

## CHAPTER-XIII

### FORESTRY EXTENSION

Forestry Extension in India is a new field. ICFRE has given due importance to the forestry extension and systematic work on modern lines has been started under the project financed by the World Bank since 1994-95. The extension activities of ICFRE basically aim at taking its research findings to the users. The extension activities also include development of methods and materials so that research findings are made known to the State Forest Departments and private sector agencies in simplified and effective manner. Other important activity is development of National Forest Library and Information Centre and its management.

ICFRE finances extension not only of the technologies developed by it but also technologies developed by State Forest Departments, Universities and NGOs which fall in the priority area of ICFRE. The idea is not to duplicate the research efforts and not to reinvent the wheel. A project worth Rs. 4.21 lakhs has been sanctioned to Y.S. Parmar University of Horticulture and Forestry, Solan, H.P., based on the superior clones of poplar selected and developed by them. Similarly, ICFRE has financed projects of the M.P. Forest Department involving cultivation of medicinal plants. A project has been sanctioned to the Arunachal Pradesh Forest Department for cultivation of *Cymbidium orchids* in Arunachal Pradesh for which technology has been developed by them aiming at weaning away the tribals from shifting cultivation.

#### IDENTIFYING AND PRIORITISING TECHNOLOGIES FOR EXTENSION

The following technologies have been identified, so far:

1. Sawing and Conservation technique of *Eucalyptus*.
2. Seasoning of timber with special reference to *Eucalyptus* : setting up of Solar Kilns.
3. Preservative treatment of secondary species, and *Eucalyptus* timber in particular.
4. Plasticsization of wood and bending techniques.
5. Colouring and Ammonia fumigation of wood.
6. Utilization of Poplars for doors and windows.
7. Dyes from forest waste. (Technology is for sale)
8. Poplars and *Paulownia* for pencil making.
9. Technology for utilization of juvenile wood of Poplars/*Eucalyptus* for furniture and joinery.
10. Macropropagation of bamboo seedling in nurseries.
11. Jigat substitute for Agarbatti. (Technology for sale)
12. Sap-displacement techniques for treating small girth timber and bamboos (An on-site treatment procedure especially useful in rural areas).

13. Utilization of alternative timber for Catamarans.
14. Cost effective structure for planting stock propagation.
15. Economic production of *Casuarina*.
16. Biofertilizer application for growth enhancement in nurseries.
17. Effective rainwater harvesting in arid regions.
18. Portable essential Oil distillation Unit (to benefit small grower of aromatic plants and essential oil distilleries).
19. Jingham (*Lannea coromandelica*) gum as a partial substitute for Jigat (bark of *Machilus macrantha*) as an adhesive in Agarbatti manufacture.
20. Biofertilizers - culture preparation and field application.
21. Agroforestry : Babul-paddy improved agroforestry model.
22. Improved tools for nursery practices.
23. Tissue culture of bamboos.
24. Cultivation and processing of selected medicinal plants of forest origin having demand and market value.
25. Vermiculture.
26. Seed collection, processing, storage, and pre-treatment for effective germination.
27. Integrated pest management practices in *Acacia nilotica* and *Albizia lebbek*.
28. Rehabilitation and eco-restoration of mined lands and overburden spoils, (coal, copper, iron, dolomite, pyrite, phosphate and lime).
29. Techniques of reclamation of sodic soils by soil treatment and afforestation.
30. Silvicultural and chemical control of bamboo blight diseases in *Bambusa nutans* grown by farmers along coastal belt of Orissa.
31. Disease resistant clones of Teak.
32. Wire-bound collapsible packing cases.
33. Saw dry rip for poplars.

It is not possible to take up extension of all the technologies at one time due to limited financial and manpower resources. The first seventeen technologies have been accorded priority over the rest and special efforts have been made during the year for their extension. However, depending upon the demand other technologies are also being extended.

#### EXTENSION METHODOLOGY

The extension methodologies presently adopted are : *through demonstration in the field; through extension materials like films, vedios, brochures, handouts, and exhibitions; through workshops, seminars and conferences; and by Personal contacts.* The choice of methodology depends upon the nature of technology and the client group.

**Demonstration in the field :-** Demonstration of the technology to the clients is one of the most effective extension methods. Demonstration projects are sanctioned by ICFRE under "Extension Support Fund" and "Industrial Technology Demonstration Fund" as provided under World Bank Project.

**Project under Extension Support Fund (ESF):-** FREE Project provides fund for extending tested technologies to various user agencies viz. SFDs, State Forest Corporations, NGOs and other user agencies. During the year 1996-97, proposals under ESF were invited on continuous basis as per World Bank Mission agreement. More than 60 proposals were received during the year, out of which 14 proposals were found suitable for funding by the Extension Grants Committee which met twice in the year. These proposals worth Rs. 13 million were approved and are under funding process.

To apprise the clients of the tested technologies developed by ICFRE, technologies of sawing, seasoning, preservation, ammonia bending, and colouring of wood were demonstrated by the scientists of FRI at various places viz. Itarasi and Raipur (M.P.), Hyderabad (AP), Nagpur (Maharashtra), Surat and Ahmedabad (Gujarat), and Hoshiarpur (Punjab). TFRI technologies were demonstrated in Kisan Mela and Swarojgar Mela (MP), and IWST technologies on treated catamarans were demonstrated at 5 fishing villages (AP).

**Project under Industrial Technology Demonstration:-** One project which was approved last year, i.e. Eucalyptus Match-split in collaboration with M/s Wimco costing Rs. One Lakh is in progress.

**Training, Seminars, Conferences, Personal Contacts:**

**Exhibition and book fair**

Directorate of Extension participated in National Book Fair and its institutes in Exhibition at Delhi and Patna.

**Organization of workshop**

One regional workshop on Extension strategy was organized at ICFRE to demonstrate ICFRE technologies to various user agencies.

Possibly, the most effective extension work is accomplished through personal contact. Officers of Extension Directorate and Scientists of various institutes of ICFRE visited State forest Departments of U.P., Punjab, M.P., Tamil Nadu, Karnataka, Kerala, and Orissa.

## **PRODUCTION OF EXTENSION MATERIAL**

(i) **Film production**

ICFRE has produced one film during the year namely-Rehabilitation of mine degraded areas.

Following films have been taken-up which are at different stages of preparation:

1. Agroforestry in India
2. Non-wood Forest Products
3. Utilization of Eucalyptus
4. Extension strategy of ICFRE

5. Bamboo in Central India
6. Treated catamarans for poor fishermen.
7. Neem : The Green Gold

(ii) **Video preparation**

One video film was made on Catamarans.

(iii) **Extension literature**

(a) **Brochure, book and other publication**

The following brochures, books and other publications have been brought out during the years :

(1) **ICFRE Annual Report:** English and Hindi versions.

(2) **Brochures :**

- (i) Poplars (A boon for farmers): (English)
- (ii) —do— (Hindi)
- (iii) Mahuwa (Hindi)
- (iv) Neem (Oriya)
- (v) Neem (Marathi)
- (vi) Babul (Hindi)
- (vii) Bamboo (Marathi)
- (viii) Rubber Wood (English)

(3) **Folders**

- (i) National Forest Library and Information Centre
- (ii) Make pencils with hand tools.
- (iii) Sawing and seasoning technique of *Eucalyptus* hybrid
- (iv) Solar heated timber seasoning kiln
- (v) Furniture joinery and handicrafts from *Eucalyptus*
- (vi) Jigat substitute
- (vii) Laminated wood for door/window shutters from poplar
- (viii) Wood plasticization and bending through vapour phase Ammonia treatment
- (ix) New technology for mass propagation of bamboo through macro-proliferation.
- (x) Eco-friendly preservatives of the future
- (xi) Bamboo seed storage technology
- (xii) Using natural dyes to check pollution

- (xiii) Non-wood forest products
  - (xiv) ACA treatment of *Eucalyptus*—door/window sections
  - (xv) Seasoning of wood through solar energy (Hindi)
  - (xvi) Xylarium
  - (xvii) Timber identification and its importance
  - (xviii) Wire bound boxes
  - (xix) Fast fluctuating process for treatment of green wood
  - (xx) UNDP - ICFRE Project Folder
  - (xxi) Catamarans
  - (xxii) Management of seed production area.
  - (xxiii) Afforestation of important street sites.
  - (xxiv) Vegetative propagation of trees.
  - (xxv) Forest disease.
  - (xxvi) Plant tissue culture.
- (4) **Books**
- (i) Wood anatomy of Indian softwoods with notes on properties and uses.
  - (ii) Annotated bibliography on Chir pine
  - (iii) Forest Vegetation and Soil
  - (iv) Soil and Vegetation Studies in Forests
  - (v) Edible Plants of Forest Origin
  - (vi) Some Improvised Forest Nursery Equipments
  - (vii) Afforestation of Important Stress Sites
  - (viii) Biological Reclamation of Mined out Lands
- (5) **Other publications**
- (i) Market prices of forest products Vol. 1, No. 6, March, 96
  - (ii) Market prices of forest products Vol. 1, No. 5, Feb, 96
  - (iii) Timber/bamboo trade bulletin No. 4, Sep., 95
  - (iv) AFRI Newsletter
  - (v) Market prices of forest products Vol. 1, No.4, January, 96
  - (vi) to (xi) UNDP Project Report on Consultancy Mission- 6 reports
  - (xii) Timber/Bamboo Trade Bulletin No.5, Dec.95
  - (xiii) Timber/Bamboo Trade Bulletin No.6, March, 96

- (xiv) Timber/Bamboo Trade Bulletin No.7, June, 96
- (xv) Timber/Bamboo Trade Bulletin No.8, Sept. 96
- (xvi) Timber/Bamboo Trade Bulletin No. 9, Dec. 96
- (b) **Extension material**

Pamphlets/posters, form one of the strongest media of extension activities. More than 20 pamphlets on various subjects have been prepared, printed and distributed among the users.

### **STRATEGY TO ACHIEVE CERTAIN NATIONAL GOALS**

The Directorate of Extension has selected and prioritized technologies to achieve some of the most important national goals, namely, reducing pressure on existing natural forests; promoting cultivation of bamboos that are needed most by poor people and paper industry; and promoting substitute for forest products that are in short supply.

Technologies listed in para 2 at serial No. 1 to 6, 9, 13, 22, 32 and 33 promote better use of plantation grown juvenile timber like *Eucalyptus* and poplar, which in turn results into higher returns to the growers and in turn promotes agroforestry. Prolonging life of juvenile wood through use of wood preservatives is expected to reduce demand for wood and combined with higher production of wood under agroforestry, this would reduce the pressure on natural forests. Eight projects have been sanctioned under ESF in the State of U.P., Bihar, Maharashtra, Punjab, and Tripura to State Forest Departments and NGOs costing Rs. 82.59 lakhs. The projects will encourage entrepreneurship for starting small scale industries and promote use of plantation grown juvenile timbers..

**Promoting cultivation of bamboo:-** For promoting cultivation of bamboo, it is essential to have planting stock of superior origin. The ICFRE 's techniques of macro-propagation of bamboo is expected to go a long way in this endeavour. Five projects have been sanctioned in the States of Punjab, U.P. Araunachal Pradesh, Madhya Pradesh and Orissa costing Rs. 14.84 lakhs. Efforts are on to extend these technologies to other States.

**Technology for extracting dyes and substitute of Jigat:-** ICFRE have developed technology for extracting dyes from Agroforestry wastes. Jigat substitute for *Agarbatti* has also been developed. These technologies are available for sale. The technologies have been purchased for Rs. 4.5 lakhs by 5 parties.

### **Impact of Extension Activities**

- (1) District Horticulture Officer, Dehra Dun, informed that 21 lakh reusable packing cases would be required in his district and sought help in production of the same.
- (2) During the financial year FRI sold following technologies :
  - (i) Dye technology for Rs. 1.00 lakh to M/s Anna A. Delhi.
  - (ii) Jigat substitute for Rs.2.50 lakhs to M/s Sruthi Agarbatti Co., Bangalroe and M/s N. Rang Sons, Mysore.
  - (iii) Modification of gumghatte for Rs.0.5 lakh to M/s Sterling Exports - Delhi.
  - (iv) Preparation of sterling gum for icecream making for Rs. 0.5 lakh to M/s Sterling Exports, Delhi.

Technology No. 29, i.e. Rehabilitation and eco-restoration of mined lands and overburden spoils, has already been taken to the field. The Steel Authority of India Ltd. (SAIL) has gone in a big way in adopting this technology and their officers and technicians have been trained by Forest Research Institute, Dehra Dun, and Tropical Forest Research Institute, Jabalpur. in this field.

### **NATIONAL FOREST LIBRARY AND INFORMATION CENTRE**

Fast technological developments in recent years, particularly in the field of information technology and telecommunication, have fundamentally changed the way we store, disseminate and use information. This has changed the role of libraries from being a storehouse of information to dynamic information centres. National Forest Library and Information Centre under ICFRE is undergoing a transformation to fulfil this new role.

In the past, NFLIC has been working as a conventional library. Lending of documents has been its main activity. Now the emphasis is on activities such as effective collection development, creation of machine readable catalogue to offer Online Public Access Catalogue (OPAC), barcoding of documents, improving retrospective search services from large databases, resource sharing with ICFRE institutes, improving communication facilities, providing internet access, human resource development, etc.

#### **Collection development**

The collection of NFLIC is growing fast. During 1996-97, 1954 new books, costing Rs.30.88 lakhs, were added to NFLIC collection. The NFLIC subscribes to around 225 journals (Foreign and Indian). Total subscription cost of foreign journals comes to Rs. 31.14 lakhs and of Indian journals to Rs.61,461/-

#### **Communication network (LAN & WAN)**

Networking in research sector has enhanced the professional capability of the scientists. Following services to scientists/foresters of ICFRE and its institutes are currently available :

1. Access to CD-ROM databases
2. Access to Library catalogue collection
3. Access to Gray Literature
4. E-mail facility
5. Access to Internet for accessing global data and information.
6. Linkages with state forest departments, other research institutes (SFRI's etc.) and Indira Gandhi National Forest Academy, at ICAR Centre at Dehra Dun.

#### **Bibliographic databases on CD-ROM**

CD-ROM technology has revolutionised the way the information is now accessed all over the world. The NFLIC has adopted this technology to make available to its users the large bibliographical databases. Towards this end, NFLIC has acquired the following CD-ROM databases during 1996-97.

### CD-ROM databases acquired: 1996-97

Sl. No.	Title	Coverage	Cost
1.	Biological Abstracts	: 1985-present	Rs. 7,96,860
2.	Chemical Abstracts	: 1996	Rs. 7,86,780
3.	Science Citation Index	: 1991-1995	Rs. 21,55,140
4.	Agris	: 1993-1996	Rs. 22,748
5.	Eco-Disc	: 1990-1996	Rs. 74,970
6.	TREE-CD	: 1939-present	US\$ 9060
7.	CAB Abstracts	: 1982-1995	US\$ 11970

Plans are afoot to add full text databases to the NFLIC collection in the near future.

#### CD-ROM usage by ICFRE and its institutes

The CD-ROM databases acquired have been made available to the NFLIC users, and the ICFRE institutes. The databases are available as remote login facility outside Dehra Dun with the help of V-SATs available at six ICFRE institutes. The facility availed by these institutes is presented in the table below :

	Name of the Institutes	Total time	Total login
1.	IWST, Bangalore	1672 min	116
2.	TFRI, Jabalpur	1627 min	89
3.	AFRI, Jodhpur	3290 min	232
4.	HFRI, Shimla	978 min	42
5.	IFGTB, Coimbatore	699 min	47
6.	ICFRE/FRI, Dehra Dun	22924 min	1260

#### Documentation

About 200 documents were classified, and 1000 cards and 100 reference sheets were prepared. Besides, 850 cards and 800 reference sheets were filed. Twenty new subject and species files have been opened and about 100 books were abstracted.

Technical queries from various agencies like University of Baroda, Indian School of Mines, Dhanbad, National Defense College and Directorate General of Border Roads were attended to.

#### Grey literature

A large number of documents on forestry and allied subjects are published in an informal way. Under the aegis of the World Bank Project, it is being planned to acquire, organize and coordinate all available non conventional literature also called grey literature from different parts of the country. The collected material will be classified, catalogued, abstracted, referenced and indexed and stored in the computer in the form of databases. Mr. G.P. Maithani Retd. IFS has been appointed as Chief Consultant and steps are being taken to appoint the consultants in the states.

In a bid to identify the existing grey literature in the Documentation section, a list of 38 Newsletters and bulletins, 27 research and administrative reports from different organisations and state forest departments were uncovered from the ledger files. It was also assessed that there are around 1.5 lakh and 1.1 lakh grey literature documents in the Howard System and

Oxford System of classification respectively in NFLIC. References from ledger files for 30 plant species have been searched on TREE-CD to uncover material on grey literature.

It has also been decided to install an integrated "Imaging and Documentation Management system" which will have additional facility for storing a grey literature document in an image form and automatic selection of keywords. In future, the image database will be made accessible on the Internet to remote users globally. Technical specification for the equipments including hardware and software configuration have been drawn up.

#### Automation of cataloguing

The catalogue conversion has been completed. All the catalogue cards have been converted into machine readable form using library management software (Libsys). This has eased the work of searching for books. On line Public Access Catalogue (OPAC) has been prepared and made available to the NFLIC users, using Libsys.

#### New library services

The NFLIC has now started Current Awareness Service (CAS), and Selective Dissemination of Information (SDI) to the scientists and foresters at ICFRE as well as those working in ICFRE institutes. The user profiles have been prepared for the purpose of making available current contents of the journals received at NFLIC to them. As soon as the journal issues are received, its contents are copied and supplied to the interested users. The bibliographic services are provided on demand. The Inter Library Loan (ILL) Service has been planned. Discussions about ILL service has been initiated to avail and share facilities of local libraries for mutual interest.

#### IFLIN Newsletter

IFLIN newsletter has been planned for improving communication among ICFRE institutes and others sharing interest in forestry and allied sciences. The first issue of IFLIN Newsletter, published in March 1997, has been appreciated by the scientists and foresters all over the country.

#### Training of staff

Short term training programme was conducted on the use of CD-ROM Databases. 22 participants from various institutes of ICFRE were trained in accessing the bibliographic databases on CD-ROM. The intricacies of CD-ROM search, demonstration of the techniques for downloading references from CDs, and hands on practice session were conducted during the training.

Sl. No.	No. of Trainees	Name of Institute	Duration
1	2	3	4
1.	1	IWST, Bangalore	18-20 June, 1996
2.	2	AFRI, Jodhpur	- do -
3.	2	CSFER, Allahabad	- do -
4.	2	HFRI, Shimla	- do -
5.	2	TFRI, Jabalpur	- do -
6.	1	IFGTB, Coimbatore	- do -

*Contd.*

1	2	3	4
7.	2	FRI, Dehra Dun	- do -
8.	3	AFRI, Jodhpur	11-12 July, 1996
9.	1	IFP, Ranchi	- do -
10.	3	TFRI, Jabalpur	- do -
11.	1	HFRI, Shimla	- do -
12.	1	IWST, Bangalore	- do -
13.	1	IFP, Ranchi	- do -

### TRAININGS

International trainings under the FREE Project of World Bank were planned to keep abreast of latest trends in information technologies relevant to Library and Information Science. In addition, similar training was planned for the library staff of ICFRE institutes and NFLIC at national level.

#### a) International

S.No.	Name of Officer	Name of Instt.	Name of Training
1.	Shri Amrish K. Sharma Scientist SD	ICFRE, Dehra Dun (NFLIC)	Library and Information (Computer)

#### b) National

S.No.	Name of Official & Designation	Name of Instt.	Name of training
1.	Smt. Kusuma Goswami Asstt. LibI	IRMDFR, Jorhat	Computer application and Information on Library & Information activities at INSDOC, N. Delhi
2.	Sh. Dharendra K. Tewari Scientist	CSFER, Allahabad	- do -
3.	Sh. S.N.Mishra LDC	IFP, Ranchi	- do -
4.	Sh. Amarjeet Singh T.A.I	ICFRE, Dehra Dun	- do -
5.	Shri A.K. Vaidya Asstt. Lib.II	FRHRDC, Chhindwara	- do -
6.	Shri Prakash Chand R.A.II	HFRI, Shimla	- do -

#### Sale of FRI/ICFRE publications

ICFRE publications worth Rs.1,96,894/- were sold during the year by the sale counter of publications in NFLIC.