CHAPTER-XI

INSTITUTE OF FOREST PRODUCTIVITY RANCHI

The Institute of Forest Productivity (IFP), Ranchi was established in 1992 to caters to the Forestry Research needs of the three States of Eastern India viz. Bihar, West Bengal and Sikkim.

The mandate is to undertake forestry research in addition to the activities on Lac development.

The Institute and its two centers, Forest Soil Vegetation Survey station at Midnapore and the Environmental Research Station, Sukna, Darjeeling engaged in Extension and support for Lac farming.

PROJECTS COMPLETED DURING 1999-2000

Sl. No.: 1

Project Identification No. : IND/WB/FREEP/01/94/001/2K/IFP

Name of the principal investigator: Dr. D.K. Ghosh

Title of the project: Planting Stock Improvement Programme (PSIP) component of the World Bank aided Forestry Research Education & Extension Project (FREEP).

Year of start of the project : 1994

Cost of the project : Rs. 115.90 lakhs

Objectives: To introduce/initiate scientific measures for improving the quality of planting materials used in afforestation.

Scientific importance of investigations: Productivity and quality of plantations will go up.

Results/Achievements:

Seed stands : Seed stands over an aggregate area of 100 ha. with genotypically and phenotypically superior trees of 13 selected MPT species have been identified in West Bengal and Bihar by the Research Circle of the concerned SFDs and the same are being developed and maintained as seed production areas for quality seeds.

Species for West Bengal are : *M. champaca, D.sissoo, Duabanga sonneratiodes, Pinus patula, Alnus nepalensis, Betula alnoides, G. arborea* and *A. cadamba.*

Species for Bihar are : *Acacia catechu, Cassia seamea, Tectona grandis, Schleichera oleosa* and *Dalbergia sissoo.*

Clonal Seed Orchards (CSO) : 5 ha. of CSO of Eucalyptus has been raised at Netaipur under the FSVS, Midnapore.

Vegetative Multiplication Garden (VMG) : 10 ha. Of VMG have been created. (Bamboo – 6 ha. and *Paulownia fortunei*-4 ha).

Seedling Seed Orchards (SSO) : Over aggregate area of 60 ha. have been created with four species : *Eucalyptus* species, *D. sissoo, G. arborea* and *Acacia* species.

Modern Nursery : A modern nursery with the facilities of composting, seed processing, mist chambers, green houses and tissue culture has been established.

OLD PROJECTS CONTINUED DURING 1999-2000

Sl. No : 1

Project identification No. : IND/PL/94/001/010/2K/IFP

Name of the principal investigator: Dr. S. Nath

Title of the project: Re-clamation strategy for degraded lateritic soil and optimization of productivity.

Year of start of the project : 1994

Target year of completion: 2010

Cost of the project : Rs. 55.87 lakhs

Objectives: (a) To demarcate and delineate of degraded forest soils. (b) To identify the extent of degradation and responses of reclaiming agents and fertilizers on soil attributes and forest productivity.

Scientific importance of investigations: Degraded areas will be rehabilitated.

Results/Achievements: Different bulky organic materials, agriculture and industrial waste were applied to study their impact on amelioration of degraded soil in pot and field trials, at FSVS, Midnapore.

Sl. No. : 2

Project identification No. : IND/PL/94/002/010/2K/IFP

Name of the principal investigator: Dr. S. Nath

Title of the project: Development of bio-fertilizer in relation to productivity of important species.

Year of start of the project : 1994

Target year of completion: 2010

Cost of the project : Rs. 35.00 lakhs

Objectives: (a) To study distribution of native VAM fungi and *Rhizobial bacteria*. (b) To assess their effectiveness and role in improving soil productivity and tree growth.

Scientific importance of investigations: This will help in improving soil productivity.

Results/Achievements: Survey was conducted and few strains of VAM fungi and *Rhizobial bacteria* were isolated and inoculated to study their effectiveness at FSVS, Midnapore.

Sl. No : 3

Project identification No. : IND/PL/93/003/010/2K/IFP

Name of the principal investigator: Dr. D.K. Gosh and Dr. S. Nath.

Title of the project: Provenance trial of Eucalyptus, Neem, Sissoo and Gamhar species.

Year of start of the project : 1993

Target year of completion: 2010

Cost of the project : Rs.36.00 lakhs

Objectives: (a) To study the adaptability of exotic Eucalyptus in Indian condition without fertilizer application under different climatic and edaphic condition. (b) To select most suitable provenance in terms of growth and biomass production for large scale plantation. (c) To study the fertilizer response of the provenance. (d) To study the different spacing on the growth performances. (e) To study the nutrient cycling under different provenance, and (f) To study the allelopathic influences of Eucalyptus provenance.

Scientific importance of investigations: Best suitable species of *Eucalyptus* will be selected for raising plantations.

Results/Achievements: Provenance Kennady River, 20 km. N. Mt. Molly and Mitchell River of *Eucalyptus tereticornis* and Gilbert River Emu Creek Nt. Petford and Gerguson River of *E. camaldulensis* are strongly recommended for large scale plantation under lateritic soil condition of tropical and sub- tropical India.

Sl. No : 4

Project identification No. : IND/PL/82/004/010/2K/IFP

Name of the principal investigator: Dr. D.K. Ghosh and Nirmal Ram

Title of the project : Eco-restoration.

Year of start of the project : 1992

Target year of completion: 2010

Cost of the project : Rs. 200.72 lakhs

Objectives: Eco-restoration of degraded sites in the Darjeeling Himalayas.

Scientific importance of investigations: Measures to rehabilitate degraded areas will be evolved.

Results/Achievements: Action were initiated in respect of following activities at the Environmental Research Station, Sukna (Dist-Darjeeling) of this Institute.

Hydro-meteoro-ecological studies in Balason catchment of Darjeeling district.

Infiltration studies under different vegetational cover.

Sl. No : 5

Project identification No. : IND/92/038/A/01/99

Name of the principal investigator: G.K. Prasad and Dr. D.K.Ghosh

Title of the project: Socio-economic aspects and other activities.

Year of start of the project : 1993

Target year of completion: 1998/99

Cost of the project : Rs. 5.26 lakhs

Objectives: Economics of plantations, market studies and plantation techniques.

Scientific importance of investigations: Appropriate agroforestry models will be developed.

Results/Achievements: Observation on growth parameters of MPT species in demonstration plantations under UNDP were made periodically to assess economic aspects of plantations. Studies were carried out for laying out experiments for development of suitable agro-forestry models in South Bihar .

Propagation technology of *Bambusa vulgaris, B. balcooa, B. tulda* and *B. arundinacea* were developed at FSVS, Midnapore. Nursery and planting trails for *Paulownia fortunei* for Chotanagpur region are under way.

Sl. No : 6

Project identification No : IND/WB/FREEP/08/02/98/010/2K/IFP

Name of the principal investigator: Dr. D.K. Ghosh

Title of the project: Lac development: Collection, compilation, publication and dissemination of data on lac production and improved methods of lac cultivation.

Year of start of the project : 1998

Target year of completion: 2010

Cost of the project : Rs.220.76 lakhs

Objectives: To collect, compile and publish data on lac production and demonstration of improved methods of lac cultivation.

Scientific importance of investigations: Improved methods of lac cultivation will be available.

Results/Achievements: Market survey were conducted for collection of yield data, market price and factory production. Periodical data were also collected from haats, arhatias, dispatch centers, exporters and other organization of lac. The data were analyzed for publication of Monthly Lac News Letter and Annual Lac Bulletin. Besides, liaison was maintained with the Bihar State Co-operative Lac Marketing Federation (BISCOLAMF) Ltd. Ranchi, Indian Lac Research Institute (ILRI), Namkum, TRIFED, Shellac Export Promotion Council (SEPC), Calcutta and SFD, Bihar in connection with production of Lac, its export and research on Lac.

The Institute is maintaining five Nucleus-broodlac farms in Bihar, Orissa and West Bengal for training, extension and research activities. Among the 5 farms 3 are located at Bihar, one at Orissa and one at West Bengal.

Training on scientific and improved methods of Lac cultivation was imparted to extension workers and lac growers. Trials on *Zyziphus* sp. and *Moghania macrophylla*, to introduce these new lac hosts for lac cultivation are in progress.

NEW PROJECTS TAKEN IN HAND DURING 1999-2000

Sl. No.: 1

Project identification No.: IND/PL/99/005/010/2K/IFP

Name of the principal investigator: Dr. S. Nath

Title of the project: Nutrient assessment for forest tree species in relation to availability indices, critical levels and optimization of doses of nutrient elements under lateritic soil condition.

Year of start of the project: 1999

Target year of completion: 2010

Cost of the project: Rs.75.00 lakhs

Objectives: (a) To study the response of N,P,K and some micro-nutrients on forest species. (b) To evaluate the uptake pattern and development of packages for optimum doses of fertilizer nutrients.

Scientific importance of investigations: Package for enhancement of productivity will be available.

Results/Achievements: Effects of N,P,K,B,Zn and Mo with different doses on growth and nutrient uptake have been studied on *Eucalyptus* hybrid, *Acacia auriculiformis* and *A. mangium* as test plants in pots. Growth data were recorded and laboratory analysis are in progress at FSVS, Midnapore.

Sl. No. : 2

Project identification No : IND/PL/93/006/010/2K/IFP

Name of the principal investigator: Dr. S. Nath

Title of the project: Studies on Bamboo cultivation in southern Bihar and West Bengal with special reference to its vegetative propagation, nutrient cycling and performance.

Year of start of the project : 1993

Target year of completion: 2010

Cost of the project : Rs.30.68 lakhs

Objectives: (a) To study the distribution and growth pattern of various species, and market trends of different Bamboo species in South Bihar and West Bengal. (b) To develop the vegetative propagation techniques. (c) To study nutrient uptake and fertilizer response in bamboo plantation.

Scientific importance of investigations: Large scale propagation of economically important species will be achieved.

Results/Achievements: Survey for collection of data and information and trials of vegetative propagation of Bamboo have been conducted at F.S.V.S., Midnapore, W. Bengal.

EXTENSION

Transfer of Technology :

- Short duration training cum demonstration was organized in Nucleus-broodlac Farms on improved and scientific methods of lac cultivations as well as seasonal operation of lac crop viz. pruning, harvesting, inoculation & phunki removal for lac growers and villager. Trainings were imparted to farmers, villagers, NGOs, forestry students and SFD personnels on plantation and nursery techniques and on application of bio-fertilizers.
- Techniques on propagation of bamboo and use of biofertilizers and VAM was demonstrated to the villagers.
- Display of activities of the institute was done at the traditional Sonepur fair, district – Vaishali, Bihar.
- Training-cum-demonstration workshops were organized on improved nursery and plantation techniques at F.S.V.S., Midnapore and N.B. farm, Chandwa, Palamau.

Publication and extension literature :

Monthly Lac News Letter and Annual Lac Bulletins were published.

FINANCIAL STATEMENT DURING 1999-2000

I. PLAN			
Sl. No.	SUB - HEAD		Expenditure (Rs. in lakh)
1.	A.	**REVENUE EXPENDITURE**	
		a. Research	18.00
		b. Administrative Support	07.00
		c. Others specify	
		Total for Revenue Expenditure 'A'	**25.00**
	B.	**LOAN AND ADVANCE**	
		a. Loan Advances (Conveyance)	0.94
		b. House Building Advance	2.00
		Total for 'B'	**2.94**
	C.	**CAPITAL EXPENDITURE**	
		a. Building & Roads	4.00
		b. Equipments, Library Books	--
		c. Vehicles	--
		d. Other specify	
		Total for 'C'	**4.00**
		GRAND TOTAL FOR A + B + C (PLAN)	**31.94**
		II. NON-PLAN	
1.	A.	**REVENUE EXPENDITURE**	
		a. Research	72.73
		b. Administrative Support (Salary)	--
		Total Non-Plan	**72.73**
		TOTAL FOR PLAN + NON-PLAN	**104.67**
		III. FUNDED PROJECT	
	A.	World Bank Project	131.73
	B.	UNDP Project	1.00
	C.	NABARD Project	--
	D.	FORTIP	--
	E.	Other specify	-
		GRAND TOTAL FOR (A + B + C + D + E) FUNDED PROJECT	**132.73**