

Institute of Forest Productivity

Ranchi

The eastern region of our country comprises of diverse ecosystems. This encompasses the pristine, picturesque and fragile Western Himalayas in North-West Bengal and Sikkim, the fertile and alluvial Eastern Plains strewn with riverine wastelands of the lower reaches of Ganga basin in Bihar and West Bengal, deltaic and coastal mangrove of the world famous Sunderbans, a pocket of Terai Sal Forests in North-West Corner of Bihar, and the Tropical deciduous forests of Kaimur and Chhotanagpur Plateau overlying rich and enticing coal and other mineral deposits.

The concomitant features are vast stretches of degraded forests of Chhotanagpur Plateau and adjoining tracts of Jharkhand, South-West Bengal and South Bihar, threatened biodiversity of the forests dwindling species richness especially those of medicinal plants, bamboo and canes; heavy pressure of mining and development of industrial processes. Major portions of this region support one of the densest rural populations of the world and require environmental amelioration and enhancement of potential productivity of land through R & D activities in this region, which faces a wide ranging research problems.

To take up the role of Research and Development in the core of the bio-physical natural systems linked with the forestry and allied sectors to address the main problems born and accentuated by the aforesaid features with region specific characteristics, the Institute has taken up a number of research and training programmes for the benefit of different stakeholders and user agencies, NGOs, Research Organizations, States of Bihar, Jharkhand, Sikkim, West Bengal and the public at large. Six agroecological zone and eight main forest types are covered within its jurisdiction.

PROJECTS COMPLETED DURING THE YEAR 2005-2006

Project 1: Soil Vegetation interaction with special reference to nutrient cycling in some selected plantations under different edaphic conditions [IFP-9/SLR/P-III/2002-2006]

Findings: Field survey for growth and assessment of productivity and soil vegetation interaction: Growth of most common tree species planted in South-West Bengal viz., *Acacia auriculiformis*, *A. mangium*, *Azadirachta indica*, *Dalbergia sissoo*, Eucalyptus, *Gmelina arborea*, *Shorea robusta* and *Tectona grandis* from 132 plantation sites under alluvial, coastal and lateritic soils of South-West Bengal were compared. Litter fall seasonality of Eucalyptus, *A. auriculiformis*, *A. mangium* and *Dendrocalamus strictus* of 6 years old plantations have been worked out and found that *A. mangium* produced maximum litter (9.18 ton/ha) followed by *A. auriculiformis* (6.95), Eucalyptus (5.97) and *D. strictus* (4.50 ton/ha).

Nursery trials on plant nutrient assessment: A series of nursery trials have been conducted to study the role of major plant nutrients (N, P, K, Mg and Lime) on growth, uptake pattern of nutrients for optimisation of most suitable combinations of nutrient doses for *A. auriculiformis*, *A. mangium* and Eucalyptus species. The optimum doses of individual N, P and K for *A. mangium* seedlings on degraded lateritic soil without liming were found to be 140 to 160 mg N, 125 mg P₂O₅ and 115 mg K₂O per kg soil. While combined dose of 150 to 175 mg N, 110 to 115 mg P and 110 to 115 mg K per kg soil was found to be optimum. For *A. auriculiformis* individual doses of N, P and K are 140 to 160 mg,



115 to 130 mg and 110 to 115 mg per kg soil respectively. The corresponding doses for Eucalyptus are some what higher i.e., 150 to 175 mg N, 120 to 140 mg P and 115 to 130 mg K. Liming (@ 28.4 mg/kg soil) of degraded soil favoured growth of all the three tested species and combined application N, P and K have further improved the growth.

To assess the response of Eucalyptus, *A. auriculiformis* and *A. mangium* seedlings on Mg under degraded lateritic soil condition, out at Netaipur Mg dose ranges from 5 to 75 mg per kg soil were given. Increased growth of the seedlings was observed as compared to those without Mg treatment. Lower doses of Mg i.e., 15 to 35 mg Mg per kg soil increased the growth of Eucalyptus and *A. auriculiformis*.

Field trials on tree nutrient assessment: 5 years old *Acacia auriculiformis*, *A. mangium* and *Eucalyptus* sp. were subjected to 20 to 350 g N, 10 to 250 g P and 10 to 250 g K per plant and it was observed that 150 to 170 g N, 75 to 85 g P and 45 to 55 g K were found to be most favaourable combinations for Eucalyptus and 120 to 130 g N, 85 to 100 g P and 45 to 55 g K for *Acacia auriculiformis* and *A. mangium*.

Project 2: Development of biofertilizers and standardization of their application in relation to productivity of forest tree species under degraded lateritic soil condition [IFP-3/BGT-SP-3/P-I/2002-2005]

Findings: Arbuscular Mycorrhizal Fungi associated with forest tree species and their influence on plant growth: Plantations of *Acacia auriculiformis*, *A. mangium*, Bamboo, *Tectona grandis* and natural coppice sal (*Shorea robusta*) forests were surveyed for distribution study of AM fungi and altogether 8 species were recorded from rhizosphere soils.

Isolation of Azotobacter and Rhizobium bacteria and study of their role: Pure cultures of 21 Azotobacteria and Rhizobium bacteria were isolated from rhizosphere soils of different species cultivated in East and West Midnapore districts of South - West Bengal. Cultures isolated from bamboo, banana, *Shorea robusta* and *T. grandis* are superior in terms of N-fixation. Maximum quantity of atmospheric nitrogen fixed by the isolated culture is 25.98 mg N/100 ml medium consumed within 3 days under laboratory condition.

Rhizobium and Azotobacter inoculation in soils treated with rice husk, compost, bamboo litter and vermicompost were found more effective in nodulation by Rhizobium and in enhancing growth of *A. auriculiformia* and *Eucalyptus* sp. respectively. Double inoculation of AM fungi with Azotobacter or Rhizobium was found better than single application.

Optimization of time of application of biofertilizers: Rhizosphere application of Rhizobium after two weeks of germination with or without seed inoculation exhibited better nodulation and growth of host specie (*Acacia auriculiformis* and *A. mangium*). Five isolated cultures of Rhizobium showed better results while pre-treatment with Rhizobium cultures (24 hu both containing 100 to 1000 M cells/ml @ 10 ml/100 seed) along with seedling treatment (1 ml/seedling injected at rhizosphere soil grown in 1 kg pot) did not show additional increment of host tree growth or nodulation.



PROJECTS CONTINUED DURING THE YEAR 2005-2006

Project 1: Multilocational field trial of tissue culture raised plantlets of *Dendrocalamus* as per [IFP-4/BGT-SP-4/P-1/2002-2006]

Status: Plantations are of 3.5 years as suggested by the RAG all members experiment on nutritious value of bamboo as a food is being assessed.

Project 2: Genetic Improvement of Eucalyptus through progeny trial and hybridisation [IFP-7/BGT-SP-7/P-1/2002-2006]

Status: Half-year growth data (Total height, Clearbole height, and Collar diameter) of all the plants planted have been recorded and the performances are being evaluated. General Combining Ability (GCA) has been established for above characters along with breeding values. Mortality rate was checked and replaced. The current mortality rate at the end of February 2005 was 4.17 %.

Project 3: Studies on variability of bamboo species, their performance, conservation and economics with reference to Bihar, Jharkhand and West Bengal [IFP-10/BS/P-IV/2002-2007]

Status: Nursery trials on development of bamboo propagation techniques: In the first trial, cuttings with double nodes, single node and bifurcated single node (collected from 1-2 years old *B. tulda* culms) were used with or without hormone and planted in mother bed containing surface forest soil (without treatment) maintaining the culm bud levels at i) bed soil layer, ii) 1 cm above and iii) 1 cm below bed soil layer. The cuttings were covered with straw mulch and maintained with proper irrigation, weeding and insecticide use. After 30 days, sprouting were recorded in all the treated cutting. Root development was also recorded. Double node cuttings favoured maximum rooting in comparison to single node cuttings. Bifurcated nodes containing single bud showed 100% sprouting but 20 to 30% rooting after 30 days. Beds are maintained for further observation.



Bamboo seedling from double node cutting

Ex-situ conservation of Superior Bamboo planting materials: Superior Bamboo planting materials (Rhizome, culm cuttings etc.) have been collected and planted at Mandar for *ex-situ* conservation. The plants are being maintained as per standard silvicultural methods. The growth parameters of the planted bamboos are being recorded periodically.



Market Survey, Survey on Bamboo Utilities and Socio-economic Survey: Data in relation to economics on plantations raised in forests and villages, harvest data etc. have also been collected from North and South Bengal and Jharkhand. Utilities of bamboos in different locations were recorded. Data for Socio-economic analysis due to bamboo forests and bamboo plantations in different states were also collected.

Project 4: Standardization of suitable potting media and root trainer size for improved planting stock production of some mandate species of Jharkhand and Southern-West Bengal [IFP-1/BS-SP-1/P-I/2002-2006]

Status: With the variation of treatment i.e. different potting media mixture and fertilizer, growth of the seedlings varied considerably. Application of FYM and compost in the potting media mixture enhance the growth of seedlings. With the increase of hykopot size from 150 cc, 250 cc and 350 cc the height, collar dia and biomass of the seedling increases for *Acacia mangium* and *D. sissoo* in all treatments. In 250 cc hykopot maximum height of seedling was found for *G. arborea* and *Eucalyptus camaldulensis* but collar dia of the seedlings were found less than that of 350 cc hykopot. As a result total seedling biomass was found higher in 350 cc hykopot though height was found lower than 250 cc hykopot. Nutrient content and physical characteristics of the potting of the 17 potting media varies considerably among the different mixtures of pot material.

Project 5: Exploration of Lac cultivation on non-traditional host *Flemingia* spp. and its possibility in sustainable plantation forestry [IFP-13/NWFP-SP-I/P-VII/2002-2005]

Status: Aghani-05 broadlac harvested in control as well as experimental condition in *Flemingia macropylla* as well as *Flemingia semialata* plots is under progress.

Project 6: Trials on composting for Specific afforestation needs and development of cost-effective packages [IFP-2/BS-SP-2/P-I/2002-2007]

Status: Compost has been prepared from chakor within 120 days by remixing the material with water. Time taken for compost preparation decreased to 70 days with the addition of soil with the raw material and remixing of the material with water. Addition of soil and 1 % urea (w/w basis) with the raw material again decreases the time taken for compost production to 60 days. Production cost of compost was found Rs. 5.00 per kg.

Project 7: Development of appropriate agro-silvicultural systems for selected medicinal flora of Chotanagpur and Santhal Parganas [IFP-20/ERM (MP)/2003-2008]

Status: Successfully cultivated *Withania somnifera* plants from seeds, which are very difficult to propagate.



Project 8: Creation of germplasm resource bank of threatened medicinal plants of Darjeeling Himalaya [IFP-11/ERM (MP)/P-V/2003-2008]

Status: *Ex-situ* conservation of certain species have been carried out in the foothill at Sukna and Sonada under Darjeeling District (Eastern Himalaya). Data on growth rate and flowering, fruiting and yield were recorded.

PROJECTS CONTINUED DURING THE YEAR 2005-2006 (Externally Aided)

Project 1: *Schleichera oleosa* (Lour.) Oken, a lac host: *In vitro* propagation (Funded by DBT) [IFP/2003-2006]

Status: Leaf drop of kusum culture *in vitro* has been arrested. Healthy elongated shoots were observed.

Project 2: Development of Bio-aesthetic habitat by Central Coalfields Limited over a 5 hectare company's land at Ranchi (Funded by CCL, Ranchi) [IFP/2003-2008]

Status: Field work is under progress.

Project 3: Development of agro-techniques for *Gymnema sylvestre* and *Embelia ribes*- medicinal plants of high marketing potential [IFP-22/ERM(MP)-P-VIII/2004-2007]

Status: *Gymnema sylvestre* cuttings have been collected from both natural forests and from Forest department nurseries.

Project 4: Documentation of indigenous knowledge on conservation and sustainable management in Darjeeling Himalayas [IFP-25/EE/2004-2007]

Status: Due to non-availability of scientist in the station, no progress achieved during the financial year 2005-2006.

NEW PROJECTS INITIATED DURING THE YEAR 2005-2006 (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 [GO/JR-1/2005-2007]

Status: Vegetative cuttings of certain species were raised in the propagation centre and two lacs seedlings are ready for free distribution and planting. Developed Herbal garden and Propagation centre at Dilaram, hills of Darjeeling Himalayas.



Abstract: No. of Projects

	No. of projects completed in 2005-2006	No. of ongoing projects in 2005-2006	No. of projects initiated in 2005-2006
Plan Project	2	8	-
External Projects	-	4	1
Total	2	12	1

TECHNOLOGY ASSESSED AND TRANSFERRED

1. Improved techniques of Lac cultivation were transferred to SFDs, Jharkhand, Chhattisgarh and West Bengal as well as trainees sponsored by S.E.P.C., Kolkata under the project "Development of Pilot Broodlac Farm and Lac finishing facilities in Purulia, West Bengal".
2. Propagation of bamboo through scientific methods was transferred to personnel of SFD, Jharkhand.
3. Development of aerobic process for compost production has been done in above ground chamber.
4. Quality Planting materials of different medicinal plants were ready for free distribution to the villagers of North-West Bengal.
5. Vermicomposting unit have been set up for production of improved vermicompost.

EDUCATION AND TRAINING

Education

1. Entrance Test Examination for M.Sc. and Diploma Courses in Forestry under FRI Deemed University, Dehradun was conducted by the Institute on 15th May 2005 at Ranchi centre, in which out of 25 candidates, 22 candidates were turn up.
2. Dr. Animesh Sinha, Scientist-C of the Institute visited Central Institute of Medicinal and Aromatic Plants, Lucknow on 19th and 20th October 2005 to discuss and explore the possibilities of under taking research on *in vitro* conservation of forest genetic resources and molecular aspect of lac host plants.
3. Shri Sandeep Kujur, IFS, DCF proceeded for attending "Promotion Linked Advance Forest Management Course" for Officers of 10 years in service held from 25th July to 12th August 2005 at Indira Gandhi National Forest Academy, Dehradun.
4. Shri Dinesh Prasad attended a three weeks training programme on "Agromet Observers' Course" at India Meteorological Department (Agrimet Division), Shivaginagar, Pune from 20th February to 10th March 2006.

Training Organized

1. Training organized on Improved techniques of Lac cultivation for SFD personnel, villagers, Foresters, Forest Guards, Foresters of Kathghora Forest Division and Van Samiti Members of Chhattisgarh State and trainees



- of SEPC, Kokata from 29th March 2005 to 2nd April 2005; 4th to 8th April 2005; 13th to 17th April 2005; 25th to 29th April 2005, 2nd to 6th May 2005 and 19th to 23rd September 2005.
2. Training organized on Propagation of bamboo through scientific method for ACFs, Range Officers, Foresters, Forest Guards of SFD, Jharkhand from 21st to 23rd June 2005; 24th and 25th June 2005 and 28th to 30th June 2005.
 3. Organized a training on 'Tassar Cultivation' with the collaboration with Central Tassar Research and Training Institute, Ranchi for Forest Guard/ Forester of SFD, Jharkhand from 23rd to 25th November 2005.
 4. Training on Modern Technique of Lac Cultivation for Forest Guard/ Forester of SFD, Jharkhand from 28th November to 2nd December 2005.
 5. Training on Bamboo propagation for ACFs, ROFs. Forester, Forest Guard of SFD, Jharkhand from 5th to 10th and 12th and 13th December 2005.

LINKAGE AND COLLABORATION

International

EWI, USA; DFID (U.K.) and IDRC.

National

NABARD; Medicinal Plant Board; Department of Biotechnology; Central Coalfields Limited; Damodar Valley Corporation; ILRI, Namkum; ISM, Dhanbad; HARP; Plandu; BAU, Kanke, Ranchi; SFD, Jharkhand; SFD, West Bengal; SFD, Bihar; FSI, Eastern Zone, Kolkata; and TATA Steel, Hazaribagh.

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. Proceedings of National Seminar on "Rehabilitation of Lands under Anthropogenic Stress and Degradation" organized by the Institute on 20th January 2004 was published.

CONSULTANCIES

The Institute is providing consultancy and other services to a number of organization including SFDs. It includes:

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 & FSI, Eastern Zone, Kolkata.
3. Development of Green Belt at Maithon Right Bank Thermal Power Project, DVC & Chandrapura Thermal Power Station, DVC, Chandrapura.



4. Development of Bio-aesthetic habitat by Central Coalfields Limited over a 5-hectare company's 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, 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 and Hazaribagh.

CONFERENCES/MEETINGS/WORKSHOPS/SEMINARS/SYMPOSIA/EXHIBITIONS

Organized

1. Shri R. Krishnamurty, Director of the Institute attended Society Meeting at Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi on 23rd November 2005.
2. Pre-RAG meeting was held on 17th November 2005 for Power Point Presentation.
3. The 7th RAG meeting of the Institute was conducted on 15th December 2005.
4. A meeting was also conducted on 25th January 2006 with Mr. J. Biswas, Dy. Director, DVC (Soil Conservation), Hazaribagh on 'Greening of ash dump and degraded areas at Chandrapura Thermal Power Station, Chandrapura'.
5. Senior Officials from CCL, Ranchi visited the Institute on March 2006 for discussion and finalization of TOR for preparation of conservation plan of Magadh and Amrapali OCP's.

Attended

1. Shri R. Krishnamurty, Director of the Institute attended the meeting as a member of Research Advisory Committee at Ranchi on 26th May 2005 organized by Central Tasar Research and Training Institute (CTR&TI), Piska Nagri, Ranchi.
2. Shri H.C. Sindhuvirendra, Research Officer attended International Conference on "Facilitating Forestry Mitigation projects in India: promoting Stakeholder Dialogue and Capacity building" from 15th to 17th June 2005 organized by ICFRE at Dehradun in partnership with Joanneum Research, Institute of Energy Research, Austria and Freiburg University, Germany co-sponsored by the European Union-Small Projects Facility.
3. Shri R. Krishnamurty, Director, IFP, Ranchi proceeded for attending Advance Forest Management Course at IGNFA, Dehradun from 20th June to 1st July 2005.
4. Shri R. Krishnamurty, Director and Shri Premjit Anand, Dy. C.F. of the Institute attended a joint meeting held on 10th June 2005 with personnel of Chandrapura Thermal Power Station, DVC at Chandrapura in connection with the plantation work to be undertaken under the project "Green Belt Development/Plantation at Chandrapura Thermal Power Project Consultancy and relevant services".



5. Director, IFP, Ranchi was nominated as member of the committee of Administration of the Shellac Export Promotion Council. He attended the 296th meeting of the committee of Administration at Kolkata on 20th August 2005.
6. Shri R. Krishnamurty, Director attended the meeting of Paryavaran Impact Assessment Expert Committee held at the office of Secretary, Deptt. of Forest and Environment, Govt. of Jharkhand, Ranchi on 30th August 2005. The meeting was in connection with setting of 120 MW Thermal Power Unit by TATA Power Company Limited.
7. Attended the meeting on 'Development of Lac in Jharkhand' on 9th September 2005 in the chamber of Commission and Secretary, Forests, Govt. of Jharkhand.
8. Shri Premjit Anand, DCF attended the meeting on "National Consultation on Forestry Statistics" on 20th and 21st December 2005 at Van Vigyan Bhawan, Sector - V, R.K. Puram, New Delhi as Nodal Officer (Statistics) of the Institute. The meeting was chaired by Dr. Shashi Kumar, DDG (Extension), ICFRE, Dr. Bipin Behari, DIG of Forests, MoEF, Dr. Devendra Pandey, Director, Forest Survey of India and Dr. K. D. Singh, Ex-FAO Expert in Session-I, Session-II, Session-III and Session-IV respectively.
9. A meeting was held on 9th December 2005 with Conservator of Forests (Working Plan and Research Circle), SFD, Jharkhand in connection with Pilot Project on Lac Development.
10. Shri R. Krishnamurty, Director of the Institute attended the 25th meeting of Research Advisory Committee of Central Tassar Research and Training Institute (CTR&IT), Nagri, Ranchi on 23rd and 24th January 2006 as an esteem member.
11. Dr. Animesh Sinha, Scientist-C attended the National Conference on "Tree biotechnology: Indian Scenario" organized on 9th and 10th February 2006 at TFRI, Jabalpur with a presentation of an abstract research paper entitled "*In vitro* shoot proliferation from nodal explants of mature trees of Kusum (*Schleichera oleosa*)". During his visit Dr. Sinha was advised to take up consultations with NCL, Pune, Jadavpur University, Kolkata, IICB, Kolkata and Indian Agricultural Research Institute, New Delhi for taking up research on *in vitro* conservation of forest genetic resources and molecular aspect of lac host plants for further development of progress of DBT assisted project.
12. Dr. Malabika Ray, Scientist-D attended the National Seminar on "Growing, processing, value addition and marketing of Medicinal and Aromatic Plants" from 6th to 8th February 2006 at SFRI, Jabalpur for presentation of research paper titled "Variation in growth performance of some endangered species of medicinal plants of Jharkhand".
13. Dr. S. Nath, Scientist-E and Dr. P.K. Das, R.O. participated in the Workshop cum Exhibition on "Technology Development, Utilization and Transfer" organized by BIT, Mesra, Ranchi on 6th March 2006.
14. Dr. Malabika Ray, Scientist-D attended the National Seminar on "Medicinal plants its Present Status, Prospect and Conservation" held on 22nd and 23rd March 2006 at Midnapore college, Midnapore, West Bengal.
15. Shri R. Krishnamurty, Director and Shri Premjit Anand, DCF visited Patna on 8th March 2006 for attending meeting



with Shri G.K. Prasad, DG, ICFRE and Shri Mudit Kumar Singh, ADG (PF/JFM), ICFRE, PCCF, Govt. of Bihar, Chief Secretary, Govt. of Bihar and Secretary, Deptt. of Environmental and Forests, Govt. of Bihar for finalization of the project “Sanudai Adharit Samanvit Van Prabandhan Evam Sankrachan Yojna in Bihar State”.

16. Dr. Animesh Sinha, Scientist-C as representative of the Director, IFP, Ranchi attended the meeting of VII Research Policy Committee on 22nd and 23rd March 2006 at Dehradun.

DISTINGUISHED VISITORS

1. Thirty Forest Ranger trainees of 2003-2005 Rangers' Course of Eastern Forest Rangers' College, GoI, MoEF, Kuresong, Distt. Darjeeling (West Bengal) visited IFP, Ranchi from 24th to 26th May 2005 on East India Tour Programme for study of management and activities related to Forests and Wildlife.
2. Shri G.K. Prasad, IFS, D.G, ICFRE and Shri Prodipto Ghosh, IAS, Secretary to the Govt. of India, MoEF, New Delhi visited IFP, Ranchi and its research centre 'FRC, Mandar' on 6th July 2005.
3. Dr. S. Kumar, Head, and Dr. P. Dey, Principal Scientist of HARP, Plandu, Ranchi visited IFP, Ranchi on 18th July 2005 in the issues of collaboration with the IFP.
4. Dr. Bengali Baboo, Director, Dr. A. Bhattacharya, Head TOT, Dr. R. Ramani, Scientist and Dr. Niranjan Prasad, Scientist of ILRI, Namkum, Ranchi visited IFP and Mandar Research Centre, Ranchi on 19th July 2005 in the issues of collaboration with the IFP.
5. Chairman, Vice Chairman and Executive Director of Shellac Export Promotion Council, Kolkata (Ministry of Commerce, GoI) visited IFP (HQ), Ranchi on 11th August 2005 for collaboration with IFP in the field of scientific cultivation of lac, and for development of pilot broodlac farm and lac finishing facilities in Purulia district, West Bengal.
6. Director, Institute of Science and Management, Ranchi visited the Institute on August 2005 to discuss on possible collaboration with IFP, Ranchi.
7. Senior Officials from CMPDIL & CCL, Ranchi, and trainees from DVC, Hazaribag visited the Laboratory and other facilities at Forest Research Centre, Mandar, Ranchi during the month.
8. Mr. J. C. Kala, Director General of Forests, MoEF, Govt. of India accompanied with Shri R.P.S Katwal, Addl. D.G. Wildlife, MoEF, Govt. of India and Mr. J. Kiswan, Inspector General of Forests (FC), MoEF, Govt. of India visited the Institute on 9th January 2006.
9. A meeting was conducted with Mr. Prakash Oraon, State Project Director, Jharkhand Tribal Development Society regarding taking up studies on ‘Forest Product Marketing system in selected programme villages of JTDS.