

# Proceedings of the Regional Workshop

on

**“USE OF IMPROVED TECHNIQUES IN AFFORESTATION PROGRAMME”**

*Sponsored by*



**Regional Centre, National Afforestation and Eco-Development Board,**

**Shillong , Meghalaya**

*from*

**26<sup>th</sup> to 28<sup>th</sup> August, 2013**

*Organised by*



**RAIN FOREST RESEARCH INSTITUTE**

**Jorhat, Assam**

## **INAUGURAL SESSION:**

The Inaugural Session started at 10.15 AM on 26.08.2013 with the self introduction of participants to the gathering. Shri A.K.Deka, Course Coordinator welcomed the gathering and also briefed about the programme. Representatives of Forests Department from Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram and Tripura, Officials from the Regional Centre, NAEB, Shillong and Scientists and Officers of RFRI, Jorhat participated in the workshop. There were twenty three participants from outside.

Prof. B. K. Tiwari, Coordinator, Regional Centre, National Afforestation and Eco-Development Board, North-Eastern Hill University, Shillong, while addressing the participants, explained the objective of the Workshop. He informed that The Regional Centre, National Afforestation and Eco-Development Board, North-Eastern Hill University, Shillong came into existence during October, 1989. Since then the Centre has been working in the areas related to afforestation and eco-development in the north-eastern states as per the mandate assigned by MoEF. He expressed that to conduct this type of workshop was to bring the Forest Officials, Professionals, Scientists and other stake holders to a common platform for discussion and sharing of knowledge about the current status of the forest ecosystems in North Eastern states of India and the need for conserving them by promoting afforestation programmes by using recent and advanced research techniques. He also stated that the Scientists of Rain Forest Research Institute, Jorhat (RFRI) has been working on different aspects of forestry such as tree improvement, nursery technology, as well as conservation forestry in this region. He added that the new technologies brought out by the scientists of RFRI in the field of production forestry can be utilised by the state forest departments. He mentioned that the recommendations emanated from the workshop shall be sent to all the States of North East India and Govt. of India as well as to the Ministry of Environment and Forests for necessary action and policy formulations.

Dr. N. S. Bisht, IFS, Director, RFRI welcomed the participants from various states of North East India. He mentioned about the National Forest Policy, 1988, its objectives of increasing the forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands for meeting the requirements of fuel-wood, fodder, minor forest produce and small timber of the rural and tribal

populations. He further mentioned that the productivity of forests should be improved by using all available technologies so as to meet essential local and national needs, with the active involvement of the society and local people. He also assured that the new technologies developed by the Rain Forest Research Institute, Jorhat (RFRI) in the field of Tree Improvement and Production Forestry will be shared with all stakeholders. He also pointed out some of the constraints in implementation of the NAP in the States in particular the untimely allocation of funds.

Shri Debashish Chakraborty, IFS, Chief Conservator of Forest, Tripura mentioned that NAP is the only source for afforestation programme in the North Eastern states. He also emphasized the need of timely release of fund for EPA and other activities for the better implementation of the programme.

Shri A.K.Deka, Course Coordinator, proposed the vote of thanks to the gathering.



Inauguration by lighting of the Lamp



Self introduction of the participants and vote of thanks by Shri A. K. Deka, Course Coordinator



Participants photograph

## **TECHNICAL SESSIONS:**

### **Technical Session: 1**

Shri Debashis Chakraborty, IFS, Chief Conservator of Forests, Tripura chaired the session.

The following lectures were delivered during the session:-

#### **1. Prospects of *Aquilaria malaccensis* Lamk. plantation under National Afforestation Programme in Northeast India - Dr.R. K. Borah, Scientist- E, RFRI**

Dr. Borah delivered a lecture on *Aquilaria malaccensis* ( Agar), its distribution, tree morphology, suitable soil condition for raising the plantation, seed collection and cultivation of agar plants etc. He also explained about the techniques of artificial inoculations of fungi for inducement of agarwood in agar trees.

**Discussion / comments:** Dr. Sasikumar, IFS, DFO, Tripura mentioned that the agar plant is growing only in certain patches in Tripura state particularly in the foothills. Under NAP, cultivation of agar trees can be encouraged in massive scale. He also stressed the need of early

release of artificial inoculation technology by RFRI so that the end users can use the product in the field.

2. **Microbial bio-inoculants for quality seedlings production- Dr.Vipin Prakash, Scientist- D, RFRI**

He delivered a detailed lecture on the importance and functions of soil microbes and explained about the useful soil microbes and the mass production techniques in lab condition and their utilization in the field.

**Discussion / comments:** Dr. Sasikumar, IFS, DFO, Tripura suggested to provide a check list about the details of microbial inoculants suitable for various plant species and their source of availability.



Presentation by Dr. R. K. Borah, Scientist E & Group Coordinator Research, RFRI

## **Technical Session: 2**

Shri Debashis Chakraborty, IFS, Chief Conservator of Forests, Tripura chaired the session.

The following lectures were delivered during the session:-

### **1. Improved techniques for multiplication of Bamboos- Dr.T. C. Bhuyan, Research Officer, RFRI**

He delivered a detailed lecture on the present status of the diversity of Bamboo species in north eastern India. He explained about various new techniques adopted by RFRI for bamboo propagation.

**Discussion / comments:** The Chairperson appreciated the presentation. He also stressed the need of setting up of National Bamboo Board in NE region which is essential for promoting bamboo research and utilization in this region.

### **2. Improvement of quality planting stock- Dr. Tara Chand, Scientist- C, RFRI**

He delivered a lecture on the aspect of Tree improvement, explained about the genetically improved quality planting stock, different selection procedures and planting techniques.

**Discussion / comments:** The Chairperson requested the Director, RFRI to provide the assistants of Scientists of RFRI by sending them to different states of North East India on regular basis for selection of plus trees and development of seed production areas.

### **3. Opportunities and challenges of Forestry- Dr. Sanjeev Kumar, Assistant Professor, Collage of Horticulture and Forestry, Pashighat, Arunachal Pradesh**

He delivered a general talk on various technologies available for the development of forestry, the strength and weakness for the implementation of forestry activities like NAP in NE states.

**Discussion / comments:** No specific comments

#### 4. "REAP what you sow"- Dr. N. Lyngdoh, Assistant Professor, Collage of Horticulture and Forestry, Pashighat, Arunachal Pradesh

He gave a talk on the quality plant material, reasons for low productivity of plantations and the remedial measures, selection of good seed production areas etc.

**Discussion / comments:** The Chairperson suggested that special fund should be allotted for raising CSO under NAP programme.

#### Day . 2. 27.08.2013

The participants were taken to a field visit to Gibbon Wildlife Sanctuary and Sibsagar FDA plantation site at Galeki to demonstrate use of improved afforestation technologies by state forest department.

Visited Garupaban JFMC at Galeki under Sibsagar FDA. The participants visited to 30 Ha. 2008-09 plantation of *Michelia champaca* (Tita sopa) and Bamboo plantations (*Bambusa balcooa*, *B. tulda*, *Dendrocalmus strictus*) of 100 Ha. They were also taken to Munga silk worm (*Antheraea assamensis*) rearing site where the host plant, *Machilus bombycina* (Som) has been grown.





Visit to Gibbon Wild Life Sanctuary at Jorhat, a home of India's only ape (*Hoolock hoolock*)





Rearing of *Antheraea assamensis* (silkworm) on host plant *Machilus bombycina* (Som) at Garupaban JFMC at Galeki under Sibsagar FDA in Sibsagar district

**Day. 3. 28.08.2013**

**Technical Session: 3**

Shri A.K.Deka, Course Coordinator welcomed the participants.

Three groups were formed among the participants from different states to discuss among them on the following topics.

1. Status of improved techniques in Afforestation Programme in northeast India and identification of causes for this being a non-starter in Northeast India.

2. Need for introduction of improved techniques in Afforestation programme and identification of improved techniques suitable for the region.

3. Identification of improved techniques for important tree species including bamboo of the region.

The group leaders presented the recommendation finalized by the members of their group viz. 1.the present status of improved techniques adopted in different states of North East India and the difficulties they are facing in implementing the same through NAP programme; 2. Need for introduction of improved techniques in afforestation programme and the techniques suitable for different regions 3.improved techniques for tree species including bamboo.

Discussions were held on each and every recommendation and Director RFRI as well as Shri N. K. Vasu, IFS, Chairman of valedictory session suggested that since many recommendations are common / being repeated, it would be better to arrange them group wise.

### **Final Recommendations**

#### **Group- I Status of improved techniques in Afforestation Programme in Northeast India and identification of causes for this being a non-starter in Northeast India**

- The status of use of Improved Techniques in Afforestation Programme in Northeast India is not satisfactory. In most of the states, Central Nurseries with Mist Chamber, Green House and Root Trainer facilities are not available at Divisional level / Range level nurseries to produce quality planting material in sufficient quantity.
- In most of the states, mass multiplication of bamboo is done by using advanced techniques such as separation of rhizomes. However, these techniques cannot be used for raising large quantity of seedlings required to fulfill annual demand of seedlings.
- Tissue Culture Laboratory facilities for raising bamboo seedlings is available only with Tripura Forest Department. It is a small laboratory, which cannot produce large quantity of seedlings. Besides this, sufficient technical manpower is not available with the department.

#### **Causes for this being a non starter**

- The main reason is the delay and uncertainty in the release of funds from Government of India. Due to this, states are not able to make proper / advance planning for plantation. Sometimes,

items such as EPA are not approved by GOI and such decisions are communicated at the fag end of the financial year. By that time, funds are already spent by the field functionaries under those items.

- It has also been observed that GOI perhaps decides in advance the tentative allocation of various states under NAP. In such situation, if a state incorporates use of Improved Afforestation Techniques in their annual plan and demand for extra allocation from MoEF, it is not considered. The states are advised to submit their proposal within the prescribed allotment. In such situation, state has to reduce their annual afforestation targets, which no one prefers to do.

### **Group- II: Need for introduction of improved techniques in Afforestation Programme and identification of improved techniques suitable for the region**

The main reason for advocating use of Improved Afforestation Techniques is to improve the productivity of forests. The average productivity of our forest is 0.7 cubic meter per hectare per year, which is one of the lowest in the world. This is because our forest sustains small timber, bamboo, fuel wood, fodder, grazing and NTFPs needs of over 350 million forest fringe and tribal communities who live close to forests. Therefore, by using improved Afforestation Techniques, productivity of forest can be improved, thereby improving the flow of goods and services to the society.

The various improved techniques which can easily be applied into afforestation programme include:

- Selection of plus trees of important species of trees in the division and collection of seeds from these trees for producing planting stock.
- Selection of plus clumps of important bamboo species of the division and collection of rhizomes etc. for further multiplication from plus clumps only.
- Development of Seed Production Areas of all important local species e.g. Hollong, Gamari, *Michelia champaca*, *Duabanga* etc.

- Use of improved nursery technologies such as mist chamber, green house, root trainers, vermicomposting, biofertilizer, mycorrhizae etc. for production of quality planting material (QPM).
- Social fencing / physical fencing at vulnerable areas.
- Tall seedling plantation / stumps planting for grazing protection.
- Use of improved techniques for seed storage for improving seed viability.
- Use of tissue culture techniques for production of QPM.

**Group- III Identification of improved techniques for important tree species including bamboo of the region**

- Introduction of clonal propagation of fast growing bamboo species could be a viable option for reducing our dependence on bamboo imports vis-à-vis meeting the domestic market requirement.
- Bio-inoculants can play a key role in enhancing productivity in addition to improving ecosystem health.
- Tissue culture laboratory must be established in all states to produce quality planting stock of all important bamboo species of the region.
- Whenever flowering of bamboo occurs in any part of NE region, seeds must be collected immediately by RFRI or the state to raise seedlings.
- Regular interaction with scientists of Rain Forest Research Institutes for incorporating improved afforestation techniques for improving the productivity of plantation areas.



Participants and Officers from RFRI engaged in group discussion followed by panel discussions

### **CONCLUDING SESSION:**

Shri N.K.Vasu, IFS, Additional Principal Chief Conservator of Forests, Assam and Director Kaziranga National Park chaired the concluding session and remarked that this type of workshop are useful specially for the field functionaries to learn the recent and improved techniques which are used for afforestation work. Director, RFRI, in his concluding speech thanked all the esteemed guests and the participants for their participation in the workshop and valuable suggestions made by them during the discussion. He also thanked Shri N. K.Vasu, IFS, for accepting the request of chairing the valedictory session on a short notice and also for his valuable comments and suggestions. After that, Shri A. K. Deka, Course Coordinator, RFRI wrapped up the whole programme and highlighted the salient features of the workshop. The meeting ended with the vote of thanks proposed by Shri Gautam Banerjee, DCF, RFRI.



Proceedings recorded and prepared by:  
Shri. R. Raja Rishi and Dr. P. K. Verma

### LIST OF PARTICIPANTS

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| 1.      | Prof. B. K. Tewari, Coordinator, NAEB         | Meghalaya |
| 2.      | Dr. Debashis DasGupta, Research Officer, NAEB | Meghalaya |
| 3.      | Dr. Sanjeev Bharali, Research Officer, NAEB   | Meghalaya |
| 4.      | Sri Hamklet Suchiang, MFS, ACF                | Meghalaya |
| 5.      | Sri Teiborlang Puwein, FRO                    | Meghalaya |
| 6.      | Sri Emdor Passah, FRO                         | Meghalaya |
| 7.      | Sri L M Momin, FRO                            | Meghalaya |
| 8.      | Sri B. C. Momin, FRO                          | Meghalaya |
| 9.      | Shri Debashis Chakraborty, IFS, CCF           | Tripura   |
| 10.     | Dr. K. Sasikumar, IFS, DCF                    | Tripura   |
| 11.     | Sri Amarendra Pathak, AFS, DFO                | Assam     |
| 12.     | Sri Sarat Ch. Baruah, AFS, DCF                | Assam     |
| 13.     | Sri Ratneswar Pathak, AFS, ACF                | Assam     |
| 14.     | Sri Joy Ram Baruah, AFS, ACF                  | Assam     |
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| 19.     | Sri P. C. Laltanpuia, MFS, ACF                | Mizoram   |
| 20.     | Dr. N. Lyngdoh, Assistant Professor           | AP        |
| 21.     | Dr Sanjeev Kumar, Assistant Professor         | AP        |
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| 23.     | Sri Laishram Ranjit Singh, FRO                | Manipur   |
| 24.     | Sri L. Mangle Singh, FRO                      | Manipur   |
| 25.     | Dr. R. K. Borah                               | RFRI      |
| 26.     | Shri. A. K. Deka, DCF                         | RFRI      |
| 27.     | Shri Gautam Banerjee, DCF                     | RFRI      |

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|------------|------------------------------------|------|
| <b>28.</b> | Dr. Vipin Prakash - D              | RFRI |
| <b>29.</b> | Shri R. RajaRishi, Scientist - C   | RFRI |
| <b>30.</b> | Dr. Tara Chand, Scientist - C      | RFRI |
| <b>31.</b> | Dr. T. C. Bhuyan, Research Officer | RFRI |
| <b>32.</b> | Shri H. N. Dhungana                | RFRI |
| <b>33.</b> | Dr. S. C. Biswas, Scientist - B    | RFRI |
| <b>34.</b> | Dr. P. K. Verma, Research Officer  | RFRI |
| <b>35.</b> | Shri Roshan Singh Loitam, FRO      | RFRI |