes exceeding Rs.50 lakhs will be approved by DG, ICAR.

All sanctions issued are required to be submitted to SFC/ Governing Body for ratification.

(b) Point to be seen in Audit

- (i) Whether all the sanctioned schemes have been submitted to SFC/ Governing Body for ratification.
- (ii) Whether the objectives of the schemes were clearly defined indicating the likely benefits to be derived or additions to the scientific knowledge anticipated and the same achieved on the completion of the scheme.
- (iii) Whether release of grants is as per laid down procedure.
- (iv) Progress of the scheme is regularly reviewed by the Project Coordinator/ ADG concerned and annual report critically examined. Recommendation made by PC/ ADG are communicated and implemented.
- (v) See that the re-appropriation of funds among different heads of expenditure is not resorted to except with the approval of the Council.
- (vi) Enquire about all the cases where there was inordinate delay in processing the schemes.

6.7.25 Revolving Fund Schemes

(a) Background

There was a vast gap between the large number of technologies developed at the ICAR Institute on one hand and their lack of commercialisation on the other. This was true for all the seed materials, planting materials, animal and fishery products and vaccines and agricultural tools and implements.

To overcome financial resources slowing down the demand driven technology generation, refinement and transfer, the Council came up with a scheme of Revolving fund in which a

one time grant is given to the Institute, Project Directorates, National Research Centres or SAUs.

The revolving fund schemes will be financed from AP Cess Fund.

Objectives

- (b)
- (i) To provide partial financial support to produce seedling and planting material and other such products from agriculture, horticulture, animal and fisheries sectors.
 - (ii) To provide financial support to manufacture new plant and machinery for crop production, fruits and vegetables, plantation crops and animal and fishery products.
 - (iii) To facilitate value addition of farmers produce through cleaning, grading, processing, packaging and marketing of agriculture, horticulture, animal and fisheries sectors.
 - (iv) To facilitate the generation of internal resources for meeting non-plan expenditure.

Proposals requiring Revolving Fund will be received in the Plan Implementation and Monitoring section and after technical scrutiny by SMD, the same will be put up to Inter-Divisional Panel. After the recommendation of inter-divisional panel approval of DDG/DG will be obtained.

The Director of the Institute/ Director of Research/ Extension in case of SAU will monitor the scheme monthly (quarterly) half yearly/ yearly and report it to SMD with a copy to PIMS.

(c) Points to be seen in Audit

- (i) Whether the sanctioned scheme falls within the laid down objectives.
- (ii) Whether a separate account is created at the concerned institution for the revolving fund.
- (iii) Whether technical and financial monitoring is done by the respective divisions.
- (iv) Whether at the close of the financial year a balance sheet is prepared to project the profit and loss and its economics and feasibilities.
- (v) Whether 20 per cent of the seed money provided is released annually in equal instalments out of profit earned from 5th year onward.

6.7.26 Financial assistance to Scientific/ Professional Societies / Public/ Quasi-Public bodies and General University

1. The ICAR is extending financial assistance in the form of grant to the scientific societies engaged in the promotion of research/ education/ extension education in the broad field of agriculture and allied sciences for the following proposes:

- (i) Publication of Scientific Journals.
- (ii) Holding of national/ international symposia/ seminars.
- (iii) Organising fruits/ vegetables/ flower/ animal/ poultry shows and garden competition etc.
- (iv) ICAR's participation in National/ International exhibitions.

This financial assistance is made out of the AP cess fund of the ICAR. The quantum of financial assistance to individual societies/ associations will be determined

after taking into account its relevance and performance and will be limited to Rs.1.50 lakhs for holding national seminars/ symposia/ conferences and Rs.60000 for holding exhibitions, shows and for publication of journal. Amount for international conference will be determined on case to case basis.

2. Points to be seen in Audit

- (i) Check that assistance covers only the laid down objectives as per the guidelines.
- (ii) Whether the condition that each society/ body will be eligible for financial assistance for one seminar/ symposia/ conference once in 3 years is adhered to.
- (iii) Enquire that separate and proper accounts are maintained for the grant received by the recipient body and accounts are received by the ICAR.
- (iv) Whether the recipient has provided 50 per cent of the expenditure incurred on the publication of their journal as a matching grant.
- (v) Other usual checks for audit of grant-in-aid are applicable.

6.7.27 All India Coordinated Research Projects

1. The ICAR has established a large number of All India Coordinated Research Projects (AICRPs) that link up research programmes in the ICAR research institutes, the SAU and private non-governmental institutions in a cooperative framework. AICRPs bring the scientists working in different institutions in a close working relationship on problems of common interest. Over a period of 40 years 82 AICRPs were established.

The project consists of a national coordination unit and a large number of cooperative centres, located mostly in different SAUs and ICAR institutes depending on research programmes in progress at these centres. The coordination unit headed by a full time project coordinator and assisted by a small group of scientists from different disciplines is more commonly located in one of the ICAR Institutes, although few of them are also found in SAUs. The project coordinator helps define the priority areas of research in the group meeting of the scientists from the different cooperating institutions. The workshop is generally held once a year.

2. Points to be seen in Audit

- (i) The purpose for which AICRPs is established is achieved.
- (ii) Group meeting is held once in a year and the review of results obtained during the previous meeting are presented and critically analysed. Action taken on the recommendations.
- (iii) Analyse whether the scientists employed at different centres have enough work for the whole year.
- (iv) Enquire whether there are cases wherein staff has been specifically employed in the SAU in a coordinated project on a particular commodity or natural resource when the regular staff of the university is employed in the same areas of research and may be undertaking similar studies independently. In other words whether any duplication of research is undertaken.
- (v) Whether there are cases wherein two different sets of equipments are maintained for two sets of scientists working in parallel streams in the same department, one for the use of the staff in the coordinated projects and the other for those outside it.

- (vi) A review committee on AICRPS under the Chairmanship of Shri H.K. Jain after reviewing the working of the existing coordinating projects had recommended as under:
- (a) 36 ICARPs should continue.
 - (b) 15 AICRPs should be operated by the relevant projects directorate, giving the project director responsibility for coordination with no separate post of coordinator.
 - (c) 10 AICRPs should be operated by the relevant national research centre giving the director responsibility for coordination with no separate post of coordinator.
 - (d) 10 AICRPs should be phased out in 5 years and replaced by networks.
 - (e) 2 should be merged with other existing coordinated projects.
 - (f) 13 AICRPs should be phased out.

Acceptance of Committee's recommendations and their implementation may be watched in audit.

6.7.28 Extension and Transfer of Technology

1. When the ICAR was re-organised in 1966, an Extension Education Unit; later on converted as Division of Agricultural Extension, was established at Headquarters to promote the transfer of agricultural technologies. The National Demonstration Schemes of the Department of Agriculture and Co-op were transferred to the ICAR and are being implemented by the SAUs, ICAR Research Institutes and a few reputed NGOs.

2. Objectives of Transfer of Technology (ToT) Projects

- (i) To promptly demonstrate the latest technologies to the farmers as well as the extension workers, with a view to reduce the time lag between technology generation and its adoption.
- (ii) To test and verify the technologies in socio-economic conditions of the farmers and identify the constraints.
- (iii) To get a first hand feed back of farming problems so that scientists can re-orient their research, education and training programmes.
- (iv) To provide training and communication support to the state departments of agriculture and NGO's.
- (v) To promote extension research and studies including comparative studies of extensive system in different parts of the world.

There are four main ToT projects of the ICAR namely; the National Demonstration Project (NDP), Operational Research Projects (ORPs), Krishi Vigyan Kendras (KVIs) and Trainers Training Centres (TTC) and the Lab to Land projects and the Roving Extension Advisors.

The NDP is devoted to (i) demonstrate the genetic production potential of the major food crops in the field conditions and (ii) develop the farmers into local bodies to serve as agents of change in their areas. The objectives of the ORPs are to – introduce technologies as action.

6.7.29 Krishi Vigyan Kendra

1. The ICAR during the Fifth Five year plan launched an innovative project for imparting training in agriculture and allied areas to the farmers, school dropouts, and field level extension functionaries in the country by establishing KVKs.

2. Mandate of KVK

- (i) Conducting 'on farm testing' for identifying technologies in terms of location specific sustainable land use system.
- (ii) Organise training to update the extension personnel with emerging advances in agricultural research on regular basis.
- (iii) Organise short and long-term vocational training courses in agriculture and allied vocations for the farmers and rural youth with emphasis on 'learning by doing' for higher production on farms and generating self employment.
- (iv) Organise frontline demonstration on various crops to generate production data and feedback information.

Each KVK has Scientific Advisory Committee chaired by head of the host institution and training organisor, KVK as Member Secretary.

This Committee meets twice in a year to perform the following functions:

- (a) Providing necessary guidance and leadership in developing infrastrcuture facilities and thereby building the Kendra to fulfill its objectives.
- (b) Consideration of the annual and five year plans of the Kendra.
- (c) Reviewing the progress of the activities and achievements and offering necessary guidance/ suggestions to improve the functioning of Kendras.
- (d) Approval of the Annual Accounts of the Kendra before the same is sent to the CA/ SA for audit.
- (e) Adoption of the statement of Audited Accounts before the same is sent to the Council.
- (f) Approval of the recommendations of the recruitment/ selection committee for appointment of staff on vacant posts.

3. Trainer's Training Centres (TTCs)

Eight TTCs in specialised areas like dryland agriculture (CRIDA, Hyderabad), horticulture (IIHR, Bangalore), dairying (NDRI, Karnal), etc. are there for the service training of KVK scientists, development officers, extension officers, university teachers and entrepreneurs. In these centres, training is imparted through work experience, lectures, field visits, demonstrations and discussions. The programmes are closely monitored by 8 Zonal Coordinator Units. The Zonal Units monitor the frontline extension projects by organising local and state level workshops, scientific advisory Committee meetings and visits. The lab to land project was launched by the ICAR in 1979 to extend and promote new technologies among the small and marginal farmers and agricultural labourers and also test the relevance of the technologies in their socio-economic conditions.

The Council have also strengthened 53 Zonal Agricultural Research Stations (ZARs) to take up the additional functions of KVK.

Institution Village Linkage Programmes (IVLP)

4. To strengthen the research and extension linkages and improve the quality and effectiveness of research and extension system, the Council launched an innovative technology assessment and refinement programme called Institution Village Linkage Programme at 70 locations under the ICAR Institutes and SAUs, funded under NATA support in 1995. IVLP concept is based on participatory mode ensuring greater scientists farmers linkages in a bottom up approach by incorporating the concepts like agro-ecosystem analysis, farmers' participatory rapid rural appraisal, diagnosis and design methodology and house hold and gender analysis.

Agricultural Technology Information Centre (ATIC)

5. The ICAR sanctioned for establishment of 40 ATIC as a 'Single Window' support system linking the various units of a research institution with intermediary users and end users (farmers) in decision making and problems solving exercise. The ATIC's will provide diagnostic services for soil and water testing, plant and live stock health, technology products such as seeds and planting material, poultry strains, live stock breeds, fish seeds etc. emerging from the institution for testing and its adoption and provide an opportunity to the Institute to generate resources through the sale of their technologies.

Technology Evaluation and Impact Assessment Project

6. The project was started in collaboration with the division of crop sciences during Rabi 1997-98 in 60 centres. The main objective of this project is to involve KVK scientists in the testing of varieties at the final stage of trials on its evaluation and other production aspects as well as to provide additional test sites for more comprehensive assessment of these technologies. It enhanced interaction among the research and KVK scientists and provides feedback on the responses of the farmers at final evaluation stage of technologies.

Points to be seen in Audit

- (i) Whether the objectives laid down are being achieved.
- (ii) Whether the policies and projects framed are in line with the objectives of ToT.
- (iii) Review Committee on ICAR observed that the present rate of agricultural production could be doubled if the available technologies are brought to bear with the production processes and programmes, thus focussing more and more on transferring new technologies from laboratories and research institutes to the farmers. It further added that it has been estimated that only about 30 per cent of the technologies available are being used by the farmers. This calls for strengthening of the transfer of technology programmes. In this connection action taken by the ICAR on the above observation may be seen in Audit.
- (iv) Whether action for establishing one KVK in each district of the country has been taken as recommended by the Review Committee.
- (v) Whether prompt action is taken to demonstrate the latest agricultural technologies to the farmers as well as extension workers of the State Departments of Agriculture/ Horticulture/ Fisheries/ Animal Sciences and NGO's with a minimum time lag between the technology generation and its adoption.
- (vi) Whether KVK test and verify the technologies in the socio-economic conditions of the farmers with a view to study the production constraints and modify the technologies to make them appropriate.

- (vii) Whether MoU between ICAR and the grantee/ host Institution has been entered into before release of funds. Whether all the terms and conditions governing grants from the Council are observed.
- (viii) ICAR in his vision 2020 document had stated that some factors responsible for technology transfer gaps are inadequacy and in appropriateness of the technology, lack of suitable technology assessment mechanism, weak research – extension – farmer linkages and lack of suitably trained extension manpower.
What action has ICAR taken or will take to address this, may please be enquired.
- (ix) ICAR has also realised that extension in future would become a specialized and a competitive job, requiring higher professional skills and full commitment and competence. Action taken in this regard may be seen in Audit.
- (x) One of the programme's of ICAR as mentioned in the performance budget 2000-2001 was to remove regional imbalances by establishing new KVKs, remodelling the existing appropriate institutions to meet the needs of frontline expansion in backward hilly and tribal areas. Implementation of this may be seen in Audit.
- (xi) As per performance budget 2002-03 eight quin quennial review teams for eight 7 Zones have been constituted to critically review the achievements of the KVKs under SAU, NGOs and other educational institutions. Reports of QRT may be reviewed in audit.
- (xii) Whether any mechanisms of linkage between public and private sectors in assessing and transferring appropriate technologies in a complementary fashion have been introduced in view of the fact that private sector is emerging as a strong force in technology generation, acquisition and transfer.

6.7.30 Intellectual Property Rights

1. With the massive investment of resources in the National Agricultural Research System (NARS), a good amount of intellectual property as a result of intellectual efforts of individuals or groups is being created which needs to be protected in the interest of the investors, institutes, Council and the country. The patents for inventors, designs for industrial designs and trade marks for marketing a product alongwith copyright for protection of written works constitute intellectual property.

Intellectual property rights cell was established at ICAR headquarters with a view to ensure the protection of intellectual property rights. This cell undertakes compilation of all relevant information and maintains a database on Indian as well as foreign patents to provide Patent Search System, liaise with all concerned agencies of government as well as private sector on IPR issues, advise on obtaining of patents, etc.

Each institute was supposed to appoint a nodal officer who would maintain a close liaison with the IPR cell at the Council, would also provide information about the invention and other intellectual property created in their respective institution.

2. Points to be seen in Audit

- (i) Check that no application is filled without prior approval of SRC, RAC and MC/ BOM of the Institute.
- (ii) See that all patents/ designs in respect of such inventions processes and design evolved at the ICAR Research Institutes, Centre, Bureaus, Project Directorates are taken jointly in the name of the Council and concerned institution.

- (iii) Whether the filing of patents and their final sealing is closely watched and properly followed up.
- (iv) Whether the application for patents is filed within a specified time frame.
- (v) Technologies developed and transferred and patented may be critically examined in Audit.
- (vi) Cases of transfer of technology without patenting may be looked into during audit.

6.7.31 Budget

1. The following stipulations are made in the bye-laws of ICAR regarding budget.

Detailed budget estimates of receipts and expenditure for the ensuing financial year shall be prepared by the Secretary not later than 1st February of each year. The estimates shall show separately the sums required to meet the expenditure from (i) Government of India grants, (ii) Proceeds from AP Cess Act and other sources. The expenditure on Plan and Non-Plan schemes is to be shown separately.

The budget estimates as placed before the Standing Finance Committee alongwith its recommendation shall be submitted to the Governing Body for sanction. Similar procedure will be followed for submission and approval of Revised and/ or Supplementary estimates.

2. **New Schemes**

For new schemes proposed to be financed from the receipts/ accumulations of AP Cess Fund, prior approval of the Governing Body is necessary.

3. **Urgent Schemes**

Urgent schemes for period of one year involving outlay not exceeding Rs.50000 would be sanctioned by DG, ICAR subject to availability of funds in the budget by re-appropriation or otherwise.

4. **Appropriation and Re-appropriation**

The DG has full powers to appropriate sums provided in the sanctioned estimates during the financial year to meet expenditure on each item upto the amount provided for in the sanctioned estimates.

5. **Budget for Institutes**

Plan outlay for five year plan period is prepared by the Institute and sent to ICAR for approval by EFC/ SFC the (Expenditure Finance Committee/ Standing Finance Committee) under the Planning Commission. If the total budget outlay exceeds Rs.15 crores approval of EFC is required otherwise approval of SFC is sufficient.

6. **Points to be seen in Audit**

- (i) As per Byelaw 3, one copy of the sanctioned estimates is required to be sent to the Auditor of the Council nominated by the CAG of India. All variations in the estimates sanctioned by the competent authority during the financial year are to be similarly communicated. It may be seen whether this is being done.
- (ii) Whether the additional grants sanctioned for approved schemes are within the limits prescribed as per Byelaw 7(1).
- (iii) Whether extension granted by the DG is only for six months and the same is ratified by the SFC/ GB.
- (iv) Whether any expenditure has been incurred which does not have the sanction of the competent authority.
- (v) Whether there are any cases of re-appropriation from plan to non-plan without the sanction of the Government of India.
- (vi) Whether the re-appropriation from one approved scheme to another on the plan side has been resorted to after getting the approval of the Governing Body. Also

the outlay of a scheme for a five year period does not exceed the approved outlay in the Five year plan.

- (vii) Whether any unspent balance which lapses with the close of the financial year is utilised in the following year.
- (viii) Whether the approval of EFC/ SFC for five-year plan expenditure is received in time. If it is delayed whether it has effect on incurring of some expenditure.
- (ix) Whether any equipment or other material not approved by EFC has been purchased.
- (x) What is the method of preparation of budget by the Institutes? Is it just on incremental basis based on last years actuals and actuals of few months of RE or based on programmes to be taken up during the year.
- (xi) Study the system of approval of institute's budget by ICAR. Whether any discussion is held between ICAR and Institute's Management.
- (xii) JPS associates who reviewed the working of some institutes, has observed as under:

- (a) Budget have no relation with the research projects of the Institute, budgetary requirements of research project in order of their priorities find no place in the budgeting exercise of the institutes.

Hence budget optimisation mechanism vis-à-vis institutes priorities programme is absent. Budget is prepared by the budget and accounts section or the divisional administration section with little input from the scientists.

- (b) Budget sent to ICAR is a set of arithmetical figures. No programmatic narration or budget justification, which facilitates evaluation of each item in the budget request on the basis of its contribution to the research goal of that institute is given.
- (c) Budget granted by ICAR to the Institute against recurring and non-recurring charges as well as travelling allowance under both plan and non-plan heads are allocated by the Directorate to each division/ regional station, as a function of the number of scientists in the directorate/ regional station instead of being based on the need of the approved research projects to be undertaken by each division/ centre/ regional station.
- (xiii) Whether the institutes prepare their plan documents on the basis of project based budgeting system as decided at the meeting of the Director's of ICAR institutes/ NRC's/ PDs bureau held on 7th – 8th October 1998 at NBPGR Auditorium, New Delhi.
- (xiv) In ICAR Vision 2020 document, ICAR has identified one of the weaknesses as "Low investment in research and regional imbalance in resources allocated".

In this the following are also relevant:

An outlay of at least one per cent of the agriculture at GDP is successively recommended for the agricultural research by the Standing Parliamentary Committee on Agriculture and other expert committees.

Expenditure on agricultural research and share in the agricultural GDP through different Five years plans are given below:

Plan (period)	NARS expenditure (Rs. in millions)	Share in the agricultural GDP (%)
IV Plan (1969-74)	2200	0.22
V Plan (1974-78)	4300	0.29
VI Plan (1980-85)	9550	0.35
VII Plan (1985-90)	21450	0.46
VIII Plan (1992-97)	48100	0.46
IX Plan (1997-2002)	67520	0.80

It has not reached 1 per cent level even though. ICAR share has gone up from Rs.13000 million during the VIII plan to Rs.33760 million during the IX plan.

Activity-wise share (in percentage) of ICAR allocation is given below:

Research

Plan (period)	Crops	Hort	A. Sci	Fish	Others	Total	Edu	Extension	Others
IV Plan (1969-74)	21.9	8.1	16.6	3.8	13.0	63.4	34.6	1.9	0.1
V Plan (1974-79)	20.7	6.1	16.9	5.3	11.7	60.7	34.2	4.6	0.5
VI Plan (1979-84)	20.4	6.5	10.5	5.2	30.8	73.4	21.7	4.4	0.5
VII Plan (1984-89)	21.3	5.6	10.5	4.4	32.9	74.6	16.7	7.5	1.2
VIII Plan (1992-97)	24.8	7.7	10.8	5.0	24.9	73.2	11.9	12.6	2.3
IX Plan (1997-2002)	25.0	10.0	14.0	6.0	20.0	75.0	15.0	10	---

Critical analysis of activity-wise provision may be made and included in the audit report.

6.7.32 Accounts

The following stipulations are made in the Rules and Regulations and Byelaws of the Council in respect of accounts and audit.

As per Byelaw 20(a), the Secretary shall compile the Annual Accounts for the Council within three months of the close of the financial year in the form as approved by the Government of India with the concurrence of the Comptroller and Auditor General of India.

Units of ICAR prepare only Receipts and Payments Accounts, which are consolidated at ICAR Headquarters and thereafter a consolidated receipt and payment account is sent to the CAG for Audit. Audit of ICAR has been entrusted to the CAG of India under Section 20(i) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971.

As per Rule 76 of the Council, the Accounts of the Society shall be audited by such person or persons as may be nominated for the purpose from time to time by the Government of India in consultation with the Comptroller and Auditor General of India.

As per Byelaw 20(b) of the Council, the results of audit shall be communicated by the Auditors to the Governing Body of the Society as early as possible but not later than 31st March of the following year to which the Annual Accounts relate. The Governing Body shall furnish a copy of the Audit Report along with its observations to the Department of Agricultural Research and Education, GoI and to the Society. The Auditors shall also forward a copy of Audit Report directly to the Department of Agriculture Research and Education.

One of the functions of the Standing Finance Committee of the Council is "to scrutinise the annual statement of income and expenditure and submit to the Governing Body with its recommendations". It is not clear how SFC is performing this function when only receipt and payment accounts are prepared by the Council.

6.7.33 World Bank/ Externally Aided Projects

World Bank Aided Projects

1. National Agricultural Technology Project (NATP)

The NATP is a World Bank aided project, which is being implemented by ICAR and the Department of Agriculture and Cooperation since November 1998 through December 2003.

The three major components of NATP are:

- (i) Research
- (ii) Innovation in Technology Dissemination
- (iii) Organisation and Management System in ICAR

2. Project Costs and Funding Plan

Project base cost for five years period totals Rs.7795 million (US \$219.0 million) of which 24.5 per cent is allocated to O&M reforms in ICAR (of which nearly three quarters is disbursed for improvements to electronic connectivity and information system), 57.5 per cent to agro ecosystems research and 18 per cent for innovations in technology dissemination. With price and physical contingencies, total NATP cost comes to Rs.8613 million (US \$239.4 million) distributed as follows:

Sl.No.	Component	US \$ in million	INR	% of total
1.	O&M System	53.6	1926	22.4
2.	Agro-Ecosystem research	122.3	4400	51.2
3.	Technology Dissemination	41.1	1482	17.2
4.	Price/ Physical contingencies	22.3	805	9.2
Total		239.3	8613	100

3. Division of costs

Of the total NATP cost of Rs.8613 million (US \$239.3 million), World Bank will reimburse approx. 82% comprising US \$100 million (73.8 million SDR) as IDA credit and US \$96.8 million of IBRD loan. The balance 18% (\$42.9 million) to be funded from the government sources.

4. Agro-ecosystem Research

This component covers programmes under Production Systems Research (PSR), Mission Mode (MM) and, Teams of Excellence (ToE) and Competitive Grant Programme (CGP).

5. Innovations in Technology Disseminations

This has two components, one being implemented by the ICAR and the other by the Department of Agriculture and Cooperation.

The following programmes are being implemented under ICAR component:

- (i) Agricultural Technology Information Centre (ATIC)
- (ii) Remandating Selected Zonal Agricultural Research Stations to take up the additional function of KVK
- (iii) Strengthening of Directorate of Extension of SAUs and Zonal Coordination Units

O&M Systems in ICAR

One of the objectives of the NATP is to initiate O&M reforms to improve efficiency of NARS. Various activities initiated under this component specifically deal with the development and institutionalization of improved research priority setting, monitoring and evaluation (MaE) mechanisms at various levels in the NATP and NARS. The specific objectives are:

- (i) to develop and adopt improved PME mechanism.
- (ii) to facilitate institutionalization of improved PME mechanism in the NATP and NARS.
- (iii) to develop analytical capability for PME through training programmes, workshops and case studies.
- (iv) to support prioritization, monitoring and concurrent evaluation of NATP research programmes.
- (v) to assess impact of NATP on systems efficiency and socio-economic impact and
- (vi) to develop network of agricultural economists to strengthen social service research in general and on PME in particular.

The NACP, IASRI and NAARMs are collaborating for the sub-project with overall coordination by NCAP.

Reforms within ICAR include expansion of earnings from ICAR products and services, improvement to staff selection and performance assessment, performance awards for staff in non-scientific categories and the review of the organisation and management of some of the institutes to identify actions to improve both institutional efficiency and effectiveness.

To improve financial sustainability of some of the services undertaken by ICAR and its institutes, the project will strengthen the Directorate of Publication to operate on full cost recovery basis and also help in the establishment of the pilot units in ICAR institute for sale of research products and services.

The project will support expansion of electronic connectivity of IRIS down to division level within all ICAR institutes.

7. Processing of Research Proposals

Project Implementation Unit (PIU) will handle proposals for research under the ToE and the MM besides the research proposals expected under the CGP. Agro-Ecosystem Directorates (AED) will handle proposals relating to PSR and TAR/ IVLP.

Each proposal before consideration by PIU or AED will have to be examined and endorsed by SMDs. For CGP proposal, PIU would seek proposals through advertisement at national level from time to time.

The research grants under the NATP are managed by the Project Management Committee (PMC) assisted by Research Programme Committee (RPC), 5 Scientific Advisory Panels (SAPs) and the Technology Dissemination Management Committee (TDMC).

6.7.34 Other Externally Aided Projects

Seabass breeding and culture under Indo-French Protocol was initiated by the Fisheries Division of ICAR to be implemented through CIBA at Chennai at a total cost of 3.9 million, FRF as a soft loan.

The professional long-term service agreement between the ICAR as the implementing agency and the COFREPECHE as the executing agency was entered into in March 1999.

The main objectives of the collaborative project are:

- (i) To establish exclusive hatchery facilities for seabass seed production round the year.
- (ii) To demonstrate the culture potential of seabass in ponds/ cages in a sustainable eco-friendly manner; and
- (iii) To train CIBA scientists/ technicians on the new technologies to achieve innovative information enabling them to train the extension workers and farmers for adopting those technologies.

6.7.35 Points to be seen in Audit

- (i) Study the terms and conditions of World Bank loans/ credit. Whether the same are followed?
- (ii) Whether all research proposals in MM and PSR modes for NATP funding emerged out of intensive even repeated interactive processes with participating centres (MS, Co-Pis and CCAs) and not developed by a single scientist or institution.
- (iii) Whether strengths and capabilities of NGO or private organisations were critically assessed physically before involving them as partners.
- (iv) Whether working group constituted by the PMC is reviewing individual research proposals with specific reference to technical programme, methodology, centre's capability, policy issue involved and their recommendations implemented. Whether working group is meeting twice in a year.
- (v) For research programmes that are specific to an agro-ecosystem, the technical and administrative review process is undertaken by a scientific advisory panel appointed for each agro-ecosystem by the PMC. Review the agenda and minutes of SAP meeting and action taken on their recommendation during the local audit.
- (vi) Study the report of Refrees if the proposal is referred to them for examination. Whether the Refrees comments have been circulated to the RPC/ SAP members.
(Refrees are senior professionals representing the range of disciplines involved and their panel approved by RPC).
- (vii) Whether the financial limit of the proposals in CGP i.e. Rs.1 million upto a maximum of Rs.5 million and time limit not exceeding three years are being adhered to.
- (viii) Whether the technology developed under CGP on completion is pilot tested and commercially exploited as funding includes this aspect also.
- (ix) Whether programme approved under CGP falls under six priority area's approved by PMC i.e. (i) crop improvement and crop protection, (ii) natural resource management, (iii) productivity of live stock, poultry and fishery, (iv) agricultural engineering, (v) post-harvest technologies and (vi) socio-economic and policy research.
- (x) As per guidelines ToE programmes will be subject to regular external reviews and will close if it is considered that they have achieved their objectives or earlier if they lose their intellectual leadership or innovative nature. It may be examined in audit whether this has been put in practice.
- (xi) Whether the expenditure booked to NATP projects is as per approved list for different areas.

- (xii) Whether special account is created as stipulated.
- (xiii) Expenditure on new civil works is out of the preview of the project except that incurred in O&M systems for headquarters strengthening of ICAR, this may be looked into during audit.
- (xiv) Whether guidelines for prioritization of research proposals for competitive grant programme have been implemented.
- (xv) Whether Project Information Management (PIMs) as finalised for monitoring and concurrent evaluation is implemented.
- (xvi) Whether computers and related equipments procured for networking and establishing connectivity down to the divisional level with ICAR institutes, SAUs, ZRS, Directorates of Extension, MANAGE and the ITD States/ Agricultural Technology Management Agency districts have been installed and system is working.
- (xvii) What steps have been taken to upgrade the library information system.
- (xviii) Whether the technical programmes for the year 2002-03 as mentioned in the performance budget were undertaken and with what results especially (i) impact assessment of NATP (ii) development of on-line version (iii) development and refinement of monitoring indicators and expansion of monitoring and evaluation activities.

6.7.36 Scheme for National Professors/ National Fellows

1. To recognise outstanding and eminent scientists and to develop strong centres of research and education around them in the field of agriculture and allied sciences, ICAR is sanctioning research projects to national professors, national fellows and emeritus scientists.

2. Points to be seen in Audit

- (i) Whether the stipulated progress report along with progress of expenditure is submitted by the professors/ fellows.
- (ii) Whether the schemes are being reviewed by a Committee setup by ICAR and recommendations implemented.
- (iii) Examine how far the objectives of the scheme have been achieved.
- (vi) Verify the number of schemes that have been finalised.

6.7.37 Manpower Planning

All the posts in the ICAR are categorised as (i) Scientific (ii) Technical (iii) Administrative (iv) Auxiliary and (v) Supporting on the basis of the following criteria:

1. Scientific

Personnel engaged in agricultural research and education.

2. Technical

Personnel who perform technical service in support of research and education

3. Administrative

Personnel who provide administrative support for the work of the laboratory/ institute/ headquarters organisation.

4. Auxiliary

Personnel who are not directly connected with the research and education activities of the organisation.

5. Supporting

Personnel who generally help and support the above four categories of staff. They may be skilled, semi-skilled or unskilled.

6. Recruitment of Scientists

Recruitment of scientists is a centralised activity at the Headquarters. The Agricultural Scientific Recruitment Board (ASRB) is entrusted with the task of recruiting scientists for the Headquarters and its Institutes.

The ASRB is an independent recruiting agency and has been entrusted with the following functions:

- (a) Recruitment to posts in the agricultural research service and to such other posts and services as may be specified by the President of ICAR Society from time to time.
- (b) Rendering such other assistance to the ICAR in personnel matters including promotion as required by the President.
- (c) Advising the Council in disciplinary matters.
- (d) Constituting selection committees for promotion in scientific/ technical categories.

The work relating to recruitment to other category of posts in the Council Headquarters and its Research Institutes/ Labs/ Centres are undertaken by the ASRB.

Manpower requirement for the different categories for the entire ICAR is a five yearly activity coinciding with the five yearly national plan. Sanctioned strength for scientists is decided in the light of the technical programmes and the priorities as given by the Planning Commission.

Points to be seen in Audit

- (i) According to ICAR the ratio of staff strength to be maintained among scientific technical, administrative and supporting staff is 1:1.5:0.5:2. It is to be seen in audit whether ratios are maintained or not. Deviation if any may highlighted.
- (ii) Whether time gap between the completion of old projects and starting of new projects is significant resulting in idle manpower. Such cases may be reported.
- (iii) Whether there are cases of imbalance in scientific strength i.e. shortage in Sr./ Principal Scientist cadre have been partly met by excess strength of scientists. The same may be highlighted with impact if any on the quality of research.
- (iv) As per Annual Report 1999-2000, detailed work-study of 67 sections was conducted to assess the actual requirement of staff in the Council. Action taken on work-study report may be examined in audit. It may also be enquired whether work-study of remaining sections if any and the institutes, etc. are also planned.
- (v) ICAR Review Committee 1988, in its report recommended that whenever new projects are formulated the staff requirements should be met essentially by redeployment. Increase of staff by accretion alone should not be permitted. It may be seen in audit that this recommendation is being acting upon.
- (vi) It is stated in the Annual Report 2000-2001 that "A number of officials from scientific/ technical/ administrative/ finance categories were sent to attend various comprehensive training programme under HRD in various fields/ areas at different organisations, identified for imparting training. This has been targeted to create a strong work force, which can meet the challenges of the changing global scenario."

It may be seen in Audit that the system for getting a feedback on the training from the officials is evolved or not. Whether impact of training is also assessed.
- (vii) It may be seen in audit that the GoI order dated 5th August 1999 banning all fresh recruitment against new posts and regarding introduction of 10 per cent cut on existing manpower strength has been implemented by ICAR.
- (viii) Whether MoF instructions of May 1993 for abolishing posts kept in abeyance or lying vacant for more than one year were complied with by the ICAR.
- (ix) Whether any action is taken by the ICAR to evolve standard norms of its own for assessing the requirement of scientific, technical and administrative manpower.
- (x) Whether the ICAR and its units are engaging house keeping staff within the limit prescribed by MoF in September 1989 i.e. 3.5 per cent to total strength.
- (xi) Whether ICAR, promotion policy is within the framework of rules and orders issued by the Government of India from time to time.

6.7.38 Purchase Procedure

- (a) ICAR besides following the principles laid down in General Financial Rules have issued following guidelines for stores purchase and inventory at ICAR Headquarters and its Research Institutes.

(b) **Purchase through DG, S&D**

Procurement of supplies relating to typewriters, duplicating machines, air-conditioners and furniture to be made by the Institutes by placing indents on the DG, S&D.

For other items of stores the Institute are free to procure on DG, S&D rate running contract directly from the contractual firms subject to observing of certain conditions.

(c) **Rate/ running Contracts with suppliers/ manufacturers**

The institute can conclude rate/ running contracts with the leading suppliers/ manufacturer's themselves for items of common nature for period of one year extendable for an other year.

(d) **Direct Purchase**

All proposals for direct purchase are to be scrutinised by a purchase Committee. All purchases to be based on tenders obtained by:

- (i) Open tender in cases where the estimated value is Rs.50000 and above.
- (ii) Limited tender for purchases where the estimated value is less than Rs.50000.
- (iii) Invitation to a single firm only in case of articles of proprietary nature.

(e) **Negotiation**

The system of ab-initio negotiations should be adopted in exceptional circumstances only e.g.:

- (i) Where there is no competition.
- (ii) Where the tendered rates are apparently higher as compared to the known market price.
- (iii) Where it is apprehended that the suppliers have formed a pool before quoting rates and the negotiations are likely to bring down the prices.

Negotiations should not be made with one or two firms but should be made with all the firms who have tendered their rates.

(f) **Purchase of Stationery**

Purchase of stationery items to be effected either from the CGEC stores or Super Bazar or otherwise after following the normal procedures if it is considered economical in the interest of the Council.

(g) **Placing of order**

Detailed specifications of the items required to be procured should clearly be indicated at the time of calling tenders/ quotations as well as placing of orders.

(h) **Inspection of Stores**

All stores and equipment, before acceptance, should be inspected on receipt normally within 24 hours of the receipt of the stores.

Points to be seen in Audit

- (i) Only those non-consumables items have been purchased under plan fund which have the approval of EFC and necessary funds were available in the sanctioned budget.
- (ii) Reasons for ignoring the lowest tender should invariably be recorded.
- (iii) Provisions of GFR are not violated.
- (iv) Whether penalty clause in the supply order/ agreement for levying liquidated damages in the case of delayed supply are included.
- (v) Whether the equipment/ plants procured have been installed and commissioned promptly.
- (vi) Whether log book is being maintained in case of all costly equipment.
- (vii) Whether unserviceable stores are disposed of promptly.
- (viii) Whether any equipment has been purchased after the completion of tenure of the projects.
- (ix) Physical verification of stores is done annually.

SECTION-IX

6.7.39 Publications and Information

(a) Directorate of Information and Publications on Agriculture (DIPA)

DIPA brings out a number of periodicals, books and other publications on agriculture and allied subjects both in English and Hindi. Information disseminated through these publications not only provides support to agricultural research and education but also caters to the needs of scientists; research workers, students and progressive farmers.

(b) Publications

Besides bringing out publications including books, four periodicals viz. The Indian Journal of Agricultural Sciences, the Indian Journal of Animal Sciences, Indian Farming and Indian Horticulture, three house journals viz. ICAR News, ICAR Reporter and ARIS News are printed. ICAR a quarterly newsletter, disseminates news pertaining to agricultural research carried out in the Institutes. ICAR Reporter, a in-house magazine of ICAR covers all the activities of the Council.

(c) Business Unit

This unit is responsible for the distribution and marketing of publications and participation in exhibitions.

(d) Information

Agricultural Research Information Centre (ARIC)

ARIC is the central source of information of all the research projects and schemes financed by the ICAR. Databases on AP Cess Fund research schemes and research projects of the Institutes and other matter are created on computers. ARIC is the National Input Centre for International Information System for AGRIS, CARIS projects of FAO, the largest bibliographical information systems in the world.

ARIC is running two libraries. One software library which is controlling the movement of computer software on loan basis among different sections/ units/ individuals at KAB and the other DIPA library which is a reference library.

(e) ICAR Library

It provides services to those who are engaged in agricultural research, education and management activities. It also provides Inter-Library loan facilities on receipt of request from national and international organisations. It also subscribes to foreign and Indian journals and also receives journals on complementary and exchange basis.

(f) Publicity and Public Relations Unit

It is mainly responsible for dissemination of information pertaining to agriculture and allied subjects and policy decisions and achievements of the research up to the print and electronic media. The PR division broadly performs the following functions:

- (i) Liaison with print and electronic media
- (ii) Publicity through print and electronic media
- (iii) Visits of media persons
- (iv) Participation in the exhibitions at regional, national and international level.

NICNET Pub. Inf. and Facilitation Centre

(g) It has been established jointly by three departments of the Ministry of Agriculture – DARE/ ICAR, Department of Ministry of Agriculture and Cooperation and Department of Animal Husbandry and Diaring to provide information to State and Central Government Agencies, Economists, Consultants, Scientists, Farmers and General Public.

Points to be seen in Audit

- (h)
- (i) Whether there is laid down procedure for the receipt and issue of printed material and is working satisfactorily.
 - (ii) Study the basis of determining the quality of each material to be published. Whether it is scientific or just arbitrary.
 - (iii) Whether the formula for fixing the price of priced publication is laid down. Examine that all the aspects of costs are covered.
 - (iv) Whether the sanction of the competent authority for the publishing of books and periodicals, determining of numbers and their prices is obtained in each case.
 - (v) Whether sale proceeds of books and journals are promptly accounted for.
 - (vi) Whether physical verification of unsold books is undertaken and prompt action is taken on its outcome.
 - (vii) Whether the books and periodicals are also sold through agents, if so, whether proper control over issue, sale, receipt of sale proceeds and unsold stock is maintained.
 - (viii) Whether the Council is contemplating to secure advertisements from, the corporate world for their various publications on the lines as being done by PAU for its publications.
 - (ix) Whether there is a system of checking the exhibition expenditure before admitting. Whether estimates for holding/ participation in exhibitions are prepared. If so, see how far the same compare with actuals.
 - (x) Whether all the gifted items to library are properly accounted for.
 - (xi) Whether the system of receipt and issue of books is satisfactory.
 - (xii) Whether physical verification of the books and periodicals is being done regularly.
 - (xiii) Examine the control mechanism of software library in regard to issue and receipt of computer software.

6.8.1 Background

The Council of Scientific and Industrial Research (CSIR) registered under the Societies' Registration Act, XXI of 1860 is an autonomous organisation under the Department of Scientific and Industrial Research (Ministry of Science & Technology), Government of India. CSIR was established to implement and give effect to the resolution moved by the Late Dewan Bahadur Sir A. Ramaswamy Mudaliar, Hon'ble Member of the then Department of Commerce of the Government of India and passed by the Legislative Assembly on the 14th November, 1941 and accepted by the Government of India.

6.8.2 Objectives

The objectives of the Council is fostering industrial development in the country by way of scientific and industrial/ applied research in projects of national priority as evolved by the high level body concerned with overall planning for science and technology in the country; in projects sponsored by industries in the public/ private sector and others; continuous improvement of indigenous technology and adaptation and development of imported technology; development of new technologies relevant to the country's social, economic and industrial needs in keeping with the national objective of self-reliance; development of alternate technologies, with emphasis on the use of local resources; basic scientific research; maintenance of national physical standards and a library of standard reference materials and technical advisory services like information, extension, consultancy and testing.

The other activities are:

- (a) establishment or development and assistance to special institutions or departments of existing institutions for scientific study of problems affecting particular industries and trade;
- (b) establishment and award of research fellowship and the institution and financing of specific researches;
- (c) utilization of the results of the researches conducted;
- (d) establishment, maintenance and management of laboratories, workshops, institutes, museums;
- (e) collection and dissemination of information in regard not only to research and development but to industrial matters generally;
- (f) publication of scientific papers and journals;
- (g) enter into arrangements with foreign scientific agencies and institutions for exchange of scientists, study tours, training in specialized areas of science and technology, conducting joint projects, providing technical assistance in the establishment of scientific institutions and for other matters consistent with the aims and objectives of the Society.

6.8.3 Powers & Functions of CSIR

Powers and functions of CSIR are governed by the bye-laws framed by it and incorporated in its Memorandum of Association and Orders issued from time to time.

6.8.4 Council's establishments

Council's establishment consists of CSIR headquarters & its research establishments. The CSIR Headquarters provides support & services to research establishments and assists Director General who is the Principal Executive Officer of the Council and is responsible for the proper administration and affairs of the society under the direction and guidance of the President and Vice-President of the society. The CSIR headquarters have the following technical and administrative divisions to provide support and assistance:

- (i) R&D Planning and Business Development Division (RPBDD)
- (ii) International Science and Technology Affairs Directorate (ISTAD)
- (iii) Human Resource Development Group (HRDG)
- (iv) Intellectual Property Management Division (IPMD)
- (v) Societal & Technology Missions and Societal Programmes Division (STMD)
- (vi) Unit for Science Dissemination (USD)
- (vii) Administration
- (viii) Finance
- (ix) Engineering Service Department

CSIR has also established a Customer Service Evaluation Unit (CSEU) at Pune under the control of its headquarters

Research establishments

The Council has 38 National laboratories and 48 centres/ field stations spread all over the country which are engaged in research activities in different areas. These research establishments of the CSIR are divided into five major disciplines viz.

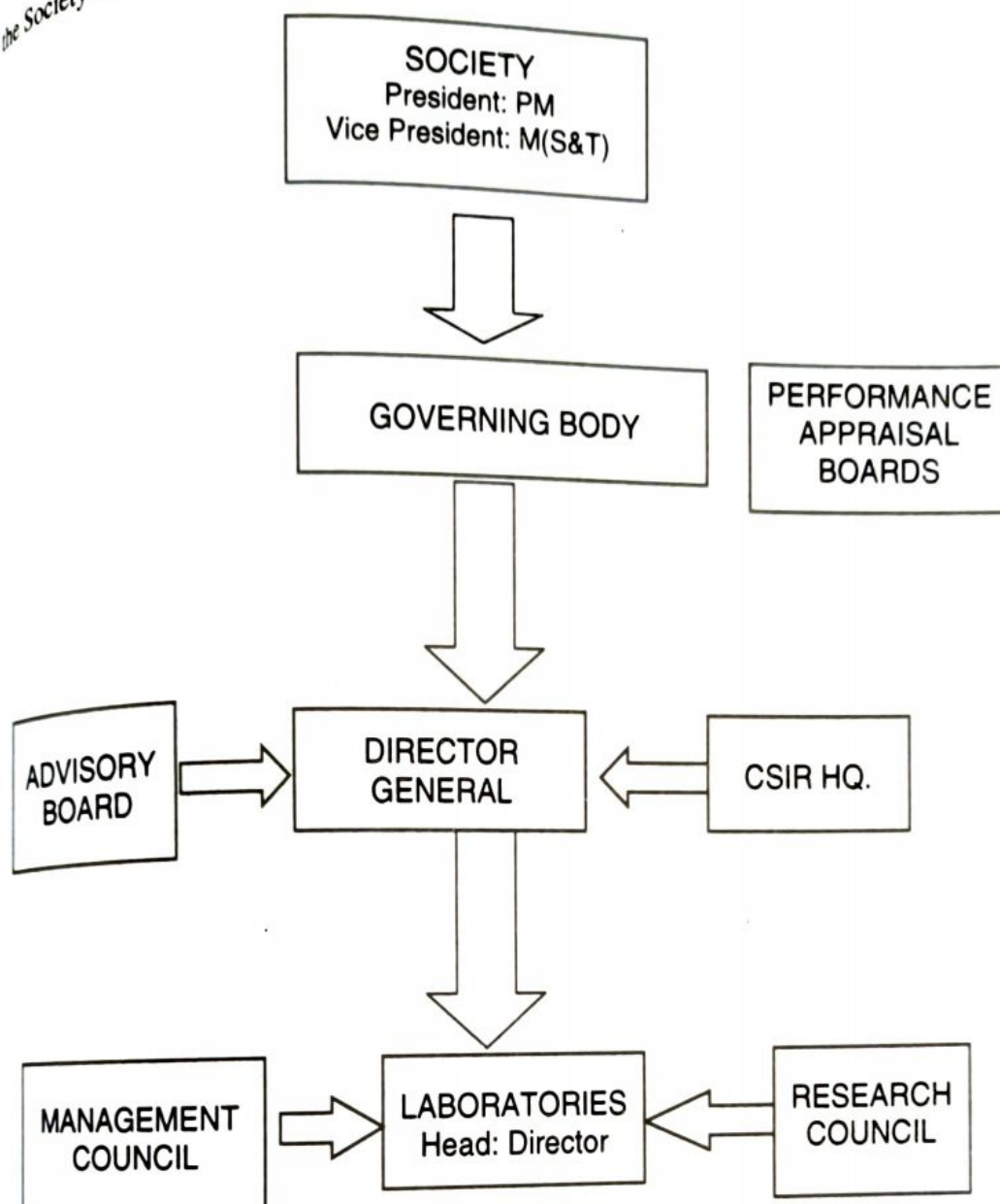
- (i) Physical & Earth Sciences
- (ii) Chemical Sciences
- (iii) Biological Sciences
- (iv) Engineering Sciences and
- (v) Information Sciences

The regional laboratories are concerned basically with problems of industrial development in their respective geographical areas but do undertake projects of national relevance.

The details of all research establishments with objectives/ mandate of each establishment are given in Annexure-1.

6.8.5 Organisational Structure

Organisational structure of CSIR, which administers, directs and controls the affairs of the Society is shown below:



6.8.6.1 Society

The Society consist of the following members:

- The Prime Minister of India is the ex-officio President of the Society
- The Minister-in-Charge of the Ministry or Department dealing with the CSIR is the ex-officio Vice-President of the Society.
- Ministers In-charge of Finance and Industry (ex-officio).
- The members of the Governing Body.
- Chairman, Advisory Board.
- Any other person or persons appointed by the President CSIR.

The Director General is the ex-officio Secretary of the Society.

6.8.6.2 Functions of the Society

The Society is an autonomous organization and its functions include the following:

- (i) Review the progress and performance of CSIR.
- (ii) Give policy direction to the Governing Body.
- (iii) Approve the annual report and the yearly accounts of CSIR.

6.8.6.3 Audit Point

Audit should see whether the Society meets regularly and its policy directions are followed or not in CSIR.

6.8.6.4 Governing Body

The affairs of the Society is administered, directed and controlled, subject to rules and regulations and byelaws and orders of the Society, by a Governing Body. The Governing Body of the Society comprises of the following members:

- (i) The Director-General (ex-officio Chairman).
- (ii) Member, Finance (Secretary to the Government of India for financial matters concerning CSIR) ex-officio.
- (iii) Directors of two National Laboratories.
- (iv) Two eminent industrialists, one of them from the public sector.
- (v) Three eminent scientists/ technologists, one of them from academia.
- (vi) Heads of two scientific departments/ agencies of the Government of India.

Members at (iii) to (vi) are nominated by the President of the Society and their term is three years.

The Director-General may, if required, nominate a Secretary to the Governing Body.

6.8.6.4.1 Functions & Powers of the Governing Body inter-alia are to carry out the objectives of the Society as set forth in the Memorandum of Association, administer, direct and control the affairs and funds of the Society subject to such limitations as the Government of India may from time to time impose, delegate powers, frame amend or repeal by-laws inconsistent with these rules for the administration and management of the affairs of the Society, enter into arrangements with the Government of India, State Government and other public or private organizations or individuals for securing and accepting endowments, grants-in-aid, donations or gifts to the Society on mutually agreed terms and conditions, take over and acquire by purchase, gift or otherwise, from Government and other public bodies or private individuals willing to transfer the same, libraries, laboratories, museums, collections, immovable properties, endowments or other funds together with any attendant obligations and engagements not in consistent with the object stated in the Memorandum of Association and the provision of these rules, appoint Committees, Sub-Committees, Advisory Board and Panel of Experts for such purposes and with such powers as the Governing Body may think proper.

6.8.6.5 Audit Point

Audit should verify whether the Governing Body meets regularly and its decisions are not in contrary to the object of the Society as set forth in the Memorandum of Association, see and if required comment on proposals placed to G.B. for ratification and those proposals, which are approved by circulation and reasons there for, verify action taken by CSIR on different decisions approved by the Governing Body.

6.8.6.6 Powers of the President

Appointment of Director is by the President for a fixed term of six years. The President shall have the authority to review periodically the work and progress of the Society, to order enquiries into the affairs of the Society, and to pass orders on the recommendation of the Review/Enquiry Committee.

6.8.7 Advisory Board (AB)

There is an Advisory Board, comprising the following members:

- (i) An eminent Scientist/ Technologist/ Industrialist as Chairman
- (ii) Director-General, CSIR
- (iii) Three Directors of CSIR National Laboratories/Institutes.
- (iv) Five Scientists/Technologists/Industrialists
- (v) Eminent Social Scientist
- (vi) Four representatives of Scientific Departments/ Agencies of the Government of India.

The Chairman and members at (iii), (iv), (v) and (vi) shall be nominated by the President, CSIR. The term of nominated members shall be for a period of three years.

The Director-General, if required may nominate the Secretary of Advisory Board.

AB shall meet at least once a year.

Functions of Advisory Board

The functions of the Advisory Board shall be: -

- (i) Provide S&T inputs to the Governing Body.
- (ii) Advise CSIR on creating and implementing its vision.
- (iii) Review major R&D areas of CSIR
- (iv) Suggest new R&D perspectives, Networked/ Mission oriented programmes and their inter se priorities.
- (v) Any other matter, as may be assigned by the Governing Body/ Director General.

Audit Point

Audit should examine as to whether the advices and suggestions made by the AB have been taken into view while drawing up research programmes and are being implemented by CSIR and its National Laboratories.

6.8.8 Performance Appraisal Board (PAB)

- (a) For each National Laboratory, its performance shall be assessed at least once in every three years by a Performance Appraisal Board constituted by the DG, CSIR for the specific purpose.

Members of a PAB shall be nominated by DG, CSIR.

- (b) **Composition of Performance Appraisal Board (PAB)**

Performance Appraisal Board comprise of the following:

(i)	Director General	Chairman
(ii)	Chairman of Research Council of the Laboratory	Member
(iii)	Three Directors of CSIR National Laboratories at least two from amongst the members of Advisory Board	Members
(iv)	Two out of other members of the Advisory Board	Members
(v)	Three External experts specific to a Laboratory out of which one may be member of RC	Members

Director of the National Laboratory will be a permanent invitee.

The Secretarial help to the PAB shall be provided by the concerned Laboratory.

(c) **The functions of PAB are:**

- (i) Review and appraise the performance of the National Laboratory
- (ii) Advise the AB/GB of the outcome of the review
- (iii) Suggest the remedial measures to improve the performance of the national laboratory.
- (iv) Any other function as may be assigned by the Advisory Board/ Governing Body.

The proceedings of the PAB shall be approved by its Chairman. The approved minutes shall be placed before AB and GB.

(d) **Audit Point**

Audit should verify whether the proceedings of the PAB have been placed before AB and GB promptly and examine the actions/decisions taken on the suggestions/ recommendations of PAB

6.8.9 Research Council

6.8.9.1 For each National Laboratory, there shall be a Research Council comprising:

- (i) Five external experts, one of whom shall be designated as Chairman
- (ii) Representative of concerned Scientific Departments/ Agencies of Government of India
- (iii) Director of the Laboratory
- (iv) Director/ Sr. Scientist from a sister laboratory.

Director General or his representative shall be the permanent invitee.

Members at (i), (ii) and (iv) including the Chairman shall be nominated by Director General. The Director shall nominate the Secretary of the Research Council. The National Laboratory shall provide the Secretariat for Research Council.

The Chairman of RC shall preside over the meeting. In the absence of the Chairman, members present shall elect a member to preside the meeting.

The term of nominated members of Research Council shall be for a period of three years. The Research Council shall meet not less than two times a year.

6.8.9.2 Functions of Research Council

The Research Council shall:

- (i) Advise on the formulation of R&D programmes and future directions of activities of the laboratory keeping in view the five year plans, national priorities and opportunity areas.
- (ii) Suggest networking with other CSIR National Laboratories on programmes of mutual interest.
- (iii) Review R&D activities and research programmes and advise on future directions.
- (iv) Advise on fostering linkages between the Laboratory, industry and potential clients.
- (v) Constitute Selection Committees and Assessment Committees/ Peer Groups for selection, merit and assessment promotions of scientific staff.
- (vi) Director General/ Governing Body may assign any other function.

The proceedings of the Research Council shall be approved by its Chairman. The Director-General may amend any of the decisions of the Research Council, which shall be binding.

6.8.10 Management Council

There shall be Management Council for each National Laboratory for management of affairs of the Laboratory within the framework of rules and regulations, directions and guidelines issued by Society, Governing Body, Director General and the Director.

- (i) Director of the National Laboratory is the Chairman of the MC other member include,
- (ii) Four scientists of the Laboratory,
- (iii) One representative of the technical personnel, one Director level scientist from the same Laboratory or sister laboratory, Head, Research Planning Business Development/ Planning, Monitoring and Evaluation of the National Laboratory, and Sr. F&AO/ F&AO of the Lab.

All matters at the Management Council meeting shall be decided by the majority view. Each member including the Chairman shall have one vote.

6.8.10.1 Functions of Management Council are inter-alia to

- (i) administer and manage the affairs and environs of the laboratory.
- (ii) write off irrecoverable monetary losses and stores within the limits prescribed by CSIR.
- (iii) recommend the resource allocation for R&D activities/ facilities of Laboratories/ Institutes.
- (iv) monitor the progress of R&D and other activities of the Lab/ Instt.
- (v) recommend devolution of powers to the Project Leaders for the proper implementation of the projects/ activities.
- (vi) approve contract R&D, consultancy projects and licensing of IPR beyond the powers of Director.
- (vii) consider the annual report of the National Laboratory.

- (viii) constitute selection committees and assessment committees for all Scientific/Technical Staff.

The proceedings of the Management Council shall be approved by its Chairman. The Governing Body or Director General as the Principal Executive Officer may review/amend any of the decisions of the Management Council, and pass such orders as considered necessary, which shall be binding on the Management Council.

6.8.10.2 Audit Points

- (i) Audit is to see whether all the members are attending the meetings of RC regularly, if not, it has to be brought out in inspection report. Also special mention is to be made if the members from Industries are not attending frequently. Otherwise the objective to foster linkage with industry is defeated.
- (ii) Audit is to see whether MC monitors the progress of R&D activities of the institute laboratory as it has been assigned the function of monitoring for R&D activities after 1.4.1999.
- (iii) Whether the agenda/ minutes of MC are being forwarded to CSIR (HQ) for ratification.
- (iv) It is to be seen in Audit:
 - (a) As to how far the objectives have been achieved. One of the criteria for judging the performance is to make a comparative study of programmes planned and their actual performance and achievement. Major deviations, if any, may suitably be incorporated in the inspection reports.
 - (b) Policies and programmes are drawn up in accordance with these objectives and are being implemented by specific and well defined procedures.
 - (c) Any objective not taken up may also be enquired into and commented upon.
 - (d) Any project taken up but does not fall under the objectives of CSIR may also be highlighted.
 - (e) Systems exist for collecting reliable progress reports on the implementation of the policies and programmes.
 - (f) Progress from time to time has been reported to the RC/MC/GB/AB with adequate, timely and accurate reports.
 - (g) Agenda and Minutes of the meetings of the Governing Body, the Research Council, the Management Council, the Scientific Advisory Board and the Performance Appraisal Board should be reviewed and important points noted for detailed scrutiny.
 - (h) The meetings of different Committees/ Councils/ Boards are held at regular interval so as to help the smooth working of CSIR.

6.8.11 Project Management

Extramural research is conducted by providing financial assistance to universities and other research organizations for (a) Investigator initiated projects and (b) Research fellowships/ Associates & Pool Officers.

(i) In-House Programmes/ Projects

AB is the highest technical body, which reviews the work of CSIR (in its totality) and advises the CSIR on both short term and long-term research policies strategies, thrust areas of research etc.

Performance Appraisal Board also assesses performance of each Laboratory/ Institute at least once in every three years.

Audit Points

Project Selection

During audit, a risk analysis of research projects under each program is to be done. High money value projects, terminated/ abandoned/ inordinately delayed projects may be chosen for detailed individual scrutiny. Special emphasis is to be placed on projects with a significant applied research component. Audit should also examine that all programmes undertaken by the organization are in accordance with National Science & Technology policy and as per directive/ recommendations/ suggestions given by CSIR Society/

Advisory Board/ Performance Appraisal Board/ Research Council of the Lab/Instt.

Project Approval

- (i) Audit would look into the mechanisms adopted in Research Council/ Management Council, EFC, SFC etc. The minutes of all these bodies are to be examined. The project proposals are to be scrutinized to assess the intended objectives of the project. In case of technology-oriented projects, it is to be seen whether there has been adequate interface between science and industry and whether a plan for transfer of technology has been devised before initiating the project. It has to be examined whether the technical and financial feasibility of the projects has been evaluated. The cases of duplication of efforts/overlapping of projects where two projects having similar objectives are being funded by CSIR are to be particularly seen.
- (ii) Verify whether the proposals given to the MC for approval of undertaking various projects contain data on cost benefit analysis, technical information, prospect of commercial viability of the business and not just the over all objectives, target dates. The detailed data has to be provided to come to the conclusion.
- (iii) Check whether the MC, which had approved the schemes/projects, is meeting as per bylaws of the CSIR to evaluate the performance of the schemes, research development plans and allocation of resources.
- (iv) Examine whether the estimated expenditure on each component of the project was prepared. Compare the actual progressive total of expenditure with the estimated expenditure on each component. If there are any abnormal variations examine the reasons critically.
- (v) Examine whether cost analysis of processes meant for commercial exploitation was worked out. Check the basis of royalty/ fee charged to the industries/ users when the know how of the process is transferred and whether the industry has started production.
- (vi) Examine from the minutes of the meetings of the MC whether it was kept apprised of the reasons for the delay in completion of projects and the action recommended by it.
- (vii) Check how many projects the institution abandoned during the year and critically examine the reasons. Audit should also examine period for which abandoned projects were in operation and whether they could be abandoned earlier or not.
- (viii) Examine whether the projects had to be abandoned due to lack of initial planning and survey, due to non-availability of machinery, equipment and other facilities etc.
- (ix) If the scheme had to be abandoned because the group leader had left the organization how the stores, machinery etc. purchased would be put to use.
- (x) Examine on completion of the scheme how the staff, stores etc. is utilized.

- (xi) Ascertain what has been done of the expertise generated after completion of the project i.e. whether published in science journals.

Project Implementation (Monitoring and Evaluation)

- (i) Audit should see that the milestones for each activity of the project along with the timeframes and cost outlays have been laid down in the projects approved.
- (ii) It has to be checked in Audit whether the monitoring mechanism of the ministry/ department to ensure periodic appraisal of the projects is adequate.
- (iii) Also it needs to be checked whether the recommendations of the monitoring committees are communicated and complied with by the executing agencies.
- (iv) Audit is to study whether the guidelines for project approval contain provisions for a mid-term and final appraisal and whether there is a system of evaluation of completed projects by an independent agency.
- (v) High value individual completed projects in the year of audit are to be scrutinized to ascertain whether the objectives of the project have been fully achieved. The comments of the evaluating committee and evaluation of the project by experts have to be studied to ascertain the success of the projects.
- (vi) The role of the director of the laboratory/institute and the project investigator in effective implementation of the projects need to be particularly examined.
- (vii) Whether there exist any system to weed out the non-productive in-house schemes/ projects.
- (viii) In case of in-house projects taken up for development of a technology or know-how, audit should see whether any market survey to assess the market requirement was done before launching the project and industry involved right from stage one.
- (ix) Cost effectiveness of the technology was kept in mind during the process of development of technology/ know how.
- (x) Audit is to see that whether any project involving technology development has been delayed due to/ owing to taking up of or giving more priority to a consultancy projects of financial benefits accruing to team of scientists involved in that project.

6.8.12 Technology Development and Transfer

The projects taken up by CSIR laboratories/ institutes have to be segregated in terms of their expectations, basic research or technology development. Cases where technology could not be developed due to significant deviation from the initial process/procedure need to be highlighted. In frontier areas of science that are fast evolving, often technology becomes obsolete even before it is developed. This aspect and whether such obsolescence could have been avoided also need to be studied in Audit.

In case a new process/ technology/ product is developed, it needs to be seen in Audit whether the department has safeguarded its intellectual property rights. In case a new technology is developed, it is to be seen whether there is a system in place for transfer of the technology to the user industry. The agreements governing transfer of technology need to be studied in detail. The system of feedback from the industry on the satisfactory achievement of outcome and to obtain the rightful share of royalty/ premia needs to be checked. The lump-sum premia and recurring royalty earned during the last few years is to be compared and reasons for large variations, if any, analyzed.

Prior to February 1988, for marketing of know how CSIR had agreement with NRDC providing monopoly rights to it to license un-encumbered know-how developed by CSIR. But this agreement has been terminated from February 1988 and CSIR will have flexibility to market its know-how on its own.

The audit checks to be applied are:

- (i) Check whether there is any deviation from standard terms and conditions of the agreement entered into with the industry to which the know-how is to be transferred. If so whether concurrence of Technology Utilisation division at CSIR headquarter is obtained.
- (ii) Check the basis on which the lump sum premia and royalties, fees etc. to be recovered are worked out and they are according to guidelines.
- (iii) Verify whether legal protection has been secured for the technology developed.
- (iv) Check how many processes/technologies were finalized and how many were transferred for commercial exploitation. If production has not been started by the industries ascertain the reasons.
- (v) Compare the lump sum premia and recurring royalty earned during the last few years and analyse the reasons for large variation, if any. Similarly any arrears on account of these should also be reviewed.

6.8.13 Intellectual property rights

In case a new product/ process has been developed in a project, Audit is to check that there is a proper system to protect the intellectual property rights. Patents could be filed nationally or internationally (Indian and foreign patents). The filing of patents and their final sealing need to be closely watched. It is to be seen in Audit that the Institute has filed the patents within a specified timeframe and there is a proper follow-up to ensure the sealing of the patent. It has also to be seen that these are not lapsed/ abandoned and, if so, the reasons therefor are to be examined.

6.8.14 Publication of Research Papers

Publication of research papers is a key parameter for evaluating performance in basic research of a laboratory/ institute. The number of research papers published from the laboratory/institute needs to be seen. The Citation Index of the research papers has to be ascertained. The impact of these research papers also needs to be commented upon. Impact Factor of a journal for a specific year is defined as the total number of citations made in that year for articles published in two previous years divided by the number of citable articles published in these years. Based on this, the average impact factor for the institute/laboratory has to be ascertained. The trend of the average impact factor has to be studied to comment on the overall performance of the institute.

6.8.15 Contract Research

- (i) Contract research comprises all R&D undertaken through specific contractual arrangement agreed upon for the purpose. Projects undertaken should fall within the purview of approved research areas of the laboratory. Contract research covers:
 - (a) Sponsored Projects
 - (b) Collaborative Projects

(c) Grant-in-aid Projects

(d) Composite Projects

(ii) Sponsored Projects

These are the schemes/ projects undertaken by the laboratory/ institution on behalf of central/ state government bodies and/ or industries in order to develop the know-how as per requirements of user industry/ government agency.

Audit Checks

The audit checks to be applied are as under:

- (i) Examine whether detailed estimates for the projects to be undertaken were prepared in accordance with approved guidelines of CSIR and approval of the competent authority taken.
- (ii) The client has deposited either the full cost of the project or at least first installment before taking up the work.
- (iii) If the total expenditure has exceeded the deposit received, what are the reasons for it and whether action is taken to get the additional amount spent by laboratory.
- (iv) If there is surplus money after the accounts of the project are closed, check whether it has been either transferred to other project taken on behalf of that client or refunded.
- (v) Examine and comment on the reasons for insignificant expenditure on the project during the year and find out whether expenditure is booked even after closure of the project accounts long time ago, and if so, whether action has been taken to recover it.
- (vi) Plant and machinery, surplus stores etc. purchased from the deposits are the property of the sponsoring agency. If, however, they have been allowed to be retained by the laboratory/institution or gifted it may be verified whether they have been taken to stock account/fixed register and utilized. If kept idle, ascertain why they could not be disposed of.
- (vii) If the project is to continue for a long time and the entire cost of the project is received in advance examine what is the average annual cost incurred and whether the laboratory could have invested the funds in short term deposits. If it is mixed with the institution's funds examine from cash account/bank account whether the deposits have been utilized for institution's expenses.

6.8.16 Consultancy Services

All consultancy services in CSIR are institutional consultancy in an area of expertise of the laboratory preferably, its thrust area. For purpose of definition there are two categories of consultancy viz. Advisory & General Consultancy.

(a) Advisory Consultancy

Advisory consultancy comprises of scientific, technical, engineering or other professional advice provided to a client purely on the basis of available expert knowledge and experience of individual(s), rendered outside the CSIR and not envisaging use of any facilities of the laboratory (including experimental, informational, computational etc.).

(b) General Consultancy

General Consultancy comprises of scientific, technical, engineering or other professional advice/assistance based on available knowledgebase/ expertise of the laboratory, and envisaging only minimum use of laboratory facilities for essential experimentation, computation and other facilities needed to meet the objectives of the consultancy assignment. General consultancy inter-alia covers:

- ♦ Preparation of literature survey/feasibility studies, state-of-art technology sources, forecasting/evaluation reports etc.;
- ♦ Interpretation and validation of test results and data, risk and hazard/ environment impact analysis etc.;
- ♦ Design engineering;
- ♦ Assistance in erection, commissioning, operation, fabrication/ tendering and purchase of equipment, troubles shooting, productivity improvements, and pollution abatement/ control measures energy conservation, waste utilization, technology assessment/ evaluation etc.

The competent authority for approving the consultancy shall have the power to decide on the category of a particular consultancy assignment. Any consultancy assignment, which does not strictly fall under the category of Advisory Consultancy, shall be taken as General Consultancy.

Audit checks

The audit checks to be applied are:

- (i) Carefully scrutinise that there is no tendency to divert or classify R&D project to consultancy or general Consultancy to advisory Consultancy in order to extract more financial benefits by the investigators.
- (ii) Check whether estimate of the expenditure was prepared taking into account the total cost of the service before intimating it to the industry/ government.
- (iii) Check that the fees charged are as per the rates approved by the MC.
- (iv) Audit should verify whether in case of foreign clients the intellectual fees are charged twice the amount normally charged from a local client and no favour has been done to foreign client by undercharging.
- (v) Examine that the fees etc. received are as per the terms of agreement.
- (vi) Audit is to see that how long the scheme has been continued without any tangible outcome.

- (vii) As regards distribution of fees, 2/3 of it is distributed among the staff as honorarium and 1/3 is retained by CSIR laboratory/ institution. The pattern of distribution of permissible honorarium for consultancy is presently as follows:

Advisory Consultancy

Team of Consultants	5%
CSIR Welfare Fund	5%

General Consultancy

Team of Consultants	5%
Other S&T Staff	15%
Supporting Staff	15%
CSIR Welfare Fund	5%

Check and ensure that distribution is made with the approval of the competent authority and whether the correct procedure is observed.

- (viii) If the actual expenditure were more than estimated expenditure, unless it could be recovered from the agency, the fees portion would get reduced.

6.8.17 Audit of Emeritus Scientists Scheme

Under this scheme, CSIR provides financial assistance to superannuated outstanding scientists, to pursue research in their fields of specialization, which are also of relevance to the programme, interest and activity of CSIR. This gives them an opportunity to be in active research after retirement. An honorarium of Rs. 10,000 p.m. is paid to such scientists besides suitable contingent grant per annum and technical assistance in the form of research fellows/ associates. The scheme is initially approved for three years and may be extended by another two years depending upon progress of work subject to the condition that tenure of the scheme does not go beyond the age of 65 years of Emeritus Scientist. Vice-President, CSIR, approves schemes for such grants. The audit checks that are to be applied are:

- (i) Verify the number of schemes that have been finalized.
- (ii) How many papers were published in scientific journals and research result developed for production.
- (iii) Examine how far the objects of the scheme have been achieved.
- (iv) Examine the result of review of the scheme done by Standing Committee.

Audit of Extra-Mural Research Schemes

The Council of Scientific & Industrial Research (CSIR) provides financial assistance to promote research work in the field of science & technology, including agriculture, engineering and medicine. The assistance is provided by way of grants to professors/ experts in regular employment, in the universities, IITs, post-graduate institutions, recognized R&D laboratories both in public and private sectors. Investigators working in government research laboratories/ establishments are generally not eligible for the grants.

The CSIR provides essential financial inputs for viable research schemes so as to obtain definite advancements in specific fields and areas.

Research grants of CSIR are intended mainly to supplement the research facilities available with the sponsoring institutions. Funds provided are for one or more Junior Research Fellows (JRF), Senior Research Fellows (SRF) and Research Associates (RA), contingencies and equipment.

These schemes are intended not to support an establishment de novo but to supplement on-going R&D efforts in institutions/ laboratories/ departments, etc. where basic infrastructure exists.

Depending on the magnitude and nature of research involved, a research scheme may have more than one investigator and, in such a case, the first investigator shall be known as "Principal Investigator" (PI). In the event of a collaborative project involving two or more institutions, the consent of each such institution must be furnished with the proposal. Collaborative projects involving CSIR laboratories are encouraged.

CSIR has discipline-wise research committees to consider the research proposals falling in their respective fields and make recommendations to the Governing Body of CSIR for financial assistance. The research committees usually meet twice a year and recommend grants for viable research schemes received for financial assistance and review the progress of ongoing schemes for their continuation.

Sanctioned schemes are monitored and renewed each year by research committees based on the progress reports to be submitted by the investigators.

Investigators of research schemes are required to submit to CSIR every year comprehensive reports indicating the progress as on 31st of August. The schemes are renewed on a year-to-year basis till the completion of their tenure, subject to the recommendation of the concerned research committee to that effect, based on the evaluation of the progress report.

Progress in a Scheme is also monitored through presentation in Project Monitoring Workshop(s) arranged by CSIR.

The PI is required to submit FTR for the entire duration, in the prescribed proforma (Form) within three months from the date of termination of the scheme. The report should provide information about (a) the original objective(s) of the scheme, (b) how far these objective(s) have been achieved, and (c) how the results have benefited the country's technological development or enriched the existing knowledge on the subject.

Investigators are to seek legal/ patent protection to the results of research through CSIR and the cost of filing patent is borne by CSIR.

The statement of accounts and utilization certificate should be certified by the Accounts Officer and countersigned by the Finance Officer, Registrar/ Administrator of the University/ Institute and submitted to CSIR.

An audited statement of accounts and utilization certificate duly certified by the statutory audit authority if the Institution should also be sent on completion of the research scheme.

University/ Institution receiving grants from CSIR will have to maintain separate account for each research scheme.

6.8.18.1 Points to be seen in Audit

1. Whether the project has been approved after due scrutiny by the various Research Committees before its approval by the competent authority.
2. Whether there is reasonable time gap between the approval of project and issuing of sanction letter? If there is long delay then it may be examined, whether it has effected any assumptions, which will have a bearing on the project?
3. Whether any expenditure incurred before the start of the project has also been allowed?
4. Whether evaluation of each project is done at fixed interval or at the time of completion of the project?
5. Whether recommendations of the Research Committees are given due importance and promptly communicated and complied with by the executing agencies?

6. Project proposals may be scrutinised to understand the intended objectives. The cases of duplication of efforts/ overlapping of projects where two projects having similar objectives are being funded by the same department are to be seen.
7. The working of monitoring cell may be reviewed to see that it is fulfilling the objective of monitoring not only physical completion of the project but also monitoring the cost and time overrun and suggesting measures or highlighting the areas which need urgent attention of the top management thereby controlling the cost and ensuing timely completion of projects.
8. The project investigator submits periodically financial and physical progress reports.
9. It is to be seen that funding to the project is linked with the periodical progress of the project.
10. It is to be seen that the milestones for each activity of the project along with the time frames and cost outlays have been laid down in the projects approved.
11. Expenditure should not exceed the budget sanctioned. Re-appropriation has not been done from capital grants to revenue heads. No expenditure incurred on items not sanctioned and savings should be promptly surrendered.
12. List of equipments procured from the project funds alongwith cost, date of purchase and suggestions for disposal are supposed to be received on completion of the project – Action taken on the list is to be seen.
13. It is to be seen that no PI is allotted more than three research projects.
14. Whether JRF appointed are only those who qualify the National Eligibility Test conducted by CSIR. Whether the progress of JRF and SRF working on a project is assessed at the end of two years by a committee.
15. Equipment not available/ accessible for the project work is approved for purchase only after obtaining a certificate from the PI to this effect.
16. Examine whether the competent authority was kept apprised of the reasons for any delay in completion of the project.
17. Check how many projects were abandoned and critically examine the reasons. The period for which they were in operation and whether they could not be abandoned earlier should be examined.
18. Whether any project was abandoned due to non-availability of PI inspite of the fact that there was facility of having a co-investigator in the project. Completed projects may be test checked to assess how far the objectives of in-house project were achieved. National relevance of new knowledge contributed by the ICMR as well as application of this knowledge in the field may also be studied.
19. Check that final report in respect of all the projects has been received and the same evaluated with a view to assess the extent to which the common man/ society had been benefited by the outcome of the project.
20. Check that yearly annual progress report is received from Principal Investigator of the project and the same is sent to experts for comments and only on recommendation of continuation of the project by the expert, the project is extended.
21. Check that audited accounts and utilisation certificate in respect of each funded project is received.

6.8.19 Planning, Monitoring & Evaluation (PME)/ Business Development/ Liaison

Each & every CSIR Laboratory/Institute is having a Division, which is responsible for the following task:

- (i) Preparation of Annual Plans, Five Year Plans and periodical review of implementation of plan activities.
- (ii) Implementation of the suggestions, recommendations of AB, PAB & RC.
- (iii) Monitoring & periodical review of physical & financial progress of R&D projects in the laboratory/Institute.
- (iv) Coordination among the various programmes/ divisions within the laboratory/ Institute.
- (v) Interact with CSIR Headquarters, other scientific Departments & Ministries.
- (vi) Preparation of project estimate in consultation with the concerned scientists in regard to the contract R&D projects.
- (vii) Keeping accounts of physical progress & fund utilization in regard to the contract projects and submit periodical report to the concerned organization.
- (viii) Maintain information/ database on laboratory/ Institute's R&D output and marketable knowledge-base and its utilization.
- (ix) Promote and facilitate marketing of laboratory/ Institute's knowledge-base and services.
- (x) Catalyze business development by interfacing with industries, R&D associations, user agencies, financial institutions and technology licensors.
- (xi) All matters relating to Intellectual property protection.
- (xii) Secure and safeguard Intellectual Property generated in the laboratory/ Institute under appropriate legislations in India and abroad with the help of Intellectual Property Management Division of CSIR.

Audit Points

Audit should review the activities of this division critically to verify whether the division is functioning effectively. Any financial or intellectual loss or adverse effect on the goodwill of the Laboratory/Institute due to any lapse or delay in appropriate action on the part of this division is to be brought out in I.R.

6.8.20 Budget Estimates, Appropriation & Re-appropriation and funding for R&D Projects

Preparation of budget estimates of the Society, appropriation, re-appropriation of funds and other related matters is regulated in accordance with the scheme formulated by the Governing Body keeping in view the instructions issued by the Government of India from time to time in this regard.

At the instance of Govt. of India, CSIR has adopted Zero-base budget system with effect from the financial year 2001-2002. In this system all activities in CSIR laboratories have been organized in separate decision packages. Fund requirements in all such packages are scrutinised initially at different 'Decision Units' and then finally at the highest decision making body in each laboratory/ institute. The highest Body prioritises the packages and allocates funds depending upon the merit of the package and resource availability.

The process of formulation of zero-base budget as adopted by CSIR consists of the following steps:

- (i) Identification of 'Decision Units'.
- (i) Preparation of 'Decision Packages'
- (iii) Ranking/ prioritization of decision packages within a decision unit.
- (iv) Ranking/ prioritization of decision packages of various decision units.
- (v) Allocation of resources for the chosen decision packages under each decision unit.
- (vi) Monitoring and evaluation.

Decision Unit

Each distinct cost center can be a decision unit. Decision unit should be such where a particular activity or a group of activities can be independent and meaningfully identified and evaluated. Further there is no overlapping between the activities of one decision unit and the other. The decision unit should be managerially viable.

Decision Package

A decision package is a document, which identifies a discrete activity, function or operation in a definitive manner for management evaluation and comparison with other activities. In other words each decision package should 'stand alone'. Essentially, a decision package is a budget request ideally containing the following information for the higher management.

- ◆ Identification data: Decision Unit, programme/ activity for which the package is made, accountability, etc.
- ◆ Objective of the decision unit.
- ◆ Objective of the decision package.
- ◆ Feasibility Assessment:

Is the programme legally required?

Is the programme technically feasible?

Is the programme operationally viable?

The benefit-cost analysis:

- (a) Benefit/output (tangible) at existing/threshold/optimum level.
- (b) Tangible costs at the existing/threshold and optimum level.
 - ◆ Yearly phasing of the proposed expenditure.
 - ◆ Consequence of its non-funding.
 - ◆ Alternatives considered before choosing the recommended mode of achieving the stated objective.

Ranking/ Prioritisation

Ranking or prioritization of each decision package is done at two levels:

- (i) Amongst the decision packages at the decision unit level.
- (ii) Among the decision units at the higher management level.

The logic of the two tier ranking system is that a decision package before being funded has to compete both at the decision unit levels as well as at the organizational level.

The criteria or basis for ranking a decision package is implicit in the objectives of decision unit, on the one hand, and that of the organization, on the other. The simple most criteria for prioritization is based on;

- (i) Legally required activities/ programmes.
- (ii) Socially desirable activities/ programmes.
- (iii) Contribution towards Self-financing Position.

and or

Contribution to Economy & Society and or Contribution to New Knowledge and or R&D Management.

Funding Decisions

Once all the decision packages are ranked on the basis of pre-determined criteria, the stage is set for the funding decisions by the top management. If the cost of total decision packages is higher than the affordable level, the low priority activities/ programmes are cut retaining the high-prioritised activities/ programmes. While funding a decision package, it is necessary for the management to indicate also the level at which the activity/ programme should be carried out i.e. existing/ threshold/ optimum level.

Monitoring & Evaluation

Needless to say that the whole process of ZBB affords the top management and cost centers managers two opportunities for evaluating the programmes and activities of their organization and departments/ divisions. In the first place, an ex-ante i.e. before committing the funds-exercise is done requiring the cost center managers to evaluate their total activities – both old and new – together with justification for their continuance. In fact it is this scrutiny, which makes ZBB a distinct management technique of effectively utilizing the resources by their redeployment from low to high priority areas.

Since all the decision packages have to compete amongst themselves for funding, only those, which are most relevant to the organization, are funded. The post facto monitoring and evaluation is done on the basis of the contents and particularly the outputs envisaged in the decision packages with fixed accountability.

Recruitment & Promotion of Staff

Recruitment & Promotion, including assessment and merit promotion, in respect of all categories of staff of the Society shall be regulated in accordance with the detailed schemes formulated by Governing Body, CSIR in this behalf.

With the approval of the Governing Body CSIR has introduced different recruitment, assessment & promotion rules as mentioned below:

- (i) Revised Recruitment, Assessment & Promotion Rules, 2001 for Scientific Officers (Group –IV)
- (ii) Revised Merit and Normal Assessment Schemes (MANAS) – 1992 for S&T support staff (Other than Group –IV)
- (iii) CSIR S&T Recruitment Rules for recruitment of Directors and Group-I, Gr.-II and Gr.-III staff.
- (iv) CSIR Administrative Services (Recruitment & Promotion) Rules - 1982 for Non-Technical employees

6.8.21 Conditions of Services of Officers & Staff of the Society

The Central Civil Services (Classification, Control & Appeal) Rules, and the Central Civil Services (Conduct) Rules, for the time being in force, shall apply, so far as may be to the officers and establishments in the service of the Society, subject to certain modifications.

6.8.22 Manpower Management

For effective project implementation, it is essential to ensure that the project is provided with adequate scientific manpower. The ratio of scientific/ technical manpower to administrative manpower should be as per the guidelines issued by the scientific departments. Audit should also see that the scientific/ technical manpower of the laboratory/ institute is commensurate with the activities taken up. In case the principal investigator of the project leaves the institute while the project is on-going, audit needs to check whether an alternate Project Leader is appointed and the smooth completion of the project is ensured. Diversion of manpower towards sponsored projects at the cost of in-house projects needs to be commented upon. Deployment of manpower should be reviewed and attempt should be made to identify the idle manpower and suggest for their re-deployment. Audit should also see the cases where manpower remain idle or diverted to unproductive non R&D jobs due to non-availability of infrastructure i.e. building, plant and machinery and equipment, etc.

6.8.23 Pilot Plants

Some of the CSIR laboratories/ Institutes are running Pilot Plants for quite a long time. Audit should look into the following aspect of these plants:

- (i) Whether these plants have any laid down standard production?
- (ii) Record relating to life, capacity, etc. of plants & machineries and quantum of productions are to be verified.
- (iii) Compare the actual production with the capacity of plant and ascertain reasons for shortfall, if any.
- (iv) Whether the cost of running of plant commensurate with the production.
- (v) Whether there is sufficient demand of the product in the market or sufficient outlets to consume the product and there is no piling up of stock.

6.8.24 Procurement Process

For procurement of equipments & other materials CSIR follows its own purchase procedure which has been revised as 'Purchase Procedure – 2000' According to the revised purchase procedure two standing purchase committees namely SPC-I and SPC-II will manage procurement process in every Laboratory.

Standing Purchase Committee-I

Standing Purchase Committee-I (SPC-I) will consider procurement of items which are needed on an ongoing basis, and others. For all these items, a minimum and maximum level will be maintained by SPC-I which should be clearly indicated when the indent comes up for consideration before the SPC-I.

The SPC-I will function under the chairmanship of COA. In labs where COA is not available AO shall chair the meeting. There will be three members, namely Sr. FAO/ F&AO

(SO (F&A) where no Sr. FAO/ FAO is available), one officer from scientific/ technical stream not below the rank of Scientist 'C' and SPO (Dy. SPO where no SPO is available) who will act as member convener also.

The concerned SPO/ Dy. SPO-in-charge is authorized to make local purchases of routine nature worth Rs.5000 at a time without calling for quotations subject to a maximum expenditure of Rs. one lakh per annum and Rs. two lakh per annum for labs whose total budget is more than Rs.15 crores. All such purchases will be made only on emergent requirement and an abstract of such purchases will be submitted to the Director for information every quarter.

Standing Purchase Committee-II (SPC-II)

The SPC-II will consider procurement of major one-time purchases, such as special chemicals, special tools, equipments, machinery, plants, special accessories & spares, and furniture items. This committee will also consider regular/annual maintenance contracts of these items wherever applicable.

All emergent and breakdown purchases to be made at short notice and purchases of items for sponsored projects shall also be considered by this Committee.

Financial Powers of different authorities for purchases

a) Standing Purchase Committee-I (SPC-I)

Dy. SPO	Rs. 50000/- per sanction
SPO	Rs. 1.5 lakhs per sanction
Sr. SPO (SG)/ Sr. SPO	Rs. 5 lakhs per sanction
Director	Full Powers subject to availability of funds in the budget.

(b) Standing Purchase Committee-II (SPC-II)

Project Leader of the status of Scientist C	Rs. 3 lakhs per sanction
Project Leader of the status of Scientist E1	Rs. 7 lakhs per sanction
Project Leader of the status of Scientist EII	Rs. 10 lakhs per sanction
Project Leader of the status of Scientist F & above	Rs. 25 lakhs per sanction
Director	Full powers subject to availability of funds in the budget

The audit should see that the organization strictly follows the purchase procedure adopted by them and procurement is made in a transparent and fair manner and within the canons of financial propriety. Cases of emergent purchases to be looked into to ascertain that these were actually of emergent nature and could not be deferred.

In case specific, expensive and sophisticated equipment is essential for a project, Audit needs to check whether the equipment has been procured, installed and commissioned in time and whether the equipment has been adequately utilized in the intended manner. The utilization of the equipment should be checked from the log books maintained.

6.8.25 Reserve Fund

Following reserve/ running funds are maintained in CSIR:

- (i) Laboratory/ Headquarters Reserve Fund (**LHRF**)
- (ii) Provident Fund Reserve (**PFR**)
- (iii) World Bank Project Reserve Fund (**WBPRF**)
- (iv) Welfare Fund (**WF**)

(i) **Laboratory/ Headquarters Reserve Fund**

With the concurrence of CAG of India and approval of the CSIR Governing Body (GB), Laboratory Reserve Fund (LRF) Scheme was introduced in CSIR in 1992 to utilize, retain and carry forward the R&D receipts for capital and revenue expenditure as supplement to the budgetary resources. The CSIR GB in its 147th meeting held on 9.12.1999 and 148th meeting held on 2nd June, 2000 approved certain modification in the scheme alongwith setting up of Headquarter Reserve Fund (HRF) and re-designated the existing title of the 'Laboratory Reserve Fund Scheme' to 'Laboratory and Headquarters Reserve Fund' Scheme.

The modified procedures for generation and utilization of 'Laboratory/ Headquarter Reserve Fund' stand as follows:

Generation of LHRF

Following receipts are to be credited to LHRF:

- (a) Royalty & Premia (from licensing of IPR)
- (b) Consultancy Fee
- (c) Sponsored Project fee
- (d) Overhead Charges
- (e) Non refundable balance of closed project/job work
- (f) Job work charges
- (g) Testing and analytical charges
- (h) Computer charges
- (i) Other Technical Services
- (j) Use of lab infrastructure for sponsored/consultancy & other projects
- (k) Interest on investments of Laboratory reserve
- (l) Interest on investment of sponsored/consultancy project funds
- (m) Net earnings from major facilities
 - (i) Pilot Plant - Excess of receipt over expenditure
 - (ii) C-MMACS - Excess of receipt over expenditure
- (iii) NTAF - Excess of receipt over expenditure

NB: The following receipts, however, are not be included in LHRF:

- (a) Amount of Interest earned on investment of sponsored/ consultancy/ grant-in-aid projects fund adjustable and/or refundable to the funding agency.
- (b) Distributable portion of royalty & premia.

- (c) Distributable portion of consultancy/ contract R&D and intellectual fees from technical services.

Headquarters Reserve Fund will include the following components in addition to the receipts vide para 2.1 above:-

- (i) 1% of annual foreign business earnings generated by all laboratories.
- (ii) 1% of annual intellectual property and technology licensing fees received by all laboratories.
- (iii) 1% of laboratory reserve generated during the previous year by the laboratories, assisted by the HQ. to move on the path of self-sufficiency (at present IIP & IICT).
- (iv) 1% of laboratory reserve generated by laboratories, assisted by the HQs. to acquire ISO 9000 (at present NML& CMERI).

Budgeting of LHRF

- (a) Each laboratory shall at the time of formulation of its annual budgetary requirements (Estimates) indicate the following in respect of LHRF:
 - ◆ Balance at the beginning of the financial year.
 - ◆ Anticipated generation during the financial year.
 - ◆ Proposed utilisation under each budget sub-head.
- (b) The proposal made at the Budget Estimate stage should be reviewed and proposed utilisation revised, if necessary, at the Revised Estimate stage.
- (c) CSIR would include the estimated utilisation of LHRF alongwith other internal receipts, when projecting budgetary requirement, to Ministry of Finance.
- (d) LHRF will continue to remain with the laboratory that generates it.

Utilisation of LHRF

Utilisation of LHRF is permitted for all revenue and capital expenditure as for budgetary grant. The broad sub-heads are as follows:

◆ Revenue Heads

- (a) Pay & Allowances
- (b) Traveling Allowances
- (c) Contingencies
- (d) Maintenance
- (e) Chemicals & consumables

◆ Capital Heads

- (a) Land
- (b) Works
- (c) Services
- (d) Apparatus & Equipment
- (e) Office Equipment
- (f) Furniture
- (g) Computer Equipment

- (h) Library Books
- (i) Vehicles & Transport
- (j) Workshop Machinery
- (k) Models & Exhibits
- (l) Tools & Plants

Expenditure on the following items is also permitted in addition to the heads mentioned in para 4.1.

- ◆ Re-payment of World Bank Loan and service charges
- ◆ Interest earned & claimed by funding agency [reference item no (L) of para 2.1].
- ◆ Liabilities and damages arising out of contract R&D, consultancy, technical services or IPR licensing
- ◆ Payment of share of intellectual fees/honorarium (only in respect of past cases where credit was afforded to LRF)
- ◆ Transfer to Headquarter Reserve Fund
- ◆ Human Resource Development
- ◆ Computerisation and information systems
- ◆ Modernisation of equipment
- ◆ Construction & Maintenance of Scientists Apartments/Staff Quarters.

The expenditure on activities/items/purposes indicated below is not permissible from LHRF: -

- ◆ Financial assistance to any NGO and/or private body
- ◆ Gifts & mementos
- ◆ Celebration of non-S&T events/days
- ◆ Mobile phone bills (as per standing instructions)
- ◆ OTA/Honorarium/Night duty Allowance other than for R&D work
- ◆ Foreign Travel except for business development
- ◆ LTC & Transfer TA
- ◆ Advertisement except when related to R&D and business development
- ◆ Staff/Welfare Club activities
- ◆ Hotel/Guest house charges except for S&T and business development purposes.

Norms & Procedure

- (a) All norms, procedures, rules, regulations and instructions applicable for incurring expenditure from Govt. Grant will equally apply to expenditure from LHRF and should be strictly followed;
- (b) Each Laboratory & CSIR Headquarters should endeavor to utilise a substantial part of the LHRF generated in the previous year to supplement the budgetary resources. Normally the LHRF utilisation in a year should not be less than one-third of the amount generated in the previous year.

- (c) In order to facilitate proper planning and efficient cash management temporary booking of expenditure on all permissible activities and purposes may be allowed from LHRF subject to adjustment on receipt of budget allocation.
- (d) Director in the National Laboratory & Director General in CSIR Headquarters will have the power to sanction expenditure from LHRF within the delegated powers.

Audit Points

- (a) Whether the laboratories/Institutes maintain appropriate records from where all receipts of LHRF and expenditure there from can be identified and verified
- (b) Check whether any receipt other than qualified for LHRF is credited to this fund.
- (c) Check whether any expenditure has been incurred from this fund on non-permissible activities/items/purposes mentioned in para 4.3.
- (d) Check whether all norms, procedures, rules, regulations and instructions applicable for incurring expenditure from Govt. Grant have been followed for incurring expenditure from LHRF.
- (e) Whether the budget proposal of the Laboratory indicated estimated receipts and utilization during the year, which should not be less than one-third of the amount generated in the previous year
- (f) Check whether actual expenditure from LHRF during a year is not less than one-third of the amount generated in the previous year.
- (ii) **Provident Fund Reserve**

Prior to 1.4.94, the income from investment of Provident Fund was being accounted as Misc. Receipts and the liabilities on account of employer's contribution and interest to subscribers were being discharged from the government grant. With the objective of making the Provident Fund self-sustaining, Provident Fund Reserve was created from 1994-95. From 1.4.1994, all earnings from investment of Provident Fund accumulation are credited to the Provident Fund Reserve Fund and liability on account of employer's contribution and interest to subscribers is discharged from this Reserve Fund. The balance in the fund is carried over for taking care of any eventuality of a short fall in income over the dischargeable liability in future.

Governing Body of CSIR in its 141st meeting held on 26.4.96 approved investment of Provident Fund Accumulation in bonds of Public Sector Companies as defined in section 2(36A) of the Income Tax Act, 1961. Permission has also been granted to continue investment in approved schemes of UTI, Post Offices and Nationalized Banks. Investment of PF in such schemes is being made at CSIR Headquarters on the recommendation of Investment Advisory Committee constituted by the Director-General, CSIR and with the approval of Director General, CSIR.

Audit Points

- (i) Audit may verify and comment if there is undue delay in remittance of provident recovery from laboratories to CSIR headquarters, resulting delay in its investment.
- (ii) Check whether all investments were made promptly and regularly on its receipts and there was no inordinate delay causing loss of revenue.

Investments

The funds of the Society may be invested only in such manner as may be prescribed by the Government of India.

All investments of the funds of the Society shall be made in the name of the Society. All purchases, sales or alterations of such investments shall be effected on the authority of the Director-General and all contracts, transfer deeds or other documents necessary for purchasing, selling or altering the investments of the Society funds shall be executed by an officer authorized by the Director-General. The safe custody of the scripts/securities will remain in the personal charge of an officer of the Society authorized by the Director-General for the purpose and will be verified once in six months with the Register of Securities maintained for the purpose and a certificate of verification will be recorded by the officer of the Society in the Register.

Governing Body of CSIR in its 148th meeting held on 2nd June, 2000 has accorded approval to the manner & procedure to be followed for investment of different funds which has communicated to all concerned vide CSIR circular letter No. 1(11)/acctt./2000-2001 dated 30th November, 2000.

Audit Points

- (a) The Audit should see that the procedure laid down by GB is followed and there is no undue delay in investing the surplus fund.
- (b) Audit should also examine that before placing the fund in short term or long term deposit the Investment Authority has taken proper care to ensure the safety of money of the society.

(iii) World Bank Project Reserve Fund (WBPRF)

Some of the CSIR Laboratories / Institute have obtained World Bank loan to create new infrastructure/facilities or up-grade available facility. From 1st April, 1994, CSIR has introduced World Bank Project Reserve Fund with following three primary objectives:

- (a) Provide funds for running of W.B. Loan Projects or maintaining the facilities created out of W.B. Loan.
- (b) To accumulate earning from W.B. Loan Projects for repayment of W.B. Loan.
- (c) To account for all deposits and payments from such deposit in connection with contract/collaborative R&D projects against facilities created out of W.B. Loan.

Receipts creditable WBPRF

Following type of receipts qualify for credit to WBPRF.

- (a) All R&D receipts from W.B. Projects
- (b) All deposits for contract/collaborative R&D projects against facilities created out of W.B. Loan.
- (c) Interest earned from investment from W.B. Loan & W.B. Loan Project Reserve Fund.

Nature of expenditure from WBPRF

- (a) All expenditure running of W.B. Loan Projects or maintaining the facilities created out of W.B. Loan.
- (b) All expenditure for contract/collaborative R&D projects against facilities created out of W.B. Loan.
- (c) Repayment of W.B. Loan.

Audit Points

- (a) Whether the laboratories/Institutes maintain appropriate records from where all receipts of WBPRF and expenditure there from can be identified and verified.
- (b) Check whether any receipt other than qualified for WBPRF is credited to this fund.
- (c) Whether infrastructure/facilities created out of W.B. loan could attract more contract R&D and increase R&D earnings.
- (d) Whether the facilities being sufficiently used.
- (e) Whether W.B. loan is being repaid from WBPRF or budgetary grant is being diverted to repay the W.B. loan.

(iv) Welfare Fund

Welfare fund is created out of 5% of distributable amount of fees from contract R&D. The fund is utilized for welfare of the employees. Following type of welfare activities are supported from the Welfare Fund:

- (a) Matching Grant to Employees' Benevolent Fund
- (b) Exgratia payment to employees on compassionate ground
- (c) Cash award to wards of employees for meritorious result in H.S. examination.
- (d) Scholarships and hospital subsidy to the wards of employees for higher study.

6.8.25 Internal Audit

The Director General shall set up an independent audit system in CSIR directly under his control. There shall be an Internal Audit Officer at the laboratory level who will report to the Chief Internal Audit Officer at CSIR Hqrs.

Audit Point

Audit should examine that CSIR maintains an effective Internal Audit system and internal audit is conducted regularly.

Accounting System

- (i) Presently, the CSIR Balance Sheet is prepared on cash basis and not on accrual basis.
- (ii) No depreciation is charged on the fixed assets. The book value of an asset is written off on its sale or loss due to theft, fire or on becoming obsolete or unserviceable due to usage. The value of respective assets on the asset side is reduced to the extent of the value written off. The capital on the liability side is also reduced simultaneously by a negative contra entry under a separate head - 'Value of assets written off'. The sale proceeds of the obsolete asset is treated as 'Revenue Receipts'.
- (iii) As the Balance Sheet is prepared on cash basis, the value of consumable stores in hand (inventory) at the end of the year is not depicted in the Balance Sheet.
- (iv) The Government grant received by CSIR forms part of the revenue section of Demand for Grant of the Ministry voted by the Parliament. The capital nature of expenditure met from the grant is treated as capital grant and the balance amount of grant taken for revenue expenditure.
- (vi) The expenditure under Plan and Non-Plan is not indicated in the accounts. It is separately monitored at CSIR Headquarter and enclosed in a separate sheet. CSIR should be advised to reflect Non-plan & Plan expenditure in the R&P account in the revised accounting system.

- (vii) CSIR is approved as a scientific and industrial research organization under section 35(1)(ii) of the Income Tax Act, 1961. Being an R&D organization its income is exempted from income tax under section 10(21) of the said Act.
- (viii) **Provident Fund Reserve:** Income from investment of Provident fund accumulation is credited to Provident Fund Reserve and all liabilities on account of interest & employer's contribution to subscribers are met from this fund. The balance in the reserve fund is maintained to cover the eventuality of difference between return from investment and the liability to subscribers on account of interest and employer's contribution.

CSIR is in the process of switching over to Accrual Basis Accounting system from the financial year 2003-2004.

The audit of accounts of the Council is to be conducted in accordance with instruction contained in Chapter-11 of this manual.

Annexure-I

The details of all research establishments with objectives/mandate of each establishment are given in below:

Sl. No.	Research Establishments (Laboratories/ Institutes)	Objective / Mandate
1.	Central Building Research Institute (CBRI), Roorke, U.P. Extension Centres at New Delhi,	To assist the building industry in solving problems relating to planning, foundation, materials, design and construction, functional efficiency, speed, economy and productivity in building construction including fire hazards in building.
2.	Centre for Biochemical echnology (CBT), Delhi.	To translate concepts developed in basic Biological Research to commercially viable technologies for Health-Care.
3.	Centre for Cellular & Molecular Biology (CCMB), Hyderabad	<ul style="list-style-type: none"> ◆ To conduct research in frontier and multidisciplinary areas of modern biology and to seek potential applications of this work. ◆ To carry out exploratory work for the development of modern biochemical and biological technologies in the country.
4.	Central Drug Research Institute (CDRI), Lucknow	<ul style="list-style-type: none"> ◆ To develop new drugs and immuno-diagnostics ◆ To develop technology for drugs, intermediates and products ◆ To develop contraceptive agents and devices ◆ To conduct basic biomedical studies to understand disease processes and reproductive physiology ◆ To do systematic evaluation of natural resources for lead identification.
5.	Central Electrochemical Research Institute (CECRI), Karaikudi Units at : Chennai, Mandapam, Tuticorin.	<ul style="list-style-type: none"> ◆ To conduct research in different areas of electrochemistry and allied fields ◆ To develop new processes and products in the areas of its specialization ◆ To contribute to human resource development by imparting university-level courses in electrochemical engineering and technology and refresher courses in corrosion prevention, industrial metal finishing, batteries, etc.
6.	Central Electronics Engineering Research Institute (CEERI), Pilani Extension centers at: New Delhi, Chennai	<ul style="list-style-type: none"> ◆ To carry out R&D in electronic devices and systems ◆ To assist electronic industries in technology absorption, upgradation and diversification ◆ To provide R&D services to industry and users in design, fabrication and testing in the field of electronics ◆ To provide technical services for specific needs towards product development
7.	Central Fuel Research Institute (CFRI), Dhanbad	<ul style="list-style-type: none"> ◆ R&D center for technology development and transfer by forging strategic alliance with other agencies

	Units at: Bilaspur, Nagpur, Ranchi	<ul style="list-style-type: none"> ♦ To generate basic knowledge, innovation and advanced concepts in science and technology for economic, efficient and environmentally safe fuel utilization and management.
8.	<p>Central Food Technological Research Institute (CFTRI), Mysore</p> <p>Liaison Office at: Bangalore</p> <p>Regional Centres at: Hyderabad, Lucknow, Mumbai</p>	<ul style="list-style-type: none"> ♦ To develop globally competitive post-harvest technologies for efficient protection, conservation and processing of agricultural produce for optimal utilization of nation's food resources ♦ To help increasing efficiency and productivity in food industry through development of appropriate technologies and human resources ♦ To develop technologies for addition of value and utility through research and development of agro resources, horticultural and plantation produce and contribute to sustained development, food security and food safety ♦ To design and fabricate prototype food processing machinery ♦ To assist food industry; effective information service in the field of food science and technology; and human resource development in the area of food processing and conservation.
9.	<p>Central Glass & Ceramic Research Institute (CGCRI), Calcutta</p> <p>Extension Centres: Naroda (Ahmedabad), Khurja (U.P.)</p>	<ul style="list-style-type: none"> ♦ To carry out basic and applied research in the fields of special glass, ceramics, refractories, ceramic coatings, composites and allied areas. ♦ To develop appropriate glass and ceramic materials and related technologies relevant to the country's economic, industrial and social needs including defence, space and atomic energy. ♦ To provide technical advisory and infrastructural services.
10.	<p>Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow</p> <p>Field Stations at: Banglore, Hyderabad, Purara (Almora), Pantnagar</p>	<ul style="list-style-type: none"> ♦ To bring Genetic improvement, cultivation, production and chemical processing of medicinal and essential oil, dye and gum yielding plants ♦ To characterize and conservation of genetic resources medicinal and aromatic plants (MAP) ♦ To define and modulation of yield determining steps of metabolic pathways concerned with chemicals of interest ♦ To detect and characterization of new anti-microbial, anti-cancer and/or pesticidal chemicals of herbal origin ♦ To produce seeds and other propagating materials of MAP ♦ To formulate the products of common use.
11.	<p>Central Leather Research Institute (CLRI), Chennai</p> <p>Extension Centres at: Ahmedabad, Kolkata, Jalandhar, Kanpur</p>	<ul style="list-style-type: none"> ♦ To seek excellence in research in biological, chemical and engineering sciences ♦ To serve as the national apex body in the areas of leather and related products ♦ To provide education and training in leather and

		<p>allied sciences at national and international levels</p> <ul style="list-style-type: none"> ♦ To render technical assistance to leather industry.
12.	<p>Central Mechanical Engineering Research Institute (CMERI), Durgapur</p> <p>Liaison Office at:</p> <p>MERADO Centres at: Ludhiana</p>	<p>To be an agile and innovative R&D organization providing engineering solutions especially for high speed mechanism, industrial drives, post harvest machinery and in emerging manufacturing technologies.</p>
13.	<p>Central Mining Research Institute (CMRI), Dhanbad</p> <p>Regional Centres at: Roorke, Nagpur</p>	<p>To provide scientific and technological inputs to mineral industries with a view to optimize mining technologies for better safety, economy, conservation and environmental management especially through R&D on rock mechanics, mining methods, machinery, equipment and instruments.</p>
14.	<p>Central Road Research Institute (CRRI)</p>	<ul style="list-style-type: none"> ♦ To conduct basic and applied research in important areas of highway engineering and allied aspects ♦ To provide know-how for the construction of Cost-effective, durable and safer roads ♦ To evolve improved, rational and economical methods of design, construction and maintenance of roads, embankments, runways and bridges ♦ To develop new tools, instruments and appliances relevant to indigenous/international highway practices ♦ To plan transport network of different city sizes in India ♦ To analyse road traffic accidents and to study and quantify the impact of road traffic on environment ♦ Characterisation and testing of natural & marginal waste materials for use in low-volume roads ♦ Design and quality control management of road works.
15.	<p>Central Scientific Instruments Organisation (CSIO), Chandigarh</p> <p>Service & Maintenance Centers at: Chennai, Jaipur, New Delhi.</p>	<ul style="list-style-type: none"> ♦ To undertake research, design and development of scientific and industrial instruments; components and instrument systems ♦ To undertake repair and maintenance of sophisticated instruments through a network of Service & Maintenance Centres, located in various parts of India ♦ To offer technical assistance to industries and various other users of instruments by way of fabrication, testing, calibration, analysis and performance evaluation, etc. ♦ To provide advanced training in instrument technology aimed at human resource development for the benefit of precision instrument industry and R&D institutions ♦ To survey and assess the present and future needs of various types of scientific and industrial instruments in the country and to collate, coordinate and disseminate information on the subject.

16.	Central Salt & Marine Chemicals Research Institute (CSMCRI), Bhavnagar Field Stations at: Mandapam Camp. (Tamil Nadu).	<ul style="list-style-type: none"> ♦ To carry out research & development in the fields of salt, marine and other inorganic chemicals. ♦ To develop membrane technologies for desalination of brackish and seawater, separation/concentration of industrial fluids and effluent treatments. ♦ To promote cultivation and utilization of marine algae for extraction of algal chemicals and drugs. ♦ To promote exploitation of coastal dune sand and saline soils through introduction and cultivation of indigenous and exotic halophytic plants of economic importance.
17.	Institute of Himalayan Bioresource Technology (IHBT), Palampur	To provide an Industrial R&D base for establishment upgradation and sustainable management of bioresources in the Himalayan region through agrotechnology, processing technology and biotechnology.
18.	Indian Institute of Chemical Biology (IICB), Calcutta	To conduct research in biological sciences for seeking solution to medical and biological problems in national and global context.
19.	Indian Institute of Chemical Technology (IICT), Hyderabad	To be an innovative global R&D provider in the field of chemical technology with reference to industrial and specialty chemicals.
20.	Indian Institute of Petroleum (IIP), Dehradun	<ul style="list-style-type: none"> ♦ To develop novel, state-of-the art technologies & products for petroleum refining, chemicals & petrochemicals, application of petroleum products in IC engines and combustion systems. ♦ To conduct market demand surveys and techno-economic feasibility studies for related products. ♦ To train technical personnel from petroleum and related industries. ♦ Assist the Bureau of Indian Standards in formulation of standard specifications for petroleum products.
21.	Institute of Microbial Technology (IMTECH), Chandigarh	<ul style="list-style-type: none"> ♦ To provide an integrated research, development and design base for microbial technology. ♦ To undertake basic and applied research and development programmes in established and newly emerging areas of biotechnology including genetic engineering. ♦ To develop and maintain gene pool resources and genetic stocks of microbial cultures and other cell lines.
22.	Industrial Toxicology Research Centre (ITRC), Lucknow	<ul style="list-style-type: none"> ♦ To impart training in microbiology, microbial technology and biochemical engineering to research workers and technologists. ♦ To identify health hazards due to exposure to chemicals in industries, mines, agricultural fields and general environment and undertaking health and environmental surveys. ♦ To study the mode of action of toxic chemicals/pollutants ♦ To develop simple/rapid diagnostic tests. for

		<ul style="list-style-type: none"> disorders caused by industrial and environmental chemicals. To evaluate safety of chemicals used in industry, agriculture and everyday life. To suggest remedial/preventive measures to safeguard health and environment from pollutants.
23.	National Aerospace Laboratories (NAL), Bangalore	<ul style="list-style-type: none"> To develop aerospace technologies with a strong science content with a view to their practical application to the design and construction of flight vehicles and to use this technology base for general industrial applications. To achieve high standards in aerospace research, design, development and testing to meet the continuing demands of customers, and provide reliable, value-added, cost-effective and eco-friendly products, spin-offs and services. To maintain and operate major national aerospace facilities.
24.	CSIR Centre for Mathematical Modelling and Computer Simulation (C-MMACS), Bangalore	<ul style="list-style-type: none"> To develop and provide modeling and computer simulation expertise and facilities for a wide class of natural and engineered systems. To catalyze, support and strengthen the wide gamut of scientific programmes in CSIR laboratories by providing creative new approaches to the design and analysis of complex systems through mathematical modeling and computer simulation. To design and organize specialized scientific meetings, workshops and training courses to articulate new ideas and propagate advanced methods in mathematical modeling and simulation.
25.	National Botanical Research Institute (NBRI), Lucknow	<ul style="list-style-type: none"> To carry out R&D on conservation, improvement and exploitation of economic plants, including ornamentals. To carry out basic and applied botanical, horticultural and related phytochemical research on plants and plant products. To develop production technologies for new plant sources of commercial importance.
26.	National Chemical Laboratory (NCL), Pune	<ul style="list-style-type: none"> To advance knowledge in chemical science and technology. To develop new processes, products, technologies and applications. To develop globally competitive technologies and protect intellectual property. To undertake process design and engineering.
27.	National Engineering Research Institute (NEERI), Nagpur Zonal Laboratories at: Kolkata, Chennai, Delhi, Hyderabad, Jaipur	<ul style="list-style-type: none"> To carry out R&D in the domain of environmental monitoring, environmental biotechnology; toxic wastes management; environmental systems design, modeling, and optimization; environmental impact & risk assessment; and environmental policy analysis.

		<ul style="list-style-type: none"> ◆ To participate in National Mission programmes, e.g. inspection of environment management systems for the judiciary, Drinking Water Mission, Ganga Action Plan; and in CSIR inter-laboratory thrust area projects, e.g. development of Indian reference materials.
28.	National Geophysical Research Institute (NGRI), Hyderabad Centres at: Maitri, Tejpur	<ul style="list-style-type: none"> ◆ To carry out basic and applied research in the frontier areas of solid earth geophysics. ◆ To obtain information about the earth's interior by seismic magnetotelluric, electrical, magnetic, thermal and gravitation methods. ◆ To study the history of the lithospheric and crustal evolution in space and time through integrated geological, geochemical, geophysical and geochronological studies. ◆ To devise new geophysical methods, techniques and instruments for the exploration of minerals and ground water resources. ◆ To study the processes involved in earthquakes and related phenomena.
29.	National Institute of Oceanography (NIO), Goa Regional Centres at: Kochi (Ernakulam), Versova (Mumbai), Visakhapatnam (A.P.).	<ul style="list-style-type: none"> ◆ To develop a knowledge-base relating to physical, chemical, biological, geological, geophysical, engineering and pollution aspects of the seas around India. ◆ To build up competence for judicious use of the sea resources for the benefit of the country. ◆ To develop self-sufficiency in marine instrumentation. ◆ To extend co-operation to all R&D organizations and academic institutions involved in the study of marine sciences and cater to information needs of the user community. ◆ To foster national and international co-operation in various fields of oceanography in order to facilitate the exploration and proper use of the sea.
30.	National Institute of Science Communication and Information Resources (NISCAIR)	<ul style="list-style-type: none"> ◆ To provide formal linkages of communication among the scientific community in the form of research periodicals in different areas of science and technology. ◆ To collect, collate and disseminate information on plant and mineral wealth and on industrial infrastructure of the country. ◆ To set up specialized databases and providing information services to entrepreneurs, policy planners, agriculturists and research workers. ◆ To disseminate S&T information to the masses.
31.	National Institute of Science, Technology and Development Studies (NISTADS), New Delhi Field Stations at: Kenduadihi	<ul style="list-style-type: none"> ◆ To carry out research in various areas of science and technology studies. ◆ To provide consultancy services and undertake sponsored research and commissioned studies for

	(Bankura), W.B.	<ul style="list-style-type: none"> international and national agencies. To build, maintain and provide services based on information data banks in science policy areas and archives of science and technology. To provide training to scholars and functionaries from India and other developing countries in the areas of expertise of the Institute.
32.	National Metallurgical Laboratory (NML), Jamshedpur Field Stations at: Ahmedabad, Chennai.	<ul style="list-style-type: none"> To develop world class expertise and facilities in emerging fields of metallurgy and material science. To develop competitive know-how for gainful utilization of minerals, metals, materials and industrial wastes.
33.	National Physical Laboratory (NPL), New Delhi	<ul style="list-style-type: none"> To establish, maintain and improve National Standards of measurements, and to realize the units based on international system (under the subordinate legislation of weights and measurements Act 1956 reissued in 1998 under the 1976 Act). To carry out R&D work with a view to advancing the frontier of knowledge in various areas of physics and its application for the technological advancement.
34.	Regional Research Laboratory (RRL-Bhopal), Bhopal	<ul style="list-style-type: none"> To conduct R&D, undertake contract research and offer technical services in the areas of building materials, metallurgy and materials science, minerals, environment and resources development. To provide input for regional S&T problems.
35.	Regional Research Laboratory (RRL – Bhubaneswar),	<ul style="list-style-type: none"> To characterize minerals, beneficiation of lean and complex ores and agglomeration of ore fines and concentrates. Pyro-and hydro-metallurgical extraction of metals, preparation of alloys and recovery of metal values and composites. To develop special materials and composites.
36.	Regional Research Laboratory (RRL – Jammu), Jammu Tawi Extension Centre at: Srinagar	<ul style="list-style-type: none"> To prepare and synthesize organic and inorganic chemicals from marine, forest and mineral resources. To design and develop process equipment of control systems. To survey, introduce and utilization of aromatic, medicinal and other economic plants. To carry out R&D work with a view to help in Industrial development of the North-western region of the country. To help in optimal utilization of natural resources. To explore and exploit hitherto untapped resources of the region.
37.	Regional Research Laboratory (RRL – Jorhat), Jorhat Branch Labs. at: Imagar (Arunachal), Lamphelpat (Imphal)	<ul style="list-style-type: none"> To provide R&D inputs for the effective use of material resources of the North-Eastern region and to develop indigenous technologies based on the natural wealth of the region. To develop and introduce agro-technologies for

		improving the economy in the rural areas of the North-East Region.
38.	Regional Research Laboratory (RRL – Thiruvananthapuram)	<ul style="list-style-type: none"> ♦ To carry out multidisciplinary R&D work for the optimum utilisation of regional/national resources. ♦ To undertake research work in the areas of environment sciences and waste water treatment. ♦ To undertake advanced and futuristic research leading to generic technologies.
39.	Structural Engineering Research Centre, Madras (SERC-M), Chennai	<ul style="list-style-type: none"> ♦ To carry out application-oriented research and develop know-how on analysis, design, construction and testing of all types of structures. ♦ To act as a clearing house for the latest knowledge in its areas of activity.

Annexure-II

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH, ANUSANDHAN BHAVAN, RAFI MARG, NEW DELHI-110001

No. I(11)/Acctt./2000-2001

Dated 4th September, 2000

To,

The Heads of all National Laboratories / Institutes.

Subject:

Laboratory Reserve Fund scheme – Review

The proposal to create a Laboratory Reserve Fund (LRF) Scheme with facility to create, utilize, retain and carry forward it for capital and revenue expenditure, to supplement the budgetary resources, was approved by CSIR Governing Body (GB) in 1992. The scheme had the concurrence of CAG of India. Subsequently, some more receipts were allowed to be credited to LRF. These subsequent changes were ratified by the CSIR GB in its 147th meeting held on 9.12.1999. In this meeting, the Governing Body, CSIR also approved setting up of Headquarter Reserve Fund (HRF) re-designating the existing title of the 'Laboratory Reserve Fund Scheme' to 'Laboratory and Headquarters Reserve Fund' Scheme, which was notified vide O.M. of even No. dated 17th May, 2000.

In the meantime Audit had issued a draft review on the generation and utilization of the Laboratory Reserve Fund.

Taking cognizance of the draft audit review, the Director-General, CSIR appointed a high level committee to study the LRF in its entirety and to suggest the system of checks and balances further needed to ensure its utilization in the intended direction. The Committee submitted its Report, which was accepted by the Director General and also placed before the Governing Body in its 148th meeting held on 2nd June, 2000.

Accordingly, the procedure for generation and utilization of 'Laboratory/ Headquarter Reserve Fund' will henceforth be as mentioned below:

1. Title of the Scheme

The title of the scheme will be "Laboratory & Headquarter Reserve Fund" (LHRF) in place of "Laboratory Reserve Fund" (LRF).

2. Generation of LHRF

2.1 The following receipts will continue to be credited to LHRF:

- (a) Royalty & Premia (from licensing of IPR)
- (b) Consultancy Fee
- (c) Sponsored Project fee
- (d) Overhead Charges
- (e) Non refundable balance of closed project/job work
- (f) Job work charges
- (g) Testing and analytical charges

- (h) Computer charges
- (i) Other Technical Services
- (j) Use of Lab. infrastructure for sponsored/ consultancy & other projects
- (k) Interest on investments of Laboratory reserve
- (l) Interest on investment of sponsored/consultancy project funds
- (m) Net earnings from Major facilities
 - (i) Pilot Plant - Excess of receipt over expenditure
 - (ii) C-MMACS - Excess of receipt over expenditure
 - (iii) NTAF - Excess of receipt over expenditure

NB: The following receipts, however, will not be included in LHRF:

- (a) Amount of Interest earned on investment of sponsored/ consultancy/ Grant-in-aid projects fund adjustable and/ or refundable to the funding agency.
- (b) Distributable portion of Royalty & Premia.
- (c) Distributable portion of Consultancy/ Contract R&D and Intellectual fees from Technical Services

Headquarters Reserve will include the following components in addition to the receipts vide para 2.1 above:

- (i) 1% of annual foreign business earnings generated by all laboratories.
- (ii) 1% of annual intellectual property and technology licensing fees received by all laboratories.
- (iii) 1% of laboratory reserve generated during the previous year by the laboratories, assisted by the HQ. to move on the path of self-sufficiency (at present IIP & ICT).
- (iv) 1% of laboratory reserve generated by laboratories, assisted by the HQs. to acquire ISO 9000 (at present NML& CMERI).

3. Budgeting of LHRF

- (a) Each laboratory shall at the time of formulation of its annual budgetary requirements (Estimates) indicate the following in respect of LHRF:
 - Balance at the beginning of the financial year.
 - Anticipated generation during the financial year.
 - Proposed utilisation under each budget sub-head.
- (b) The proposal made at the Budget Estimate stage should be reviewed and proposed utilisation revised, if necessary, at the Revised Estimate stage.
- (c) CSIR would include the estimated utilisation of LHRF alongwith other internal receipts, when projecting budgetary requirement, to Ministry of Finance.
- (d) LHRF will continue to remain with the laboratory that generates it.

Utilisation of LHRF

4.

Utilisation of LHRF is permitted for all revenue and capital expenditure as for budgetary grant.

4.1

The broad sub-heads are as follows:

Revenue Heads

- (a) Pay & Allowances
- (b) Traveling Allowances
- (c) Contingencies
- (d) Maintenance
- (e) Chemicals & consumables

Capital Heads

- (a) Land
- (b) Works
- (c) Services
- (d) Apparatus & Equipment
- (e) Office Equipment
- (f) Furniture
- (g) Computer Equipment
- (h) Library Books
- (i) Vehicles & Transport
- (j) Workshop Machinery
- (k) Models & Exhibits
- (l) Tools & Plants

4.2 Expenditure on the following items is also permitted in addition to the heads mentioned in para 4.1.

- Re-payment of World Bank Loan and service charges
- Interest earned & claimed by funding agency [reference item no (L) of para 2.1].
- Liabilities and damages arising out of contract R&D, consultancy, technical services or IPR licensing
- Payment of share of intellectual fees/honorarium (only in respect of past cases where credit was afforded to LRF)
- Transfer to Headquarter Reserve Fund
- Human Resource Development
- Computerisation and information systems
- Modernisation of equipment
- Construction & Maintenance of Scientists Apartments/Staff Quarters.

4.3 The expenditure on activities/items/purposes indicated below **will not be permissible** from LHRF:

- Financial assistance to any NGO and/or private body

- Gifts & mementos
- Celebration of non-S&T events/days
- Mobile phone bills (as per standing instructions)
- OTA/ Honorarium/ Night duty Allowance other than for R&D work
- Foreign Travel except for business development
- LTC & Transfer TA
- Advertisement except when related to R&D and business development
- Staff/ Welfare Club activities
- Hotel/ Guest house charges except for S&T and business development purposes.

5. Norms & Procedure:

- (a) All norms, procedures, rules, regulations and instructions applicable for incurring expenditure from Govt. Grant will equally apply to expenditure from LHRF and should be strictly followed;
- (b) Each Laboratory & CSIR Headquarters should endeavour to utilise a substantial part of the LHRF generated in the previous year to supplement the budgetary resources. Normally the LHRF utilisation in a year **should not be less than one-third of the amount generated in the previous year.**
- (c) In order to facilitate proper planning and efficient cash management temporary booking of expenditure on all permissible activities and purposes may be allowed from LHRF subject to adjustment on receipt of budget allocation.
- (d) Director in the National Laboratory & Director General in CSIR Headquarters will have the power to sanction expenditure from LHRF within the delegated powers.

6. Accounting procedure

Accounting procedure as per CSIR's IMPACT Manual will continue to operate with following modifications under receipt heads:

C-Code		Heads of Receipts
R07101	a)	Royalty & Premia (from licensing of IPR)
R07102	b)	Consultancy Fee
R07103	c)	Sponsored Project fee
R07104	d)	Overhead Charges
R07105	e)	Non refundable balance of closed project/job work
R07106	f)	Job work charges
R07107	g)	Testing and analytical charges
R07108	h)	Computer charges
R07109	i)	Other Technical Services
R07110	j)	Use of Lab. infrastructure for sponsored/ consultancy projects
R07111	k)	Interest on investments of Laboratory reserve
R07112	l)	Interest on investment of sponsored/consultancy and other project funds

Net earnings from Major facilities

R07113	m)	i. Pilot Plant - Excess of receipt over expenditure
R0711301		ii. C-MMACS - Excess of receipt over expenditure
R0711302		iii. NTAF - Excess of receipt over expenditure
R0711303		Sub Total

Transfer from LRF to Headquarters Reserve

R07114	n)	i. 1% of annual foreign business earnings generated
R0711401		by laboratory
		ii. 1% of annual intellectual property and technology
R0711402		licensing fees received by laboratory
		iii. 1% of laboratory reserve generated during the
R0711403		previous year (presently by IICT, NML, IIP & CMERI)

While remitting the CSIR's share of reserve, the Laboratory will debit by minus credit to concerned C_Code from R0711401 to R0711403 using Cash Code P99106. While forwarding the cheque/ demand draft, the Laboratory will indicate C_Code(s) under which the amount has been debited so that CSIR Headquarters may afford credit to the same C_Code(s). In the consolidated CSIR account, prepared after merging the accounts of all laboratories & CSIR Hqrs., no figure should appear under these heads. The transfer will be effected from the financial year 2000-01 based on the generation of LRF in 1999-2000.

Sd/-

(Pravin Tripathi)
Financial Adviser

Copy to:

- 1. Sr. FAO / FAO of all National Laboratories**
- 2. At HQs. For:**
 - (a) Joint Secy.(Admn.), CSIR
 - (b) Head, RPBD/STMD/ISTAD/HRDG/IPMD/
Computer Div./USC/USD,
 - (c) All PTCs
 - (d) Dy. FA (Finance & Report) , CSIR
 - (e) Sr.FAO (Audit) , CSIR
 - (f) Sr. FAO (Budget), CSIR
 - (g) FAO (Cash) , CSIR
 - (h) FAO (Accounts) , CSIR
 - (i) Shri A. Wahid, Head, IMPACT Software Team

6.9 INDIAN COUNCIL OF MEDICAL RESEARCH

6.9.1 The Indian Council of Medical Research (ICMR) an autonomous organisation under the Ministry of Health and Family Welfare was registered as a Society in 1949 under the Societies Registration Act (XXI), 1860. There are 21 Research Institutions/ Centres and 6 Regional Centres under ICMR (Annexure-I of this chapter). The powers and functions of ICMR are governed by the bye-laws and rules and regulations framed by it and incorporated in its Memorandum of Association.

6.9.2 Objectives

The objectives of the Council are inter-alia to:

- (i) the prosecution and assistance in research, propagate knowledge and experimental measures generally, in connection with the causation, mode of spread and prevention of diseases, primarily those of a communicable nature.
- (ii) initiate, develop and co-ordinate medical scientific research in India and to promote and assist institutions for the study of diseases, their prevention, causation and remedy.
- (iii) finance enquiries and researches.
- (iv) exchange information with other institutions, associations and societies interested in the same objects, and specially in the observation and study of diseases in the East and in India in particular.
- (v) prepare, print and publish any papers or periodicals in furtherance of the objects of the Council and to contribute to any such periodical.

6.9.3 Membership

The Membership of the Council consists of the following:

- (i) President (Union Minister of Health and Family Welfare, GoI)
- (ii) Vice-President (Secretary of the Ministry of Health and Family Welfare, GoI)
- (iii) All Members of the Governing Body.
- (iv) All Members of the Scientific Advisory Board.
- (v) Seven persons elected for a term of five years by Governing Body in recognition of valuable services rendered for furtherance of the objectives of the Council.

The Director General of the Council who is appointed by the Governing Body with the approval of the Central Government is the Chief Executive of the Council.

6.9.4 Governing Body

The Governing Body of the Council consists of 13 official members and 9 non-official members.

The President of the Council is the Chairman and the Director General, ICMR is the Member Secretary.

The General Meeting of the Governing Body is required to be held atleast once in a year to transact the following businesses:

- (a) The Income and Expenditure Account and the Balance Sheet for the past year.
- (b) The Budget for the next year.
- (c) Proposal for enquiries and research work for the next year.
- (d) The appointment of Scientific Advisory Board.
- (e) Other business on the Agenda.

Powers of the Governing Body are detailed in Rules 29 to 34 of the Rules and Regulations of the Council.

6.9.5 Executive Committee

The Executive Committee of the Council consists of the following:

Director General, ICMR, Chairman and Members consisting of Director General, Health Services, Financial Advisor, Ministry of Health and Family Welfare, Joint Secretary, Ministry of Health and Family Welfare, An eminent Scientist from outside ICMR (to be nominated by the President of the Council), a Director of the permanent Institute/ Centre of the Council or a Scientist from Council's Headquarters in the grade of Addl.DG/ Sr.DDG who is a member of the Governing Body, Financial Advisor, ICMR and Addl. Director General, ICMR.

The Executive Committee performs such duties and exercise such powers as laid down from time to time in the bye-laws, resolutions or otherwise by the Governing Body. It will supervise the affairs of the Council and perform any duty and exercise any power of the Governing Body in case of emergency.

6.9.6 Scientific Advisory Board

The Scientific Advisory Board (SAB) is constituted by the Governing Body. It consists of twenty-one members. The Director General, ICMR and Director General, Health Services are its Chairman and Vice-Chairman respectively. The Addl. Director General, ICMR is the Member Secretary of the Board.

Functions of the SAB are to

- (i) examine all proposals in connection with the scientific objectives of the Council which may be submitted to the Governing Body;
- (ii) advise on such questions as referred to the Board by the Governing Body or by the Executive Committee;
- (iii) appoint Advisory Committees for carrying out its objectives.

6.9.7 Audit Points

It is to be seen in audit:

1. (i) How far the objectives have been achieved. (One of the criteria for judging the performance is to make a comparative study of programmes planned and their actual performance and achievements.) Major deviations, if any, may suitably be commented upon in the Inspection Reports.
- (ii) Policies and programmes are drawn up in accordance with these objectives and are being implemented by specific and well defined procedures.
- (iii) Any objective not taken up may also be enquired into and commented upon.

- (iv) Any project or activities taken up beyond the scope of objectives of ICMR may also be highlighted/ commented upon.
 - (v) Audit may see that methodology of monitoring exists for periodical progress reports on the implementation of the policies and programmes. Such reports need to be critically reviewed by their nominated reviewing authorities for taking follow up action.
 - (vi) Progress from time to time has been reported to the Governing Body/ Government timely and diligently.
2. The Review Committee of ICMR in its Report (November 1984) recommended modifications in the existing objectives in order to provide a wider mandate to the ICMR to enable it to adapt its strategies and programmes in tune with changing health conditions.
- The Reviewing Committee in its Report had inter-alia recommended that Scientific Advisory Groups (SAG) may be constituted in different areas to evaluate in depth the progress of all extramural research supported by the ICMR and to evaluate the overall research efforts in various fields.
- (i) Action taken on the recommendations made by the Reviewing Committee in November 1984 may be examined in Audit.
 - (ii) Audit may also see whether the Council have reformulated its programmes and policies to implement the recommendations of the Reviewing Committee.
3. Agenda and Minutes of the meetings of the Governing Body, Executive Committee and the Scientific Advisory Board should be reviewed and important points noted for detailed scrutiny.
4. Though the periodicity of meetings of the Executive Committee and Scientific Advisory Board are not mentioned in the Rules and Regulations, it may, however, be seen in Audit that the meetings are held at regular interval and minutes of the meetings are properly recorded/ documented and follow up action taken and reported back to the appropriate authority.

6.9.8 Project Management

ICMR being the national apex body of Medical Research formulates strategies and research programmes for biomedical research by identifying priority areas. The Council provides financial aid in the form of grants to research institutes, medical colleges and universities to implement these programmes. The grants are sanctioned to scientists in regular employment in the Universities, Medical Colleges, Postgraduate Institutes, recognised Research and Development Laboratories and NGOs, to supplement the research facilities available with them.

Council conducts intramural research through its Research Institutes/ Centres (21) and Regional Centres (6). However, for extramural research grants are sanctioned for 3 types of projects e.g. (a) Investigator initiated, adhoc projects; (b) Task Force Projects; and (c) Centres of Advanced Research. Each Institute/ Centre has a SAC of experts in the specific areas of research undertaken by the specific Institute/ Centre.

The following categories of staff are eligible for employment:

- (a) On fixed emoluments basis:
 - (i) Jr. Research Fellows
 - (ii) Sr. Research Fellows
 - (iii) Research Associates
- (b) On running scales basis:
 - (i) Research Scientists
 - (ii) Laboratory and Field Staff

The amount of fellowships to fellows/ associates and emoluments of the research personnel will be in accordance with the guidelines issued by the Department of Science and Technology from time to time.

Extramural Research Projects

6.9.9 Extramural projects are of three types:

1. (a) Investigator Initiated

Such projects are of short duration of one year or less with a budget of not more than Rs.2.00 lakh.

A decision to fund such projects is required to be taken within four weeks of the receipt of the proposal after it is reviewed by an in-house Committee of ICMR Headquarters and Institutes.

(b) Adhoc Projects

All projects costing upto Rs.30 lakh with duration not exceeding three years are reviewed by circulation through Peer review or Project Review Committees (PRC).

Composition of PRC is seven members with a provision of co-opting experts for each meeting.

Functions of PRC are to consider and approve new project proposal, approve budget allocation, deployment of staff and equipment to carry out the approved project, monitor the progress of the projects, recommend/ approve extension of project and to foreclose/ termination of projects with reasons and justification and evaluate completion reports.

2. Task Force Projects

These are projects that normally address a pre-defined problem in each specific area.

Duration of Projects

Not exceeding five years and for extension beyond five years approval of the Executive Committee of ICMR is essential.

Financial Ceiling

Not exceeding Rs.1 crore for the total duration of the project. In case of proposals exceeding Rs.1 crore, approval of the Bio-medical Research Board is required.

Selection Mechanism

A protocol prepared by the technical division is discussed by the members of the task force. The task force suggests the Centre(s) for taking up the study and also recommends the budget. Alternatively, the proposal for projects in a pre-identified area are widely circulated

amongst the members of the task force. Proposals are short-listed by the task force. The potential project investigators are invited for presentation of their proposals in the meeting and the final decision of the Committee is made known to the Project Investigators within four weeks of the meeting.

Composition of Task Force is about five members.

Functions

Review the invited proposals, recommend their funding, examine the requirement of staff, equipment, etc. monitor the progress on yearly basis, evaluate the completion reports suggest extension/ pre-mature termination of the projects.

3. Centres for Advanced Research (CAR)

Centres for Advanced Research are identified for capacity building/ support for sustained high quality research. These are created around a scientist of eminence undertaking excellent work on a specific area of medical importance. Facilities so created are expected to continue functioning even after the funding from ICMR is over. After five years from initiation or after stopping the funding, the host institution would be expected to take over the activities of the centre as permanent activity.

Duration

Upto five years and beyond five years approval of the Executive Committee of ICMR is essential.

Financial Ceiling

Not exceeding Rs.1 crore for the total duration of the Project.

Review Mechanism

An expert Committee consisting of five members is constituted by the DG to examine the proposal. It examines the requirement of staff, equipment, funds for consumables, travel, etc. and makes recommendations. It also monitors the progress in its annual meetings.

6.9.10 Bio-medical Research Board

This is a high powered Committee to examine all those proposals already technically reviewed and recommended for funding but do not fall within the financial ceilings of respective Committee viz. Adhoc projects beyond Rs.30 lakhs and Task Force and CAR projects exceeding Rs.1 crore.

(i) Composition of the Committee

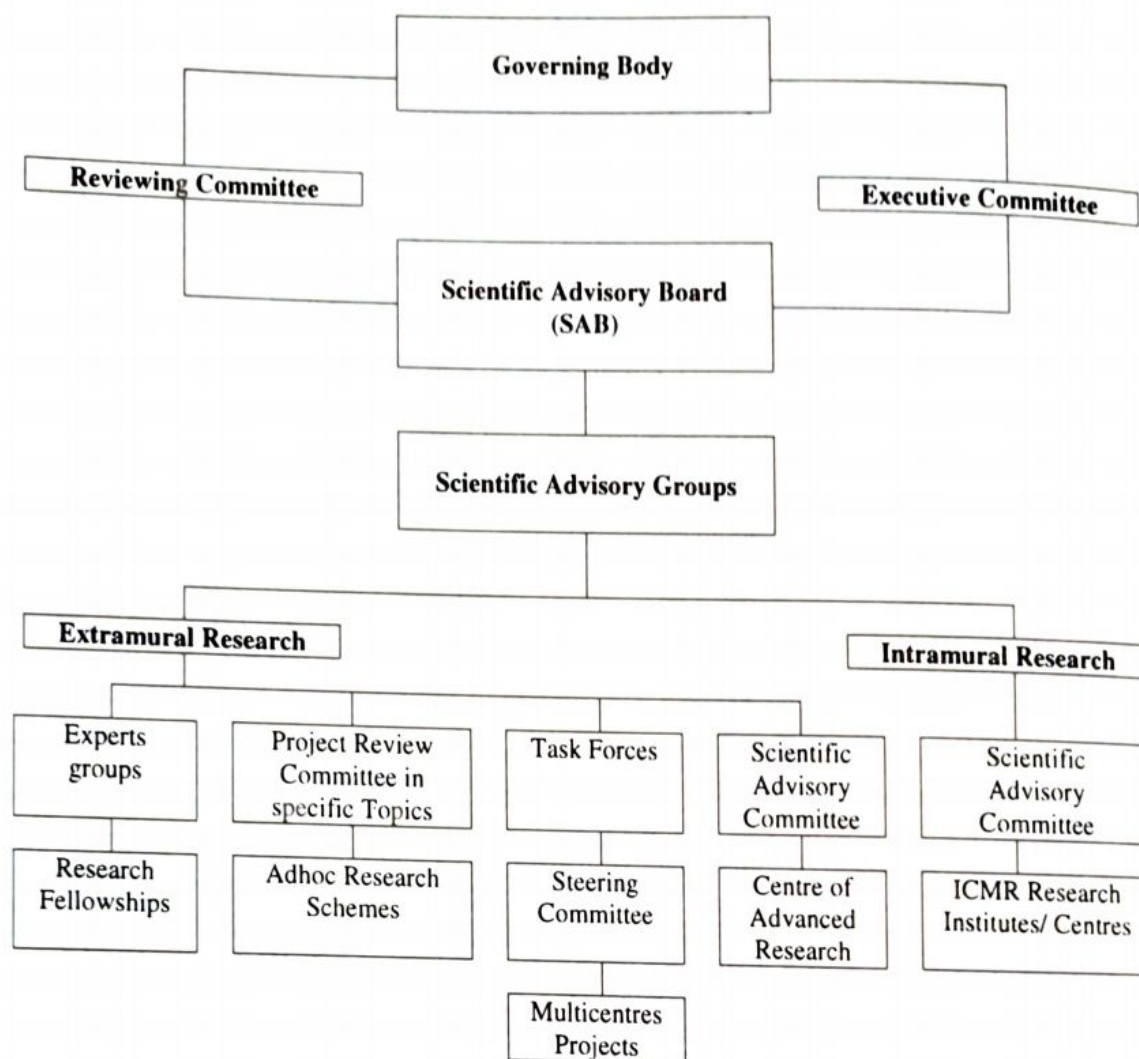
Seven members – only eminent scientists who have held or are holding high positions and are now not involved in active research themselves could become its members. Subject expert/ specialists could be co-opted.

(ii) Functions

To approve the application, monitor the progress and evaluate the final report.

6.9.11 Review System in ICMR

The reviewing system in vogue at ICMR is outlined in the following chart:



Scientific Advisory Board (SAB) is the highest technical body, which reviews the work of ICMR (in its totality) and advises the ICMR on both short term and long term research policies, strategies, thrust areas of research, etc.

Each of the ICMR Institutes/ Centres has a Scientific Advisory Committee (SAC) which comprises of experts (subject specialists) in the specific area of research undertaken by the specific Institute/ Centre. The full SAC meets atleast once a year while the members interact with the Institute throughout the year.

Each of the five Technical Divisions at the ICMR Headquarters (Epidemiology, Communicable Diseases, Non-Communicable Diseases, Reproductive Health and Nutrition Basic Medical Science and Publications and Information) has a Scientific Advisory Group (SAG) which meets annually and consists of experts in the respective fields. The SAG reviews the extramural activities of the concerned division and also deliberates on the linkages between intramural and extramural research activities. The reports of the SAC of the Institutes and SAG's of Technical Divisions are placed before the SAB for consideration and the recommendations of the SAB are placed before the Governing Body for.

6.9.12 Points to be seen in Audit

1. Whether the Project has been selected/ recommended after due scrutiny by the various Committees/ Boards before its approval by the Governing Body.
2. Whether there is reasonable time gap between the approval of project and issuing of sanction letter? If there is delay then it may be examined, whether it has effected any assumptions, which will have a bearing on the project.
3. Whether any expenditure incurred before the start of the project has also been allowed.
4. Whether evaluation of each project is done at fixed interval or at the time of completion of the project.
5. Whether recommendations of the Committee/ Boards are given due importance and promptly communicated and complied with by the executing agencies?
6. Project proposals may be scrutinised to understand the intended objectives. The cases of duplication of efforts/ overlapping of projects where two projects having similar objectives are being funded by the same department are to be seen.
7. The working of monitoring cell may be reviewed to see that it is fulfilling the objective of monitoring, not only physical completion of project but also monitoring the cost and time overrun and suggesting measures or highlighting the areas which need urgent attention of the top management thereby controlling the cost and ensuring timely completion of projects.
8. The project investigator submits financial and physical progress reports periodically.
9. It is to be seen that release of funds to the project is linked with the periodical progress of the project.
10. It is to be seen that the milestones for each activity of the project along with the time frame and cost outlay have been laid down in respect of projects approved.
11. Expenditure should not exceed the sanctioned budget. Re-appropriation has not been done from capital grants to revenue heads. Expenditure is incurred only on sanctioned items and savings have been promptly surrendered.
12. List of equipments procured from the project funds alongwith cost, date of purchase and suggestions for disposal are supposed to be received on completion of the project – Action taken in this respect is to be seen.
13. It is to be seen that no PI is allotted more than three research projects.
14. Whether JRF appointees are only those who cleared ICMR – PGI/ National Eligibility Test/ CSIR/ UGC Net Test. Whether the progress of JRF and SRF working on a project is assessed at the end of two years by a Committee.
15. Equipment for the project work is approved for purchase only after obtaining a certificate of its non-availability/ accessibility from the PI.
16. Any case of down-gradation/ upgradation of approved posts as recommended by PI and approved by Technical Division should be examined carefully.
17. Examine whether the competent authority was kept apprised of the reasons for the delay in completion of the project and action recommended by it.
18. Check how many projects were abandoned and critically examine the reasons. The period for which they were in operation and whether they could have not been abandoned earlier should be examined.

19. Whether any project was abandoned due to non-availability of PI inspite of the fact that there was facility of having a co-investigator in the project.
20. Completed projects may be test checked to assess how far the objectives of the project were achieved. National relevance of new knowledge contributed by the ICMR as well as application of this knowledge in the field may also be studied.
21. Test check the records of minutes of the meetings of the SAG, SAC and SAB to see that their recommendations have been complied with and action taken note is submitted in the subsequent meetings.
22. Check that final report in respect of all the projects has been received and the same evaluated with a view to assess the extent to which the common man/ society had been benefited by the outcome of the project.
23. Check that yearly annual progress report is received from the Principal Investigator of the project and the same is sent to experts for comments and only on their recommendations continuation of project is extended.
24. Check that audited accounts and utilisation certificate in respect of each project is received.
25. Check whether ICMR is putting in concentrated efforts in establishing fruitful linkage with user agencies such as central and state governments, other sister organisations, educational institutions in respect of use of research results.

6.9.13 Contract Research, Consultancy and Technical Services

The following guidelines were framed by ICMR for taking up assignments for Contract Research, Consultancy and Technical Services etc.:

1. Contract Research

Contract Research comprises all R&D work undertaken through specific contractual arrangement and will cover the following:

(a) Sponsored Project

These projects are wholly funded by the client having specified R&D objectives and well defined expected project output/ results generally culminating in generation of intellectual property.

(b) Collaborative Projects

These projects are partially funded by the client and supplemented by provision of departmental inputs such as expert manpower, production of product in bulk for testing/ trials, infrastructural facilities, etc. The expected project output/ results are well defined. As the client bears only a part of the project expenses, it has to be ensured that the expenses incurred by the Institute/ Centre are recovered by earnings from licensing of R&D results/ intellectual property to the collaborator/ third parties.

(c) Grant-in-aid Projects

These are projects involving grant by way of financial inputs either in full or in part, by assistance in kind e.g. equipment, training, etc. to supplement Institute/ Centre's efforts in ongoing or new R&D projects or for creating new capabilities/ facilities.

Only such projects which strictly fall within the prescribed mandate of the Institute/ Centre are to be taken up on the recommendations of SAC of the Institute. All such proposals and contracts thereto are required to be approved by DG, ICMR.

Total time spent by the Institute/ Centre on such assignments should not normally exceed 20 per cent of the overall time spent on R&D.

2. Costing of the Contract Research Projects

The charges comprise the following:

- (1) Expenses,
- (2) Intellectual fee.

Expenses include the following:

- (a) Cost of mandays of staff deployed (as prescribed by the ICMR from time to time).
 - (b) Cost of consumables/ raw materials/ components (with 25 per cent overheads).
 - (c) Cost of physical inputs/ services/ utilities (with 25 per cent overheads).
 - (d) Equipment usage cost (20 per cent of cost of equipment). If new equipment is used, it should either be purchased by the client at his cost or purchased by the laboratory and charged to the client with additional charges of 5 per cent of the cost of equipment.
 - (e) External payments envisaged e.g. for hiring infrastructural facilities, experts, etc.
 - (f) TA/ DA
 - (g) Contingencies
- (2) Intellectual Fee to be decided by the competent authority. Minimum 33.3 per cent of total expenses.

Terms of payments: 50 per cent of project charges in advance and balance payments in instalments. The final instalment to be payable before the submission of the project report.

3. Research output

(i) Publications

All commercially exploitable research to be first protected through patenting before publication.

(ii) Intellectual Property

(a) Sponsored Research

The ownership of the intellectual property generated shall remain with ICMR.

(b) Collaborative Research

Intellectual property generated through projects with technical contribution from the collaborator to be jointly owned by the ICMR and the collaborator and expenses to be born equally.

(c) Grant-in-aid

Intellectual property rights in case of Government Departments and agencies may be as per their standard terms and conditions otherwise ownership rights rest with the ICMR.

4. Remittances to ICMR Headquarters

- (a) In case of contract R&D projects, the centres should remit to ICMR, 20 per cent of their share of money realised as intellectual fees or 20 per cent of the net surplus earned.
- (b) In case of monies realised by licencing the intellectual property, the centres shall remit 50 per cent of their share of money realised after accounting for the expenditure incurred on patenting/ licencing, etc.

5.1 Consultancy

Consultancy services shall comprise scientific, technical or other professional advice/ assistance based on available knowledge/ experience of the Institute/ Centre. Consultancy services shall be (a) in an area of expertise of the laboratory preferably in thrust areas, and (b) only on institutional basis.

There are two categories of consultancy viz:

- (a) Advisory consultancy involving scientific, technical or other professional advice provided to a client purely on the basis of available knowledge and not envisaging use of any facilities of the Institute/ Centre.
- (b) General consultancy comprising scientific, technical or other professional advice/ assistance based on the available knowledge base/ expertise of the Institute/ Centre and envisaging only minimal use of Institute/ Centre facilities.

5.2 Costing of the consultancy projects

Same as in the case of contract research except the quantum of intellectual fee to be decided by the DG, ICMR (minimum equal to manpower charges).

5.3 Terms of payment

50 per cent total cost of project charges as advance and the balance payments in instalments. However, final instalment to be paid before the submission of the project report.

The staff involvement for each consultancy project shall be approved by the Director and SAC of the Institute as the case may be. The total number of days devoted by an individual to consultancy work should not normally exceed 50 mandays in a financial year.

5.4 Honorarium for consultancy work

Remuneration by way of honorarium receivable by staff associated with consultancy work would be an amount equal to 2/3 of the intellectual fee. The pattern of distribution of honorarium for consultancy work is as under:

Advisory consultancy

Team of consultants	95 per cent
ICMR Institutes Welfare Fund	5 per cent

General consultancy

Team of consultants	65 per cent
Other S&T Staff	15 per cent
Supporting Staff	15 per cent
ICMR Institute's Welfare Fund	5 per cent

The honorarium is payable only when the project/ assignment is complete and all the money due from the client has been received.

The maximum amount of honorarium receivable by an individual in a financial year shall be limited to Rs.1,00,000 or his or her gross salary for the particular financial year, whichever is less.

20 per cent of the 1/3rd of the intellectual fees received or 20 per cent of the net surplus is to be remitted to ICMR Headquarters and the balance of 80 per cent is to be retained by the Institute/ Centres for ploughing back for research activities in the form of purchase of laboratory equipment, consumable, etc.

6.9.14 Technical Services

(a) Technical services are meant to render to the clients/ customers, assistance of a minor nature based on available knowledge, expertise, skills and facilities of the Institute/ Centre. Technical services shall comprise:

- (i) Testing and analysis
- (ii) Training
- (iii) Technical assistance of an advisory nature
- (iv) Fabrication/ production of special products
- (v) Repairs and maintenance
- (vi) Supply of information (databases)

(b) Financial Aspects

Charges for technical services except for supply of information/ (databases) shall comprise of

- (i) estimated expenses on manpower (at rates prescribed by ICMR), physical inputs/ services/ utilities, etc. (including overheads at 25 per cent), raw materials/ consumable components (with 25 per cent overheads), equipment usage, depreciation/ replacement costs, any other out of pocket expenditure.
- (ii) Intellectual fees/ opportunity cost to be decided by the Director considering the nature of the client and his paying capacity.

Regarding supply of information/ database, the Director is to ensure that the price charged takes into consideration the benefit to be derived by client as also the nature of the client. The charges to commercial organisations and international/ foreign agencies should be on commercial basis.

Competent authority for approval of projects under the above six component is DG, ICMR.

Guidelines for sharing monies from licencing of Intellectual Property, Contract Research and Technical Services. Sharing of monies realised from licensing of intellectual property and intellectual fees from contract R&D and technical services with ICMR are as under;

(Figures in per cent)

	Monies realised from intellectual property licensing		Fee from contract R&D projects	Fees from tech. Services
	Through NRDC	Direct		
NRDC share	30	---	----	----
Institute/Centre's share	30	60	60	80
Investigator's (employees) share	40	40	40	20

The sharing of portion of fees as specified above is subject to the following:

- (i) From the total money realised all direct and indirect project expenditure should be deducted and only net surplus is distributed in the mentioned ratio.
- (ii) A system of cost accounting has been put in place by the Institute/ Centre.
- (iii) Project has been completed in accordance with the terms of agreement.
- (iv) Dues have been received in full.
- (v) In the event of any legal action/ dispute necessitating refund/ payment of monies/ fees by ICMR to the client, the amount paid to the staff is recoverable.
- (vi) Maximum amount receivable by a staff in a financial year is Rs.1 lakh or their salary which ever is less.

6.9.15 Accounting Procedure

1. All monies received directly by the laboratory and expended on account of projects under taken as contract research, consultancy, technical services and licencing of intellectual property are to be properly accounted for under receipts and payments as below:
 - (a) All monies received under assignments relating to contract research, consultancy, technical services and licensing of intellectual property shall be deposited under a separate sub-head category-wise.
 - (b) The direct and indirect expenditure on such activities shall be debited to the corresponding sub head on the payment side.
2. **Procedure of accounting**
 - (i) Separate monthly Receipt and Payment Account for each project shall be maintained besides annual consolidated Receipt and Payment Account for each scheme which is to be sent along with annual Receipt and Payment Account of the Institute to the Council's Headquarters.
 - (ii) The expenditure on account of manpower, chemicals, consumables and other utilities for such projects as may have been originally debited to the Council's grant should be quarterly debited by transfer to the respective sub-head and shown minus debit of the Council's grant under respective budget head.
 - (iii) Any expenditure on equipment usage, overhead charges and intellectual fee shall be calculated proportionately and debited to the project account and taken as receipts to the project.

6.9.16 Points to be seen in Audit

1. Examine that projects/ assignments falling within the prescribed mandate of the Institute/ Centre are taken up on the recommendations of its Scientific Advisory Committee.
2. Examine that the approval of the DG, ICMR has been obtained by submitting the details of the project in the prescribed proforma.
3. See that the project is taken up only after the prescribed quantum of deposit is received and final report submitted only after receipt of the total amount.
4. If the total actual expenditure has exceeded the estimates, it is also to be verified whether action has been taken to recover the additional amount. Reasons for excess expenditure may also be analysed.
5. See that the time spent by an Institute on contract research, consultancy, technical services is within 20 per cent of the overall time spent by the Institute on R&D activities and for consultancy assignments total period does not exceed 50 mandays in a given year.
6. See whether there is a reasonable time gap between deposit of project grant by the funding agency and actual taking up of the project.
7. Audit may examine that Institute/ Centre maintained the following records:
 - (i) Project file containing information on initiation of the idea, details of the proposal, estimate of expenditure, sanction of the proposal by the competent authority.
 - (ii) Information about the date of start of the project, list of innovators and principal contributors, responsibilities of each and extent of their participation, details of physical inputs – direct and indirect.
 - (iii) It shall also contain document listing the outcome of the project/ activity related to the tasks, envisaged objectives and outcome of the project and information about contributions made by each innovator and principal contributors.
 - (iv) The file should contain information about Project Cost. It may be seen in audit that expenditure for each project/ activity is accounted for properly, check whether there is cost overrun in the project due to time overrun, objectives of the project is commensurate with the cost and have been realised.
8. There is no diversion of staff from R&D and other activities of the Institute/ Centre to the consultancy projects.
9. Record of deployment of resources for a consultancy project especially the manpower is separately maintained and the resources deployed by and large conform with the approved estimates.
10. Institute/ Centres plough back their retained share of money realised from intellectual fee for research activities in the form of purchase of laboratory equipment and consumables.
11. Check whether the limit of Rs.1 lakh or gross salary for a particular financial year for payment of honorarium is adhered to. The amount in excess of the prescribed ceiling is not carried over to the following financial year but credited to the respective ICMR Institute's Welfare Fund.
12. If there is unspent balance after the accounts of the project are closed, it is to be checked if the same is refunded or taken into ICMR account after proper approval of the funding agency.

13. Examine and comment on the reasons for insignificant expenditure, if any, on the project during the year and find out whether expenditure is booked after lapse of considerable time of closure of the project accounts and if so, whether action has been taken to recover it.
14. Check that all the installments of deferred payment is backed by suitable bank guarantee.
15. In case the actual expenditure is more than the estimated expenditure it is to be checked that the quantum of increase in intellectual fee is not distributed unless actual receipt of excess expenditure is received from the funding agency.
16. Plant and Machinery, and stores, etc. purchased from deposits are the property of the sponsoring agency. If, however, the same have been allowed to be retained by the Institute/ Centre or gifted, it is to be verified whether they have been taken on stock account/ fixed assets register and properly utilised. The verification can be made from the log books.
17. Whether system of monitoring physical and financial progress of the project exists in the Institute/ Centre. If not, how monitoring is done.
18. Check that the prescribed accounting procedure in respect of projects is followed.

6.9.17 Intellectual Property

1. Intellectual property (IP) include patents, copyright registered design, trademark, 'know how' for a process/ product design and computer software.

Two types of Intellectual Property generated by ICMR are:

(a) Unencumbered

- (i) If developed through wholly in-house R&D programmes/ projects, the ownership and licensing rights are of ICMR alone.
- (ii) If developed through contract research and subsequently rendered unencumbered as per the contractual arrangements with the client, the licensing of IP by ICMR would be in accordance with the terms and conditions agreed upon with respect to third party licensing with the client.

(b) Encumbered

Encumbered developed through contract research i.e. with total or partial financial support and with/ without technical inputs from clients, the ownership and licensing of IP for commercial utilisation shall be governed by ICMR's obligation to the client in the matter.

Licensing of IP shall mean granting the licensee the right to utilise the IP and sell or use the resulting products either for commercial or captive purpose or as otherwise agreed to.

IP could be licensed directly by the Institution/ Centre or through NRDC.

2. Pricing of IP

The following factors are to be worked out by the Institute/ Centre and submitted to DG, ICMR to arrive at the price of IP.

- (i) Cost of development (manpower deployed raw material, consumable components (with 25 per cent overheads), physical inputs (with 25 per cent overheads) equipment usage, etc. and intellectual inputs, cost of publicity and other indirect costs.
- (ii) Estimate of net benefit to be derived from the licensee.

- (iii) Size and number of potential licensees.
- (iv) Comparative cost of imported IP.
- (v) Opportunity value

Price decided for a specific IP are to be reviewed periodically at least once in three years for revision, if any, required.

Intellectual Property Rights (IPR) Cell was established at ICMR Headquarters in the year 1999. This Cell is providing technical inputs in terms of advise and assistance in IPR related issues to the scientists of ICMR headquarters and institutes. The Cell has brought out a document entitled "Contribution of ICMR in the area of IPR" which provides details of patents obtained/ field vaccines/ diagnostic kits and products/ technologies developed.

3. **Points to be seen in Audit**

- (i) There is a proper system to protect the IP in respect of new product/ previously developed in a project.
- (ii) Patents have been filed within a specified timeframe and there is a proper follow up to ensure the sealing of the patents.
- (iii) Commercial viability and successful utilisation of intellectual property was ensured before taking up its development.
- (iv) Check that all the research results for which potential users were not found yet have been adequately protected and shelved till such time that a demand develops for them.
- (v) Does mechanism for proper technical evaluation of any intellectual property sought to be licensed exists in the Institutes/ Centres and thereafter feasibility report for the exploration of the IP prepared.
- (vi) Check whether annual review of intellectual property licensed was conducted by the Institute/ Centre to assess its utilisation status.
- (vii) Check whether proper mechanism for collecting and monitoring the accrual and realisation of monies relating to licencing of IP has been developed by the Institute/ Centre.
- (viii) Check whether there is any deviation from standard terms and conditions of the agreement entered into with the industry to whom the knowledge is to be transferred. If so, whether approval of competent authority was obtained.
- (ix) Check the basis on which the lumpsum and recurring royalties, fees, etc. to be recovered are worked out and that they are according to guidelines.
- (x) Verify whether legal protection has been secured for the technology developed.
- (xi) Compare the lumpsum provision and recurring royalty earning during the last few years and analyse the reasons of large variations, if any. Similarly any arrears on account of these should also be reviewed.

6.9.18 **Purchase Procedure**

1. ICMR is following the general rules relating to purchase of stores (articles and material including stationery as well as dead stock items of the nature of plant, machinery, instruments, furniture, equipment, fixture, etc.) as contained in General Financial Rule (GFR) of GoI.

The following points are to be observed in purchase of scientific equipment by the institutes/ centres.

- (i) Procurement to be made only after SAC of the Institute/ Centre specifically recommends purchase either as a new equipment or as a replacement of existing equipment.
- (ii) Purchase will be subject to budgetary provision.
- (iii) All stores are to be purchased with the condition that the delivery is to be made in India and payment will be made in Indian rupees.

2. Invitation of Tenders

The procedure prescribed in GFR has to be observed in general and specifically the following:

Purchases should be made after inviting tenders/ quotations in India and abroad, if necessary, to obtain adequate competition and to ensure economical purchases. Various types of tenders are as under:

Open or global tender

Open or global tender means invitation to tender by public advertisement. This system of tender is adopted in all cases in which estimated value of purchase is Rs.50,000 or above. However, in public interest or in urgent cases if source of supply is known and possibility of fresh source to be tapped is remote, limited tenders system may be adopted but only after recording reasons in writing.

Limited Tenders

Limited number of firms, which are borne on the list of approved contractors/ firms. This system is adopted in case the value of purchase is less than Rs.50,000 and the firms are on the approved list.

Single Tender

Single Tender means inviting tenders from one firm only. This system is adopted for purchase of articles of proprietary nature only.

3. Purchase of articles from outside India

Articles/ equipment which are not obtainable in India may be purchased from outside India. In this case it is to be ensured that:

- (i) Global tender enquiry is resorted to.
- (ii) Single quotation are adopted for articles of proprietary nature.
- (iii) Funds are available.
- (iv) Foreign exchange sanction has been obtained.
- (v) All purchases made are on FOB basis.

4. Advance payment for purchase in Indian Currency

- (a) Advance payment for supplies is not permissible unless the stores have been received and surveyed.
- (b) Advance payment in exceptional cases only is permitted against valid expenditure sanction. The amount of advance is to be restricted to 90 per cent of the total value of stores or Rs.1 lakh/ Rs.10 lakhs as the case may be which have either been despatched or are being immediately sent.

Points to be seen in Audit

5.

- (i) Whether there is a system to have database/ databank in respect of:
 - (a) Minimum/ maximum levels for each item
 - (b) Present stock position
 - (c) Information about rate contract already entered
 - (d) Previous purchase particulars
 - (e) Various sources for supply – both for capital and recurring
- (ii) Whether proper indent system with recording of 'No Stock Certificate' exists.
- (iii) System of pre-audit of purchase proposals by Finance Wing exists.
- (iv) Whether the availability of other infrastructure are taken into consideration before placement of orders for equipment. If not whether there are instances of non-installation or non-operation of equipment due to (i) non-availability of space for installation, (ii) non-availability of the supplier's engineers to install the equipment, and (iii) no prompt action taken to contact the suppliers for installation or other purposes. All such cases need to be highlighted.
- (v) Whether there are cases of payment of demurrage charges. If so, those cases may be examined especially the cases where clearing agents have been appointed for clearance of goods. If demurrage charges are due to default of services by clearing agents whether the same have been recovered from him before clearing his bills. In case it is due to laxity on the part of concerned officials whether suitable disciplinary action has been taken against them.
- (vi) It should be seen in Audit that agency commission to the Indian agent is invariably paid in Indian rupees and it is not included in the total cost of the equipment of which LC was opened.
- (vii) No advance payment other than for LC supplies are permitted.
- (viii) Purchase of stores is not made in small quantities nor much in advance of actual requirements.
- (ix) Splitting of purchase orders in order to avoid the sanction of higher authority is not permitted.
- (x) Purchase may be linked to scale of consumption or limit of stores laid down.
- (xi) All emergent purchases may be reviewed with reference to recorded reasons of the nature of urgency and why demands could not be anticipated.
- (xii) Whether tenders have been opened at prescribed time and date and prompt action taken to process the tenders, prepare the comparative statement and final placement of order. All those cases of delay in opening and processing of tenders may be examined to see whether it resulted in expiry of validity period of tender and consequential incurring of loss, if any.
- (xiii) All those cases wherein the lowest offer has been ignored should be reviewed with reference to recorded reasons for ignoring them and obtaining of approval of competent authority.
- (xiv) Terms and conditions as incorporated in the order are as per quotation/ accepted by the competent authority.
- (xv) In cases of equipment having been purchased/ imported on the basis of single quotation it should be seen whether any efforts had been made to ascertain that

any other firm is also manufacturing the same/ similar equipment which can serve the purpose, whether a record of such efforts has been kept or proprietary certificate furnished by the indenting scientist.

- (xvi) The purchase order does contain liquidated damages and risk purchase clause to safeguard the Institute/ Centre in case of default by the supplier.
- (xvii) The invoice received from the suppliers should be co-related with the purchase order to confirm that items contained in the invoice tally with those ordered.

6.9.19 Publication of Research Papers

1. Publication of research papers is a key parameter for evaluating performances in basic research of a Institute/ Centre. Research papers published in a country are partly indicators of output of R&D efforts. Apart from importance of publishing a research paper, the impact of these research papers is also significant. Impact factor is a measure of the frequency with which an average article in a journal has been cited in a particular year. In other words, the average impact factor for the Institute/ Centre for a particular year can be studied by dividing the total number of citations made in that year for articles published in two previous years by the number of citable articles published in these years.

ICMR undertook for the first time analysis of the 1999 research output in terms of publications from all the Institutes which provides the details on the performance indicators especially average impact factor (IF) per published paper of the Council as a whole and of individual institutes.

2. Point to be seen in Audit

- (i) The number of research papers published from the Institute/ Centre.
- (ii) The impact of these research papers.
- (iii) The trend of the average impact factor to be studied to comment on the overall performance of the Institute/ Centre.

6.9.20 Indo-Foreign Cell

- (a) An Indo-Foreign Cell (IFC) was set up in the year 1980 for collaboration in biomedical research between India and other countries/ international agencies. In addition, specific agreements are signed by the Ministry of Health and Family Welfare and ICMR with other countries. The purposes of these agreements are: (i) exchange of scientific information, (ii) exchange of scientists/ technicians, (iii) joint execution of scientific proposals including support in the procurement of scientific equipments, and (iv) organisation of joint scientific meetings, seminars, workshops, symposium on identified subjects for co-operation.

The ICMR serves as the Secretariat for the Health Ministry's Screening Committee, which considers research proposals involving foreign collaboration/ assistance.

(b) Points to be seen in Audit

- (i) Whether the objective of setting up this Cell is being achieved.
- (ii) Whether the output of the Cell is commensurate with the expenditure incurred on this Cell.

6.9.21 Management Information System

Management Information System (MIS) of the ICMR Headquarters was established in the year 1982 in collaboration with the WHO, Geneva.

MIS, which was termed as Integrated Research Information System (IRIS) of the Council became fully functional in 1986.

MIS provides information on the:

- (i) Activities of the ICMR and its institutes
- (ii) Extramural programmes – past and current projects
- (iii) Information on scientists
- (iv) Brief information on the research findings of the projects
- (v) Publications from projects
- (vi) Inventories of equipment.

The Bioinformatics Centre was set up in the Council in June 1999 by expanding the activities of the existing IRIS. These activities include the following:

- (i) publish information available with and generated by ICMR on the web;
- (ii) work as a platform to publish information available with other key institutes on the web;
- (iii) provide good internet access to ICMR Institutes and other key Institutes;
- (iv) establish communication link with other ICMR Institutes, Bioinformatics Centres of Department of Bio-technology (DBT), other key Institutes and funding agencies;
- (v) provide internet related services for health research planning to ICMR Scientists and programme managers.

The Centre also maintains database of extramural projects, scientists associated with ICMR, MIS of the Indian Journal of Medical Research (IJMR) and seminar/ symposia/ workshop funded by the Council.

6.9.22 Manpower Management

Points to be seen in Audit

- (i) Whether ICMR complied with Government's instructions regarding constitution of Internal Work Study Unit (IWSU) and Internal Staff Inspection Unit (ISIU) with core members drawn from SIU of Ministry of Finance (MoF) for laying down norms, evolving standards of performance and studying the staffing of establishment to achieve economy in staff consistent with efficiency.
- (ii) Whether any action to evolve standard norms of its own to assess the requirement of scientific, technical and administrative manpower has been taken.
- (iii) Whether the limit of 3.5 per cent to total strength prescribed by MoF in September 1989 in respect of house keeping staff has been adhered to.
- (iv) Whether action to abolish posts kept in abeyance or lying vacant for more than one year was taken as per MoF instructions from time to time.
- (v) Whether scientists and technicians were assigned non R&D work.

- (vi) Whether ban for employment of casual workers for regular nature of work, is being adhered to in ICMR.
- (vii) Whether Management Information System for efficient control over its manpower exists.
- (viii) The ratio of scientific/ technical manpower to administrative manpower is as per the prescribed guidelines issued by the Scientific Department.
- (ix) The number of scientific/ technical manpower of the Institute/ Centre commensurates with the activities taken up.
- (x) Whether there is diversion of manpower towards sponsored projects at the cost of in-house projects.
- (xi) Audit may see the deployment policy. Examine cases where there is considerable time gap between completion of old in-house projects and starting of new projects resulting in scientists not engaged on any in-house projects.
- (xii) Examine cases of upgradation of posts and whether upgradation has the approval of the Government of India.

6.9.23 Communication of Sanctions to Audit

As per Bye-laws no.30 under Head L. Annual Accounts and Results of Audit, it is mandatory to endorse to Audit all sanctions, orders, or delegation of competent authorities under the Rules and Regulations or Bye-laws that affect the Council's account.

It may be seen as to whether copies of sanctions have been endorsed to Audit; if not appropriate comments may be given to make the procedure effective and workable.

6.9.24 Budget

- (a) The following stipulations are made in the By-law of the Council regarding preparation and sanction of budget estimates:
 - (i) The Director General of the Council is required to formulate the budget proposals for inclusion in the Revised Estimates of the current financial year and Budget Estimates for the next year.
 - (ii) No provision may be included in the budget estimates for any scheme not duly approved by the competent authority.
 - (iii) In case during the course of the financial year any scheme not included in budget estimates for that year is to be financed, the sanction of the Governing Body is to be obtained to the method proposed for financing it, by means of a supplementary grant from the balances or by re-appropriation within the sanctioned estimates.
 - (iv) All the schemes/ projects proposed to be financed from the funds of the Council are required to be approved by the Governing Body except schemes/ projects for which powers have been delegated to the Executive Committee. Any scheme approved by the Executive Committee of the Governing Body shall be got ratified by the Governing Body in its next meeting.
 - (v) Funds shall not be appropriated for expenditure on any item not approved by the competent authority.
 - (vi) The DG shall have the power to re-appropriate funds from the primary unit of appropriation to another or from the secondary unit to another within a primary

unit. Plan and non-plan budget for Headquarters as well as Institutes/ Centres Budget is prepared at ICMR Headquarters.

Points to be seen in Audit

(b)

- (i) Whether system of projection of budgetary requirements under various heads by the Headquarters/ Institute/ Centre is adequate. Is it done on scientific basis or merely worked out on the basis of expenditure of last financial year.
- (ii) Whether budgetary allocation to the Institute/ Centre is as per their requirement and there is neither excess under any head resulting in wasteful expenditure or saving nor the budget allocations are too little to effect the actual research/ functioning of the unit.
- (iii) Whether re-appropriations were result of not matching budget estimates with trend of expenditure.
- (iv) Budget estimates in respect of capital items are prepared after taking into account the progress of works so as to avoid non utilisation of funds.
- (v) Proper vigil is kept over the trend of expenditure so that the funds available are properly utilised and there is no case of surrender of funds.
- (vi) Compare the actual expenditure with the budget estimates/ revised estimates. Excess or savings may be analysed and suitably commented upon.
- (vii) Check whether at the end of the financial year, ICMR treated the actual expenditure of the Institute/ Centres as their final allocation.

Was projected, allocated and actual expenditure of the Institute/ Centre allocated after proper consultation with the Institute/ Centre and that allocation of funds by the ICMR is not a futile budgetary drill.

6.9.25 Audit by CAG

The Comptroller and Auditor General of India is the sole auditor of ICMR.

Audit of the accounts of the Council has been entrusted to the CAG under Section 20(1) of the CAG's (Duties, Powers and Conditions of Service) Act, 1971. The following stipulations regarding audit are made in the Byelaws of the Council.

- (a) The function of the Auditor of the Council will be exercised by the CAG or any person appointed on his behalf. (Byelaw 24)
- (b) The CAG and any person appointed by him in connection with the audit of the accounts of the Council shall have the same rights, privileges and authority in connection with the audit of Government accounts and in particular shall have the right to demand the production of books accounts connected vouchers and other documents and papers and to inspect any of the offices of the Council. (Byelaw 25)

6.9.26 Accounts

- (a) Each Institute and Centre of ICMR is preparing Receipt and Payment Account for the financial year and forwards it to the headquarters alongwith Schedule of Assets, Sundry Creditors and Debtors, etc. At headquarters consolidated Receipt and Payment Account, Income and Expenditure Account and Balance Sheet is prepared and submitted to the CAG for audit.

As per clause 28 of Council's Byelaws, the accounts of the Council, as certified by the CAG together with the audit report thereon is forwarded annually to the Ministry of Health and Family Welfare and to the Governing Body of the Council.

(b) Point to be seen in Audit

The accounts are to be examined with respect to directions issued by CAG of India from time to time besides those manualised in CAG's MSO (Audit) and Manual of Audit of Autonomous Bodies. The following points needs special attention:

- (i) Accounts are prepared in the format approved by the CAG of India.
- (ii) Assets registers are maintained in the prescribed format;
- (iii) Examine the additions made to fixed assets during the year.
- (iv) Assets sold or written off have been properly reduced.
- (v) Gifted assets are duly accounted for.
- (vi) Assets figures as adopted by ICMR Headquarters and figures in the schedules provided by the Institutes and Centres are reconciled.
- (vii) Sundry creditors and sundry debtors may be scrutinized to see that there are no minus balances. Reasons for such minus balances may be examined.
- (viii) Suspense head on liabilities and assets side may be examined.
- (ix) Physical verification of assets and stores has been done every year.
- (x) Unspent amount of the grant is distinctly reflected on the liability side of the balance sheet.
- (xi) Whether disclosure has been made in respect of amount of grant for which utilisation certificates have not been received.
- (xii) Whether system exists to reconcile funds remitted (to the Institute/ Centre) by the Council.
- (xiii) Bank reconciliation by the Council's headquarters and Institutions is done at regular intervals and prompt action taken to settle the differences.
- (xiv) Outstanding advances for supply of material/ procurement of equipment, TA/LTC, and contingent advance for local purchases are settled promptly and provisions of GFR are strictly followed.
- (xv) Broadsheet as per provision of GFR are maintained in respect of all interest bearing advances such as HBA, car advance, computer advance, etc.
- (xvi) Examine whether the accounting systems provide inter-alia for:
 - (a) proper accountal of receipts, expenditure and assets.
 - (b) recording of unrealised revenues and undercharged liabilities.
 - (c) general control over expenditure
 - (d) sanctioning and incurring of expenditure, forgoing of revenues or transfer/ disposal of assets.
 - (e) safe custody of cash, stores and other assets.
 - (f) Whether the accounting system provides information necessary for:
 1. efficient and economical management of the operations of the Council and the resources entrusted to it,

2. proper monitoring of the activities by Government which has a substantial stake in it, and
 3. meaningful evaluation of its achievements and shortcomings by outside agencies including Audit.
- (xvii) Compare the net results of income and expenditure for the previous three or four years and if there is a large variation, analyze the reasons for it.
- (xviii) Check whether the recurring grants given by the Government have been utilised for purpose it was given and non-recurring grant for purchase of fixed assets.
- (xix) Examine that the amount of grant received from the Government is deposited in the saving account and surplus money invested in short term deposits.

ICMR Permanent Institutes/ Centres

1. National Institute of Nutrition,
Jamai-Osmania,
Hyderabad-500007
2. National Institute of Virology,
20-A, Dr. Ambedkar Road,
Post Box No.11,
Pune-411001
3. Institute for Research in Reproduction,
Jehangir Merwanji Street,
Parel,
Mumbai-400012
4. Tuberculosis Research Centre,
Mayor V.R. Ramanathan Road,
Chetput,
Chennai-600031
5. Institute of Immunohaematology,
13th Floor, KEM Hospital Compus,
Multistoreyed Complex, Parel,
Mumbai-400012
6. National Institute of Cholera and Enteric Diseases,
P-33, CIT Road Scheme XM,
Post Box No.177, Beliaghata,
Calcutta-700010
7. Institute of Pathology,
Safdarjang Hospital Campus,
Post Box No.4909,
New Delhi-110029
8. National Institute of Occupational Health,
Meghani Nagar,
Ahmedabad-380016
9. Vector Control Research Centre,
Medical Complex, Indira Nagar,
Pondicherry-605006
10. National Centre for Laboratory Animal Sciences,
National Institute of Nutrition,
Jamai-Osmania,
Hyderabad-500007

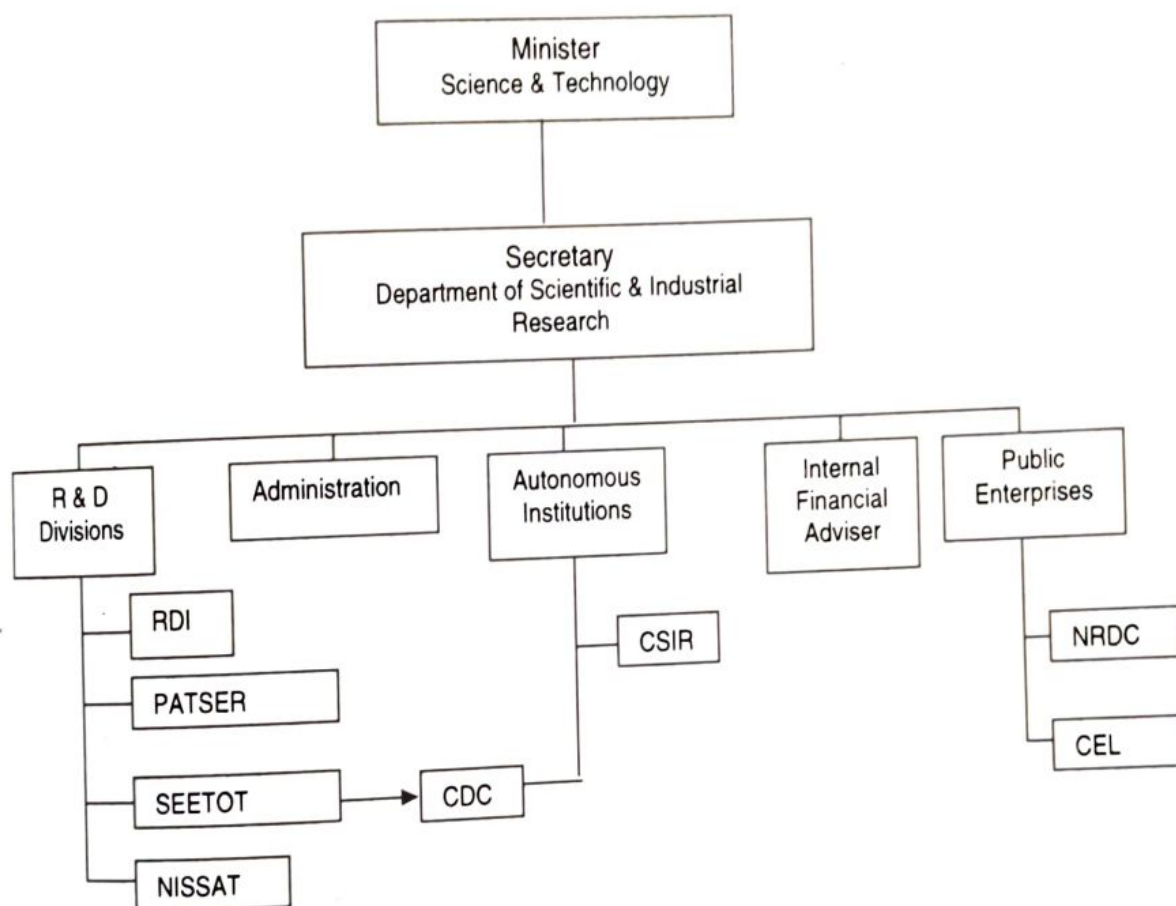
11. Food and Drug Toxicology Research Centre,
National Institute of Nutrition,
Jamai-Osmania,
Hyderabad-500007
12. Central JALMA Institute for Leprosy,
Post Box No.101, Tajganj,
Agra-282001
13. Malaria Research Centre,
22, Sham Nath Marg,
New Delhi-110054
14. Institute for Research in Medical Statistics,
ICMR, Headquarters Campus,
Ansari Nagar,
New Delhi-110029
15. National Institute of Epidemiology,
1, Sathyamurthi Road, Chetput,
Chennai-600031
16. Institute of Cytology and Preventive Oncology,
Maulana Azad Medical College Campus,
Bahadur Shah Zafar Marg,
New Delhi-110002
17. Enterovirus Research Centre,
Haffkine Institute Compound,
Acharya Donde Marg, Parel,
Mumbai-400012
18. Rajendra Memorial Research Institute of Medical Sciences,
Agam Kuan,
Patna-800007
19. Centre for Research in Medical Entomology,
Post Box No.11, 4, Sarojini Street,
Chinna Chokkikulam,
Madurai-625002
20. ICMR Genetic Research Centre,
Jehangir Merwanji Street,
Parel,
Mumbai-400012
21. National AIDS Research Institute,
Post Box No. 1895,
Plot No.73, Block G, Bhosari Industrial Estate,
Pune-411026

6.10 DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

6.10.1 Department of Scientific & Industrial Research (DSIR) is a part of Ministry of Science & Technology. It was carved out of Department of Science & Technology in January 1985 with the objective to motivate industry and intensify efforts on research and development towards technological self-reliance & industrial development of the country.

The Department of Scientific and Industrial Research (DSIR) comprises of the activities of the Council of Scientific and Industrial Research (CSIR), Departmental Schemes viz. Research and Development by Industry (RDI), Programme Aimed at Technological Self Reliance (PATSER), Scheme to Enhance the Efficacy of Transfer of Technology (SEETOT) and National Information System for Science and Technology (NISSAT) and two Public Enterprises viz. National Research Development Corporation (NRDC) and Central Electronics Limited (CEL).

6.10.2 Organisational Structure



6.10.3 Staff Strength

Department of Scientific & Industrial Research (Other than CSIR & PSUs) has a sanctioned strength of 111 employees. Staff of in position as on 1st January 2002 was 92.

6.10.4 Administrative Functions

The Administrative functions of recruitment of personnel, provision of general facilities, redressal of grievances of employees, parliament work and house keeping jobs except related to drawing & disbursement of cash (work of cash section) are being performed by the Department

of Scientific and Industrial Research. Activities related to promotions of scientific staff and officers (under the flexible complementing scheme) are also looked after by the Department. Department of Science & Technology is performing other housekeeping jobs and financial transactions.

6.10.5 Recruitments and Promotions

Rules & procedure of Govt. of India for recruitment & promotion of Central Govt. employees are equally applicable for recruitment to ministerial and non-gazetted staff in DSIR. Flexible Complementing Scheme for Scientists in various scientific departments modified on the recommendation of the Fifth Central Pay Commission is applicable for in-situ promotion of scientists/ technical personnel in DSIR.

6.10.6 Conditions of Services of Officers and Staff

DSIR being a Central Govt. department, the Central Civil Services (Classification, Control & Appeal) Rules, and the Central Civil Services (Conduct) Rules, apply.

6.10.7 Purchase Procedure and Financial Rules

All rules, regulations and procedures of Govt. of India are applicable in DSIR for procurement of stores and all financial transactions.

6.10.8 Resource Outlay

Government funding in current years for running different programmes & schemes of DSIR are shown below:

(figure in crore)

PROGRAMMES/ SCHEMES	ACTUALS 2000-01			BE 2001-02			BE 2002-03		
	Plan	Non-plan	Total	Plan	Non-plan	Total	Plan	Non-plan	Total
Assistance to CSIR	301.910	574.880	876.790	332.000	600.220	932.220	412.000	597.650	1009.650
Technology Promotion Development & Utilisation	10.768	0.081	10.849	17.550	0.100	17.650	22.650	0.200	22.850
Research & Development (APCTT & NISSAT)	2.065		2.065	2.750		2.750	0.100		0.100
Investment in Public Enterprises				2.750		2.750	2.500		2.500
Loans to Public Enterprises				2.750		2.750	2.500		2.500
Management, Administration & Infrastructure				2.000		2.000			0.000
Secretariat Economic Services	0.093	2.519	2.612	0.200	3.150	3.350	0.250	3.080	3.330
Total	314.836	577.480	892.316	360.000	603.470	963.470	440.000	600.930	1040.930

6.10.9 Autonomous Bodies

Two autonomous bodies receive recurring & non-recurring grants from DSIR.

(a) Council of Scientific and Industrial Research (CSIR)

The CSIR is the national R&D organisation providing scientific industrial research for India's economic growth and human welfare. It has a country-wide network of thirty eight laboratories and 48 centres/ field stations covering fundamental and applied R&D in all areas of science and technology barring atomic research, developing and nurturing

S&T human resource for the country through extra mural support and promoting scientific talent through awards, fellowships etc.

A separate chapter has been included in the Manual in the Section for Autonomous Research Institutions for providing detailed information about CSIR.

(b) **Consultancy Development Centre (CDC)**

CDC was promoted in January 1986 as a non-profit society, primarily with a view to implement some of the programmes of DSIR. CDC is implementing a programme on Consultancy Development, Promotion & Assistance (CDPA) scheme, maintains a computerised database of consultants, organises training particularly on ISO-9000 and ISO-14000 and Human Resources development Programmes for promoting consultancy. It also conducts programmes sponsored by other agencies.

DSIR, as a part of its 'SEETOT' scheme, is providing recurring and non-recurring support to CDC. The centre was expected to be self-supporting within five years from the time of its establishment. Its Byelaws, Service Rules, Memorandum of Association are yet to be finalized.

(c) **Audit Points**

Audit should critically examine:

- (i) Whether the centre, which was established in 1986, had finalised its Byelaws, service rules and memorandum of Association? If not, reasons therefor. Has it been registered under the Societies' Registration Act. without having any Byelaws and memorandum of Association?
- (ii) Whether Government should continue to provide recurring and non-recurring support to the centre, which was expected to be self-supporting within five years from the time of its establishment? If so, how long?
- (iii) Analyse the value of service provided and revenue earning to see whether there is any probability of it's being self-supporting in near future and suggest corrective measure wherever felt necessary.

6.10.10 Departmental Schemes/ Programmes currently operated in DSIR

The major programmes of DSIR (other than CSIR) have been grouped as under:

(i) **Research and Development by Industry (RDI) consisting of:**

- (a) In-house R&D in Industry.
- (b) R&D by Scientific and Industrial Research Organisations (SIROs).
- (c) Fiscal Incentives for Scientific Research.

(ii) **Programme Aimed at Technological Self-Reliance (PATSER) consisting of:**

- (a) Development of new or improved technologies.
- (b) Development of special/custom built capital Goods.
- (c) Absorption and Adaptation of imported technology.
- (d) Studies and interactions concerning Technology Evaluation and pre-industry feasibility of major sectors/products.
- (e) Technopreneur Promotion Programme

(iii) Scheme to Enhance the Efficacy of Transfer of Technology (SEETOT) consisting of:

- (a) National Register of Foreign Collaborations (NRFC).
- (b) Transfer and Trading in Technology (TATT).
- (c) Promotion and Support to Consultancy Services (PSCS) which also include the Consultancy Development Centre (CDC).

(iv) Linkages with International Organisations

(v) National Information System for Science and Technology (NISSAT)

(vi) Public Enterprises viz.

- (a) National Research Development Corporation (NRDC).
- (b) Central Electronics Limited (CEL).

Research and Development by Industry (RDI)

The EFC Memorandum for the plan scheme, Research and Development by Industry, for the Eighth Plan Period (1992-97) was approved in 1992. The Scheme is continued in the Ninth Five-year plan as well as in Tenth Five-year Plan period. The broad objectives of the scheme are to:

- ◆ bring in-house R&D into sharper focus;
- ◆ strengthen R&D infrastructure in industry and Scientific & Industrial Research Organisations (SIROs);
- ◆ promote R&D initiatives of the industry and SIROs;
- ◆ ensure that the contributions made by the in-house R&D Centres and SIROs dovetail adequately in the overall context of technological and industrial development.

For achieving these objectives, the Government has evolved, from time to time, fiscal incentives and support measures in the form of following tax relief, duty exemption & fiscal incentives to encourage R&D in industry and increased utilisation of locally available R&D options for industrial development of the country.

Tax incentives to recognized in-house R&D units in Industry	Fiscal Incentives for Scientific research & industrial development
<ol style="list-style-type: none"> 1. Income tax relief on R&D expenditure as per IT Act; 2. Weighted tax deduction for sponsored research programs in approved national laboratories, universities and IITs; 3. Weighted tax deduction on R&D expenditure in drugs, pharmaceutical, electronic equipment, computers, telecommunication equipment and chemicals; 4. Accelerated depreciation allowance on new plant and machinery set up based on indigenous technology, custom duty exemption on goods imported for use in Government funded R&D projects; 5. Excise duty waiver for 3 Years on goods designed and developed by a wholly Indian owned company and duly patented in any two countries out of India, USA, Japan and any country of the European Union; 6. Exemption from price control for bulk drugs produced based on indigenous technology, 10 years tax holiday to commercial R&D companies; financial support for R&D projects; 7. National Awards for outstanding in-house R&D achievements and commercialisation of results of public funded R&D and other indirect benefits. 	<ol style="list-style-type: none"> 1. Income tax relief on R&D expenditure; 2. Weighted Tax Deduction for sponsored research; 3. Weighted tax deduction on in-house R&D expenditure; 4. Customs Duty Exemption on capital equipment, spares, accessories and consumables imported for R&D by approved institutions/ SIROs; 5. Excise duty waiver on indigenous items purchased by approved institutions/ SIROs for R&D; 6. Ten year tax holiday for commercial R&D companies; 7. Excise duty waiver for 3 years on goods produced based on indigenously developed technologies and duly patented in any two of the countries out of India, European Union (one country), USA and Japan; 8. Accelerated depreciation allowance on plant and machinery set-up based on indigenous technology; 9. Price Control exemption on domestic R&D based bulk drugs; 10. Customs duty exemption on imports for R&D projects supported by Government.

Secretary, DSIR has been designated as the Prescribed Authority for approval, recognition, registration, consultation for allowing these incentives and to provide support by the Government. Following are the powers/ authorities vested on Secretary, DSIR:

- (a) Recognise In-house R&D units in Industry
- (b) Recognise Scientific and Industrial Research Organisations (SIROs), for granting Income Tax exemption, customs duty & Excise Duty Exemption.
- (c) Recognise R&D programmes for granting fiscal Incentives for Scientific Research.
- (d) Certify expenditures where higher rate of depreciation is to be allowed for the plant and machinery using indigenous know-how.
- (e) Certify for customs duty exemption on specific goods imported for use in R&D projects funded partly by any Department of the Central Government and undertaken by the company in their in-house R&D unit recognised by DSIR.
- (f) To assist the Director-General of Income Tax (Exemptions) to decide as to whether and, if so, to what extent any activity constitutes or constituted or any asset is or was being used for scientific research for allowing benefit of 100%

write off of expenditures made on capital equipment and related in the year in which the expenditures are incurred.

- (g) Recognise commercial R&D companies to allow tax holiday.
- (h) Registration of public funded research institutions, universities, IITs, IISc, Bangalore, Regional Engineering Colleges for availing customs duty exemption on import of scientific equipment, spares and accessories, consumable items and Central Excise Duty exemption on indigenous purchases for scientific research purposes.

Audit Point

Schemes of providing incentives and support to R&D units in industries or research organizations under RDI programmes or SIROs have direct impact on Government revenues. Audit should therefore examine the system of controls in schemes. In order to formulate any opinion on the functioning of schemes, scrutiny of individual cases would be essential through proper sampling; the samples should be representative. In the audit of the system, an analytical approach is essential to locate the weaknesses or deficiencies in the system of controls. For this purpose, the Audit may obtain complete list of the research organizations/ industries or programmes/ projects to which the benefits have been granted. Select some typical cases as sample and examine them thoroughly to ensure that all such incentives have been sanctioned to genuine research organizations/ R&D units in industries or programmes/ projects and for achieving the Government's objective of promotion of scientific & industrial research in the country.

Audit may, however, look into the following aspects in regard to the recognition of in-house R&D units and under SIROs Schemes:

- (i) Whether in-house R&D unit recognised was engaged in research and development activities related to the line of business of the firm?
- (ii) Whether the R&D activities are separate from routine activities of the firm such as production and quality control?
- (iii) Whether the in-house R&D units have at least some staff exclusively engaged in R&D headed by a full-time R&D manager who would have direct access to the Chief Executive or to the Board of Directors depending upon the size of the unit?
- (iv) Whether internal scrutiny group has examined all aspects mentioned in (i) to (iii) before processing the case and sending the application for comments to the Departments/Agencies really concerned with activities of the firm?
- (v) Whether any expert committee was formed with representative from relevant field and with the approval of Secretary, DSIR?
- (vi) Whether the expert committee visited the units seeking recognition, if so, what are their findings?
- (vii) Whether the application along with the Department's evaluation, comments from outside agencies, visit report from expert committee were placed before the Inter-Departmental Screening Committee constituted by the Secretary DSIR?
- (viii) Whether the Committee recorded its evaluation of R&D infrastructure and R&D activity of the applicant firms and recommended in favour of recognition?
- (ix) Whether Inter-Departmental Screening Committee ensured before recommending recognition of any organization under SIROs scheme that the organization have broad based Governing Council, Research Advisory Committee, Research Personnel, Infrastructural facilities for research, well defined research programmes and clearly stated objectives of undertaking scientific research.

Programme Aimed At Technological Self Reliance (PATSER)

DSIR under its Plan Scheme 'Programme Aimed at Technological Self Reliance' [PATSER] is promoting Industry's efforts in development and demonstration of indigenous technologies, development of capital goods and absorption of imported technologies. The PATSER Scheme has the following objectives.

- (i) Supporting industry for technology absorption, development and demonstration.
- (ii) Building indigenous capabilities for development and commercialization of contemporary products and processes of high impact.
- (iii) Involvement of national research organizations in joint projects with industry.

Towards achieving the above objectives, the Department provides, on a selective basis, partial financial support to research, development, design, engineering (RDDE) projects to be proposed by Industry, in the following area:

- (a) Development and demonstration of new or improved product and process technologies including those for specialized capital goods, for both domestic and export markets.
- (b) Absorption and Upgradation of imported technology.

The partial financial support in the form of refundable Grant-in-aid in the above areas primarily covers prototype development and pilot plant work, test and evaluation of products flowing from such R&D, user trials etc.

Bulk of the financial support to the projects is to be from Industry's resources. The financial support from DSIR is mainly to meet part of the development expenditures for:

- ◆ Raw materials, components and other development expenditures for making prototypes or building up of pilot plant and experimentation thereon, for upscaling or optimization of processes.
- ◆ Product/ process simulation/ know-why studies.
- ◆ Consumables and other operational costs involved in experimental work.
- ◆ Testing and evaluation, field trials/ users trials
- ◆ Consultancy/ technical assistance from National R&D Organisations and Institutions.

These RDDE projects should be aimed at improvement or complete development of a product or a process and development of capital goods, having good demands. The projects should results in significant benefits in terms of raising the technological level of the industry concerned, high turnover, energy and material savings/ recovery and foreign exchange savings or earnings etc.

Audit Points

Here also the Audit should examine the system of controls in schemes and functioning of schemes by scrutiny of individual cases through proper sampling.

Some of the aspect, Audit should examine, are given below:

Project approval process

- (i) Whether the project undertaken was solely by in-house R&D Units of industrial firms or undertaken jointly by Industry and National R&D Organisations/ Institutions or a collaborative project of common interest to the concerned sector/ area, proposed by a group of industries/ users, National Research Organisations, etc.

- (ii) If it was a joint or collaborative project, verify whether contributions and responsibilities of each party have been indicated in the project proposal?
- (iii) Whether the objectives and milestones of the project have been clearly defined?
- (iv) Whether the standing Technical Advisory Committee (TAC), which examined the project proposal, had representation from the experts from respective field of Science, technology & industry and a person with financial background to evaluate the financial aspect?
- (v) Whether the TAC visited the site of execution and gathered enough information/ data and evaluated the proposal for their scientific, technological, commercial and financial merits viz.
 - (a) the soundness, scientific quality and technological merit.
 - (b) the potentiality for wide application and the benefits expected to accrue from commercialisation
 - (c) the capability of the R&D institution(s) in the proposed action network
 - (d) the organisational and commercial capability of the industry including its internal accruals
 - (e) the reasonableness of the proposed cost and financing pattern
 - (f) measurable objectives, targets and mile-stones.
- (vi) Whether market survey was done to assess the market requirement?
- (vii) Whether cost effectiveness was analysed to assess the market prospect of the end products
- (viii) Whether the commercial plan has been given in the proposal or devised before the proposal was approved.

Agreement

- (i) Whether a valid agreement was signed between DSIR and other parties involved in the project?
- (ii) Whether the terms & conditions of the agreement were finalised in consultation with the Department of Law?
- (iii) Whether the agreement clearly defined the responsibilities and obligations of all the parties involved in the project, terms & conditions, financial arrangements, modalities of collaboration, intellectual property rights, monitoring mechanism?
- (iv) Whether the agreement prescribed the accounting procedure for maintaining the accounts for the money released by DSIR?
- (v) Whether the right of the assets acquired out of DSIR grant during the course of implementation of the project has been defined in the agreement?
- (vi) Whether any clause has been included in the agreement to prevent the Executing Agency to transfer the project to any other organization?
- (vii) Whether agreement included a clause of regular reporting by the Executing Agency of the financial, technical & physical progress of the project?
- (viii) Whether situation in which DSIR reserves the right to terminate the project has been defined with clause to recover the money released for the project with interest?
- (ix) Whether the agreement provides adequate safeguard for recovery of the money invested by DSIR in case the executing agencies without any valid reasons abandon the project?
- (x) Whether the release of refundable grant-in-aid been linked to the progress of execution?

- (xi) Whether the agreement provides clear pattern of sharing of benefits that accrue from commercialisation of the end products and/or refund of the grant sanctioned by DSIR with compensation?

Monitoring Process

- (i) Whether DSIR had set up a Project Review Committee (PRC) with experts from appropriate fields?
- (ii) Whether the financial, technical & physical progress reports and utilization certificates have been received regularly from the Executing Agency and submitted to Project Review Committee?
- (iii) Whether the PRC regularly met and reviewed the project and recommended its continuance?
- (iv) Whether suggestion, if any, made by the committee has been implemented by the Executing Agency?
- (v) Whether immediate action was taken to issue termination order if recommended so by the PRC?
- (vi) Whether there was any time over run or cost over run? If so, what was the justification?
- (vii) Whether PRC has approved extension of time and enhancement of the project cost in such cases?
- (viii) Whether the completion report along with audited accounts have been submitted promptly by the Executing Agency immediately on its completion?
- (ix) Whether PRC examined the completion report and accepted the same?
- (x) Whether the PRC or the experts nominated by PRC have visited the site of execution for physical verification during course of progress or before termination of a project or/and after completion before taking the decision of continuance or termination or/and completion, as the case may be, of a project?

Terminated Abandoned Project

- (i) Whether the entire grant-in-aid released by DSIR and/ or any amounts recoverable by way of disposal of assets procured out of DSIR fund for a project, which has been abandoned by the executive agency or terminated by DSIR, has been recovered along with interest? If not, what action the department has taken for the faster recovery of the same?

Completed Project

- (i) Whether unspent balance of the DSIR fund, if any, in respect of completed project been refunded promptly?
- (ii) Whether DSIR communicated its decision regarding ownership of the assets procured out of DSIR fund or its disposal to the executing agency?
- (iii) Whether the Executing Agency has submitted commercialisation plan immediately on the completion of execution?
- (iv) Whether the technologies/ end products have ultimately been commercialized? If not the reasons therefor.
- (v) Whether the refundable grant-in-aid along with interest has been refunded or DSIR's share of benefits accrued from commercialisation of the end products and/or refund of the grant have been received by DSIR or any other agency such as NRDC on its behalf, as provided in the agreement?

Technopreneur promotion programme (Tepp)

The Ministry of Science and Technology has launched a programme known as "Technopreneur Promotion Programme" (TePP) jointly operated by Department of Scientific & Industrial Research (DSIR) and Technology Information, Forecasting and Assessment Council (TIFAC) of Department of Science & Technology (DST) to tap the vast innovative potential of the citizens of India. TePP will be a crucible to promote individual innovators to become technology based entrepreneurs.

DSIR's financial support is in the form of grant-in-aid normally to the maximum extent of rupees five lakhs.

Who can apply?

Any Indian citizen having an original idea/ invention/ know-how can apply.

What proposals are eligible?

Proposals from individual innovators to convert an original idea/ invention/ know-how into working prototype/ processes. These proposals can be made by individuals or jointly with any sponsoring organizations.

How TePP can help?

Selected project is provided financial support to undertake the above developments, patent support & guidance, scientific/ technical consultancy, fabrication assistance, market information and networking with related research lab/ institutes as required.

National Register of Foreign Collaborations (NRFC) and Technology Management (TM)

Objectives and activities

The main objective of scheme is to facilitate acquisition and management of technology in the country, efficiently. The following major activities are carried out under NRFC & TM:

- ◆ Compilation and analysis of data on approved foreign collaborations
- ◆ Undertake studies in select areas.
- ◆ Provide assistance in the effective transfer of technology process and efficient management of technology.
- ◆ Coordinate with Ministries and other organization
- ◆ Organise interaction & awareness programs on technology related issues.

Under this scheme DSIR, in close association with industry, R&D organisations institutes of management & technology, consultancy organisations, Government Departments and others undertake multifaceted programmes and activities. The programmes and activities cover organisation of awareness programmes, undertaking studies, undertaking research reports organising training programmes etc.

Transfer and Trading in Technology (TATT)

Objective

Catalyzing Technology Intensive Export Efforts of Industry/R&D through Grants & Technical Assistance

Major Activities

- ♦ Documentation of India's technology export capabilities, technological, institution building & training requirements of other countries
- ♦ Organisation of technology export related seminars/workshops
- ♦ Demonstrations of exportable technologies
- ♦ Participation of technology based organisations in technology pavilions/ expositions in specialized industrial and technology fairs
- ♦ Information and data bases on technology exports

Promotion and support to consultancy services

The scheme relating to promotion and support to consultancy services (PSCS) aims to strengthen country's consultancy capabilities in domestic and export markets. The scheme also includes the Consultancy Development Centre (CDC).

The objectives of the PSCS Scheme include:

- ♦ To promote and strengthen consultancy capabilities for both domestic and export markets.
- ♦ Support to Consultancy Development Centre (CDC) and other promotional organisations related to consultancy.
- ♦ Human Resource Development including fellowships to bright and promising engineers as apprentices with eminent consultancy organisations, arrange training etc.
- ♦ Support R&D efforts of consultancy organisations and commercialisation of indigenous technologies.
- ♦ Organise Seminars, Workshops, etc. and document consultancy capabilities.
- ♦ Create awareness among users of consultancy.

Linkages with International Organisations

The Department maintains linkage with international organisations by participating in the activities of various international organisations such as UNCTAD, WIPO, UNIDO, ESCAP and APCTT at various levels and forums on issues related to Technology Development and Technology Transfer in coordination with other concerned Ministries.

National Information System For Science & Technology (NISSAT)

The National Information System for Science & Technology (NISSAT) commenced its operations in 1977 with the objectives of organizing information support facilities for a customer base largely dominated by people engaged in research and academics. In tune with the changing global scenario and in pursuance of the national efforts in liberalization and globalization of the economy, NISSAT reoriented its programme activities continually in order to be useful to a wider base of clientele in diverse subjects. Besides establishing the internal linkages between the information industry, its promoters and users, NISSAT has been main efforts to establish a bridge between information resource developers and users in Indian and other countries.

The scheme 'NISSAT' has been discontinued from 2002-03 and the Group is re-organising its activities.

Public Enterprises

Two public enterprises are functioning under DSIR, viz.

- (i) National Research Development Corporation (NRDC)
- (ii) Central Electronics Limited (CEL)

National Research Development Corporation

National Research Development Corporation (NRDC) is the principal organisation established by the Government to act as a link between scientific laboratories and industrial establishments for transferring technologies. It is the only public enterprise wholly dedicated to transfer of technologies from R&D laboratories to industry. Its operations cover the entire spectrum of industrial technologies ranging from chemicals to metallurgy, mechanical engineering, electrical engineer, electronics, biotechnology etc.

NRDC also provides technical, legal and financial assistance to inventors in drawing up patent specifications, processing their patent applications etc.

VIII (B) CENTRAL ELECTRONICS LIMITED

Central Electronics Limited (CEL) produces different electronic component, cells and systems from indigenous technology both from its in- house developments and from the country's National Laboratories.

The activities of CEL are sharply focussed in three thrust areas:

- (i) Solar Photovoltaic Cells, Modules and Systems for a variety of both Rural and Industrial applications.
- (ii) Selected Electronic Systems - Equipment for Railway Signalling and Safety, Cathodic Protection Equipment for Oil Pipelines, Rural Automatic Exchanges (RAX) and Very Small Aperture Terminals (VSATS).
- (iii) Selected Electronic Components - Professional (Soft) Ferrites, Electronic Ceramics, Piezo Electric Elements and Microwave Components.

Audit of these two undertakings are conducted by the Commercial Audit Wing of IAAD.

Chapter-7

INSPECTION AND LOCAL AUDIT

7.1 General Instructions

7.1.1 Audit Mandate

To enable the Comptroller and Auditor General to assure himself of the accuracy of the original data on which the accounts of Government are based, he has the authority under sub-section (1) of Section 18 of the CAG's (DP&CS) Act, 1971, to inspect any office of accounts including a treasury or other office, which is under the control of the Union, State or a Union Territory Government and is responsible for keeping initial or subsidiary accounts, as submits accounts to him. The Comptroller and Auditor General also has authority to call for any accounts, books, papers and other documents which deal with or are otherwise relevant to the transactions to which his duties in respect of audit extend, put such questions and call for such information as he may require for the preparation of any account or report which it is his duty to prepare.

7.2 Audit Objectives and Scope

7.2.1 Inspection

The primary objects of inspection are (i) to see that the initial accounts from which the accounts rendered by departmental officers are compiled, or on which they are based, are properly maintained in the prescribed forms and that financial rules and orders are being carried out, and (ii) to test the degree of care exercised by the departmental authorities responsible for keeping the accounts over the accuracy of original records.

An Inspecting Audit Officer is not expected merely to confine himself to the routine audit and inspection work. He should avail himself of the opportunity of assisting the departmental officers and accountants with his advice in matters affecting accounts, budget, etc., or the financial regularity of transactions. He may even offer suggestions bearing on the economy of public money and is expected to do so in all cases of superfluous clerical work connected with accounts and audit.

An Inspecting Officer must, however, keep it prominently in his mind that he is concerned primarily with the accuracy of accounts and regularity of financial procedure and not with administration.

7.3 Local Audit

Local Audit may be distinguished from Inspection in that its purpose is to audit the initial accounts maintained in certain Government institutions and offices on the spot. The scope of Local Audit is not confined merely to seeing whether the initial accounts are maintained in proper form or whether the financial rules are properly observed but include a test audit in sufficient detail to verify the accuracy and completeness of accounts.

7.4 Audit Approach

(a) Demarcation of Duties

There should be clear demarcation of duties of the personnel in the audit parties. A broad outline of responsibilities and duties of various categories of personnel in the inspection

parties conducting local audit of Civil Offices is as per allocation made by the office based on MSO (Audit). The Audit Officer in charge of Inspection Party is not, however, precluded from making changes in the distribution, to be indicated by him in writing, keeping in view the suitability of the individual official for the type of work in hand or other relevant factors such as absence of a member of the Audit Party, etc. The inspection personnel should be involved in clearly defined areas of work so that their accountability and identification of their contribution in terms of quality and quantum of audit results can be ensured.

(b) Responsibilities of Inspecting Officer

Normally, auditors should be able to issue inspection memos and put up notes. Separate reports should be submitted by them, the Section Officers and by the Assistant Audit Officers in the inspection party to the Inspecting Officer, in the form of material for inclusion in the Inspection Report, based on the actual work done and inspection memos issued by them, taking into account the replies thereto. The Inspecting Officer will remain responsible for the efficiency of the inspection as a whole. He must guide the members of the party in their work and determine the extent of independent action to be allowed to each member of the party with reference to that member's experience, quality and capacity to act independently. Based on such judgement, the Inspecting Officer may permit individual members of the party to issue audit memos themselves and see them in due course after issue. In cases where it is considered appropriate, he should stipulate that the memos may be issued with his approval. The Inspecting Officer should always keep himself posted with the progress of audit and the observations that have been communicated to the inspected office.

7.5 Audit Planning

A. Annual Audit Plan

In January each year a plan for the local audit inspection program for the ensuing financial year prepared by the Headquarters Section. The plan is to be based on the availability of parties for the year. This plan, in the form of annual programme, as approved by the Principal Director is to be split up in quarterly programmes for the various inspecting parties. Copies of this programme of local audit should be sent to the Administrative Departments and the Heads of Department concerned in addition to the units proposed to be audited.

B. Biennial Audit Plan

A formal Audit Plan every year will be prepared covering a period of 2 years which will contain a detailed Audit Plan for the first of two years and broad frame work for the second year. The Audit Plan will aim at:

- (i) deriving optimum mix of available resources for audits to be conducted.
- (ii) prioritising the audit assignments to cover the mandatory audits, high risk areas/ sectors with special emphasis on current issues and other thrust areas.
- (iii) helping to promote increasing use of computer assisted audit techniques and skills and knowledge for audit in computerised environment.
- (iv) improving the quality of audit to minimise the risk of crucial areas remaining uncovered in audit .
- (v) paying special attention to new and emerging challenges to audit due to changes in the auditee environment and developing necessary information base and skills.

7.6 Creation of Data Bank

Necessary data bank and documentation covering reports of various committees, Study Reports, Plan/ Budget documents, newspaper and journal clippings etc. should be carefully built up in the Headquarters under functional heads or subject-wise as these will be of immense help in the conduct of audit. A portfolio in respect of each scheme and programme, which is susceptible of performance appraisal, should also be built up. These portfolios should form the basis and provide the necessary basic data and information for conducting meaningful audit.

7.7 Guidelines/ Instructions to local inspection/ Audit Parties

Clear cut guidelines/ instructions, in writing, are required to be issued to the Audit parties before they proceed on local inspection/ audit. Additionally, before the local audit inspection parties proceed to the field, various aspects of the audits are required to be discussed and guidelines provided to the parties by the Group Officers.

In case of reviews, the guidelines should cover, *inter-alia*, the under mentioned points:

- (i) Objective of the review;
- (ii) Areas to be covered
- (iii) Points to be seen;
- (iv) Background material already available;
- (v) Additional information to be collected;
- (vi) Methods of analysis of information;
- (vii) Objections likely to be noticed;
- (viii) Time frame for completion of review.

These guidelines may be modified or amplified, if necessary, keeping in view the various aspects, which may be particularly relevant to the State concerned.

7.8 Rapport with Auditee Organisations

Greater personal rapport, equation and understanding should be developed between senior officers and the Auditee organisations to facilitate useful interaction and inter-personal relationship.

7.9 Results of Audit

The results of the inspection and local audit should be set forth in the following parts:

Part-I

- (a) Introductory
- (b) Outstanding objections in brief from previous reports
- (c) Performance of major schemes/ projects

Part-II

Section-A Consisting of major irregularities, which are likely to materialise into draft paragraphs of the Audit Report or cases of system failure.

- Section-B** Consisting of irregularities or recoveries to be effected or regularised, which though not major are to be brought to the notice of higher authorities
- Part-III** Test Audit Note containing minor irregularities, to which a schedule of items settled on the spot should be attached. The procedural irregularities in respect of which the head of the office has held out assurances about following correct procedure in future should be noted in this Schedule.

7.10 Guidelines for drafting Inspection Reports

It is desirable that statements and figures in relation to any defects or irregularities discovered should be based on clear documentary evidence. It is not sufficient to quote the rule or the order violated; the actual or possible effect of such deviation on the financial interests of the Government should be explained clearly. Particular care should be taken in regard to the language and tone of the report. The Inspection Report should be completed before the inspecting Audit Officer leaves the office inspected and it should not be signed until the officer-in-charge of the office (or any other officer acting on his behalf) has been given the opportunity of reading and discussing it and suggesting any omissions or modifications. The Inspection Report should be as brief as possible, but the points raised in it should be pursued until finally settled. The Test Audit Note does not require a reply in detail, but it should be verified at a subsequent inspection that adequate notice was taken of it.

Results and findings of audit of Cash Management and physical verification of cash by Drawing and Disbursing Officer in the presence of Audit may be forwarded along with Inspection Report. The Factual notes/ Factual statements for potential draft paras are to be prepared and forwarded by the Inspecting Officer to the Principal Director.

The Inspection Report forwarded by the Inspecting Officer is to be scrutinised and edited in Headquarters. After approval by the Group Officer the edited Inspection Report is to be issued to the Head of the Office concerned with a copy to the next higher authority. Further replies/ settlement of Inspection Reports are to be watched by the Headquarters sections concerned.

7.11 Other Guidelines

Some of the important matters to which attention should generally be given by the Local Audit staff and its Officer-in-charge are mentioned in the Secret Memorandum of Instructions regarding the Extent of Audit.

7.12 Raising and Pursuance of Objections

(a) Introductory

Audit depends, for its effective value, on its right and duty to report results to the proper authority so that appropriate action may be taken to rectify the irregularity or impropriety, where possible, or to prevent a recurrence of it. This authority may be departmental authority, Government itself, or in the last resort the Legislature, through the Public Accounts Committee/ Public Undertakings Committee.

(b) Treatment of Results of Audit

It is in the treatment of results of audit that the auditorial function demands the highest qualities of understanding, balanced judgement and sense of proportion and it is to enable him to deal with results adequately that the auditor has been accorded a high degree of

independence and prestige. An auditor must develop an instinct for assessing the importance of an individual irregularity as well as adequacy of the system.

The auditor must keep before him his primary functions of securing the substantial correctness of accounts, regularity and propriety of individual financial transactions and checking adequacy of the system. He must decide, therefore, when the detailed audit of accounts and transaction is completed and infractions of rules and orders are noticed, whether to demand regularisation or correction in an individual case, improvement in the system or whether to be satisfied with prevention of the error or irregularity for the future.

In exercising discretion regarding treatment of results of audit, the following general principles of audit should be borne in mind:

- (i) It is to be verified by Audit that financial rules and orders satisfy the provisions of the law and bring to notice wastefulness in public administration and infructuous expenditure.
- (ii) Audit should not make independent enquiries from private individuals or members of the general public. Audit should confine itself to calling upon the executive to furnish any necessary information.
- (iii) In particular it should be remembered that, while financial rules and orders and various court judgements must be observed, mere rigid and literal enforcement of such rules and orders may degenerate into wholly unintelligent audit.
- (iv) As a general rule, undue insistence on trifling errors and technical irregularities should be avoided, and more time and attention devoted to the investigation of really important and substantial irregularities with the object not only of securing rectification of the particular irregularity but also of ensuring regularity and propriety in similar cases for the future.
- (v) Investigative audit could be achieved by creating more interest in the staff in work by cross talking, referencing various reports in the news papers, examining press clippings, comparing figures of various similar units to find out lacunae in the act/ rules or implementation thereof and approaching institutions of repute.
- (vi) Instead of taking same type of objections year after year, these should be broad based to cover all types of objections. At the same time failure to appreciate the significance of what appears to be a trifling irregularity may lead to failure to discover an important fraud or defalcation.
- (vii) Notice may be taken of the cumulative effect of numerous petty errors or irregularities as indicating carelessness and inefficiency in the maintenance of accounts or in financial administration generally.

7.13 Communication of Audit Observations

General principles for communicating audit observations

The important points to be followed while communicating audit observations are as follows:

- (i) Major audit points should be discussed with Management. Minor observation or mistake would not be highlighted so that proper understanding and trust is developed between Audit and Management, as Audit should view its role as an aid to the Management.
- (ii) All observations and objections must be conveyed in courteous and impersonal terms, and must be clear i.e. based on undisputed facts and intelligible. Audit

should avoid expressing his own opinion about the conclusion derivable and should state the view held by the Administrative Officers.

- (iii) It is of the utmost importance that any statement or criticism or of irregularity in an Audit Report should be accurate, fair, moderately worded and dispassionate. Innuendo is forbidden; if a charge cannot be substantiated there should not be even any hint of it.
- (iv) If a particular case of fraud/ irregularity is considered serious enough to merit attention of the investigative authorities, it ought to find mention in the Audit Report and as the Audit Reports are published and available to all concerned, sufficient dissemination and information is available to the public.
- (v) Objections and observations in relation to any account or transactions subjected to audit should be communicated to the disbursing and, where necessary, to the controlling authorities at the earliest opportunity.
- (vi) It is important that before they are communicated, objections should, unless otherwise provided in any case, be registered in detail in the prescribed records maintained in the Audit Office.
- (vii) Reports of individual cases of serious financial irregularity should in the first instance, be addressed to the controlling authority concerned or to such other authority as may be specified by Government, though copies may be sent to higher authority simultaneously for information in cases which are regarded to be so serious that they will eventually have to be brought to the notice of that authority.

7.14 Communication of non-production of records

Cases where records required by the Audit are not produced by the auditee units should be reported to the Principal Director who should take up the matter of non-production of records with the concerned Secretary of the Government.

7.15 Communication of audit observations to the Comptroller and Auditor General of India

It is not necessary to report individual cases of serious financial irregularity to the Comptroller and Auditor General unless his intervention is deemed desirable, but in cases of doubt or difficulty, the Principal Director may seek his advice. All serious and interesting cases of fraud or forgery, and cases indicating the need for change of procedure should, however, be reported at once for information of the Comptroller and Auditor General.

Note: In all communications to the Comptroller and Auditor General for advice, a clear statement should be made of the point at issue, of the view the Accountant General thinks should be adopted, of any action he has already taken and of the action he proposes to take. Copies of relevant reports and correspondence should accompany, where these may be necessary, to explain any point in detail.

An intelligent, prompt and vigorous pursuance of objections and early report of any important irregularity to Government are essential, so that the Audit Reports required to be submitted by the Comptroller and Auditor General may have their full value. The following steps may be taken to pursue the outstanding objections:

- (i) With a view to ensuring prompt clearance of audit objections, head of the Institution should be requested to:
 - (a) fix time limits, where such limits have not been fixed, for sending replies to audit notes/objections and inspection reports;
 - (b) maintain and conduct monthly review of Register of Audit Objections in the departments; and
 - (c) designate a senior officer in each Ministry/ Department and entrusting him with the responsibility for ensuring prompt attention to audit objections.
- (ii) Half yearly lists of objections/ inspection reports outstanding for over six months/ one year should be sent to the Ministry/ Department, so that it can have an idea of the objections pending against it as well as the offices attached or subordinate to it.
- (iii) Each Ministry/ Department should be requested to fix target dates for clearing the outstanding items. The Ministry/ Department should also be requested to see that the targets fixed by it are adhered to and to intimate to Audit half yearly, the progress of settlement.
- (iv) The outstanding objections should be discussed with the Heads of Departments by the Director/ Deputy Director and items which could not be settled at his level should be discussed with the concerned Secretaries to Government by the Principal Director.
- (v) List of outstanding audit objections/inspection reports, which could not be settled through discussions at lower levels, should be referred to Audit Committees, each consisting of the concerned Secretary to Government/ Head of Department and representatives of sufficiently higher rank of the office of the Accountant General and the Finance Ministry/ Department, for considering the further course of action to be taken for settling the objections. Where such Committees do not exist and the progress of settlement of objections is not satisfactory, the Government should be persuaded to constitute the Committees.
- (vi) Local audit parties should verify during local audit/inspection whether the procedures and systems prescribed for prompt settlement of outstanding audit objections are being strictly observed by the administrative authorities and specifically comment on this aspect in their inspection reports.
- (vii) In order to make an impact on the Administration and to prevent accumulation of audit objections and inspection reports, better rapport between Audit and Administration projecting that aspect of audit that serves as an aid to Administration should be established, besides an effective liaison between Principal Director and Secretaries of Government Departments. The assistance of Internal Audit organisations in the Ministries/ Departments would also be useful in the matter.

7.16 Review of objections outstanding for more than three years

All audit objections and inspection reports outstanding for more than three years should be analysed and reviewed. The following guidelines as contained in MSO (Audit) may be followed:

- (i) Paragraphs where departmental views have not been accepted may be discussed with the concerned Secretary to Government at the level of Group Officer and pursued further if likely to be mentioned in the Audit Report; otherwise these having been reported to Government, may be dropped.
- (ii) Paragraphs, which have lost significance with the passage of time, may be dropped.
- (iii) Paragraphs relating to initial and subsidiary accounts in Audit Reports may be clubbed with or merged in the paras on the same points in the latest reports. Paras, which have dealt with the subject matter vaguely or where not specific action or rectification or improvement has been suggested, may be dropped.
- (iv) The observations regarding sanctions to works estimates or sanctions to regularize excess over estimates not received can be treated as settled with a mention in the Audit Report depending on the results of discussions with the Heads of Department and on the basis of written assurance that sanctions would be accorded.
- (v) Cases of sanctions for contingent and miscellaneous expenditure not received can be dropped where there is evidence of sanction in the departmental records and cases of unauthorised expenditure can be reported to Government for investigation and appropriate action.
- (vi) In respect of overpayments or amounts disallowed in audit but not recovered, petty items and other items for which details are not available can be dropped. In respect of items where the audit observation is not accepted by Government, these can either be mentioned in the Audit Report or drop the items depending upon the magnitude and nature of these observations. On accepted overpayment and disallowances, the departments can be pressed to expedite the recovery. Items, which have become irrecoverable can be reported to Government for regularisation after necessary investigation.
- (vii) Significant observations in the outstanding Inspection Reports involving substantial amounts or gross lapses or failure of systems can be commented upon in the Audit Report individually or collectively.

7.17 Settlement of cases which could not be finalized in the Audit Committees

When an objection taken in the course of audit can not be treated as settled in consultation with the concerned executive authorities and the administrative departments of Government and after consideration of the recommendations of the 'Audit Committee', where constituted, the case should be reported to the Finance Ministry or Department of Government for settlement. If there is a difference of opinion between that Ministry or Department and the Audit, the latter may deal with the matter further according to the instructions for preparation of Audit Report contained in Chapter-3 of this section, and/ or if he deems it necessary, seek the advice of the Comptroller and Auditor General.

7.18 Settlement of objections based on Action Taken Reports

At the instance of Parliamentary Financial Committees a procedure has been evolved to ensure that Government takes suitable action on all the points included in Audit Reports even if the committees do not discuss them. Under the procedure, Government are required to intimate to the Committees the follow-up action taken duly vetted by Audit. On the basis of the action taken, the related objections and paragraphs of inspection reports could be treated as settled as far as Audit is concerned and dropped from the lists of outstanding objection books.

7.19 Dropping objections

Individual objections or paras of inspection reports, which involve money value (as for example, recovery of overpayments, want of financial sanction etc.) should be pursued to a finality and should not be dropped from objection book/ inspection report. Where, however, objections were raised on grounds of propriety and have been included in the Audit Report for discussion in Public Accounts Committee, they may be dropped from the Inspection Reports/ Objection Books and further action thereon watched through Report of Public Accounts Committee and Action Taken Notes of the Ministries/ Departments. Those of such objections which are not included in the Audit Report either because the amount involved is not much or the impropriety is not serious and which have remained outstanding for more than two years may also be removed from the list of outstandings/ Objection Book after bringing them to the notice of the Secretary of the concerned Department for further necessary action.

To take and then drop an objection without any valid reasons sends wrong signals to the auditees. Para should not be dropped without a reply since a para can be settled based on merits of the reply only. Inspection reports should be properly vetted to avoid "wrong objections" taken by field parties.

7.20 Reports on Defalcations and Losses

On receipt of a report on defalcation or loss of public money or property, the Principal Director should call for such further information as he may require on the subject, and carefully examine the case and ascertain whether the defalcation or loss was rendered possible by any defect in the rules or whether it was due to neglect of rules or want of supervision on the part of the treasury or other authorities. He should then report the result of such examination to the authority competent to sanction the write off of the loss unless he considers, for any special reasons, that the Government concerned should also be informed. The sanction for the write off when issued by the competent authority will be acted upon by the Accountant General (A&E) in consultation with the Audit.

Whenever any case of loss in which there is a possibility of the Reserve Bank of India being made liable to Government either in respect of operation on Government account conducted by itself or by its agents or otherwise, comes to his notice, the Principal Director should call for such information as he may require on the subject. On receipt of this information which must be obtained without delay, he should at once make a report of the case to the Finance Ministry or Department of the Government concerned for such action as it may deem fit.

Detailed guidelines for raising and pursuance of objections are contained in the CAG's MSO (Audit).

7.21 Detailed Procedure for Registration and Clearance of Objections

Registration of Objections

Objections and observations arising out of audit is to be communicated at the earliest opportunity, but objections are first to be registered in detail in the prescribed records maintained in the Office.

Objections, which can be expressed in money values need be registered in the Objection Book with certain exceptions as detailed in MSO (Audit).

The procedure of recording of objections arising out of audit of autonomous and statutory bodies not coming within the purview of Commercial Audit has been described in the Manual of Instructions for Audit of Autonomous Bodies.

The instructions requiring the registration of all objections arising out of audit are subject to the qualification that objections which are trivial or have been waived by Audit Officers are not be included in Objection Books, though a separate record of objections waived is to be maintained for production at the time of inspections.

7.22 Clearance of Objections

The adjustment of each individual objection should be watched through the prescribed records until clearance or withdrawal, as the case may be.

The Accountant General should see that the Group Officer and the Audit Officer who are responsible for the progress of adjustment, give their unremitting personal attention to this task.

When an Objection once raised has been withdrawn, either on reconsideration or in the light of information which was not available previously, the disbursing officer or other authority to whom the objection was originally addressed should be informed forthwith so that he can keep a note of the withdrawal of the objection in his record.

7.23 Preparation, despatch, return and final disposal of Objection Statement

In most cases audit objections should be intimated direct to the disbursing or other responsible authority in special printed audit memoranda and other half margin forms. The PAO should be addressed only in respect of objections for the removal of which he is directly responsible. Such intimations together with important irregularities and directions or enquiries arising out of audit of PAO vouchers should be sent to him through Objection Statements in form MSO (Audit)-8. The Assistant Audit Officer/ Senior Auditor/ Auditor should have before him, at the time he deals with the vouchers, the requisite objection statements, special printed audit memoranda and other half margin forms, and should write these up, as each point requiring notice becomes evident during the course of his audit of the vouchers. All objections, whether communicated direct to responsible authorities or to the PAO, should be entered in the Objection Book. A register of Objection Statement and Half Margins should be kept in each Central Audit Support Section showing the issue, return and disposal of these Objection Statements, audit memoranda and half margins.

Note: Printed audit memoranda and other half margin form should be dealt with in the same manner as the Objection Statements.

There should be one Objection Statement for each month and it should be sent expeditiously by the Central Audit Support Section to the PAO so as to guide him in making payments in subsequent months. The Assistant Audit Officer will be responsible to ensure that all objections which arise as a result of the audit work done and which have to be communicated to

the PAO are duly entered in the Objection Statement before the statement is sent to the Central Audit support Section.

After audit and review is over by the Central Audit Party, the audit notes/ memos will be issued in original over the signature of an Audit Officer, in convenient batches every month to the Departments concerned and copy to the Accountant General (A&E) after vetted by Central Audit Support Section who will thereafter deal with the audit notes/memos and all correspondence.

Before despatch (which must not be delayed), the objection must be neatly posted in the Objection Book [form MSO (Audit)-9] by the Auditor in the Central Audit Support Section. Each Assistant Audit Officer/Section Officer should keep a memorandum book for note of Objection Statement which he passes, should ascertain daily that all the Objection Statements have gone out, and should take precautions to secure the entry in the Objection Book of all the items in the passed statement, whether or not their amounts are carried into any money column.

The return of the Objection Statements must be watched with equal care.

The Auditor is responsible for the prompt disposal of the Objection Statement when returned, if a recovery is ordered, he is responsible for watching the recovery. Though the Government Servant concerned may be transferred to another Department, the item will not be removed from the Objection Book of the old Department to that of the new Department, but a note of the transfer will be made; it will, of course, be noted on the Last Pay Certificate by the PAO from which he last drew pay and may also, with advantage, be intimated to the one who will pay him in future.

7.24 Closing of Objection Book

After despatch of the Objection Statements for the month, the money columns in the Objection Book should be totalled, the balance of the past month should be added, the totals of adjustment should be made in the Adjustment Register and entered in the Objection Book, and the balances struck. The Assistant Audit Officer/Section Officer will sign the certificate at the foot of the page or last page of the Objection Book for the month, which will be closed and balanced on the 8th of the second succeeding month.

Note: The outstanding balance in each column of the Objection Book is to be carried forward from month to month and year to year.

An Abstract of Objections must be attached to each Objection Book. The previous year's balance posted in the first column on the opening of the book will be the preliminary balance in last year's abstract. Later on, this will be corrected in red ink into the March Final balance as worked out in the last year's Objection Book and Abstract of Objections. The other entries in the first column will be made at the closing of each month. The adjustments of each month should be distributed over the periods of objection from the information in the Adjustment Register and posted in the proper line at the time of closing the book for the month.

7.25 Review of Objections

It is the duty of the Audit Officer concerned to watch carefully all outstanding objections. Items left unsettled for six months should be entered in a register. A summary of all relevant correspondence should be recorded against each item in the register and all subsequent correspondence should also be recorded. This register should be submitted at least once in each month to the Audit Officer who should review carefully all items therein.

A computerised data base on Inspection Reports should be maintained for effective follow up. A list must be made up annually, for each department or sectional Objection Book, of all the items outstanding at the close of March arranged in chronological order (i.e. in the order in which they appear in the Objection Book) and in the same form as the Objection Book.

7.26 Format of Books/ Registers

Objection Book

The Objection Book in the OAD (Headquarters) Section should be kept in form MSO (Audit)-11, which provides separate columns for keeping a record of the objections under the following categories:

- (i) Misappropriation, fraud, defalcation etc.,
- (ii) Excess payment, loss/shortage of stores etc.,
- (iii) Credit sales pending recovery beyond a reasonable period (to be fixed by the Accountant General)
- (iv) Advances pending recovery/adjustment beyond a reasonable period (to be fixed by the Accountant General)
- (v) Miscellaneous.

7.27 Adjustment Register

An item kept under objection in the O.A.D.(Headquarters) Section is adjusted by recovery or write off or suitable compliance, furnishing wanting information/ document etc. the adjustment should be posted in the Adjustment Register in form MSO (Audit)-13 and also against the original item in the Objection Book in form MSO (Audit)-10.

The mode of adjustment adopted with reference to each item will be shown in the column "How adjusted" and the Assistant Audit Officer/ Section Officer will initial each entry in proof of his having examined and found it correct in every particular.

In the Objection Book, in the columns of amount under "Details of adjustment" will be entered each successive fragment disposed off; each entry in the Adjustment Register must have its corresponding entry in these columns and both entries will be initialed by the Assistant Audit Officer/ Section Officer at the same time.

Chapter-8

AUDIT OF GRANTS-IN-AID

8.1 Audit Objective and Scope

The aim of audit is to ensure that the grants were utilized for the purpose for which these were made and that sound economical financial management practices were duly followed while spending money out of such grants. Audit has also to bring to light any wastefulness, failures, system weakness and deficiencies leading to infructuous expenditure out of the grants. The CAG's MSO (Audit) contains detailed instructions about the audit of grant-in-aid. The salient points of the audit are discussed below.

8.2 Source Documents

The source documents are Sanction Letters, Vouchers, Returns, Progress Report.

8.3 Main points to be checked in different Audit Areas

The audit of the grants itself is to be conducted according to the general principles and rules laid down for the audit of expenditure from the Consolidated Fund with particular reference to the following provisions:

Audit has to see that each item of expenditure is covered by the sanction of the authority competent to sanction it. Here, Audit has not only to see that the expenditure is covered by a sanction, either general or special, but also it has to satisfy itself (1) that the authority sanctioning it is competent to do so by virtue of the powers vested in it by the provisions of the Constitution and of the Laws, Rules or Orders made thereunder or by the rules of delegation of financial authority made by competent authority, and (2) that the sanction is definite and thus needs no reference either to the sanctioning authority itself or to any higher authority. Audit has to see that the expenditure conforms to the provisions of the sanctions.

Audit should check whether the sanction conforms to the pattern of assistance or rules governing such grants-in-aid as approved by the Finance Ministry, (ii) suitability of the Institution seeking grant is assessed by the sanctioning authority, (iii) no grants are sanctioned where there is reasonable suspicion or suggestion of corrupt practices unless the bodies concerned are cleared of the allegations, (iv) every order sanctioning a grant indicates whether it is recurring or non-recurring in nature and the object for which it is given and the general and special conditions, if any, attached to the grant are clearly specified, and (v) a provision to the effect that the accounts of the grantee institutions shall be open to inspection by the sanctioning authority/ Audit whenever the institutions is called upon to do so is incorporated in all orders sanctioning grants-in-aid.

In the audit of sanctions to expenditure the guidelines/ principles stated elsewhere in this Manual are required to be observed.

In the case of Union Government all financial sanctions and orders issued by a Ministry or Department of that Government within its own financial powers and communicated to Audit should be approved by the Finance Ministry (Integrated Finance/ Associate Finance concerned). All other sanctions issued by the Ministries/ Departments with the concurrence of the Ministry of Finance should be similarly communicated direct to Audit and should contain an indication that the concurrence of the Ministry has been obtained.

It frequently happens, however, that the power of sanctioning grants is delegated to subordinate authorities subject to the previous fulfillment by the grantees of certain conditions. In such cases, if the order sanctioning the grant quotes the relevant rules, Audit should ordinarily accept the expressed or implied certificate of the sanctioning authority that the prescribed conditions have been fulfilled, but it should take any available opportunity of scrutinizing the methods by which the authority satisfied itself of such fulfillment. In addition, a test audit should, where possible, be applied to check the fulfillment of the conditions in individual cases.

Note-1 The test audit suggested in this rule can most conveniently be done in the office of the sanctioning authority, where all necessary papers will be available. The precise method by which the check will be exercised for different classes of grants-in-aid may be settled by the Principal Director in consultation with the Comptroller and Auditor General.

Note-2 If a Government has ruled that before a grant is paid the sanctioning authorities under its control should, as far as possible, obtain audited statements of the accounts of the institutions to which they pay grants-in-aid in order to see that the grant was justified by the financial position of the grantee and also to ensure that any previous grant was spent for the purpose for which it was intended, Audit should watch that these orders are observed.

Note-3 Audit should ordinarily accept statements on purely technical matters made by the responsible technical officers.

It should be watched that grants are not, except in special circumstances, paid in excess of actual requirements of the grantee for the financial year or say, for the period of one year from the date of issue of the letter sanctioning the grant and that any general or special orders for releasing a particular grant in installments are complied with.

Unless in any case the Government directs, otherwise every order sanctioning a grant shall indicate whether it is recurring or non-recurring in nature and specify clearly the objects for which it is given and the conditions, if any, attached to the grant. In the case of non-recurring grants for specified objects, the order shall also specify the time limit within which the grant or each installment of it is to be spent.

When recurring grants-in-aid are made to an institution, Audit will as far as possible verify that the grantee continues to function as such institution and that the circumstances in recognition of which the grant was sanctioned still continue to exist.

The extent of audit of the expenditure incurred from a grant-in-aid by grantee depends on whether the grant is conditional or unconditional. Where no condition is attached to a grant, Audit is no way concerned with the manner in which the grant is utilized by grantee.

Where conditions are attached to the utilization of the grant, these usually take the shape of specification of the particular objects on which or the time within which, the money must be spent whatever be the nature of conditions, Audit has to see that they are fulfilled. The following procedure as provided in CAG's MSO (Audit) should be observed in such cases:

- (i) If in any case the expenditure from the grant is audited by the Principal Directors' office either centrally or in the course of local inspection, the scrutiny should include a complete or test check of the fulfillment of the prescribed conditions.
- (ii) Where the expenditure from a grant-in-aid is audited locally, the auditor should either include in his report a certificate that the condition on which the grant was made have been or being fulfilled or should give details of the breaches of these condition.

- (iii) A formal utilization certificate about the proper utilization of the grant from the administrative, technical and financial point of view should be furnished to the Accountant General (A&E)/ PAO by the sanctioning authority.
- (iv) In cases in which the audit of local authorities and public or quasi public bodies is conducted by an office not subordinate to the C&AG, a certificate regarding grants have been utilized or the objects for which it was sanctioned, and in accordance with the condition attaching to the grant, based on that officer's audit, may be accepted from the administrative Government authority concerned.

8.4 Grant made for a specified object

Unless it is otherwise ruled by Government every grant made for a specified object is subject to the implied conditions that:

- (i) if no time limit has been fixed by the sanctioning authority, the grant will be spent upon that object within a reasonable time (normally within one year from the date of issue of the letter sanctioning the grant).
- (ii) any portion of the amount which is not ultimately required for expenditure upon that object will be surrendered.

In view of large amounts disbursed as grants-in-aid in connection with developmental schemes by Central as well as State Governments to co-operative societies, private institutions, etc., it has become important function of audit to watch

- (i) that there is no tendency on the part of Government to go on disbursing fresh grants to grantee when substantial amounts out of the earlier grants remain unutilized with him, and
- (ii) that the executive authorities have adequate machinery to keep a continual watch over the progress of expenditure from the grant, the continued solvency of the grantee and the safety of the funds entrusted to him.
- (iii) whether such schemes are being executed and their operations conducted economically and efficiently and they are producing the results expected of them.
- (iv) how far the agency or authority under audit is adequately discharging the financial responsibility in regard to various schemes undertaken by it.
- (v) whether there are any cases of overpayment, loss, extravagance, avoidable excess or infructuous expenditure due to improper planning, incorrect sequence of activities and operation, delays in completion etc.

Chapter-9

AUDIT OF PAY AND ACCOUNTS OFFICES

9.1 Introductory

Consequent upon the separation of accounts from Audit, secretaries of the Ministries/ Departments concerned have been declared as the Chief Accounting Authorities for their respective Ministries/ Departments. The Financial Adviser, for and on behalf of Chief Accounting Authority is responsible for:

- (a) arranging all payments through the Pay and Accounts Offices/ Principal Accounts Offices/ cheque drawing DDOs.
- (b) compilation and consolidation of accounts; and
- (c) arranging internal inspection of payments and accounts records maintained by the various sub-ordinate formations and Pay and Accounts Offices of the Departments.

The detailed procedure for arranging payments, compilation of accounts, the scope and extent of pre-checks and post-checks to be exercised by the PAOs has been laid down in the Civil Accounts Manual issued by the Ministry of Finance, Department of Expenditure, Controller General of Accounts (CGA).

9.2 Statutory Audit

This office is responsible for the statutory audit of the payments and accounting work dealt with by these Pay and Accounts Offices and cheque-drawing officers. The local audit of Pay and Accounts Offices and Drawing and Disbursing Offices with cheque drawing powers should be conducted by sending peripatetic parties.

9.3 Duration of Audit

The duration of audit of Pay and Accounts Offices should be fixed according to the nature and volume of transactions.

9.4 Periodicity of Audit

The periodicity of audit of Pay and Accounts Offices should be annual while the Drawing and Disbursing Offices, with cheque drawing powers may be audited biennially or triennially or lesser frequency depending on the nature of work and volume of transactions.

9.5 Quantum of check

The quantum of checks as prescribed in Annexure to CAG's Sectr. Letter No. 943-TAI/147-81 dated 14.8.1981, should be adhered to by all local audit parties while conducting the audit of Pay and Accounts Offices and Drawing and Disbursing Officers with cheque drawing powers.

9.6 Composition of Audit Parties

The existing composition of Audit parties is a double SO/ AAO party for audit of Pay and Accounts Offices and single SO/ AAO party for audit of Drawing and Disbursing Offices with cheque drawing powers. The supervision by Audit Officer/ Inspection Officer is 50 per cent.

9.7 Scope of Audit

The local audit of the Pay and Accounts Offices and Drawing and Disbursing Officers with cheque drawing powers should, besides the checks detailed below, be directed towards testing the adequacy and efficiency of Internal checks and checking the efficiency and effectiveness of the working of systems.

9.8 Conduct of Audit

The local audit party should conduct a general review of all accounts/ records maintained by the Pay and Accounts Officer/ Drawing and Disbursing Officer since last inspection or, in the case of new units, since the formation of the office to ensure that instructions contained in the Civil Accounts Manual are being followed and that accounts compiled by them on the basis of the said instructions are correct.

9.9 Nature of checks generally to be applied

The checks which are to be generally exercised may be grouped under the following categories:

- (i) Checks to be exercised in the transactions relating to the month/ months selected.
- (ii) Checks to be exercised in respect of cases and records covering the period since last inspection.
- (iii) Checks to be exercised for examining the efficiency of the working of Internal Audit units.

9.9.1 Checks to be applied on the transactions relating to the month selected

Required percentage (as prescribed by the Headquarters Office from time to time) of the selected months vouchers in respect of all the items as detailed in the Annexure to the CAG's letter No. 943-TA.I/147-81 dated 14.8.1981 should be checked in detail.

9.9.2 Extent of checks to be exercised on cases and records covering the period since last inspection

(i)	Final payment of Provident Fund	Prescribed percentage of cases finalised upto tracing of payments.
(ii)	Scrutiny of accounts/ payments, records	A critical review of the records right from compilation to the consolidation of accounts (Receipt and Payments and other records) connected with payments should be conducted to check that all these records required to be maintained are properly kept. (This includes review of accounts records maintained in the Principle Accounts Office)
(iii)	Periodical Accounts Adjustments	Correctness of all adjustments should be checked.

(iv)	Bank Reconciliation	To check that the bank reconciliation has been done for the month and the outstandings analysed and explained.
(v)	PAO Suspense	-do-

9.9.3 Checks to be exercised for examining the efficiency of the Internal Audit Units

- (i) Critical review of the reports of the Internal Audit Units to see that no serious financial irregularities or lacuna in the accounting procedure have escaped their detection. The guidelines for internal audit of the Departmental Accounting Organisation issued by the Controller General of Accounts as contained in Chapter-XII of the Civil Accounts Manual may be kept in view.
- (ii) Review of the adequacy of the action taken by the PAO for remedying the defects pointed out by the Internal Audit Units.

9.10 General review of control records to be done once in three years

Besides ensuring that the undermentioned registers and records are maintained according to the instructions contained in the Civil Accounts Manual issued by the Ministry of Finance (Department of Expenditure), CGA Instructions under the Departmental Accounting System, the extent and frequency of control and checks exercised by the PAO should be looked into for their adequacy.

- (i) Stock Register of check Books and Accounts of cheque forms.
- (ii) Check Register of outstanding pre-check cheques.
- (iii) Register of Insufficient or otherwise irregular sanctions.
- (iv) Objection Book and Adjustment Register.
- (v) Register of final post check of pre-check bills.
- (vi) Register of R.B. Deposits.
- (vii) Register of PSB Suspense.
- (viii) Register of inward claims.
- (ix) Register of outward claims.
- (x) Appropriation Audit Register.
- (xi) Expenditure Control Register.
- (xii) Broadsheet of Provident Fund, Register of unposted items, etc.
- (xiii) Register and Broadsheet of long term advances to Government Servants.
- (xiv) Broadsheet of PAO suspense (Receipts and Payments)

9.11 While the annual audit of Pay and Accounts Offices can take care of the first three categories referred to in para above, an horizontal inspection for a critical review of all the central records in the Pay and Accounts Offices under each Ministry may be undertaken with advantage once in three years for an in depth examination.

9.12 Where the Internal Audit is in vogue our audit should be limited to systems and controls and do less of individual transactions audit. Checks of certain records like service books, Group-

D Provident Fund Accounts, Telephone registers, Log Books, Library Registers, overtime bills, liveries accounts, etc. can be safely and finally left to the Internal Audit organisation. These records may, however, be subjected to general review.

9.13 The Drawing and Disbursing Officers with cheque drawing powers act on behalf of Pay and Accounts Officers in discharge of their functions. The paid folios (cheques) and original vouchers are with the Pay and Accounts Office concerned. The local audit of these officers (DDOs) may be confined to the following:

- (i) Verification of correctness of net amounts drawn and shown in the Pay Bill Registers or office copies of the paid vouchers for the selected month with the amounts noted in the office copies of the vouchers.
- (ii) Verification of the entries in the cash book and other relevant records with reference to amounts noted in the office copies of the vouchers.

9.14 Checks to be exercised in the office of Pay and Accounts Officer

- (i) The amount of pension and gratuity has been worked out correctly with reference to average emoluments/ emoluments last drawn as the case may be.
- (ii) The amount of graded relief has been correctly allowed.
- (iii) The amount of pension and graded relief have been rounded off as per instructions on the subject.
- (iv) Death gratuity in the absence of any valid nomination has been authorised to the legal heir/ family members duly supported by legal documents.
- (v) The apportionment of the charge between Central and State Governments, has been indicated invariably in the pension report and the correct heads of account have been shown on the pension payment order.
- (vi) Pension payments have been authorised strictly on the terms stated and to the persons named in the pension papers.
- (vii) It is to be seen that in cases where there are unassessed dues, 10 per cent of gratuity or Rs.1000 whichever is less, have been withheld from gratuity/ provisional gratuity.
- (viii) The dues as assessed including those which came to notice subsequently and which remain outstanding till the date of retirement of the Government Servant have been adjusted from gratuity/ provisional gratuity.
- (ix) The period for which family pension is admissible has been clearly worked out with reference to date of birth of children and has correctly been mentioned in the authority.

In addition to these broad checks, the local audit party may see that the records like registers etc. have been maintained properly.

Chapter-10

AUDIT OF APPROPRIATION ACCOUNTS AND FINANCE ACCOUNTS

10.1 Introductory

In accordance with the provisions of Section 11 of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971, the Comptroller and Auditor General shall from the Accounts compiled by him or by the Government or any other persons responsible in that behalf, prepare in each year accounts (including in the case of accounts compiled by him, Appropriation Accounts) showing under the respective heads the annual receipts and disbursements for the purpose of the Union, of each State and of each Union Territory having a Legislative Assembly and shall submit those accounts to the President or the Governor of the State or Administrator of the Union Territory as the case may be.

The Union Government Appropriation Accounts (Civil) are prepared and signed by the Controller General of Accounts and countersigned by the Secretary to the Government of India, Ministry of Finance (Department of Expenditure).

10.2 Audit Objectives and Scope

The primary objectives of certifying the annual accounts are:

- (i) to check whether the accounts prepared are correct and complete in all respects;
- (ii) to check whether the systems followed in the compilation of accounts leading to the Finance Accounts and Appropriation Accounts are satisfactory and fault free;
- (iii) to check whether acceptable Government accounting standards for financial report and disclosures are complied with; and
- (iv) additionally, in case of Appropriation Accounts, to check whether moneys shown in the accounts as having been disbursed were legally available for and applicable to the service or purpose to which they have been charged or applied.

10.3 Source Documents

Some important source documents to be checked for certifying the annual accounts are:

- (i) Vouchers, monthly accounts received from the Treasuries and other initial records used for compilation of monthly accounts;
- (ii) Detail Books, Classified Abstracts, Consolidated Abstracts, TE ledgers and other accounting records used in the Accounts and Entitlement Office for compiling monthly accounts;
- (iii) Various statements of Finance Accounts received from Accounts and Entitlement Office;
- (iv) Detailed and Summary Appropriation Accounts prepared by Accounts and Entitlement;
- (v) Budget documents including orders for supplementary grants and re-appropriation orders;
- (vi) Replies received from Government explaining reasons for savings/ excesses;

- (vii) Orders of PAC containing guidelines for inclusion of comments in Appropriation Accounts;
- (viii) AC Bills Register;
- (ix) Register/ Statement of Nil Payment Vouchers; and
- (x) Statement of Balance communicated by the Reserve Bank of India

10.4 Audit Approach

In order to ensure that the submission of the annual accounts is not delayed, it will be necessary to take up scrutiny of the materials forming the basis of the final accounts sufficiently in advance. To facilitate this process monthly preparation and check of Appropriation Accounts has been introduced. The procedure followed for the audit and certification of the Finance Accounts and Appropriation Accounts (Civil) of the Union Government is indicated in brief in Annexure.

Audit checks exercised on the Finance Accounts and Appropriation Accounts should be meaningful and time bound. Detailed instructions regarding selection of comments etc. to be included in the Appropriation Accounts and Finance Accounts have been laid down in the relevant Chapters in Volume-I of MSO (A&E), which may be taken note of while exercising audit checks.

In order to highlight unnecessary re-appropriations, inadequate surrender orders, etc. in the Appropriation Accounts, key areas requiring detailed probe should be selected in advance. After this exercise is done, suitable comments, should be proposed for incorporation in the Accounts. Audit should not *suo moto* add or modify what has been stated in the Accounts, but may include comments in the Audit Report if called for, on instances of persistent savings/ unnecessary or irregular re-appropriations or surrenders, etc. under various grants from the cases included in Appropriation Accounts.

10.5 Main points to be checked in different Audit Areas

Some of the main points, which should be specially looked into while conducting audit of the annual accounts are explained in the ensuing paragraphs. They are in no way to be taken as exhaustive, and may be supplemented by more detailed scrutiny, wherever necessary.

10.6 Finance Accounts

Some important checks to be exercised while certifying the Finance Accounts are:

- (i) Whether the heads of account shown in the Accounts are authorised ones and the nomenclature thereof conform to the classification given in the list of Major and Minor Heads of Accounts.
- (ii) Whether there are any anomalies or obvious mistakes of classification.
- (iii) Whether wide variations between revised estimates and actuals have been properly examined to ensure that no serious misclassifications have occurred.
- (iv) Whether per contra adjustments have been carried out correctly in all cases.
- (v) Whether abnormal transactions of receipts, disbursements or balances have been investigated and rectified or properly explained by foot notes. The balances under Debt, Deposit, Suspense and Remittances, etc. should be particularly reviewed in detail and a report similar to that given by Commercial Auditors on company

Accounts containing, inter alia, a critical appreciation and review of balances highlighting obvious omissions and commissions be furnished to Headquarters alongwith the audited copy of Finance Accounts.

- (vi) Whether the opening balances agree with the closing balances shown in previous year's accounts.
- (vii) Whether the adverse balances are properly explained and whether the action taken for liquidating the same is adequate.
- (viii) Whether the amounts shown against the minor head "Writes off from heads of account closing to balance" under the major head "8680 - Miscellaneous Government Account" are covered by sanctions issued by the Comptroller and Auditor General or the Controller General of Accounts or other accounting authorities in cases where the accounts have been departmentalised or separated from Audit or other authorities to whom the power has been delegated.
- (ix) Whether codal provisions regarding transfer of entire balance under "Cash Remittances between treasuries and currency chests" under the major head "8782" to 'Remittances in transit' under the major head "8999" and that under "8675 Reserve Bank Deposits" to "8999 - Cash Balance - Deposits with Reserve Bank" have been observed leaving no balance under former heads.
- (x) Whether the balance under "Deposits with Reserve Bank" agrees with the balance communicated by the Bank and if not whether the difference has been properly explained.
- (xi) Whether the figures tally with those given in the Appropriation Accounts.
- (xii) Whether figures exhibited in the summarised statements agree with those given in the detailed statements.
- (xiii) Whether totals shown in the statements are correct.
- (xiv) Advances from Contingency Fund and their subsequent recoupment should be carefully watched so as to ensure that they are properly accounted and that there is no omission.
- (xv) Discrepancies between Statements 13 and 14 should be checked and corrected.

10.7 Appropriation Accounts

Main points to be checked in Appropriation Accounts are:

- (i) Whether the figures (Gross) of Expenditure noted against each sub-head agree with the figures shown in the Consolidated Abstract Register maintained by the Pr. PAO/ PAO?
- (ii) Have the figures shown against various sub-heads been agreed (minor head-wise) with corresponding figures shown in the Statement of Central Transactions (SCT)? Do the amounts for Revenue and Capital Sections also tally with the corresponding amounts shown in the Statement of Central Transactions (SCT) taking into account the corresponding recoveries adjusted in reduction of expenditure in the accounts?
- (iii) Whether the figures of expenditure shown in the reconciliation statement agree with the figures of Head-wise Appropriation Accounts of the of the Grants/ Appropriations and SCT?

- (iv) Had a certificate to the effect that the expenditure included in the Accounts has been sanctioned by the Competent Authority been recorded at the end of the Accounts?
- (v) In case, some of the expenditure included in Accounts, has not been sanctioned by the Competent Authority, has a certificate at (iv) been suitably qualified and list of items of expenditure not sanctioned attached to the account in the prescribed form?
- (vi) In case, any expenditure included in the Account has not been sanctioned by the Competent Authority, has any action been taken or is proposed to be taken to have that expenditure regularised/ sanctioned?
- (vii) Have the general entries/ adjustments (including March Supplementary Accounts) been properly taken into account in the Consolidated Abstract Register?
- (viii) Has it been verified that the re-appropriation made under the various Heads was as per Rule 10 of "Delegation of the Financial Power Rules" and Government of India decisions incorporated thereunder and other instructions issued by the Ministry of Finance from time to time?
- (ix) Whether re-appropriation under the various Heads have been carefully examined to see that under no Heads re-appropriation is excessive, unnecessary or injudicious in contravention to the instructions on the subject?
- (x) Sometimes the expenditure is incurred by re-appropriation which attracts the provisions of "New Service/ New Instrument of Service" and requires prior approval of Parliament.

While scrutinizing the Appropriation Accounts, cases of such type/ which constitute "New Service/ New Instrument of Service") be examined with reference to the guidelines issued by Ministry of Finance for dealing with the cases of "New Service/ New Instrument of Service" vide their letter No. R/(15)P(RA)..... dated 13.4.1982 as amended from time to time and incorporated as GoI decision below Rule 10 of DFPR? Such cases may be suitably commented upon?

- (xi) Whether the expenditure incurred by other Departments/ Ministries on behalf of the Department/ Ministry pertaining to this grant and vice-versa has been currently accounted for in the account? Verify with reference to the correspondence of the concerned Department/ Ministry.
- (xii) Verify reasons for saving and excess given in the Head-wise Appropriation Account with reference to the budget expenditure sanction, expenditure control files of the Ministry/ Department and found to be correct? If not, suitable comments be made?
- (xiii) Have the excesses been explained in all cases where any segment of the Grant/ Appropriation as a whole had exceeded the amounts sanctioned i.e. Revenue (voted), Revenue (charged), Capital (voted), Capital (charged)? Excess under individual sub-heads involving amounts upto Rs.10000 each need not be explained unless these are instrumental in causing the excesses.
- (xiv) Has the Advance from Contingency Fund of India been drawn for unforeseen expenditure? Whether the same has been properly recouped at the close of financial year by obtaining Supplementary Grant? If not the action by the Department may be examined critically and commented upon suitably.

- (xv) Examine the items outstanding under Suspense Head critically and steps taken by the Department to clear these balances? Suitably, comments may be proposed for these items.
 - (xvi) Check the expenditure incurred during the month of March and last quarter of the financial year w.r.t. the total expenditure incurred during the whole year with a view to comment on rush of expenditure during the month of March?
 - (xvii) Whether the heads of account mentioned in the Accounts are authorised ones.
 - (xviii) Whether the sub-heads have been grouped separately for 'Revenue' and 'Capital' Sections and whether 'charged' and 'voted' figures have been shown distinctly.
 - (xix) Whether the original provisions, supplementary provisions and amounts re-appropriated or surrendered have been shown correctly.
 - (xx) Whether gross figures of expenditure have been adopted in cases where recoveries by debit to heads of account under a different Grant/Appropriation, are adjusted in reduction of expenditure.
 - (xxi) Whether the facts and figures given in the various "Notes" are correct.
 - (xxii) Whether the grant-wise details of estimates and actuals of recoveries adjusted in reduction of expenditure have been prepared correctly.
 - (xxiii) Whether the figures exhibited in the accounts tally with those shown in the Finance Accounts.
 - (xxiv) It has to be ensured that variations under "Revenue Expenditure", "Capital Expenditure", "Loans", "Charged" and "Voted" categories have been separately worked out/ commented upon.
 - (xxv) Comments on defective budgeting should be highlighted if the provision is not made under the correct head of accounts.
- Note:** The above said audit checks applicable in case of Finance Accounts and Appropriation Accounts under manual system will also apply *mutatis mutandis* with the introduction of VLC system.

10.8 Provisional Adjustments

In cases where provisional adjustments have been made due to non-availability of correct figures before the closure of the accounts for the year, it should be verified whether sanction of competent authority has been obtained for such adjustment. It should also be seen whether adequate action has been taken to gather the required particulars to carry out the final adjustment at the earliest and if possible in the same year's accounts by a belated journal entry. The practice of restricting adjustments in accounts to the extent of available provision is against the principles of Parliamentary control of public finance. The proper course to be followed, where figures are available for adjustment, is to make the adjustment and explain suitably the excess/ saving in the Appropriation Accounts.

10.9 Check of Classification

- (i) Under Article 150 of the Constitution, the form in which the accounts of the Union and of the States shall be kept is to be prescribed by the President on the advice of the Comptroller and Auditor General. This function is exercised on behalf of the President of India, by the Controller General of Accounts, Ministry of Finance (Department of Expenditure). The forms of accounts of the Union, Government are devised keeping in

view the provisions of various Articles of the Constitution. The List of Major and Minor Heads of Account of Central and States-Receipts and Disbursements maintained by the Ministry of Finance (Controller General of Accounts) on the advice of the Comptroller and Auditor General, prescribes the pattern of classification of the transactions of Government pertaining to the Consolidated Fund, the Contingency Fund and the Public Account. The Central Government has also on the advice of the Comptroller and Auditor General made the 'Form of Accounts of the Union and States (Basic) Rules' which *inter-alia*, provides for issue of subsidiary instructions relating to the content and manner of maintenance of accounts by the Ministry of Finance on the advice of Comptroller and Auditor General. The rules and directions issued under Article 150 of the Constitution regulate the classification of all financial transactions. The incidence of charge is also regulated by the directions issued under this Article. The auditor of the accounts of Government is responsible for securing that entry of financial transactions in the accounts conforms to such forms, rules and directions.

The principle of classification of transactions in Government Accounts is that there is a closer reference to the function, programme, scheme or activity to which the transaction (receipt or payment) relates, rather than the department in which the expenditure or receipt occurs. Refunds of Revenue are taken in reduction of receipts under the concerned Receipt Head.

(ii) General points to be verified in Audit of Classification

These are detailed in the CAG's MSO (Audit) which may be taken note of in regard to this audit.

(iii) Responsibility for laying down Principles of Classification

As indicated earlier, the Ministry of Finance (Controller General of Accounts) prescribes the form of accounts on the advice of the Comptroller and Auditor General. The term "form of accounts" covers also the principles of classification and thus the ultimate responsibility for laying down the correct classification of the transaction rests on the Ministry of Finance (Controller General of Accounts). In determining classification of doubtful items, if the auditor does not agree with the opinion of the Government, he should refer the matter to the Comptroller and Auditor General for consideration and taking up the case with the Controller General of Accounts, where necessary.

10.10 Allocation of Expenditure between Capital and Revenue

It should be borne in mind that the Audit would not demur to a decision of the Executive as to whether expenditure shall be met from current revenues or from borrowed moneys, so long as the decision is generally in conformity with the budget proposals passed by the Legislature or have otherwise received its specific approval. It is however, the duty of Audit to bring to notice occasions on which the classification of expenditure between revenue and capital or its distribution between current revenues and loan funds appears to be contrary to the dictates of sound and prudent financial administration. The principles upon which such criticism should be based are described in the following paragraphs.

(a) Principles for Classification of Expenditure as Capital Expenditure

Capital expenditure is incurred either for increasing concrete assets of material and permanent character or reducing recurring liabilities whereas revenue expenditure is the current expenditure of Government on its day to day functions and services. To be more specific, it can be said that benefit arising from capital expenditure is received over a period of many years, but the benefit derived from revenue expenditure is short term and not of a permanent character.

Sources for financing Capital Expenditure

(b)

Expenditure of a capital nature may be financed from the following sources:

- (i) Surplus Revenue
- (ii) Borrowings either
 - (a) Specific for a particular purpose;
 - (b) non-specific for all Government purposes or unfounded; and
- (iii) Sources other than revenue and borrowings e.g. accumulated balances.

For the purpose of accounts, (i) and (ii) are grouped together, the capital expenditure met from these sources being described as outlay financed outside the Revenue Account and being quite apart in treatment from expenditure met from revenue. On the other hand, expenditure of a capital nature met from revenue is accounted for under the appropriate major head within the Revenue Account, as any other expenditure of a revenue nature.

It is function of Government, and not of Audit to determine the source from which expenditure of a capital nature shall be financed. According to the decision of Government, the expenditure will be classified under the appropriate major head out side or within the Revenue Section of the Accounts.

Although it is the function of Government to determine the source from which expenditure of a capital nature shall be financed, it is one of the duties of Audit to bring to the notice of the proper financial authority cases in which their decision seems contrary to principles of sound financial administration.

(c) Audit duties in allocation of Expenditure between Capital and Revenue

The duties of Audit in connection with the allocation of expenditure between capital and revenue and in connection with the record of expenditure inside the Revenue Account may be summarised as follows:

- (i) It should see that commonly accepted accounting or commercial principals are not infringed;
- (ii) it should verify that the accounts exhibit the true financial facts; and
- (iii) it should bring to notice transgression of generally accepted principles of public finance.

It should be remembered that the Controller General of Accounts is ultimately responsible for laying down the correct classification of expenditure on the advice of the Comptroller and Auditor General.

In cases where it is decided to write down capital, it is the duty of Audit to satisfy itself that such writing down is approved by the competent authority for valid reasons and is in accordance with commonly accepted principles both of commercial accounting and Government financial control. Where necessary, the writing down of capital should also be mentioned in the Audit Report.

10.11 Transactions pertaining to Reserves and Reserve Funds

Any device of rendering grants non-lapsing by withdrawing amounts to a fund is contrary to the strict theory of parliamentary financial control. But if such a course is adopted with the cognizance and approval of the Legislature, Audit cannot demur. Subject to this fundamental condition, Reserves or Reserve Funds may be constituted by the Union either by allotment of sums from the consolidated Fund of India, or from grants or contributions made by other

Governments or outside agencies, with the object of expending the moneys accumulated in the funds on the specific and particular purposes for which they have been constituted. The Reserves or Funds referred to may be classified under the following three categories according to the sources from which they are fed:

- (i) funds accumulated from grants made by another Government and at times aided by public subscriptions;
- (ii) funds accumulated from sums set aside by the Union from the Consolidated Fund of India to provide reserves for expenditure to be incurred by themselves on particular purposes;
- (iii) funds accumulated from contributions made by outside agencies to the Union.

The main principles which would govern the procedure of expenditure from these funds and its exhibition in estimates and accounts are set out further in the MSO (Audit) which may be referred to.

ANNEXURE-I

Procedure for Audit and Certification of the Finance Accounts and Appropriation Accounts (Civil) of the Union Government

The material for the Union Government Finance Accounts prepared by the Central Accounting Authorities is forwarded simultaneously to the Controller General of Accounts and to Director General of Audit, Central Revenues, Principal Director of Audit, Economic and Service Ministries, Principal Director of Audit, Scientific Departments and other accredited Audit Officers. The Audit Officers arrange checking of the material through local audit with reference to the initial records maintained by the accounting authorities. The material so checked by the accredited Audit Officers is sent to Director General of Audit, Central Revenues, along with the audit certificate. In the case of Central transactions appearing in the statement of Central transactions and other material furnished by the Accountants General (A&E) of the States and Union Territories and the Director of Accounts, Goa, only audit certificate is furnished to Director General of Audit, Central Revenues by the concerned accredited Audit Officers. The Controller General of Accounts consolidates the materials received by him and makes available copies of consolidated statements to the Director General of Audit, Central Revenues, for checking the consolidation by the local audit party. The audit observations raised at both stages are got settled before finalisation of the various statements. The finalised statements are then received in Central Audit, where they are again examined generally.

2. Audit of the Appropriation Accounts (Civil) of the Union Government is conducted by the Director General of Audit, Central Revenues, Principal Director of Audit, Economic and Service Ministries, Principal Director of Audit, Scientific Departments and other accredited Audit Officers in two stages; the first stage relates to check of grant portion of each Appropriation Account while the second stage involves scrutiny of each of these Accounts as a whole.

3. The respective accounting authorities furnish to the Principal Director of Audit, Scientific Departments and other accredited Audit Officers grant statements (columns 1 and 2 of the Appropriation Accounts) supported by certified lists of all re-appropriation and surrender orders issued in respect of each Grant or Appropriation during the financial year and copies of those orders. These are scrutinised and audit comments communicated to the accounting authorities for corrective action before preparation of the Appropriation Accounts of the relevant individual Grant or Appropriation. Every effort is made to get the points raised at this stage settled by the time head-wise Appropriation Accounts are prepared.

4. After the accounts for the year are closed, head-wise Appropriation Account of each Departmentalised Grant/ Appropriation is prepared by the accounting authority and sent in batches to the Principal Director of Audit, Scientific Departments and other accredited Audit Officers for scrutiny, with a copy to the Controller General of Accounts. The second stage of scrutiny starts from this point. These Accounts are initially examined generally in Central Audit and thereafter checked in Local Audit with reference to the initial records viz., the Classified Abstracts, Appropriation Audit Registers and reappropriation and surrender orders. The defects/discrepancies noticed in Central Audit as well as Local Audit are then communicated to the accounting authorities for rectification. After the audit observations are satisfactorily met a "No Comments" letter is issued to the accounting authority. On receipt of this letter, the accounting authority furnishes four copies of headwise Appropriation Account to the Principal Director of Audit, Scientific Departments and one copy to the Controller General of Accounts. Of these four copies, two copies are signed by the Financial Adviser and the remaining two copies are authenticated by the Chief Controller of Accounts/Controller of Accounts. These

accounts are again checked in Central Audit and Local Audit Wings with a view to ensuring that all audit observations have been compiled with. One copy of the head-wise Appropriation Accounts alongwith the following audit certificate is forwarded by accredited Audit Officer to Director General of Audit, Central Revenues.

"I have examined the above accounts and according to the best of my information, as a result of test audit of the books and consideration of explanations given to me, I certify that the account is correct".

5. The Controller General of Accounts on the basis of headwise Appropriation Accounts, prepares the condensed Appropriation Account in respect of each Departmentalised Grants/ Appropriation and sends them to the Director General of Audit, Central Revenues. They are scrutinised in Central Audit with reference to the head-wise Appropriation Accounts and returned to the Controller General of Accounts with comment, if any.

6. Seven signatory copies and one ordinary copy of the printed Accounts duly signed by the Controller General of Accounts and countersigned by the Secretary, Ministry of Finance (Department of Expenditure) are sent by the former to the Director General of Audit, Central Revenues who forwards them for signature of the Comptroller and Auditor General, with the requisite certificate.

Chapter-11

AUDIT OF AUTONOMOUS BODIES AND PROCESSING OF SEPARATE AUDIT REPORTS

11.1 Apart from the audit of the certain Central Ministries and Departments and their attached subordinate offices, this office has been entrusted with the audit of several autonomous bodies vide details elsewhere given in this Manual. Such audits have been entrusted with the approval of the Comptroller and Auditor General of India. This office acts as the sole auditor and is required to certify annual accounts of these organisations, which are laid on the table of both houses of Parliament together with the Audit Report thereon. The authority for audit of these organisations have been discussed earlier. The provisions contained in the Manual of Autonomous Bodies as well as CAG's MSO (Audit) contain detailed instructions for conduct of audit of these organisations. The instructions are summarised hereunder.

According to instructions issued by the Committee On Papers Laid on the Table of the Lok Sabha, the autonomous organisations are required to compile and send to Audit office their annual accounts within three months of the close of their accounting year. After their accounts are compiled and got approved from the competent authority, these are audited by this office by deputing local audit parties. In such cases, two separate audit reports are prepared by the local audit staff. One is draft inspection report and the other is draft separate audit report. The draft audit report is issued to the Head of the organisation for furnishing their comments within 4 weeks. Simultaneously, two copies of the accounts together with two copies of the draft audit reports and information regarding the date of receipt of accounts, period of audit etc. in the prescribed proforma is sent to the Headquarters office.

These separate Audit Reports will include mainly comments relating to the correctness of the accounts and the conclusions which can be drawn from them; other comments on irregularities affecting the accounts can also be included, but these should relate to matters, the facts of which are beyond dispute and in regard to which there is not likely to be any difference of opinion between Audit and the organisation.

These Reports may contain observations on the following points:

- (i) All points that vitiate the accounts as representing a true and fair picture of the working and state of affairs of the organisation.
- (ii) Utilisation of assistance given by Government – the observations would cover under-utilisation, diversion to purposes not indicated by the sanction, excess release or late receipt of grants and assistance.
- (iii) Non-fulfillment of the objectives of the scheme of assistance.
- (iv) Cases of avoidable or infructuous expenditure, losses, delays in execution of works and schemes, irregularities, etc.
- (v) Omission to take remedial action on persistent irregularities.
- (vi) Absence of internal control and checks which reduce the degree of reliability of the accounts, non-maintenance of basic records, delay in recovery or adjustment of advances, etc.
- (vii) Inaccuracies in accounts and in classification.
- (viii) Over-all financial position and necessity for continued dependence on Government assistance.

- (ix) Major audit comments pertaining to financial irregularities, losses, failure of objectives, cost over-run, time over-run etc. as noticed during audit of autonomous bodies.

Audit is not precluded from including in these Reports any comments relating to the accounts of previous years, if there is any important point on which adequate action has not been taken.

Any important matters in regard to which Audit considers it necessary to express a conclusion or opinion of a critical nature, particularly matters in regard to which there is likely to be a difference of opinion between Audit and Administration, should be reserved for inclusion in the conventional Audit Report.

In certain cases of registered societies/autonomous bodies, although there is no specific provision in the relevant Act, Rules/ Regulations and/ or Bye-laws about the audit of the accounts by the Comptroller and Auditor General or by any other person appointed by him in this behalf and/ or submission of the Audit Report to the Parliament/ Legislature, audit of the accounts is entrusted to the Comptroller and Auditor General under the provisions of the Comptroller and Auditor General's (DP&CS) Act, 1971 and the Audit Reports along with the certified accounts are laid before the Parliament/Legislature under executive orders of Government. In these cases also, separate formal Audit Reports have to be prepared and submitted to the Government concerned.

In all cases where the Audit Reports are placed before Parliament/ State or Union Territory Legislature, the Reports, alongwith the annual accounts and the audit certificate proposed to be issued, should be shown to the Comptroller and Auditor General at the draft stage. It is not necessary to send the draft Reports to Government for comments before finalising them. Only in rare cases of very important and/or controversial issues it may be desirable to ascertain simultaneously the comments of the Government also. Failure to receive reply from the organisations should be promptly brought to the notice of Government and also taken up with the concerned organisation. It is desirable that replies to important audit observations proposed to be included in the Separate Audit Report are obtained, considered and reflected, wherever necessary, in the relevant paragraphs of the Report. In case the replies of the organisation are not received inspite of best efforts, the Report may be finalised including in it a specific comment on non-receipt of replies and efforts made to secure responses. After the draft Reports have been duly approved, these will be signed by the Principal Auditor, namely, Principal Director of Audit unless the Acts or Rules made thereunder specifically provide for Comptroller and Auditor General's signature and forward to Government for being placed before the Parliament/ Legislature.

Note: While forwarding draft Audit Reports on the accounts of such Autonomous Bodies etc. to the Comptroller and Auditor General's office information about the audit comments which are being processed for conventional Audit Report should invariably be given.

While forwarding the certified annual accounts and the Audit Report thereon to Government for presentation to Parliament/ Legislature, Government should be requested to intimate the date of presentation and to forward a copy of these documents, as presented, to the Audit (and to the Comptroller and Auditor General also in the case of documents presented to Parliament). The dates on which the documents are forwarded to Government for presentation to Parliament/ Legislature should also be intimated to the Comptroller and Auditor General.

11.2 Audit for certification of Annual Accounts of Autonomous Bodies

(a) Introductory

While it is not obligatory on the part of the Audit to certify the annual accounts under Section 14, in cases where he has decided to undertake audit under Section 19 or 20 the certification of the annual accounts will be involved. In cases where we are the sole auditor, it will be advantageous to combine the audit of transactions and audit of annual accounts in one spell, unless for any special reason it becomes necessary to undertake audit of transactions separately from the audit of annual accounts.

(b) Form of Annual Accounts

It has been decided by the Government of India that, except where otherwise specifically authorized, every organization that receives assistance from Government in the form of grant/loan must compile the following three sets of accounts:

- (i) Receipts and Payments Account,
- (ii) Income and Expenditure Account, and
- (iii) Balance Sheet.

It is necessary to ensure that the annual accounts as presented, indicate, in sufficient details, information necessary to enable one to develop an understanding of the results of working and the financial position of the organization.

The format of accounts of Autonomous Bodies have been prescribed by Government of India with the approval of CAG of India. These accounts are based on double entry system i.e. mercantile system of accounts.

(c) Accounting on Accrual Basis

The Receipts and Payments Account is an abstract of cash receipts and payments. Since the cash transactions do not make any distinction between revenue and capital expenditure and do not enable one to quantify the income and expenditure pertaining to the period under audit, it is necessary to prepare Income and Expenditure Account, which is designed to measure the income for a given period for the non-commercial organization. Income and Expenditure Account is thus prepared on accrual basis where all the income whether received or not pertaining to the period under audit is taken credit for and the expenditure whether paid or not, relating to the period is charged. Whenever an Income and Expenditure Account is prepared, the Balance Sheet must follow. However in view of historical reasons or absence of adequate trained manpower in many organizations, the cash basis of accounting is still being followed. In all such cases, it would be necessary to examine whether, having regard to the activities of the scientific body, accounting on cash basis, by and large, serves the purpose. Strictly speaking, however, there should be insistence on preparation of the annual accounts on accrual basis. Accordingly the presentation of accounts on cash basis should lead to a qualification in the audit certificate.

11.3 Capital and Revenue Expenditure

Since measurement of income for a given period involves matching of cost with revenue, the distinction between capital and revenue expenditure becomes important. Capital, by and large, represents cost the benefit of which does not expire during the period covered by audit, but lasts for a longer income period. A part of the capital expenditure, which is treated as expired, during the accounting period is charged to the revenue of the current period, the balance being carried forward in the Balance Sheet to future accounting years. It is customary in certain organizations to charge small items of expenditure of capital nature to the revenue of the year in

which the expenditure is incurred; instances are library books, furnitures etc. It is, however, necessary to disclose such accounting policies in the accounts. In the absence of such disclosure, the Audit Report should disclose the accounting practice followed. The important point to be seen in this connection is that the method is followed consistently, is reasonable as a going concern and does not result in creation of secret reserves of material amount.

11.4 Essential Features of Audit

The essential features of the audit of accounts would be to:

- (a) makes critical review of the system of book keeping, accounting and internal control,
- (b) make such tests and enquiries as the auditors consider necessary to form an opinion as to the reliability of the records as a basis for preparation of accounts,
- (c) compare the Income and Expenditure Account and the Balance Sheet with the initial records in order to see whether they are in accordance therewith,
- (d) make a critical review of the Income and Expenditure Account and the Balance Sheet in order that a report may be made stating whether, in the opinion of the auditors, the accounts are presented and the items are described in such a way that they show not only a true but also a fair view.

11.5 Transactions Audit and Accounts Audit

The certification of annual accounts involves verification of the accounts with reference to the books of original entry, ledgers, etc. to see that the accounts are in accordance with the books. Inherent in the process of audit of the annual accounts is the assumption that the transactions appearing in the books of original accounts pertain to the organization, represent legitimate charge, and the books themselves record fully and faithfully all transactions pertaining to the organization for the period and nothing is left out. This can be ensured only by test check of the transactions.

11.6 Records for Accounts Audit

As all transactions ultimately get reflected in the form of cash outflow or cash inflow, cash book constitutes the most important book of original entry. For various adjustments the journal is used. While cash book serves both as a book of original entry and also a ledger, ledger accounts are maintained for consolidating transaction under appropriate classifications. The ledger balances are then listed in a trial balance from where items of revenue expenditure and income are transferred to Income and Expenditure Account. The remaining items are transferred to the Balance Sheet. It should be remembered that closing stock does not normally figure in the trial balance.

11.7 Broad Outline for Accounts Audit

The method of auditing of annual accounts will be broadly as follows:

- (i) Entries in the cash book and other books of original entries should be vouched and the castings tested.
- (ii) The postings from the books of initial records to the ledger accounts should be test checked.

- (iii) The justification and authority for each entry should be examined.
- (iv) The ledger balances should be checked and agreed with schedules like debtors' schedule, creditors' schedule etc.
- (v) Provisions for outstanding liabilities and accrued income should be verified.
- (vi) The Receipts and Payments Account should be checked with reference to the Cash Book.
- (vii) Items appearing in the Income and Expenditure Account should be checked with the trial balance.
- (viii) The ownership and continued existence of assets appearing in the Balance Sheet should be verified and adequacy of the provisions for items like depreciations, bad debts, etc. checked.

11.8 Need for Internal Control

The extent of checks to be exercised in audit will depend upon the system of internal control operating in the organization. Internal control is an arrangement, which provides for proper division and definition of tasks and responsibilities, introduction of an appropriate accounting system and the institution of forms of internal check. By internal check is meant the checks on day to day transactions which operate continuously as part of the routine system whereby the work of one person is proved independently or is complimentary to work of another, the objective being the prevention or early detection of errors or fraud. Another essential characteristic of the system of internal control is the existence of skilled managerial supervision and reviews including internal audit. It is the responsibility of the auditors to examine the system of Internal Control in order to assess its efficacy before determining the extent or quantum of checks and planning the audit.

(a) Requirements of Internal Control

In particular, the system of internal control over the following aspects would need to be noted by the auditor.

- (i) accounting of cash receipts and payments;
- (ii) realization of receipts and avoidance of loss due to negligence, delayed action, etc.
- (iii) sanctions to expenditure and watch over progress of expenditure vis-à-vis budget of the scientific body;
- (iv) purchase, accountal, issue, utilization and physical existence of stores and stock;
- (v) execution of construction programme;
- (vi) disbursement of grants, subsidy, scholarships, etc. and their utilization by the recipients;
- (vii) utilization of Government assistance for the specified purposes;
- (viii) review of objectives of the autonomous body; etc.

11.9 Need for Vouching of Entries

Mere checking of postings and casting is no proof that the books contain true entries in respect of all transactions. The duty of the auditor is to ascertain whether the books are actually correct in accordance with the best of his information and he obtains this information from the documents from which the books have been written up. This examination of the evidence offered

in substantiation of the entries in the books, including such examination of the proof to ensure that no entries have been omitted from the books, is known as Vouching.

(i) Vouching of Payments

The voucher for payment:

- (a) must be addressed to the organization under audit;
- (b) relates to the affairs of the organization under audit;
- (c) is properly authorized;
- (d) pertains to the period under audit; and
- (e) does not bear any signs of having already been used for another payment.

The vouching of payment will include examination of the authority for payment, reconciliation with liabilities discharged or assets acquired, verification of rates and quantum of payment and tracing of acknowledgement by the payee. Vouching of income will aim at ensuring that values for supplies and services have been either received or accounted for as recoverable, that all receipts have been fully brought to account immediately, that the system of control in force does not leave scope for fraud or defalcation. Check of classifications is also an important aspect of vouching. Journal entries should be checked with reference to evidence, authority and narratives. Journal entries may have a material bearing on the accounts. Vouching of journal entries is thus very important. The entries in other books of original entries should also be vouched, the extent being determined with reference to the nature of the organization and the adequacy of the system of internal control.

11.10 Points to be seen in checking the Accounts

Apart from the necessary routine checking of postings, castings and vouching, the following aspects should also be kept in view while auditing the accounts of an organization:

- (i) Check opening balance;
- (ii) Look for exception transactions which have resulted in charges or credits of a material amount to the accounting period;
- (iii) Vouch all capital expenditures;
- (iv) Verify existence and ownership of assets and check basis of valuation and provision for depreciation;
- (v) Ascertain the system of stock taking, test check stock sheets and valuation and obtain certificate from responsible officials;
- (vi) Check bank reconciliation and obtain certificate from bankers;
- (vii) Classification between capital and revenues;
- (viii) Ensure adequacy or otherwise of provisions for outstanding liabilities, bad debts, damage or deterioration in value of assets, fixed and current;
- (ix) Make sure that all income has been brought to account;
- (x) See that all allowances, discounts, etc. are authorized and admissible;
- (xi) Examine carefully commitments for capital expenditure not provided in the accounts and ensure that ascertained liabilities are not shown as contingent liabilities;

- (xii) Review balances of sundry debtors, advances, etc., analyse their pendency and ensure that their recovery is enforced and that none represents fictitious balances;
- (xiii) Compare important items in Income and Expenditure account with corresponding items of the previous year and ascertain the reasons for material variation;
- (xiv) See if credits from any source of income have come down;
- (xv) Examine the schedules showing the composition of each item in the Balance Sheet and compare such items with corresponding figures for the previous period. Consider carefully all material changes;
- (xvi) Consider the values placed on current assets;
- (xvii) Ascertain if there has been any changes in the basis of accounting having material effect on the accounts of the year under audit;
- (xviii) Examine particularly the bookings against items, which qualify for grants/ assistance to prevent attempts at securing inflated assistance from Government;
- (xix) Look for assets created or expenditure incurred which have not been productive;
- (xx) Look for charges/transactions falling beyond the scope of authorized activities of the organization.

11.11 Audit of Accounts maintained on accrual system of commercial accounting i.e. double entry system

The following additional points may be seen in audit of accounts based on double entry system:

- (i) Significant Accounting Policies have been disclosed and whether the same are in conformity with the accounting standards.
- (ii) Accounting policies are consistently applied and any deviation having material affect may be suitably pointed out
- (iii) Balance Sheet and Income and Expenditure Account are in the format as approved by the CAG of India.
- (iv) All known liabilities and losses have been provided for.
- (v) Contingent liabilities have been properly disclosed.
- (vi) All statutory liabilities have been accurately assessed and provided for.
- (vii) Interest accrued but not due with on investments and loan and borrowings are duly provided for.
- (viii) Provisions for gratuity, pension, leave encashment etc have been provided on actuarial basis.
- (ix) There is system of review of old sundry creditors and prompt action taken on more than three years old.
- (x) All the fixed assets have been included and properly depreciated as per provision of Income Tax. In case of Land and Building the Institution has clear title.
- (xi) Reconciliation of financial ledgers with fixed assets registers carried out.
- (xii) All worn out, obsolete, unserviceable, unusable assets have been declared by way of note or written off.

- (xiii) Any significant change in the value of the investment have been suitably disclosed and if warranted provided for.
- (xiv) Basis of valuation of inventories is disclosed and is as per established commercial principles.
- (xv) System exists for review of outstanding debts and the doubtful debts are adequately provided for.
- (xvi) Irrecoverable loans and advances have been properly disclosed and provided for.
- (xvii) Income accrued and due and income accrued but not due on advances, investments, etc have been accounted for.
- (xviii) Sales are net of trade discounts, rebate and returns.
- (xix) All incomes should be disclosed at gross figures and expenses and other deduction should be shown separately.
- (xx) Prior period expenses have suitably accounted for.
- (xxi) Deferred revenue expenditure is written off in adequate member of years.
- (xxii) Finished goods and semi-finished goods are valued as per declared policies and are not in variance with the normal accepted principles of accounting.

Chapter-12

AUDIT OF COMPUTERISED SYSTEM OF ACCOUNTS

12.1 Introductory

The basic characteristics of audit do not have to change with introduction of computers in an organisation. But, in an environment where there has been increasing use of computers, approach, methodology and timing of audit have to be different from those in the traditional auditing.

The main factors necessitating the change are the following difference in the essential features of a computerised system from those of a manual system.

Manual system	Computerised system
i. Organisation's are directly verifiable	i. Operation of systems being through magnetic signals in electronic / electric media is not directly verifiable.
ii. Manipulation of data, processes etc. is difficult and easy to detect.	ii. Data stored and programming being fluid can be easily manipulated.
iii. Operations like postings totaling, carrying forward etc. are done directly and it is possible to check them at different stages.	iii. Many operations are done almost simultaneously and are not susceptible to verification at intermediary stages.
iv. Operations are slow and cause monotony.	iv. Operations are very fast and efficient.
v. Threats and risks about loss of records, data etc. are not very potential	v. System and data security risks are of very high order.

Use of computer facilities has brought about radically different way of processing, recording and controlling information as well as has combined many previously separated functions. The potential for material systems error has thereby been greatly increased causing great costs to the Organisation, e.g., the highly repetitive nature of many computer applications means that small errors may lead to large losses. This makes it imperative for the auditor to test the invisible processes and the controls embodies in them within the computer.

12.2 Controls in a Computer System

Besides being economical, computer systems are efficient and achieve results accurately and at great speed if they work the way they are designed to. They have controls provided to ensure this but the controls have to be effective. The controls are of great value in a computerised system and it is the most important task of an auditor to see that not only adequate controls exist but they also work efficiently to ensure results.

A. Significance of controls

Significance of controls in a computerised system is for several reasons, notable among them being:

- wrong selection of computer hardware / software etc. and inefficient development process may result in very expensive and time consuming process to make it work effectively;
- data loss due to file damages, data corruption (manipulation), fire, burglary, power failure (or fluctuations), viruses etc. can put the organisation in tight sp6t;
- error in software can cause manifold damages as one transaction in a computer system may affect data everywhere;

- (iv) computer abuses like fraud, vengeance, negligent use etc. is a great potential danger; and
- (v) absence of audit trails etc. make it difficult for an auditor to ensure efficient and effective functioning of a computerised system.

B. Objectives of Computer Controls

The objectives of controls do not change with the introduction of computers. It is the control techniques that change with many of the manual controls being computerised and new technical computer controls added to achieve the control objectives. Typical control objectives within a Government Data Processing (DP) function may be to ensure:

- (i) provision of effective organisational control over functions related to DP by clearly defining organisational objectives;
- (ii) effective management control over development of DP resources in accordance with organisational objectives;
- (iii) practices related to DP activities in accordance with statutory requirements and down administrative procedures;
- (iv) formulation of an adherence to policies, standards and procedures for all functions related to DP; and
- (v) efficiency and effectiveness of the DP systems towards achievement of its desired objectives.

C. Classification of Controls

- (i) *Authorisation controls* - These controls help to verify the identity and authority of person authorised to use the computer facilities. Some of the examples are passwords, signatures, plastic cards, cryptographic systems etc. These controls ensure that only an authorised person has access to facilities and their use to enter or alter transactions and to take information from the system. There can be methods by which the person may be authorised for access to some files of information and denial to others. Levels of authorisation from person to person will vary.
- (ii) *Accuracy controls* - These controls help to ensure correctness of data and accuracy of processing and operations in the systems. For example, the accuracy controls for data input may be in the form of in-built checks of acceptance, or otherwise of some types of figures, provisions of control totals. These may be achieved through code data controls, style and design, batch controls, data entry evaluation, etc.
- (iii) *Completeness controls* - These control at verifying that the transactions are complete. For example, the accounting software would refuse to accept the transactions without a date or an account head, etc.
- (iv) *Existence controls* - These are intended to ensure the existence of necessary resources of the system. For example, controls are needed to ensure manual verification of the data entered, to ensure adequate and proper backing up procedures, etc.

12.3 Process of Computerisation

Establishment and functioning of a computerised system involves the following processes:

- (i) Acquisition – An Organisation should plan for the computerised systems according to a laid down EDP policy and a strategic plan for provision of EDP services, which should take into account organisational, environmental and technological changes likely to occur within a time frame, say, of three to five years. The process of acquiring computers and systems requires a highly coordinated effort otherwise there is a danger of uncontrolled proliferation of computers and lack of user awareness of services available.
- (ii) Development – System analysis and design is very important as smooth functioning of the computerised system will depend on how well this process is gone through. System has to be designed to meet the requirements efficiently and effectively. It should be well documented and flexible enough to accommodate necessary changes from time to time.
- (iii) Operation and maintenance – Operation of a system means currently performing functions to meet the organisational needs while maintenance involves changes or adjustments to keep the system functional and capable of delivering needed results from time to time.
- (iv) Replacement – Replacement involves acquisition and/ or development as well as operational aspects.

12.4 Audit Objectives and Scope

Basic objectives of the audit of EDP systems include evaluating:

- (i) acquisition and installation of the computer and computer systems;
- (ii) system effectiveness;
- (iii) system economy and efficiency, data integrity;
- (iv) system security; and
- (v) compliance of system related activities with applicable laws, regulations and guidelines.

The above objectives can be achieved by reviewing:

- (i) acquisition of the computer facilities;
- (ii) whether computer based systems incorporate adequate procedural controls and these are not invalidated by subsequent amendments;
- (iii) adequacy of controls governing development and maintenance of computerised systems;
- (iv) adequacy of administrative and organisational controls which ensure safe and expedient day- to-day operation of the installation; and
- (v) use of resources to appraise and report on waste and extravagance and inconvenient administration or poor value of money.

An auditor has to always bear in mind. that he has to exercise an independent judgement on the capability of the system in meeting the objectives - efficient and adequate disposal.

12.5 Audit Approach

12.5.1 Audit Planning

While making the work plan, skills available must be taken into account.

- (i) If staff have only limited DP skills then they must start on audit tasks of a low technical complexity with a work programme designed to increase their knowledge and experience.
- (ii) Such experience should, preferably be gained under the supervision of an experienced DP auditor or with advice and assistance from an experienced DP specialist.

With or without that assistance action must be started on small audits with time to research and evaluate.

To be able to decide where scarce resources should be allocated, audit planners need a method of determining priorities of work across auditee organisations. This will have to take into account information about the Organisation, including:

- (i) identification of the organisation's major systems and to what extent they are computerised,
- (ii) knowledge of the organisation's system development plans and
- (iii) an assessment of how well managed is each organisation's systems development progress.

The priority allocation will depend on the state of development of the auditee.

Some of the criteria that influence the ranking of systems for audit coverage, and which should be considered when developing a priority selection mechanism are:

- (i) impact on the various statements (materiality)
- (ii) security and confidentiality impact
- (iii) degree of user involvement
- (iv) high development cost
- (v) technological complexity
- (vi) specific request for system review
- (vii) parliamentary interest
- (viii) contribution to profits or operational control
- (ix) impact on customers or customer service
- (x) contribution to decision making
- (xi) degree to which system will make decisions
- (xii) authorise actions (e.g., cheque-writing, stock ordering).
- (xiii) history of troublesome performance, and
- (xiv) equality of internal audit-coverage

12.5.2 Preliminary evaluation

First step in audit should be preliminary evaluation of the computer systems covering:

- (i) how is the computer function organised.
- (ii) use of computer hardware and software,
- (iii) applications processed by the computer and their relative significance to the organization, and
- (iv) methods and procedures laid down for implementation of new applications or revision to existing applications.

In course of preliminary evaluation, auditor should ascertain the level of control awareness in the auditee Organisation and existence (or non-existence) of control standards. The preliminary evaluation should *inter-alia* identify potential key controls and any serious key control weaknesses. For each control objective the auditor should state whether or not the objective has been achieved; if not, he should assess the significance of the control deficiencies and decide on any necessary consequential action.

Preliminary evaluation of all new applications and installations should be carried out during the first year that the application/installation operates. In doing this, the auditor should also examine the controls on both the testing of the new application and the transfer of data to it. Thereafter preliminary evaluation may be carried out every 3-4 years. In the intervening years, the auditor should review the situation briefly to establish whether changes have been made sufficient to warrant a fresh preliminary evaluation.

At the time of preliminary evaluation the auditor can take a view on using Computer Aided Audit Techniques (CAATs) and also on the kind of CAATs.

12.6 Audit methodology

After completing the preliminary evaluation of the computer systems, the audit has to decide about the appropriate audit approach, system based or direct substantive testing. In doing so, the aspects to be borne in mind are:

- (i) results of the preliminary evaluation,
- (ii) extent to which reliance can be placed on any work carried out by Internal Audit, and
- (iii) nature of any constraints like lack of any audit trail and the practicability of testing.

Effective compliance testing of key computer controls may be difficult and each control to be tested will require large samples.

A. Direct Substantive Testing

If Direct Substantive Testing approach is chosen, a sample of transactions should be selected and tested. Result of the preliminary evaluation will be of help particularly as it would have:

- (i) provided an overall assessment of the control environment and identified any serious weaknesses which should be raised with the auditee,

- (ii) given sufficient familiarity with the system to be able to decide the point from which to select the transactions for testing and how to substantiate them efficiently, and
- (iii) provided sufficient information to determine any initial requirement for any CAATs.

B. Systems Based Audit

For System Based Audit approach, aspects of regularity, economy, efficiency and effectiveness of the system have to be looked into besides evaluating data integrity, and data security as explained below:

- (i) system effectiveness is measured by determining whether the system performs the intended functions and whether users get the needed information in the right form in time;
- (ii) a system is economical and efficient if it uses the minimum number of information resources to achieve the output required by the users. The use of system resources - hardware, software, personnel and money - should be optimized;
- (iii) system activities would be regular if they comply with applicable laws, rules, policies, guidelines etc;
- (iv) achieving data integrity implies that the internal controls must be adequate to ensure that error are not introduced when entering, communicating, processing, storing or reporting data; and
- (v) for data security system resources, like other assets, must be sufficiently protected against theft, waste, fraud, unauthorized use and natural disasters.

The key controls for ensuring the above will have to be identified, recorded, evaluated and compliance tested. The result of the preliminary evaluation would be of help particularly as they would indicate system deficiencies, major weaknesses and the areas requiring in-depth study. Identification of key controls would also depend on experience of the auditor gained in course of audit of similar installations.

Compliance testing of controls in computer systems and programmes is difficult and complicated as their operation is automatic, invisible and not fully evidenced (only the exceptions are normally evidenced). Detailed manual testing of these controls is rarely cost effective, but a possible alternative approach is to use a CAATS. For example, either test data or audit software may be used to test a control which is designed to ensure that payments exceeding a certain value should not be made.

Audit software can be used to interrogate the whole payments file to identify payments, which exceeded the certain value. If no such cases are revealed, the auditor has some assurance in that no such payment was made. This is a negative assurance since it is possible that no invalid data was in fact presented to the system (and hence the control was never invoked). However, if the interrogation is applied to the whole year's transactions, it achieves the main audit objective in that no excessive payments will have been made in the period.

Even when test packs or interrogation are used, the auditor should examine the procedures for dealing with exception or error reports, to ensure that invalid transactions are corrected and re-input for processing.

12.7 Audit techniques

EDP audit techniques refer to the use of computers, including software, as a tool to independently test computer data of audit interest. Some well-established techniques are:

- (i) collecting and processing a set of test data that reflects all the variants of data and errors which can arise in an application system at different times;
- (ii) using integrated test facilities, built into the system by the auditee to help the auditor in his requirements, as one of the users of the system;
- (iii) simulating the auditee's application programs using audit software to verify the results of processing;
- (iv) reviewing program listings periodically to see that there are no unauthorised alterations to the programs;
- (v) using either commercial software or in-house developed programs to interrogate and retrieve data applying selection criteria and to perform calculations, and
- (vi) extracting samples of data from the auditee database/files, using sampling techniques, for post analysis and review. The nature of data and type of analysis required determine what technique is to be employed. The auditor should give the sample size and design.

Computer audit techniques are employed for:

- (i) verification of ledger balances and control totals independently;
- (ii) recalculation of critical computerised calculations to check mathematical correctness;
- (iii) range checks to verify the working of computer based controls and testing for exception conditions;
- (iv) testing the validity of data which have gone into the master file;
- (v) detection of data abuse/frauds, and
- (vi) substantive testing with large volumes of data which is difficult, if not impossible, in a manual audit process.

The particular computer audit technique employed depends on:

- (i) the type of application system under review;
- (ii) the extent of testing required;
- (iii) the availability of resources in terms of computer facilities, and the level of EDP skills among the audit staff (audit skills are assumed here); and
- (iv) volume of data and availability of printer information

Where data volume is small and adequate printed information is available to carry out a meaningful clerical audit, there is no need to employ computer techniques, which are costly and time consuming. To elaborate further, the auditor should break up his project of application system audit into three stages. In the first stage, he will carry out the examination of audit trails, intermediate printouts as required, system logs, operational controls. As a result of audit in the first stage, if the auditor feels that the adequacy of controls requires further verifications, in the second stage he can carry out compliance testing by using the test deck method and integrated test facilities with resident audit programs. If the compliance testing exposes some control weaknesses, substantive testing may be resorted to in the third and final stage using retrieval software and simulation techniques with audit software.

Some commonly used CAATs are described in the following paragraphs:

A. Test Deck Method

In this method, the auditor prepares both real and fictitious data to test the accuracy of the programs. In designing the test data, care should be taken to include all variants to test all possible conditions. Using this technique, audit can check whether:

- (i) the system and programs operate as specified in the documentation;
- (ii) only valid data is accepted and processed correctly;
- (iii) erroneous data is rejected as anticipated; and
- (iv) exception conditions are tested by the application programs to avoid absurd results.

B. Integrated Test Facilities

This technique requires involvement of auditors at the system development stage. Separate programs are written exclusively for audit use and are operated by auditors at periodic intervals. These programs reside in the software as an integral part of the application system. For example, all the transactions which affect the master file could be written into another file for post audit and review. Similarly, audit modules could be built into the system to check exception conditions, like stocks below minimum levels, issues without balances and purchases of items when no issues have been recorded, in the case of an inventory control system.

C. Simulation Using Audit Programs

While, in the test deck method, the auditee's programs are tested with the auditors data, in the simulation method, the auditor uses his own software to test the auditee's data and then compare the results of this independent processing with those of the auditee. This is a very time consuming and expensive method. Moreover, this calls for special programming skills on the part of the auditor. Employment of this technique is generally discouraged. It is certainly not suited to our environment, since we do not have the required time or resources. The time required for developing simulated systems could be profitably employed in developing new systems of audit interest.

D. Programme review and Comparison

This technique requires programming skills on the part of the auditor to periodically go through the program listings and compare such listings for each application system. It is a time consuming method. There are utilities available today for comparison of files on the computer itself. However, the examination of program listings can only be done manually. This technique is not recommended for our environment since we do not have the time or resources to do this job. Moreover, the object module could be manipulated by a skilled programmer without touching the source program files; in such a situation, the examination/comparison of program files does not serve the purpose.

E. Retrieval/ Interrogation programs

Retrieval software should be comprehensive and include the following functional routines/facilities to:

- (i) retrieve record by record from a file;
- (ii) total value fields for reconciling computer figures with booked figures;
- (iii) perform calculations on numeric data to check the resident modules' mathematical correctness;
- (iv) sort and merge data in any desired sequence;

- (v) select data from an indexed file on any desired criteria; and
- (vi) print reports for post-audit analysis and review.

There are a number of commercial packages like FILETAB, EASYTRIEVE, IDEA available off the shelf. There are versions for use both on conventional files and data base systems. The auditor can also develop in-house retrieval programs. Such projects are not only expensive but also call for high levels of programming skills and knowledge of a variety of computer languages. Also, auditee data files would require conversion to an acceptable format before retrieval software can be used. Even for using commercially developed packages, the auditor is required to possess:

- (i) knowledge of the computer system with the auditee;
- (ii) programming skills to construct queries and retrieve data;
- (iii) Knowledge of the Operational aspect of the package; and
- (iv) the layout of data files subject to examination.

(Availability of computer resources and time is assumed.)

Today, many DBMSs have built-in query and report writer facilities. Unstructured queries on the data files are also possible in some advanced systems. These utilities could be profitably employed for audit purposes. The auditor will be able to obtain the relevant information from the auditee's computer centre.

The distinct advantages of retrieval packages over other methods are 100 per cent review of data and accuracy of processing and effective use of the auditor's time in analysing results of interrogation. Use of retrieval software will, however, always remain a problem area primarily because of the multitude of hardware and software systems in use in various departments, necessitating expertise in several programming.

12.8 Human resources needed for Audit

For EDP auditing, at the apex level, it is necessary to have one or two persons qualified in both disciplines (i.e., possessing both EDP and audit skills) or alternately, an EDP audit team which will consist of staff with a sound financial and audit background and computer specialists, could be formed. At the operational level a large number of trained audit staff with different levels of skills will be required.

12.9 Main points to be checked in different Audit Areas

Audit of Acquisition

Generally the acquisition of computer facilities involves the following stages:

- (i) definition of a computer policy and strategy (evaluation of organisational requirements and the ways and means of satisfying them);
- (ii) establishing the need;
- (iii) a thorough examination and evaluation of the alternative courses of action available;
- (iv) specifying precisely the requirements (delineating existing and future applications, hardware, software, modes of operations, conditions of supply, etc.);
- (v) evaluating the alternative sources of supply and selecting the most appropriate source(s); and

- (vi) physically acquiring the facilities and the systems.

Often these stages tend to overlap or merge imperceptibly, into one another.

Acquisition of computer facilities may include:

- (i) acquisition of hardware involving
 - (a) introduction of a completely new installation,
 - (b) enhancement of central processor,
 - (c) enhancement of peripherals,
 - (d) addition/replacement of a specific equipment; and
 - (e) introduction of several small computers.
- (ii) acquisition of software involving
 - (a) general software associated with changes in hardware (a new operating system),
 - (b) specific purpose software; and
 - (c) off the shelf application software.

The auditor has to review the adequacy of administrative procedures and controls used by the auditee organisation when considering and deciding upon the acquisition of computer facilities. For this purpose, he has to see that:

- (i) a sound administrative structure exists to produce a proper analysis of the requirements of computer facilities;
- (ii) the acquisition procedures are effective in producing a viable computing policy and strategy, and
- (iii) the process of evaluation and selection ensure that the requirements of the organisation are met in the most effective and efficient way - sufficient and adequate disposal.

The auditor should direct his attention to the following areas:

- (i) EDP policy and strategic plan;
- (ii) administrative structure;
- (iii) feasibility study/ project report containing proposals, costs and benefits; equipment selection
- (iv) justification for hardware and software;
- (v) installation of equipment and adequacy of testing; and
- (vi) post implementation review and costs.

Feasibility study report should cover points like clear statement of objectives, existing arrangements, alternative solutions, proposed solutions, financial implications and schedule of implementation. In case of equipment selection, points to be borne in mind are:

- (i) specifications of requirements for acquisition, enhancement or replacement of computing facilities are stated concisely and precisely (as they form the basis for potential suppliers);
- (ii) both technical and commercial aspects of the proposal are evaluated according to standard contracting procedures; and

- (iii) procurement action is taken after ensuring that the suppliers' offers meet the requirements of the specifications by taking into account inter-alia (i) technology options available at the time of procurement, (ii) extent of built-in obsolescence a useful life of the asset, (iii) incidental costs which could eventually be of sufficient magnitude, besides hardware and software costs and (iv) future development plans of the potential suppliers in terms of expendability, upgradability, etc.

12.10 Audit of Development

Since the underlying purpose of acquisition and development (designing, building or modifying) is the same, the Audit concerns relating to acquisition, viz., planning, requirements definition, analysis of, alternatives and justification for the selected approach, are equally important in the review of systems development. Broadly stated, the audit objective of system development controls is to ascertain that procedures are adequate to ensure that the development results in well-documented computer systems incorporating adequate controls and meeting properly defined user requirements in an efficient manner.

There is also a need to examine the system testing and data transfer procedures as:

- (i) inadequate system testing before line operation may result in the operation of a system which may not correctly process and record transactions, and
- (ii) inadequate data transfer procedure may result in the relevant records being inaccurately and incompletely transferred from the old to the new system.

Where systems development is entrusted to contractors, the contract and its management become important audit concerns. It should be ensured that the vendor provides complete documentation alongwith source code. Further, the terms and conditions like the rights over the source code provisions for modifications/updating in future should be examined. The penal provisions may also be examined in case of non-delivering of services/ non-adherence to time schedule. It may also be seen if any objectives could not be achieved due to delay in delivery of the software.

A. Categories of System Development Audit

System development audits can be categorised into three general classes:

- (i) monitoring audits, in which the auditor evaluates the project throughout the process to determine whether development is proceeding effectively, e.g., whether milestones are being met, expenditure rates are as predicted, high quality documentation is being written, software conforms to established technical standards, tests are being conducted as scheduled or evaluated as planned;
- (ii) design review audits, in which the objective is to determine whether the preliminary and detailed designs accurately reflect the functional data and systems specifications, and incorporate adequate internal controls; and
- (iii) post implementation audits, performed three to six months after the system becomes operational, serve to evaluate whether the system meets requirements, is cost-effective and generally provides benefits predicted in project planning documents.

B. Association of audit in systems development

The ultimate responsibility for incorporating internal controls and an adequate trail into computer-based systems must rest with the auditee. The auditor therefore does not need to provide, as a matter of policy, any consultancy advice on developing systems. Nonetheless, audit should be aware of all developments which are likely to have

significant impact on his audit. At an early stage in the design process of a new system, auditor should consider providing the auditee with specific comment on:

- (i) internal controls in the light of weaknesses identified in the existing system,
- (ii) audit need such as data retention or retrieval facilities and audit trail requirements; and
- (iii) any requirement which might enable him to carry out his audit, or improve its efficiency and effectiveness.

C. Main points to be checked by Audit in System Development

While the auditor should be cautious enough not to be drawn into unproductive involvement in system development, the points that he should examine are the following:

- (i) whether a published standard methodology is being used for designing and developing systems?
- (ii) whether there is a common understanding by all parties-users, systems analysis, management and auditors-of the basic structure of both manual and computer processing activities, as well as of the concepts and needs for control and of the applicable control techniques? (This understanding must be reached first at a not-technical, user level)
- (iii) Who authorises EDP applications development user or steering Committee or management?
- (iv) Whether the system development work was preceded by a feasibility study to determine the most appropriate solutions to standard problems?
- (v) Whether there is adequate cross referencing between the following stages:
 - (a) content and format of preliminary studies,
 - (b) feasibility studies.
 - (c) system specifications,
 - (d) program coding
- (vi) Whether project management techniques, are applied in system development work-that is to say, are there project decision milestones, time and cost estimates so that progress could be monitored against estimates?
- (vii) Whether programming standards using modular structured methodology are being adhered to in coding?
- (viii) Whether existing in house or external available application packages were considered before deciding upon new in-house application development?

12.11 Audit of Operation and Maintenance – General Controls

The auditor has to review the internal controls, which are essential for proper operation and maintenance. Some of the operation and maintenance controls fall in the category of 'environmental or general controls' relating to the whole set of computer facilities.

The overall audit objective in reviewing the general controls is to ensure that the controls and procedures are adequate to provide secure, effective and efficient day-to-day operation of the computer facilities. The controls and procedures which together form the general controls are discussed in the succeeding paragraphs.

A. Organisational controls

They ensure that (i) there is judicious separation of duties to reduce the risk of employees fraud or sabotage by limiting the scope of authority of any individual, (ii) there are comprehensive written standards and (iii) access to and use of computer terminals is properly authorised.

B. Authorisation Control

The authorisation control helps verify the identity and authority of the person desiring to attempt a procedure or an operation. This control is exercised through use of passwords, signatures, plastic cards, cryptographic systems etc. Such-controls ensure that only an authorised person has access to the system and its use, to enter and/or alter transactions, to take information etc.

C. Operation and file Controls

Operation and file controls are meant to ensure safeguarding the computer and computer files from unauthorised access, loss or theft. Controls relating to reception, conversion and processing of data and distribution of the final output promote the completeness and reliability of these operations and safeguard against the unauthorised processing of data or programmes. File controls and procedures adequately safeguard files and software against loss, misuse, theft, damage, unauthorised disclosure and accidental or deliberate corruption.

As the computer provides a means of holding, assessing and amending information, it is imperative that its use is controlled. It should have a definite schedule of work that is authorised to run on it and restrictions should be placed on the number and type of staff allowed access to it. Also, computer files are records of an organization, which have to be well-safeguarded.

D. System and Programme Amendment Controls

System and Programme Amendment controls are to ensure that all system and programme amendments are satisfactorily justified, authorised, documented and tested. Also, an audit trail of changes has to be maintained. In the absence of these controls, data can be manipulated by computer and other staff.

E. Network Communication Security Controls

Network communication security controls are important where LANs/ WANs or web enabled systems are in use. Some important aspects to be covered by this control are as follows:

- (i) All sensitive information in the network should be protected by using appropriate techniques;
- (ii) The critical network devices such as routers, switches and modems should be protected from physical damage;
- (iii) The network configuration and inventories should be documented and maintained;
- (iv) Prior authorisation of the Network Administrator should be obtained for making any changes to the network configuration.
- (v) The changes made in the network configuration should be documented. The threat and risk assessment of the network after changes in the network configuration should be reviewed.
- (vi) The network operation should be monitored for any security irregularity. A formal procedure should be in place for identifying and resolving security problems.

- (vii) Physical access to communications and network sites should be controlled and restricted.
- (viii) Communication and network systems should be controlled and restricted to authorised individuals.
- (ix) As far as possible, transmission medium within the Certifying Authority's operational site should be secured against electromagnetic transmission. In this regard, use of Optical Fibre Cable and armoured cable may be preferred as transmission media as the case may be
- (x) Network diagnostic tools, e.g., spectrum analyzer, protocol analyzer should be used on a need basis.
- (xi) Firewalls: Intelligent devices generally known as "Firewalls" shall be used to isolate organisation's data network with the external network. Firewall device should also be used to limit network connectivity for unauthorised use. Networks that operate at varying security levels shall be isolated from each other by appropriate firewalls. The internal network of the organisation shall be physically and logically isolated from the Internet and any other external connection by a firewall. All firewalls shall be subjected to thorough test for vulnerability prior to being put to use and at least half-yearly thereafter. All web servers for access by Internet users shall be isolated from other data and host servers.
- (xii) Connectivity: Organisation shall establish procedure for allowing connectivity of their computer network or computer system to non-organisation computer system or networks. The permission to connect other networks and computer system shall be approved by the Network Administrator and documented. All unused connections and network segments should be disconnected from active networks. The computer system/personal computer or outside terminal accessing an organisation's host system must adhere to the general system security and access control guidelines. The suitability of new hardware/software particularly the protocol compatibility should be assessed before connecting the same to the organisation's network. As far as possible, no Internet access should be allowed to database server/file server or server hosting sensitive data. The level of protection for communication and network resources should be commensurate with the criticality and sensitivity of the data transmitted.
- (xiii) Network Administrator: Each organisation shall designate a properly trained "Network Administrator" who will be responsible for operation, monitoring security and functioning of the network. Network Administrator shall regularly undertake the review of network and also take adequate measures to provide physical, logical and procedural safeguards for its security. Appropriate follow up of any unusual activity or pattern of access on the computer network shall be investigated promptly by the Network Administrator. System must include a mechanism for alerting the Network Administrator of possible breaches in security, e.g., unauthorised access, virus infection and hacking. Secure Network Management System should be implemented to monitor functioning of the computer network. Broadcast of network traffic should be minimized. Only authorised and legal software shall be used on the network.

F. Environmental Controls

Environmental controls are to ensure that staff, computer equipment and applications, data and documentation are protected against accidental or deliberate damage.

G. Recovery and Standby Controls

Recovery and standby controls are for ensuring that data can be reconstituted after file loss or corruption and providing continuity of secure operating in the event of equipment failure. Disaster recovery plans have to be understood by the staff responsible for their implementation.

H. Important points to be checked in general controls

The following points should be covered while reviewing these controls:

- (i) obtain a list of hardware including, computer, ancillary and terminal equipment in use indicating model, performance details and check the existence of this equipment :
- (ii) obtain an organisational chart which is up-to-date and see how the computer fits into the overall organisation;
- (iii) obtain an upto date staff organization chart of the computer department showing the relative responsibilities and authorities and note any changes on review;
- (iv) obtain job specification (role definition) for senior computer staff and supervisors of the ancillary section and note any changes;
- (v) obtain the details of standards and norms fixed for each of the functioning like data control, data preparation, system operation and verify their implementation :
 - (a) computer utilisation per shift in terms of CPU (Central Processing Unit) and peripheral use;
 - (b) key depressions per shift per data entry operator and error allowance;
 - (c) document standards and controls -batching, balancing and sequencing,
 - (d) run to run controls maintained by system operators;
 - (e) whether manuals are maintained and kept up-to-date specifying the control procedures and whether they are enforced in practice through a 'test check'.
- (vi) obtain and verify, existence of the following terminal controls to protect data and system integrity
 - (a) physical access controls to terminal rooms;
 - (b) software controls through password protection and user directories;
 - (c) logging of terminal activities by all users.
- (vii) obtain details of security measures, both physical and system, for check and review of the following :
 - (a) adequacy of protection of hardware and software against risk of fire (fire prevention steps and fire fighting arrangements) :
 - (b) maintenance of hardware and system software;
 - (c) air conditioning and protection against possible radiations, vibrations;
 - (d) possible industrial action, malicious action by programmers, operators, input-output staff (discontent among computer operating staff);
 - (e) security awareness and training provided to all employees;
 - (f) emergency shut-down procedures in case of power failures;
 - (g) safe custody of software and data files and type library;

- (h) adequacy of back-up files (offsite storage included);
- (i) operator access to program files and data;
- (j) procedures for reconstructing files in the event of loss or disk errors/tape errors (contingency plans);
- (k) computer equipment back-up through the use of compatible equipment at other dispersed sites;
- (l) computer room should be off limits to all except systems operators, hardware engineers; and
- (m) insurance of the installation to cover possible risk.

12.12 Audit of Operation and Maintenance – Application Controls

Application controls are the internal controls, which relate to the individual computer application systems. They complement the general controls in making information systems achieve their objectives. These controls govern the processing of transactions and standing data within systems by ensuring that (i) all and only valid data are authorised for input; (ii) the input, processing and output of data are complete and accurate; and (iii) the system files are securely held and accurately maintained.

Before getting on to evaluation of application controls, it will be necessary for an auditor to secure a reasonable understanding of the system. For this purpose, a brief description of the application should be prepared;

- (i) indicating the major transactions,
- (ii) describing the transaction flow and main output,
- (iii) indicating the major files maintained, and
- (iv) providing approximate figures for transaction volumes.

Application Control requirements may be divided into:

- (i) Documentation standards
- (ii) Input control
- (iii) Processing control
- (iv) Output control
- (v) Master/Standing Data File control
- (vi) Audit requirements

A. Documentation Standards

Documentation standards ensure that adequate and up-to-date system documentation is maintained. Careful updating of documentation is also important. (Auditor will find documentation helpful as an aid to understanding the system but he must be careful to ensure that it is up-to-date before using it.) There should be standards to ensure that:

- (i) system documentation is sufficiently comprehensive.
- (ii) documentation is updated to reflect system amendments, and
- (iii) a back-up copy of the documentation is held.

Without good documentation, it will be difficult to assure that controls will operate on continuous basis and there will be greater likelihood of error.

B.

Input Controls

Input control's objective is to ensure that the procedures and controls reasonably guarantee that (i) the data received for processing are genuine, complete, not previously processed, accurate and properly authorized, and (ii) data are entered accurately and without duplication. Input control is extremely important as the most important source of error or fraud-computerised systems is incorrect or fraudulent input. Controls over input are vital to the integrity of the system.

The controls that the auditor should like to see are:

- (i) all prime input, including changes to standing data, is appropriately authorised.
- (ii) for on-line systems, the ability to enter data from a terminal is adequately restricted and controlled.
- (iii) there is a method to prevent and detect duplicating processing of a source document,
- (iv) all authorised input has been submitted or, in an on-line system transmitted, and
- (v) there are procedures for ensuring correction and resubmission of rejected data.

C.

Processing Controls

Processing controls ensure complete and accurate processing of input and generated data. This objective is achieved by providing controls for:

- (i) adequately validating input and generated data,
- (ii) processing correct files (and generations),
- (iii) detecting and rejecting errors during processing and referring them back to the originators for re-processing,
- (iv) proper transfer of data from one processing stage to another, and
- (v) checking control totals (established prior to processing) during or after processing.

D.

Output Controls

It may be noted that weakness in processing may sometimes be compensated by strong controls over output. A well-controlled system for input and processing is likely to be completely undermined if output is uncontrolled. Reconciliation carried out at the end of the output stage can provide very considerable assurance over the completeness and accuracy of earlier stages in the complete cycle.

Output controls ensure that all output is:

- (i) produced and distributed on time,
- (ii) fully reconciled with pre input control parameters,
- (iii) physically controlled at all items, depending on the confidentiality of the document, and
- (iv) errors and exceptions are properly investigated and acted upon.

E. Master/ Standing Data File Controls

Master/Standing Data File controls are meant for integrity and accuracy of Master Files and Standing Data. Accuracy of data on Master and Standing files is of vital importance, to the auditor. These have to ensure that:

- (i) amendments to standing data are properly authorised and controlled.
- (ii) integrity of Master and Standing Files is verified by checking, control totals and periodic reconciliation with independently held records.
- (iii) special amended facilities are properly recorded in and their use controlled by management authorisation and subsequent review, and
- (iv) physical and logical access to application data files are restricted and controlled.

F. Audit Requirements

Audit requirements have to be provided to ensure that the system can be audited in an effective and efficient manner. Audit trail has to be maintained to enable tracing of an item from input through to its final resting place and break up a result into its constituent parts. (Auditors may have to use audit software or test data for the efficient execution of their audit. They have, therefore, to be granted reasonable requests for the access to copies of system data files, report generators and processing time).

Before considering the audit requirements for a system being developed, the auditor should have a knowledge of the currently existing system and should keep in mind:

- (i) weakness in the current system affecting the audit approach,
- (ii) features in the existing system, which are relied on to provide an effective audit, that should be retained in the new system, and
- (iii) additional facilities, not currently provided which would assist the audit of the new system.

G. Important points to be checked in application controls

Audit of an application system which is operational involves verification of input/output controls, processing controls and audit trail. Testimonial evidence may be obtained through the following questionnaire in the course of audit to come to a reasonable conclusion regarding existence of controls and their adequacy whether:

- (i) the data processed are genuine, complete, accurate and not provisional?
- (ii) expected output is produced and distributed on time?
- (iii) application programs process the data as intended and accurately?
- (iv) a complete audit trail is available for tracing back a transaction from the final result to the initial input?
- (v) the data and changes to it are authorised by appropriate authority both in the user and computer departments?
- (vi) schedules for receipt of input data are maintained and what is the extent of compliance?
- (vii) there is a preliminary check on input data to ensure completeness?

(viii) the application system provides for the following programmed controls:

- (a) check for missing/duplicate transactions: Examples are (i) check for continuity of goods invoice numbers issued by a station for missing numbers (ii) more than one subscription for the same month for one PF account number
- (b) controls on rejected items and keeping them under computer suspense: Examples are (i) the monthly treasury transactions are rejected if they do not have valid heads of account as given in the budget master. The rejected items are kept under suspense and control totals along with valid transactions tallied with the cash account and list of payments (ii) Rejection of issue notes in a stores accounting system due to want of balances.
- (c) input validation for data purification (alpha- numeric checks to conform to data types): Examples are (i) Personal identity number should be numeric (ii) Station name field is alphabetic (depends on system requirements)
- (d) limit/ range checks: Examples are (i) the transaction type in a financial accounting system (expressed in terms of rupees), should not have values less than 1 or greater than 6 (ii) The maximum basic pay cannot exceed Rs. 9000/- per month (iii) The code for treasury alone for any State should have values not exceeding two digits.
- (e) overflow checks: Examples are (i) if the field length for withdrawal/ advances in a PF system is 5 digits and there is a valid debit transaction with 6 digits, the high order digit gets truncated, i.e., the debit will be recorded by one digit less (ii) In arithmetic operations like weight multiplied by rate to give freight, if adequate field length is not provided for 'freight' the transaction will be incorrectly recorded as it will be confined to the field length.
- (f) some fields should not be blanks or zeros (mandatory fields): Examples are (i) in a leave accounting system, the leave type code cannot be left blank since the entire transaction will be invalid without this (ii) a treasury transaction should indicate in the relevant fields whether it is voted/charged, plan/non-plan, and not be left blank.
- (g) check digits: Examples are (i) in a pay roll system, the account number, which is a control field to identify an employee, has a built-in check digit. The program works out the check digit on the basis of the account number input and verifies the correctness of check digit given. If the check digits do not tally, then the account number is wrongly entered (may be a transposition error). (ii) the station code in the freight accounting system in the Railways has a check digit to detect data entry errors in this code.
- (h) compatibility checks: Example is if the transaction type is for official receipts in a financial accounting system, the amount cannot normally be a negative value.
- (i) exception condition check: Example is the amount column in a treasury transaction for a month has a value greater than the budget for a quarter.
- (j) total for a batch/ lot: Example is the batch total for a major head under a treasury is worked out on the computer and tallied with the total given in the schedule of payments/ receipts for that batch (to ensure complete accounting of transactions in a batch)

- (k) record totals and summaries for reconciliation: Example is in a freight accounting system, when a goods basic tape is created it gives the total number of records, which should tally with the total number of invoices input.
- (ix) output reports are test-checked before, being distributed to the user department and the output is produced in accordance with a prescribed schedule.

H. Audit Trail

Objective of audit trail is to obtain sufficient evidential matter regarding the reliability and integrity of the application system. To achieve this, the audit trail should contain enough information to allow management, the auditor and the user:

- (i) to recreate processing action;
- (ii) to verify summary totals and
- (iii) to trace the sources of error and abuse.
- (iv) The audit trail should include the following information:
 - (a) System information including start up time, stop time, restarts, recovery etc.
 - (b) Transaction information including input items which change the database, control totals and rejected items (relevant to database applications).
 - (c) Communication information including terminal log-on/off, password use, security violation, network changes and transmission statistics (relevant to transaction processing (TP) applications).

In a computer system, the audit trail may not always be apparent as in a manual system since data are often retained in magnetic media and output is limited to a small number of total items processed with reports produced only on exception basis. The general procedure is to first investigate control totals and run to run totals within the whole system and then to check and substantiate the audit trail by limited checking through records and files or by taking intermediate printouts of audit interest. If the design of the computer system does not provide for adequate audit trail this should be brought out in audit review, highlighting control weaknesses or lack of controls in the system. Apart from errors that might creep into the system, there is a possibility of frauds, which might go undetected due to control weaknesses.

12.13 Audit of replacement

As replacement involves acquisition and/or development as well as operation issues, the audit concerns and criteria relating to these stages of the system will apply to replacement also. Since continuity of service to the user is a primary concern, the audit review of the replacement stage will also focus on the management of the transaction from the old to the new.

12.14 Audit of micro computers/ office automation

In the past, any cost justification of computer facilities was relatively straight forward because savings in staff could very easily be identified and these savings usually outweighed the cost of computerised applications. This approach is no longer practical as the advent of micro computers and the introduction of information technology have shifted the emphasis from cost justification to improvement in the quality of service and better management control of the

resources available. This aspect should be borne in mind by the auditor while reviewing microcomputer based systems.

The purpose of audit is to see:

- (i) whether there is a comprehensive EDP policy for the organization;
- (ii) that there is no unplanned proliferation of computers due to lack of coordination of EDP facilities, and
- (iii) that only persons with extensive specialized training are employed to use microcomputers to ensure quality and standards of data processing (when tools are introduced and used without detailed understanding, the potential for misapplication always exists).

The software industry is full of "user-friendly" packages for microcomputer systems, but in many cases these programs have limited capabilities and are more suitable for the novice operator. Users quite often do not consider what their requirements are, and this can have far-reaching consequences with regard to acceptance of the system.

Audit implications of office automation system from weakening overall controls in the office automation environment. Major control implications of office automation are listed below:

- (i) loss of audit trail due to reduction/elimination of paper work;
- (ii) rejection of source documents/authorisation and authentication of input;
- (iii) information access by more people and hence possible abuse;
- (iv) creation of sub-standard systems, and
- (v) inadequate back-up and recovery facilities.

These control implications apply equally to any microcomputer based system in operation. Therefore, audit should verify that at least the controls, procedures and aspects that are currently available in the manual system are taken care of, if not improved upon, while designing an automated system. In addition, audit should verify that network security. Proper communication provision and user interface exist where automated systems are installed and in use.

In general, information should, be automated only when there are clear benefits to be gained from doing so. For example, automation makes sense if the volume of information is large, requiring analysis in several different ways and/ or used by various users in different ways.

12.15 Audit of use of computer facilities

The auditor has to appraise and report upon waste, extravagance, inefficient administration or poor value for money as far as use of computer facilities are concerned. While the responsibility for effective and efficient use of all resources rests with the auditee organisation, it is the auditor's job to satisfy himself that: the -procedures laid down are adequate to make proper use of hardware, software, staff and data; maximising the benefits and minimising the costs; and satisfying users by providing effective and efficient applications. Failure to complete the projects in estimated time scale, poor turnaround of jobs, inadequately defined standards, insufficient monitoring, too optimistic forecast, too little users' participation and excess costs of new system development are some of the areas requiring auditors' attention.

The following aspects should be reviewed in consultation with the computer management:

- (i) often smaller applications are computerised without a cost justification exercise mainly because there is surplus computing power:
- (ii) increasing the productivity of the existing computer facilities by making better use of staff resources through well-defined functional distribution should be considered as an alternative to increased staffing level:

Computing resources of an organisation is not just the hardware installed but the, total contribution of software, hardware and staff. The performance can, therefore, be increased more effectively by improving contribution from these factors rather than acquiring more equipment.

