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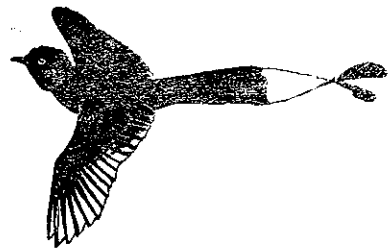

CENTRE FOR ECOLOGICAL SCIENCES
ENVIS CENTRE
A REPORT

JUNE 1987

ENVIS CENTRE

CES - ENVIS Centre

A REPORT

Contents

Chapter

Preface

This plan gives brief information regarding the structure, organization, information services, manpower, furniture/equipment and financial requirements for the proposed Information Centre.

This document is essentially a plan for the establishment of the Information Centre as well as for the institution of Library and Information services. It is not a manual to be used for the operational activities of the Information Centre. However, certain guidelines have been given.

CHAPTER-1

Introduction:

1. Centre for Ecological Sciences:

Centre for Ecological Sciences was established in Indian Institute of Science in 1982. The Centre pursues basic and applied scientific research, training and extension activities in four major areas namely - Ecodevelopment, conservation of Biological Diversity, Sociobiology and Human Ecology. Its field work is focussed on the Western Ghats in particular the Uttara Kannada district of Karnataka and the NIlgiri Bioshpere Reseve in the States of Karnataka, Kerala and Tamil Nadu. In addition to the above mentioned research activities the following are the specific objectives of CES:

a) Development of Biological Collections
b) Creation of information base on Biological Diversity, the Nilgiri Biosphere Reserve and the Western Ghats.
c) Developing conservation strategies for natural resources.
d) To take special steps and conducting workshops to train and encourage young scientists working in the fields of nature conservation, ecodevelopment and human ecology.
e) To establish and maintain a technical library and information centre for collecting, collating and disseminating information on Biological Diversity and Ecodevelopment with special reference to Nilgiri Biosphere Reserve and Western Ghats.
f) To undertake all such other things as may be incidentally conducive to the attainment of the above objectives.

2. Need for an Information Centre:

For an organization like Centre for Ecological Sciences with the above mandate, it is essential to build the infrastructure. One of the basic components of such an infrastructure is an information service facility which keeps track of the latest scientific advances in the field of Biological Diversity and Ecodevelopment all over the Nilgiri Bioshpere Reserve and Western Ghats bring it to the attention of decision-makers, specialised technological personnel, field implementers, recipient agencies, etc. The need for an information centre in the field of Biological Diversity and Ecodevelopment would become obvious if one were to examine the features of the world of information. Table 1 presents the features of the world of information, the consequent user problems as well as the information services or system capability that ENVIS, CES should possess:

Sl. No.	Features of the world of information	Information users problems	Information services/System capability
1.	Accelerated growth of information, increasing rate of obsolescence.	Inadequate time for reading and assimilation of information.	Reviews, state-of art reports, trend reports, Digests, information analysis and consolidation products.
2.	Wide variety in quality and reliability.	Difficulties and inadequacy of time for evaluating and selecting.	Data/information analysis and evaluation.
3.	Interdisciplinary nature of information. scatter/seepage of information.	Can specialize only in a restricted subject field	Indexing techniques to interlink subjects.
4.	Wide range of standards and modes of presentation of ideas.	Only some standards and patterns are convenient to users	Selection and presentation or restructuring and repackaging according to user's needs.
5.	Pertinent information published in documents with restricted circulation.	Inaccessibility of documents	Location and procurement of inaccessible documents through channels other than formal.
6.	Multiplicity of languages	Can be familar with one or a few languages.	Translation services
7.	Too many documents: Information centres have limited funds; also space problem	Physcial access to original document difficult	Reprography service.

TABLE - 1

This would therefore imply that building of a well equipped and well-organised information centre poised to serve the information requirement of those engaged in research and development as well as in promotion/popularisation activities, and contributing to the achievement of the objectives of ENVIS. Since without such a facility CES would be greatly handicapped in

its operations. It is hence, no exaggeration to say that the expenditute on the proposed ENIVIS information centre is an important item of capital investment and not a frivolous outlay on contingency or a luxury to be indulged in if only finances permit.

Further the potential benefits that may be derived from the establishment of information centres are highlighted in the table given below. Many of these would accrue if ENVIS is established.

Table: Potential benefits that may be derived from use of consolidated information.

Sl. No. (a)	Activity or area (b)	Potential Benefits (c)
	General areas	
1.	Decisions	Better informed about alternatives and consequences. Improved decision making process. Reduction of uncertainity.
2.	Knowledge, competence	Increase in level, depth, breadth by individuals or groups. Higher sophistication in drawing relations between seemingly unconnected facts.
3.	Adaptation	More appropriate and adjusted responses by individuals, groups or organizations to demands of and changes in the environment and a complex world.
4.	Productivity	Higher levels and outputs in work and other activities. More contacts, increased capacity and effectiveness.
5.	Resources	More efficient and economic use of resources. Increased capacity and/or effectiveness. Better economy.
6.	Success	Contribution towards attaining aims at individuals, groups, organizations, better or wider spread and acceptance of results. Detection of necessary adjustments.

Specific areas

1. Science	Keeping up with research front Judging own position and advances, making appropriate decisions on policy and allocations, searching for related work and/or ideas for further work or methodology.
2. Education	Keeping up with advances in given fields and in education, research, methods, approaches, providing for educational planning and assessments or comparisions.
3. Individuals	Providing for self-fulfilment and advancement in their given area of work or interest. Providing for wider oppurtunities in employment, selfhelp and adjustment to changing environment and conditions. Increasing sophistication towards higher quality of life.

3. Planning for Library and Information Services:

The library and information services generated in an organization should have a direct bearing on the activities of the parent body they serve. It is therefore essential that the planning of library and information services should form an integral part of overall planning of ENVIS. The planning of these services should be a continous and a systamatised process of studying problems in the perspective of information needs of the research workers. In other words, the planning of these services should be under constant observation and evaluation with a view to modify and reappraise on the basis of the needs of the clientele and the experience gathered.

The planning for library and information services is a two-phase operation-normative and operational. While the first phase constitutes fixing the aims and objectives, the second one relates to evolving a strategy for efficient translatioin of the first phase in to action. Further the planning of an information service is to a great extent dependent on the planning of a library, because extension of an information service on an intensive scale presupposes the existence of a resourceful library.

4.Steps in Planning:

Figure 1 indicates major steps and their sequence in the planning and development of ENVIS Centre in Centre for Ecological Sciences.

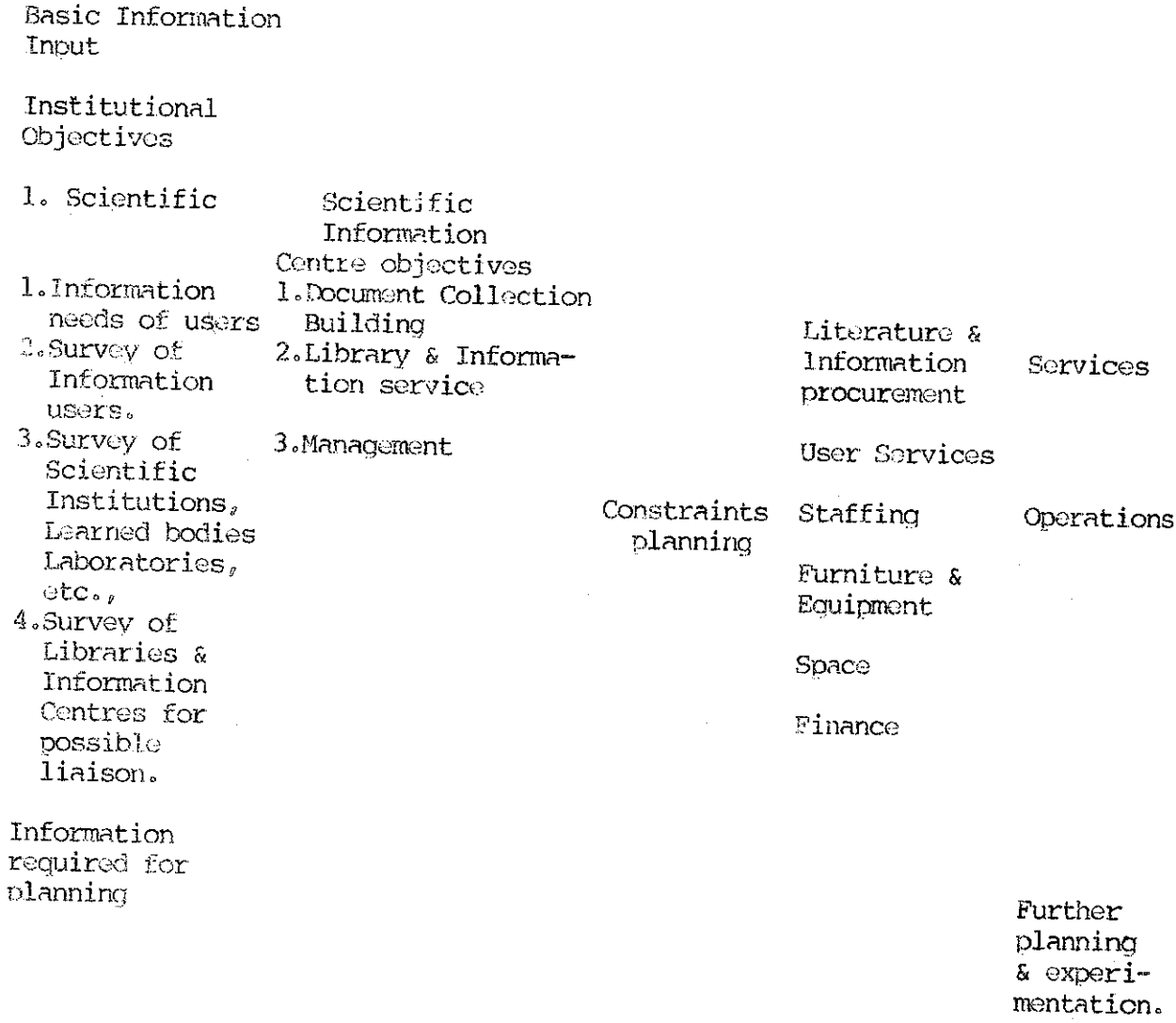

Figure 1: Planning for an information centre for CES

CHAPTER-2

Interaction with CES:

In the designing of an information centre catering to research and development activity as well as for popularisation of on going research activities on Biological Diversity and Ecodevelopment in Western Ghats and Nilgiri Biosphere Reserve. It is essential to make a systematic study of the organization and its informational requirements. With this in view, a questionnaire was prepared and circulated among the researchers and educationalists. This was because of the fact that an on-the-spot study would give a better understanding of the organizational set-up and aims, as well as to have contacts and interaction with some of users of information.

This necessary background acquaired faciliated us in the preparation of full fledged plan for CES-ENVIS Centre. This was achieved by discussions on the draft plan prepared as well as by seeking answers to the following questions:

1. What are the goals or objectives of the organization/mission/project?
2. What are the fields of activity and scope of each discernible activity of the persons involved?
3. What information do they need or use in order to perform efficiently their respective tasks?
4. Where do they now get the information?
5. Through what channels and media do they now get the infromation?
6. Is the information available adequate, timely and reliable?
7. Is there among the users an interesting or awareness of, value of information and of an information centre?
8. What documents are generated within the organization which contain scientific and technical information?
9. What services do they expect from the proposed information centre?
10. Any other suggestions or remarks?

The outcome of the above questions has been summarised and presented below under headings - field of activity, users, categories of information, services to be rendered, present and future plans, outline of the plan.

Summary of Findings

a) Field of activity: Promoting research in the fields of Biological Diversity, Ecodevelopment, conservation Biology, Human Ecology and other allied fields like Agriculture, Animal Husbandry and Soil conservation in Western Ghats and especially in Nilgiri Bioshpere Reserve.

b) Potential users:

Specialized technical personnel- R & D, Field specialists.
Decision makers; District officials, forest department officials.
Field implementers--Extension workers.
Lay group --- Voluntary organizations.

c) Categories of Information:

R & D Information
-Stabilised & compacted (Books/Periodicals)
-Stabilized & stray (Magazine cuttings, reports etc.)
-Strong and not stabilized (Field data - to be compacted by specialists after collection)
-Environmental information.

d) Functions/Services:

-Storage of information for use
-Compilation and consolidation of information
-Monitoring information (Data, facts)
-Dissemination/Documentation
Current awareness service
Compiled information
Data Dissemination
Consolidation Services.

e) Present & Future plans:

-Development of CES-ENVIS Centre in phases
Collection and storage of information
Compilation and other services
Full services on above mentioned category(d).

f) Plan Outline:

Draft plan to contain information on these aspects
-Need for CES-ENVIS Information Centre
-Collection Development Plan
-Information Services Plan
-Furniture/Equipment Plan
-Manpower Plan
-Financial Plan.

CHAPTER-3

A Brief review of the Proposed Plan:

1. In this report, a plan for CES-ENVIS Centre has been presented. The report discusses the structure, organization, library and information services, manpower, finances, furniture and equipment requirements of the proposed infromation centre.

2. The organisational structure proposed for the information centre consists of four functional units namely, Document acquisition and processing unit (Library), Documentation information unit, Unit for promotion of information use (Laiaison unit) and Reprographic unit. While this structuring is helpful for certain management purposes, all units will work in a spirit of cooperation and co-ordination to achieve maximum productivity with a view to conserve human and material resources (Chapter-4).

3. For the objectives of the information centre to be fulfilled, there is an absolute necessity to plan the activities so as to build up a rich collection of relavant documents, both external and internal (Chapter-5). Programmes concerning acquisition and organisation should be geared in such a way so as to ensure continuous inflow of documents and their effective organisation. This especially necessary in regard to information generated within CES-ENVIS. In the collection of internal information, a task force is to be established conisting of one or more individuals from the proposed information centre and one each from unit, who should be assigned the responsibility. While the collection of informaion in the unit may be done by a junior, it should be whetted by a senior personnel of the concerned unit before it is incorported in to the central information file of the information centres. It is also necessary that a standardised methodology be adopted for the collection and storage of information. For this purpose suitable formats have to be designed by the information centre personnel in consultation with the personnel of the different units.

4. It is recommended that the following varieies of services/publications should be provided by the centre.

A: Reference Services
B: Current Awareness Service
C: Information Analysis and products there of
D: Other Supporting Services (Reprography)

As all the above mentioned services cannot be given immediately after the inception of the information centre, it is suggested that the phasing of the services should be decided on the basis of the work done by the organization.

5. The success in establishing the information centre on efficient times depends on the availability of properly qualified and competent staff for each of the functional units of the centre. The major component of the staff working at the information centre should be comprised of professionals who have the combined expertise in the field of documentation/information

science and in the fields of the Centre's objectives. It may not be out of place to mention here that the objective of information centre should not only be to build a good collection, but also to recruit necessary and sufficient manpower to exploit the resources (Chapter 7).

One of the first steps to be taken is the appointment of the head so as to maintain the continuity at the top in the early years, and also to facilitate the choice of other personnel who would man the information centre. It is recommended that atleast one of the personnel of the information centre selected should have undergone the Information Science course offered in institutions like DRTC, Bangalore.

6. The furniture and equipment required for the CES-ENVIS Centre has been estimated. In th case of furniture, standards pertaining to libraries are to be adapted.

7. Though the standard for calculating space requirements is given, the exact space required has not been indicated (Chapter-9). However, in CES we have sufficient place for ENVIS Centre.

8. The annual recurring expenditure on documents, salaries, furniture, equipment, services has been estimated. The capital expenditure on furniture and equipment is estimated (Chapter-10).

9. Computerisation of information is being done. In our CES we have HCL PC. and a programme has been developed in "cobol" for information retrieval. We are also using DBase III for information retrieval.

10. If at all there is any translation work, it has been decided to use the facilities available at INSDOC, IISc, Bangalore.

CHAPTER-4

CES-ENVIS Centre objectives:

In order to ensure a healthy and economic development of CES-ENVIS Centre it is necessary to derive the objectives/purpose from and be in confirmity with the needs of CES. The purpose of CES-ENVIS should be:

To provide for information needs
-of a given group of users
-in relation to their given problems
-with information from given subjects or topics
-contained in giving information sources
-evaluated, prepared, and supplied in a way that is appropriate to that given group of users; and

The objectives of CES-ENVIS are as follows:

(a) To document information in the form of reports, research publications and other material on ecological problems of the Western Ghats region and especially of the Nilgiri Biosphere Reserve and the ecodevelopment approach.
(b) To generate eco-development oriented action programmes and disseminate informatiion on such action programmes.
(c) To document information on distribution and conservation of Biological Diversity with special reference to Nilgiri Biosphere Reserve and Western Ghats.
(d) To develop and disseminate methodology of generating the information base for conservation of Biological Diversity of a specific region.

The specific objectivies of CES-ENVIS is to assist in the maximizing of CES's projects and in increasing productivity by:

(a) Building up a good and valuble collection of books, periodicals, patents, reports, standards and specifications and other scientific and technical publications on subjects relevant to CES's needs in order to support the service activities.

(b) Acting as a control point for the filing of the organization's technical/scientific reports, correspondences, and other related documents and organizing them for use in order to aid the exploitation of the organization know-how, and reduce or eliminate duplicate work. (The proper organization of documents complemented by suitable indexing forms the coporate memory of the organization, the visible embodiment of its continuity and tradition, the means of newcomers to assimilate the experience and wisdom of their predecessors).

(c) Exploiting and literature (published and unpublished) and other sources of information.

(d) Providing an efficient and effective information retrieval and dissemination system; and

(e) Fulfilling all these objectives in an economic and balanced manner so that only reasonable services are provided and at as low a cost as possible, commensurate with effectiveness.

1. NBR Information System:

INTRODUCTION

This preliminary report deals with the Nilgiri Biosphere Reserve Information System that is being set up at the Centre for Ecological Sciences, Indian Institute of Science, Bangalore, with assistance from the Department of Environment and Forests, Government of India. The major objective of this project is to provide baseline data for future research activities and management of the Biosphere Reserve.

Different government departments, non-governmental organizations and private individuals have been involved at different times in studying and reporting various aspects related to the Biosphere Reserve area. It was felt that all such information needed to be brought together, so that an overall picture of what is available emerges. This will be helpful in indentifying lacunae in the available inforamtion, and in planning for further research and conservation. The Information System will provide basic data on different aspects under one roof to be available to all researchers in the Biosphere Reserve. Future studies in the Biosphere Reserve will also enrich the database.

Under the programme, information is being collected on various subjects which have a bearing on the environment of the Biosphere Reserve. It will include the general history of the area, geology and soils, hydrology, climate, forest administration, vegetation, fauna, people, etc. Information is being collected at three levels: 1) Photocopying of published and unpublished books, reports and papers; 2) Scanning and identification of relevant research papers from scientific journals; 3) Collection of raw statistics of rainfall, land holdings, area and yield of different crops, human settlements, and working of forests for the period between 1976 and 1985.

For this purpose, various governmental and non-governmental agencies/organizations are being visited in the states of Kerala, Karnataka and Tamil Nadu.

2. Biological Diversity:

The Indian subcontinent has a tremendous diversity of plants and animals because of its great variety of ecological conditions. About 30,000 species of animals and 15,000 species of plants have so far been described from India. In India these plant and animal species are distributed in 15 biogeographic zones. Each biological species has it's unique role in nature in maintaining the system's stability and the function of an ecosystem. Almost all species are potential resources for applications in scientific research. Associations of plant and animal communities are also an important resource in maintaining the stability of an ecosystem. Human beings have a major role in destroying the forests, caused the loss of one-half of the top soil, polluted many water sources, drained over many wet lands and made the atmosphere poisonous. Because of this destruction

there has been a loss in natural ecological communities and associations and many plant and animal species are under extinction. Many plant and animal species have already extinct and many are threatened or endangered.

The Biological diversity we have in India is undoubtedly due to the great variety of ecological habitats found in the subcontinent like the warm and humid climate of Malabar coast, the hot desert of Rajastan, the cold desert of Ladakh, the ice mountains of Himalayas and a vast shore line.

If any biological species is extinct, it may take hundreds of years for nature to evolve a new one. We have to maintain biological diversity to maintain the smooth functioning of ecosystems and to maintain biogeochemical cycles. All existing wild species are gene pools for our future. Depending on a few species for our food is not a wise thing, since we can't rely on the yield we get because of various factors such as pests. If we preserve our wild species carefully even if any disaster takes place, we can substitute our food crops with their wild ancestors. Since human culture has also been developing with natural environment we must preserve it. Fortunately in India we have the richest and diverse natural heritage and by considering all these points it is crucial to retain a larger genetic resource base.

Loss in biological diversity is due to various reasons such as destruction of vegetation and reduced size in habitat. When the natural vegetation is destructed, it takes with it a number of animal species also. Because of the destruction of vegetation in dry tracts of India many animal species such as cheetah, lion, wolf, the balckbuck and the great Indian bustard are on the edge of extinction. Reduction in the size of the habitat also leads to a loss of species which effects mainly larger animals like elephant, tiger and rhinoceros. We are losing genetic variability because of the reduction in population size.

To conserve biological diversity, a systematically selected network of large biosphere reserves and sanctuaries are essential. Above all to do this effectively a system for collecting and organizing biological diversity information must be needed.

2.1 In order to develop the areas cited above, different facts, theories, information, methods and information regarding environmental and life sciences is essential. The main subjects contibuting to this multi-disciplinary knowledge are indicated in figure.

General Subjects
Economics, Law and Environmental Sciences, Human Ecology and Geology.

Biological Diversity
Ecodevelopment
Western Ghats
Nilgiri Biosphere Reserve

Biomass Production
Biological Sciences, Agriculture, Forestry.

Animal Energy Utilization
Animal Husbandry, Veterinary Science.

Fig. Disciplines contributing to the study of Biological Diversity and Ecodevelopment.

2.2 Types of Information:

The following types of information on Biological Diversity, Ecodevelopment, Nilgiri Biosphere Reserve and Western Ghats should be collected from the multitude of subjects and stored for the use of CES-ENVIS Centre:

-Scientific Information
-Economic Information
-Socio-cultural Information
-Environmental Information

Some of the data elements which constitute each of these types of information are given below:

Scientific Information:

Scientific information is a crucial input in the research and development. Information on natural resources, their utilization, environmental impact etc., are often required. Also it is necessary to have information on what resources including man power and materials are available locally. Information on ongoing research and past research work done are other types of scientific information required by the users.

Economic Information:

Most of the decisions on conservation strategies and management of natural resources are based on economic information.

Socio-Cultural Information:

Energy is an important factor influencing the life styles of individuals as well as communities. Natural heritage is linked with human civilization. In India several forest patches are conserved as sacred groves. Information on family structure, settlement patterns, shifting cultivation etc., are important factors to be considered. Similarly information on the willingness of the community to participate in planning and cooperation in following conservation laws is perhaps as important as scientific information.

Environmental Information:

Environmental information is an important aspect of ENVIS. It includes data on the quality of water, air, soil, soil erosion, pollution and other natural resources.

3. Users:

The users of the information services/facilities of CES-ENVIS Centre may be classified broadly in the following groups:

-Researchers
-Decision makers
-Field Implementers
-Lay groups - Voluntary organisations, public, etc.,

In terms of information types researchers involved in research activities would require:

- Scientific information
- Experimental information
- Know-why information
- Know-how information
- Know-who information

In the non- R & D contexts, the user groups one comes across are the decision makers - collectors, BDOs, Project officers, etc., extension workers, rural people, etc., covering the whole spectrum from highly educated to illiterate levels. This implies that the nature of information required must also be diverse. Therefore, CES-ENVIS should be so developed that decision makers would be provided with information pertaining to -
(i) Management, (ii) Planning, (iii) Administration, etc.

On the other hand, the extension workers, voluntary organizations etc., act as intermediaries functioning as development functionaries for establishing liaison between the generators/innovators and the actual beneficiaries or end users. Their objective basically is to help people and to help themselves. To facilitate their functioning efficiently and effectively CES-ENVIS should be geared to provide detailed information pertaining to the scientific research.

4. Organisational Structure: Major functional units

A helpful way of grouping the major items of work in CES-ENVIS into functional units is shown in the following chart.

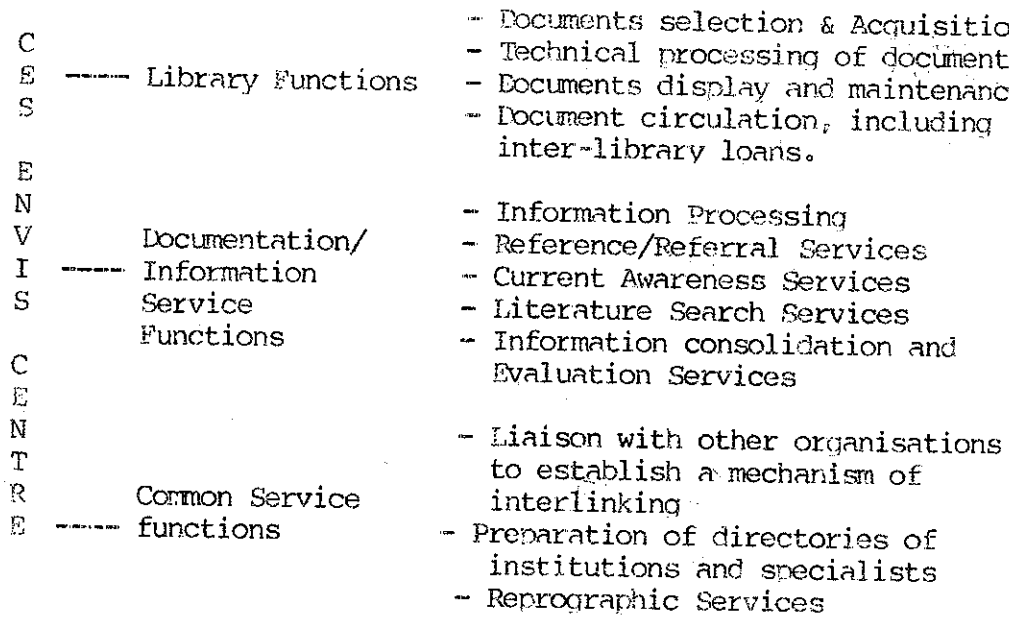

Figure 2: CES-ENVIS: Organisational Structure.

Our CES-ENVIS Centre is planning to have information services offered by Conservation Monitoring Centre (CMC), which was established in 1983 by the International Union for Conservation of Nature and Natural Resources. CMC provides information on species, habitats and areas of relevant conservation concern including those having current or potential economic import as well as those believed to be under threat.

CHAPTER-5

Building up of Information Sources:

Information sources building, an important function of the CES-ENVIS should be based on sound policies and programmes. But as is well known, information services are of two kinds, namely documentary and non documentary sources. While the former include the primary, secondary and tertiary documents the latter include the human and institutional sources of information. Therefore due emphasis should be given for the study of informaation sources. Some of the questions to which answers should be sought for in this context are given below:

1. Who are the users and what are their informational requirements?
2. What are the subject boundaries to be covered by the informational sources?
3. What are the likely sources - external, internal, documentary and non documentary of information to be covered?
4. Are there any priorities and limitations governing the selection?
   - Forms of material to be collected
   - Languages and geographical areas to be covered
   - Chronological period to be covered or excluded
   - Duplication of materials - to what extent?
5. What are all the sources for selection?
6. What are the methods of procurement?

In other words, the objectives of the feasible study in relation to the information sources are:

1. Identification of the principles and policies that should govern collection development policy
2. Idenditification of the present needs and projected furutre requirements
3. Preparation of a checklist of information sources to suit with the needs
4. Identification of the extent to which the needs are being currently met by the existing resources and the context to which the resources have to be augmented, and
5. Identification of the volume, variety, scope of existing information sources.

1. Selection of Information Soucres:

Once the scope has been defined, one of the most important tasks of the CES-ENVIS Centre is to maintain control over the informational resources by first accumulating a collection of the pertinent reference materials and deciding how to input current papers, reports, books and other items of interest needed by the experts responsible for preparing the outputs. This is so because the literature even of a narrow subject field is dispersed in a wide variety and a large number of documents. It

may be uneconomical and impracticable to acquire all the relevant information bearing materials. It would be more expedient to build up a core collection based on well formaulated selection and acquisition policy and programmes, and draw upon other libraries and information centres for the less frequently required materials in the peripheral fields.

Information sources or collection building, an important function of the CES-ENVIS Centre should be based on such policies and programmes as would

(a) Enable the CES-ENVIS regularly receive the books, periodicals, reports, memoranda, standards, specifications etc., published all over the world as quickly as possible and

(b) facilitate timely access to the users of the original documents required, and also enable them to be continuously aware and knowledgeble about the developments in their respective areas of interest.

Information Services to be developed are of two kinds, namely

(a) Documentary sources
(b) Non-documentary sources

Documentary sources are grouped into:

(i) Primary documents: Books, Journals, Technical reports, Thesis, Standards and Specifications, Data sheets, Drawings, Photographs, Charts, Maps and Atlases, Lecture notes etc.

(ii) Secondary documents: Indexing journals/services, abstracting journals/services, adhoc bibliographies on specific subject and

(iii) Tertiary documents: State-of-the-art reports, trend report, other reviews and digests such as the annual review series, progress in series, survey series and year's work services etc.

Information source locating tools, such as directories, registers, union catalogue and other reference sources such as dictionaries, glossaries, hand books and guide books, statistical tables etc., covering the specific and related fields should be easily accessible.

On the other hand, the non-documentary human sources include:

- Colleagues in the organization
- Peers outside the organization
- Information keepers
- Guides, advisors, consultants
- Collaborators etc.

Information may be transferred or exchanged in lectures, discussions, seminars and conferences, get-togethers, open house exhibitions, etc. Information obtained in this manner may subsequently be recorded filed in the database and organized for future use. It is necessary to have directories of the reports (in the subject fields of interest to CES-ENVIS) who may be called in or contacted for advice, expert opinion, lectures etc.

A knowledge of the sources of information about the core and the current publications in any field and expertise in methods of document selection to meet institutional requirements, procurement of documents, organization and display of the materials added to the collection, utilizing them in providing service to the users form an integral part of the education of any professional librarian and information professional.

2. Books

Books are valuble sources of information and constitute the basic collection for any information centre. This basic collection should be built up in a systematic manner - by maintaining a constant watch on bibligraphies such as British National Bibliography, American Book publishing Record, Cumulative Book Index, Technical Book Review Index and other publishers catalogues, reviews in periodicals, addition lists of different well established libraires and acquiring books of value. Initially basic reference books such as Encyclopaedia, Directoreis, Hand books, Manuals and some important Scientific/Technical books covering all subjects of interest may be acquired by CES-ENVIS. Subsequently 300 to 400 technical/scientific books covering all subjects of interest may be added to the library each year. These documents may be arranged in a classified sequence using the Universal Decimal Classification scheme or any other scheme suitable. A bi-partite catalogue consisting of a classified part and an alphabetical part is to be maintained for the books following the rules given in the classified catalogue code Ed 5, 1964 or AA cataloguing rules.

3. Periodicals:

While the information contained in the books is significant, the importance of periodicals as the carriers of nascent information is well known. It should be endeavour of CES-ENVIS centre to build up a good collection of periodicals. For this purpose, it may be necessary to produce back volumes of important periodicals, in addition to, subscribing to current periodicals.

3.1 Selection of Periodicals:

The selection of periodicals relevant to the interests of the organization, constitutes one of the essential steps in the setting up of an information centre. This can be done by going through recent volumes of abstracting periodicals on the subject of interest- Biological Diversity and Ecodevelopment of the

organization. A record may be kept on 75X125mm slips, one slip for one periodical with the number of articles included in the abstracting periodicals. Surveying a full volume of an abstracting periodical in this manner may give a list of titles of periodicals. A frequency table with the title of the periodicals, arranged in the decreasing sequence of the number of articles abstracted in the abstracting periodical is prepared. If an abstracting periodical on a specific subject is not available, an indexing periodical or an extensive review giving a comprehensive bibliography can also be used for this purpose.

After the preparation of the frequency table, the titles of periodicals are checked against a union catalogue of periodicals available in the region. Those available are noted.

A next step is to prepare a priority list of periodicals to be selected. For this purpose a preliminary survey of the number of articles on the subject appearing in a few recent volumes of the each of the periodicals mentioned in the frequency table and available in the near by libraries is to be done. The volumes of the periodicals are scanned through and a record is kept of the total number of articles and of the number of articles relevant to the subject of interest of the Organization. The percentage of relevant articles per volume of each of the periodical is worked out. The periodicals are ranked according to the decreasing percentage of articles relevant to the subject. A design of form for recording a priority list of periodicals is as follows:

Sl. No.	Title of Periodical	Issues per volume	Total Number of articles		$\frac{e \times 100}{d}$
			Per volume	Selected	
(a)	(b)	(c)	(d)	(e)	(f)

4. Standards:

Standardization plays an important role in the progress of any organisation. As such standards constitute a significant source of scientific and technical information. The standards are issued by national and international bodies, technical societies, government bodies, etc. It is essential that various standards and specifications issued, such as IS (Indian), BS (British), DIN (West Germany), GOST (Russian), ASTM (American Society for Testing Materials), ASAE (American Society of Agricultural Engineers), etc., be procured by the information centre, for use by the users of CES-ENVIS. In this regard source documents such as, British Standards year book issued by British Standards Institution and Hand Book of ISI Publications, issued by the Indian Standards Association will be useful. The standards may be filed number wise under each country. A suitable subject index to be prepared.

5. Reports:

Report literature is one of the new forms of dissemination of scientific and technical information. Many institutions issue reports of their activities periodically. These reports many be considered as potential sources of scientific and technical information. Hence the need to collect reports of institutions engaged in activities similar to CES becomes one of the essential functions of CES-ENVIS, in addition to collecting internal reports of CES. For the proper exploitation of information, it is very important that their contents be indexed accurately and in adequate detail.

In this regard it may be pointed out that in CES a large number of reports containing scientific and technical information are prepared. These reports may be inspection reports, lab reports, performance reports, project reports, etc. While the reports may be kept physically in the respective units it is absolutely necessary that they be indexed accurately and adequately for their contents. The index so developed should be made available in the information centre, by consultation by different personnel of CES and users. As in the case of books, the reports may be indexed using the Universal Decimal Classification or Colon Classification Scheme.

6. Drawings:

Engineering drawings constitute one of the very important sources of scientific and techincal information (such as new fuel effecient bathroom stove). Generally this source remains untapped though its importance is fully realised by the organizations concerned. For the promotion of use of these drawings, they need to be organised and indexed in a systematic manner. The arrangement of the drawings may be on the basis of the project, equipment or product.

7. Growth of Document Collection:

At the end of 1987 CES is expected to have about 2000 books and receive about 35 periodicals. But the core collection of documents will be built much earlier. The following table gives the approximate number of the different varieties of documents in years 1986 and 1987.

Document	Year	
	1986	1987
Books	1500	2000
Technical Reports	1000	1500
Reprints	1500	2000

CHAPTER-6

Information Services and Products

1. Information Processing:

The work relating to information processing will consist of scanning and selecting information, classifying and indexing, abstracting, digesting, compilation and other documentation work, production and maintaining a central information file.

1.1 Scanning and Selection:

All the documents received at information centre (IC) - books, individual issues of periodicals, reports, microforms, standards, specifications, internal documents - have to be systematically scanned and information relating to projects - planning and ongoing - has to be carefully selected. This work requires judgement and knowledge of the subject field and information needs of the clientele. Criteria regarding the types of information to be selected may be established in advance and systematically followed.

1.2 Recording of Information:

The information called out from a variety of information sources on the basis of criteria established needs to be recorded in a uniform and standardised manner. This would faciliate in the development of a central information file. It would be helpful to follow certain guidelines in the preparation of abstracts. For this purpose, either a set of guidelines may be formulated or alternatively, the guidelines prescribed by the standards organization/international standards organization, etc., may be preferably recorded in 5" x 3" index/catalogue cards. The rendering of the bibliographic information should conform to either national or international standards practice. The language to be used is English.

1.3 Organization of Information:

The information items so selected and recorded needs to be properly organized to facilitate their retrieval as and when necessary. While there are a plethora of indexing and retrieval systems - conventional and non-conventional - with varying degrees of effeciency, the non-conventional methods (or mechanical methods) are ruled out in the initial stages of the development of the IC. Therefore one has to choose either a classification schedule - or an alphabetical subject indexing system. What ever may be the decision, the system chosen should be amenable to computerisation at a future date.

Adoption of a classification scheme for organizing information is helpful, since, it results in a logical and filiatory sequence. Further it facilitates recall and precision in the retrieval of information. However classifying micro-literature co-extensively is a time consuming operation and requires the services of trained manpower. The IC may be well advised to survey the analytico-synthetic schemes, such as Universal Decimal Classification, Colon Classification etc. and choose the one that gives the best results. In case none of the schemes are found suitable, the IC may take steps to develop classification schedules in the various fields of interest in collaboration with organizations such as DRTC, Bangalore.

The other alternative would be to adopt an alphabetical subject indexing system with its limitation. It is no doubt as efficient as a classification schedule as information will not be organized in a filiatory sequence according to subject content, resulting in like subjects being scattered under various alphabets. Neverthless the main advantage is that the system is simple to construct, maintain and use. Further some of the limitations encountered can be overcome or minimized by following a set of prescribed rules. There are numerous published manuals and guides for constructing such alphabetical indexes. These can be fruitfully utilised.

1.4 Central Information File:

As the purpose of selecting, recording and organizing information is in relation to the informational requirements of the users, the selected information should initially be used for the information services to be offered. Subsequently the index entries, should be merged in to a cumulated file, known as the Central Information File. This operation of cumulative merging should be undertaken periodically, say monthly or quarterly. It is preferable initially to maintain the central information file (in card form) in catalogue cabinets. The arrangement of the entries in the file may be classified with the provision of an alphabetical index i.e., it should be a bipartite classified information files. Suitable guide cards and feature headings have to be provided to facilitate easy location/retrieval of information.

As the central information file grows over the years, it would have a large volume of readily indexed information. This central information file would then be useful for undertaking retrospective search of information and for compiling bibliographies, writing of state-of-art reports/trend reports, etc.

2. Information Services/Products:

Mere identification of information needs of scientists, policy makers/planners, community groups, etc. has no meaning unless it is followed by the preparation and production of suitable or appropriate information consolidation products. But in undertaking the preparation of information consolidation products, it is necessary to keep the following points in mind:

- A good information consolidation product is the result of the joint and integrated effort of different groups of specialists.
- The users of the information consolidation products may not be the end users of the information contained in the product, but may be intermediaries whose role is to call out from the product the pertinent information and present it to the beneficiaries in a convenient form.
- Information products may be of different types - namely, state-of-the art report/review, critical review, trend analysis, forecast/feasibility/status reports, manuals, guide books, data compilations, etc.
- Information consolidation products may be based on existing records or may include data and information generated for this purpose.
- Information consolidation products may be a by product or spinoff from the work done (or services provided) for producing other information products/services.

CES-ENVIS with its function of acquisition and processing of information sources is in a strategic position to disseminate information to all categories of users. Dessemination of information can be done through various channels and communications media - oral or written, formal or informal. All communications however should be service oriented and purposeful.

The purpose of an information dissemination service may be one or more of the following:

(a) to keep the users abreast of current developments in their areas of interest.
(b) to inform about the current additions to the IC
(c) to provide information which may help to solve technical problems and modernization
(d) to provide relevant information and comparative data about particular products or processes.
(e) to review the developments in a specific subject-field-scientific, technical, etc.
(f) to provide exhaustive list of documents with or without annotations/abstracts on a specific topic.

2.1 Pattern of Services:

The variety of services provided by an Information Centre follows a basic pattern. On the basis of the pattern chosen certain mechanisms are adopted which help in the designing and development of certain matching services. Some of the basic mechanisms and the corresponding services, discrenible in any information centre are:

1) Reference/Referral mechanism	: Reference Services.
2) Announcement mechanism	: Current Awareness Services.
3) Accretion mechanism	: Indexing and Abstracting Services.
4) Evaluation mechanism	: State-of-the- art report/trend report service, critical compilations, reviews, etc.
5) Document Access mechanism	: Reprographic and translation services.
6) Promotion/Liaison mechanism	: Liaison service, Technical enquiry service.

The first four mechanisms generate information services. The fifth and sixth mechanisms generates supporting services which help in the dissemination of information.

In the above representation of mechanisms and information services, the amount of intellectual effort involved in the preparation of the products/services increases as one proceeds from reference service to critical compilations and reviews. It may also be noted that each group of services/products forms the input for subsequent activities and products.

2.2 Varieties of Information Services"

The varieties of information services that are expected to be provided by CES-ENVIS are indicated in Fig 2.

While some services are provided on request or expressed need, others are provided in anticipation of demand. Some services may be specifically directed to a user. Others may be provided as a common service. The services that can be generated in CES-ENVIS are:

- -Reference Services - Ready Reference, Referral Services, Literature Search
- -Current Awareness Service
- -Information Analysis and consolidation Service
- -Special Services to specific user groups
- -Supporting Services - Liaison Service, Reprographic Service, Translation Service, Editorial and publishing Service.

2.21 Reference Services:

Reference Services involve the following objectives:

(a) Providing of information using reference books in response to specific queries of the users.
(b) Giving instruction in the use of and guidance in the choice of documents; and
(c) Giving referral services for enquiries which the information centre/system cannot answer.

2.22 Current Awareness Services:

Current Awareness services are devices meant for the speedy announcement of newly acquired information or documents. Timeliness is the essence of this service, and it is therefore also called as an alerting mechanism. The main objective of this service is to keep the research, development and management personnel of the organization and other interested organizations abreast of the current developments in their respective fields of interest as quickly as possible. Current Awareness Services are to be desinged with main emphasis on speed of announcement, ease of use, and minimum time required for compilation work. some of the Current Awareness Services that have been developed are: Current titles, Research in-progress bulletin, Selective Dissemination of information (SDI), News paper clippings Service, etc. In addition current awareness bulletins notifying forthcoming conferences, meetings, symposia, etc., will be useful to research and managerial personnel who would like to attend or contribute papers to meetings and symposia.

The term "Information Analysis" includes almost all activities associated with the processing of documents after their selection and acquisition. The activities include are: indexing, abstracting, extraction and evaluation. These activities result in the production of variety of information services and products, which can be catagorized broadly into two types: (a) Indexing and Abstracting Services, (b) Compilative and Evaluative Services.

Indexing and Abstracting Services:

Indexing and Abstracting, which follow preliminary selection and acquisition of documents involve the process of assigning descriptors to each document to identify the data or information. This would involve a comprehensive and highly condensed presentation of information. This results in indexing and abstracting services/products that indicate to a user the type of data/information contained as well as parameters of data points. Some of the products emanating from these services are Abstracts of technical papers, Digest for management, etc.

Compilative and Evaluative Service:

In addition to the reference, current awareness and abstracting services mentioned above, the information centre should provide consolidation and repacking services. Such services involve evaluation, simplification, and fitting of isolated items in to a general frame work, generating products such as extracts, data services, state-of-the-art surveys/trend reports, etc. Work common to all these services is compilation and critical evaluation. The repackaging activity involves the selective extraction and evaluation of chunks of information - such as quantitative data, description of methodologies, interpretations, etc., especially relevant to the needs of a particular group of users and presentation of this information in a form convenient for their use. These key activities of analysis, interpretation, synthesis, correlation, evaluation and repackaging of information can be done better by scientists and specialists in the respective fields. It is desirable that the scientific personnel receive 3-4 weeks of intensive training in such information processing work.

2.24 Common/Supporting Services:

The supporting services to be given by the information centre would include Liaison services, Reprographic service, Translation service, etc. These services facilitate the operation of the first four mechanisms mentioned in section 2.1. Their importance need not be stressed as it is very obvious.

Liaison Service:

The liaison service that needs to be performed in the context of the activities of CES-ENVIS is to establish a mechanism of interlinking with organizations doing similar related work. The steps to be follwed are:

(i) Identification of institutions, experts doing similar or related work

(ii) Identification of the accessible information sources and services

(iii) Taking contacts with the concerned institutions in order to establish a mechnaism of interlinking. The modus operandi will be different with different institutions.

Reprographic and Translation Services:

The above two services are of great value to help those who require information from published sources which are not accessible. These two services may be offered depending on the user needs.

2.3 Information Consolidation Products:

The possible information consolidation products include:
-New announcements, news letters
-Brochures, pamphlets
-Monographs, technical reports
-Critical reviews, state-of-art-reports
-Recurring summaries of advances in a topic
-Briefings
-Radio or T.V talks
-Wall posters
-Lectures, tutorials
-Demonstraions, exhibitions
-Referral
-Computer on-line searching and manipulation of output
-Question-answer sessions
-Videotapes, videodiscs for training.

While all the above mentioned products may not be generated in developing countries due to economic and technological constraints, it is necessary to recognise these as products that can be generated/produced in CES-ENVIS.

2.4 Target Audience:

Dessimination of information to user categories through information services/products will encounter success only when they are oriented or targeted to their needs. In this context of targeting, information on the following attributes of the user group would be helpful - specific purpose for which the information consolidation product is needed, intellectual standard of the user group, users preference to a particular kind of information, users preference of package media - print, audio-visual, demonstrations, etc., users' preference of the packaging format etc.

A list of services/products indicating the predominent category of users to whom the services/products can be targetted is given in the appendix.

2.5 Dessemination channels:

In the development and creation of an information consolidation product, it is necessary to consider the means by which it can be put in the hands of the users. A dissemination channel is defined as the means of transition or mechanism by which information consolidated products are distributed and delivered to users. Some of the more important channels for dissemination include:

(i) Interpersonal delivery - products personally delivered to each user

(ii) Group personal delivery - products given to users at meetings, demonstrations, etc.

(iii) Strategic placement - products put at key sites for users to pick up etc.

(iv) In-house dissemination

(v) Local depository - products circulated from a library, extension service etc.

(vi) Mass media - print

(vii) Broadcasting - Radio, T.V

(viii) Mail and other means of public distribution

(ix) Telecommunications - Telephone, satellite etc.

(x) Computer networks - online systems, computer conferencing, etc.

2.6 Phasing of Services:

The phasing of the services may be decided on the basis of the work done by the organization. Perhaps, it would be appropriate to mention that the various services mentioned need not be routine services, the exemptions being current awareness and data services.

CHAPTER-7

Man power plan

Introduction:

The success in establishing CES-ENVIS on efficient lines depends upon the availability of properly qualified and competent staff for each of the functional units of the centre. All the units should be coordinated under able leadership at different levels so that all of them work in consonance to achieve the objectvies of CES-ENVIS. The staff who administer the services must be well suited to the work both in temperament and training, since the degree of sucess is dependent directly on the abilities and attitudes of the staff.

The major component of the staff working at the centre will be comprised of professional staff for abstracting, preparing state-of-the-art-reports/trend reports, data service, current awareness services, technical processing, etc. The staff should therefore have the combined expertise in the field of documentation/information science and the fields of centre's objectives.

One of the important decisions to be made is to estimate the number of persons in the different categories of personnel required for CES-ENVIS. This will primarily be based on the quantum of work involved in the information centre. In the succeeding sections, the method of estimation is mentioned, and also the broad function and category of each personnel is indicated.

1. Basis for estimation

The recommendations contained in the following documents, with necessary modifications may be used in making the estimates:

(a) Ashworth (w), Ed. Handbook of special librarianship and information work. Ed3. 1967. London. Aslib.
(b) Campbell (DJ), small technical libraries 1973. UNESCO.
(c) Gopinath (1A), Standards for use in the planning of library and documentation systems; comparative data from India, U.K, U.S.A, and Canada (Library science with a slant to documentation. 11;1974; paper N).
(d) India, University Grants (-Commission), Library (-Committee), University and college libraries, 1965.
(e) IS: 1553-1960, code of practice relating to primary elements in the design of library buildings, 1960.
(f) Penna (CV) planning of library and documentation services; Ed 2. Rev and enl by P. H. Sewell and H. Liebaers, 1971 UNESCO.
(g) Ranganathan (SR). Library administration Edn 2, 1960. sec. 1145
(h) Strauss (LJ) and others. Scientific and technical libraries. 1972.

At this juncture, it may be worthwhile mentioning the simplified staff formula used in formulating plans for national sectoral information centres of NISSAT in India e.g.-National Information Science for Food Science and Technology (NICFOS), National Information Centre for Leather and Allied Industries (NICLAI), National Information Centre for Drugs and Pharmaceuticals (NICDAP), National Information Centre for Machine Tools and Production Engineering (NICMAP), etc, and in planning specialised information centres in India.

The Following table gives a staff formula for professionals:

Sl. No. (a)	Insection with Functions (b)	WORK Annual Quantum per person (c)
1.	Book/Document Section: Selection, ordering and accessioning of purchased & as well as books received on exchange or as gifts.	3000 documents annually added.
2.	Periodical Publications Section: Ordering, receipt, preparation and display of current periodicals their cumulation and preparing for binding on the completion of volume.	500 periodical titles received.
3.	Technical Processing Section: Classification, cataloguing, etc,.	1500-2000 documents annualy added.
4.	Circulation Section: Charging and discharging of books/documents althrouch each day.	1500 gate-hours, the circulation counter is kept open.
5.	Reference Section: Helping the users in the choice of books and articles, answering reference queries.	50 queries/Readers in a day.
6.	Maintenance Section: Maintenance of books/ periodicals in the current sequence on shelves, maintenance of gang-way guides, shelf guides in the stock -daily replacements of books, documents returned -preparation of books for repair and binding.	One person for every 10000 volumes in stock.

7.	Information Services Section: Abstracting/state-of-the-art reports/trend report service, critical data compilation, critical review, etc.	1.5 man-year on an average for each service.
8.	Supervisory staff	one for every 1500 hours the ICU is kept open.

Note: The staff formula does not include the staff for supporting services such as liaison, translation, reprography, etc.

1.1

Department of Environment and Forests has sanctioned the follwoing positions for CES-ENVIS Centre.

Name of the Post	Number of posts
Programmer	1
Information Assistant	1
Typist	1
Helper	1

For Nilgiri Biosphere Reserve Information System:

Programmer	1
Project Assistants	2
Lab Assistants	1
Field Assistant	1

2. Staff Manual

It is suggested that a staff manual be prepared in which the functions of CES-ENVIS are described in terms of duties of each staff member. Every process/duty should be clearly explained. The manual may be arranged logically under subjects and not as description of each staff member's work, because allocation of duties as the personnel charges, will alter very much more often than the actual procedures. A good index should be provided for the manual as it would facilitate a new entrant to carry out all routines as efficiently as his predessors. In other words, it would mean that no member of the staff should be indispensable by virtue of his knowledge of a procedure or technique. (Note: for details of staff and their duties, library procedures, etc., the following documents may be consulted: (i) Ashworth (w). Hand book of special libraianship and information work.1967. P.16-26, (ii) Strauss (LJ) and others. Scientific and technical libraries. 1972. P 36-55).

3. Staff Meetings:

It is suggested that to ensure a general smooth working of CES-ENVIS staff meetings should be held periodically. These meetings should primarily be meant for discussing technical problems met by staff in discharging their duties, be it technical processing or rendering of services. It will be a good practice to make brief reports of these meetings for future reference. It is needless to pointout here that such meetings would foster a spirit of mutual understanding and cooperation among the staff members.

CHAPTER-8

Furniture and Equipment Plan

1. Library and Office Furniture:

It is estimated that the information centre will have about 2000 volumes of books and periodicals. It also have some 1000 reports, 1500 reprints and 50 other publications such as CES technical reports. In addition there may be microfilms, photographs, maps, etc.

The estimate of furniture and equipment mentioned below is based on the document collection, number of readers and number of professional staff.

2. List of Furniture

Sl. No.	Furniture
1.	Steel Almairahs
2.	Filing cabinets
3.	Maps storing cabinets
4.	Catalogue storage cabinet
5.	Work tables
6.	Chair
7.	Reading tables
8.	Type writer
9.	Photocopying machine

3. Other Items:

In addition to the items mentioned in earlier sections, items such as book cards, catalogue cards, guide cards, lables, accession register, office trays, etc. need to be purchased.

CHAPTER-9

Space Planning

1. Introduction:

Planning for the most efficient utilization of whatever space may be provided for CES-ENVIS is one of the most important tasks that merits consideration. This would imply the development of the best possible layout from the functional point of view. However before any active planning of the physical layout of the information centre is considered, it is necessary to study the overall objective of the information centre and also to assess the space requirements.

2. Indian Standard:

The Indian Standard IS: 1553-1960 code of practice relating to primary elements in the design of library building gives information, among other things, on the folowing:
1. Average size of different types of libraries in terms of the number of books, bound volumes of periodicals, number of current periodicals for display, the number of seats for readers, and strength of staff.
2. Different kinds of rooms required for different libraries and
3. Basis and method of estimating the dimension of each kind of room, etc.

The space required for the library or Informarion centre can be calculated on the basis of the follwoing standard.

3. Space Requirement:

The following table gives the space requirements for different rooms/staff to be employed by the Information Centre. This standard has been utilised in calculating space requirements for some National Information Centres - NICFOS, NICLAI, NICDAP, etc., of National Information System for Science and Technology (NISSAT) in India.

Sl. No.	Space for	Basis for Estimation
1.	Stack Room	100 volumes per sq. meter
2.	Reading Room	3.5 sq. meters per sq. meter
3.	Supervisory staff	15 sq. meter per person
4.	Other professional and Administrative staff	10 sq. meter per person
5.	Circulation counter	20 sq. meters
6.	Service point	5 sq. meters per person

The necessary space required for CES-ENVIS has been provided by Centre for Ecological Sciences.

4. Internal Planning:

Internal Planing of CES-ENVIS has to be done systematically so that the final layout arrived at will not hamper in any manner the operational activities of the system. For this purpose, it would be helpful to consider:

1. The relationship between the functional units of the information centre; and
2. Space requirement for each functional unit.

On the basis of the information gathered about the above mentioned items, it would be possible to design a possible layout. It is in consonance with the flow pattern of materials and the flow pattern of information. Since both the flow patterns are interlinked with one another, a practical layout would result. It would be helpful to divide the layout into two distinct areas - (1) the library consisting of the processing department (ordering, accessioning, cataloguing, calssification, etc.), Reading Room (including stacking and display) and (2) The Information/Documentation Unit responsible for scanning, abstracting and preparation of the various publications such as bibliographies, etc. However it is emphasised here that the final layout designed should be one that would allow for future expansion. Another point that merits consideration is the environmental aspect. Environmental factors such as lighting - natural and artificial lighting, noise control - external and internal noise, ventilation and interior decoration have to be taken care of in the internal planning of the information centre.

CHAPTER-10

Financial Plan

Introduction:

"Information is a source whose generation consumes time and money, whose use conserves time and money, whose cost and value are not known to management" is an expression which succintly sums up the situation normally encountered by information centres while making demands for funds from their respective managements. Fortunately, CES-ENVIS is not in such a situation as it has an enlightened management.

1. Budgetary costs:

The budgetary requirements can be examined uner three categoires: start-up or initial costs, annual operating budget and future need.

Sl. No.	Items	Initial costs	Annual operating Budget	Future Needs
1.	Facilities	Preparation of physical space (reconstruction, partitions, wiring, lighting, decoration)	Renovations as needed	Extensions; or facilities
2.	Equipment & Furnishing	Purchase of equipment and furnishings	Repairs, replace ments & additions as needed	New or improved equipment, furnishing for new space
3.	Salaries & wages	Consultants; start-up requirements	Professional; non-professional; clerical service labour	Periodical raises; Expansion
4.	Collection of documents	Purchase of basic documents, journals and secondary publications	Annual subscri-ptions; addition to document collections; services	Extension of collections to new fields
5.	Materials & supplies	Initial materials & supplies	Yearly expendables	Contingency & new procedure
6.	Miscellaneous	Consultants; travel during planning & start-up	travel; Education; services; evalua-tion of activities	Contingency; research and evaluation

Following is the statement of amount sanctioned by Department of Environment and Forests:

Head	Amount Sanctioned
Recurring:	
Staff salary	1,04,000.00
Documents, Journals, collection of data, processing etc.,	1,00,000.00
Balance c/f	2,04,000.00
Stationary, consumables and contingency	25,000.00
Travel and other allowances	25,000.00
Non-recurring:	
Equipment	1,00,000.00
	3,54,000.00

2. Initial costs:

The initial costs which may be considered as capital budgetary items are of non-recurring type. These may be considered as part of long-range plans of CES-ENVIS. The items included under this are the costs in relation to furniture and equipment which are considered as assets. Though books, periodicals and other publications can be considered as assets, they are not included here because the cost incurred on them is of the recurring type.

Since the necessary space required by CES-ENVIS has been provided by CES initial costs in regard to space (buiiding) and preparation of physical space are not indicated here.

3. Annual Recurring Expenditure:

The items of annual recurring expenditure would include the following:

-Salaries of personnel (Professional, support, administrative)
-Running costs (Electricity, gas, commuications)
-Maintenance cost (Building, equipment, furnitutre, transport, vehicles, etc.,)
-Expenses for materials (douments, etc) and supplies
-Miscellaneous expenses (Printing, production, binding, distribution, hire charges, etc.,)

4. Salaries

In order to attract people with suitable qualifications and experience it is necessary to offer salaries commensurate with qualifications, experience and the type of work required to be performed by the individual. The salaries should be on a par with those in other departments of the organisation where eductional requirements and expected accomplishments are comparable. In developing a detailed classification of positions for the entire information centre staff, appropriate subordinate ranks equivalent to positions in other departments/units should be assigned.

The salary rates for the information centre staff are given below:

Sl. No.	Category of personnel	Grade
1.	Programmer	1640-2900/-(Revised Running scale)
2.	Information Assistant	1400-2300/-(Revised Running scale)
3.	Project Assistant	1500/-(consolidated)
4.	Lab Assistant	1200/-(consolidated)
5.	Field Assistant	1100/-(consolidated)

4. Sources of Finance

As indicated in the earlier sections the establishment, operation and maintenance of CES-ENVIS involves considerable finance. Department of Environment and Forests has kindly agreed to finance the CES-ENVIS Centre.

CHAPTER--11

Projects:

Cuncurrently with the planning of CES-ENVIS, few projects have been taken up to facilitate the building up of the infrastructure. The following is a list of such projects:

1. Documentation of Projects, Files, Reports:

It is essential for planning and minimising duplication of effort that a proper bibligraphic control of projects, files and reports generated within the organisation should be maintained.

For this purpose, it would be helpful to develop and utilize:

(a) A standard proforma for project documentation.
(b) A project control data sheet.
(c) A project code numbering system.
(d) Organization and indexing method.
(e) Microfilming of documents.

2. Directory of Institutions and Directory of Specialists:

Directory of Institutions concerned with the fields of interest of CES-ENVIS would help in getting access to wider range of information sources. This would also be helpful in consultation work.

A directory of specialists/experts would help in quickly identifying specialists as informational resource personnel, consultants, etc.

3. Thesaurus in specific fields:

A thesaurus is necessary for vocabulary control, for indexing, information retrieval, etc. CES-ENVIS must adopt an existing suitable thesaurus or develop one. The necessary expertise is available within the country.

4. Feasibility and study on use of computer-readable data bases.

The Project involves the following steps:

a) Identification and selection of data bases relevant to CES objectives.
b) Obtaining trial data bases and operate on them. The computer facility available at IISc or in CES may be used for this purpose.
c) Cost-benefit and cost-effective analysis of the data bases.
d) Examine feasibility of subscribing to data bases on a co-operative basis with other interested organizations and
e) Creating a mechanism for continuous availability of the data bases.

5 . Data Bank Development.

Important data relevant to R & D Planning, Project selection at CES are being generated from different sources - both internal and external. This data needs to be collected and documented in a systematic way so as to facilitate the creation of a Data Bank. This project would involve the following steps:

a) Identification of the types and categories of data to be included in the data bank.
b) Determination of sources of data - internal, external.
c) Collection and compilation
d) Computerisation
e) Dissemination mechanism
f) Updating mechanism

CHAPTER-12

Action Plan

The full development of CES-ENVIS is expected to take some time. The following action plan is suggested.

1) Revision of plan if necessary

2) Identification of institutions, experts so as to establish interlinking mechanisms for purposes of utilisation of resources and services.

3) Development of

   i) Indexing system for purposes of storage and retrieval of information.

   ii) Project-cum-report-cum-file numbering system for proper bibliographic control. It facilitates the correlation of a project with its files and reports. After this, a standard proforma should be evolved for documenting projects. When the proforma are classified and indexed, work done on any project can be retrieved without delay by any person- an aspect of work which takes much longer time to present.

4) Organisation of data collected/generated by CES.

5) Seeking expert advice for evaluating the development of the information centre from time to time.

List of Periodicals on Biological Diversity and Ecodevelopment.

1. Human Ecology
2. Ethology and Sociobiology
3. Ecology
4. J. Applied Ecology
5. Ecological Monographs
6. Anim. Behav.
7. Insectes Sociaux
8. Behav. Ecol. Sociobiol
9. Current Contents: Agri. Biol. Env. Sci.
10. Ecological Entomol.
11. J. of Tropical Ecology
12. Oecologia
13. Oikos
14. Forest Ecology and Management
15. J. Anim. Ecol.
16. J. Theoretical Biol
17. Theoretical Population Biol
18. Ani. Nat.
19. Evolution
20. Journal of Ecol.
21. Biotropica
22. J. Mool.
23. Biological Conservation
24. Environmental Conservation
25. Agriculture Ecosystems and Environment
26. Sociabiology
27. Behaviour
28. International Tree Crops Journal
29. Biosciences
30. Urban Ecology
31. J. Bombay Nat. Hist. Soc.
32. Sanctuary
33. Ecological Abstracts

Appendix 2.

Information Services indicating Dominant User Category.

Services	Functional Groups			
	Top Management	R & D	Middle Manager & Supervisory	Technicians
(a)	(b)	(c)	(d)	(e)
1) Reference Service		x	x	x
Reader guidance		x	x	x
Ready reference	x	x		
Retrospective doc, list		x		
Referral Service	x	x	x	
2) Current Awareness Type				
Notification of current papers		x		
Notification of Research in progress		x	x	
SDI	x	x	x	x
Notification about conferences	x	x	x	x
News paper clippings	x		x	x
3) Condensation and Differential presentation				
Abstracts		x	x	
Extract	x	x	x	x
Digest for management	x	x	x	
4) Environmental scanning; Regularoty, Economic, Social; Scientific Information	x	x	x	
Data Service		x	x	
Information analysis and products there of	x	x	x	
State-of-the-art-reports	x	x	x	x