



INTRODUCTION

The Indian Council of Forestry Research and Education (ICFRE) is the apex body in the national forestry research system to develop a holistic forestry research through planning, promoting, conducting and coordinating research, education and extension on all aspects of forestry for ensuring scientific management of forests, tree improvement, forestry productivity through scientific and biotechnological researches, bioremediation of degraded land, efficient utilization of forest produce, value addition of forest products, conservation of biodiversity and climate change, effective agroforestry models for various agroecological zones, policy research, environmental impact assessment and integrated pests and disease management.

Objectives of the ICFRE

- To undertake, aid, promote and coordinate forestry education, research and their applications.
- To develop and maintain a National Library and Information Centre for forestry and allied sciences.
- To act as a clearing-house for research and general informations related to forests and wildlife.
- To develop forestry extension programmes and propagate the same through mass media, audio-visual aids and extension machinery.
- To provide consultancy services in the field of forestry research, education and allied sciences.
- To undertake other jobs considered necessary to attain these objectives.

ICFRE has eight regional research institutes and three research centres in different bio-geographical regions of the country to cater to the forestry research needs of the nation. The regional research institutes are located at Dehradun, Shimla, Ranchi, Jorhat, Jabalpur, Jodhpur, Bangalore and Coimbatore and the centres are at Allahabad, Chhindwara and Hyderabad. The activities of these institutes and centres are described in separate chapters of the report. The activities of forestry research, education and extension at ICFRE headquarter are as under :

FORESTRY RESEARCH

Project Formulation Division act as a facilitator between ICFRE institutes and potential donor agencies; to update ICFRE institutes about the thrust areas and area of research interests of the donor agencies and to liaison between ICFRE and donor agencies for availability of financial support. Up to March, 2004, two hundred one national projects and one concept note were in the pipeline for financial support with thirty national donor agencies.

The research projects have been submitted to various national donor agencies, viz. Department of Biotechnology, Department of Science and Technology, Ministry of Environment and Forests, National Medicinal Plant Board, National Bank for Agricultural and Rural Development, Council of Scientific and Industrial Research, Indian Council of Agricultural Research, National Oil Seed and Vegetative Oils Development Board, Govind Ballabh Pant Institute of Himalayan

Environment and Development and Ministry of Textile etc.

Sixty three International projects and thirty four concept notes are in the pipeline for financial support with thirty international donor agencies. Some of these international donor agencies are Japan International Co-operation Agency, Department for International Development - UK, European Union, Food and Agriculture Organization of the United Nations and Asian Development Bank, etc.

The division also updated the status report of research projects of ICFRE institutes submitted to the national and international donor agencies. Research projects received from ICFRE institutes, MoEF, national organisations and other agencies were evaluated with regard to their suitability in the identified thrust areas.

ICFRE has prepared a two days training module titled "Training Module for Committee Members and Forest Frontline Workers on Joint

Forest Management (JFM), Forest Development Agency (FDA), Watershed, Micro Planning and Monitoring Issues" as per the guidelines of the National Afforestation and Eco-Development Board (NAEB), Ministry of Environment and Forests, Govt. of India.

Planning and Programme Division deals with the planning, processing and execution of new research project proposals and review, the ongoing research projects of all the ICFRE institutes. Research Policy Committee (RPC) meeting was convened on 7th May, 2003 for the year 2003-2004, and on 16th and 17th March, 2004 for the year 2004-2005 under the chairmanship of Shri R.P.S. Katwal, D.G., ICFRE to approve the new research proposals submitted by ICFRE and its institutes.

The institute wise number of new research proposals approved for 2004-2005, and number of ongoing projects accepted by the RPC is given below:

Sl. No.	Name of the Institute	No. of new projects	No. of ongoing projects
1	Forest Research Institute, Dehra Dun	20	57
2	Arid Forest Research Institute, Jodhpur	3	29
3	Himalayan Forest Research Institute, Shimla	2	19
4	Institute of Forest Genetics and Tree Breeding, Coimbatore	1	25
5	Institute of Forest Productivity, Ranchi	4	13
6	Institute of Wood Science and Technology, Bangalore	9	63
7	Rain Forest Research Institute, Jorhat	2	16
8	Tropical Forest Research Institute, Jabalpur	3	27
9	Biodiversity, Climate Change and Policy Research Division, ICFRE headquarters	1	-
	Total	45	249



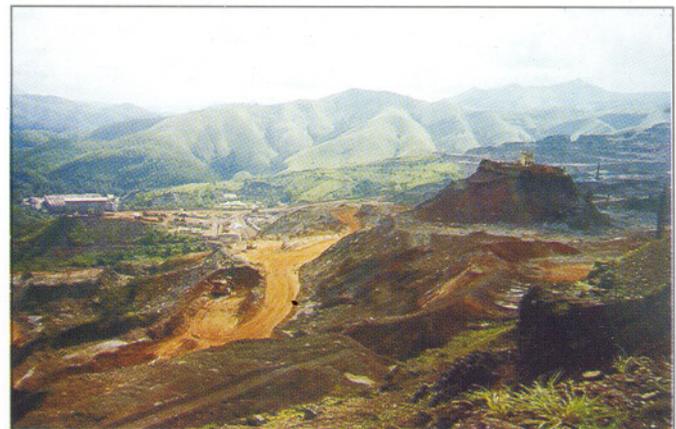
Environmental Impact Assessment Division undertakes and executes the consultancies related to Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for the sponsored projects in close cooperation with ICFRE institutes and State Forest Departments (SFD). The following achievements have been made during the year 2003-2004:



Dam axis - Bodhghat

- (1) Efforts have been made to publicise the ICFRE expertise in conducting environmental impact assessment studies among the SFD, private industries, hydro-electric power companies (e.g. National Hydro Power Corporation, National Thermal Power Corporation, Tehri Hydro Development Corporation etc.).
- (2) Expression of interest/offer of intent were submitted to companies like National Thermal Power Corporation, National Hydro Power Corporation, Indian Oil Corporation, Tehri Hydro Development Corporation, Chhattisgarh State Electricity Board, Raipur Kudremukh Iron Ore Company Limited, Bangalore, etc. for undertaking EIA study and eco-restoration plan. Environmental impact assessment studies have been conducted and final report submitted for Ropeway Project, Tirupati sponsored by Andhra Pradesh Tourism Development Corporation Limited.
- (3) During the current year the following two new consultancies have been undertaken:
 - (i) Ecological studies for Bodhghat Hydro Electric Project, Distt. Dantewara, Chhattisgarh.

- (ii) Preparation of final mine closure plan for Kudremukh Iron Ore Company Limited (KIOL), Bangalore.



Iron ore mining - Kudremukh

- (4) Evaluation of compensatory afforestation raised by states / union territories, under NAEB and under IXth plan of Integrated Afforestation and Eco-Development Project (IAEP), etc. is being conducted for the following areas:
 - (i) Evaluation of coastal shelterbelt plantation taken up during the year 2000-2002 under NAEB schemes, in 6 coastal districts of Orissa.



- (ii) Final evaluation of Loktak and Maklang watershed projects under IX plan of Integrated Afforestation and Eco-Development Project (IAEP) scheme.
- (iii) Sample check/survival rate studies in respect of afforestation and tree planting activities taken up during 2001-2002 for plantations raised in Darang and Dibrugarh Distt. of Assam under NAEB schemes.

Biodiversity, Climate Change and Policy Research Division (BCC and PR) : Afforestation and Reforestation (A and R) projects qualify under CDM, ICFRE with its available human resource and expertise in the field of forestry sector intend to apply for DOE within CDM framework. Accordingly a proposal was put up to the ICFRE Board of Governors and has been formally approved.

ICFRE as a member of Climate Change Core Group of the Ministry of Environment and Forests, Government of India, regular updates on various issues pertaining to Land Use, Land Use Change and Forestry (LULUCF) through a team of officers and scientists from FRI and ICFRE to prepare the Government of India's view point for presentation at the Conference of Parties.

Five meetings of members of expert group on matters pertaining to Convention on Biological Diversity (CBD) (Pre COP-7) organised by Ministry of Environment and Forests, Government of India, New Delhi. The following matters viz. mountain, agricultural, dry and sub-humid land biodiversity, invasive aliens species, global taxonomic initiative and biosafety (identification of LMOs), biological diversity and Eco-Tourism and Inland Water

Ecosystem Biological Diversity, which was related to COP-7 assigned to the Expert Members of Indian Council of Forestry Research and Education, Dehradun.

India - USA 'FORCLIMIT - INDIA' (Forestry and Climate Change Mitigation Network India) collaborative project was initiated to address the assessment of mitigation opportunities and potential cost and benefits in selected localities in India.

Phase I of this project has been completed i.e. studies in Uttaranchal on carbon sequestration potential under farm forestry and community forestry scenario.

A workshop on Methodological issues in forestry mitigation projects to discuss the results of FORCLIMIT project (phase I) was organised on 13th and 14th April, 2004 in collaboration with Lawrence Berkeley National Laboratory (USA), United State's Environmental Protection Agency (USEPA) and Indian Institute of Science, Bangalore.

Reconnaissance survey in Kedarnath Forest Division for biodiversity conservation prospects was conducted and available on ICFRE website.

FORESTRY EDUCATION

Grant-in-Aid to Universities: Financial supports were provided to universities imparting forestry education in the country in order to strengthen the infrastructural facilities of the forestry faculties such as laboratory and field equipments, glass house/mist chambers, transport and camping equipments, computer center, mini computer/PC terminals, library, sports, games and other student amenities. Grant-in-aid has also been provided for enhancing the technical capabilities of the forestry faculties through organisation of



workshops/seminars/symposia, participation to teachers in national seminars, symposium, students' study tours, assistance for preparation of teaching manuals and aid, etc. Overall Rs.250 lakhs was released under grant-in-aid to 19 universities given as below:

S.No.	Name of University	Rs. in lakh
1.	Dr Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan	10.00
2.	Tamil Nadu Agricultural University, Coimbatore	15.00
3.	Kerala Agricultural University, Main Campus, Trissur	15.00
4.	Forest Research Institute (Deemed University), Dehradun	70.21
5.	H.N.B. Garhwal University, Srinagar	15.00
6.	Birsa Agricultural University, P.O. Kanke, Ranchi	15.70
7.	Punjab Agricultural University, Ludhiana	8.00
8.	University of Agricultural Sciences, College of Forestry, Sirsi, Dharwad	12.50
9.	Indira Gandhi Agricultural University, Krishak Nagar, Raipur	4.09
10.	Orissa University of Agriculture and Technology, Bhubneshwar	8.00
11.	Dr Panjabrao Deshmukh Krishi Vidyapeeth, P.O. Krishi Nagar, Akola	3.00
12.	G.B. Pant University of Agriculture and Technology, Pantnagar	8.80
13.	Sher-E-Kashmir University, Shalimar Campus, Srinagar	10.00
14.	University of Agricultural Sciences, Gandhi Krishi Vigyan Kendra, Bangalore	6.00
15.	Maharana Pratap University of Agriculture and Technology, University Campus, Udaipur	10.00
16.	C.S.K. Himachal Pradesh Kirshi Vishwavidyalaya, Palampur	10.00
17.	Chandra Sekhar Azad University of Agriculture and Technology, Kanpur	8.40
18.	Allahabad Agricultural Deemed University, Allahabad	15.00
19.	ASPEE College of Horticulture and Forestry, Gujarat Agriculture University, Navsari	5.30
	TOTAL	250.00



Forestry Statistics Division require to collect data on forestry at the national level by different agencies for planning, policy analysis and making decision on forestry investment and development programmes. Statistics are also required to monitor and evaluate the impact of policies and programmes. The Statistics Division has been making this information available at one place. The division carries out the following tasks:

- Identify and agree with the MoEF, the primary and secondary forestry data to be collected,
- Liaison with agencies concerned with the collection of primary or secondary data,
- Collect, collate and process the agreed data,
- Check on data reliability and
- Provide required data to MoEF or other authorised users in a timely framework.

The division carried out following works during the year:

1. Published four issues of Timber / Bamboo Trade Bulletin.
2. Collaborated in the Environmental Impact Assessment of Indravati Sarovar Hydro - Electric Project, Chhattisgarh State Electricity Board for-
 - (i) Reassessment of needs of project affected population
 - (ii) Enumeration of trees in the submergence area
 - (iii) Enumeration of trees in compensatory afforestation.
3. Provided technical assistance to the different divisions of FRI to solve statistics problems as and when requested.
4. Conducted the study "Impact of imported timbers on Indian timber market" as directed by the Members of Board of Governors.

5. Established a statistical server in the statistics lab to implement SPSS 11.0 on the network.
6. Started the deliberation with various experts from FRI, Dehradun to develop a methodology for certification of forest products.
7. Collected data for:
 - (i) Forestry Statistics India 2003
 - (ii) Estimation of contribution of minor forest produce on GDP of India
 - (iii) Joint forest sector questionnaire of International Tropical Timber Organisation

FORESTRY EXTENSION

Media and Publication Division looks into the extension activities and strategies being adopted by institutes of ICFRE for the dissemination of research findings in forestry sector. Agroforestry models developed for different agroclimatic zones developed by ICFRE institutes, primarily for the economic gains of farmers, with the help of workshops, seminars and demonstrations. Biological control measures of forestry pests and diseases are made available to stakeholders through extension activities. Application of biofertilizers to increase productivity of forestry crop is envisaged through extension mechanisms like brochures, film shows. Ten training courses on different discipline of forestry were organized during the year by Institutes. Besides this five national workshop and two seminars were also organized on different parameters of forestry. Institutes participated in International Trade Fair to display their technological pursuits. This division maintains the monthly account of multifarious activities of ICFRE institutes and



Asia Pacific Regional Workshop on Forests for Poverty Reduction - F.R.I, Dehra Dun

keeps MoEF apprised them through monthly D.O. letter of D.G., ICFRE. Quarterly Newsletter of ICFRE brings out the latest significant achievements made during the quarter by any of the ICFRE institutes in any discipline of forestry. Besides this, information regarding National and International Workshops held in ICFRE and its institutes is made public. List of ensuing National and International Workshops and Conferences is also published in ICFRE Newsletter. Annual Reports of ICFRE and its institutes are collected, edited and compiled in the form of ICFRE Annual Report to be placed on the table of the House of Parliament. Editing, vetting and processing of books, brochures, pamphlets and technical reports of ICFRE institutes is mandatory before final publication. Eleven draft publications received from institutes were vetted by Media and Publication Division during the year, before final publication.

Information Technology Division is a service providing division to cater all kinds of information technology needs of the users at

ICFRE headquarters and FRI. The activities of the division could broadly be classified in the following three segments:

Maintenance of Hardware : Most of the hardware are in annual maintenance contract with different vendors and the others are under warranty period. The division also liaisons between the users and the vendors to see that the problems reported by the users are properly attended to. Besides, a routine preventive maintenance is also carried out by the vendors and the division's staff. The routine preventive maintenance of the networking hardware installed at various user sites is also being taken care of by the Division. This activity is necessary for providing network services provided to the users round the clock.

Back Office Management: Up-keeping of different types of servers and other network devices for smooth functioning of LAN and WAN; Up-keeping of other network devices at the user sites such as hubs, switches, high speed hubs and modems.

The Back office activities can be categorised as follows :

- Maintenance of e-mail servers to provide round the clock e-mail service to users.
- Maintenance of proxy server to provide internet facility to users
- Hoisting of ICFRE Website (icfre.org) to provide digital information about the institution on the world wide web and other host of servers responsible for -
 - Primary Domain Controller (Server)
 - Backup Domain Controller (Server)
 - Domain Name Service (Server)
 - Firewall Service - (to safe guard Local Area Network)
 - Local Terminal Service for dial-up users.
- Maintenance of file server, a service provided to users for storage of data (this service has been added recently).
- Maintenance of IFRIS (Management Information System) centralised Oracle database, ensuring FAS / Payroll support to five DDOs at ICFRE headquarters and FRI.
- Maintenance of a SUN Server, hoisting a TLMS (Total Library Automation Software Management System) Oracle database of the National Forest Library and Information Centre.
- CD ROM support to the users of ICFRE / FRI-Digital bibliographic database service to all LAN users.

Trainings: Several training programmes for officials of ICFRE headquarters and FRI officers and staff have been organised during the year; four weeks induction training was imparted to the newly recruited computer scientists posted at various institutes of ICFRE; Faculty support was provide. for

theory and practical classes in two courses to the FRI (Deemed University).

MAJOR ACHIEVEMENTS

- ICFRE has developed and published training module for Committee Members and Forest Frontline Workers on Joint Forest Management (JFM), Forest Development Agency (FDA), Watershed, Micro Planning and Monitoring Issues as per the guidelines of the National Afforestation and Eco-Development Board (NAEB), Ministry of Environment and Forests, Govt. of India.
- Under the success stories of ICFRE, Environmental Impact Assessment and Environmental Management Plan consultancy extended to various Agencies viz. studies on ecological studies for Bodhghat Hydro Electric Project, Distt. Dantewara, Chhattisgarh, Evaluated the compensatory afforestation raised by states / union territories, under NAEB and under IX plan of Integrated Afforestation and Eco-Development Project (IAEP), etc. Successfully completed coastal shelterbelt plantation taken up during the year 2000-2002 under NAEB schemes, in 6 coastal districts of Orissa, evaluation of Loktak and Maklang watershed projects under IX plan of Integrated Afforestation and Eco-Development Project (IAEP) scheme.
- ICFRE is a member of Climate Change Core Group of the Ministry of Environment and Forests, Government of India, regular updates on various issues pertaining to Land Use, Land Use Change and Forestry (LULUCF) with a team of officers and scientists from ICFRE and its institutes.
- ICFRE actively participated as an expert member of the Indian delegation in Conference of the Parties (COP- 7) meeting



- of the Convention on Biological Diversity (CBD) which was held, in Kuala Lumpur, Malaysia from the 9th - 20th February, 2004.
- ICFRE under Grant-in-aid to universities supported technical capabilities of the forestry faculties through organisation of workshops/seminars/symposia, participation to teachers in national seminars, symposium, students' study tours, assistance for preparation of teaching manuals and aid, etc. Overall Rs.250 lakhs was released under grant-in-aid to 19 universities in the 2003-2004.

MAJOR RESEARCH FINDINGS

- FRI has developed a computerized herbarium database for 900 specimens of economically important forestry species.
- Methods were standardized for vegetable dyes from *Ageratum conyzoides*, *Parthenium hysterophorus*, *Eupatorium glandulosum* and *Azadirachta indica*.
- Essential oils were isolated from different parts of *Shorea robusta*.
- Germplasm bank for 400 clones of poplar (*Populus deltoides*) are being maintained for tree improvement studies.
- Methods standardized for compost making from *Parthenium* for effective utilization of weeds.
- Wood Anatomy Information System has been developed for wood identification for various user agencies.
- Developed Insect database for 200 species for National Insect Reference with the collection preserved at FRI.
- Screened pharmacological significance for 25 economically important forest species.
- Standardized container nursery practices for selected forest tree species.
- Standardized seed handling procedures for few commercially important medicinal plants in Tamil Nadu.
- Standardized seed handling techniques for few tropical recalcitrant seeds.
- Identified pest resistant trees from wild population, provenances and exotic trials and progeny tests for further tree improvement studies.
- About 3000 herbarium plant species were uploaded into the 'Image Analyzer' programme and are available to the entire country through website.
- Developed plasticisation technique for palms and bamboo of selected species.
- Assessed wood quality of *Simarouba glauca* for its timber value.
- Transferred forestry technologies for the benefit of rural and sectoral communities of Karnataka.
- Extended Advanced Wood Working to various Training Centre and at IWST, Karnataka.
- Developed tissue culture protocols for Teak and *Gmelina arborea*.
- Standardized improved nursery techniques for different multipurpose forest tree species of central India.
- Assessed the biodiversity in protected area of central India.
- Screened teak of Madhya Pradesh for resistance against major insect pests for further tree improvement.
- Identified natural enemies of *Ectropis deodarae* comprising of eleven parasitoids, eight predators and nine entomo-pathogens of Himalayan forest
- Deodar mortality in around Shimla was studied and factors identified.

ICFRE AWARDS FOR EXCELLENCE

Awards

"ICFRE Award for Excellence" for the year 2001-2002 to the following individuals / teams for

outstanding work in the discipline as mentioned below, were presented by the his Excellency, Governor of Uttaranchal Shri Sudarshan Agarwal on 8th March, 2004. The award carries a citation and Rupees Ten Thousand for each discipline.

Discipline	Name of the Awardee
Forest Bio-Technology :	Dr. K. Gurumurthi, R. Yasodha, Madhu Mita Ghose, N.V. Mathish, R. Sumathi and Shashi Bhushan Tripathi, IFGTB, Coimbatore
Community Forestry :	Shri Mudit Kumar Singh, ADG, ICFRE, Dehra Dun
Forest Protection :	Dr. Mukhtar Ahmad, FRI, Dehra Dun
Forestry Research :	1. Dr. N.S. Bist, FRI, Dehra Dun 2. Dr. K. Palanisamy, IFGTB, Coimbatore
Forest Conservation :	Dr. Uppeandra Dhar, Dr. Sher S. Samant, Dr. Ranbeer S. Rawat and Dr. Subodh Airi, GB Pant Institute of Himalayan Environment & Development, Almora
Forest Utilization :	Dr. C.N. Pandey, FRI, Dehra Dun
Forest Economics & Management :	Shri Rajiv Kumar Garg, CF, Administration U.P. Forest Deptt. Lucknow (U.P.)