



**Asia and the Pacific Forest Products Workshop –
Green Technology for Climate Change Mitigation and Adaptation
14-16 December 2009
Colombo Sri Lanka**

WORKSHOP REPORT

Background

Climate change is a global problem, with global causes and effects. Climate change affects the basic elements of life for people around the world – access to water, food production, health, and the environment. Hundreds of millions of people will potentially suffer from hunger, water shortages, and more frequent severe natural disasters such as droughts, typhoons and floods, as the climate changes. Addressing climate change and dealing with the impacts requires urgent efforts by all.

The recently intensified debates and discussions on climate change in many international fora have introduced many additional challenges in the efficient and sustainable utilization of forest products. Efficient processing technologies and full (maximized) wood utilization constitute major components in the *green* business strategy designed to conserve resources, reduce impacts to the environment and human safety and health, and promote greater overall efficiency. On the other hand, alternatives, using bio-fibre waste or by-product of other industries, are continuously being sought to reduce dependence on non-renewable natural resources besides alleviating environmental impacts. The ultimate objective is to improve carbon reduction, carbon sequestration and carbon conservation leading to overall carbon emission reduction for climate change mitigation and adaptation.

Several nations, over the past decade, have initiated various mitigation and adaptation measures to cope with future climatic conditions. Theories and technologies have been proposed, discussed and implemented to meet these challenges for climate change adaptation and mitigation. While many of these technologies and products have been well researched and documented, many factors have hindered the adoption by the industries. Overcoming such hindrances will require commitments and responsibilities to invest in capacity and capability building.

The workshop

The main objective of the workshop was to provide a forum for linking various international, regional and national agencies and institutions dealing with climate change issues in forest products processing and utilization, and to share strategies, experiences and knowledge, related to green forest products technology. This

workshop provided the much needed opportunities for individuals and their associated agencies, organizations and networks to build collaborative linkages and better align programmes to capture synergies. Various organizations, including IUFRO, were able to take this opportunity to assess capacity-building needs in terms of research and extension related to green forest products research, development and utilization in the Asia-Pacific region.



The workshop was an initiative of the International Union of Forest Research Organization (IUFRO). It was funded by an allocation from the contributions of the Korean Government, through the Korea Forest Research Institute (KFRI), to IUFRO. The Asia Pacific Association of Forest Research Institutions (APAFRI) organized the three-day workshop, in technical collaboration with the Sri Lanka Forest

Department, Forest Research Institute Malaysia (FRIM), and the Korea Forest Research Institute (KFRI). The workshop held at the Club Palmbay, Marawila, Sri Lanka attracted 35 participants from 11 countries across the Asia-Pacific region. A total of 22 papers were presented in three technical sessions. A one-day field trip gave the participants the opportunities of visiting a wood handicraft workshop, a rattan furniture factory and a rubberwood bloom and brush handles factory. The participants also visited the Elephant Sanctuary and the capital city, Colombo.

Dr Dave Cown, a senior scientist of Scion, New Zealand; and also the Coordinator of Division V, IUFRO; facilitated a panel discussion on the afternoon before closing. The panelists: Dr Hiran Amarasekara (Sri Lanka), Dr GS Rawat (India), Dr Jegatheswaran Ratnasingam (Malaysia) and Dr Arsenio Ella (Philippines) started the discussion sharing their views and thoughts on the subject matters. Several participants responded with their own views and experiences.



(More details are available on www.apafri.org.)

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Green Technologies & Products
for Climate Change Mitigation and Adaptation
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Marawila, Sri Lanka

PROGRAMME

Day 1 **14 December 2009**

- 08:00 *Registration*
- 09:00 – 10:00 *Opening*
- Address by Korea Forest Research Institute
 - Address by IUFRO
 - Address by APAFRI
 - Opening by FD Sri Lanka
- 10:00 – 10:30 *Coffee Break*
- 10:30 – 12:30 *Keynotes (Chair: Anura Sathurusinghe)*
- Green Technology for Climate Change Mitigation and Adaptation –*Dave Cown*
 - Biofuel – A Green Energy Option for Mitigating Humanitarian Crisis of Climate Change –*Anoja Wickramasinghe*
 - Status of Green Manufacturing Practices among Southeast Asian Wooden Furniture Manufacturers –*Jegatheswaran Ratnasingam*
- 12:30 – 14:00 *Lunch*
- 14:00 – 15:30 *Green Technologies (Chair: Jegatheswaran Ratnasingam)*
- Issues of Formaldehyde Emission From Wood Composite Products of Malaysia –*Koh MP*
 - Tannin Resorcinol Formaldehyde as Potential Glue for Plybamboo Manufacture –*Adi Santoso*
 - Liquefaction Technique of Woody Biomass Waste and Application for Bio-Based Wood Adhesives –*Shinichiro Tohmura*
- 15:30 – 16:00 *Coffee Break*
- 16:00 – 18:00 *Green Technologies (Chair: Koh MP)*
- Wood Waste Utilization for Wood Composite Industries in Malaysia –*Rahim Sudin*
 - The Possibility of Utilizing Sawdust Wastes as A High Quality Activated Sawdust Charcoal –*Gustan Pari, A.*
 - Energy-Efficient Manufacturing Practices among Wooden Furniture Manufacturers in Malaysia –*Jegatheswaran Ratnasingam*
 - The Status of Wood Processing and Issues in PNG – *Mathias Niangu*
- 19:00 *Welcome Dinner*

Day 2 **15 December 2009**

- 08:30 – *Depart Hotel for Field Trip*

- 08:30 – 10:00 *Green Products* (Chair: GS Rawat)
- Sustainable Harvesting and Value Addition of MAPs In Community Forest in Dolakha, Nepal –Maneesha Rajbhandari
 - Role of Neem Tree (*Azadirachta indica* A. Juss) To Solve Global Problem in Indonesia –Zuraida
 - Improved Tapping of Philippine *Canarium* Trees For Manila Elemi: Helping Alleviate Climate Change –A. B. Ella
 - Design and Development of Sawdust Burner for Kiln Seasoning of Timber –D K L K Senadheera
- 10:00 – 10:30 *Coffee Break*
- 10:30 – 12:30 *Green Products* (Chair: A B Ella)
- Jute: A Raw Material for the Production of Biomaterials – M Sarwar Jahan
 - Adaptation to Climate Change and Non-Timber Forest Products: An Empirical Study in West Bengal, India –Jyotish Prakash Basu
 - Bamboo as Green Material- Saves the Forest –Anwar, U.M.K
 - Utilization of Bamboo Fibre-Filled Polypropylene Composites – Effect of Filler Loading and Coupling Agents – Lee Sun-Young
 - Carbon Sequestration Potential and Uses of *Dendrocalamus sriectus* –Jyoti Bhandari
- 12:30 – 14:00 *Lunch*
- 14:00 – 15:30 *Bioenergy and Biofuel* (Chair: Sim HC)
- Fuelwood Emission and Co2 Mitigation Strategy: A Case Study of Western Himalayas of India –G S Rawat
 - Cultivation of Jatropha Seeds to Mitigate Climate Change Impacts in India: An Analysis –Sahana Bose
 - Utilization of Alternative Timber Species by Preservative Treatment with Copper Chrome Boron –K S G S Fernando
- 15:30 – 16:00 *Coffee break*
- 16:00 – 17:30 *Panel Discussion* (Chair: Dave Cown)
- 17:30 Closing

