CHAPTER-XVIII

EXTERNALLY AIDED PROJECTS

Activities under externally aided projects in ICFRE during the year have been as follows :

Project 1: UNDP-ICFRE PROJECT- STRENGTHENING AND DEVELOPING OF ICFRE.

UNDP-ICFRE Project for Strengthening and Developing Indian Council of Forestry Research and Education was launched on 4.9.1992 with UNDP assistance of US$ 2.56 million and Indian contribution of Rs.21.94 million. It was a five year project aiming at poverty alleviation through enhancement of the contribution of forestry to rural development in India. The project was designed to strengthen the capacities and capabilities of ICFRE Institutes and their personnel to undertake and extend forestry research. The project was extended for a period of one year and a half year and has been completed in March, 1999.

MAIN OBJECTIVES

- Establishment of solid research base to increase forest productivity and support afforestation; undertake reforestation and rehabilitation of degraded forests and village common; and promote agroforestry on farmlands.
- Development of extension mechanisms to transfer proven research results and tested technologies to users.
- Upgradation of research capability at the national level and international level keeping in view that progress towards and goal may be achieved by integrated efforts of many well knit and multidisciplinary teams of skilled scientists and technicians.

Beneficiaries

The ultimate beneficiaries were the farmers, poor tribals, economically backward classes and the wood based industries. The forestry researchers having experience of interaction with the international researchers and exposure to the advance in research through course on forest genetics, Seed technology, evergreen forests, deciduous forests, arid zone forestry, research methodology and tree physiology are engaged in the relevant fields of their expertise utilizing their newly acquired skill for furthering the cause of forestry research.

The main achievements of the project have been :

1. Identification and location of 10,000 ha of seed production area. Main species identified are *Dalbergia sissoo, Tectona grandis, Acacia nilotica, Cedrus deodara, Gmelina arborea, Pinus* spp. *Azadirachta indica, Eucalyptus* spp. *Casuarina, Dipterocarpus macrocarpus,* Sandal, Bamboo, Fir, Spruce and Khair etc.
2. More than 50,000 candidate plus trees of *Dalbergia sissoo, Gmelina arborea, Tectona grandis, Shorea assamica, Phoebe goalparens* is *Bombax ceiba, Acacia* spp, *Azadirachta indica, Eucalyptus grandis, Eucalyptus tereticornis*, Sandal and *Albizia lebbek* have been identified.
3. 198 ha of clonal and seedling seed orchards of *Tectona grandis, Santalum album, Dalbergia sissoo, Acacia nilotica, Azadirachta indica, Casuarina equisetifolia, Gmelina arborea, Pinus roxburghii* and *Populus deltoides* have been developed by ICFRE Institutes.

4. Significant progress has been made in vegetative propagation of different types of Bamboos. FRI, Dehra Dun has developed the technique for propagation of 10 different types of Bamboos using seed/tiller method. TFRI, Jabalpur has propagated 3 types of Bamboos using single branch cutting or nodal cutting. IFGTB Coimbatore has propogated, 4 types by macro prolification, IWST Bangalore 4 types by nodal rhizome cutting method, IFP Ranchi, 3 types by using macro prolification and CSF&ER, Allahabad 3 types by macro prolification.

5. Identification of VAM fungi and rhizobia and their inoculation has been done by different institutes of ICFRE located at Bangalore, Jabalpur, Ranchi, Jodhpur, Jorhat, Allahabad & Dehra Dun.

6. More than 22.5 lakhs seedlings inoculated with VAM fungi and Rhizobia were raised and distributed during the project period.

7. 126 villages identified in representative areas of the country. Socio-economic conditions of the villagers their dependence on forestry have been studied in details through socio-economic studies. The agro-forestry plantations have been raised in these villages based on the preferences of the farmers. A video film "SONG OF PROSPERITY" on project activities has been prepared on Betacom format, which is being used for extension activities.

8. 48 ICFRE personnels have been trained in reputed International Institutes in the field of Forest Genetics, Seed Technology, Evergreen Forest, Deciduous Forests, Arid Zone Forestry, Research Methodology and Tree Physiology. 13 Senior Managers of ICFRE have under taken study tour to Australia, Newzealand, Sweden, Finland, USA and Brazil. 84 ICFRE Scientists were given training in India by International Consultants who visited different Institute.

9. 6315 forest personnels, NGOs, farmers, teachers, school and university students, children, landless and unemployed rural youth have been trained in identification and inoculation of VAM fungi and rhizobia. Introduction of Biofertilizer has been done in 57 nurseries by different ICFRE Institutes.

10. 17,522 farmers, 687 NGOs, 5700 foresters, 693 students, 486 teachers, 53 fishermen, 674 women and 204 rural unemployed youths have been trained in seed technology and plantation management.

11. 16 sophisticated scientific research equipments have been procured to enhance the research facilities of ICFRE Institutes:-

12. 16 International Consultants have visited ICFRE and its institutes on various subject of specialisation such as Seed Technology, Provenance Research, Biofertiliser, Clonal propagation, Tissue Culture, Tree Farm Economics, Follow up Action Plan etc. Consultants reports have been published and widely circulated amongst scientists of ICFRE, Forest Deptt. And user agencies.

13. Two international workshops were held under the project: Workshop on "Research Methodology" and Workshop on " Forestry Research in Conservation of Natural Forests".

14. Project provided National Consultancies on shifting cultivation and Research Review and Consolidation. The reports have been completed and reports circulated to all concerned.

15. 6 Publicity vans were procured under the project for extension activities of ICFRE.

16. Project has spent about US$ 65,000 on strengthening the Central Library of ICFRE as well as the libraries of the different Institutes of ICFRE.

Project 2: ICFRE-NABARD PROJECT FOR DEVELOPMENT OF AGROFORESTRY MODELS FOR VARIOUS AGRO-ECOLOGICAL REGIONS OF INDIA.

This research is being implemented by ICFRE since September, 1995 under the aegis of the National Bank for Agriculture and Rural Development (NABARD). The budget outlay for the project is Rs. 126 lakhs assistance from NABARD with a ICFRE contribution of Rs.44.10 lakhs. It is a 5 years project and is expected to be completed by September, 2000. The main aim and objective of the project is to identify and develop different agro-forestry models taking a microwatershed approach and ensure self sustainability of eco-system. The project is progressing well in following four institutes of ICFRE and four agro-ecological zones:

- **Hot semi-arid loamy soils:** Institute of Forest Genetics & Tree Breeding, Coimbatore.
- **Hot sub-humid red black soils:** Tropical Forest Research Institute, Jabalpur.
- **Hot sub-humid-alluvial soil:** Centre for Social Forestry & Eco-Rehabilitation, Allahabad.
- **Hot arid-desert and saline soil:** Arid Forest Research Institute, Jodhpur.

12 Micro-watersheds covering a total area of 6600 ha in 16 villages have been selected.

Achievements

High lights of the work carried out under the project are as under:

1. Surveys, both primary and secondary level have been completed.
2. Nurseries have been established at project sites. The area under nurseries is 2.83 ha with a fencing of 1000 mts. 110 Nursery Beds have been prepared.
3. Seeds have been collected from candidate plus trees. After processing and grading, good quality seed have been sown to get genetically improved planting material.
4. 2,73,896 seedlings of forestry species have been raised in the different nurseries. 38,994 fruit trees have been procured / raised in project nurseries.
5. Mechanical and biological interventions through construction of check dam. Engineering structures, contour trenches, vegetative hedges and kind of bunds have been used for conservation of soil and moisture.
6. Different agroforestry models and patternwise have been designed and laid.
7. Farmers have been demonstrated techniques of planting various species as well as soil and moisture conservation methods. 664 farmers, 3 NGOs and 28 forest officials were trained in agroforestry and useful extension material has been distributed.
8. Data on different growth parameters like height and girth from plantation raised in 1996 and 1997 are being recorded and will be analysed.

Monitoring of Project

Project Director NABARD Project is responsible for the monitoring at the Project ICFRE level. A project monitoring Committee monitors project progress and render advice at NABARD level.

Project 3: WORLD BANK ASSISTED FORESTRY RESEARCH, EDUCATION AND EXTENSION (FREE) PROJECT (1998-99)

Forestry Research, Education and Extension (FREEP) Project was launched on 30th September, 1994 with the assistance of the World Bank. Executing agencies are the Indian Council of Forestry Research & Education (ICFRE), the Ministry of Environment & Forests (MoEF), and the states of Himachal and Tamil Nadu. The total estimated cost of the project is Rs. 2151.48 million equivalent to US$ 56.48 million. IDA credit (Cr-2572 IN) is for US$ 47.0 million equivalent.

Research Management

Objectives: (a) To improve the management and coordination of forestry research at national, state and Institute level. (b) To strengthen procedures to ensure that research priorities are linked to national and state priorities. (c) To develop National Forestry Research Plan (NFRP) and to improve the extension research results. There are two sub components under Research Management.

(i) Development of ICFRE:

Development of Indian Forestry Research Information System (IFRIS) is progressing well. The technical review of all ongoing projects under FREEP was carried out both by national and international consultants for ICFRE and for IWST Bangalore, IFP Ranchi, AFRI Jodhpur and IRMDFR Jorhat during the year 1998-99. In all, 27 State/ UT's level workshops were held to discuss methodology for research priority setting. The core groups for research coordination were constituted in each state and are in constant liaison. Seven Institute and regional level workshops were organised during 1998-99 and Research Advisory Group (RAG) annual meetings were held in all the institutes in which current research programmes; research needs of SFDs, ICFRE; collaboration with SFDs, Universities; and research priorities of all the states were discussed. The follow up action on Draft National Forestry Research Plan (NFRP) has been initiated. Out of 36 civil works (Major and minor) envisaged under this project, 20 items of works completed till March 1999, eight are in advanced stage of completion and remaining eight are at different stages of completion. Six civil works under PSIP have been entrusted to concerned Directors and are making good progress. The International and National consultant's services on research writing, Agroforestry, Tree improvement Library management, Institute's review were utilized during the period under report. The consultants also worked on Grey Literature search, National Forestry Data Bank Management, HRD Plan and Media.

(ii) Forestry Extension:

During the year under report three Industrial Technical demonstration were arranged by FRI, Dehra Dun. The National demonstrations workshop on uses of advance technologies in forestry was held at Hyderabad in April, 1998. Five demonstrations in different subject fields were also arranged. The training program on nursery techniques, macro preparation and bio-fertilizer applications were conducted for Mahila Mandal, Youth club and farmers. Publication of 51 brochures; 39 handout pamphlets in English and regional languages was undertaken. Twenty seven state level workshops on research priority setting were arranged. A workshop on marketing of forest products in India was held at FRI, Dehra Dun on October 30th–31st,1998. The National Seminar on popularising theme trees was held at ICFRE HQ, Dehra Dun in September, 1998.

Thirteen films and TV spots on different subject fields are under different stages of production. Four new films were planned for scripting, shooting and production on "Rainwater harvesting", Afforestation of stress sites, Clonal multiplication and Himalayan Eco system. Twenty three projects sanctioned under Extension Support Fund are being monitored regularly by ICFRE and five national consultants.

Research Programme Support

Objectives: (a) To provide infrastructure, equipment and operating expenses for research programmes in ICFRE institutes. (b) To establishment of Research Grant Fund to commission research by public and private sector agencies. (c) Measures to improve the quality of planting stock to support forestry research system as a whole and scientific reviews to Institutes and on going research programmes.

Thirty one research programmes covering many forestry disciplines initiated during 1994 at ICFRE institutes continued during the year 1998-99 also. The Planting Stock Improvement Programme is one primary concern identified in the project. Till March, 1999,1290 ha. suitable areas of Seed Production Areas (SPA's) were surveyed, culling operation in 564.38 ha. area completed. 136.40 ha. Clonal Seed Orchards (CSO), 298.65 ha. Seedling Seed Orchard established. 36.07 ha. vegetative multiplication gardens (VMG) identified and in 21.86 ha. area VMG established. The project also provides for grant of funds (for undertaking specific research programmes) to State Forest Department, Universities and other private sector organisation. Till March 1999, 224 Research Project were sanctioned, amounting to Rs. 170.53 million. The work on National Forest Library and Information System at Dehra Dun, and a network involving libraries under ICFRE and related Institutes (Indian Forest Library Information Network (IFLIN) remained under progress. Process of installation of V-SAT in new library building has been initiated. One chief Consultant and 18 state consultants on Grey Literature Survey remained in position. The project also includes a provision to develop a "Forest Statistical Unit" within ICFRE to co-ordinate compilation and analysis of national forest statistics. "Forest Statistics India 1996" has been sent for printing. Bio-metrical support provided to 87 research projects under different Institutes of ICFRE. Report on developing National Forestry Data Base Management System received from M/s CMC Limited.

Forestry Education

Objectives: (a) To develop and validation of forestry curricula. (b) To develop of the Deemed University at FRI, and to finance post graduate research awards for socio-economic as well as technical research.

This involves development and validation of forestry curricula in formal education through provision of funds for review and revision of work and development of Deemed University, Dehra Dun. Two M.Sc. Courses (Forestry, and Wood Science & Technology), were started in addition to the two on going P.G. Diploma Courses (Plantation Technology, and pulp and paper Technology) In the above four courses 90 students were enrolled during the year 1998-99 and they have been paid grants during the period under report. Four co-ordinators for the courses continued to be in position during the year under report. To build up research manpower 17 SRFs, 120 JRFs, and 20 Research Associates remained in position. A total of 216 fellowships were allotted to various Institutes.

FREE Project Evaluation by Supervision Mission of World Bank during 1998-99

Review of progress of ongoing projects and various activities against Annual Action Plan 1998-99 under FREEP was carried out by World Bank Supervision Mission from 29th April 1998 to 14th May,1998 by visiting Institutes and field experiment sites. The Supervision Mission again visited ICFRE HQ, Dehra Dun and reviewed progress of all activities under FREEP from 28th October, 1998 to 6th November, 1998.

Project 4: ICFRE-IDRC RESEARCH PROJECT ON HIMALAYA ECO-REHABILITATION.

Objectives: (a) To identify assess and quantify the damages due to shifting cultivation, mining and other land use system using GIS techniques. (b) Identification and testing of appropriate intervention to contain shifting cultivation. (c) Rehabilitation of mine damaged areas with specific and replicable micro-interventions.

(d) Base line and socio-economic impact studies. (e) Strengthening of socio-economic and inter disciplinary research capabilities of ICFRE. (f) To review and recommend a national/regional land use policy with particular reference to rehabilitation of Himalaya.

Achievements

Geo-spatial database was created for socio-economic management of mine affected villages of Dehra Dun- Mussoorie area (Garhwal Himalaya) using GIS technology. Soil resource map pertaining to SOI Toposheet 53 J/3 was prepared. A trial of fast growing Agro-forestry tree species of *Popular eumaricana* was conducted in Bhitarli Mini Watershed. Rehabilitation of mine land in Himachal Pradesh is in progress. Identification and testing of appropriate intervention has been done in shifting cultivation area in North Eastern States.

Project 5: IDRC PROJECT ON STUDIES ON CULTIVATION AND OPTIMUM TIME OF HARVESTING OF TEMPERATE AND ALPINE MEDICINAL PLANTS OF HIGH MARKET VALUE.

The IDRC funded project started in november,95 envisaged survey of some vital plant resources viz. *Taxus baccata, Nardostachys jatamansi, Picrorrhiza kurroa* and *Colchicum luteum* of North-West Himalayas, their germplasm collection for *ex-situ* conservation, cultivation and provenance trials and development of suitable extension packages.

Objectives: (a) To conduct field surveys to assess the range and quantity of some highly demanding species. (b) To collect the germplasm and identify the best provenance's rich in active principles. (c) To study the behaviour (Phytosocial and ecological) *in-situ* and *ex-situ* of the species. (d) To develop suitable cultivation techniques for commercial plantations.

Achievements

Having done surveys for natural distribution of *Taxus baccata, Nardostachys jatamansi* and *Picrorrhiza kurroa* in UP germplasm was collected and established at Chakrata nursery. Stem cuttings of *T. baccata* have been successfully rooted and transplanted in field for studying their survival and growth behaviour. Provenance's trials on *N. jatamansi* and *P. kurroa* have resulted in selection of superior provenance from UP hills. Phyto-sociological studies have revealed interesting associates of the above species at different sites in the UP hills. Soil samples collected from different sites of germplasm collection have been analyzed.

Besides, germplasm of other rare and endangered medicinal and aromatic plants was maintained and multiplied at Chakrata nursery.

EXTENSION

Video films on:

Non-wood Forest Products, Medicinal Plants and Food from Forests have been produced.

Exhibition

An exhibition on medicinal Wealth of Uttarkhand region was organized at Dehradun during the Health Mela 1999.

A popular pamphlet" Uttarkhand ki Aushidhya Sampada" has been brought out for distribution to the people during the Health Mela 1999.

Project 6: CONSERVATION OF INDIGENOUS POPLARS IN INDIA (TO/94.02.T).

Objectives: (a) To carryout survey and establish status of indigenous poplars. (b) To develop a strategy for conservation of the target species. (c) To prepare project proposals for the target species.

Achievements

Extensive survey and occurrence of *P. ciliata* and *P. gamblei* in Arunachal Pradesh; and Uttarkashi, Gangotri, Harsil, Bhagirathi, Dharli, Almora, Pithoragarh and Nainital, U.P. hills was completed. The details were eritically evaluated.

Project 7: DEVELOPMENT OF NEEM IN VARIOUS AGRO-ECOLOGICAL REGIONS OF INDIA (FRI: PUNJAB, HARYANA, WESTERN UTTAR PRADESH; TFRI: MP AND ORISSA; AFRI: GUJARAT; IFGTB: TAMIL NADU, ANDHRA PRADESH AND KRANATAKA).

Objectives: (a) Seed resource assessment, collection and storage. (b) Phenological and chemical evaluation for characterization and improvement. (c) Tree improvement to get quality and reliable seed source. (d) Development of techniques for mass multiplication, particularly clonal propagation. (e) Model village plantation including agroforestry models. (f) Development of post harvest tools and technology, oil extraction and utilization. (g) Exploitation of neem oil and by-products for pesticidal medicinal and fertilizers, etc. (h) Database of information and resources. (i) Dissemination of information. (j) Training of various target groups. (k) Interaction with industry and other uses.

Progress made

The project was prepared, discussions were held and the presentation of the project was made before the Project Appraisal Committee on November 17th, 1998. National Oil Seeds and Vegetable Oils Development Board (NOVOD Board), Ministry of Agriculture, Govt. of India has accorded the approval in principal for the above project under National Network on Integrated Development of Neem on 31st March, 1999 with an outlay of Rs.181.77 lakhs.

Project 9: ICFRE FORD FOUNDATION PROJECT ON PRODUCTIVITY ENHANCEMENT – MANAGEMENT FOR PEOPLES' PARTICIPATION.

Objectives: (a) Socio-economic surveys for documentation of short term and long term needs and expectations of the people to evolve socially acceptable and economically viable technologies. (b) Develop site specific models of rehabilitations, for maximum production of goods and services (including wood and non-wood products). (c) Evaluation of various production alternatives and trade-off thereunder. (d) Study existing channels of flow for forest products to markets to identify bottlenecks and suggest means of improving their marketability. (e) Develop locally feasible processing technologies for value addition, storage and marketing of non-wood forest products.

Achievements

Madhya Pradesh Site: On the basis of vegetation survey and Socio-economic studies, the open patches in the forest area were identified with the help of the villagers of Kundwara and Reoria. The most preferred species of fodder grasses were short listed. Accordingly *Stylosanthes hamata* (an exotic sp.) and *Dinanath* i.e. *Pennesetium pedicillatum* (an idegenous sp.) were grown in the identified open patches. This would help prevent the cattle entry into forested areas as the favoured grass will be harvested for stall feeding to the cattle. In consultation with the M.P. Fish Development Corporation, the fish breeding material was introduced in the

existing pond at Reoria village in the month of November 1998. The marketing of the fish produce would be done by the Forest Protection Committee and income obtained thereby shall be credited to the committee's account, after deducting the labour cost of individuals. The Forest Protection Committees of these two villages have been appraised by the prevailing rate patterns to help them in disposal of the NTFPs. A workshop conducted to develop the skills of local villagers for sustainable collection of medicinal plant products, available in the forests. The productivity yield tables for *mahua* flowers and seeds and *char* have been prepared to help villagers assess harvestable quantify and market rates.

Orissa site: Vegetation data of adjoining forests of five villages Radiapali, Kunjapali, Gadgadbahal, Krishnanagar and Ghikundi were analysed. It was found that after protection by the village committees the number of species have increased in the protected forest area. This study will help in micro plan preparation. Planting of MPTs on farm bunds and homesteads, was carried out. The planting materials of many species like lemon, *Dalbergia sissoo, Dalbergia latifolia, Dendrocalamus strictus, Tectona grandis, Gmelina arborea, Albizia lebbek* and *Azadirachta indica,* etc. were distributed among villagers. After the survey of medicinal plants/marketing products and villagers interest in cultivation of medicinal plants, two medicinal planting material Ashwagandha and Senoy was distributed among villagers. Socio-Economic Survey Phase-II has been completed. Market survey (for off season) of all seven markets located around the site area was conducted and tabulation and analysis are in progress. Studies on Gender-conflicts were conducted in two selected villages.