

STAKEHOLDER'S WORKSHOP ON FOREST RESEARCH AND EXTENSION

**Institute of Forest Genetics and Tree Breeding, Coimbatore and
Kerala Forests and Wildlife Department**

Date: 19 May 2010

Venue: Forest Headquarters, Vazhuthacaud, Thiruvananthapuram

PROCEEDINGS

The Workshop started with a welcome address delivered by Shri T. P. Raghunath, Group Co-ordinator (Research), IFGTB, Coimbatore. In his address, he informed that, out of 36 research projects approved by the Research Advisory Group (RAG-2009), in which the PCCF, Kerala Forest Department was the Chairman, 29 were finally sanctioned by the Research Policy Committee (RPC) of ICFRE, Dehra Dun and among them, about 50 per cent of the projects pertains to the research needs of the Kerala Forest Department.

The welcome speech was followed by the address by Dr N. Krishna Kumar, Director of IFGTB. He mentioned that, with the PCCF as the Chairman of the RAG, a re-orienting of the research programmes of the institute was carried out. He also informed that the Stakeholder's Workshop is an event organized by IFGTB with the clients, every year. He suggested that this event may be treated as a transfer of technology meeting. The field level functionaries may also be invited for better understanding of research findings and its wider field application. The interactive meeting could be organized during April or May, every year. He desired that, the PCCF may flag some of the issues, during the present meeting, so that the institute could develop them into research projects. He mentioned that IFGTB has specialization in the field of Genetics and Tree Breeding and has expertise in development and management of seed orchards. He pointed out that IFGTB has been closely working with the Kerala Forest Department and organized "Karshaka Mela" in the Kerala Forest Research Institute (KFRI), Peechi and participated in the Forest Exhibition, "Vana Vismayam" conducted by the Department at Ernakulam, in the year 2009. He pointed out that IFGTB is trying to address more forestry related problems of Kerala and stated that a Scientist of IFGTB is connected to two districts each of the State, so that he/ she could give individual attention to forestry related issues of those particular districts.

Shri T.M. Manoharan, PCCF and Head of Forest Force, Kerala Forest Department expressed happiness over IFGTB's re-orientation of its research programmes for meeting the requirements of the clients. He mentioned that IFGTB has some leads in handling fast growing species, which have been welcomed by the farmers in Tamil Nadu. He suggested to take up similar works in respect of Kerala also.

The PCCF reminded the consistent resistance against the exotics in India in general and in Kerala, in particular. He suggested to take up works on fast growing multipurpose species like *Gmelina arborea*, which is suitable for panelling, making sculptures and so

on. He also requested to study its pulping qualities. He also mentioned that *G. arborea* is a medicinal tree, wherein the root portion has medicinal value. He stressed the need for identifying and developing varieties of indigenous multipurpose, fast growing species suitable for Kerala condition.

The PCCF pointed out that, while doing final felling of Teak plantations, other miscellaneous species available in the plantations are also felled. He wanted to carry out studies to find out whether the miscellaneous species are to be retained or to be clear felled in Teak plantations, during the final felling.

He stressed the need to improve the productivity of Teak plantations by adopting organic farming policy. He pointed out that application of chemical fertilizers may not be economically viable. He also suggested to look into the economical viability of organic farming.

He mentioned that KFRI is doing work on weeds. He suggested to develop methods by which the weeded materials could be converted into manure. He opined that some kind of mobile field units, if developed for this purpose may be useful.

The PCCF informed that the Teak Seed Production Areas (TSPA) established in Kerala do not produce much seed. He suggested to look into the problem and rectify it. He opined that a joint team of IFGTB, KFRI and KFD may visit the TSPAs established in the State, to find out the defects and work out a strategy to improve the seed production. He wanted to fix up a time schedule for this work. He reminded that the KFD is facing shortage of Teak seeds.

The PCCF informed that the KFD has identified 9 high biodiversity value areas for conservation and monitoring. He wanted the teams consisting of members from KFRI, TBGRI, IFGTB and MSSRF to visit these areas.

The PCCF mentioned that the Forest Survey of India would like to have long term monitoring plots. He mentioned that similar request from ICFRE was also obtained for laying out plots for carbon sequestration studies. He said that such plots can be jointly selected, like the Preservation Plots established earlier. Each institute can collect their relevant data and KFD shall maintain these plots, he said.

The PCCF said that an institution is being created for biodiversity conservation and monitoring. The sites for this purpose will be selected in different eco-climatic zones. These sites shall be earmarked for long term management. The impact of management on the biodiversity of these sites will give some useful inputs for the Working Plans.

The PCCF observed that the Working Plans usually contain only prescriptions for clear-felling, planting, thinning etc. He mentioned that, in Kerala 20 per cent of the forest area are under plantations; among which, 10 percent is under Teak and the rest are that of other species. He informed that, in 1980s clear-felling was stopped in Kerala and later selection felling was also stopped. Now the natural forests are to be maintained for conservation and ecological services. In the light of these developments, the PCCF wanted to remodel the Working Plans, by getting inputs from institutes like IFGTB, KFRI, TBGRI, CWRDM etc. He opined that the status report based on satellite imagery if given by these institutes may form Part-II of the Working Plans.

After some time these areas have to be re-visited to have an understanding of the changes that have happened there, he said.

The PCCF has also underscored the need to pay attention to the research needs of wetlands, particularly the mangroves.

He opined that, such meetings would enable us to identify the strengths, nurture co-operation, avoid duplication of efforts, ensure effective utilization of expertise and facilities. He wished that these meetings need not be an annual affair and could be organised frequently, by involving IFGTB, KFRI, TBGRI, MSSRF, SACON etc. He pointed out that the CCF (Biodiversity) has formed a network, involving all these institutions working in the Western Ghats. He informed that some substantial financial support is expected under the Green Fund from the Govt. of India, for maintaining good quality forests.

Followed by the inaugural address of the PCCF, Shri Kannan C.S. Warriar, Scientist from IFGTB made a presentation of the research activities, which are being pursued by the institute.

Dr. N. Krishna Kumar, Director of IFGTB presented the future areas of collaboration between the KFD and IFGTB. He informed that out of 10 points suggested by the PCCF during the Stakeholder's workshop in 2009, many of the things were taken care, by the institute. He also mentioned that the project on Teak submitted to KFD was referred to KFRI and their comments have been received and IFGTB is working on it.

The Director, IFGTB suggested the PCCF to organize a Workshop on Teak, to look into certain grey areas. He wished that, a compendium could be brought out after the workshop.

The Director, IFGTB brought certain issues like permission for accessing the forest areas for research purpose, permission for seed collection, providing of land for conducting field trials etc. He also informed that, IFGTB has plan to organize workshops for forest officials of different levels, from Conservator and below, on various aspects. He also stressed the need for joint implementation of research projects and collaborative research.

Shri V.K. Sinha, PCCF (SF) wanted to know the details of works done on mangroves by IFGTB, for which Dr. B. Nagarajan, Scientist from IFGTB replied that, at present the institute is concentrating on RET mangrove species like *Bruguiera* and *Ceriops*. He mentioned that in the case of *B. sexangula*, one of the threatened species, only 20 individuals are left out at Panangad and Kumbalangi areas of Kerala. He also said that the species recovery research is funded by ICFRE.

Shri Lakhwinder Singh, CCF (Research) made a presentation, highlighting the following points for discussion:-

1. Productivity of Teak

- Teak not doing well in 2nd rotation areas.

Dr. B. Nagarajan, Scientist from IFGTB said that, there is need for supplementing the nutrients. He also pointed out that Teak is a heavy light demander and it needs enough spacing for flowering and fruiting. He said that Teak trees in Walayar produce 10 to 15 Kg of seeds per tree, on an average.

Dr. K. Palanisamy, Scientist from IFGTB pointed out that spacing is a main constraint for more seed production in Teak orchards. He also underscored the need for nutrient supplementing.

The CCF (Research) observed that, if the Teak orchards produce the predicted quantity of seeds, Kerala needs only 13 ha of well maintained orchard for raising 1000 ha of Teak plantations per year. The PCCF opined that the seed production from SPAs mentioned in books is only estimation, but it is influenced by many factors in the field and suggested to have a re-look on this issue.

Shri Amarnath Shetty, MD, KFDC observed that, when a plantation raised for the purpose of timber production is converted as SPA, it may not yield the required quantity of seeds. Hence he suggested that for establishing an SPA, the selection process has to begin from the first thinning, so as to circumvent this problem. The PCCF observed that, in the case of *Artocarpus hirsutus*, the SPA might only be a selection, rather than establishing it from early stage itself for the purpose of seed production.

Dr. B. Nagarajan pointed out certain reasons related to insect pollination, for less seed production. He stated that, in Teak, one of the pollinators is the Sphingid moth, which is now-a-days missing in many places. Such lack of pollinators could also lead to less seed production in SPAs, he said.

Dr. A. Nicodemus, Scientist from IFGTB pointed out that, a scrutiny of the fruiting data in SPAs of Teak has brought to light certain fruiting pattern. There are good seed years and bad seed years as far as Teak orchards are concerned and usually one good seed year occurs in every 3 years period. He suggested that SPAs which are productive could be well managed through various kinds of interventions.

Shri K.K. Srivatsava, PCCF and Chief Wildlife Warden opined that even one fourth of the Teak SPAs could meet the seed requirements of the State. He suggested to fertilize the SPAs with Potash, Mussoorie phosphate etc. in every 3 years. The SPAs established in Nilambur might be enough for meeting the seed requirements, he said.

Dr. K. Palanisamy pointed out that the age of trees in Teak SPAs has been around 60 to 70 years, which could be one of the reasons for less seed production. Hence he suggested to select more younger plantations for the purpose of SPA.

Shri V.K. Sinha, PCCF (SF) queried, what can be done with the existing Teak SPAs. He pointed out that selection of new SPAs is another issue.

The PCCF said that, as per records available, there are about 1500 ha of Teak SPAs in the State. PCCF wanted to know whether all these plantations are SPAs in the strict sense? Also, it has to be ascertained that whether all the prescribed management practices for Teak SPAs have been carried out in these plantations, he said. Hence he

suggested to revisit all the 1500 ha of Teak SPAs in the State, to assess their quality. He advised that, as far as possible SPAs may not be selected in Sanctuary areas like Parambikulam due to difficulty in getting permission for felling operations.

The PCCF suggested that only about 500 ha of good Teak SPAs can be retained, probably with an average production of 50 kg seeds/ ha. He requested to decide about the operations to be done there and desired that these operations are to be carried out under the technical guidance of research institutes like IFGTB, KFRI etc.

Regarding the establishment of new Seed Orchards, the PCCF called for the inputs from research institutes on what could be the ideal extent of the orchard and he desired that, it has to be a joint venture. He opined that for seed production, we may raise the plantations in Wayanad, Nilambur, Malayattoor Konni, Thenmala etc. and the extent of each orchard could be 10 ha, totalling to 50 ha altogether. He requested to identify the areas from the clear felled Teak plantations, by a team. Shri N. Gopinathan, CCF (Vigilance) suggested that Naduvathumuzhy area in Konni Forest Division could be one of the suitable locations. The PCCF suggested to apply all prescriptions in these orchards, systematically and also to fence it to protect from cattle etc.

Shri K.K. Srivatsava pointed out that, all around the proposed Teak Seed Orchard, there would be other Teak plantations of inferior quality, and there might be a possibility of pollen contamination.

The Director, IFGTB suggested to include some Teak clones also in these areas.

Dr.K.Swarupandan, Co-ordinator, Research, KFRI opined that, cultural operations, manipulation of spacing etc. may not serve the purpose of enhanced seed production. He mentioned that a fungal disease affecting the inflorescence, leading to premature fall of flowers/ fruits was reported by KFRI. He added that high humidity also leads to premature flower fall. He suggested to conduct experiments on nutrient application and opening of canopy, so as to reach in definite conclusions.

But Shri K.K. Srivastava was of the view that light and nutrients are very essential components for seed production and conducting of experiments may be time consuming.

Shri V.K. Sinha opined that in promising Teak SPAs, intervention can be done. In the same Teak SPAs, some experiments also can be conducted to know the impact of various interventions on fruit production.

Dr. K.P. Ouseph, CCF queried on the yield of the 60 ha of Teak SPAs established by IFGTB. He was of the view that if this data is available, it will be very useful. Shri Lakhwinder Singh replied that the data is available, but the yield is less.

The PCCF expressed that the team for carrying out the inspection, intervention etc. in the Teak SPAs can be constituted during the proposed Teak workshop.

The Director, IFGTB brought to the notice of the PCCF that, a project on 'Butterfly diversity in relation to landscape changes in Walayar Valley' in was approved by the RAG of IFGTB, but subsequently the RPC at ICFRE, Dehra Dun suggested to seek

funding from KFD. The PCCF asked about the project and the PI, Dr. K .R. Sasidharan explained that the objective is to study the influence of changes happened in the Walayar Valley on butterflies. The PCCF replied that, the project could be considered in the Research Committee meeting of the KFD.

The PCCF suggested IFGTB to take up a project on mangroves. He stated that in Kerala, only limited areas are under mangroves and Pudukkottai has good area under mangrove vegetation. The area contains lot of canals and it is proposed to have Pisciculture in these canals, for the livelihood of the local people. He said that Dr.B.S. Corrie, CCF would be co-ordinating it and for socio-economic aspect, Dr. K.P. Ouseph would also be involved.

2. Research on Climate Change

- Whether IFGTB will be able to help KFD in formulating CDM project?

On this aspect, Shri R.S.C. Jayaraj, Head, Forestry Land Use and Climate Change Division of IFGTB replied that, at present IFGTB is doing work on impact of elevated CO₂ on forest tree species. Since the Institute is a nodal agency for evaluation of CDM projects, it can not take up any projects related to it.

3. Sandal regeneration

- Sandal regeneration is a problem in the natural Sandal growing tracts of Marayoor in Kerala.

The Director, IFGTB as well as Shri Amarnath Shetty stated that farmers in Tamil Nadu and Karnataka are cultivating Sandal now. The PCCF said that de-regulation on Sandal cultivation is being discussed in Kerala and he opined that in high rainfall areas of the State, Sandal may not perform that well.

4. Research on fast growing indigenous species

The Director, IFGTB informed that the institute has germplasm collections of *Gmelina arborea* and it can establish the trials in Kerala State. Shri Amarnath Shetty opined that *G. arborea* has been encountering the problems of borer and debarking by Sambar deer. The PCCF expressed the opinion that the farmers would be able to grow *G. arborea* as plantation and it can replace *Ailanthus*.

The Director, IFGTB pointed out that, during the "Karshaka Mela", conducted in 2009, some of the Forest Based Industries expressed non-availability of wood in sufficient quantities in Kerala. But, Shri Amarnath Shetty observed that there is not much difficulty in getting timber, but as per the specification of the PWD, only Teak wood or *Artocarpus* wood can be used for furniture supplied to Govt. Departments.

5. Recovery of RET species

- It was suggested to take up some RET species for recovery programme.

The Director, IFGTB informed that the project on mangroves taken up by IFGTB is a species recovery programme.

6. Research on Mangroves and Sacred Groves

The PCCF informed that the KFD has proposed a management plan of the Sacred Groves of the State, in collaboration with KFRI and also said that some financial assistance for management is also thought of.

7. Permanent Preservation Plots

The PCCF suggested to find out the latitudes and longitudes of these plots, for easily locating them.

8. Clonal Seed Orchards and Seedling Seed Orchards

-These orchards are not producing adequate quantity of seeds. Can we do something to enhance the seed production?

Dr. A. Nicodemus pointed out that, while the plus trees of Teak were selected earlier, only the growth of the trees were taken into account and the flowering and fruiting did not get the required weightage. Dr. K.P. Ouseph wanted to know in the current situation, being a Genetics and Tree Breeding institute, whether it can give some solutions. Dr. A. Nicodemus added that, the selection criteria of plus trees needs to be modified by giving importance to flowering and fruiting.

9. Problem sites

- Reclamation of lateritic sites in Kannur and Kasaragod Districts

The Director, IFGTB enquired, whether any other species like *Ailanthus* need some attention, to which Shri Amarnath Shetty replied that there are not many takers for *Ailanthus* wood. He also added that though *Macaranga* is good for making pencils, there are not many takers for this wood.

The PCCF summed up the above deliberations and the following decisions were taken:-

1. To select sites for establishing Teak Seed Orchards and inspect the existing Teak Seed Production Areas including the 60 ha established by IFGTB; identify and select potential ones and suggest management practices for enhancing seed production (to be jointly undertaken by KFRI, IFGTB & KFD) .
2. To sort out hurdles if any for carrying out scientific research in forest areas.
3. To formulate a project on conservation of mangroves, with the active participation of the local people
4. To look into the problems of Sandal regeneration and suggest suitable remedial measures.

5. To develop fast growing clones of *Gmelina arborea* and other indigenous species for growing in homesteads.
6. To continuously monitor the Permanent Preservation Plots (PPP). The CCF (Research) shall provide the information about the PPP, so that a team of Scientists can visit and suggest what could be done in future. The Scientists can visit frequently and collect data from the PPP and monitor these plots.
7. To earmark some fund for research projects from CAMPA fund, wood based industries etc.

The Workshop concluded with the vote of thanks proposed by Shri T.P. Raghunath, Group Co-ordinator (Research), IFGTB, Coimbatore.