



**Report of the visit of Indian Delegation to China
for cooperation in forestry matters
between
India and China
(18-23 April 2010)**



Eucalyptus plantation with high productivity



जहाँ है हरियाली ।
वहाँ है खुशहाली ॥

**Ministry of Environment and Forest
Government of India**

[Report of the visit of Indian Delegation to China for cooperation in forestry matters between India and China \(18-23 April 2010\)](#)

A team of five officials from Ministry of Environment & Forest (MoEF), Government of India, led by Dr. P.B.Gangopadhyay, Additional Director General of Forests visited China from 18-23 April as a follow-up of the visit of Hon'ble Minister of MoEF to China in August 2009 during which three important areas of cooperation were identified between both the sides to enhance the cooperation in the area of forestry. The list of delegation members from both sides is appended (Annexures-I and II).

2. During this period, the delegation visited the headquarter of State Forestry Administration, of P.R. of China and several other forestry institutions and held discussions with the authorities on issues of mutual co-operation. The report of the visit, brief of the discussions held and likely fields of collaboration considering the strengths of the Chinese institutions are given below in the chronological order of the programme.

Date 19th April 2010 (FN session)

Call on the Vice-Administrator of SFA

3. The Indian delegation called on the Vice-Administrator of the State Forestry Administration (SFA) H.E Ms. Yin Hong at the SFA in the morning of 19 April (*the meeting was confirmed only on the penultimate day*).

The Indian delegation was accorded a warm welcome by the Vice-Administrator and the meeting was conducted in a very congenial milieu. Tracing the background of cooperation in forestry matters between the two countries, she stressed the need for increased implemented and practical cooperation between the two countries. Although forest cover is increasing in China, the quality of forests is a concern and therefore the next phase of forestry reforms in China will focus both on qualitative and quantitative aspects. Recognizing the availability of huge knowledge pool in the two countries, she emphasized the potential of synergies and complementarities to meet the common challenges of sustainable forestry development facing both the countries. Appreciating the close

cooperation between the two countries in the area of climate change particularly in the context of Copenhagen Summit, she stressed the need for enhanced



Indian delegation meets H.E. Vice Administrator of P.R. of China

cooperation in the area of forestry and wildlife management. She also expressed the desire of the Chinese side to learn from the rich experience of development in the Indian forestry sector.

4. ADG (Forests) thanked her for the warm welcome and excellent arrangements made by the Chinese side. While agreeing with her statements, he highlighted the common challenges facing the two countries like environmental and forestry problems arising out of biotic pressure, desertification, forest degradation, shortage of forest products etc. He emphasized on the strengths of both the countries in the fields of scientific forestry management, strong research foundation, afforestation techniques with common species etc. ADG mentioned that he has come with a mandate from the Hon'ble Minister to take forward the cooperation between the two countries in terms of concrete actions and measures.

5. Concluding the discussion, the Vice-Administrator expressed the hope that there would be meaningful and useful deliberations between both the sides

during the Second Working group Meeting and interactions with various Institutes / organizations related to forestry in China.

[Second Session of India-China Working Group Meeting in the area of Forestry Cooperation](#)

6. This visit was also organised to take forward the agreement of cooperation on the above subject between the two countries which was signed on 21 November, 2006. At the suggestion of the Chinese side, the Indian side agreed to hold the second meeting of India-China working group on Forestry cooperation during the visit. The Meeting was held in the morning of 19 April at the premises of SFA. The Indian delegation was led by ADG (Forests) and comprised of 5 other members (List enclosed). The Chinese side was led by Ms. Zhang Hongyan, Dy. Director General, International Cooperation and comprised of experts from various fields (List enclosed).

7. After the introduction of the delegations from both sides, Madam Zhung gave an overview of the forestry sector in China and the mandate of State



Second Working Group on Indo-China Cooperation in Forestry matter

Forestry Administration. She mentioned the four areas in which SFA is working in China namely afforestation, combating desertification, wetland conservation and wildlife and bio-diversity conservation. She categorically mentioned the goal enunciated by the President of China to further add 40 million ha of forests and to enhance the growing stock by 1.3 bln cu m by 2020. She added that in order to achieve this target, the current level of afforestation in China is 5-6 mln ha annually. She mentioned that desertification is an area of concern for China, though the rate of increase of desertification has been arrested substantially in the last few years. In the area of wetland conservation, she stressed that China

(which is a signatory of Ramsar Convention), is working towards conservation of wetland. In the areas of Wildlife and bio-diversity conservation, she highlighted that China is managing 2012 natural reserves covering 123 mln ha of the forests, which is 12.78% of the total territory. She pointed out that both the countries are signatories of many international Treaties / Conventions and have many areas of common interests in forestry.

8. On his part, ADG gave a overview of the forestry sector in India through a detailed power-point presentation in the context of opportunities and challenges for bilateral cooperation in the forestry sector. He mentioned that India is a mega biodiversity country like China and that in spite of hevey biotic pressure, the forest cover in India has not only stabilized but has also increased over the last decade to present level of 78.4 mln ha, which is 23.8 % of the total geographical area. In the presentation, ADG highlighted the following issues and potential areas of bilateral cooperation:

- Management of Natural Forests including its restoration
- Management of plantation forests, in particular for productivity enhancement
- Forest inventory and forest cover assessment
- Forestry research including tree-breeding and genetics, germplasm exchange etc
- Capacity Building including Forestry Training and exchange of experts / professionals

The presentation outlined an exhaustive list of specific areas in which both the sides can work together on a long-term basis for mutual benefit. However, to start with, Additional Director General of Forests requested the Chinese side to identify some of these areas for cooperation of early action on the part of both the sides.

9. Ms. Zhuang expressed her satisfaction with the fact that ADG had presented a big picture for long-term future cooperation between the two countries. She assured that SFA will take into consideration all these proposed

areas of cooperation and would work in future towards that end. She specifically mentioned the visit of Hon'ble Minister of Forest to China last year which according to her laid the firm foundation for further cooperation in the area of forestry including the realization of this visit. She proposed that the minutes of the Second Session of the Working Group Meeting could be finalized after the completion of the visit of the Indian delegation and that the initial draft would be given by the Chinese side. The Indian side agreed to the proposal. DDG's concluding remarks were followed by presentations by the following members of the Chinese delegation:

- Zhou Lijun (Department of Afforestation and Greening management, SFA) – on Afforestation and plantation techniques including urban greening, water resource management, agroforestry, education sector etc.
- Fan Xibin (Department of Afforestation and Greening management, SFA) – on other aspects of afforestation including site specific technology and monitoring
- Zhang Min (Department of Forest Resource Management, SFA) – on National Forest inventory including deepened remote sensing applications, forest resource management and disaster management
- Chen Lie (Department of S&T, SFA) – on monitoring various ecosystems, sustainable forest management, timber security, adaptation on climate change, value-addition in forest products
- He Guangsen (Dy. Division Director, Chinese Academy of Forestry) – on research funding through Ministry of S&T of China including infrastructure development

10. DDG concluded the Session by saying that the minutes should reflect concrete forms of cooperation and the earnest desire of both sides to foster cooperation in forestry sector and will be signed through diplomatic channels. She proposed the third Session of the Joint Meeting to be held in India in 2012.

The Indian side proposed that future sessions may be held alternately in either countries on an annual basis to which the Chinese side responded favourably.

11. A working lunch was hosted by Mr. Qu Guilin, Director General, Department of International Cooperation, State Forestry Administration, P.R. China. This was originally proposed to be hosted by Mdm. Zhang Hongyan, Dy. DG, of International Cooperation Department of SFA. In the informal talk during the lunch time, the DG discussed on issue of forest conservation vis-à-vis development. He was informed about the role of judiciary and public interest litigations in India's forest conservation efforts and general awareness about conservation of forest and wildlife. The DG who was very optimistic and favourable to the cooperation between the two countries felt that the two countries together have potential of bringing about positive changes in the world. He suggested that the draft proceeding will be prepared by Chinese side and send for comments and signature by Indian delegation head. He also accepted the invitation to attend the dinner hosted by First Secretary in the Indian Embassy for both the delegations. On 20th April. During this interaction the DG suggested that China and India can jointly host a conference on forestry matters, of Asia pacific countries at IGNFA Dehradun, which was Indian delegates and Embassy official agreed to take up for consideration at Government level.

AFTERNOON SESSION 19TH APRIL, 2010

[Visit of the delegation to the Chinese Academy of Forest Inventory, Planning and Design](#)

12. The Vice- President of the Academy Mr. Wang Qingjie, welcomed the delegates and arranged a brief presentation of the works done by the academy. It was followed by a presentation from Indian side by Shri Rajesh Kumar Sr. Dy. Director of Forest Survey of India. Following points emerged after deliberations:

12.1 The Academy of Forest Inventory, planning and Design was founded in 1954 and is affiliated to State Forestry Administration. This Academy is

responsible for forest resource monitoring, information development and forestry planning.

12.2 There are some subdivisions under this Academy taking care of Information Centre of the State Forestry Administration, Wetland Resources Monitoring, GEF Wetland Project office, Wildlife Monitoring Centre etc.

12.3 The Institute of Forest Resource Information technique collects all types of secondary information -GIS, GPS and MIS based, for monitoring of forest resources information.

12.4 In the Academy of Forest Inventory, Planning and Design there are 300 professionals of which 80% are highly educated. The number of Ph.Ds working in the Academy is 80 and there are more than 30 professor level scientists.

12.5 The Academy as stated above undertakes

- a) Monitoring of Forests, wetlands and deserts
- b) Evaluation of Monitoring results
- c) Monitoring of wildlife resources including (endangered) wild plants.
- d) Monitoring key National Plans & Investments.



Indian delegation meets officials of Chinese Academy of Forestry Inventory

13. These studies are undertaken through 72 sub centres at provincial level for which they have developed electronic network and have developed computer software for the application, service and cooperation of the network. This institute is the “Think tank of SFA”.

14. This Academy provides services to other enterprises like paper industry, bio-energy industry, and organizations dealing with forest land utilization. The Academy works in collaboration with others in the eastern part of Asia and also with Russia in forest resource’ harvesting. The Academy undertakes monitoring of afforestation, analysis of the research results etc. on behalf of other international project authorities also. These projects, helped the Academy to develop its capacities.

15. Academy uses the data of IRS P 6 in remote sensing work. The handling of large data and monitoring various parameters of forest resources is a big challenge. Moreover, the data collected has to be on the same format, for which unified formats have been prepared in respect of certain key parameters.

16. The academy has identified 160 parameters for monitoring the forest resources as against 115 in the inventory forms of FSI. For monitoring various parameters 4,50,000 ground plots and 2.8 million remote sensing plots of 3x3 pixel size have been identified. The ground plots are of 10x30m size. FSI does not use remote sensing based plots; instead forest cover of the country is assessed following wall to wall approach.

17. The NFI in China is undertaken every 5 years since 1973, seven cycles have been completed and the 8th cycle will be completed in 2013. (FSI started NFI in 2002 on two years cycle for 1/3rd of the country, the results of the first cycle after 6 years are being compiled now in 2010)

18. The Academy authorities felt that India has good forest resource inventory expertise and also in remote sensing application, and hence, mutual collaboration and exchange of expertise is desirable in following areas:

1. Monitoring of young plantation,

2. Modeling biomass carbon using multi-source data,
3. Forest Eco-system valuation,
4. Development of National forest Database System and
5. Capacity building through exchange programme.

19th April 1700 hrs-2000 hrs

[Meeting with DG INBAR](#)

19. The delegation was invited by the Director General of INBAR to a courtesy dinner which was preceded by an hour long discussion. The DG INBAR made a brief power-point presentation (copy enclosed) highlighting the activities of INBAR in conservation and development of bamboo and rattan with special focus on value addition for sustainable livelihood of forest dependent



Meeting with DG, INBAR

people. INBAR was established in 1997 with its head quarters in Beijing and is now having 34 countries in its network. India as a member of INBAR has active interest in its progress.

20. The ADG while thanking DG INBAR for her welcome gesture, informed that Bamboo and rattan are two important natural resources in India with huge potential for poverty alleviation, if value addition could be organized at the primary producer's level. He also mentioned that India is a founder member and has always been involved in development of INBAR.

21. DG, INBAR mentioned that the mission of INBAR is to improve the lives of the producers and users of bamboo and rattan through sustainable trade and use of the resources. The strategies adopted are :

- a) expanding the network which at present comprises 34 countries and 170 institution and individuals
- b) better ways and means of livelihood development
- c) strengthen sustainable use of the environment and
- d) fair pro-poor global trading systems

The National Bamboo Mission of India is working in partnership with INBAR. The INBAR works on and believes in partnership approach. They have to date over 200 MoUs and 550 regular contacts for information service, training and research activities. This is needed for realizing the potential of bamboo and rattan. The delegation later visited the museum of products prepared out of bamboo and rattan.

22. DG INBAR highlighted the following issues for consideration of the MOEF. Govt. of India:

1. INBAR is organizing a minister level conclave in Sanghai on 22 may 2010. DG requested the confirmation of MEF's participation in this meeting. ADG suggested that due to shortage of time INBAR should pursue this through diplomatic channel.
2. Jorhat Institute of ICFRE in collaboration with INBAR has submitted a joint project for value addition and capacity building of local people for utilization of flowered bamboo in north east India.

This project has been technically approved by MOEF. DG INBAR suggested that the funding for this project should be provided early. ADG informed that this project will be considered for funding in the current financial year.

23. On the request of Director IGNFA the DG INBAR agreed to come to Dehradun and address IFS probationers for strengthening the INBAR network in India in June, 2010 during her Asia Pacific workshop program in Bhutan.

Date: 20th April 2010 (FN)

Visit to Chinese Academy of Forestry (CAF)

24. The Indian Delegation was welcomed by Dr. Chu Fuxiang, vice president of the Chinese Academy of Forestry. Dr. Chu is a scientist in the field of Chemistry. In his address the Vice President wished to establish relationship at the Academy/Institute level and also wished that the third meeting of the working group may be held in India with the Chinese delegation from SFA/CAF. This Academy is the counterpart Institute of ICFRE in India. ADG(FC) responding the address of Dr. Chu, thanked the Vice president of the Academy for the welcome gesture and meticulously drawn up program for the meeting and field visits. He also organized a brief presentation from Indian side highlighting the area of probable Cooperation.

25. Before the delegation had their meeting with the authorities of CAF, the exhibits on certain activities undertaken by the Institute of Forest Resource Information Techniques of CAF were explained. This Institute undertakes activities relating to forest resource information gathering developing formats for data collection etc. Information relating to the ecological research on stand structure, natural forest modeling is also collected.

26. An elaborate discussion on afforestation, Plantation and forestry research was held between the Chinese and the Indian delegation. China has seen immense development in the above areas and they evinced keen interest for co-operation with India in these areas. Dr N Krishnakumar, the Director, IFGTB made a presentation on India's achievement in afforestation, plantation and

research. He highlighted the role of Indian Council of Forestry Research and the Institutes under the council, areas of research and species worked by ICFRE Institutes which have made landmark contributions for forestry conservation and development in the country. The role of IFGTB in Forest Genetics and Tree Breeding and the thrust areas of other Institutes of ICFRE was explained, so that the Chinese Institute could identify the respective Indian Institutes of ICFRE for future collaboration in specific areas.

27. In the discussions with the Chinese Academy of Forestry (CAF) on 24.10.2010, the Chinese delegation explained the thrust areas of the 21 Institutes under the Academy in 11 provinces covering areas of silviculture, ecology, forest protection, wood science, wet land conservation, combating desertification, forest product processing and utilization, bamboo research, tropical forestry research, forest machinery research etc. Like the ICFRE Institutes in India, the Chinese Academy of Forestry has specific institutes to focus on specialized areas of forestry and to concentrate on the challenges faced in these specific areas. The CAF has over 3000 staff in all of which 1800 are scientists. They also have excellent laboratory facilities and students strength to work in areas of forestry. The total extent of experimental land under the CAF is 60,000 ha. They have large collection of books and have subscribed for over 12,000 kinds of journals. CAF also concentrates on research in avi fauna and wildlife conservation. They have research centres focusing on insects, micro organisms and the Yunnan Biological Research Centre caters to research on Lac insects, besides others. Detailed research is done in the area of wood industry, chemical processing and utilization of forest products. Research Institutes also focus on forest policy and information.

28. Dr. Meng Zhu Lu from the Biotechnology laboratory informed about the laboratory established in 1988. This laboratory concentrates on molecular biology of popular besides genetic engineering of various tree species and medicinal plant species. The special focus of the laboratory is on development of insect tolerant species and the trees that can tolerate cold environment of the northern China. The Institute is involved in traditional breeding program for

popular species. They are also involved in study of linkage mapping, genetic engineering, transformation and transgenic technology.

28.1 A group also concentrates in Conifer sp. breeding with special reference to *Larix* sp. Pines etc. Another group focuses on plant metabolites with special reference on toxal synthesis, development of bio products.

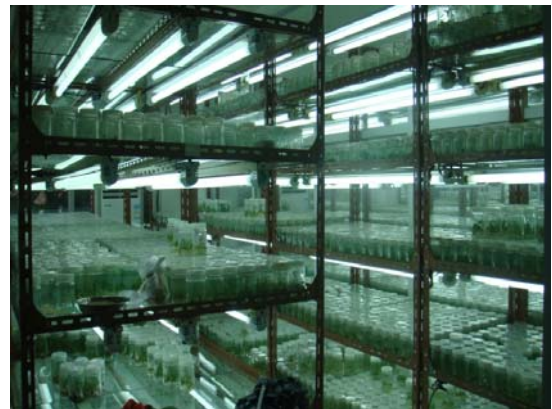
28.2 The focus of yet another group is on tissue culture, transgenic and plant protection. Special mention was made by Dr. Lu in controlling the damage caused by the Asian Long Horned beetle in populars. 50% of the sps, is damaged by these insects and the laboratory has developed transgenic popular that is insect tolerant.

28.3 The popular sp. extensively worked is *popular niagra*. Transgenic trees of *P. niagra* is planted in more than 400 ha. in China. The other area of study is on developing trees for freezing tolerance.

28.4 Dr. Lu explained the challenges caused by the solidification of Plasma membrane fluids and their work is on developing fluidity of Plasma membrane that can withstand freezing tolerance which is now planted in northern china.



Bio-technology



Tissue Culture

28.5 Good work has been done in area of wood formation with special reference to strengthening and development of Cambium region of desired tree species to increase volume of the wood. The laboratory has been successful in identifying genes and their selection for wood formation.

Forest Education:

29. The CAF imparts education in forestry fields at Master (PG) and Ph.D. level and the teaching part is undertaken by Beijing University.

Date 21.4.2010 (FN)

Visit of the delegation to the Badaling Forest farm arranged by Beijing Gardening and Greeing Bureau under Beijing Forestry and Parks Department of International Cooperation of Beijing Forestry Society.

Mr. Xin Zhi Professor assisted by Mr. Li Feng both from Beijing Forestry and Parks Department of International Cooperation conducted the visit. The delegation first had the meeting with these and other officials of Badaling Forest Farm and later visited the forest farm.

27. During the discussion it was informed that most of the forest in Beijing area were destroyed by 1950 reducing the forest cover down to 1.5% but large scale afforestation programmes have recovered the forest cover to an impressive 37.5% of geographical area. The delegates visited the Badaling



Massive Afforestation

Park where restoration on degraded areas have been done using many tree species. The terrain of the forest farm is hilly and rocky with very poor soil cover. Through this hilly terrain along the ridge passes the Great Wall of China which is a great tourist attraction. The Forest farm was established in 1959 and covers an area of 2900 ha of which only 57% is forest. The Beijing Forestry and Parks Department undertakes plantation on different sites under various Govt. schemes which include International programmes.



Highway Plantation



Railway side Plantation

- a) Under Green ecological protection barrier programme vertical greening along National Highways, Roads, and Railways is undertaken in which trees and shrubs are planted. The general spacing is 3x4 m with rotation of 30-40 yr. The highway & road design includes plantation on either wide, as a part of road project. In ideal cases the width is 100 m on either side. The species are mixed but quite often in Beijing area poplar is planted. The job of plantation is done by the forestry bureau.
- b) A detailed presentation was made on Afforestation techniques adopted along highways railway lines, rural road, wet land areas and village sites. China has developed excellent plantation technologies for different sites. Ornamental planting, planting along rivers and streams, urban planting have all being successful because of the programme of voluntary tree planting movement in which public participate.

c) In the hilly forest area fire fighting is given lot of importance.

The forest police stations are also the fire stations in which the forestry staff is posted on a regular basis. There are fire supervisors who have uniforms and each of them commands a party of fire fighters who go with fire fighting gear and equipment when need arises. For extinguishing forest fire occasionally the services of army helicopters are also requisitioned in which water and chemicals are sprayed from above. In most cases counter fire lines are cut



Fire Supervisor's Training Class

and cleared. Back pack blowers are used by the fire fighters to push out inflammable material and extinguish fire. Such back pack blowers may be introduced for fighting ground fires in India. A team of fire supervisors and firefighter duly equipped with gears and firefighting equipment can be engaged in India during fire season all levels. Appropriate training could be imparted to the forest officials in this technique



Fire Fighters in action

- d) Beijing also has an excellent wild animal and plant protection division besides wildlife breeding centre. Their programs of forest health management close to nature forest management, forest certification have enabled them to bag the prestigious FSA award from Sweeden for the Badaling Park as an excellent ecological farm.

Date 22.4.2010 (FN)

[Visit to the Research Institute of Tropical Forest \(RITF at Guangzhou\)](#)

30. The delegation was received and welcomed by Dr XU Daping, Director of RITF, Guangzhou. Detailed discussions were held with the scientists present.

RITF was established in 1962 at Guangzhou and at the moment has the staff strength of 141. The mission of the Institute is to provide key technical solution

to forest conservation and development of tropical and sub-tropical forests in five provinces of China. Most of the scientists have master degrees, many have Ph.D. degrees. There are 41 scientists at Professor level. Most of the scientist cadre is in the age group of 36-45 years. 75% of the staff is on contract basis and 25% are regular employees. The Director of the Institute said that in next 10 years the institute will have better equipments than US institutes working in the same field.

31. The tropical rain forests in the south, which constitute 20% of the country's forest area, are biodiversity rich areas. RITF has undertaken forest-water interaction studies, carbon flux studies, forest and locality factors interaction studies and productivity related studies

32. A presentation was made by the Director, RITF on the research areas of the Institute. Dr. Zhong Chonglu, Professor, Genetic Resources and Genetic Diversity, RITF specially mentioned about the 4th International workshop recently



Forest Restoration

held in Haiku where three scientists from IFGTB had participated. The Director opined that species specific cooperation on research can be held with IFGTB. Most of the scientists have Ph.D program, are in younger age group and are

able to produce quality publications. This Institute has many collaborative projects with ITTO, CIFOR ACIAR, (Australian Centre for International Agricultural Research), IFS (International Foundation for Science) and other countries and international research institutions. CAF also has a university program from where students are deputed to the Institutes like RITF to pursue their masters in Ph.D. program. The Institute's budget is significant with 1/3rd of it spent on salaries, 1/3rd on research covering various areas and 1/3rd for development of infrastructure which includes equipments, facilities and building. The Institute handles around 150 projects every year and publishes approx. 100 papers per year in areas of silviculture, tree breeding, ecology, urban forestry and forest management which are their thrust areas.

33. The research centre Hainan concentrates on research on ecology, particularly with reference to monitoring of polluted areas. Serious studies are also done in areas of carbon sequestration. This centre has an excellent facility for producing tissue culture plantlets of eucalyptus, teak and other indigenous sp. China is more into tissue culture and they have developed protocols for large scale multiplication and deployment of tissue culture plantlets to factories and farmers. The research findings are given free to the farmers and industries. Though there are protests against eucalyptus in some quarters, industries are going ahead with large scale propagation and plantation of eucalyptus clones. Research is not done by the private nursery owners and pulp wood industries. Research Institutes like RITF transfer their findings to the people. And the clones developed are also given free.

34. All the land in China is owned by Government. People can take land on lease from Government and develop their own nurseries and plantations. China has not commenced work on development of transgenic for Eucalyptus sp. The institute is also working on sandalwood, teak and *Pterocarpus indica* etc produced through tissue culture. 10 clones of teak have been developed which are harvested at 30 years rotation. Research is also done on Rattan, Avacado, Flowers and mushroom by the Institute.

35. Another station of this Institute works exclusively on mangrove restoration. China's mangroves dropped drastically due to biotic threats when serious

studies in Hainan for restoration and conservation of mangroves were initiated. Mangrove sp. Like *Sonnerata apetala* were introduced in 1958. A presentation on mangrove restoration was made which clearly showed the strength of China in mangrove restoration.



Mangroves Plantation

Mangroves Forests

36. This institute also expressed the interest in clonal forestry of species like eucalyptus, casuarina, acacia and also expressed the desire for exchange of germplasm of these species, besides exchange of germplasm of indigenous sps. of India with china and vice versa. This Institute is also into hybridization programme of eucalyptus and have produced *Euro grandis* with high pulpwood qualities. The team also visited the tissue culture facilities, where plantlets of tree species produced were transported in thermocol packing boxes, 50,000 plantlets being packed in each box. The mycorrhiza laboratory, molecular biology laboratory and soil science laboratory were also very well equipped.

Cooperation desired

37. Thus, in areas of Afforestation, plantation and research there are many things to be shared and exchanged between China and India. The ICFRE Institutes and State Forest Departments Research and extension wings can collaborate with Institutes of CAF for conservation and development of forestry in India.

38. The Director of the Institute desired to have cooperation in the following specific fields:

- a) Clonal forestry, hybridization and tree improvement in Eucalyptus, casuarina and Acacia for increasing wood production.
- b) Exchange visit of scientific personnel, also to study how research project of common interest are being run. RITF will provide accommodation and local logistics for the visiting scientist.
- c) Exchange of germplasm of indigenous species of India (special mention of *Santalum album*, *Pterocarpus santalinus*, *Dalbergia sisoo* was made by the Director of RITF) He recommended Chinese fir *Cunninghamiana lanceolata* for subtropical region of India, *Pinus masoniana* and *Dalbergia odorifera* for other regions).
- d) General agreement of collaboration between CFA & ICFRE, and institute level project formulation and implementation.
- e) Capacity building: Professional and scientific level visits on different themes at different times.

39. Besides above specific areas the following research areas were also identified for co-operation

- a) Technology transfer in areas of molecular genetics and biotechnology.
- b) Mangrove conservation and restoration.
- c) Plant protection and forest health research.
- d) Plantation management and productivity.
- e) Studies on climate change and carbon sequestration
- f) Forestry extension strategies.

Date 23rd April 2010(FN)

Visit to Baiyun Mountain Ecotourism centre

40. On the 23rd April 2010 the delegation visited Baiyun Mountain of Guangzhou. Which has been developed as an excellent ecotourism destination close to the Guangzhou city. It is a hill forest in which the original vegetation has been supplemented with plantation of other species including ornamental plant species. The entire area, almost every inch, as could be seen was covered by dense vegetation of trees, shrubs and herbs.

41. The entry to the hill side is regulated through tickets. The visitors can walk or take open battery operated cars. From the gate-end to the hill top there are some open spaces kept for visitors to sit, relax and play. The entire road length is planted on both sides with herbs and shrubs and nicely decorated to make the trek a pleasant journey. A cable car runs from the road end to the hill top and the journey by the cable car gives a beautiful overview of the vegetation adjoining high rise concrete building landscape of Guangzhou city.

42. A large number of workers are seen at all the places maintaining and continuously cleaning the area. Some photographs of the hill & the vegetation are attached which describes the place better.

CONCLUSIONS

43. Having visited the institutes mentioned above and having had discussions with different officials on various issues the Indian Delegation is of the view that the strength of the Chinese forestry sector lies in the following fields:

- 1 Massive afforestation: (40 million ha is to be afforested in the next 10 years) and proper implementation of the schemes.
- 2 Genetics and tree breeding: Selective breeding, hybridization, transgenic plant varieties suitable for various landscapes of the

country in order to be able to produce more and improve the quality of products

- 3 Resource information gathering on national level formats for centralized planning process through inventory and remote sensing technology by the national data center.
- 4 Monitoring of various national level schemes and investments through inventory and remote sensing technology.
- 5 Research Institute are provided with huge Scientific Manpower. Massive investment in the R&D to the tune of 1.5% of the GDP to be increased to 2% in the next 10 years.
- 6 Modern firefighting efforts & fire surveillance activity.
- 7 The strength also lies in the forest economics, certification, ecology and restoration forestry. Landscape planning specially with reference to urban plantation and greening is note worthy.
- 8 The plantation technology for fast growing species, yield estimation, felling, management and productivity are well conceived and implemented.
- 9 Forest health monitoring and carbon sequestration studies are areas of higher achievements.

RECOMMENDATIONS

44. The Delegation in view of the above recommends as follows:

- 1 A general agreement of collaboration between ICFRE & Chinese academy of forestry at national level could be signed and direct collaboration at institute level of both countries for project formulation and implementation could be established. Collaboration should also happen in the field of combating desertification

between AFRI Jodhpur and the Chinese counterpart institute. IFGTB of ICFRE, India and RITF of Chinese Academy of forestry may join hands in various aspects of tree improvement, including hybridization, transgenic tree varieties research, exchange of germ plasm and initiate country level trials of some identified tree / shrub species of Chinese origin for afforestation of various sites in India in exchange of species of Indian origin.

- 2 FSI may collaborate with the Academy of Forest Inventory Planning and Design and the Institute of Forest Resources Information Technique (under CAF) for better understanding of national level data collection format and the parameters which are used for monitoring purpose. This will help FSI to develop for the new responsibility to work as national data center and national information management & monitoring center, as decided by MoEF. The Deputy Director of institute of forest resource information technique Mr. Zu Hongbo could be invited to establish the data center at FSI Dehradun.
- 3 Collaboration should also be done regarding various lessons learnt in the seven cycles of NFI, and use of remote sensing 3x3 pixel plots for monitoring purposes.
- 4 Visits of forestry professionals of the State Forest departments from India to various afforestation sites.
- 5 Visits of scientists working in specific fields to selected institutes of both countries for short and long term research programmes for capacity building.
- 6 Capacity building of Indian Forest Service officers through the visits / lectures of Chinese professors for short and long duration to IGNFA.
- 7 Respond favorably to all such reciprocal request of Chinese state forest Administration and institutes.

8 All the above suggestions of course can be taken up after approval of the ministry, their diplomatic channel between the two countries.

45. In brief, discussions on area of mutual cooperation were held in extremely cordial atmosphere. Excellent arrangements were made by the Chinese side both for the headquarter level meetings and field visits. Keen interest was evinced by the Chinese side in identifying and understanding areas of mutual interest and collaboration so that both the countries are benefitted on a long term basis by introducing synergies in mutual areas of collaboration.

46. While Indian embassy has done its best in the arrangements in all aspects of making the visit successful, it is necessary to place on record the personal guidance and support provided by the Indian Ambassador. Specific mention is necessary for the contribution of Dr. Adarsh Swaika, First Secretary in the Indian Embassy who not only facilitated the entire programme of the delegation but also took active part in all deliberations and accompanied the delegates till the end of the programme. His contribution for success of this visit is highly appreciated.

47. A copy of this tour report will be sent the Indian Embassy, so that the draft proceeding from Chinese side can be vetted by the Embassy & also by MoEF before giving our Concurrence.

* * * * *

**List of Indian Participants at the 2nd Session of
India-China Working Group Meeting on Forestry**

1. Dr. P.B. Gangopadhyay, Additional Director General of Forests, Ministry of Environment & Forests, Government of India
2. Shri R.K. Goel, Inspector General of Forests, Ministry of Environment & Forests, Government of India
3. Dr. R.D. Jakati, Director, Indira Gandhi National Forest Academy, Government of India
4. Shri Rajesh Kumar, Senior Deputy Director, Forest Survey of India(FSI), Ministry of Environment & Forests, Government of India
5. Dr. N. Krishnakumar, Director, Institute of Forest Genetics & Tree Breeding
6. Shri Adarsh Swaika, First Secretary, The Indian Embassy in China

List of Chinese Participants in various Meetings with Indian Forestry Delegation

19.04.2010 morning session

State Forestry Administration

1. Ms. Zhang Hongyan, Deputy Director-General, Department of International Cooperation, State Forestry Administration (SFA) (Chairperson for the Chinese side)
2. Mr. Wang Qingjie, Vice President, Professor, Chinese Academy of Forest Inventory and Planning , SFA
3. Mr. Liu Lijun, Division Chief, Department of International Cooperation , SFA
4. Mr. Fan Xibin, Director, Department of the Tree Planting and Afforestation , SFA
5. Mr. Zhou Lijun, Division Chief, Department of Afforestation & Greening Management, SFA
6. Mr. Zhang Min, Senior Engineer, Deputy Division, Department of Forest Resources Management, SFA
7. Mr. Chen Lie, Department of Science & Technology, SFA
8. Mr. He Guangsen, Deputy Director, International Cooperation Division, Chinese Academy of Forestry
9. Mr. Zhao Youxian, Division Chief, Chinese Academy of Forest Inventory, Planning & Design, SFA
10. Ms. Wang Hua, Programme Officer & Chinese – English Interpreter, Department of International Cooperation, SFA
11. Ms. Xie Yi, Programme Officer, Department of International Cooperation, SFA

19.04.2010 afternoon session

Academy of Forest Inventory, Planning & Design

1. Mr. Wang Qingjie, Vice President, Professor, Chinese Academy of Forest Inventory and Planning , SFA
2. Mr. Zhoo Youxian, Division chief of Technology & Science division, & director of general engineer office
3. Ms. Han Aihui, deputy division chief of Monitoring 2nd division
4. Mr. Xia Chaozhong, senior engineer of Monitoring 2nd division
5. Mr. Wang Guosheng, professor & senior engineer, desertification monitoring division
6. Mr. Zhi Changgui, senior engineer of Monitoring 2nd division
7. Mr. Fu Anmin, engineer of desertification monitoring division
8. Mr. Wang Xiao Kun, engineer of Monitoring 1st division

19.04.2010 5.00 pm session

International Network for Bamboo and Rattan

1. Mr. J.Coosje Hoogendoorn, Director General, International Network For Bamboo and Rattan
2. Mr. Zhu Zhaohua, Distinguished Fellow of International Network For Bamboo and Rattan for Life
3. Mr. I.V.Ramanuja Rao, Programme Director Livelihood & Economic Development, International Network For Bamboo and Rattan
4. Mr. Hao Ying, Head of membership Unit, International Network For Bamboo and Rattan

20.04.2010

Chinese Academy of Forestry

1. Mr. Chu Fuxiang, Vice president, Research Professor, Chinese Academy of Forestry
2. Mr. Ju Hongbo, Director, Institute of Forest Resource Information Techniques, Chinese Academy of Forestry
3. Prof. Lu Mengzhu, Deputy Director, Institute of forestry
4. Dr. Wu Shirong, Associate Professor, Institute of Forestry Policies and information
5. Mr. He Guangsen, Deputy Director, Division of International Cooperation, Chinese Academy of Forestry
6. Ms. Dong Na, Research Manager, Institute of Forest Ecology Environment and Protection
7. Ms. Liu Dan, Research Manager, Institute of Forest Resource Information Techniques

21.4.2010

Badaling Forest Farm

1. Mr. Chen Junqi, Senior Engineer, Beijing Forestry Carbon Administration, Beijing Forestry and Parks Department of International Cooperation
2. Mr. Li Feng, Project Assistant, Beijing Forestry Carbon Administration, Beijing Forestry and Parks Department of International Cooperation

22.4.2010

Research Institute of Tropical Forestry

1. Dr. Xu Daping, Director & Chief Research Scientist, Research Institute of Tropical Forestry, Chinese Academy of Forestry
2. Dr. Siming Gan, Research Professor, Tree Molecular Genetics, Research Institute of Tropical Forestry, Chinese Academy of Forestry

3. Mr. Baowen Liao, Ph.D, Head of Mangrove Group, Professor, Research Institute of Tropical Forestry, Chinese Academy of Forestry
 4. Dr. Zhong Chouglu, Professor, Genetic Resources and Genetic Division, Research Institute of Tropical Forestry, Chinese Academy of Forestry
- * Mr. Qu Guilin, Director General, Department of International Cooperation, State Forestry Administration