

Institute of Forest Productivity Ranchi

The Institute of Forest Productivity (IFP), Ranchi was established in 1992 to cater to the forestry research needs of the States of Eastern India. The mandate is to undertake forestry research in addition to the activities of Lac development. The Institute has two centers, namely Forest Soil Vegetation Survey Station at Midanapore and the Environmental Research Station, Sukna, Darjeeling. The Institute has taken up a number of research and training programmes for the benefit of different stakeholders and user agencies, NGOs, research organizations, the States of Bihar, Jharkhand, Sikkim, West Bengal and the public at large.

PROJECTS COMPLETED DURING THE YEAR 2006-2007

Project 1: Trials on composting for specific afforestation needs and development of cost-effective packages in relevance to Chotanagpur plateau area and south West Bengal [IFP-003/SLR/2002-2007]

Findings: A low-cost, simple and quick technique has been developed for compost production. Compost has been prepared from shrubs and vegetable mixture within 60 days by remixing the material during decomposition with water along with 10 % soil dust and urea 0.5 % for faster decomposition. Addition of urea with the material mix enhanced decomposition rate and reduced the time from 90 days to 60 days.



Compost production

Project 2: Standardisation of suitable potting media and root trainer size for improved planting stock production of some mandate species of Jharkhand and southern West Bengal [IFP-002/SLR/2002-2007]

Findings: Root and shoot biomass of the seedlings of four species *Acacia mangium*, *D. sissoo*, *G. arborea* and *Eucalyptus camaldulensis* raised in 90 cc root trainers under potting media trial was estimated and recorded. Seedlings raised of all the 4 species in 90 cc hykopot were planted in the field.

Project 3: Development of agro-techniques for *Gymnema sylvestre* and *Embelia ribes* having high marketing potential [IFP-023/ERM/2004-2007]

Findings: *Gymnema sylvestre* seeds and *Embelia ribes* seeds have been obtained from Silviculture South Division of West Bengal.

Project 4: Exploration of lac cultivation on non-traditional host *Flemingia* sp. and its possibility in sustainable plantation forestry [IFP-007/BGT/2002-2007]

Findings: Jethwi - 06 lac crop harvested under control as well as experimental condition on host plants, *Flemingia macrophylla* and *Flemingia semialata*.



Exploration of lac cultivation on
Flemingia spp.

PROJECTS CONTINUED DURING THE YEAR 2006-2007

Project 1: Studies on variability of bamboo species, their performance, conservation and economics with reference to Bihar, Jharkhand and West Bengal [IFP-016/SLR/2002-2008]

Status: Field survey was conducted in forest and non-forest areas of Jharkhand and north and south West Bengal. During survey in north West Bengal, 35 bamboo species were recorded.

The clump and culm parameters of the bamboos show that many species attain height of more than 30 m. The thickest of all bamboos is the so far unidentified Dhori bans, found in Jalpaiguri, attaining girth of about 54.10 cm.

Soil samples collected from south West Bengal during field survey have been analysed and the growth parameters of bamboos have been correlated with soil attributes.

Nursery trials on development of bamboo propagation techniques: To standardise vegetative propagation technique of bamboo, trials were Conducted at Mandar field centre of the institute with different types of cuttings (double node, single node and single bifurcated node) and three types of growth promoting substances (GPS IAA, IBA & NAA) at different concentrations (100, 200, 500 and 1000 ppm). Sprouting and rooting in untreated culm cuttings of *B. tulda* was recorded, however, the number of propagules obtained were more with application of GPS.



Standardisation of vegetative propagation technique of bamboo

Ex-situ conservation of superior bamboo planting materials: Rhizomes of the *B. balcooa* - Guri vulki/vulki *B. balcooa* - Hedua vulki/Dhamna vulki, *B. nutans* - Baria bans, *B. tulda* taral,

Chapati/Champati bans, *D. gigantea* - Bombay bans, Kanta champati, Kanta baria, Kaldhemni and Sonakani were collected from south West Bengal and the material were planted at Mandar Research Station, IFP Ranchi during July 2006.

Project 2: Development of appropriate silvicultural systems for selected medicinal flora of Chhotanagpur and Santhal Parganas [IFP-022/FRM/2003-2008]

Status: *Gloriosa superba* plants in polypots under polyshade were grown successfully.

Project 3: Creation of germ plasm resource bank of threatened medicinal plants of Darjeeling Himalayas [IFP-018/EBC/2003-2008]

Status: Over 9000 seedlings of medicinal plants consisting of 4000 Sarpagandha (*Rauvolfia serpentina*), 2000 Bojo (*Acorus calamus*), 1000 Dhotisara, (*Curruculigo orchiooides*) and 2000 Dioscorea (*Dioscorea deltoidea*) have been raised for distribution among the farmers.



Rhizomes being planted at Mandar research Station, IFP

NEW PROJECTS INITIATED DURING THE YEAR 2006-2007

Project 1: Standardisation of macropropagation techniques of *Schleichera oleosa* and their clonal fidelity studies

Status: Experiment on stem cuttings was initiated.

PROJECTS COMPLETED DURING THE YEAR 2006-2007 (Externally Aided)

Project 1: Creation of Medicinal Plants Gardens in different agro-climatic zones in eastern Himalayas for demonstration and distribution of planting materials to the farmers (Funding Agency: NMPB, GOI) [IFP-027/NMPB/2004-2007]

Findings: A book on 40 species of medicinal plants has been prepared.



Medicinal Plants Gardens in different agro-climate zones in eastern Himalayas



PROJECTS CONTINUED DURING THE YEAR 2006-2007 (Externally Aided)

Project 1: Identification, collection and genetic evaluation of important oil yielding trees of Jharkhand (Funding Agency: NABARD) [IFP-028/NABARD/2005-2008]

Status: Plants are established in the field and performance on various growth parameters is satisfactory.

PROJECTS INITIATED DURING THE YEAR 2006-2007 (Externally Aided)

Project 1: Documentation and inventorisation of indigenous traditional medicinal knowledge in selected districts of Jharkhand (Funding Agency: NMPB)

Status: Survey was conducted in the remotest area of Tholkobad and Tirilposi in Saranda Forests. Through discussions held with the Ho tribes living in forest villages valuable information was obtained on their traditional medicinal practices.



Traditional herbal medicine at Jharkhand

Project 2: Investigation on impact of climatic change on threatened and endangered orchids in Buxa Tiger Reserve, West Bengal, India (Funding Agency : EWI)

Status: A new approach to investigate the dynamics of distribution and colonization of Orchids is followed in this study. Here the environment is considered as constant variable while habitat gradient and vegetation distribution are considered as dependable variables. Based on these variable gradients, the orchids are evaluated as constants in three blocks and in 15 sample plots at Buxa Tiger Reserve. The colonization sequence, colonization preference, and intensity of colonization in respect of each individual orchids at the generic level, are evaluated in addition to density, frequency, and dominance studies. A new variety is found which has the potential to be named as new species.



A new concept of dynamic orchid ecology is being developed taking colonisation preference and intensity as varying variables.

Investigation being made on impact of climate change on threatened and endangered orchids in Buxa Tiger Reserve



Abstract: No. of Projects

	No. of projects Completed in 2006-2007	No. of ongoing projects in 2006-2007	No. of projects initiated in 2006-2007
Plan Projects	4	3	1
External Project	1	1	2
Total	5	4	3

TECHNOLOGY ASSESSED AND TRANSFERRED

Institute of Forest Productivity (IFP) has developed technologies related to improving forest productivity and environmental conservation / reclamation for transfer to user groups.

Technology assessed

1. Macro propagation of bamboos.
2. Micro propagation techniques of important forestry species.
3. Laboratory analysis of soil and treatment for deficiencies.
4. Improved techniques for Lac cultivation.
5. Recycling of organic wastes by composting / vermicomposting.
6. Production of quality planting materials in hi-tech nurseries using root trainers.
7. Bio-reclamation of problem soils and mined over burdens.
8. Propagation techniques of selected medicinal plants.

EDUCATION AND TRAINING

Training

1. Training was organized on 'Lac Cultivation on Modern Techniques' for forest officers, villagers, forest guards of Jasipur, Orissa, farmers and forest staff of SFD, Chattisgarh, villagers and staff of East and West Garu and Baresand Range, Lac cultivators and staff of Dhanbad Forest Division, trainees sponsored by Shellac Export Promotion Council, Kolkata under the project "Development of Pilot Broodlac Farm and Lac Finishing Facilities" in Purulia, West Bengal. Lac cultivators and staff of State Forest Department, Daltangunj, Palamau, farmers and forest staffs of Jashpur Forest Division, Chatishgarh, Master Trainers and Asstt. Master Trainers of Pathergaon, Tapkara and Arayanpur Range under Jashpur Forest Division of Chhattisgarh State, Latehar Lamps, State Forest Department, Jharkhand, Forest Protection Committee of Bargaon and Ramgarh SFD, Chhattisgarh from 20th to 22nd February 2006, 21st to 22nd April 2006, 1st to 3rd May 2006, 18th June 2006, 19th to 20th June 2006, 21st to 22nd June 2006, 25th June 2006, 3rd to 7th July 2006, 10th to 14th July 2006, 17th to 21st July 2006, 24th to 28th July 2006, 1st to 3rd September 2006, 14th to 17th October 2006 and 14th and 15th October 2006.
2. Organized training on 'Composting, vermicompost, macro-propagation of Bamboo, Propagation of Bamboo and Kusum through Tissue Culture' for Forest Guards of Hazaribagh Forest Guard Training School, Hazaribagh on 27th May 2006.



3. Training was organized on 'Bamboo propagation' for Range Officers and Asstt. Conservator of Forests of State Forest Department, Jharkhand from 12th to 16th February 2007 and 19th to 23rd February 2007.



Training on Bamboo propagation for Range Officers and Assistant Conservator of Forests, State Forest Department, Jharkhand

LINKAGE AND COLLABORATION

International

Earth Watch Institute (EWI), USA, Department for International Development (DFID) (U.K.) and International Development Research Centre (IDRC).

National

NABARD, National Medicinal Plant Board, Department of Biotechnology, Central Coalfields Limited, Damodar Valley Corporation, Indian Institute of Natural Resins and Gums (formerly Indian Lac Research Institute) (ILRI), Namkum, Indian School of Mines (ISM), Dhanbad, Horticulture and Agroforestry Research Programme (HARP), Plandu, Birsa Agriculture University (BAU), Kanke, Ranchi, State Forest Department, Jharkhand, State Forest Department, West Bengal, State Forest Department, Bihar, SI, Eastern Zone, Kolkata, TATA Steel, Hazaribagh, Planning Commission, Govt. of India, Ministry of Environment and Forests (MoEF), Govt. of India.

PUBLICATIONS

1. Annual Lac Bulletin of the Institute.
2. Brochures / Booklets on improved method of Lac cultivation.
3. Brochures on "Bans Utpadan ki Unnat Taknique ewam Pravardhan Vidhi".
4. Research Paper - Variation studies in Eucalyptus V: Intraspecific variation in the leaves and developmental stability in the high yielding *Eucalyptus camaldulensis* by Sumita and H. C. Sindhuvierendra (2005) published in *My Forest*, 41(3) pp. 413-421.
5. Brochures / Booklets in Hindi on Gamhar, Kadam, Semul, Samudai Adharit Samanvit Van Prabandhan Evam Sanrakshan Yojna (SASVPSY) of Bihar state and Bans Ki Kheti were prepared and published.

CONSULTANCIES

1. Bamboo Resource Survey of Jharkhand funded by Jharkhand State Forest Development Corporation Ltd.
2. Estimation of organic carbon contents of forest soil samples and forest floor litters of various districts of eastern zone and evaluation of dry weight % at 65°C of forest floor litters under MOU signed between ICFRE and FSI, eastern zone, Kolkata.



3. Development of green belt at Maithon right bank thermal power project, DVC and Chandrapura thermal power station, DVC, Chandrapura.
4. Development of bio-aesthetic habitat by Central Coalfields Limited over company's 5-hectare land at Ranchi.
5. Collaboration of SEPC, Kolkata with IFP in the field of scientific cultivation of lac, and for development of pilot broodlac farm and lac finishing facilities in Purulia district of West Bengal.
6. Setting up of 120 MW thermal power unit by TATA Power Company Limited.
7. Estimation of 'physico chemical analysis' and 'physical analysis' of soil samples received from Tata Steel, Ghatotkach, Hazaribagh.

CONFERENCE/MEETINGS/WORKSHOPS/SEMINARS/SYMPOSIA/EXHIBITIONS

Organized

1. The VIII RAG meeting of the Institute was organized on 17th November 2006 under the chairmanship of Shri R. K. Zutshi, PCCF, Jharkhand.
2. A regional workshop on "Forestry Extension Strategy Review" was conducted by the institute on 23 March 2007. Participants from State Forest Departments, universities, central govt./state govt. organizations, NGOs, progressive farmers, and officers, scientists and research officers of IFP attended the workshop. The workshop was also attended by DDG (Extn.), ICFRE and former-Addl. I.G.F. (Gol).

Attended

1. Mr. P. Anand, DCF visited Patna on 1st May 2006 to attend meeting in connection with the project "Samudai Adharit Samanvit Van Prabandhan Evam Sanrakshan Yojana of Bihar State" sponsored by Planning Commission, Gol.
2. Shri R. Krishnamurty, Director visited Patna and Vaishali on 9th and 10th June 2006 for attending meeting and for field visit under the project "Samudai Adharit Samanvit Van Prabandhan Evam Sanrakshan Yojana of Bihar State" sponsored by Planning Commission, Gol.
3. Shri R. Krishnamurty, Director of the Institute visited Patna to attend the meeting of steering committee of Planning Commission, Gol - sponsored project "Samudai Adharit Samanvit Van Prabandhan Evam Sanrakshan Yojana (SASVPESY) of Bihar State" with PCCF, Bihar on 25th and 26th September 2006.
4. Shri R. Krishnamurty, Director of the Institute, attended meeting with CGM, NABARD, Jharkhand on 3rd November 2006 in connection with formulation of research and extension projects.
5. Director, IFP, Ranchi attended XV Meeting of ICFRE Society held on 22nd November 2006 at New Delhi.
6. Shri R. Krishnamurty, Director, Shri Rameshwar Das, Conservator of Forests, IFP, Ranchi and Dr. Atul K. Srivastava, ADG (Admin), ICFRE, Dehradun attended the meeting of State Level Steering Committee of "Samudai Adharit Samanvit Van Prabandhan Evam Sanrakshan Yojna of Bihar State" on 22nd January 2007 at Patna.
7. Shri R. Krishnamurty, Director, Shri Ravi Horo, DCF and Dr. Animesh Sinha, Scientist-C of the Institute attended RPC meeting held on 26th and 27th February 2007 as well as Directors' meet at ICFRE, Dehradun.
8. Shri R. Krishnamurty, Director of the Institute attended the core committee meeting on preparation of an "Optimum Afforestation Plan" for DVC command area held at DVC Tower, Kolkata on 25th June 2006.



9. Dr. B. N. Divakara, Scientist-B attended a two-day consultation on "Wastelands and Livelihoods: Problems and Prospects in Eastern India" organized by Society for Promotion of Wastelands Development (SPWD), New Delhi on 12th and 13th September 2006 at hotel Ashoka, Ranchi, Jharkhand.
10. A meeting was held on 10th November 2006 with CGM, NABARD regional office, Ranchi for discussion on formulation of extension project on "Improved method of Lac cultivation in Tribal areas of Jharkhand".
11. Director, IFP, Ranchi attended brainstorming session on "Biotechnological Interventions in Tasar Culture" organized jointly by Central Silk Board and DBT on 16th November 2006.
12. Shri Rameshwar Das, Conservator of Forests attended a working group meeting as nodal officer for the mid-term evaluation of National Afforestation Programme (NAP) schemes nationwide held on 7th December 2006 at ICFRE, Dehradun.
13. Shri R. Krishnamurty, Director attended a meeting of State Level Lac Committee under the chairmanship of Forest Minister, Chattisgarh State at Raipur on 3rd January 2007.
14. Shri R. Krishnamurty, Director attended a meeting for the Mid Term Evaluation (MTE) of National Afforestation Programme (NAP)- Forest Development Agencies (FDA) schemes held at ICFRE, Dehradun on 31st January 2007.

AWARDS

Mrs. Nabaneeta Choudhary, Ph.D. scholar enrolled by the Institute was awarded Ph.D. degree from Forest Research Institute University, Dehradun.

DISTINGUISHED VISITORS

1. Ms. Hannah Rooley, Programme Manager and Mr. Steve from Earthwatch Institute, Boston, MA, USA visited the Institute on 17th and 18th April 2006 for discussion on the research project entitled "Investigation on impact of climate change on individual threatened and endangered orchids in Buxa Tiger Reserve, West Bengal, India".
2. Shri Balbir Singh, ADG (Monitoring & Evaluation), ICFRE, Dehradun visited tissue culture lab., vermicompost unit, soil lab and field trials at Forest Research Centre, Mandar.
3. Dr. Shashi Kumar, Director (Research), ICFRE visited the Institute on 22nd August 2006.
4. Dr. A. K. Srivastava, ADG (Admin.), ICFRE visited FREC, Patna in connection with the field visit of Samudai Adharit Samanvit Van Prabandhan Evam Sanrakshan Yojna (SASVPSY) of Bihar State'.
5. Shri Subrato Biswas, Secretary, Damodar Valley Corporation and Shri S. Barari, Chief Environment Officer, DVC visited the Institute on 24th January 2007.
6. Dr. M. Banerjee, Senior Scientist, West Bengal State Council of Science and Technology, Kolkata visited Forest Research Centre, Mandar.
7. Chief Engineer, CCU, MoEF visited IFP, Ranchi from 9th to 11th March 2007.
8. Shri R. Krishnamurty, Director, IFP and Shri M.S. Garbyal, DDG (Admin.), ICFRE visited Patna on 15th and 16th March 2007 in connection with "SAVPES Yojna of Bihar State".

Officers of ICFRE visiting at the project site

