

## 6. Forestry Education and Policy Research to Meet Emerging Challenges

Indian Council of Forestry Research and Education (ICFRE) is mandated to promote forestry education in Universities by providing financial support to Universities for strengthening the infrastructure such as building, equipments, computer centre, library etc. The Council provides grant-in-aid to different Universities in India and it also undertakes the Human Resource Development Programme and Policy Research Work.

### 6.1 Improving Formal Forestry Education

ICFRE is providing grant-in-aid for infrastructural development, purchase of scientific equipments, books, creation of mist chambers, purchase of sports items for students, creation of museums etc., purchase of vehicle and transport equipments for tour of students, purchase of computers, teaching manuals, organization of seminar, participation of faculties in the national seminars etc and students educational tours to the universities for promoting forestry education in the country. The Council has invited proposals for grant-in-aid from the Universities and received a total of 19 proposals for the purpose.

#### 6.1.1 FRI University

The FRI (Deemed) University has been offering the following academic courses on a regular basis:-

- Two years M.Sc. course in Forestry, Environment Management, Wood Science & Technology and Cellulose & Paper Technology.
- One year Post Graduate Diploma course in Aroma Technology in collaboration with Fragrance & Flavour Development Centre, Kannauj.

Lectures/dissertations/Ph.D guidance given by the different Divisions of FRI.

FRI University conducts online entrance exam for these M.Sc. courses. The syllabus has

been revised for all courses during the period of the Report,

1. Two chairs of excellence were engaged in the following disciplines -

- (i) Ecology and Biodiversity
- (ii) Forest Climate Change

2. Following academic activities were undertaken:

- Lectures/practical's :- 632
- Dissertations supervised:- 27
- Term papers supervised :- 45
- Ph.D awarded :- 64

### 6.2 Accreditation of Universities

The Council encourages Universities to get accreditation with ICFRE, as a new initiative of quality control in forestry education for the first time through Accreditation Board of ICFRE. The accreditation process has been completed for 18 Universities and certificates issued. The proposals for accreditation of 03 more Universities have been received which are under consideration for making accreditation with ICFRE.

### 6.3 Networking Forestry Education with Research and Extension

In view of the issues and challenges before the NTFP sector, a networking project has been envisaged at ICFRE at National level with the help of ICFRE institutions and State Universities, having faculty of forestry to provide an opportunity in the forestry sector for working with universities mutually integrating education and research for the benefit of forest dependent communities. The Status Reports and Detailed Project Reports from 09 universities have also been received which are involved in the Networking Project on NTFP.

#### 6.3.1 Participation in Seminars/Symposia/Workshops/Trainings

About 250 scientists, officers and officials participated in different seminars/symposia/



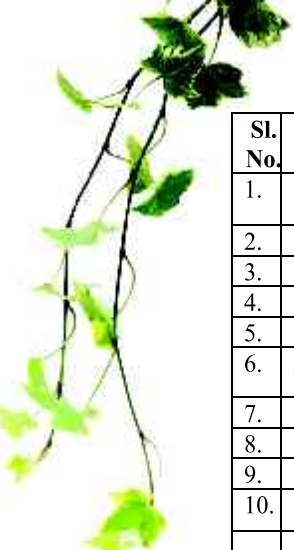
Visit by Director, FRI, GCR, FRI and Head, Extension Division during Punjab Summit



Interacting with stakeholders during Punjab Summit

workshops/trainings /meetings organized by various organizations throughout the country on variety of subjects including, IPCC green house gas inventory; ecosystem monitoring; bio-composting/ vermi-composting; agro-forestry and land management; climate change and carbon mitigation; energy and environment; livelihood development programme as a rehabilitation measure; plant taxonomy; forest certification; quality determination of medicinal plants cultivated in agro-forestry; essential oils-isolation, characterization and value addition; agro-forestry and land management for the farmers; value addition of NTFPs; quality assessment of essential oil; insect pests of agro-forestry and their control measure; extension of

agro-forestry species; role of poplar-based agro-forestry for economic security; intellectual property management and technology transfer policy for ICFRE; protection of plant varieties and farmers rights (PPV&FRA) Act 2001; genetic transformation for abiotic stress tolerance; seed handling of tree borne oilseeds with special reference to *Calophyllum inophyllum*; forest seed technology; cultivation techniques for *Calophyllum inophyllum*; bio-prospecting of forest resources; application of bio-pesticide in agro-forestry; bio-pesticidal products of Hy-Act, Tree Pal (H) and Tree Rich bio-booster pellets; innovations on biotechnology; Biological Diversity Act, 2002; wood processing; trees for life: accelerating the impacts of agro-forestry; forest policy, law and Acts including, environmental law ; formulating quality standards for bamboo products; REDD and REDD+ benefits in forestry sector under Green India Mission; human resource development; land restoration and biodiversity conservation for sustainable livelihood; cultivation of medicinal plants; biological control of forest insect pests and role of entomopathogenic nematodes; forest insect pest management in nurseries and plantations; insect pests of important medicinal plants and their biological control measures; team building and conflict management; Sal borer and its management; forest certification; bamboo handicraft for the farmers, field functionaries and artisans; drug residues and environmental pollutants; prospects of NWFPs processing and value addition; impact of harvesting practices on bamboo regeneration; disease and pest problems and their management in bamboos ; bamboo cultivation: an opportunity for livelihood needs; augmentation of agar wood in *Aquilaria malaccensis* through fungal technology; science & technology for rural societies; forest & forest management, Forest Conservation Act and policies; environmental problems, threatened medicinal plants; cumulative environment impact assessment of Satluj basin; renewable sources of energy; genetic engineering etc. the details regarding same is mentioned below:



Sl. No.	Hqs./Institutes	No. of trainings	No. of participants	Duration (in days)
1.	ICFRE, Dehradun	2	2	4
2.	FRI, Dehradun	46	55	267
3.	IFGTB, Coimbatore	20	19	38
4.	IWST, Bangalore	14	14	77
5.	TFRI, Jabalpur	43	48	285
6.	AFRI, Jodhpur	10	18	163
7.	IFP, Ranchi	15	19	51
8.	IFB, Hyderabad	5	5	30
9.	HFRI, Shimla	44	53	78
10.	RFRI, Jorhat	13	13	24
	Total	212	246	1017

### 6.3.2 Visits Abroad

Facilitated 35 cases of foreign visits which were approved from the Government of India with funding from various sources for providing a much needed international exposure to the scientific cadre.

- Dr. Sangeeta Gupta participated as guest speaker on 'Wood culture in India: Past, present & future' at '219<sup>th</sup> Wood Culture Symposium' Kyoto University, Japan from 18 to 22 February 2013.
- Dr. Sangeeta Gupta participated as guest speaker on 'Indian woods: Historical utilization and future sustainability' at 'World Wood Day Symposium', Dar Es Salaam, Tanzania from 18 to 22 March 2013.
- Dr. T. P. Singh, ADG (BCC), participated in the eleventh session of the Committee for the Review of the Implementation of the Convention of UNCCD from 15 to 19 April 2013 in Bonn, Germany.
- Dr. N. Krishnakumar, Director; Shri T.P. Raghunath, Group Coordinator (Research); Dr. B. Gurudev Singh, Scientist-G and Dr. A. Nicodemous, Scientist-E, IFGTB, Coimbatore visited Australia to attend "Workshop meeting relevant to the implementation of AusAID activity 60794" from 19 to 25 May 2013.
- Shri V.R.S. Rawat, Scientist-E, ICFRE, participated in the UNFCCC thirty-eighth sessions of the Subsidiary Body for Implementation and the Subsidiary Body for Scientific and Technological Advice as well

as the second part of the second session of the *ad hoc* Working Group on the Durban Platform for Enhanced Action in Bonn, Germany from 03 to 14 June 2013 as a member of the Government of India delegation.

- Dr. V.P. Tewari, Scientist-G, IWST, Bangalore visited Kenya to attend 5<sup>th</sup> GAFoN International Symposium on 'Sustainable forestry in South-Southeast Asia and sub-sahara Africa: Incentives for close-to-nature-forestry' from 08 to 12 July 2013.
- Dr. P.P. Bhojvaid, Director, FRI, Dehradun visited China to deliver key note address on 'Forest culture in the dialogue on forestry in eco-civilization context', on 20 and 21 July 2013.
- Dr. R. Sundararaj, Scientist-G, IWST, Bangalore visited Australia to attend '6<sup>th</sup> International Symposium on biology and ecology of gal producing arthropods and related endophytes' from 04 to 08 August 2013
- Dr. N. Krishnakumar, Director, IFGTB, Coimbatore visited China to attend 'Regional Workshop for Asia, Pacific and Oceania' on 20 and 21 August 2013.
- Dr. V.K. Varshney, Scientist-F, FRI, Dehradun visited China to attend '7<sup>th</sup> International Medical Mushroom Conference from 26 to 29 August 2013.
- Dr. R.K. Borah, Scientist-E and Dr. (Mrs.) Paporu Phukan Borpuzari, R.O., R.F.R.I., Jorhat visited Malaysia to attend International Scientific Symposium on 'Agar wood' from 03 to 05 September 2013.
- Dr. Vineet Kumar, Scientist-F, FRI, Dehradun visited Germany to attend 'DAAD alumni special project in the framework of the Tropentag-13' from 08 to 19 September 2013.
- Sh. Saibal Dasgupta, DDG (Extension); Dr. T.P. Singh, ADG (FCC) and Dr. R.S. Rawat, Scientist-C, FCC Division, ICFRE, Dehradun visited Namibia to attend "Next conference of parties (CoP-11) meet of the United Nations Convention to Combat Desertification" from 16 to 27 September 2013.



- Dr. P.P. Bhojvaid, Director; Sh. M.P. Singh, Head, FCCI Division and Mr. Jawaid Ashraf, Scientist, FRI, Dehradun visited China to attend International Symposium on 'Transition to sustainable forest management and rehabilitation' from 21 to 23 October 2013.
- Dr. N.S.K. Harsh, Scientist-G, FRI, Dehradun visited Turkey to attend 3<sup>rd</sup> International Congress on Fungal Conservation from 11 to 15 November 2013.
- Shri V.R.S. Rawat Scientist-E, ICFRE, participated in the nineteenth session of the Conference of Parties and the 39<sup>th</sup> Session of SBSTA/SBI meetings of the United Nations Framework Convention on Climate Change (UNFCCC) in Warsaw (Poland) from 11 to 22 November 2013 as a member of the Government of India delegation.
- Dr. Renu Singh, ADG (Education & P.R.), ICFRE, Dehradun visited USA on study tour on 'Forecasting and futures modeling' under the Sustainable Landscape and Adaptation from 02 to 10 December 2013.
- Shri K. Jude Sekar, DG; Shri Saibal Dasgupta, DDG (Extension); Dr. T.P. Singh, ADG (FCC) and Dr. R.S. Rawat, Scientist – C, ICFRE, Dehradun visited Nepal to attend 'International expert group meeting at ICIMOD, Kathmandu, Nepal' on 09 and 10 December 2013.
- Dr. Ombir Singh, Scientist-D, FRI, Dehradun visited Tunisia to attend the 1<sup>st</sup> Africa International Allelopathy Congress from 06 to 09 February 2014.
- Mr. Jawaid Ashraf, Scientist, FRI, Dehradun, visited Japan to attend seminar on "Transition to sustainable forest management and rehabilitation in Asian countries" on 25 and 26 February 2014.
- Dr. Modhumita Dasgupta, Scientist-E, IFGTB, Coimbatore, visited USA to attend training under ITTO Fellowship from 01 March to 30 April 2014.
- Sh. T.P. Raghunath, GCR; Dr. B. Gurudev Singh, Scientist-G and Dr. V. Sivakumar, Scientist-E, IFGTB, Coimbatore, visited Thailand on study visit, under DST sponsored project from 02 to 09 March 2014.
- Dr. V.P. Tewari, Scientist-G, IWST, Bangalore, visited Indonesia to attend International Workshop on 'Forestry and forest science in an ever more complex global context' from 16 to 22 March 2014.
- Dr. A. Balu, Scientist-G; Dr. A. Karthikeyan, Scientist-D; Dr. M. Hegde, Scientist-D and





Dr. A. Shanthi, Scientist-C IFGTB, Coimbatore, visited Vietnam to attend the IUFRO Acacia-2014 Conference from 18 to 21 March 2014.

#### 6.4 Capacity Building of Scientific and Management Cadre (Trainings Organized)

As part of the HRD initiatives for capacity building of scientific personnel, six training programmes were organized in different organizations of repute in which 85 participants were trained. Induction courses for ICFRE scientists and research officers etc. were organized on regular basis.

Apart from the above, various trainings on subject as vast and varied as conservation of biodiversity and sustainable livelihood in watershed management; climate change and carbon mitigation, climate change, forest ecosystems and biodiversity: vulnerabilities and adaptation strategies; bamboo/ ringal handicrafts



Training workshop on Conservation of Biodiversity and Sustainable Livelihood in Watershed Management

for the farmers/artisans; agro-forestry & land management; development of agro-forestry practices; bamboo processing and product making for artisans and small scale manufactures of Himachal Pradesh; 'hands on' training to artisans for bamboo technology transfer; bamboo mat weaving and making of bamboo handicrafts items; bio-composting/ vermin-composting; ringal, utilization, propagation and conservation; development of green belt ; nursery and plantation technology; improved seed and nursery technology; forestry/silviculture ; afforestation



Training programme on Climate Change and Carbon Mitigation

techniques; role of forestry in disaster management; forest fire mitigation & management; participatory management of forest fire risks in urban areas; forestry as livelihood in climate change adaptation; maintenance of poplar nurseries; essential oils, perfumery & aromatherapy; linking of non timber forest products (NTFP) and agro-forestry produce with markets- constraints, opportunities and threats; tissue culture of important forest trees, bamboos and medicinal plants; nursery & clonal technology ; bio-fertilizer production and application in nursery and field; bio-prospecting- the role of State Forest Department; forest genetic resource management; research methodologies and writing of research papers; 'agarbatti' sticks making ; creation of biological fence with live bamboo; rainwater harvesting and afforestation for the rehabilitation of degraded hills; integrated approach for sustainable development of fragile desert ecosystem; application of technological and research interventions for enhancing forest productivity; conservation, utilization and cultivation of important temperate medicinal plants; etc. were organized by ICFRE Hqs. and its institutes and are as follows:

Hqs./Institute	No. of trainings	Duration (in days)
ICFRE, Dehradun	3	12
FRI, Dehradun	32	151
IFGTB, Coimbatore	12	47
IWST, Bangalore	2	4
TFRI, Jabalpur	12	63
CFRHRD, Chhindwara	13	16
AFRI, Jodhpur	5	12
HFRI, Shimla	8	14
RFRI, Jorhat	15	48
IFP, Ranchi	8	20
IFB, Hyderabad	2	5
<b>Total</b>	<b>112</b>	<b>392</b>



Demonstration and training on bamboo handicrafts and furniture





Glimpses of trainings organized by ICFRE institutes