

## CHAPTER 1

# Introduction

Indian Council of Forestry Research and Education (ICFRE) is an apex body in national forestry research system with the mandate to develop a holistic approach through need based planning, promoting, conducting and coordinating research, education and extension covering all aspects of forestry for ensuring scientific management of forests, tree improvement, forest 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, appropriate agroforestry models for various agroecological zones, policy research, environmental impact assessment and integrated pests and disease management.

## Objectives of 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.

Research Institutes under the council are:

- Forest Research Institute (FRI), Dehradun
- Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore
- Institute of Wood Science and Technology (IWST), Bangalore
- Tropical Forest Research Institute (TFRI), Jabalpur
- Rain Forest Research Institute (RFRI), Jorhat
- Arid Forest Research Institute (AFRI), Jodhpur
- Himalayan Forest Research Institute (HFRI), Shimla
- Institute of Forest Productivity (IFP), Ranchi



Advanced research centres under the council are:

- Centre for Social Forestry and Eco-Rehabilitation (CSFER), Allahabad
- Centre for Forestry Research and Human Resource Development (CFRHRD), Chhindwara
- Forest Research Centre (FRC), Hyderabad

## **Major Achievements/Highlights of Research**

- The council has been funded by ITTO for strengthening the capabilities of forestry statistics nationwide
- The council in coordination with IWST and Central Water and Power Research Station, Pune, for the first time in India has prepared Mine Closure Plan for Kudremukh Iron Ore Company Limited (KIOCL) as per the directives of the Hon'ble Supreme Court. The plan has been approved by Indian Bureau of Mines.
- The council completed socioeconomic survey in eight villages for Tapovan Vishnugad Hydro-Power Project (4x130 MW), NTPC at Chamoli District of Uttarakhand.
- The council conducted monitoring and evaluation of National Afforestation Eco-Development Board (NAEB) of MoEF project on coastal shelterbelt plantations in Bhubaneshwar, Orissa and Area Oriented Fuelwood and Fodder Programme in Jhansi, Uttar Pradesh.
- The council has sanctioned 59 projects through the Research Advisory Group (RAG). These projects were approved by VII Research Policy Committee (RPC). A document of completed projects of ICFRE institutes from 1900-2005 has been hosted in ICFRE website.
- The council under the EU-India small project facilitated dissemination of information and policy reforms for A&R CDM sink projects. Conducted International workshop on Climate Change Mitigation in forestry sector using results of projects, regional and national analysis and preparation of project proposal in partnership with Joanneum Research Austria and Freiburg University Germany.
- Under USEPA FORCLIMIT India (Forests and Climate Change Mitigation Networks) Programme, first phase in Udhamsingh Nagar and Nainital (Uttarakhand) for farmforestry and community forestry was completed. Industrial potential approach at Singareni coalfield in Andhra Pradesh is in progress.
- The Director General of the council participated in the meeting of Conference of Parties (COP-11)/ Meeting of Parties (MOP-1) of United Nations Framework Convention on Climate Change (UNFCCC) at Montreal, Canada.
- The council has prepared a compendium of National and International Donor Agencies for funding of forestry and environment projects for ready reference.
- The council has got approved a comprehensive project “Samudai Adharit Samanvit Van Prabandhan Evam



Sanrakshan Yojana of Bihar State" by the Planning Commission of India, with a budget of Rs. 51.09 Crores for Phase-I.

- Two new species of the genus *Angulitermes* (*A. bhagsunagensis* sp. now) from Himachal Pradesh and *Mecrotermes* (*M. vikaspurensis* sp. now) from Uttaranchal have been identified. They are being described for the first time and are new addition to the termite fauna of India (FRI, Dehradun).
- *Phloeobius crassicollis* (Coleoptera : Anthribidae) species damaging green culm of *Bambusa bambos* has been identified (FRI, Dehradun).
- Biologically compatible and economically viable agroforestry models were developed for cultivation of medicinal plants under shade, especially under Eucalyptus, Poplar, Prunus and Mango (FRI, Dehradun).
- Number of shades and good colour fastener properties were identified from *Eucalyptus* hybrid leaves and bark, *Populus deltoides* (bark), *Lantana camara* (leaves) and *Pinus roxburghii* needles (FRI, Dehradun).
- Clonal propagation technology has been developed for superior teak trees (IFGTB, Coimbatore).
- *In-vitro* shoot proliferation methods were developed for large scale multiplication of mature clumps of *Bambusa nutans* and *Dendrocalamus giganteus* (IFGTB, Coimbatore).
- Provenance of high oil content for *Jatropha* were identified from the clonal germplasm bank (IWST, Bangalore).
- Seed production area of *Pinus kesiya* has been established in the State of Manipur and Meghalaya (RFRI, Jorhat).
- Cost effective afforestation package was developed to reclaim degraded sites (CSFER, Allahabad).
- Molecular profiling of 48 germplasm accessions of *Tectona grandis* and *T. hamiltoniana* by ISSR and AFLP molecular markers was carried out (TFRI, Jabalpur).
- Twenty four teak clones of M.P. origin were identified as highly resistant against teak defoliator (*Hyblaea puera*) and skeletonizer (*Eutectona machaeralis*) (TFRI, Jabalpur).
- Oils and anti-nutritional constituent phytate were isolated and estimated in different provenances of *Jatropha curcas*. Toxic fraction of *Jatropha* oil were separated and assessed for antifungal and antibacterial activities (TFRI, Jabalpur).
- Agri-lac culture model was developed for the benefit of tribals of M.P. (TFRI, Jabalpur).
- Causes of mortality of *Prosopis cineraria* trees were identified and remedial measures suggested for protecting the infested trees (AFRI, Jodhpur).
- Effect of VAM and biofertilizers were studied for improving productivity of *P. cineraria* (AFRI, Jodhpur).
- Urban aesthetic forestry model was developed for arid region of Rajasthan (AFRI, Jodhpur).



- Technologies for afforestation of salt affected areas in arid region of Rajasthan were developed (AFRI, Jodhpur).
- A herbal garden with economically important medicinal plants has been established (CFRHRD, Chhindwara).
- Nursery techniques for propagation of *Buchnania lanza* was developed (CFRHRD, Chhindwara).