

KERALA FOREST RESEARCH INSTITUTE

**REPORT OF THE DIRECTOR
FOR THE YEAR 1975-76**



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INTRODUCTORY

1.1 The State's Fifth Five Year Plan programme under Science and Technology, envisages establishment of a few autonomous institutions for research and development in certain areas vital to the socio-economic development of the State. The Kerala Forest Research Institute is one such institution contemplated. In January 1975, the Government of Kerala, accorded sanction for the establishment of the Institute. The Institute is autonomous and has been registered as a Society under the Travancore-Cochin Literary, Scientific and Charitable Societies' Registration Act, 1955. The Institute started functioning from 3rd July 1975, at Trivandrum. It was shifted to Trichur on October 1st, 1975.

1.2 The main objective of the Institute is to do advanced studies and research in conservation, development and management of forests, optimum utilisation of forest produce and management of wild life. The Institute is primarily to carry out research, oriented to the development of forestry and forest based industries in Kerala.



Governing Body

2.1 The control, administration and management of the Institute is vested in the Governing Body. The first Governing Body consisted of the following:

- i. Minister for Forests, Kerala - Chairman.
- ii. Chairman, State Committee on Science and Technology, Kerala.
- iii. Secretary to Government of Kerala, Department of Planning and Economic Affairs
- iv. Secretary to Government of Kerala, Agriculture Department.
- v. Additional Secretary to Government of Kerala, Agriculture Department.
- vi. Chief Conservator of Forests, Kerala.
- vii. Chief Conservator of Forests (Development), Kerala.
- viii. Director of the Institute.

The Governing Body met on five times during the period under report.

2.2 At its meeting held on November 5th, 1975, the Governing Body adopted the amended Memorandum of Association and the Rules and Regulations Relating to the Institute. Under the amended Memorandum of Association, the Governing Body will have 12 members. On March 26th, 1976, the Government of Kerala issued orders reconstituting the Governing Body with the following members:

- i. Minister (Forests), Kerala - Chairman.
- ii. Chairman, State Committee on Science and Technology, Kerala.
- iii. Secretary to Government of Kerala, Department of Planning & Economic Affairs
- iv. Chief Conservator of Forests (Development), Kerala
- v. Vice-Chancellor, Kerala Agricultural University

- vi. Shri Hari Singh, Retd. I.G. of Forests, New Delhi.
- vii. Shri Y.M.L. Sharma, International Forestry Consultant, Bangalore.
- viii. Prof. T.S. Sadasivan, Department of Botany, University of Madras.
- ix. Shri A.K. Kaderkutty, Managing Director, Western India Plywoods Ltd., Baliapatam.
- x. Shri J.C. Varmah, President, Forest Research Institute and Colleges, Dehra Dun
- xi. Director of the Institute.
- xii. Vacant.

The reconstituted Governing Body is to meet shortly.

Executive Committee

2.3 The Executive Committee which is to give guidance and advice on research activities and general administration of the Institute, consists of the following members.

- i. Chairman, State Committee on Science and Technology - Chairman.
- ii. Secretary to Government of Kerala, Department of Planning and Economic Affairs.
- iii. Chief Conservator of Forests (Development), Kerala.
- iv. Secretary or Additional Secretary to Government of Kerala, Agriculture Department (dealing with Forests).
- v. Director of the Institute.

The Committee met five times during the period under report.

2.4 Under the amended Memorandum of Association and the Rules and Regulations of the Institute, the Executive Committee is to have the following members.

- i. Vice-Chairman of the Governing Body - Chairman (Chairman, State Committee on Science and Technology).
- ii. Director of the Institute.
- iii. Any three members of the Governing Body
- iv. nominated by it.
- v.

2.5 The Executive Committee has not been reconstituted. The Governing Body is being requested to reconstitute it.

Director

2.6 The Institute is headed by a Director. Dr. C.Chandrasekharan who was an I.F.S. Officer under the Government of Kerala, was the first Director. He left the Institute on 17th December, 1975 to take up an assignment under F.A.O. at Bangkok handing over charge to Shri K.K.Nair, Chief Conservator of Forests (Development), Kerala. Shri. Nair has been holding additional charge till the end of the period of report. Dr. P.M.Ganapathy I.F.S. who has been selected as the Director, is expected to take up his assignment by July 1976.

Administration

2.7 The Director is assisted by a Secretary, in the day-to-day administration. Shri P.Viswanathan, Secretary is on deputation from the Kerala Forest Department from September 12th, 1975. The other office staff consists of one Office Assistant, P.A. to the Director, one Typist, three Attenders and one Staff-car Driver. The Office Assistant (Shri R.K.Padmanabhan) and P.A. to the Director (Shri C.V. Jose) are also on deputation from the Kerala Forest Department. The remaining staff are those engaged on daily wages. Engagement on daily wages had to be resorted to in the interest of the Institute since staff recruitment rules were not framed then. Now necessary rules have been framed and adopted by the Governing Body and action has been taken to fill up the posts on regular basis replacing the persons on daily wages.

Framing Rules for
the Institute

2.8 It is necessary that the Institute must have rules on Service Conditions, Travelling Allowance, Provident Fund etc. The Staff Recruitment Rules have already been framed and adopted by the Governing Body. Preparation of other rules has almost been completed. They will be placed before the Governing Body for consideration and adoption after the Director takes up his assignment.

CAMPUS

3.1 The Expert Committee, appointed by the Government of Kerala, to go into the question of location of the Institute suggested Peechi in Trichur District as a suitable place. The Institute is to have its campus at Peechi. The Kerala Forest Department is to provide the Institute with land for its campus at Peechi and also for its future expansion programmes. The area required at present has been selected and is in Velangannur Regeneration area in Peechi Range of Trichur Forest Division. The area has been surveyed and demarcated by the Department and is about 70 acres in extent. The area will have to be taken on lease. Government Orders on transfer of land are awaited. It might be possible to get additional areas fairly close to the site now selected for the use of the Institute if it becomes necessary. The foundation stone for the campus was laid by the Hon'ble Minister for Forests, Kerala, at Peechi on August 15th, 1957.

3.2 The Institute is at present located in a rented building at Trichur.

3.3 Mr. L.W. Baker, an Architect, who has considerable experience in Kerala, with low cost construction and timber use, has been entrusted with the task of preparing a plan for campus development. There are two Committees, one of Scientists and the other of Engineers and Architects to examine the masterplan. Due to various reasons, the masterplan has not yet been finalised. The Committee is to meet on 2nd June and it is hoped that work on the campus could be started soon. The possibility of entrusting the construction work to the Research, Development and Consultancy Group formed in the Government Engineering College at Trichur is also being explored.

Field Stations

3.4 The Institute to begin with will have field stations at Nilambur and Thekkady. It will open up field stations at other centres as found necessary. The land for the station at Nilambur has already been selected and the Kerala Forest Department has been requested to transfer the same to the Institute. They are initiating action for Government Orders in the matter. As regards the site at Thekkady, the Department has requested the Institute to select a suitable one and furnish the details. They have been informed that this would be done soon after the new Director takes up his assignment.

PROJECT REPORT

4.1 The Institute is at the stage of initial organisation. It is expected that it will start functioning with the full compliment of Scientists and Assistants, Laboratories, Library etc. within the course of a year or two. A project has been prepared in this connection. This was considered by the Executive Committee of the Institute, in general. The consensus was that it should be abridged and edited and after that it would be considered in detail for adoption. According to project proposals, the Institute will have ultimately twelve divisions dealing with Wood Technology, Soil Science, Entomology and Nematology, Pathology and Mycology, Plant Physiology and Botany, Forest Genetics, Forest Ecology and Wild Life, Forest Economics, Forest Management, Utilisation and Extension, Forest Products and Statistics. Each Division will be headed by a Scientist suitably assisted by Research Associates and Research Assistants. It is proposed to build up the Library on modern lines, well equipped. The idea is to have about two lakhs volumes within the course of twenty to twentyfive years.

LIBRARY

5.1 As a prerequisite for commencing intensive research activities, it is essential to have a good library with facilities for disseminating information on Forestry, Wild Life and allied topics using modern methods of documentation and techniques of information, storage and retrieval.

5.2 With this objective, much of the time and financial resources during the period under report were devoted to acquiring materials required for the library.

5.3 The Librarian, Shri K.Ravindran joined the Institute on 8th November 1975. Technical processing and organisation of collection is in progress. Steps are being taken to appoint the attendant staff.

5.4 So far, the library has acquired 2249 books and subscribes for 80 periodicals. The Institute is also receiving seven Journals as gift from Societies and Institutions devoted to Forestry. International Organisations such as Commonwealth Forestry Institute, Food and Agriculture Organization, U.S.Department of Agriculture etc. have included the Institute in their free mailing list.

5.5 Journals, conference proceedings, annual reviews, current technical papers and such other materials have been given importance in acquisition. Steps have been taken to purchase back volumes of important periodicals pertaining to the preceding five years.

5.6 Books on Forestry are very often publications of Societies and foreign publishers, whose publications are not usually stocked by the Indian Booksellers. To overcome this difficulty, the only procedure was to get

publications direct from abroad. For this purpose, the Institute could obtain an Import Licence to the value of Rs.50,000. This Import Licence is being utilised to purchase back volumes of Journals and books and microform publications which are not available locally.

5.7 The library has been provided with periodical display-cum-storage racks, periodical control cabinet, catalogue filing cabinets etc. An order has been placed for one Microfilm reader.

5.8 Oxford Decimal Classification system and Universal Decimal Classification system are employed in classifying the documents and the Anglo-American cataloguing rules are followed in preparing the catalogues.

5.9 Additional space is required urgently for the library. The Institute is on the look out for a new building.

Publications

5.10 The Institute has released a publication under the title "Wood Use in Kerala and Its Implications for Forest Land Use and Development". At its meeting on November 5th, 1975 the Executive Committee suggested that instead of publishing individual papers, the Institute may publish an annual bulletin with all the papers approved for publication during that year. It was also suggested that the papers prepared for inclusion in the bulletin should be referred to experts in the field for opinion and comments. Accordingly, the title of the Bulletin "Journal of Kerala Forest Research Institute" has been got approved by the Press Registrar of India. The Institute could not publish the bulletin so far since the Scientific Personnel are not in position. However

a paper under the title "Trend in Wood Production and Annual Revenue of Kerala Forest Department" prepared by the Statistician of the Institute has been sent to an expert for comments.

RESEARCH PROJECTS AND OTHER ACTIVITIES

General

6.1 The Executive Committee decided that the Institute should have Scientists in the following branches in position as early as possible.

1. Forest Pathology,
2. Soil Science,
3. Forest Genetics and
4. Silviculture.

The Governing Body has already accorded sanction for creating four posts of Scientists. The method of recruitment and qualifications for these posts have also been prescribed. The Executive Committee suggested that these posts may be notified after the new Director joins the Institute. It was also decided that the Scientists should be allowed to decide the size of the teams for each branch and to select members for their teams.

6.2 Rule 15 of the Memorandum of Association and the Rules and Regulations of the Institute provides for setting up a Research Council to consider the research work to be undertaken by the Institute and to make recommendations to the Executive Committee. Since the Scientific personnel are not in position, this has not been set up. This would be formed during 1976-77.

Laboratory Facilities

6.3 During the period under report, the Institute could not purchase much of laboratory equipments. This was mainly due to the fact that scientific personnel were not in position. The essential equipments required by Entomologist such as Microscopes, small glassware etc. were purchased during the year.

Entomology Section

6.4 The C.S.I.R. has placed at the disposal of the Institute an Entomologist from its Pool. Dr.K.S.S.Nair who was a post-doctoral worker in Entomology at the University of Guelph, Canada, joined the Institute on December 1st, 1975. He is at present working in the Entomological branch of the Institute

Work Done

6.5 An attempt has been made to find out the problems that should receive immediate attention of the Institute. Over the period, December 1975 to March 1976, field observations were made in selected regions, viz., Wadakkancherry, Peechy, Vazhachal, Nilambur, Wynaad, Achencoil, Kulathupuzha, Peermade and Pamba, to identify the major insect problems of forest plantations. Because the observations covered only the summer months, a complete enumeration and evaluation of the problems should await further investigations. However, the following were recognized to be of major economic importance.

6.6 Teak defoliation. Damage to the foliage of Teak of all ages by Hapalia machaeralis (Lep., Pyralidae) and Hyblea puer (Lep., Hyblaeidae) and several other insects of minor importance was recorded in most areas surveyed. Defoliation by these insects is believed to cause considerable loss of growth increment of teak annually, but no accurate estimate of the economic loss is available. Though considerable work has been done by the Forest Research Institute, Dehra Dun in this field the problem is still existing.

- 6.7 Shoot borer of 'Ilavu'. Plantations of 'Ilavu' (Bombax malabaricum), one of the main softwood species planted in Kerala for use in matchwood industry, have been damaged by the shoot borer, Tonica niviferana (Lep., Oecophoridae) in most regions surveyed.
- 6.8 Termite damage to Eucalyptus. Termites attack the roots and stem of young Eucalyptus seedlings and saplings causing mortality. Some loss due to termites was found in plantations in Wynaad (in plots already treated with insecticides) and reportedly occur in other regions in the absence of prophylactic insecticidal treatment.
- 6.9 Other insects. The preliminary survey also revealed the incidence of several other insect-caused problems of lesser economic importance. These include attack of Teak, Eucalyptus and Albizzia by a borer, Sahyadrassus (= Phassus) malabaricus; mortality of young saplings of Andaman Padouk at Nilambur, possibly due to termite attack; cock-chaffer (white grub) attack of Teak seedlings in the nursery at Manantoddy; 'stem borer' attack of balsa (Ochroma lagopus) at Konni and gall formation in Teak, noted particularly at Peechy and Patticad. Although the borer attack of Eucalyptus and Albizzia mentioned above is of little economic importance at present, the situation needs watching. The borer, Sahyadrassus has been known to occur in Teak plantations in sub-economic levels since long. A quantitative study of the incidence of this borer in coppice growth of Eucalyptus grandis at Peermade showed that less than one per cent of the trees were attacked. However, since eucalypts, as exotics are new hosts for this insect it is possible that it may assume greater economic importance in future.

6.10 Research work was initiated on two problems of immediate concern.

6.11 Control of termites in *Eucalyptus* plantations.

Most forest plantations of eucalypts are now subjected to routine insecticidal treatment. A field evaluation of currently available insecticides in experimental plots at Wadakkancherry has been planned, to select the most suitable material and to arrive at a standard recommendation on its mode and rate of application for optimum protection. As the suitability of insecticides will depend on soil conditions and as different species of termites may be involved in different regions, further tests in other areas are planned for future.

6.12 Control of the weed, *Eupatorium odoratum* using insects.

The weed *Eupatorium odoratum* (Compositae) is widely recognized as a serious pest in plantations. This is an exotic plant originating from the Neotropical Region of the world and reached Kerala soon after the Second World War. The enormous annual cost of weeding and the fire hazard on account of *Eupatorium* are too well known to need emphasis.

6.13 As control measures using weedicides are costly and hazardous, the possibility of biological control is being explored. Based on discussions with the Entomologist at the Indian Station (Bangalore) of the Commonwealth Institute of Biological Control (CIBC), the use of two insects of South American origin, *Ammalo insulata* (Lep., Arctiidae), a defoliator and *Apion brunneonigrum* (Col., Curculionidae), a flower and seed feeder, is contemplated. Both have been cleared for release in the neighbouring Coorg District of Karnataka by the Plant Protection Adviser to the Government of India on

recommendation of the C.I.B.C. The first species have already been released in Sri Lanka where it is reported to have cleared about 2000 acres of land of Eupatorium so far.

6.14 Additional tests on the host specificity of these insects are being planned in the Institute to evaluate their safety for field release in Kerala. Evaluation of the available data suggests that Eupatorium can be successfully controlled by the use of these insects. In addition, an unidentified defoliator of Eupatorium was collected locally and is being reared in the Institute to examine its potentiality for use in the control of the weed, possibly in combination with the exotic insects. The larvae of this lepidopteran feed voraciously on the leaves and young shoots of Eupatorium. This is the first record of an indigenous Eupatorium feeding caterpillar. Considerable preliminary work must be undertaken before the biological control agents can be released in the field. The Institute is pursuing action in this direction.

6.15 An unusual incidence of mortality of Eucalyptus grandis in Pamba was referred to the Institute by the Forest Department. On field investigations, it was found that insects found associated with the trees were not the primary cause of the damage and the Department was informed accordingly.

Proposed Research Activities

6.16 Beginning in June 1976 it is proposed to make a regular fortnightly survey (qualitative) of the incidence of insect pests in experimental plantations of Eucalyptus and Albizia at Vazhachal. These two species are proposed to be raised in extensive areas to meet the pulp requirements.

evaluate the potential pest problems so as to develop suitable remedial measures, if necessary, before the problems become serious.

6.17 The developments of suitable pest management strategies for the shoot borer of 'Ilavu' and possibly the defoliator complex of teak are other areas which should receive attention in the near future.

Statistical Branch

6.18 Shri K.Easwarankutty, an Assistant Director in the Bureau of Economics and Statistics, Kerala State who is on deputation with the Institute from 8th August, 1975 is in charge of the Statistics Branch.

6.19 The formulation, implementation and evaluation of forestry projects require the backing of a modern, easily retrievable Data Bank. A modern data bank wherein data on forestry and allied fields are stored, will be of great assistance to the Forest Departments as well to the Institute.

6.20 The Kerala Forest Department is accumulating in its records a fund of data during its routine activities. An adequate statistical machinery is needed in the field and at the headquarters for timely collection of these data and proper coding, classification and storage. The Institute took up this issue actively and held discussions with the officials of the Department for the furtherance of this objective. The Institute has also initiated action for collection of basic data. It could design forms for the maintenance of "Plantation Cards" by the Department at its headquarters which would help evaluation of long term plantation projects. The work of collecting information available in the published working

plans of Forest Divisions for building up basic statistics is also in progress.

6.21 Based on the figures of Departmental revenue and timber productions, the Statistician has prepared a paper entitled "Trend in Wood Production and Annual Revenue of Kerala Forest Department". An analytical study of the size class distribution of the stand in the natural forests based on the data of the Forest Resources Survey of Kerala has also been taken up.

Other Activities

6.22 The Director has been nominated as member to the Research Advisory Committee of the Kerala Agricultural University. He is also a member of the Kerala State Land Use Board.

Membership

6.23 Association with other similar research organisations is essential to know the progress of research in the fields of interest to us. ^{wik} This object in view, the Institute has taken membership in the following institutions.

1. The American Forestry Association.
2. Bombay Natural History Society.
3. Wild Life Preservation Society of India.
4. Pennsylvania Forestry Association.
5. Ontario Forestry Association.
6. Massachusetts Society for the Prevention of Cruelty to Animals.
7. Wood Research Institute, Japan.
8. Canadian Forestry Association.
9. Society of Irish Foresters.
10. Timber Growers' Organisation, U.K.
11. Canadian Wild Life Federation.
12. Commonwealth Forestry Institute.
13. International Union for Conservation of Nature and Natural Resources, Switzerland.
14. International Union of Forestry Research Organisations, Sweden.

FINANCE

7.1 According to the Memorandum of Association and the Rules and Regulations Relating to the Institute, the funds of the Institute shall consist of (1) Grants from the Government of Kerala and any other State Governments and Government of India (2) Grants and contributions from other corporal bodies, agencies, institutions and persons and (3) Loans from Governments and other financing institutions. All the funds required by the Institute in the initial stages will be met by the Government of Kerala. The possibility of seeking financial aid from other agencies can be thought of only after the Institute is well established and is in a position to take up research projects. A suggestion has been made that the Kerala Forest Department must contribute a percentage of its surplus revenue to the Institute. It might also be possible to impose a research and development cess.

7.2 The Government of Kerala have framed necessary grant-in-aid rules for the release of grant to the Institute. During the period under report, Rs.5 lakhs, were released, out of which, Rs.4.37 lakhs were spent. Some amount had to be reserved for meeting the expenses in the first two months of 1976-77, since the first instalment of grant was due for release only in May.

7.3 The details of expenditure are furnished below.

Books and Periodicals	Rs.2.29 lakhs
Furniture and Equipments	Rs 0.71 lakhs
Motor Car	Rs.0.44 lakhs
Establishment Charges	Rs.0.56 lakhs
Research Works and Projects	Rs.0.01 lakhs
Miscellaneous Items	Rs. 0.36 lakhs

7.4 The Governing Body appointed M/s Varma and Varma, Chartered Accountants, Trichur, Auditors of the Institute for the year 1975-76. They have given the audited statement of accounts.

7.5 For the year 1976-77, the Institute had proposed a budget of Rs.28 lakhs. The Government of Kerala has provided Rs.23 lakhs in their budget. The major item of expenditure will be buildings. The outlay proposed for construction was Rs.15 lakhs. Due to the reduced provision in the budget, the outlay under Construction will also have to be reduced. When the Executive Committee discussed this question at its meeting in March, it was suggested that the Kerala Forest Department should contribute substantially for putting up buildings.

CONCLUSION

8.1 The Institute can only claim to have made a modest start. The establishment of this Institute has received acclaim from various quarters. Owing to the absence of a wholetime Director, since December 1975, there has been some difficulty in pushing through the implementation of various proposals, devoting the necessary time required. I take this opportunity to record our sincere gratitude to all those who helped us and gave us able guidance and valuable advice in forming this Institute. Indeed I am looking forward for their continued co-operation in making this venture, a foremost citadel of Research on Forestry and Wild Life.

KERALA FOREST RESEARCH INSTITUTE

REPORT OF THE DIRECTOR FOR THE YEAR 1977-78

GENERAL

The permanent structure of the Institute took shape during the year under report with the satisfaction of all concerned. In a well-attended function, the campus was inaugurated by the Chief Minister of Kerala on February 19, 1978.

GOVERNING BODY

The Government nominated Shri S.K.Seth, Rtd. Inspector General of Forests, Government of India, as a member of the Governing Body.

The Governing Body met thrice during the year.

ADVISORY COMMITTEE

The Committee met on five occasions during the year.

DIRECTOR

Dr. P.M. Ganapathy continued to be the Director of the Institute, except for March 1978 when he proceeded on leave. Dr. K.S.S. Nair, Head of Division of Entomology, looked after the duties of Director, during his absence.

ADMINISTRATION

The Director is assisted by a Secretary. Shri P. Viswanathan continued as Secretary during the period. Shri P.K. Balan also continued as Accountant.

FRAMING OF RULES

The Service Rules for the Institute were considered by the Governing Body and adopted.

CAMPUS DEVELOPMENT

The Institute is to have its campus at Peechi in a plot leased out by the Kerala Forest Department for a period of 99 years.

Based on the architectural drawings provided by Mr. Baker, Architect and estimates and other details prepared by the Consultancy Cell in the Engineering College, Trichur, the work of construction of the following blocks were taken up during the period under report.

1. Administration Block
2. Library Block
3. Forest Products Block
4. Forest Management Block.

The work was awarded to a contractor tender at 17.5% above the estimate price. The work was completed by the end of December 1978. The Institute shifted in January 1978.

The construction of the laboratory blocks has also been taken up in the second phase of construction. Under this phase, the following buildings are being constructed.

1. Vehicle Shed & Store
2. Wood Technology block
3. Forest Utilization & Extension block
4. Silviculture Management & Wild Life block
5. Botany & Zoology block
6. Ecology & Soil Science block
7. Corridor.

Note: According to the Architect's design all the buildings in the main campus have to be connected by a corridor.

It is expected that this work will be completed in 1978-79.

In the main campus, there is provision for an Auditorium, Museum and also for a Forest Products block. The architectural drawings for the Auditorium have been received and the same will be supplied to the Cell for preparation of estimates, structural designs, specification etc. The question of constructing a block for Forest Products will be taken up later after the receipt of report on organising Wood Science Division from the expert under Colombo Plan. The drawings for museum have not been released so far.

Accommodation is a problem in Peechi. It is therefore the responsibility of the Institute to provide residential accommodation to its staff members. It has been decided to take up construction of staff quarters in the third phase. The preliminaries in this direction are being completed and it is expected that the Institute will be able to commence this work by the end of 1978. The idea is to provide accommodation to lower categories of staff at the first instance and then provide the same to other staff members in a phased programme subject to availability of funds. It is proposed to get the work of designing the staff quarters done by our own Engineering wing adopting the low cost concept such as brick wall with inside plastering, R.T.C., sloped roof etc.

WATER SUPPLY

The Central Ground Water Board, Kerala Unit, had recommended that water requirements could be met from the adjoining Kasaragod river by digging Jackwell or infiltration well and pump water to the Institute campus. The investigation work for a permanent water supply system has already been completed. After further investigations, it has been decided that adequate water would be available from an infiltration well in the river to meet all the present and future requirements of the Institute. The Irrigation Department of Kerala have agreed to the above proposal as soon as the estimates and design are ready. Work will be taken up.

CONSTRUCTION

The essential buildings such as Staff Quarters and Laboratory-cum-Office for the Sub Centre at Nilambur have already been constructed. Construction of a Rest House is in progress. The Sub Centre has already started functioning with skeleton research staff.

Government Orders are awaited for the lease of land required for the Sub Centre of the Institute at Thekkady.

LIBRARY

Efforts were continued during the year to procure publications relevant to the research activities in the Institute.

1001 volumes were added during the year and the total number of books available in the library is 4920. The Institute subscribes for 119 journals. 41 journals and Newsletters are being received as gift. The Institute has been included in the free mailing list of publications by many research organizations such as Commonwealth Forestry Institute, Food and Agriculture Organization, U.S. Department of Agriculture etc.

APPOINTMENT OF STAFF

During the year the Administrative, Scientific and Technical branches of the Institute were strengthened. The additions to the staff are as follows:

Administration

Shri E.P.Somasekharan Nair, Watcher	Joined on 31--5-1977
Shri M.B.Dasan, Watcher	Joined on 2--6-1977
Shri S.Shahul Hameed, Watcher	Joined on 6--6-1977
Shri C.Radhakrishnan, Attender	Joined on 18-10-1977
Shri M.C.Mohandas, Attender	Joined on 24-10-1977
Shri A.Ramakrishnan, Typist	Joined on 16-11-1977
Shri P.A.Sankarankutty, Attender	Joined on 30--1-1978
Shri E.M.Mohamed (on deputation from A.G's Office Kerala)	Joined on 1--3-1978

Staff

Botany

- Prof. V.P. Krishna Rao, (on deputation from Government of Karnataka) } Joined on 13--4-1977
- Kum. S. Venkatesh, Research Asst. } Joined on 10--6-1977

Entomology

- Shri George Mathew, Research Asst. } Joined on 3--7-1977

Silviculture

- Shri K.M. Mohan, joined from Kerala Forest Dept. } Joined on 1--5-1977
- Shri K.C. Chacko, Silviculturist } Joined on 23--9-1977

Soil Science

- Kum. K. Sobhana, Research Asst. } Joined on 10--5-1977
- Shri M. Balagopalan, Research Asst. } Joined on 14--3-1978

Technical

Engineering

- Shri K.K. Abdul Kader, Overseer } Joined on 10--7-1977
- Shri K.S. Gopalan, Overseer } Joined on 6--8-1977

A Division for Forest Economics was established by the Executive Committee during the year. Shri C.T.S. Nair, who was the Silviculturist in the Institute, was appointed as Forest Economist. The Institute could not get a Silviculturist so far in spite of requests made to the Kerala Forest Department and also the Forest Departments in southern States. At present Shri C.T.S. Nair is looking after Silviculture Division also.

Scientists for the Divisions of Forest Pathology and Forest Genetics have been located. It is expected that they will join the Institute within the course of 2 to 3 months.

A Wild Life Division has been established in the Institute. This Division is at present functioning at Thekkady in connection with the project "An Ecological Study in Thekkady Wild Life Sanctuary with special reference to Wild Life" which is being financed by the Kerala Forest Department.

RESEARCH PROJECTS

The progress of work on Research Projects undertaken by the Institute is given below:

Plant Culture

Silvi.01/77 Silviculture and Management of Fast Growing Indigenous Hardwood Species with Multiple Uses.

During the year seed sources of Gmelina arborea and Melia composita were located in Nilambur and Manantoddy and seeds collected. Preliminary nursery trials were carried out at the Sub Centre at Nilambur. The Forest Research Institute, Dehra Dun supplied Gmelina seeds from seven different areas. Seedlings from these seeds were raised at Nilambur and a provenance trial plot of one hectare was raised at Kari-muriem in Nilambur. Observations on the survival, growth etc., have been recorded. These plots are being maintained for continued observations.

Preliminary works have been carried out for standardising the planting technique of Gmelina and nursery has been raised for planting in an area of 2 hectares.

Silvi.02/77 Study of the Afforestation Technique in Grasslands in Kerala.

Preliminary trials were carried out at Chandanathodu in Wynad Division. Eucalyptus grandis (naked seedlings, stumps and container plants), Albizia falcata, Bombax ciba, Grevillea robusta, Erythrina indica etc., were raised and their survival and growth are being observed.

Silvi.03/77 Population Dynamics of the Wet Evergreen Forests and Standardisation of Natural Regeneration Operations.

In order to gather preliminary information on the factors responsible for germination and establishment of important evergreen species, experimental plots were laid out in Kottiyur reserve in Wynad Division. Treatments such as removal of undergrowth, removal of litter were carried out. However, due to the inaccessibility of the area, it has not been possible to make continued observations in the area.

Other Works. (a). Work on developing a central research nursery at Nilambur has been taken up.

(b). The Division was also involved in the preparation of the Manual on Dipterocarpaceae in South Asia.

General The main bottleneck in executing the various projects is the absence of a full-time Silviculturist and adequate field staff. Proposals for extending the experiments to other representative areas in the State could not be taken up mainly due to this factor.

Forest

Forecon.01/77 A study on the utilization of forest products by the Kerala Plywood Industry (Project 1/77).

A study on the utilization of forest products of the Industry in the Kerala-Region was completed and the report supplied to the Kerala Plywood and Panel Industry.

As per the request of the industry, a similar study was undertaken in respect of the Kerala Eastern Region. Preliminary data on the requirements of the Industry and wood availability was collected. The report on the region will be completed shortly.

Forecon.02/77 Status of the Smelting Industry in Kerala.

No work was done, as the Research Advisory Committee advised to give a low priority to this project.

Forecon.03/77 Social Survey - Survey to assess the needs of the local people with regard to the collection of Forest Produce and to identify the concerns for raising mixed plantations.

This project was submitted to the Government of India for financing and will be taken up only after receiving sanction from the Government of India.

Forecon.04/77 Pricing Policy for timber and other Forest Products from State Forests.

For want of staff in the Division, the project has not been taken up. It is proposed to undertake the study immediately after the completion of Project 01/77.

Other Activities. The Division is actively involved in the formulation of the Fifth Plan for the Forestry Sector.

Botany

Gene.01/77 Preparation of a Manual on Dipterocarpaceae of South Asia.

Country Reports for South Asia were prepared and presented to F.A.O.

Organisation of Herbarium. Plant collection work has been taken up for building up a forest herbarium in the Institute. Till now 600 plant specimens have been collected. In addition to this, 50 of wood specimens have been collected for building up a Xylarium.

Soils.01/77 Study of the Soil - Agricultural Practices in Relation to Soil Properties.

Soil samples (256) have been collected from Kollamiramed, Vazhachal, Pullankam, Kondachi, Ikkari and Marikuriam. The samples were taken before burning, after burning and after the first crop of paddy is sown in case of Kondachi where the first crop is teff. The following analyses are under progress.

pH
Conductivity
Organic Carbon
Extractable Phosphorus
Particle-size analysis
Particle density.

A bibliography on the above study.

Soils.02/77 Properties of Tea Soils.

Soil samples (56) from an old plot and adjacent area, Tegur, Naduvathuruzhy, Perambuzhy, and Anchukal (first and second rotations) have been collected. The analyses mentioned in Soils.01/77 are under progress.

A bibliography on Tea Soils is ready.

Soils.03/77 Properties of Eucalypt Soils.

Soil samples (12) were taken from Pattavada and Kanthallur (grassland and coppice forest) and the analyses mentioned in Soils.01/77 are being conducted on these. In this regard, 21 profiles collected (69 samples) from the Grassland Afforestation Division, Temba by the Working Plan Division were also handed over to Soil Science Division for study.

A bibliography on eucalypt soils is ready.

Soils.04/77 Suitability of Teak and Eucalyptus Park as Composting Materials.

This project was discontinued as decided in the Research Advisory Meeting on 22-3-1977.

Other Studies

- (1). Silvi.02/77: Grassland Afforestation Technique in Grasslands of Kerala.

Analyses are being done on 28 samples taken from the Grassland Afforestation experimental plot at Chandanathode.

- (2). Chandanathode Eucalyptus Plantation

Soil samples from 37 ha. of eucalypt plantation were taken to ascertain whether the partial failure is due to soil factor. Study is in progress.

(3). Stunted Teak - *Tectona grandis* of Ilavapalam, Kollathuruzha Range.

Soil samples (20) were taken from stunted-teak and normal-teak areas. Study is in progress.

Entomology

Entom.01/77 Termite Control in Eucalyptus Plantations.

Based on field tests conducted by Perayur and Kondrachi termite control methods were simplified and new recommendations for Eucalyptus plantation communication in KPRI Newsletter, June 1977. Termites causing damage were identified. Further trials are now underway at Sultan's Battery.

Entom.02/77 Studies on the Population Dynamics of Teak Defoliators and the Effect of Defoliation on Volatile Emission of Teak.

Information was collected on the nature and extent of damage caused to young teak plants in Pullankandam and Aravallikkar. Field experiments and observations at Nilambur.

Entom.03/77 Biological Control of Eupatorium odoratum.

Survey was conducted on indigenous pests of Eupatorium. Activities under this project have not started in full swing due to heavy involvement in other projects.

Entom.04/77 Ecology and Control of Insects Damaging Stored Reed (Sponsored Project).

Recommendations were given for control of termites. Observations were made on the biology of Dinoderus beetles. Cultures were built up in the laboratory for testing insecticides. Field experiments could not be laid out to test control measures due to inability of Hindustan Paper Corporation to supply necessary quantities of reed as they have not started regular cutting and storage operation. Hindustan Paper Corporation has, therefore been asked to extend the period of investigation.

Entom.05/77 Biology and Control of Insect Pests of Indigenous Lat-Flowering Hardwoods and of Albizia lebbekia.

Biology and ecology of several pests of the above trees were studied. Some results were communicated in June, 1977 issue of KPRI Newsletter. Control measures were recommended to Forest Department, where necessary.

General. Information on insect pests of dipterocarps gathered and summarised for the Dipterocarp Manual.

Statistics

Stat.01/77 Study of the regeneration status of some important species of trees in the natural forests of Kerala.

The computer work of the data collected by the Forest Resources Division of the Forest Department from Silent Valley and Muthikulam reserves was completed.

Stat.02/77 A Data Bank for Forestry Sector in Kerala.

The project was initiated by collecting data on the Forest Plantations in the State. Data on yield from some of the selection working areas in the state were also collected and compiled.

The scheme can be implemented in full when the Statistics Wing of the Forest Department is suitably strengthened.

Stat.03/77 Study of the percentage bark volume in Eucalyptus.

The project has been completed and a report containing wood and bark volume tables of Eucalyptus trees in Kerala (KFRI Publication No. 2) has been published.

Stat.04/77 Applications of linear programming techniques to Optimal Allocation of Plantable Areas in Kerala to different tree species.

A goal programme model was formulated for optimising the total wood production. Subject to achievement of certain goals of production of sawlogs, plylogs, matchwood, pulpwood and of poles and small round-wood from natural forests as well as from plantations. The total available area for selection working and forest plantations were taken as constraints. The Budget goal also was taken into consideration.

Data needed for the project was collected from the various Divisional Offices.

SCIENTIFIC EQUIPMENTS

During the period under report essential equipments for the functioning of the Divisions have been procured.

PUBLICATIONS

The Institute published two more issues of Newsletter during the year. Many people even from outside State are showing interest in our Newsletters.

FINANCE

The year started with a cash balance of Rs. 3,30,443-35. The Governing Body had approved the budget for the year 1977-78 with an outlay of Rs. 45-55 lakhs of which Rs. 15 lakhs was expected from external agencies. In its budget proposals the Government of Kerala made provision of Rs. 30/- lakhs. The Government released Rs. 32,33,990-50 as grant during the year. The expenditure incurred during 1977-78 was Rs. 29,31,268-02. A break up of the same is furnished below.

Books & Periodicals	Rs. 1,49,791-50
Bus	Rs. 1,91,642-25
Construction	Rs. 15,31,391-73
Furniture and Equipments	Rs. 4,18,458-33
Establishment Charges	Rs. 4,38,646-50
Research Contingencies	Rs. 67,388-49
Other Items	Rs. 1,33,949-16

Total	Rs. 29,31,268-02
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The Kerala Forest Department has released Rs. 1,00,000/- towards the establishment of Teak Museum. The Department is also financing the following two Research Projects undertaken by the Institute.

1. Population Dynamics of the Wet Evergreen Forests and Standardisation of Natural Regeneration Operations.

2. The Ecological Study in Thekkady Wild Life Sanctuary with Special Reference to Wild Life.

The Department has released Rs. 50,000/- for this work.

The Institute had taken up a Project for the F.A.O. i.e., Preparation of a Manual of Dipterocarps of South Asia. The Country Reports have already been given to the F.A.O. They have released US\$ 10,000/- (Rs. 81,900/-) towards this work.

The Federation of Indian Plywood & Panel Industry has entrusted a project "A Study of the Problems of Wood Raw-Material Supply to the Plywood Industry". They have released Rs. 2,500/- during the period under report.

The Hindustan Paper Corporation has requested the Institute to take up a Project for them on "Insect Attack on Stored Reeds" in their factory site at Vellore. The Corporation has released an advance of Rs. 2,000/- to the Institute towards this project.

M/s Varma & Varma, Chartered Accountants, Trichur were Auditors of the Institute for the year. They took up the audit of accounts and the audited statements are awaited.

GENERAL

The Government of Kerala has sanctioned establishment of a Teak Museum as an adjunct to our Sub Centre at Nilambur at an estimated cost of Rs. 5-70 lakhs. The Institute has been entrusted with the construction work and management of museum. The proposal includes provision for a library on Teak also. It is proposed to commission an Architect to design the building by inviting entries on competitive basis. After approval of the design the work can be awarded on contract with involvement of Western India Plywoods for manufacturing special items for construction. Action has also been initiated for acquiring literature.

The Institute has been granted membership in seven Research Organisations including International Union of Forestry Research Organisations.

GENERAL

The Director is grateful to the members of the Governing Body and the Executive Committee for the guidance and advice received by him. But for their keen interest and understanding the onerous task of organisation would have been a great burden on the staff of the Institute.