



IWST



ICFRE

# wood *is* good

GROW MORE, USE MORE

Vol. 2, Issue 4, January - March 2022

**INSTITUTE OF WOOD SCIENCE AND TECHNOLOGY, BENGALURU**

Indian Council of Forestry Research and Education

(An Autonomous Body Under Ministry of Environment, Forest & Climate Change)





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# INDIAN COUNCIL OF FORESTRY RESEARCH AND EDUCATION

(An Autonomous Council of Ministry of Environment Forest and Climate Change, Government of India)

## VISION

To achieve long-term ecological stability, sustainable development and economic security through conservation and scientific management of forest ecosystems



## MISSION

To generate, advance and disseminate scientific knowledge and technologies for ecological security, improved productivity, livelihoods enhancement and sustainable use of forest resources through forestry research and education

### ZIBOC

- A new wood preservative which is comparable to CCA.
- Judicious use of preservative in a non-durable wood greatly enhances (6-8 folds) life of products.



### Varieties/ Clones developed

- Developed improved germplasm of many forest tree species.
- Released 47 high performing and disease resistant clones of *Eucalyptus*, *Casuarina*, *Shisham*, *Melia* and *Sarpagandha* with an envisaged production gain of more than 20%. The developed germplasm are being made available to the State Forest Departments and farmers for use in plantations.



High performing and disease resistant clone of *Melia* sp.



### CYCUS v. 1.0

Casuarina Yield Calculator Utility Software (CYCUS v1.0) software has been developed to facilitate the farmer and other user agencies in yield estimation which requires only observations on girth of 100 sample trees per acre of plantation.

### Wood Welding

Wood welding is new to our country. In this technique wood joints can be made without using nails and adhesives making them more natural and chemical free. A wood welding machine has been designed and fabricated at Forest Research Institute, Dehradun. Success has been achieved in spin welding of wood pieces of few species.



Wood Welding Machine



## Indian Council of Forestry Research and Education

### New Initiatives

- ☞ Transparent wood- a flexible and biodegradable transparent wood has been fabricated using poplar wood veneer and water soluble polymer- polyvinyl alcohol. The transparent wood exhibited high optical transmittance, high haze and light diffusing property.



Natural wood (Left most), Lignin modified wood (middle) and Transparent wood (right most) placed on a paper with letters "IWST"

### Heat storage based modified Solar Kiln

- ☞ Solar heat storage system based solar kiln has been developed by Forest Research Institute, Dehradun for timber drying. The solar heat is trapped using suitable phase change material (PCM). The New solar kiln is able to trap 39 % more heat in winters as compared to traditional green-house based traditional FRI solar kiln developed during 1970.



Head based storage Solar Kiln

### Xylarium

- ☞ Collection of authentic wood samples both from India and other countries, depicting wood biodiversity of the country like lightest, heaviest, sweet-smelling, foul smelling, smoothest, streaked, variegated wood and wood of different colours, etc. The collection of wood cross sectional discs depicting variation in sapwood and heartwood colour is a unique feature of the xylarium.
- ☞ Wood identification services.



Xylarium- Collection of Authentic wood samples

### Tree hollowness detection technique based on ultrasonic waves

- ☞ Forest Research Institute, Dehradun has developed ultrasonic techniques (Non-destructive testing) to detect the location and magnitude of the hollowness of the standing tree. This will help to remove the potential human hazards by way of falling down of such trees during a high wind regime in Urban Forestry.



Measurement of hollowness in a tree using ultrasonic detector

### Agroforestry models

- ☞ Various agroforestry models (Poplar, Eucalyptus, Melia, Casuarina and Babool) have been developed to improve green cover, enhance farmers income and to mitigate climate change .



Poplar based agroforestry model with wheat

### Innovative Bamboo Bottles

- ☞ Techniques for making bamboo bottles by using Bamboo Treatment Technologies of ICFRE. Most suitable bamboo species for making bottles are Shil Barak (*Bambusa salarkhanii*) & Barak (*Bambusa balcooa*). One full bamboo is sufficient for making 21 full size bottles and 12 small bottles.



Bamboo bottles

#### For further details please contact :

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सत्यमेव जयते



FOREWORD

सचिव  
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SECRETARY  
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CLIMATE CHANGE

Wood, with its varied forms, has historically been a part of all societies and cultures. Being a natural, renewable resource, it is a sustainable material and has multiple uses ranging from furniture to modern utilities like modular kitchens. Possessing a lighter carbon footprint, wood is a greener alternative as compared to steel and concrete. Enhanced use of wood has, therefore, been advocated globally as one of the effective strategies in climate change mitigation. This gives impetus for the expansion of area under tree cover which would be beneficial for farmers and also boost economic growth through wood-based enterprises.

Agroforestry is a key intervention for the country's transition to a carbon neutral economy. In this endeavour, the Institute of Wood Science and Technology (IWST), Bangalore under the aegis of Indian Council of Forestry Research and Education, has been working on emerging technologies to promote sustainable use of wood. The Institute has been publishing "Wood is Good: Grow more, Use more", a quarterly magazine covering various issues related to promotion of wood and wood products. The aim of this publication is to share scientific knowledge and best practices amongst various stakeholders.

The previous issues of the magazine published during the last two years have covered important sectors such as handicraft and bamboo products, along with policy inputs for promotion of Tree Outside Forests. The last quarterly (October – December 2021) issue highlighted the status of wood-based industries in India, particularly of primary wood processing industries engaged in milling, seasoning, preservation, and processing, with special reference to their technological status, constraints and requirements. The most important constraint in the wood industry sector is unavailability of the required quantity of raw material, possessing the desired quality.

An effort has been made by IWST to present a vivid picture of the "Wood Sector in India" to various stakeholders in order to prepare a roadmap. Insights and feedback for promoting agroforestry, including quality and certification aspects of wood, would be very useful for coming up with a clear action plan.

I hope that the current issue of "Wood is Good: Grow more, Use more" magazine, which is focusing on various dimensions pertaining to the production of certified wood and promotion of wood based industries, would give a boost to the sector and make a significant contribution to the export of wood products from India.

  
[ Leena Nandan ]

New Delhi, the 13<sup>th</sup> April, 2022



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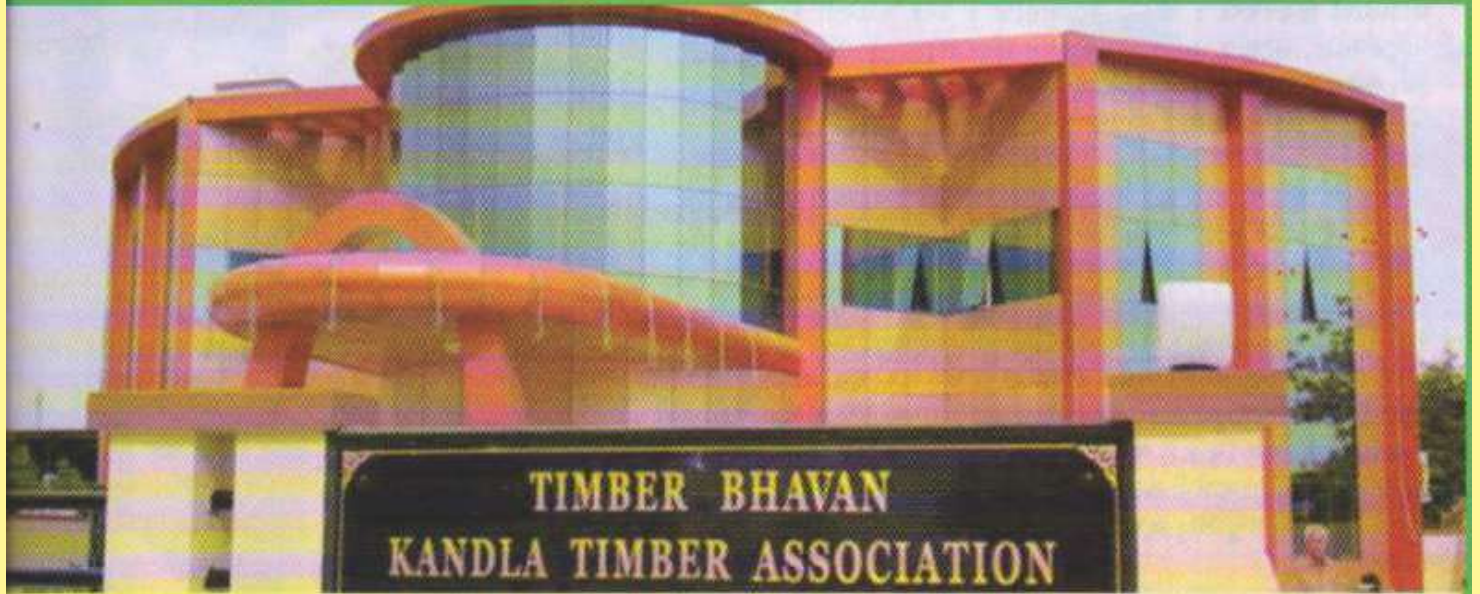
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# IWST activities during January–March, 2022

## Webinar on Electric Resistance Tomograph (ERT): A Technology in deciphering the interiors of standing trees

As part of Azadi ka Amrit Mahotsav celebration, Institute of Wood Science and Technology (IWST) conducted webinar on **Electric Resistance Tomograph: A Technology in deciphering the interiors of standing trees** on 04<sup>th</sup> January 2022. The topics covered in the webinar included differentiating properties of heartwood and sapwood in few commercially important timber species, wood quality parameters such as moisture content, density, grain direction and chemical constituents on electrical properties of wood, ERT in understanding the inner structure to estimate heartwood, sapwood and decay in the standing trees by taking example of sandalwood (*Santalum album*) and redsanders (*Pterocarpussantalinus*). About 70 participants attended the program.



## Webinar on Sustainability, Certification and Legality in wood products

Under the Azadi ka Amrit Mahotsav initiative of Govt. of India, IWST conducted webinar on **Sustainability, Certification and Legality** in wood products on 21 January 2022 to perceive the views of panelists, invited speakers and representatives from Wood Based Industries, Academia and Practitioners of forest certification. About 250 participants from across the country participated. The webinar included five renowned panelists and four distinguished speakers.



### PANELISTS

**Dr. M.P. Singh, Director, IWST, Bangalore**, welcomed the panelists and speakers. He highlighted the importance of Sustainability and Certification of forests, wood and wood products in India. He also briefed the fellow panelists and participants about the various certification schemes across the globe, and stressed upon coming up with chain of custody certification for agri-wood produced from agroforestry plantations.

**Sri. Sajjan Bhajanka, President, FIPPI**, observed that there is a need to develop Indian framework for certification of forests and Agri-wood in India and also to provide certified wood to the industries. Further, he complemented IWST for organizing this webinar highlighting its importance to the stakeholders from wood based industries.



**Dr. Manmohan Yadav, Professor, IIFM, Bhopal**, opined that, to ease forest certification process in India, already IIFM (Indian Institute of Forest Management), Bhopal has come up with 8 criteria and 37 indicators (C&I) for SFM through Bhopal India Process. The C&I thus developed by IIFM have been adopted in the National Working Plan Code, 2014 and they are being implemented in most of the forest divisions across the country. Hence, it would be desirable to come up with Indian framework of forest certification that is simple, economical, implementable and acceptable.



**Dr. Suneesh Buxy, Inspector General, MoEF & CC, Govt. of India** briefed about various initiatives taken by the MoEF & CC in respect of promotion of agro-forestry in the country. He also informed that the recommendations of this webinar should be sent to ministry for further necessary action in respect of certification of forests and Agri-wood in India.

**Sh. Jikesh Thakkar, Executive Director, All India Plywood Manufacturers Association,** also emphasized the need of developing Indian framework of certification for certification of forests and Chain of Custody certification for the Agri-wood produced from farm lands. He opined that certification of wood and wood products helps boosting exports from India.



### INVITED SPEAKERS



**Dr. H.R. Prabuddha, IFS, IWST, Bengaluru,** presented on Sustainability, Certification and Legality in Wood Products: World and Indian Scenario. In his presentation he highlighted about various certification systems practiced across the globe and challenges associated with certification in India. He quoted instances of FSC certification scheme which consists of 10 principles, 55 criterias and 200 indicators related to SFM. Similarly, Network for Certification and Conservation of Forests (NCCF), a NGO from India has come up with 59 criteria and 239 indicators for SFM, which is endorsed by the PEFC. Thus, he underlined that adhering to too many Criteria and Indicators (C&I) makes certification a very complex process and difficult to implement in Indian conditions.

**Dr. H.D. Kulkarni, Vice President Plantation (Retd.), ITC Ltd.,** made a detailed presentation on Relevance of Sustainability Certification for Agri-wood in India and shared his first hand experience in dealing with certification agencies when he was working in ITC Ltd. He also stressed upon creation of Indian system of certification especially for wood produced from agricultural lands and plantations.



**Ms. Shilpa Naryal, Head Sustainability-South East Asia, Intertek,** presented on Sustainable Development for Greener Supply Chain in the Global Value Chain. She talked about the complexity associated with the concept of sustainability and existing certification systems like FSC and PEFC. She also urged for creation of Indian system of certification for the benefit of farmers and wood based industries.

**Dr. Shiv S. Panse, Forest Governance Expert & Technical Advisor Sustainable Forest and Natural Resource Management,** gave a detailed presentation on Sustainability and Legality Assurance Standard for Wood Products in India. In his presentation he gave a framework for creation of Indian certification system.



All the panelists unanimously agreed that a simple and cost effective Indian framework for certification of forests and Agri-wood is the need of the hour and adoption of such a certification system will benefit farmers and industry at large in India.