

REDISCOVERING WOOD:



THE KEY TO A SUSTAINABLE FUTURE

Proceedings of the Art and Joy of Wood conference,
19-22 October 2011, Bangalore, India



REDISCOVERING WOOD: THE KEY TO A SUSTAINABLE FUTURE
THE INTERNATIONAL CONFERENCE ON THE ART AND JOY OF WOOD

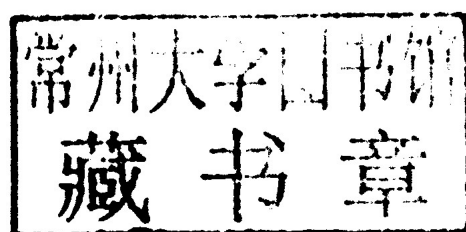
BANGALORE, INDIA

19 – 22 OCTOBER 2011



PROCEEDINGS

PART 1- CONFERENCE OVERVIEW



The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

ISBN 978-92-5-107598-2 (print)

E-ISBN 978-92-5-107599-9 (PDF)

© FAO 2012

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org.

Acknowledgements

The support for conference and exhibition came from so many individuals and organizations which cannot be recorded due to the limit of space. Thanks are due to the Indian Ministry of Environment and Forests for hosting the event and to IWCS and IUFRO to support as co-organizers. The logistic and technical support provided by IWST, IPIRTI and FRI, Dehradun are thankfully remembered. Valuable contributions from P J Dilip Kumar (MoEF), A K Bansal (MoEF), V K Bahuguna (ICFRE), S C Joshi (IWST), C N Pandey (IPIRTI), A M Singh (MoEF), Pankaj Aggarwal (IWST), Jagadish Vengala (IPIRTI), Vipin K Chawla (IPIRTI), Sangeeta Gupta (FRI), V P Tewari (IWST), O K Remadevi (IWST), Geeta Joshi (IWST), Ajay Karmarkar (IWST) and Amit Agarwal are specially acknowledged. Sincere gratitude is expressed to members of various committees shown below. Special thanks go to Michael Martin (FAO), Kiran Mehra-Kerpelman (UNISC, India), Gavin Wall (FAO), Adrian Whiteman (FAO), Mike Hou (IWCS), Su Jinling (IWCS), Patrick Durst (FAO), Olman Serrano (FAO), Rao Matta (FAO), Jukka Tissari (FAO), Jeremie Mbairamadji (FAO), JeanClaude Nguinguiri (FAO), Ed Pepke (EFI), Thomas Ceannt (FAO), Tullia Baldassarri (FAO), Gabriele Marcelli (FAO), Susy Tafuro (FAO), Dharini Parthasarathy (FAO), T R Manoharan (WWF), ChenYao (IWCS), P R Triveni (IWST), Iona Serrapica (FAO) and Illias Animon (FAO).

Thanks are expressed to the chairs and co-chairs of the sessions (P J Dilip Kumar, V K Bahuguna, V Ramakrishnan, Wang Guixiang, T R Manoharan, A K Bansal, Maria Riala, Yang Ping, Sangeeta Gupta, S C Joshi, Gabriel Hemery, V K Bahuguna, Mangala Zoysa, M P Ranjan, J Ratnasingam, Howard Rosen, S Balaram, Adrian Whiteman, K Jayaraman, A M Singh, Saara Taalas, S S Negi, E Remedio, R Michael Martin, T S Rathore, C N Pandey, P Kamdem, K S Rao, Jim Birkemeier, Illias Animon and V Ramakantha) and rapporteurs. Thanks are conveyed to all the staff and crew of the IWST, IPIRTI and IWCS who logistically supported the events and uploaded it in the internet.

Thanks are due to the sponsors American Hardwood Export Council, Programme for the Endorsement of Forest Certification, The Commonwealth Forestry Association, Industrial and Laboratory Equipment Co. and Elixir Technologies. The efforts to publicize the event by the Wood News, Modern Woodwork, Teaknet Bulletin, Wood and Ply Digest, Non-Wood News, InfoSylva etc are acknowledged.

The support from press and media representatives is also acknowledged.

Committees that steered the events

Technical Committee: E V Anoop (KAU, Thrissur, India), T K Damodaran (KFRI, Thrissur, India), Sujatha Dhanapal (IPIRTI, Bangalore, India), Patrick Durst (FAO, Bangkok, Thailand), Sangeeta Gupta (FRI, Dehradun, India), Eric Hansen (OSU, Corvallis, USA), Mike Hou (IWCS, China), Jeremie Mbairamadji (FAO, Rome, Italy), Howard Rosen (Washington DC, USA), V P Tewari (IWST, Bangalore, India), Jukka Tissari (FAO, Rome, Italy), Adrian Whiteman (FAO, Rome, Italy) and Illias Animon (FAO, Rome, Italy).

Sponsorship Committee: S C Joshi (IWST, Bangalore, India), Rao Matta (FAO, Rome, Italy), C N Pandey (IPIRTI, Bangalore, India) and Finella Pescott (FAO, Bangkok, Thailand).

Organising Committee: Pankaj Aggarwal (IWST, Bangalore, India), Vipin K Chawla (IPIRTI, Bangalore, India), Su Jinling (IWCS, China), S C Joshi (IWST, Bangalore, India), C N Pandey (IPIRTI, Bangalore, India), A M Singh (MOEF, New Delhi, India), Jagadish Vengala (IPIRTI, Bangalore, India) Adrian Whiteman (FAO, Rome, Italy) and Illias Animon (FAO, Rome, Italy).

Photo Contest Judges: Kartiki Gonsalves (India), Tomasz Juszcak (Poland), Masakazu Kashio (Japan) and Marco Perri (Italy).

Painting Competition Judges: Jasmine Khanna and Shan Re.

Poetry Competition Judges: Malathi Rao, Vimala Rao and L N Santhkumaran.

Contents

Acknowledgements	iv
Summary	1
Objectives of the conference and intended impacts	3
The structure and organization	5
A The building blocks.....	5
B Event organisers, financiers, sponsors and supporters	9
Synthesis of the presented ideas	9
Opening ceremony:	9
Why we are here? Different perspectives on the role of wood in sustainable development (Session I).....	10
An introduction to wood culture: building on the past (Session II)	12
The use of wood in different cultures (Session III and V).....	13
Artistic aspects of wood use and design (Session IV and VIII)	15
Wood architecture: What can be done? (Session VI and VII)	16
Selling the art and joy of wood products to consumers (Session IX)	18
Wood industry development in the formal sector (Session X)	20
Development of the handicraft sector (Session XI).....	23
Promoting wood culture in the future (Session XII and XIII)	24
Sustainable wood supply: the key to success (Session XIV)	28
Focus on sandalwood and teak (Session XV)	29
Thoughts emerged on where to go from here	30
Summary of the deliberations.....	31
The ideas to ponder for the enablers of the journey to sustainable development.....	36
Feedback	37
Conclusions.....	38
Side events	38
Photo-competitions held in connection with the event	39
Appendix 1- List of oral presenters	52
Appendix 2 - List of participants.....	55
Part 2: Sessions from 1 to 15	on CD
Part 3: Posters	on CD

Summary

This conference and exhibition was one global event to celebrate the International Year of Forests. This was organized to help the participants understand the outlook for wood products and contribute to develop strategies for future sustainable development. The main intention was to explore how socio-economic trends are affecting the use of wood products and what challenges and opportunities arise as the consequence of these developments. Underlying belief was that greater wood use can make a significant and valuable contribution to society's desire for a more sustainable future. Also, a sustainable and prosperous forest products sector is essential for sustainable forest management.

This conference attempted to explore how the changing expectations of consumers and society shape the future for wood products. It also intended to examine how producers and users of wood can respond to these changes to identify potential opportunities and strengthen sustainability in the sector. It partly focussed on the social, aesthetic, cultural and traditional aspects of wood use and how the strong linkages between wood and society could be used to support the future development of the sector as a whole.

The event comprised of four-day conference (including one day field trip) and exhibition. It was held at the J. N. Tata Auditorium Complex located at the Indian Institute of Sciences campus in Bangalore, India from 19 to 22 October, 2011. More than 60 presenters from 18 countries orally communicated their ideas and about 15 poster presenters showcased their stories. More than 278 attendees from 30 countries participated in the deliberations and discussions that spread into 17 sessions.

Alongside the technical sessions, on all four days, a commercial exhibition and wood products display was held adjacent to the conference venue. This provided hands on experience because it portrayed the art and joy of working and living with wood to the participants and the general public. Commercial exhibitors showcased their products or services containing a high degree of craftsmanship, artistic input and innovations to the conference participants and about 5,000 local visitors. Wood carvers and other artisans from China, India, Cameroon, Indonesia, Japan and Turkey demonstrated different wood carving styles and techniques. Videos of the presentations, exhibition, field trip, cultural events etc are available at <http://www.wood.info/artjoywood/?p=video>.

Take away points relevant to policy makers

1. Wood products that embrace culture and traditions are gaining popularity. These connect the past with the present through well designed wood products that suits the changing lifestyles of the society. This trend will benefit the small and medium wood-based enterprises in future. However, for achieving this, wood use should be integrated in national policies and green growth frameworks. Policies that discourage wood use should be reconsidered because sustainable production of wood presents new opportunities in many parts of the world to revive the wood culture.
2. Wood utilization policies should ensure sustainable wood supply to small and medium enterprises.
3. Adding as much value as possible to every m³ of wood through product and process innovations should be encouraged by policies and incentives. One aim should be to maximise livelihood opportunities while minimizing over-exploitation of wood resulting from mass production of low value products. Maximum value should be added before wood products are exported.
4. Policies should promote wood use considering its environmentally damaging substitutes with the new understanding of life cycle analyses (LCA). As green programmes outside the forests are expected to produce more wood, policies should govern how wood is used to pave ways for a sustainable future. Policy coherences regarding integrating wood use at intersectoral level is a great need. Standards and codes, regulations etc should be re-examined with better understanding on the wood's credential.

5. Policies should encourage the use of 'good wood' to benefit the economy, environment and society with the view of enhancing sustainable forest management (SFM).
6. The credentials of wood should be communicated well to potential wood users and general public. Celebrating National Wood Day and encouraging wood user networks could promote wood use. In order to address threats like deforestation and to build consumer confidence, certification measures that indicate 'good wood' should be promoted without significantly impacting negatively the small and medium wood-based enterprises.
7. Education on how to use wood should be promoted to inspire the young people and to address the skill shortage in many regions to work creatively with wood.
8. Alliances involving foresters, environmentalists, architects, designers etc should be encouraged to find new opportunities for wood and strengthen the links between the producers and users.

Take away points for wood users

1. Product and process innovations that consider the socio-economic trends are the key to survive a crisis and stay well in business. The relevance of art and joy of wood concept is implied in attractive products that employ better designs and integrate sustainability into the products. They touch the heart and mind of people. The societal requirements for modern lifestyle products need to be integrated into the wood product itself. Customization of wood products and finding the right niche is essential for survival amidst increasing competition. Drawing inspiration from local traditions and culture is of great importance to innovate, diversify and design the products that suit the changing lifestyle needs.
2. To inspire the people who do not currently use wood, working closely with designers, architects etc is essential.
3. Limited raw material supply constitutes a challenge for many entrepreneurs, but shifting to unconventional species and production of high value products could address this partly. Recycling wood, designing hybrid products with compatible material, minimizing wastage and using every part of the tree etc are important to maximise resource use and profit.
4. Wood users should share knowledge through global wood networks to increase efficient wood use and enhance global wood use.
5. Actively communicating to the public (e.g. Wood Day, high impact events etc) is indispensable to convince how wood use can make a difference to our life.
6. Considering the new markets in the back drop of lifestyle changes, wood users should prepare themselves to capitalize further on the emerging marketing opportunities of social networking, internet technologies etc.

Take away points for general public

1. Public perceptions towards wood use remain negative mainly stemming from the fear of deforestation and negative impacts on environments caused by exhaustive exploitation of wood for mass commodity production in the past. The art and joy concept of wood use propose turning the

old consumption model around and promotes use of 'good wood' for high end uses. So, it is relevant even in wood scarce regions.

2. Using 'good wood' from responsible sources is essential to benefit the society, economy, environment and SFM. Massive tree planting outside conventional forests provide new opportunities for production of 'good wood'. This would enable transition to wood from its environmentally damaging substitutes that replaced wood in the last two centuries. Unless the public understands well what wood can offer, this transition is impossible. Consequently, its potential contribution to support the livelihood of millions of people and a green economy will continue to be underexploited. So, it is relevant to change the unfounded negative societal perceptions towards wood.

Conclusions

The conference concluded that forestry, as a profession, has often failed to engage with people on an emotional level about the qualities and benefits of wood products, with most of the discussion about SFM focused on scientific and technical debates. Linkages existing between wood and society on social, aesthetic, cultural and traditional aspects were inadequately emphasized in the past. While people understand that wood products are preferable to non-wood products from an environmental perspective, they remain concerned about the environmental impacts of tree harvesting and are sceptical about progress in this area. The green credentials of 'good wood' need to be communicated more. Focusing on efficient wood use (e.g. minimizing wastage, recycling), attractive designs etc will result in eco-friendly and higher value wood products portraying the art and joy of wood. They will meet the environmental, artistic and cultural aspirations of the society while supporting the livelihood of people and SFM.

The art and joy of wood is an attractive concept and reflects the livelihood and artistic dimensions of wood. However, this needs to be popularised widely so that everyone gets inspired to take a piece of the forests to their homes and get connected to the nature and environment in more sustainable ways.

Objectives of the conference and intended impacts

Increase in wealth in many regions implies threats and opportunities to sustainable development. Wood that is produced sustainably and used wisely has a role to play here. Being a natural and recyclable material that originates from a renewable resource that stores carbon, wood and wood products possess many positive environmental attributes. Despite this, the public has not viewed wood use very favourably in recent years, tending to link this with bigger problems in forestry like deforestation and forest degradation. However, these perceptions may change as societies move towards a low-carbon or "green" economy and people move away from the dominance of mass-production in modern lifestyles. This event was therefore proposed in the firm belief that greater wood use can make a significant contribution to society's desire for a more sustainable future. The underlying conviction was that a sustainable and prosperous forest products sector is essential for sustainable forest management.

a. Relevance of the theme

In a green economy, the role of wood as a natural and renewable product needs more emphasis. Contextually, sustainable production and use of wood deserves more attention than ever before. This is indispensable for our sustainable future. The International Conference and Exhibition on the Art and Joy of Wood was organised as part of the International Year of Forests with this view to promote discussion and share ideas on how more widespread wood use could be encouraged, capitalising on the emerging social trends in the 21st century.

Even though wood products constitute an indispensable part of human life, the importance of wood production is sometimes overlooked in debates about forestry and forest management. This lack of

attention was the motivation to try to explore these issues, in particular how far the social dimensions of wood use (culture, traditions and aesthetics) can be integrated into the development of the sector.

The economic and environmental dimensions of wood product use have been discussed widely now, but the discussions on the socio-economic, aesthetic and cultural dimensions of wood use seem limited. The theme of art and joy of using, working and living has never been relevant in the past as of today. Their relevance is demonstrated by the innovations that blend art and joy theme with our modern life (e.g. Apple computers). Following this trend, high value wood-based handicrafts, building products, musical instruments, furniture, wood panel products, sports goods etc would gain more relevance to our life. The relevance of adding value per m³ of wood is gaining much relevance as wood is scarce in many regions. This added value implies numerous livelihood options, especially for the rural population. Creativity reinvigorates the 'art and joy' of using wood to pave way for innovations. Nevertheless, how the producers should reorient themselves to find innovative opportunities using the emerging trends have not been discussed widely. This conference intended to address this gap.

b. The objectives and deliberations' composition

The overall objective of the conference was to help the participants understand the outlook for wood products and contribute to develop strategies for their future development. The presentations and discussions were expected to shed new light on how wood use can continue to contribute to sustainable development and remain firmly connected to human life. They were expected to persuade the participants regarding the bright future of wood in a more sustainable World and to give away new ideas to benefit their work on the ground.

The specific objective of the conference was to explore how socio-economic trends are affecting the use of wood products and what challenges and opportunities arise as the consequence of these developments. Thus, the conference aimed to examine the following issues:

- How wood use can make a greater contribution to sustainable development; and
- How wood producers and users can benefit from increased prosperity and the growing demands for more sustainable consumption and lifestyles.

The conference tried to examine the ways in which the production and use of wood products can contribute to sustainable development and how growing demands for sustainability might present new opportunities for the development of the wood products sector. This conference focused, on the socio-economic, aesthetic and cultural dimensions of wood use that will encourage more widespread wood use in the 21st century. The discussions surrounded the three themes below.

Emerging trends in economies and lifestyles: What are the main trends affecting wood use and how can these be utilised to strengthen the forest products sector?

Stories portraying the winds of change: Case studies showing how some wood producers and users have already developed strategies or innovated to build successful enterprises based on changing consumer demands and needs.

Wooden paths to a sustainable future: How can the linkages between wood use and sustainable development be strengthened and used to promote more and higher-value wood use?

Among others, the specific questions that the event tried to address are:

- What are the broad social and economic trends affecting the markets and end-uses of wood products?
- How are producers and users of wood responding to these trends and what more can be done?
- What is the scope to develop higher value wood products that capture some of the benefits of rising prosperity?
- Why do negative perceptions of wood use persist in some places and how can these be overcome?

- How can stakeholders in the wood products sector develop strategies to strengthen the linkages between wood use and sustainable development?
- What types of support are needed from policy makers, researchers, technical experts and industry associations?

The deliberations were expected to share views and experiences and enable better networking amongst the participants so that everyone will take away better idea on the outlook for the sector.

c. Intended impacts

The event was expected to improve our understanding on the linkages between wood and society that could be used to support the future development of the sector as a whole. Within this objective, increased visibility of wood in the International Year of Forests was one of the intended outcomes of the event. The success of the event was expected to be based on (i) the feedback of the participants (ii) the innovative ideas propagated and (iii) the benefits to participants' work on the ground.

The structure and organization

A The building blocks

The event was comprised of four day conference (including one day field trip) and four-day exhibition. It was held at the J N Tata Auditorium Complex located at the Indian Institute of Sciences campus in Bangalore, India from 19 to 22 October, 2011. Videos of the presentations, exhibition, field trip, cultural events etc are available at <http://www.wood.info/artjoywood/?p=video>.

1. The conference: The conference spread into 17 sessions in three days including an opening ceremony on the first day and a plenary session on the last day.

Presenters and attendees: More than 60 presenters from 18 countries orally communicated their ideas (Appendix 1) and about 15 poster presenters showcased their stories. About 278 participants from 30 countries (Appendix 2) heard innovative ideas from the experts at the cutting edge of the industry. The foreign delegates constituted roughly 50% of the participants (excluding the students). This event targeted not only foresters but also many innovators (e.g. designers) and practitioners (e.g. architects of wooden multi-storey buildings) who could play crucial role in wood's development on our journey to sustainable development.

2. The commercial exhibition: Alongside the technical sessions, on all four days, a commercial exhibition and wood products display was held in the exhibition ground adjacent to the conference venue. Forty booths occupied by diverse exhibitors (more than 100 persons) provided hands on experience because it portrayed the art and joy of working and living with wood to the participants and the general public. It synchronized well with the deliberations happened within the conference halls.

Exhibitors and visitors: Commercial exhibitors included those organisations specialising in products or services containing a high degree of craftsmanship, artistic input and innovations. The exhibitors occupied all the 40 stalls (3m*3m) and the diversity of the exhibitors was unique with 9 plywood and panel exhibitors, 4 equipment and service providers, 10 consumer goods and services, 7 institutions and organisations and 10 artisans (Photos 1-6). The musical instrument makers, furniture traders and artisan groups caught the attention of the visitors and media.



Photo 1. A snapshot view of the exhibition



Photo 2. Diversity of exhibitors- musical instruments



Photo 3. Diversity of exhibitors- handicrafts

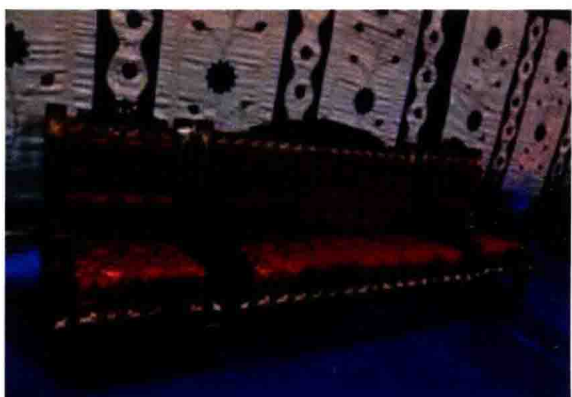


Photo 4. Diversity of exhibitors- furniture



Photo 5. Diversity of exhibitors- souvenirs



Photo 6. Diversity of exhibitors- doors and windows



Photo 7. Artisans making handicrafts



Photo 8. Artisans showcasing their products

Ten groups of sponsored artisan exhibitors demonstrated a variety of handicrafts. Sixteen artisans who came from 9 Indian states showcased their crafts and a range of different wood carving styles and techniques (Photos 7-9). They presented, in a practical way, the art and joy of wood. Wood carvers and other artisans from China, India, Cameroon, Indonesia, Japan and Turkey demonstrated their skills and techniques to the conference participants and public (Photos 10 and 11). This attracted about 5,000 local visitors (including a large number of local students - Photo 12) who were also made aware of the relevance of the International Year of Forests.

Artisans' skill demonstrations: The artisans from 6 countries demonstrated a range of different wood carving styles and techniques to the participants and public at 30 minute intervals (Photos 13 and 14). This generated curiosity among other artisans and it turned out as 'learning from each other's' experience.



Photo 9. Artisans displaying their products



Photo 10. A Cameroonian artisan working with wood

Photos, photo stories, poems and drawings display: The winning entries of these competitions were displayed at the exhibition that attracted attention of the visitors.

The International Year of Forests T shirts and bookmarks- In order to generate awareness regarding the importance of the year to forests and wood, visitors were given special IYF bookmarks produced by FAO-India office, New Delhi. Visitors were encouraged to state "why wood is good" in the feedback sheet selected 40 of which received the International Year of Forests T shirts provided by FAO, Rome.



Photo 11. Japanese artisan working with face masks



Photo 12. Students learning from the artisans



Photo 13. An artisan demonstrating his skill to visitors



Photo 14. Another view of skill demonstration to visitors

3. Social and cultural activities: Additionally, diverse social and cultural activities provided a practical and "hands on" experience of the themes of the conference.

a. Music from wood concert: The concert was given by the Laya Lahari Percussion Ensemble of the Ayyanar College of Music, Bangalore. Traditional wooden instruments were explained to the participants and local musicians played them during this concert that demonstrated the rich variety of musical styles found across India (see more at <http://sites.google.com/site/anoorshivu/layalahari>).

b. The field trip: On 22 October, after the conference, participants went on a field trip to a sandal Soap Factory (instrumental for producing sandal soap in Karnataka state since 1916 - <http://www.mysoresandal.co.in/aboutus.php>), Mysore Palace (a treasure house of artworks and exquisite carvings which was rebuilt in 1912 after the original palace that was made of wood got burned down in 1897- <http://www.mysorepalace.gov.in>) and Channapatna village (famous for the production of a particular form of laquered wooden toys and dolls whose traditional craft is protected as a Geographical Indication (GI), administered by the Government of Karnataka). These demonstrated the art and joy of wood and provided enriching experience to the participants.

c. Institute visit: Tours of the Institute of Wood Science and Technology campus not only exposed the facilities available at the Institute but also showed the fenced *Santalum* trees indicating the hard realities of sustainable production of sandalwood on the ground.

d. Networking opportunities: Conference dinner, cocktail reception and B2B meeting enabled better networking amongst the participants.

4. Competitions related to the event: Reflecting the theme and artistic contributions of wood to the society, competitions were organised for photographs (global), photo-stories (global), poetry (national) and drawing (local) on the theme "art and joy of wood".

B Event organisers, financiers, sponsors and supporters

This conference and exhibition was hosted by the Indian Ministry of Environment and Forests. It was organised by the Institute of Wood Science and Technology, Bangalore (India) Indian Plywood Industries Research and Training Institute, Bangalore (India) and Indian Forest Research Institute, Dehradun (India) in collaboration with the Food and Agriculture Organization of the United Nations (Rome), International Wood Culture Society (China) and International Union of Forest Research Organizations.

FAO provided major chunk of the financial requirements of the event. The Indian Ministry of Forests and Environment, Government of India sponsored the reception and IWST provided most of the logistic and organizational needs for the conference and IPIRTI for the exhibition respectively (including staff time). The IWCS sponsored considerable number of paper presenters, participants and artisans. FAO supported the travel and subsistence of the artisans came from different corners of India and supported the travel of a few presenters and participants.

The main sponsors were the American Hardwood Export Council and Programme for the Endorsement of Forest Certification (PEFC). The Commonwealth Forestry Association (CFA) partly supported the Students' conference. Other sponsors include Industrial and Laboratory Equipment Co. (Mysore), Bangalore and Elixir Technologies, Bangalore. The 'Wood News', as media partners for the event, popularised the event amongst its readers. Likewise, many organizations popularised the event through magazines or newsletters (e.g. Modern Woodwork, Teaknet Bulletin, Wood and Ply Digest, Non-Wood News, InfoSilva etc), email blasts and websites.

Synthesis of the presented ideas

Opening ceremony:

Mr S Suresh Kumar (Minister for Law and Urban Development, Government of Karnataka, India) inaugurated the Conference in the presence of Mr Jitendra Choudhury (Forest and industry Minister,



Photo 15: Lighting the lamp to inaugurate the event- a local tradition

Government of Tripura, India- who presided the opening ceremony), Dr P J Dilip Kumar (Director General, Indian Ministry of Environment and Forests), Dr V K Bahuguna (Director General, Indian Council of Forestry Research and Education), Dr Michael Martin (Director, Forestry Department, FAO, Rome), Dr Howard Rosen (IUFRO), Mr S C Joshi (Director, IWST, India) and Dr C N Pandey, (Director, IPIRTI, India) (Photo 15) .

Most of the speakers talked on multiple perspectives on why wood are good. Mr Joshi described the current view of wood use as an environmentally unsustainable activity in India even though wood use has been prominent in the past and art

and joy of using wood has been part of the culture. He explained how the policy makers and politicians are influenced by narrow views of conservation impacting forestry and wood use negatively which has

implications on the livelihood of people. Mr Suresh Kumar, while emphasizing the relevance of celebrating wood for art and joy, described the conference as one rare occasion where science, culture, art and joy meet on the same platform to commemorate and recognize wood's legacy. In urban environs, he explained wood brings natural beauty and 'woods and wood' cannot be separated from everyday life. Dr Bahuguna explained that the artistic view of wood use will bring back the glory that wood enjoyed in the past, before the substitutes emerged.

Mr Chaudhury described the International Year of Forests as an opportunity to reinforce the relationship between the mankind and forest ecosystem and to benefit our sustainable future. The shortage of hardwood in many places has led craftsmen to use previously unused alternative species. At the same time, due to lack of alternatives many people exploit hardwood as fuel for meeting the livelihood needs. Bamboo has been seen as an alternative to address the shortage of wood in Tripura state in India (with 23% of the area is under bamboo cover) production and consumption of which creates considerable local employment through value addition and product diversification. This model has changed the old perception of bamboo as poor man's timber. Likewise, rubber wood from plantations (used as firewood earlier) has also seen greater value addition by local artisans and product manufactures that has increased the export potential in recent years. These have implications on the livelihood of people and the revenue to the state. Further, the low embodied energy of these wood products (against non-wood substitutes) and insulation properties make wood much environment-friendly. The success lies in SFM and how one harnesses the potential through creative entrepreneurship. Ecotourism and provision of ecosystem services could grow as a by product of production of the raw material for this.

Dr Dilip Kumar highlighted the credentials of wood drawing from his past personal experiences especially from musical instruments which has been predominantly handicraft-based than produced in masses. He linked illegal removals of trees in India due to the overreliance on a specific species for a specific purpose. The demand for wood products could escalate at a faster pace due to rapid economic growth in India which is already a net importer of wood. Concurrently, the forests are expanding in the country (with the involvement of local communities). Tree cover is expected to spread mainly outside the conventional forest areas with the greening programmes like the 'Green India Mission', one of the eight missions of India's action plan on climate change. Expanding urban areas will require more woods, particularly for green spaces that maintain the health of the society and environment.

Dr Michael Martin explained that culture embraced wood in the past and we should connect it with sustainable consumption and production needed in the future to serve the needs of the impending 9 billion people. Dr Pandey suggested the relevance of 'breaking the ice' between various sectors to make wood available sustainably to manufactures of various products.

Why we are here? Different perspectives on the role of wood in sustainable development (Session I)

Dr Saara Taalas and Dr Dick Sandberg presented the relevance of looking in more detail the consumption patterns that will influence relationships with material culture. The consumption patterns change over time suiting to everyday life of that time at a locality. For instance, in Nordic countries, the same forests that served livelihood of people in the past are now important centres for recreation- a change of dimension from livelihood to sports. Thus, the relations with forests have dramatically changed. Many people are now secondary stakeholders (using its products) than directly depending on it for livelihood as people did 100 years ago. The same happened to the relation with the material originating from the forests. For instance, in Sweden firewood dominated harvest from forests (40%) in 1900, but is less than 8% now. On the contrary, pulpwood that was just 5% of the harvest in 1900 constitutes now 44%. Only sawmilling remained relatively the same. Visions for Finnish bio economy business levels reflect the increasing relevance of living trees and bio-energy in future. The wood products will be there but the requirements will change- from volume to specific requirements on properties (e.g. shape stability). The tactile of part of wood see more money but the traditional paper and pulp products are likely to lose its relevance in Northern Europe because of high prices, changing markets and long rotation of forest trees.

Thus, the pulp mills diversify with new products (e.g. textiles). Innovation in new processes will drive ways for new wood use in future (e.g. polymers and chemicals, bioenergy etc). Prioritising purpose will determine wood's value. For example, using wood for bioenergy (which gains relevance in Northern Europe) might negatively influence many other business levels. Increasing business value should be given emphasis as trees could be sold 100 times through process innovations.

Dr Michael Martin wondered why wood still continues to bear the consequences of negative perceptions of the society. He explained how wood use could help to take the forest to home and meet the aspiration of the modern society towards nature. Despite several advantages of wood to store carbon to mitigate climate change, the global forums seem reluctant to promote it. One reason for this is the approach of the wood products industry for satisfying the material needs that expanded from the artisan level to very large scale (e.g. paper and pulp). The demands of economies of scale (reducing costs and being competitive) led to expansion of large industries within short time span. Consequent ramifications of large scale exploitation (e.g. clearance of forests) were not coherent with peoples' sentiments concerning forests and did not correspond to their views of forests as a source of a myriad of things. Consequences of these actions combined with the internal value struggle amongst public regarding other uses of forests paved way towards negativism regarding wood products.

This is the right time to address this paradox for sustainable development using wood which is well embedded in the culture of many parts of the world. Wood use is part of relic of the past and still portrays high social and cultural value in many societies. Many countries try to move towards modern wood products today partly because wood products could capitalise on the efficiency of photosynthesis and replace the material that damages our environment. Considering the needs of the imminent 9 billion people, production and consumption of wood cannot be thought separately. The challenge today is how to bring back the positive attributes of wood by rescaling the concept of consumption model from commodity products to value added products. One way to achieve this is to work closely with the futurists and those who could provide inspiration like designers, architects etc. Such an alliance might pave way for the rediscovery of a series of products based on photosynthesis with a common perception of a sustainable future. It will create a product opportunity that is renewable and which captures and store carbon. Effective communication on the credentials of wood is needed to enlighten the potentials of wood use for sustainable development.

Contextually, there are lessons to learn from the craftsmen in many parts of the world who add value to wood by creativity. They practice value added production than commodity production. This implies turning the economic and consumption model around. One way to this is to concentrate on art, beauty and tradition to draw inspiration for future applications based on traditional designs and uses which has relevance in today's life. This will enable planting more socially preferred trees and set a legacy of using more 'good wood'. While deforestation remains as a big issue in some regions of the world, tree planters struggle to find good market for sustainably produced wood in some other regions. The challenge is how to give value to that wood where the 'art and joy concept' could draw its importance. For example, using only locally produced food products in some restaurants in Italy enhances the value and relevance for such products. Product differentiation and product distinction and naming them have advanced in agricultural sector where forest products remain to find its way. Therefore, a better alliance between futurists, architects, planners, designers, product manufacturers and foresters is crucial to make a difference in making a rational linkage between wood products sector and sustainable development.

Dr Balaram proposed the design needs of wood relating to spiritual connections between the society and wood. Artistic products constitute spiritual attainment for many handicraftsmen who make the wood live again. This powers the life of dependent people in their families. The cultural ethos like 'trees as god' existed in India where permission was sought from a myriad of creatures before trees were cut. Wood use continues to exist in many parts of the world catering to the diverse needs of the living or the dead (e.g. sandalwood or cremation by the rich) and the industry. In many cases, wood use implies that the past co-exists with the present because it takes traditions into the modern society. Despite having more than half of the world's forests, many developing countries export unprocessed/minimum processed wood. This

constitutes modern colonization in a globalised economy. The future for sustainability is better indicated by green awareness, green movements and green guarding which act against unsustainable industries. Designing could effectively help to tap its potential at three levels (a) planting more trees (b) processing of wood and producing end products that minimise wastage (e.g. using every part of the tree, not high grade timber alone) and (c) enhancing opportunities for reuse. Employing various qualities of wood has resulted in low cost products which are light and beautiful. Innovations emerge out of imagination, creativity and technology integrating the special qualities of wood. Thus, technologies shape wood and wood could suit modern technology (e.g. wood laptops). Mindful designs enhance value of the tree by using every part. Adding value by wood's reuse they discourage extravagant wood use and help in innovative policy interventions. These could contribute to SFM and poverty reduction through beautiful products that helps to nurture nature. However, local people do not get enough wood due to concessionaires who target international markets. Contextually, illegal logging, even though not desirable, offers livelihood at certain instances to a few people who do not have much alternatives. Laws remain unenforceable in some situations like this.

Dr Pascal Kamdem explained wood's role in sustainable development of Africa quoting the case of Cameroon where timber constitutes the main export product after crude oil and petroleum products. All the three sectors of forestry viz. (i) silviculture (production of wood) (ii) first level of transformation (logging and saw milling- low value added) and (iii) second level of transformation (furniture, construction, crafts etc- high value added), face problems. Artisans lack good quality wood because large companies export wood to cater the need of international markets. About 30% of artisans work in informal sector with low emphasis on sustainability. Their livelihood could be improved by better strategies. Export continues without much processing despite laws in the disguise of not commercially important species. The wastes are enormous due to absence of the industries that could use wood residues, small diameter logs and currently unused parts of the tree like branches. Currently, logging and sawmilling adds very little value and is very primitive. Secondary sector is underdeveloped and oriented towards export. Nearly 60% of the primary and secondary sectors are represented by the artisans (only half in the formal sector). There exists opportunities to advance in the secondary sector through training to add greater value which will enhance job opportunities. Only two species account for 55% of the total production because of international demand and no strategy exists to meet local demands. Interventions by technology, infrastructure and marketing strategy (that enhances local consumption) will improve the wood industry that accounts for 6% of the GNP. This will consequently increase job opportunities for people and increase national income. The taxes related to import of tools and equipments should not impose barriers to technology transfer. Likewise, financing local entrepreneurs will help to address the issues in the processing sector. Direct channels of communication with the local people (e.g. wood tours) will open ways to improve wood's status for sustainable development.

An introduction to wood culture: building on the past (Session II)

Dr Howard Rosen described the evolution of wood culture in the USA (the value and the way one uses wood in the society) where per capita consumption of wood and fibre products is four times the world average. Yet, growth dominated removals in recent decades in the US forests. Historically, wood dominated the life of early settlers who found myriad of opportunities with wood causing massive scale destruction of forests. The destruction of forests continued till the beginning of the 20th century till the idea of wise use of forests and making it open and accessible to all the people emerged. Most of the large trees gradually disappeared and products emerged using small size timber. Adoption of wood composites, wood plastic composites and carbohydrate economy (cellulosic biorefinery) is on increase in the USA.

Dr Sangeeta Gupta narrated the historical connections between wood and Indian life for the last 5,000 years some of which continues even today. She described how wood shaped Indian life with diverse wood use (based on scientific wisdom of wood) in temples, palaces etc that varied at different parts of India. Wood, excavated during archaeological excavations, gives links to diverse wood culture of the past. Local knowledge matches with modern day findings regarding wood's potentials that enabled its use for thousands of years. However, in India there is high demand for wood and supply is limited. This paves way