

Proceedings of the National Workshop  
on  
Exploring the Best Practices  
in Bamboo Management

*Investing in Green Gold*

Organised by:



Madhya Pradesh  
Forest Department



Madhya Pradesh  
State Bamboo Mission



National Bamboo Mission  
New Delhi

In Collaboration with:

Madhya Pradesh Panchayat & Rural Development Department  
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### Foreword

It is now well acknowledged that Bamboo has huge potential to impact sustainable development in a positive and holistic manner. It fulfils several key needs of society in India. Bamboo is an important forest produce with high significance in the socio economic life of rural MP too. Therefore the highest priority should be given to building up this resource. India has not been able to tap the full potential of these markets despite being the second largest bamboo producer in the world, after China.

It is highly encouraging that the two day National workshop on "Exploring the Best Bamboo Management Practices: Investing in Green Gold", organized during 24-25 January, 2014, jointly by MP Forest Department, MP State Bamboo Mission (MPSBM) and National Bamboo Mission was attended by nearly 100 participants including experts and scientists from bamboo sector, Bamboo Entrepreneurs, Bamboo Growers, Bamboo related Departments of the State, Bamboo Missions of other States, Bamboo Artisans of Bamboo rich States, Auroville Bamboo Centre, KONBAC, SPA, etc. In this context, MPSBM has effectively facilitated a convergence between the different departments that deal with bamboo and bamboo-based schemes and activities.

The intense technical deliberations during the workshop and various group discussions and experience sharing sessions have drawn up concrete resolutions. I am very glad to see the outcome of the workshop collated in the form of this booklet. I understand that the proceedings present a wealth of information regarding the issues pertaining to the potential and problems of the bamboo sector that will help all stakeholders to make sound decisions in the future development of bamboo sector in MP.

The workshop highlights the significant work on bamboo that is being carried out in different parts of the country, and the need to create a platform and a system for facilitating regular interaction of experts, scientists, entrepreneurs and resource persons in order to organize the scattered information concerning bamboo sector. Monitoring and Evaluation should be focused and performed with the help of a suitable model.

I congratulate and thank the organizing committee and staff for their tremendous effort in organizing this national seminar as well as bringing out this publication.

(Anthony de Sa)  
Bhopal, 26th May 2014

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# INAUGURAL SESSION

The Inaugural session started at 10:00 AM on 24.01.2014 at Academy of Administration, Bhopal. The Chief Guest of the Workshop, Shri Basant Pratap Singh, IAS, Principal Secretary (Forests) inaugurated the Workshop. The Inaugural ceremony commenced with the lighting of the lamp by Shri Basant Pratap Singh, PS Forest Department & Chairperson, EC, MP State Bamboo Mission, Dr R.N. Saxena, MD, MP State Forest Development Corporation, Shri Ajit Sonakiya, PCCF, Working Plan, Forest Department and Dr A.K Bhattacharya, Mission Director, MP State Bamboo Mission.



*Shri Basant Pratap Singh, Dr R.N. Saxena and Dr A.K. Bhattacharya (Left to right )  
inaugurating the workshop*



Dr A.K Bhattacharya, Mission Director, MP State Bamboo Mission, formally invited Shri Basant Pratap Singh, Dr R.N. Saxena and Shri Ajit Sonakiya on the dais and warmly welcomed all the dignitaries on the dais and the participants from the various part of the country to the Workshop. While addressing the participants, he explained the objectives of the Workshop. The objective of the workshop can be described beautifully by quoting a verse from Rig Veda, which translates to English as, "Let us move together; let us interact together; let us know each other's mind," describes the overarching aim of the Workshop.

As MPSBM is at its nascent stage and in order to explore the possibilities of effective lab to land transfer there is a need to apply already available knowledge in Bamboo sector, this, forms the basic idea behind organizing the workshop. He also stated that the workshop intends to offer a unique platform to bring together several people or institutes associated with bamboo management under one bamboo canopy with a view to exchange experience on bamboo development projects from a multi-dimensional perspective for a fruitful outcome. He also briefed the participants about the Bamboo potentials in MP, Correlation between Bamboo production and revenue, Supply- demand gap of Bamboo in MP, Scope of Bamboo in MP and also emphasized on the future roadmap for MPSBM. He stated that as per FSI, there exists 13059sq km of bamboo area in MP and as per the working plan (The bible of Forest Department), the bamboo area is 5.5 lakh hectares, out of which 42% is degraded. Moreover, there exists a demand - supply gap of 90% in bamboo sector in MP. Thus MPSBM visualizes this huge demand - supply gap and degradation as an opportunity. He also mentioned that the recommendations emanated from this workshop shall help in producing actionable solutions for Bamboo based sustainable development and creation of a knowledge base of the different approaches being adopted in the country which can be successfully replicated at other suitable places.



On this occasion, Shri Ajit Sonakiya, PCCF, Working Plan, Forest Department, stated that there exists huge potentials of bamboo not only in natural forest areas but also in private areas. He said that, as per his observations, the biggest challenge or the opportunity in this sector lies, its appropriate management. He suggested that bamboo should be used in place of agricultural crop, especially in those areas which are not suitable for plantation of agricultural crops.

Dr R.N. Saxena, MD, MP State Forest Development Corporation applauded the collaboration of the organizers of the workshop and welcome the participants. He mentioned that bamboo can play an excellent role in carbon sequestration, for example, the carbon sequestration of bamboo species goes up to 80 tons/ ha, which is almost 6 times in comparison to any CDM Project based on Timber. Thus in order to address Climate Change, Bamboo would help in reducing the adverse impacts. Moreover, he also emphasized that it is high time to think about PPP (Public -Private - Partnership), for which regime is available in Section 2.3 of Forests Conservation Act, which permits PPP in development of many sectors. With increased degradation on one hand and reduced foreign exchange on the other hand, PPP acts as a potential solution for strengthening bamboo based development and entrepreneurship.



The Guest of Honour, Shri Basant Pratap Singh, PS, Forest Department & Chairperson, EC, MP State Bamboo Mission, discussed about the challenges being faced by the bamboo sector. He mentioned that though MP has nearly 30% of forest area, but half of it is degraded. He mentioned that main challenges are how to increase bamboo base, seek more area under bamboo, plant more bamboos and increase bamboo areas. He also pointed out the need for collaboration with other departments to achieve these objectives.

He stated that as there exists a demand - supply gap of 90% in bamboo sector, there is a need to take concrete steps to bridge this huge gap.

At the end of the Inaugural Session, Ms Anju Pawan Bhadoria, Joint Collector, Administrative Coordinator, MPDPIP proposed the vote of thanks to the gathering and congratulated the organizers. She mentioned about State Rural Livelihood Mission which is currently working in 25 districts of MP, including tribal and backward districts. She also spoke about the great potential bamboo holds in promoting livelihood of poor/ BPL families.



The session ended with a token of appreciation presented to all the dignitaries on the dais with Bamboo souvenirs by the Mission Director, MP State Bamboo Mission.

# TECHNICAL SESSIONS

## Technical Session 1: National and Global Perspectives in Bamboo Management

After the Inaugural ceremony, the first technical session was on "National and Global Perspectives in Bamboo Management". The Chairperson of the session was Dr R.N. Saxena, MD, MP State Forest Development Corporation.



Mr Kamesh Salam, Founder and Executive Director, South Asia Bamboo Foundation and Mr CS Susanth, Head, Centre for Bamboo Initiatives, NID, Bangalore were the speakers for the session. Shri Atul Jain, CCF & ED, MPSFDC was the Rapporteur for the session.

First technical session was started by the Chairperson Dr. R. N. Saxena, MD, MP State Forest Corporation with brief introduction of distinguished guest speakers, Mr. Kamesh Salam and Mr. CS Susanth.

Dr. R.N Saxena laid emphasis that valuation of bamboo crop is a must and it would strengthen the tribal and rural community as a whole, and invited Mr. Kamesh Salam for his speech.

## National and Global Scenario of Bamboo: Exploring the best management practices



Mr Kamesh Salam, Founder and Executive Director, South Asia Bamboo Foundation presented issues concerning bamboo management at national and global levels. The salient features of his speech are as follows:

1. Bamboo is associated with the culture of many countries and it plays an important socio-economic role in countries like India, China, Indonesia, Vietnam, etc. In some of the countries, by tradition, bamboo is a child's play items and forms the basis of livelihood for local and tribal people.
2. In India, there are 136 species of bamboo with two types, i.e. Sympodial and Monopodial bamboo. Sympodial bamboo grows in the clumps, whereas Monopodial bamboo grows individually. In India, we have Sympodial bamboo which is difficult to harvest unlike China which has Monopodial bamboo culture.
3. Bamboo portrays plethora of uses in different fields like agriculture, architecture, housing, furniture, fencing, mat board, basket making, coffins, paper industry, flooring, energy by-product as charcoal, food material etc.
4. There exists tremendous scope for research and development activity in bamboo technology especially in fields like plant improvement, plant multiplication and tissue culture.
5. The three major issues related to bamboo management in India are- overexploitation, lack of management and poor harvesting technology and lastly pests and diseases resulting into termite and fungal attacks. The main bottle necks in bamboo management

being the low productivity of bamboo in India which is around 1.5 tonnes/hectare, whereas in China it is 18-22 tonnes/hectare. The other problems concern to research and development, lack of certified machines for work, relaxing import duty, lack of effective independent agency for bamboo development, lack of appropriate policies and mission being placed with wrong agencies, etc.

6. Bamboo management and its development started way back in India in 1990 when UNIDO and Govt of India held a seminar on Bamboo Sectoral Development. In 2003-04, National Mission on Bamboo Application came into existence with an aim to strengthen bamboo sector towards augmenting economic opportunity, income and employment. But unfortunately, it could not do justice with its aims. In 2006-07, National Bamboo Mission came into existence with its mission to increase coverage of bamboo area. Now, National Bamboo Mission is being proposed to be merged into National Oilseed and Palm Mission in 2014-15.
7. Later, a peer review committee was also established to see failure for National Mission on Bamboo application which advised for sanctioning more money to entrepreneur.
8. There is a dire need for a uniform policy for categorizing bamboo as an agricultural/forest produce and clear cut policy regarding its transit. Farmers are being discouraged and are in apprehension in absence of a clear cut policy for regularization of bamboo cut and its transit.
9. At global level, lot of technological up gradation has been done and China has taken a clear cut lead where 70% of its wastage is converted into useful finished materials. Vietnam has also taken a lead in this direction, following China. India has to learn a lesson from China and adopt technology according to its local needs and local material.

## Design and Strategy for Bamboo Sector Management



The other speaker for the session was Mr. C S Susanth, Head, Centre for Bamboo Initiatives, NID, Bangalore. He briefly explained on the following points:

1. NID Ahmedabad started in 1961, and NID Centre Bangalore initiated a new outreach program for new product/furniture development models for bamboo.
2. Each cluster/region in India has some unique bamboo species which has its own importance. There is a need for selecting species suitable to that region and more emphasis should be laid on quality management and good plant management tactics, because in local market all types of quality products are available. The value addition is needed only with good raw materials.
3. The bamboo crop design is based on innovative, market driven, material approach, technology based and sector specific requirements.
4. The marketing of bamboo depends on quality range, brand packaging, design pattern, quality price, production line, technology, proper treatment, finishing, marketing network, material supply, availability of skilled labour, finance, and entrepreneurship environment etc.
5. The main bottleneck in bamboo sector is non availability of skilled human resource, training module and lack of opportunity. For example, Kerala government started a factory for producing bamboo mats, but it did not have proper human resource.
6. There is a need for international collaborative workshop, training schedules which can bring new perspective.
7. There is a need of practicing bamboo courses in institutes like ITI so that skilled manpower could be developed.



# Open House Discussion



During the Open House Discussion following issues emerged in the deliberations:

1. Regularizing bamboo harvesting and its transit were emphasized and it was considered better to convert raw bamboo materials into semi-finished products at local level only and to transit it to market area in semi-finished condition where it could be assembled into a finished products.
2. Utilizing the degraded forest area into productive forest area with the help of Public Private Partnership (PPP) is the need of the hour. For an instance, Kerala government has allowed to grow black pepper in degraded forest area; on the same line bamboo can also be planted with the help of public private partnership mechanism.
3. In order to fully utilize human and intellectual resources and to build an atmosphere of entrepreneurship, collaboration with other institutions is required. Development in the field of bamboo can be achieved through joint collaborations.
4. There is also a need to develop R&D work and to know more about species suitable for different agro-climate zones, to develop institutional mechanism in order to provide adequate grant for financing extension activity and entrepreneurship in Bamboo sector. Also, there is need for right approach to regularize bamboo cutting and its transit.
5. More efforts are needed at international level about bamboo certification as it was brought to the notice of the house that only at one place; one species of *Augustofolia* in Nicaragua has got forest certification.
6. In North-East India, under 6th-Schedule, tribal bodies have signed MoU with paper mills and paper mills are getting bamboo raw material for its paper manufacturing.

## Recommendations of the House

There is a need to adopt vocational training for bamboo crafts and bamboo courses in institutes like ITI. For this, recommendations should be given to the state governments.

Like Kerala, bamboo corporations/missions should be established for inculcating best bamboo management practices in MP and other states.

## Technical Session 2: Innovations in Bamboo Management

The second Technical Session was on "Innovations in Bamboo Management". The session was chaired by Shri A.S. Joshi, Ex PCCF and MD, State Forest Development Corporation of Madhya Pradesh. Speakers included Dr. N. Barathi, Director, Grow More Bio Tech Ltd. Hosur, Tamil Nadu, Dr. Manmohan Yadav, Associate Professor of Indian Institute of Forest Management, Bhopal and Mr. Sunil Joshi, Secretary, VEDHA, Nagpur. Dr. Akshey Bisariya, OSD, Academy of Administration was the Rapporteur for the session.

The second technical session started by the Chairperson, Shri A.S. Joshi with brief introduction of distinguished guest speakers, Dr. N. Barathi, Dr. Manmohan Yadav and Mr. Sunil Joshi. Shri A.S. Joshi laid emphasis on the importance of innovations in the Bamboo sector, as the sector has reached a dead-end. With this, Shri A.S. Joshi invited Dr. N. Barathi for his speech.

### Precision Farming in Bamboo Cultivation



Dr. N. Barathi spoke about the research and development work undertaken by his organization for the mass and productive production of Bamboos. He briefly explained on the following points:

1. He described the high tech method and best management practices of Precision Farming in Bamboo cultivation.
2. He made a comparison in production of commercial crops like Chilly, Brinjal and Milk production with that of Bamboo. A potential yield of *40 tons per acre per year* is achievable with spacing of 12 x 8 feet and cutting cycle of 2½ year. 1000 plants per acre were envisaged to be planted. Drip irrigation and fertigation were the parts of hi-tech plantation.
3. He also dwelled upon production of electricity through bamboo plantation for which minimum 200 acre of plantations were required. He mentioned that 1 MW power-plant needs 80 Hectares of Bamboo. Thus 1.2 Kg of Bamboo equates to 1 Kwh
4. He also provided details on Beema Bamboo which is one of the cultivated bamboo with very thick wall and highly suitable for biomass production for intensive cultivation.
5. Mr Barathi later presented the "Bamboo Cultivation Model" wherein he mentioned the different dimensions. 8 Poles/ plant, 1000 plants / AC, 7Kg/ Pole will cost Rs. 1500/ Ton and provide yield of 56 Tons/AC/Year. This model would yield Net income of Rs. 64000/ AC/ Year.
6. He also mentioned that Bamboo offers best solution for Global Warming in the form of Carbon sequestration. One such example is INFOSYS Farm where carbon farming has been undertaken with Beema Bamboo.

## Certification in Bamboo Sector

The other speaker for the session was Mr. Manmohan Yadav, who spoke about the need of forest certification in bamboo and told that Wood is good but Bamboo is the best.

He briefly explained on the following points:

1. He dwelt upon the ways to link Green Gold i.e. Bamboo with Green consumerism through Green labelling and Forest Certification.
2. He mentioned that bamboo possess versatile properties like highly renewable, fast growing, carbon sink, etc. which makes it potential to help communities to adapt to climate change.
3. He brought into the focus the miracles of bamboo taking place in China as the bamboo plantation area has increased from 2.98m Ha to 5.38m Ha in 2012.
4. Mr. Manmohan added that in India, till now, only 7 forest certificates have been issued and out of which, one of them is Bhamragarh forest division of Maharashtra, which has been certified for Bamboo. India, just a decade and a half ago, was the net exporter of timber, but today, it is the second largest importer. Thus, it's the time to transform Timber Management Forestry to Bamboo Management Forestry.



## Innovations in Bamboo Products by VEDHA



The last speaker for the session, Mr. Sunil Joshi, showcased an organisation VEDHA i.e. Institute of Village Entrepreneur Development of Handicraft for Artisans.

He briefly explained on the following points:

1. He emphasised that ecological, economic, food and livelihood security can be achieved through bamboo for a prosperous and peaceful industrial economy.
2. He showcased different products and architecture designs of construction where bamboo was used as a structural material. Furniture of round bamboos are species of *Oxytenanthera stocksii* and *Dendrocalamus strictus*.
3. He also mentioned that the VEDHA Module of Development (in handicrafts) is recommended as a replicable Model in "Study on the Status and Sustainable Development of Bamboo in Maharashtra".
4. The market research of VEDHA's eco-friendly bamboo furniture products" reveals that there is an increasing demand for eco-friendly bamboo furniture across the country and world and there is an increasing demand for bamboo construction and interiors too.

# Open House Discussion

During discussion session questions were raised with respect to electricity generation from bamboo and use of certification with respect to the requirement and the feasibility issues in the present context.

## Recommendations of the House

As tremendous works on bamboo are being carried out in different parts of the country, there is a need to create a platform or system for facilitating regular interaction of experts, scientists, entrepreneurs and resource persons in order to organize the scattered information concerning bamboo sector.

Secondly, Research and Development activities should be prioritized in the Bamboo sector.



## Technical Session 3: Monitoring and evaluation in Bamboo Management

The third technical session was on "Monitoring and evaluation in Bamboo Management". The session was chaired by Shri Ajit Sonakiya, PCCF (Working Plan), M.P. Speakers included Dr Sanjay Singh, TFRI, Jabalpur (ICFRE, Gol) and Shri BB Singh, CCF (Production). Shri JK Mohanty, APCCF (Working Plan) was the Rapporteur for the session.

The third technical session was started by the Chairperson, Ajit Sonakiya by spelling out the importance of Monitoring and evaluation in bamboo management. He added that the process of M& E begins with plantation, nursery, etc and ends with the ultimate outcome of public benefits. He gave brief introduction of distinguished guest speakers, Dr.Sanjay Singh and Shri BB Singh.

With this Shri Ajit Sonakiya invited Dr. Sanjay Singh for his speech.

### Impact Assessment of the harvesting practices on the regeneration of bamboos in Madhya Pradesh

Dr. Sanjay Singh of TFRI, Jabalpur was the first speaker for the session. He briefly explained on the following points:



- He cited several literature concerning cultivation and harvesting methods for plantation of bamboo.
- Scientific data are still lacking on regeneration of bamboos in relation to harvesting intensity and rotation period.
- Species and locality specific retention of culms in a clump for sustainable yield of bamboos is required to be adequately worked out.
- He spoke that unregulated exploitation is one of the major reasons for degradation of bamboo resources worldwide and inappropriate harvest has also lead to extremely low or extremely high standing-culm densities.
- He highlighted on the methodology to be adopted to perform the study to assess the effects of various harvesting practices on regeneration status of bamboo forests.
- He explained that there are basically three models of sustainable harvesting:
  1. Horse-shoe shaped exploitation of clumps
  2. Three triangular portions treatment
  3. Clear felling for thorny species (e.g. *Bambusa bambos*)

## Monitoring and Evaluation in Bamboo Management

The last speaker for the session was Shri B.B Singh, CCF (Prod.), M.P. During his presentation, he mentioned that there are four aspects of bamboo management for monitoring and evaluation:-

- I. Bamboo forest management
- II. Bamboo plantation management
- III. Bamboo harvesting and sale management
- IV. Bamboo utilization management

He dealt upon various issues of setting criteria and indicators of monitoring and evaluation and different stages of the above aspects.

He explained the effects and impacts of Evaluation in Bamboo production, harvesting, sale and utilization, and mentioned that there is a need to provide space for soil treatment, soil fertility, monitoring and maintaining outside intervention, congestion clearing by treating clumps in circles, making adequate and rigorous provisions for fire and grazing protection of bamboo areas (especially flowered areas), peripheral bamboo of the clumps be encouraged to get better culms, culm girth should be at least 20 cm for exploitation, spacing between the culms should be maintained, certification of nurseries for quality planting stock and seeds.

# Open House Discussion

During the discussion session, the house felt that, rampant harvesting of very young culms (mostly illegally by basods and local people) and unregulated exploitation have led to degradation of most of the bamboo clumps. During regular harvesting, appropriate culm density is not being maintained. It was felt that for a change in harvesting regime from presently four years to 1 year, 2 year or every alternate year, requires a pilot study.

## Recommendations of the House

As M& E is at very nascent stage, with the advent of more models, there is a need to evolve a complete system or model for M& E in bamboo sector. Presently, evaluation is being focused and monitoring is not taking place. Thus it's the time where both Monitoring and Evaluation should be equally focused and performed with the help of a suitable model.

# Experience Sharing Session

Experience sharing session of the workshop marked the presence of five resource persons from different areas.

1. Mr Nick Klotz,  
Auroville Bamboo Centre
2. Mr Sanjeev Karpe,  
Director, Native Konbac
3. Ms Fatima Martin,  
Architect (Spain)
4. Dr Gagan Saxena,  
District Proj. Manager, Rajgarh
5. Ms Guddi Bai,  
President, SHG, Tikamgarh,  
SRLM



Dr Animesh Shukla, PCCF and MD State Minor Forest Produce Federation was the Chairperson for the session. Mr Rajesh Shrivastava, CEO, MFP Park, Barkhera Pathani was the Rapporteur for the session



Mr Nick Klotz  
Auroville Bamboo Centre

Mr. Nick spoke about the activities of his Centre, which included bonding with a 2000 strong community called *mohannam* community. The activities includes: education, architecture and designing. He emphasized on branding, packaging and marketing and showcased different high end products of bamboo made at his centre. He focused on peak buyers and brand loyalty.



Ms Fatima Martin  
Architect (Spain)

Ms Fatima Martin was vociferous about structural qualities of bamboo and how the organic elements of bamboo like flexibility and strength could be woven into exotic designs. She told how her organization Canya Viva does not use any metal while fabricating different structural designs. She enlightened about the better durability options. She showcased a 200 years old bamboo building in Pew. She emphasized that bamboo should be worked on principles rather on the basis of rules. She indicated that even traditional concrete buildings in India have problems of aeration and humidity. She delved upon different technical aspects related to design. She praised Nagaland's konyak tribe's architectural design. She told about permaculture in which design is in relationship with nature and reflects human settlement and agricultural systems.

# Open House Discussion



**Mr Sanjeev Karpe**  
Director, Native Konbac

Mr. Sanjeev compared the designs and structures from Bali, Hawaii and Vietnam with that of India and voiced that the so-called poor man's timber bamboo can be rich man's privilege and selling should be in style. He also focused on the way in which his organization is overcoming caste barriers associated with the bamboo artisans. His work has been replicated in Gujarat and Maharashtra.



**Dr Gagan Saxena**  
District Proj. Manager,  
Rajgarh

Mr. Gagan Saxena belongs to Panchayat and Rural Development Department of M P. He showcased the concept of Producers' Company, where seed producers form a group in an institutional set-up and gets benefited.



**Ms Guddi Bai**  
President, SHG, Tikamgarh,  
SRLM

The last speaker was a ground level leader- Guddi Bai from Tikamgarh District of Madhya Pradesh, who is a chairperson of a woman self help group of 10 members. She is a resource person for Bihar, Chhattisgarh and other parts of M. P. providing traditional skills of bamboo craft. She spoke convincingly in local vernacular and made her point well.

Bamboo has got huge potential but managed only in limited areas. For commercial success different strategy is required. Community participation is must and issues of considering bamboo as inferior, low quality non-durable material need rethinking. Technical expertise and use of value added produce for high end consumers need to be explored. Bamboo is to be developed as reliable material. Woman self help groups are a potential area and larger demands can be catered by them.



## Learnings

Bamboo is versatile but designing elsewhere in the world is at much higher pedestal than in India. We need to have organic designing focusing high end customers. Branding, packaging and marketing is to be thoroughly professional. Community is to be involved and supplied with quality raw material. Treatment of bamboo should be one that fosters stability.



# Focussed Group Discussions

Next session , was the Focused Group Discussions, facilitated by TFRI, Jabalpur.

During the session, the participants were divided in four groups with four different topics .

1. Bamboo Management in Forest Areas
2. Bamboo Management in Private Areas
3. Bamboo nursery and quality planting stock, Monitoring and evaluation practices in bamboo sector
4. Skill Development , Capacity Building and Product Management

## Group 1

1. Anjana Tirkey, IFS, Panna Tiger Reserve
2. H.P Jharia , DFO, Balaghat
3. Kamesh Salam, Founder & ED South Asia Bamboo Foundation
4. Nick Klotz, Auroville Bamboo Centre
5. N.S. Dungal, CCF
6. Sandeep Theng, GM( Operations), KONBAC
7. B.D Shuklware, Bhartiya Samaj Vikas Samiti

## Group 2

1. N Barathi, Growmore Biotech Ltd
2. Parul Singh, RO Maharajpur Production division, Mandla
3. P.C.Gupta ,Pragatisheel Engg, Dewas
4. Sanjeev Karpe, Native KONBAC
5. Sunil Joshi, VEDHA
6. Fatima Martin, Bamboo Architect, Spain
7. Kelash Lal, Simariya

## Group 3

1. B.B. Singh, ,CCF (Production)
2. Jaya Pandey, ACF Chattarpur
3. Maansi Shah, SMMCA, Student of Architecture, Nagpur
4. Shilpi Jaiswal RO Maharajpur Production division, Mandla
5. Satish Chandra Mishra, RO Katni (MP)
6. Sushil Sehgal, Forest PLUS, New Delhi
7. V P S Bundela, ACF, Forest division, Chattarpur
8. JK Mohanty, APCCF (Working Plan)

## Group 4

1. C.S. Susanth, NID
2. Joginder Kumar, Forest PLUS
3. R.K.Dixit, Retired Forest Officer
4. P.K.Rawat, ACF, Khandwa
5. Samit Mukherjee, Wondergrass Initiative
6. Vijay Saxena, Shilpin (Bamboo Entrepreneur)
7. Nainsingh Bamnele, President, Bhartiya Samaj Vikas Samiti

The TFRI team presented the issues which need to be addressed for appropriate management in bamboo sector concerning the above four identified topics.

For Bamboo Management in forest areas there is a need to manage bamboo stock in relation to end-use, proper tending and pruning in bamboo plantations, and Economics of management in relation to cost-benefit ratio should be considered.

For Bamboo Management in private lands, there is a need for proper market for harvested bamboo and provision for minimum support price for bamboo.



For Bamboo nursery and quality planting stock, the major issues were identifying opportunities for using bamboo seeds, to maintain bamboo germplasm bank, Planting stock improvement in bamboo using alternative means, Alternative cost effective means for bamboo multiplications by vegetative propagation and improvement in bamboo nursery stock at local level for small scale plantations.

For proper M&E, there is a need to perform Resource survey (agro-climatic zone wise), Assessment of bamboo wealth, Annual potential production, Production of bamboo in different agro-climatic conditions and Agro-climatic zones wise selection of suitable bamboo species. There is a need to address the issues including causes of more number of dry culms in MP as compared to the national status and at the same time measures to ensure proper soil working and tending of bamboo clumps in plantations and harvesting practices of bamboo in plantations.

## Final Recommendations



The presentation session of FGD was held on the second day of workshop. The session was chaired by Dr. GA Kinhal, Director, IIFM Bhopal (MoEF, GoI). The group leaders presented the recommendations finalized by their group.

### Group 1: Bamboo Management in forest areas

The group put forth following recommendations about the Bamboo management in forest area.

- There is a need for certified planting stock in order to ensure the quality of the product. It is necessary to recognize the role of community in the management of nursery and the requirement based planting material, keeping in mind the end user of the product.
- It is prerequisite to ensure right kind of bamboo for the right farmer. Monoculture was the another issue which should be avoided by allowing natural associates to grow.
- There is an increasing need to create massive awareness and increase ownership by the community.
- The selection of species should be done taking into consideration the agro climatic zones.

### Group 2: Bamboo Management in private areas

The second group discussed about the bamboo management on private lands and gave the following recommendations:

- Demonstration plots, of around 1- 3 hectares, may be taken up at different place to generate awareness amongst the farmers and help them in producing better products leading to higher price and benefits.
- The role of clear felling in bamboo management may be examined from farmers' point of view.
- There should be segregation of different types of bamboos at depots. Products can be segregated according to market requirements in the depot and the final products can be used for furniture makings, incense sticks and biomass industry.
- Support price should be based on the species, diameter and length of the pole.

### Group 3: Bamboo nursery and quality planting stock, Monitoring and evaluation practices in bamboo sector

The third group discussed about Bamboo nursery and quality planting stock and Monitoring and evaluation practices in bamboo sector . The group gave the following recommendations:

- Bamboo resources in the state can be broadly divided in 5 zones monitored under different management objectives for bamboo production and restocking of the clumps

Bamboo region	Management objective	Expected produce
Bamboo in Semi - Moist region	High production through intensive management	80,000 culms per hectare
Bamboo in Dry Teak forest	High production through management	60,000 culms per hectare
Bamboo in E. Vindhyan Region	Sustainable production and restocking	40,000 culms per hectare
Bamboo in W. Vindhyan region	Sustainable production and restocking	20,000 culms per hectare
Bamboo in Miscellaneous forest	Sustainable production and restocking	20, 000 culms per hectare

- As per the order of APCCF, MP, 2004, Management of bamboo for restocking of degraded bamboo forest, quality of planting material for plantations and sustainable production need to be ensured. Along with that, soil working needs to be ensured twice in rainy season (August, September) and thrice in dry season (February, June, October)
- Nursery of bamboo should only be raised through certified seeds essentially.
- There is a need to introduce silviculture intervention for removing congestion in degraded bamboo forest.
- Genetic improvement of the existing species and introduction of new species for different agro climatic zone can be done. Germplasm bank of bamboo at State level should be maintained.
- Identifying the end-uses in different region and ensuring management of bamboo to cater the demands of the local market.

### Group 4: Skill Development, Capacity Building and Product Management

The fourth group discussed about Skill Development, Capacity Building and Product Management in bamboo sector, and group gave the following recommendations:

- Need to ensure proper intense research, Product designing and Product manufacturing.
- Introduction of Certified diploma courses and refresher courses in colleges and institutes.
- Regular Skill development for Private entrepreneurs specially in newer bamboo application and technology.
- Development of aggressive marketing practices like IT, Media, social networking sites, creation of consumer awareness, buyer-seller meet, demonstrations, etc.

# Valedictory Session



The valedictory session started at 4:00 PM on 25.01.2014 at Academy of Administration, Bhopal. The Chief Guest for the session was Ms Ajita Bajpayee Pandey, Additional Chief Secretary, Govt of MP. The Guests of honour for the session were Shri Basant Pratap Singh, IAS, Principal Secretary (Forests), Dr R.N. Saxena, MD, MP State Forest Development Corporation and Shri Ajit Sonakiya, PCCF, Working Plan, Forest Department.

During the Valedictory session, Mr Kamesh Salam, Founder and Executive Director, South Asia Bamboo Foundation presented the brief and recommendations of the workshop.

Dr A.K Bhattacharya, Mission Director, MP State Bamboo Mission gave vote of thanks. He expressed his sincere appreciation and gratitude to the Chief Guest, Guest of honours, presenters, discussants, moderators and participants, who came from all over India and outside, who have made this workshop very fruitful.

Mr. Ajit Sonakiya, mentioned about the significance of effective initiatives for proper implementation of working plan guidelines for sustainable development of bamboo forests and appreciated the efforts of MPSBM in this direction. Dr. R.N.Saxena, emphasized the need for timely and proactive action for the rapidly depleting bamboo resource. Shri B.P. Singh, PS (MPFD), highlighting the importance for the rural communities, advised for appropriate measures to bridge the supply demand gap of bamboo through proper management intervention.

The Chief Guest, Ms Ajita Bajpai Pandey, appreciated the initiatives of the MP Forest Department and State Bamboo Mission for addressing the important subject of bamboo, which is directly linked to rural economy. She emphasized on the need for the skill development in bamboo crafts and advised to utilise the Govt. Schemes for the skill upgradation of the rural communities to achieve the goal of bamboo based development in the State.

The session ended with a token of appreciation presented to all the dignitaries on the dais with Bamboo souvenirs by the Mission Director, MP State Bamboo Mission.

# Annexure 1:

## List of Participants

S.No	Name	Designation/ Organization	Contact No.
1	A.B Gupta	CCF, Research & Extension, Bhopal	9425109125
2	A.S. Joshi	Ex PCCF, and MD, MP State Forest Development Corporation	
3	Aditya Upadhya	NIFT, Bhopal	9589222057
4	Amit Ranjan	NIFT, Bhopal	7747013939
5	Anil Khare	IFS, IIFM, Bhopal	
6	Anjana S. Tirkey	IFS, Panna Tiger Reserve	
7	Ankita Pal	NIFT Bhopal	
8	Atul Jain	ED (PF), MP State Forest Development Corporation	
9	B.C Dubey	NRLM , Bhopal	9425046102
10	B.D Shuklware	Bhartiya Samaj Vikas Samiti	9425109125
11	Bhagwandas	Bamboo artisan	9755218773
12	Bharat Rohila	DPIP, Tikamgarh	9893218446
13	Bhupal K. Dhar	Office of PCCF	755 2427839
14	Du. Jianping	China	0086-13547721875
15	Fatima Martin	Bamboo Architect, Spain	9582876158
16	Firoz Khan	NIFT Bhopal	
17	G. A Kinhal	Director, IIFM, Bhopal	0990900699
18	Gagan Saxena	DPIP, Rajgarh	
19	Gopa Pandey	RCVPNAA	9425175140
20	Guddi Bai	DPIP , Tikamgarh	9753812863
21	H.P Jharia	DFO, Balaghat, Forest Department	
22	J.K Mohanty	APCCF, MP Forest Department	09424790017
23	Jagriti Budhia	NIFT Bhopal	
24	Jai Chanel	Bamboo artisan /entrepreneur	9200217080
25	Janwad Hasan	APCCF, Forest Department	
26	Jauwad Hasan	APCCF, Forest Department	
27	Jaya Pandey	ACF ,Chattarpur, Rewa, Forest Department	9452175920
28	Jogindra Kumar	Forest Plus	
29	K.D Rain	Akhil Bhartiya Basod Samaj Vikas Samiti	
30	Kamesh Salam	Founder, South Asia Bamboo Foundation(SABF), World Bamboo Organization	
31	Kelash Lal	Sirmariya	
32	Keshar Samsheriya	Akhil Bhartiya Basod Samaj Vikas Samiti	8719803860
33	L .Krishnamurty	CF, Bhopal	
34	L.K Vashik	Bamboo entrepreneur	9424663524

35	M.K Sapra	MPSFDC	
36	Manjusha Mishra	Asst. Prof Architecture, SPA, Bhopal	9589290079
37	ManMohan Yadav	Associate Professor, IIFM	
38	Mansi Shah	Student, SMMCA Nagpur	8793533185
39	Mu Yu Xian	Bamboo Entrepreneur, China	0086-13547721875
40	N. Barathi	Director, Growmore Biotech, LTD	
41	N.S.Dungriyal	CCF, Forest Department	9424790074
42	Nainsingh Bamnele	President, Bhartiya Samaj Vikas Samiti	
43	Nick Klotz	Auroville Bamboo Centre	9810104968
44	Nitin Kulkarni	TRFI, Jabalpur	9425325430
45	O. P Khare	MPMFP	
46	P.C Dutta	Deshmukh Newspaper	9301003551
47	P.K Rawat	ACF, R & E Circle, Khandwa	9424796497
48	Parul	Mandla Production Division	9425597078
49	Parul Lohiya	NIFT Bhopal	
50	Pooja Sajwar	NIFT Bhopal	8959027609
51	Prem Chand Gupta	Pragatisheel Engineering	9752531021
52	R.D Saksena	Environment & Energy Management	
53	R.K Gupta	CCF, Forest Department	9827314412
54	Rahul Saksena	Environment& Energy Management Group	9993120787
55	Ram Prasad Washkar	Akhil Bhartiya Basod Samaj Vikas Samiti	
56	Ramakant Dixit	Ex Forest Officer	
57	Ruby Sarkar	Journalist, Deshmukh Newspaper	
58	Samit Mukherjee	Wonder Grass Initiative	
59	Sandeep Theng	G.M Operation, KONBAC	8800637637
60	Sanjay Singh	TRFI, Jabalpur	9926409009
61	Sanjeev S. Karpe	Director, KONBAC	9422369789
62	Sanjeev Singh	SPA Bhopal	
63	Satish Chandere Mishra	M. P Forest Division Office	
64	Sharad Yadav	National Institute Of Fashion Technology( NIFT)	
65	Sharda Prasad	Akhil Bhartiya Basod Samaj Vikas Samiti	
66	Shilpi Jaiswal	Range Officer, Mandla Forest Division	9424796363
67	Shishir Soni	Jagrati Gramutthan Samiti, Betul	9425025084
68	Shivlal Nakotiya	Akhil Bhartiya Basod Samaj Vikas Samiti	9893218446
69	Soumik Halder	NIFT, Bhopal	9424442107
70	Sumita Dabe	Vice Chairperson, National Institute of Design	
71	Sunil Joshi	Institute Of Village Enterprise Development for handicraft	9823176472
72	Sunil Paltanwale	Forest Department	94245430113
73	Susanth CS	Head Center for Bamboo Initiative	9449831450
74	Sushil Saigal	Institutional Development Of Governance Advisor,Forest Plus	
75	Swati Joshi	NIFT Bhopal	8359871422
76	V. N Pandey	CEO, M P Biotechnology Council	
77	Vijay Saxena	Designer, Shilpin, Bhopal	9425006824
78	VPS Bundela	Forest Department	9993845199

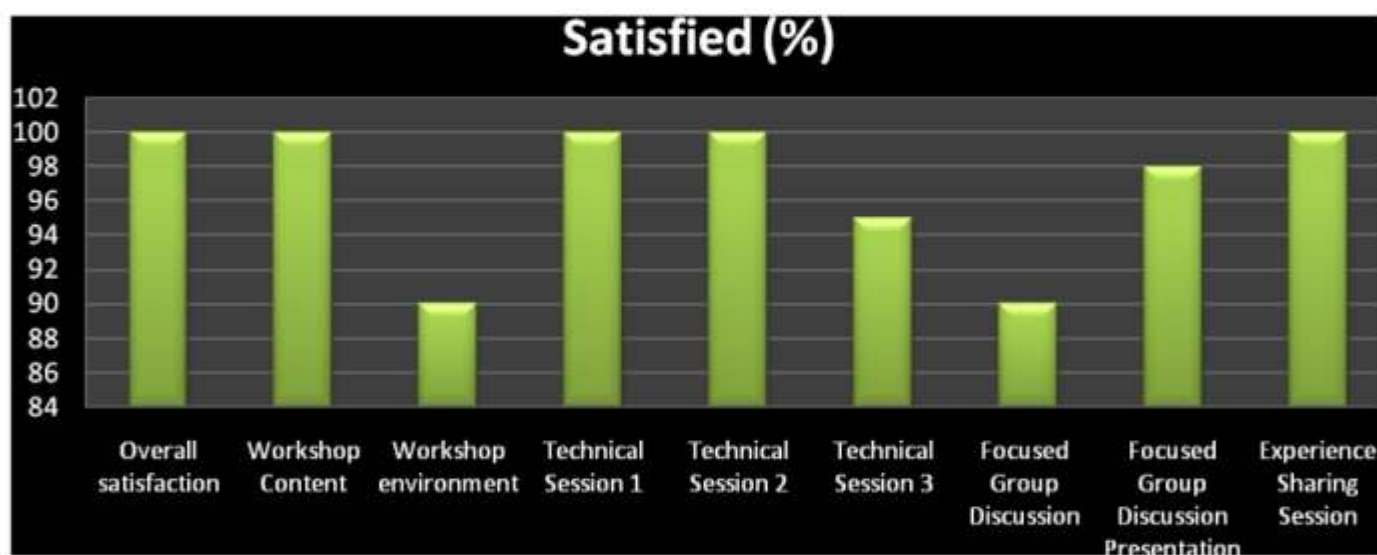
# Annexure 2:

## Analysis of Feedback

The workshop was attended by 78 participants. Participants in the Workshop included experts and scientists from bamboo sector, Bamboo Entrepreneurs, Bamboo Growers, Bamboo related Departments like forest department, State Rural livelihood Mission, Bamboo Missions of other States, Bamboo Artisans of Bamboo rich States, Auroville Bamboo Centre, KONBAC, SPA etc.

Participants were given the Feedback Forms, analysis of 30 received forms is presented below

### Workshop Evaluation



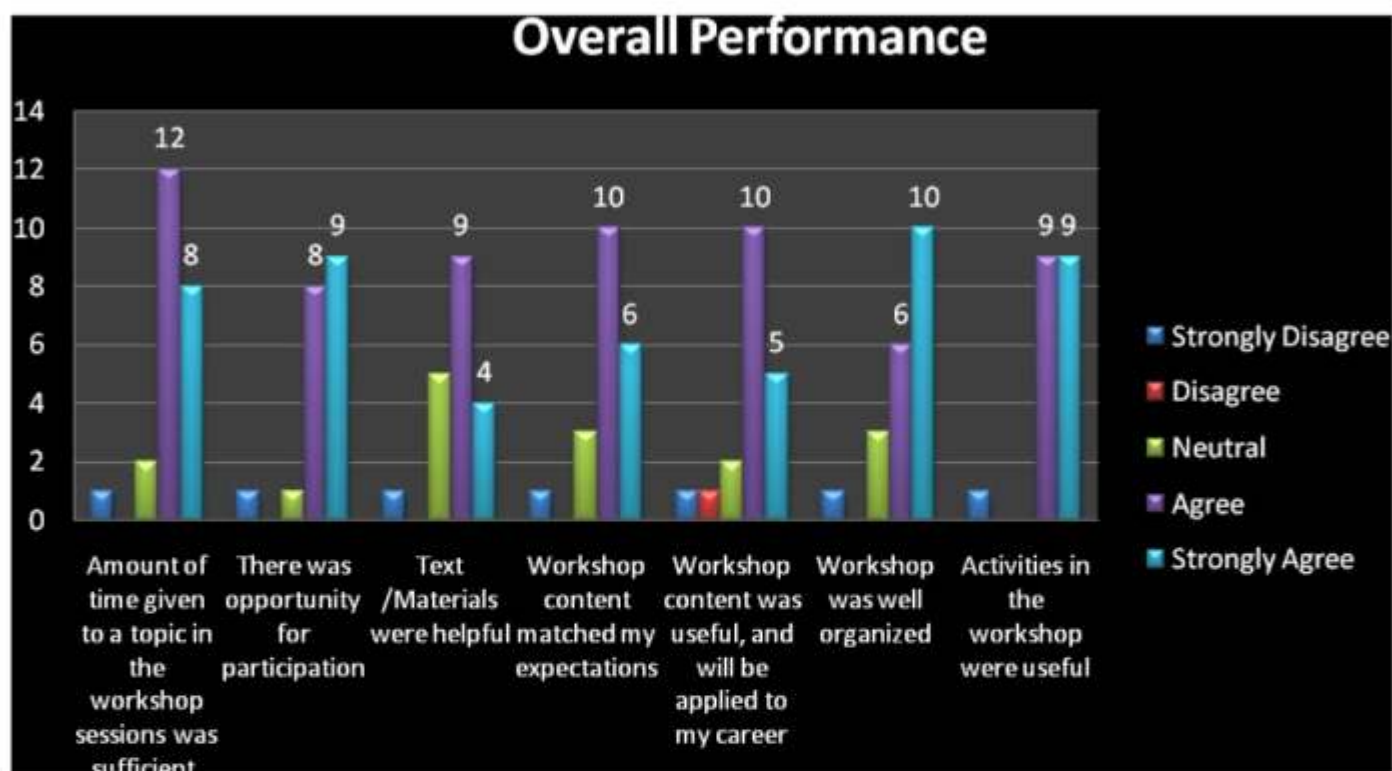
*Note : The questions were asked with 5 preferences i.e. Not Good, Average, Good, Very Good, Best. The categories Good, Very Good and Best have been taken as "Satisfied"*

On an average, 97% of the participants were satisfied with the event in terms of the workshop content, the technical sessions, FGDs and experience sharing session. The main reasons cited behind this rating were participants' enthusiasm which was overwhelming and quite visible by their active participation during the workshop. Moreover the environment of the workshop was equally comforting. The experts with National and International experiences brought a dynamic perspective to the workshop, they shed light on the Bamboo Management practices, its immense potential and current usage in India as well as other countries. The FGDs promoted free flow of information, which helped in revealing the real challenges being faced by the Bamboo sector.

The presentations aided in promoting better clarity about the galaxy of potentials hidden with Bamboo, which need to be explored and massive awareness, for this, is must !

## Overall Performance of the Workshop:

The participants stated that they felt that the workshop was well organized and that the structure was appropriate. Most participants felt that the workshop was of an appropriate length. They felt the reading material supplied were of great clarity and very informative. The workshop offered enough opportunities for participation. The workshop was very well focused on its objectives and its content was praised by many participants.



## Additional comments/suggestions/observations

1. Proper follow up is needed.  
These should be properly followed up on all the recommendations.
2. Role of SHG's and community should be promoted in Bamboo management  
The SHG's and community should be promoted for development in bamboo sector, as Bamboo forms an important component for their livelihood.
3. MPSBM should take into purview the 'Industrial Development' in Bamboo sector  
As immense work has already been done in this sector, there is a need to encourage industrial development in bamboo.
4. Value addition and marketing issues to be addressed  
Bamboo products are being made, but their marketing needs to be enhanced with proper value addition.



# Conclusion:

There is a clear inference from the analysis that the event satisfied majority of the participants. It was useful in offering them a global perspective of the current bamboo potentials with a comfortable workshop environment and technical presentations, FGDs, Experience sharing session further helped participants to learn in depth about best Bamboo management practices in India and other countries.

# Reflections:

With increasing awareness of the rich bamboo potential and the global bamboo market, the MP Govt has taken a right step at right time which would advocate the use of bamboo as a resource by the present and future generations.

Kamesh Salam  
Founder, South Asia Bamboo Foundation(SABF),  
World Bamboo Organization

MP State Bamboo Mission can play an imperative role in promoting linkages between producers, entrepreneurs and the industrialists, which is the need of the hour.

Anjana S. Tirkey, IFS  
Panna Tiger Reserve

Bamboo doesn't lack durability, but awareness!

Mansi Shah,  
Student, SMMCA Nagpur



# Annexure 3:

## Concept Note of the Workshop

Madhya Pradesh State Bamboo Mission

“Exploring the Best Bamboo Management Practices: Investing in Green Gold”

*A National Workshop On 24- 25th January 2014*

### Concept Note

Madhya Pradesh is the largest state in terms of forest area i.e. 20.3% and 12% of the growing bamboo stock. Traditionally, bamboo has been harvested in the natural forest and its use has been restricted to construction activities, but now it's referred as poor man's timber with the capacity to generate about 432 millions workdays annually. With more than 1,500 documented uses, ranging from medicines to fuel wood to aircraft manufacturing, over 1,000 million people live in houses made of bamboo or with bamboo as the key structural element. Presently, there exist wide gap, nearly 90%, between the demand and supply of Bamboo in MP, taking into consideration its commercial and industrial requirement. This point outs the enormous opportunity available for development and adequate management of bamboo resources both on public and private land as well as significant improvement in the fiscal condition of the bamboo-dependent people.

In this backdrop, Madhya Pradesh State Bamboo Mission intends to secure the foundations of a sustainable bamboo based economy by providing livelihood and economic security to artisans, craftsmen and industrial workers by first and foremost analyzing the previous efforts made in the State for utilization of bamboo resources followed by couple of capacity building initiatives like establishment of State level Centre of Excellence and District level Bamboo Crafts Facilitation Centres, creating a mechanism for registration of Bamboo Artisans, developing a broad-based association linking Government, NGOs, SHGs, and local bodies through a user-friendly bamboo web-portal. The mission focuses at sustainable development and utilization of bamboo resources in the State through scientific management and stakeholders' participation.

It is of vital importance, to communicate and share dais with the people associated with the resource use, which includes State Government officials, practitioners and representatives from various bamboo based industry, along with the other forest, financial and research institutes primarily contributing in exploring the Bamboo based sustainable development. The overarching aim of the workshop is to showcase the Platform and bring together several people or institutes associated with bamboo management under one roof with a view to exchange experience on bamboo development projects from a multi -dimensional perspective for a fruitful outcome. With the hope of replicating the model adopting best bamboo practices, the workshop intends to identify and highlight the different approaches being adopted by different states and research institutes under different circumstances and their favorable outcome. Thus in order to produce actionable recommendations for Bamboo based sustainable development, the workshop aims to offer a unique platform for creating a knowledge base of the different approaches being adopted in the country for its successful replication at other suitable places.

The specific themes concerning proper production, distribution and sustainable bamboo management are as follows:

- 1. Introduction, present status and challenges of Bamboo based management-**
  - a) Importance of Bamboo in alleviating poverty and promoting sustainable development.
  - b) Present status of Bamboo management in the state and country as a whole.
  - c) Highlighting the role and strategy of Madhya Pradesh State Bamboo Mission.
  - d) Impediments in successful bamboo management
- 2. Experience sharing and identifying the best Bamboo Practices across the country -**
  - a) Highlighting and sharing of successful experiences of other states in Bamboo management.
  - b) Exploring the sector from the researcher's point of view.
  - c) Role of financial institutions in regulating the Bamboo market.
  - d) Role of private sector in Bamboo cultivation and its management.
  - e) Role of other practitioners or stakeholders in sustainable Bamboo management.
- 3. Way forward: Identifying opportunities and strategy for moving forward –**
  - a) How to create synergy in Bamboo market? (Demand and supply linkages)
  - b) Solutions from technical and scientific perspective.
  - c) Upcoming innovative streams in exploring Bamboo management ( For example : Bamboo and REDD+, Bamboo and carbon credits, linking bamboo management with larger goals like MDG )

At the end of the workshop, participants are expected to endorse the conclusions and recommendations, which will highlight possible actions and strategy to be adopted by Madhya Pradesh State Bamboo Mission and other such initiatives working with same ambition in the country.

## Objectives

1. To provide a unique platform for sharing the rich experiences of the different stakeholders in the field of Bamboo management.
2. Identify existing unique practices being adopted by different stakeholders in different states.
3. Identify the innovative streams / markets that can be suitably associated with Bamboo for improvising its fiscal condition.
4. Highlight the approaches being adopted for promoting effective monitoring and evaluation for sustainably managing Bamboo.
5. Recommendation in the form of future actions to be adopted by MP State Bamboo Mission.

## Expected Outcomes:

1. Identification of the best practices being adopted by different stakeholders concerning proper Bamboo production and management.
2. Appropriate mechanisms that can be adopted for promoting effective monitoring and evaluation in Bamboo.
3. An experience of learning and sharing innovative ideas concerning sustainable Bamboo management in the country.
4. The future road map for Madhya Pradesh State Bamboo Mission.

## Design of the workshop:

1. Deliberations by experts
2. Case Studies presentation
3. Experience Sharing
4. Open House Discussion
5. Panel discussion

With the philosophy of a Green Economy being in core of all the efforts, it is safe to assume that Bamboo is, definitely, a material of the future or equivalent to an investment in gold.

# Annexure 4:

## Press Release

### PRINCIPAL SECY BASANT OPENS WORKSHOP ON BAMBOO MANAGEMENT

*Saturday, 25 January 2014 | Staff Reporter | Bhopal | in Bhopal*

**Principal Secretary, Forests Basant Kumar inaugurated workshop titled 'Search for Best Techniques of Bamboo Management: Investment in Green Gold' at the Academy of Administration here on Friday.**

Bamboo management and trade experts of international, national and State level, bamboo entrepreneurs and bamboo-related departments' representatives are participating in the workshop. Its main objective is to develop bamboo art and craftspersons, ensure effective upgradation in skill and working capacity of bamboo craftspersons and entrepreneurs in the State and help bamboo sector beneficiaries solve bamboo-related problems.

Director Madhya Pradesh State Bamboo Mission AK Bhattacharya informed that known as poor people's timber, bamboo has emerged as an important industry in the country. In view of immense benefits of bamboo production, a number of farmers and industries are evincing interest in it. Bhattacharya informed that Jabalpur's farmer Ranga is earning Rs 50 lakh per annum from bamboo.

Annually, 75,000 notional tonnes bamboo including 1.50 crore commercial bamboo are produced in Madhya Pradesh, which is 10 percent of total demand. The mission is making efforts to bridge the gap of 90 percent between production and demand so that its commercial and industrial demand can be met and farmers' income also increases.

The workshop will play an important role in framing future strategy of Madhya Pradesh State Bamboo Mission. It will also pave way for state's bamboo entrepreneurs access to national and international markets. Bhattacharya informed that online registration facility has also been started by the mission for bamboo entrepreneurs.

Sessions on 'Global and national view regarding bamboo management', 'Innovations, monitoring and evaluation of bamboo management', 'Bamboo management in private sector' etc were held during the workshop on Friday. Principal Chief Conservator of Forests and Managing Director State Forest Development Corporation R.N. Saxena and Principal Chief Conservator of Forests (Action Plan) Ajit Sonakiya also spoke on the occasion. Anju Bhadoriya proposed a vote of thanks.

# Glimpses





“ MPSBM is registered as a society under M P Societies Registration act, 1973 to function as the apex coordinating organization for implementation of the activities of the National Bamboo Mission in Madhya Pradesh and / or any other project given to the society for implementation. The road map of MPSBM envisages to develop new line of bamboo products by bamboo artisans for national and international marketing, and promote and facilitate traditional and nontraditional bamboo based artisans by developing their skills, increasing the supply of quality bamboo and availability of advanced tools and equipments.

”

The vision of the Madhya Pradesh State Bamboo Mission (MPSBM) is to promote and facilitate bamboo-based development in a holistically sustainable manner, to address multiple dimensions, including ecological, economic, social and cultural issues.

The mission will do this by adopting a dynamic, holistic and scientific approach to the entire bamboo production-to-consumption system (PCS)—from cultivation and management of bamboo in natural forests and private lands, to harvesting, design, production and marketing. This will be done in an integrated manner, through a multi-departmental and multi-dimensional approach, alongside capacity building of the stakeholders, research and development, and a massive awareness generation in Madhya Pradesh on the potentials of the bamboo sector.

**Contact:**

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MP State Bamboo & Bamboo Crafts Development Board  
Forest Department, Madhya Pradesh Government  
**Khel Parisar, 74 Bungalows**, Bhopal (MP) 462003  
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