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# इपिर्टि न्यूज़ IPIRTI NEWS

Delivering Innovative Solutions for Industry, Society and Environment

Vol. 12, No. 2-4

April - December, 2011

## FROM THE DIRECTOR'S DESK

Dear Readers



### WOOD IN SUSTAINABLE DEVELOPMENT

On the initiative of FAO, United Nation and Ministry of Environment & Forests, Govt. of India, Indian Plywood Industries Research & Training Institute (IPIRTI), Bangalore had an opportunity to get associated with Institute of Wood Science Technology (IWST), Bangalore in organizing an

International Conference and Exhibition on the Art & Joy of Wood during 19th – 22nd October, 2011 at J.N. Tata Auditorium, IISc Campus, Bangalore to celebrate the ‘International Year of Forests’. The basic theme of the Conference and Exhibition was to demonstrate the role of wood in sustainable development and its contribution to a greener future for India as well as rest of the world. Although, wood products are known since time immemorial as an indispensable part of the human life, the importance of the wood production is sometimes over looked in debates about forestry and forest management. Besides, the public also has not viewed the use of wood very favourably in recent years, tending to link this with bigger problems in forestry such as deforestation and forest degradation. However, these perceptions can be reversed if sustainable use of wood is demonstrated in general public through organizing conference and exhibition of this type. Keeping this in mind, IPIRTI, Bangalore organized an exhibition on Art & Joy of Wood wherein different category of exhibitors such as crafts men/ wood based architects on design handicrafts, interior designers, manufacturers of musical instruments, manufacturers of furniture, research institutes/educational and training institutes, exporter and importers and various other sectors dealing with products like giftware items, toys, wood and wood based panel industries participated in the exhibition. India being an emerging economy facing both in exciting opportunities and difficult challenges, we hope this conference and exhibition would have been an eye opener to many visitors and participants and also serve to break the ice between various sectors dealing with wood and wood based products. In total 40 Nos. of exhibitors participated and displayed their products in the exhibition besides 10 artisans sponsored by the Development Commissioner Handicrafts, Govt. of India, New Delhi and International artisans from Turkey, China and Taiwan. Some of these artisans gave a live demonstration in the manufacturing of wood based handicraft items. The International Conference and Exhibition was inaugurated by Hon’ble Minister for Law and Parliament Affairs, Govt. of Karnataka, Shri. S. Suresh Kumar. The inaugural session was also attended by Hon’ble Minister for Forests, Government of Tripura Shri. Jitendra Choudhury, Dr. P.J. Dilip Kumar, Director General of Forests and Special Secretary to MoEF, Government of India, Dr. Bahuguna, Director General ICFRE, Dr. Michael Martin, Director FAO and Dr. S.C. Joshi, Director, IWST besides a large number of participants from India and far off places around the world. Delegates from India and abroad participated in the technical session and expressed their views on the use of wood in sustainable development during the conference period. The exhibition was visited by nearly 5000 visitors representing student delegation from schools & colleges, officials from Govt. Institutions and public in general.

Dr. C. N. Pandey  
IPIRTI, Bangalore

## RESEARCH & DEVELOPMENT

### STUDY ON THE SUITABILITY OF RICE STRAW FOR THE MANUFACTURE OF MEDIUM DENSITY FIBRE BOARD

With dwindling wood resources on one hand and increasing demand for the wood based panel products on the other, attention is gaining momentum on the utilization of agro-residues and also recycling of wood waste for manufacture of panel products. Unlike plywood and Particle Board (PB), Medium Density Fibre board (MDF) provides enough scope for the substitution of wood by non-wood fibre resources.

Forestry regulations, cost effective pulp and paper products, lumber and new wood based bio—energy applications will probably result in increased competition for wood based raw materials. Alternative non wood raw materials will therefore be of high priority.

Reports on investigations of fibre board production based on rice straw are very less and the rice straw material is often combined with other raw materials which are used for the production of thermoplastic composites.

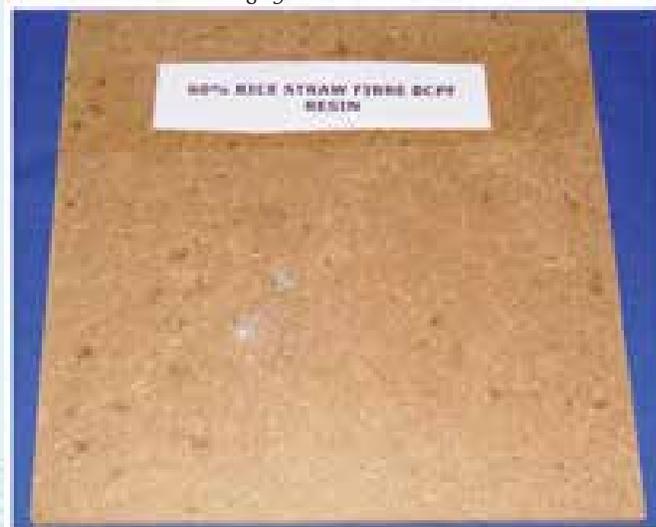
Most of the study on Production of fiberboards has been performed by the addition of Methylene diphenyldiisocyanate (MDI) resin. Finished fiberboards based on rice straw and MDI resin showed excellent properties w.r.t MOR & MOE. The results obtained were acceptable according to the requirements of Medium Density Fiberboard (MDF) for interior applications (American National Standards Institute, ANSI A208.2-2002). Keeping this in view, Ms. Sujatha, Scientist, IPIRTI Bangalore and her team carried out research on the development of MDF using rice straw fibers under the guidance of Dr. C. N. Pandey, Director at IPIRTI, Bangalore. In this

study suitable adhesive formulations based on phenolic, amino and MDI have been worked out. The adhesive composition and the process parameters have been optimized to achieve the strength properties that are comparable with wood fibre boards.

The present data was compared with reference to American National Standard since most of the research being carried out on rice straw composites were evaluated as per ANSI. It was found that all the properties conform to the



*Glue blending of Rice Husk Particle Board*



*Rice Straw MDF*

requirement of ANSI A 208.2-2002 with phenolic, amino resin and MDI resin systems. The results obtained were also compared with IS: 12406 - (Specification for MDF for general purposes). The panels made with 50% replacement of rice straw fibres with wood fibres with all the resin systems and 100% rice straw fibers with MDI resin conform to IS: 12406 with

reference to MOR, MOE, thickness swelling, water absorption after 24 hours and screw holding strength properties.

This research on the development of MDF from Rice straw is first of its kind in India.

### PROPICONAZOLE – AN ORGANIC TRIAZOLE BIOCIDES AGAINST MOULD FUNGI ON RUBBER WOOD VENEER

Dr. Aparna Kalavate, Scientist, IPIRTI, Bangalore & her team has evaluated the efficacy of Propiconazole—an organic triazole biocide against mould fungi on Rubber wood veneer by dipping method. This biocide has emerged as the best Antimycotic against mould fungi on wood. Propiconazole has been already approved by Environmental Protection Agency (EPA) for surface application / pressure treatment of plywood and above-ground structural timbers. This is the first report in India wherein Propiconazole has been tried against mould fungi on wood. Further research on the usage of Propiconazole in the glue line poisoning during manufacture of plywood is under progress.



Exposed samples after three months study

### DEVELOPMENT OF SILICONE BASED COATING FOR PROTECTION OF WOOD MATERIAL AND BAMBOO COMPOSITES

Shri. S. C. Sahoo, Scientist, Field Station, Kolkata and his team carried out a study on “Development of silicone based coating for protection of wood material and bamboo composites”.

Beside discoloration, changes in wood surface are most noticeable effect during natural weathering of wood where the surface becomes rough and fissured and erodes or worn out. A silicone intermediate has been co-polymerised with carbinol functional resin before pre-formulation of coating is durable and non-toxic in nature. The coatings are widely applied on wood and bamboo composites surfaces as a protective coating and exposed in damp environment for natural weather test.

A major drawback in the use of wood materials for construction and destructive application is its sensitivity to light. Coatings are usually used to prevent deterioration of the wood surface. The protection effect depends greatly on the opacity of the coating. A low opacity coating, which transmits the most radiation are less effective.



The natural weather test by rack system shows no deterioration on coating surface kept for exposure up to one year. Appreciable gloss retention, no cracking, no photo-degradation on the coating surface has been observed from natural weathering test. From the results of mechanical properties, this can be concluded that after exposure of test samples for a period of one year, there is no much deviation on mechanical properties viz. MoR, MoE, Tensile Strength and Glue Shear Strength results which indicates that there is no degradation on wood adhesive. From the above study it is observed that incorporation



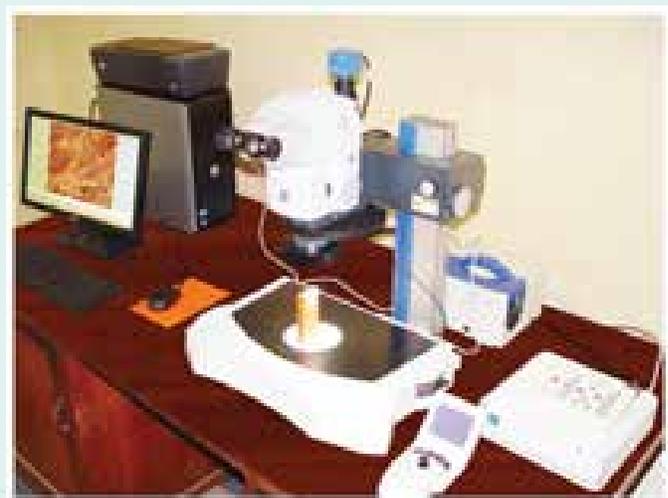
of silicone on alkyd backbone to manufacture silicone based co-polymer of alkyd resin enhances the reduction of mechanical properties, loss of gloss retention, saving the wood based panel products and bamboo composites from photo-degradation etc.

This study has been designed to develop a silicone based UV-Weather protective coating to reduce the destructive effect of UV radiation and weather for wood based panel products and bamboo composites. The sample will be tested for artificial weathering in Weather-o-meter.

### STEREOMICROSCOPE WITH IMAGE ANALYSIS SOFTWARE SYSTEM TO IDENTIFY THE WOOD SAMPLES

A facility has been established at IPIRTI, Bangalore for identification of wood samples by studying wood anatomical structures using computer imaging digital microscope with image analysis software system by a new stereo discovery stereomicroscope.

This digital microscope has Stereo discovery V 20 zoom optics with SYCOP control panel. This is very much useful to identify the wood samples without cutting into thin sections.



*Stereomicroscope with image analysis system at IPIRTI, Bangalore*

## ESTABLISHMENT OF MODERN FIRE RESISTANCE DOOR TESTING FACILITY AT IPIRTI, BANGALORE



*Dr. P. J. Dilip Kumar, DG Forests and Special Secretary, MoEF, Govt. of India inaugurated the Modern Fire Door Testing Facility at IPIRTI, Bangalore in presence of Shri. A.K. Bansal, IFS, Additional Director General of Forests (FC), MoEF, on 22<sup>nd</sup> July, 2011.*

With the increasing building activities and stringent building regulations the behaviour of building components from various panel products or in combination with other materials against fire and to ensure occupants safety is the need of the hour. With the recent regulations relating to buildings in India, there is also a market for fire retardant wooden doors in housing applications. There are huge opportunities for developers and architects to add value to their properties through these fire retardant doors. Occupants of buildings will be the major beneficiaries as it gives them additional peace of mind and protection from fire without compromising the use of green building materials viz. wood and panel products. Keeping future requirements of building bye-laws in our country and to facilitate testing of fire check doors, the facility is being established at IPIRTI for testing fire performance of full size door/shutters as per national/ international standards such as BS: 476 (part 20 and 22), IS: 3614 (part 2), ISO 3008:2007 and BS EN 1634-1:2000 using latest technologies and instrumentation comparable with best in the world.

Fire doors are “rated” by time (in minutes or hours) that a door can withstand exposure to fire test conditions and the failure criteria is assessed by Integrity & Insulation. Hourly ratings include 2 hours, 1 ½ hours, 1 hour and ½ an hour with the maximum rating required of any swinging type fire door being three hours.

Salient features of the fire door testing setup are:-

- o Vertical front open furnace structure with refractory bricks & ceramic wool blanket for best heat insulation
- o Computer programmable Automated LPG burners with computer controlled LPG flow
- o Hot gas exhaust system with automated dumper system
- o Pillar mounted I beam jib crane with electric hoist
- o Test frame to hold door under test with trolley and roller skid
- o Thermocouple assembly with good measurement accuracy
- o PC based multi-channel data logger, etc.
- o The system is equipped with fire-fighting and safety equipments.

## STUDY ON THE HYGROSCOPICITY AND MOVEMENT BEHAVIOUR OF MEDIUM DENSITY FIBERBOARD

Medium Density Fibreboard (MDF) is an engineered wood based panel product manufactured from wood fibres bonded together with a synthetic resin which is widely used in interior housing component. Being a product made of wood fibre the product is susceptible to wood destroying organism.

Market study has indicated that consumption of MDF in India is increasing by 5-10% annually, which means that more and more usable products made of MDF is being used by the consumers in India. However not much study has been made in India on the hygroscopic and movement behaviour of MDF at various humidity conditions. Hence this study has been taken up by Smt. Mamatha B. S, Scientist, IPIRTI and her team under the guidance of Dr. C. N. Pandey, Director, IPIRTI to assess the behaviour of the product at extreme humidity conditions which would also help in understanding the change in the properties with the changing ambient conditions.

As solid wood and other wood-based panels, fibreboard is also a hygroscopic material. Therefore, its moisture content depends on the relative humidity and temperature of the surrounding air. Because dimensional stability of wood based composites is critical in most applications, the maximum allowable dimensional change in such products is limited by standards. Linear expansion or contraction in occurring response to increased or decreased moisture content of the material, is one of the most important properties of the fibreboards. The in-plane movement's arised from increased or decreased moisture content of the panel can cause high internal stresses due to the restraint offered by fastening such as nails in construction. These stresses may be large enough to cause buckled

panels, pushed-out nails, and separation of the panel from the structure. Expansion and contraction values of fibreboard, thus, become important design parameters. It is known that moisture content and panel density affect dimensional stability of the wood-based composites. Consequently, when moisture content is unevenly distributed through fibreboard thickness of the panel thickness swelling and linear expansion vary accordingly.

The hygroscopic behaviour was determined by measuring the Equilibrium Moisture Content (EMC) at two extreme conditions i.e., 96% to 35% relative humidity and the movement values were measured.

The investigations carried out at IPIRTI revealed that MDF is hygroscopic and 1% change in moisture content will decrease the width by 0.42mm per metre. The movement values for the MDF boards exposed between 96%RH and 35% RH were found to be 0.28% in width and 4% in thickness.

From this study it is observed that the Equilibrium Moisture Content (EMC) for MDF is lower than the solid wood. This seems to be caused by the processing method. MDF is less hygroscopic than some of Indian timbers and comparable with reference to hygroscopicity of Group C Indian timbers viz *Abies pindrow* (fir), *Acrocarpus fraxinifolius* (mundani), *Adina Cordifolia* (haldu), *Anogeissus latifolia* (axle wood), *Mangifera indica* (mango), *Machilus macrantha* (machilus), *Lagerstroemia hypolenca* (pyinma), *Dipterocarpus alatus* (gurjan), *Cedrela toona* (toon), *Shorea robusta* (sal), *Terminalia arjuna* (arjun), *Xylia xylocarpa* (irul), *Michelia champaca* (champ), *Prunus padus* (bird cherry), *Quercus semicarpifolia* (kharshu oak), *Schima wallichii* (chilauni).

## EXTENSION

**07-05-2011 to 09-05-2011:** Dr. C.N. Pandey, Director visited Chandigarh to meet Shri. Naresh Tiwari, President, NIPMA regarding organizing the seminar and also had discussion regarding the testing and other administration matters with Scientists of IPIRTI Center at Mohali.

**27-05-2011:** Shri. Amitava Sil, Officer-in-Charge and Shri. S.C. Sahoo, Scientist, IPIRTI, Field Station, Kolkata visited M/s. Satyam Plywood, North Bengal (W.B) for the implementation of Low cost PF Resin.

**30-05-2011:** Shri. Akash A Solanki, STA, IPIRTI, Field Station, Kolkata visited M/s. Green Ply Industries Ltd., along with trainees of one month course on “Plywood Manufacturing Technology”.

**27-07-2011 to 28-07-2011:** Dr. C.N. Pandey, Director visited New Delhi to pursue the pending issues with MoEF and also to finalize the draft minutes of 116<sup>th</sup>BoG.

**05-09-2011:** Shri. Amitava Sil, Officer-in-Charge, Field Station, Kolkata, visited M/s. Century Plyboards along with one month course trainees of “Plywood Manufacturing Technology”.

**22-09-2011 to 25-09-2011:** Dr. C.N. Pandey, Director, Dr. S.K. Nath, Joint Director, Ms. Sujatha D., Shri. Uday D.N., Shri. Thanigai, Scientists participated in 5<sup>th</sup> Panel Expo International Exhibition-cum-Conference and also attended 6<sup>th</sup> CAC meeting at IIT, New Delhi.

**24-09-2011 to 29-09-2011:** Dr. S. K. Nath, Joint Director, IPIRTI, Bangalore and Dr. Aparna Kalawate, Scientist visited M/S. Green ply



*IPIRTI Stall at 5th Panel Expo during  
22<sup>nd</sup> - 25<sup>th</sup> September 2011*

Industries Ltd., Rudrapur to solve fungus related problem in MDF.

**21-10-2011 to 25-10-2011:** Shri. S.C. Sahoo, Scientist, IPIRTI Field Station, Kolkata visited M/s. S.A. Plywood, Cooch behar, West Bengal to solve the following problems:

- i) Formaldehyde emission was very high during manufacture of particle board.
- ii) Frequent Core delamination in ply boards.
- iii) Glue penetration on the face during plywood manufacturing.
- iv) Warping, bending and core delamination problem in ply boards during manufacture.

**05-12-2011 to 06-12-2011:** Dr. S.K. Nath, Joint Director visited M/s. Timpack Pvt. Ltd., Meghalaya to attend problem related to fire retardant treatment of Bamboo Mat Corrugated Sheets.

**08-12-2011 to 09-12-2011:** Dr. C.N. Pandey, Director visited IPIRTI Field Station, Kolkata for the assessment of Lab under BIS Lab Recognition Scheme.

## BOG MEETING AT IPIRTI BANGALORE



A view of the 116<sup>th</sup> meeting of the Board of Governors held on 22<sup>nd</sup> July, 2011 at IPIRTI, Bangalore

Dr. C.N. Pandey, Director, IPIRTI welcomed the Chairman and the members of Board of Governors. The meeting was held under the chairmanship of Dr. P.J. Dilip Kumar, IFS, DG(F) & Spl. Secretary to Govt. of India, MoEF and Vice-Chairman, IPIRTI, Board of Governors. Before taking up the Agenda items, the Board members observed 2 minutes silence in memory of late Shri. N.S. Adkoli, one of the Board members who passed away on 5<sup>th</sup> April, 2011.

Director, IPIRTI highlighted the major R & D achievements on the following points in brief:

- i) Testing fire rating of doors,
- ii) Development of compregs using dyed veneers of plantation species (multi coloured densified laminated lumber)
- iii) Development of low formaldehyde emission from wood based panel products
- iv) Development of eco-friendly preservative

- v) Energy auditing and Life Cycle Analysis (LCA) study on plywood under Indian manufacturing conditions.

Shri. Uday D.N., Senior Scientist of IPIRTI made a brief presentation highlighting the importance of growing *Melia dubia* species. He also focused on the research activities carried out at IPIRTI on the suitability of peeling, gluing characteristics of *Melia dubia* species. During his presentation, he informed the Board that IPIRTI is actively involved in promoting the plantation activities of *Melia dubia*. In this regard a Software firm has sponsored some fund to raise *Melia dubia* plantation. IPIRTI has identified a farmer in Erode who is actively involved in tissue culture of *Melia dubia* and has agreed to supply about 50,000 seedlings per annum, of which 30,000 seedlings have already been distributed to the farmers in Hunsur for raising plantation.

Shri. Piare Lal, General Secretary, Agro-forestry Farmers Association, informed that tissue culture

is also being practiced for Poplar species in the northern region. However, it is observed that lot of poplar timber are being imported by the panel industries. Hence it is suggested to restrict the import and promote the plantation activities in India.

Shri. Moiz S. Vagh, Managing Director, M/s. Hunsur Plywood Works Pvt. Ltd., informed the Board that his firm is promoting the plantation activity in Hunsur with active collaboration of IPIRTI. He also informed that funds are not being granted directly to the farmers for raising plantation of species required by the panel industries. He highlighted the problems faced by panel industries in importing the timber because of stringent rules being followed for meeting the phyto sanitary certification requirements. He also requested the Chairman to take up the matter with the Ministry of Agriculture to sort out the long pending issues.

Shri. R.K. Mehta, Chairman, Mozo Bamboo Technologies Pvt. Ltd., informed the Board that bamboo products are emerging in the market as eco-friendly material for various applications. He opined that *Dendrocalamus strictus* species of bamboo is widely grown all over India and is

abundantly available. He suggested that IPIRTI may develop technology for the manufacture of bamboo lumber products in place of bamboo mat composites. Director, IPIRTI replied that the research on developing bamboo mat based composites using *Dendrocalamus strictus* species has been worked out by IPIRTI few years ago. The development of lumber products from *Bambusa bambuse* species has been initiated at IPIRTI. However, based on the suggestion given by Shri. Mehta, IPIRTI would explore the possibility of using *Dendrocalamus strictus* species for value added products.

Shri. A.K. Bansal, IFS, Additional Director General of Forests (FC), MoEF, informed that there are three Missions which are presently working for growth of bamboo sector. Hence, to promote the plantation of bamboo activities and to develop value added products, the matter needs to be discussed with these three Missions.

The Board welcomed and approved the proposal for convening the International Seminar to commemorate Golden Jubilee Year of IPIRTI. The meeting ended with a Vote of Thanks.

## SEMINARS/WORKSHOPS/CONFERENCE/MEETING

**28-05-2011:** Shri. Jagadish Vengala, Scientist, attended Seminar on “Bamboo for Integrated Development” and delivered a lecture on “Bamboo and Bamboo composites” at Choksi Hall, Indian Institute of Science (IISc), Bangalore conducted by CGBMT, Bangalore.

**24-06-2011 to 26-06-2011:** Shri. S.C. Sahoo, Scientist, Field Station Kolkata, has attended National conference NCRAMT-2011 at Haldia Institute of Technology, Haldia organized by CSIR

and HIT and presented a paper titled “Recycling of Solid Waste Phenolic and Amino Resin from Plywood Industries as Molding powder”.

**15-07-2011:** Shri. Amitava Sil, Officer-in-Charge, Field Station Kolkata, attended one day interactive session organized by Bharat Chamber of Commerce, Kolkata with entrepreneurs in the wood sector chaired by Shri. Maitri Inthusul, Governor of Trang Province, Thailand.

**02-08-2011 to 04-08-2011:** Dr. C.N. Pandey, Director attended the meeting of the Sub-Group IV on Forestry Institutional & Technology Management at New Delhi.

**09-08-2011 to 11-08-2011:** Dr. C.N. Pandey, Director visited New Delhi to attend the meeting at IIT, Delhi.

**23-08-2011 to 24-08-2011:** Dr. C.N. Pandey, Director attended the meeting of the Sub-Group IV on Forestry Institutional & Technology Management at New Delhi.

**09-09-2011:** Dr. C.N. Pandey, Director attended the meeting of 5<sup>th</sup> Panel Expo Conference to finalize the Conference programme in FIPPI office, New Delhi.

**12-09-2011 to 13-09-2011:** Shri. Akash A. Solanki, STA, Field Station Kolkata, attended two days NABL training on “Awareness on Laboratory Requirement” as per ISO/IEC: 17025 at CETE, Kolkata.

**28-09-2011 to 30-09-2011:** Shri. S.C. Sahoo, Scientist, Field Station Kolkata, attended three days NABL training on “Internal Quality Audit” as per ISO/IEC: 17025 at CETEC, Kolkata.

**19-10-2011:** Dr. S.K. Nath, Joint Director attended Seminar on “Adaptive Management of Ecosystem: The knowledge systems of societies for Adaptive and Mitigation of Impacts of climate change” and presented a paper on “Impact of Forestry Products on climate change mitigation in India”.

**23-10-2011 to 25-10-2011:** Dr. C.N. Pandey, Director visited Dehradun to attend

Departmental Peer Review Committee for Review/Assessment meeting for consideration of Scientist to next higher grade under Modified Flexible Complementing Scheme at ICFRE.

**21-11-2011 to 26-11-2011:** Dr. C.N. Pandey, Director visited Delhi to attend Indian Forests Congress 2011 at the NASC Complex, DPS Marg, New Delhi from 22-11-2011 to 25-11-2011 and also participated in the International Seminar organized by BMTPC and HUDCO at Pragathi Maidan, New Delhi and delivered a lecture on “Bamboo Based Composites – The Green Building Materials for Housing & Construction”.

**02-12-2011:** Shri. Jagdish Vengala, Scientist attended International Conference on Earthquake Analysis and Design of Structures” organized by PSG College of Technology, Coimbatore in collaboration with University of Alabama, Tuscaloosa, USA and delivered a key note lecture on “Seismic Performance of Buildings Constructed using Bamboo & its Composites”.



*Shri. Jagdish Vengala, Scientist, IPIRTI delivering a key note lecture*

**09-12-2011:** Shri. Jagdish Vengala, Scientist, attended One day workshop on “The use of Bamboo as a construction material” at Sahyadri Engineering College, Mangalore conducted by Bamboo Society of India and delivered a lecture on “Bamboo Housing”.

## FIFTH MEETING OF THE STEERING COMMITTEE OF IPIRTI CENTRE, MOHALI

Fifth Meeting of the Steering Committee of IPIRTI Centre, Mohali was held on 12<sup>th</sup> December, 2011, at Department of Industries and Commerce (DIC), Punjab, Chandigarh.



*A view of 5<sup>th</sup> meeting of The Steering Committee held on 12<sup>th</sup> December*

### Highlights of the meeting:

Dr. C. N. Pandey, Vice Chairman of the steering committee extended a hearty welcome to Shri. Sukhjit Singh Bains, IAS, Director, Department of Industries & Commerce (DIC) - the Chairman and the members of Steering committee Shri. Khosla, Industrial Advisor cum Additional Director (SSI), DIC, Member Secretary; Shri. Naresh Tiwari, President, NIPMA; Shri. Indrajeet Singh, President, Punjab Plywood Manufacturers Association; Shri. Mahesh Gupta, Managing Director, M/s. Sri Ram Panels, Gobhindgarh; Shri. Susminder Singh Bimbri, State Geologist, DIC; Shri. B. S. Brar, General manager-Mining officer cum Addl. Registrar, DIC; Shri. Shyamlal, Survey officer, DIC; Shri. Labh Singh, Industry Representative; Dr. S.K. Nath, Joint Director, IPIRTI; Ms. Sujatha. D, Scientist, HoD Adhesive Technology Division, IPIRTI; Shri. Anand Nandanwar, Scientist, HoD CENTEC Division, IPIRTI; Dr. Pradeep Kr. Kushwaha, Scientist, IPIRTI Centre, Mohali and Shri. Purushottam Consultant, IPIRTI Centre, Mohali.

In the welcome address, Dr. C. N. Pandey informed that plywood industries are growing at



15% per annum due to infrastructural development happening in the country. He also informed that during last 15 years fastest growth of plywood industry has taken place in North Western part of India, especially in Punjab and Haryana and these industries are supplying about 60% of the requirement of plywood and panel products in the country.

Visit our website at <http://www.ipirti.gov.in>

Due to this growth in the North Western region, there was a proposal from the industries to open an IPIRTI Testing Centre at Mohali. With lot of efforts put up by IPIRTI, NIPMA and Punjab Government, an IPIRTI-Centre was finally established at Mohali which would cater to testing and training needs of the industries in these regions and also attend to technological need of the industry. It is also worth mentioning here that hardly 10% of the industries located in these regions have trained manpower.

Dr. C. N. Pandey informed the committee that the centre has been running successfully from last four years and also has obtained BIS recognition and NABL accreditation for testing panel products. He also highlighted that the centre has been receiving many enquiries for training on testing the panel products and the centre has been successful in conducting 3 training courses till date.

A good response has been received from the industrial end for training programme and the IPIRTI Centre is planning to conduct 1-3 months Plywood Manufacturing Technology Course including a few short term courses in 2012.

Shri. Anand Nandanwar, Scientist, IPIRTI, Bangalore made a power point presentation wherein he briefed about the background of the centre. He also informed the committee that the action plans set by the committee during the last meeting have been completed successfully.

After the brief discussion, with the permission of the chair the following agenda items were taken up one by one for discussion.

Nomination proposed by IPIRTI for inclusion of BIS and one member from Forest Department in the steering committee was accepted.

Request was made by NIPMA for inclusion of Shri. Mahesh Gupta, MD, M/s. Sri Ram Panels Gobindhgarh as a member in the steering committee. The committee accepted for the inclusion of the same.

Dr. C. N. Pandey, Director requested Shri. Sukhjit Singh Bains, IAS, Chairman to hand over the NABL certificate of IPIRTI Centre to Shri. Pradeep Kr. Kushwaha, Scientist of IPIRTI-Centre, Mohali. The chairman handed over the NABL certificate to Shri. Pradeep Kr. Kushwaha.

The Chairman suggested to create awareness about IPIRTI-Centre to more industries located in the North Western region. Dr. C. N. Pandey accepted the suggestion and informed the chairman "IPIRTI IN FOCUS" published recently will be circulated to plywood factories and various agencies to create awareness.

Shri. Naresh Tiwari, President, NIPMA assured of making effort to get more membership to IPIRTI Society from the industries of North Western region

Dr. C. N. Pandey informed the Chairman that by further strengthening the training and testing activities at IPIRTI-Centre, Mohali, the centre can be targeted to achieve self sufficiency. He stressed that all these activities can be made successful only with the cooperation from Punjab Government and the industries located in these regions.

Finally the meeting ended with vote of thanks.

## MEMORANDUM OF UNDERSTANDING

Prof. Dr. Volker Thole, Head of Dept. Wood Technology from Fraunhofer Institute, Germany and Dr. C. N. Pandey Director, IPIRTI, Bangalore signed and exchanged a MoU to promote co-operation in the field of Research & Education on 22<sup>nd</sup> of July 2011 at IPIRTI, Bangalore.



A Memorandum of Understanding (MoU) was signed and exchanged between Dr. C.N. Pandey, Director, IPIRTI, Bangalore and Shri. Mahesh Somu, M.D, M/s. DIAB Core Materials Private Limited, Chennai on “Exploratory studies on the utilization of industrial waste for the development of wood – plastic composites” in presence of Dr. S.K. Nath, Joint Director, Shri. Thanigai & Shri. Kiran M.C, Scientists, IPIRTI, Bangalore on 26<sup>th</sup> of August 2011.



## CONGRATULATION



*Ms. Sujatha. D Scientist 'D'  
HoD Adhesive Technology  
Division promoted to  
Scientist 'E'*



*Shri. Anand Nandanwar Scientist 'C'  
HoD CENTEC Division promoted to  
Scientist 'D'*



*Shri. K. Thanigai Scientist 'C'  
HoD Extension Division  
promoted to Scientist 'D'*

## TRAINING

### Post Graduate Diploma Course:

22<sup>nd</sup> batch of one year Post-Graduate Diploma Course on Wood and Panel Products Technology was conducted wherein 20 candidates completed the course successfully, Valedictory address was given by Dr. Adrian Whiteman, Senior Forestry Economists, FAO and Medals & PG Diploma Certificates were given to successful trainees. The successful candidates have got 100% placement through Campus selection process and placed in all the leading Plywood and Panel Industries. 23<sup>rd</sup> batch PGD Course commenced on 2<sup>nd</sup> November, 2011 with 19 candidates.



*22<sup>nd</sup> Batch trainees of PGD Course*

### Short Term Training Courses:

A short term training course on “Resin Manufacturing” was conducted during 04–11 April, 2011 at IPIRTI Field Station, Kolkata.

A short term training course on “Testing of Plywood, Block board and Flush door” was conducted during 11–14 April, 2011 at IPIRTI Field Station, Kolkata.

A short term training course on “Plywood Manufacturing Technology” was conducted during 02–30 May, 2011 at IPIRTI Field Station, Kolkata.

A short term training course on “Plywood Manufacturing-I” (log storage, centering, peeling, clipping, drying, knife grinding) was conducted during 11–15 July, 2011 at IPIRTI, Bangalore.

A short term training course on “Retention of preservative” was conducted during 18–22 July, 2011 at IPIRTI Field Station, Kolkata.

A short term training course on “Plywood Manufacturing-II” (Adhesives for plywood and plywood manufacturing-resin preparation, gluing, hot pressing) was conducted during 25 – 29 July, 2011 at IPIRTI, Bangalore.

A short term training course on “Testing of Plywood and Block board as per IS:303, IS:710, IS:1328, IS:4990 and IS:1659 was conducted during 23 – 26 August, 2011 at IPIRTI, Bangalore.

A short term training course on “Plywood Manufacturing Technology” was conducted during 02 August, 2011 to 07 September, 2011 at IPIRTI Field Station, Kolkata.

A short term training course on “Testing of fire retardant plywood” was conducted during 21 – 22 September, 2011 at IPIRTI Centre, Mohali.

A short term training course on “Plywood and Adhesive Manufacture” was conducted during 17 - 21 October, 2011 for the candidates sponsored

by wood based industries at IPIRTI Field Station, Kolkata.

A short term training course on “Low Cost and Special Class Resin” was conducted during 21 - 25 October, 2011 for the candidates sponsored by wood based industries at IPIRTI Field Station, Kolkata.

A short term training course on “Testing of Flush Door & Block Board as per IS: 2202 and IS:1659” was conducted during 12 - 16 December, 2011 at IPIRTI Centre, Mohali.

A training course on testing of Structural Plywood was conducted during 1<sup>st</sup> November, 2011 to 4<sup>th</sup> November, 2011 at IPIRTI, Bangalore.

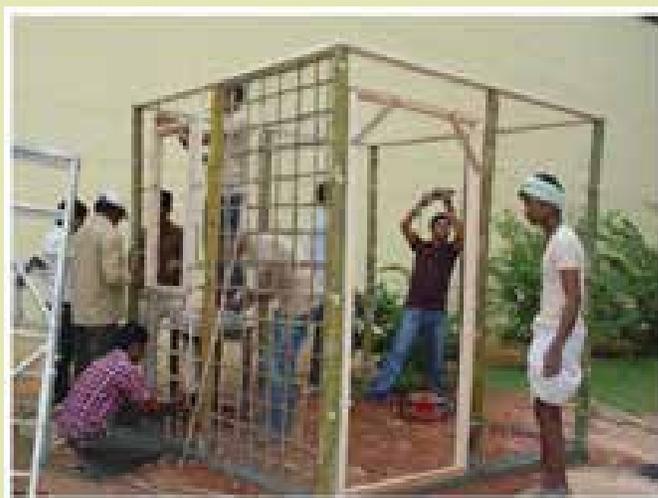
## SPECIAL TRAINING PROGRAMMES:

### Special Training Programme on Bamboo Housing

A special training programme on Bamboo Housing was conducted during 18<sup>th</sup> to 22<sup>nd</sup> July, 2011 at IPIRTI Bangalore for 10 candidates (Faculty and students from Department of Civil Engineering) sponsored by Gayatri Vidya Parishad College of Engineering, Madhurawada, Visakhapatnam, Andhra Pradesh.

Shri. Jagadish Vengala, Scientist, Course Director for the above programme welcomed the gathering. The programme was inaugurated by Shri. C.S. Vedanth, IFS, PCCF & MD KSFDC Ltd., Bangalore Karnataka. In his inaugural address he mentioned about bamboo resources available and the need of man power for its better utilization.

Dr. C.N. Pandey, Director, IPIRTI welcomed the gathering for the valedictory programme. He mentioned in his welcome speech that the importance of trained man power in building the bamboo houses and IPIRTI’s commitment in man power training as per the mandate. Shri. A.K. Bansal, IFS, ADGF(FC), MoEF, Govt of India



*Bamboo housing training for G.V.P. College of Engineering Students*

attended the valedictory Programme as Chief Guest and distributed the certificates to the trainees who have successfully completed the training programme. In his valedictory address, Shri. A.K. Bansal congratulated the trainees and request them to spread the technology in their region. He also appreciated the IPIRTI’s role in skill development in the areas of Bamboo housing and application of wood and bamboo composites.

### Special Training Programme for Kannur University students

A Special Training Course on “Sawmilling & Saw doctoring and Wood working & Wood finishing was conducted during 16<sup>th</sup> to 26<sup>th</sup> August, 2011 for students of Kannur University.



## TRAINING FOR IFS OFFICERS

### Training Course for IFS Officers



One week compulsory training programme for 24 IFS officers from different states on “Bamboo Resource Development for addressing livelihood concerns of communities” sponsored by MoEF, New Delhi was conducted by IPIRTI, Bangalore during 19th - 23rd September, 2011.

## TRAINING FOR INTERNATIONAL CANDIDATES

### Special Course for Trainees from Kenya



Training Course on “Veneer & Resin Manufacture” was conducted from 5<sup>th</sup> September, 2011 to 30<sup>th</sup> September, 2011 for 10 candidates sponsored by M/s. Rai Plywood (K) Ltd, Kenya.

## VISITS TO ABROAD:

**13-05-2011 to 23-06-2011:** Dr. Vipin Kumar Chawla, Scientist IPIRTI, Bangalore attended

Technical Training Course on Energy-Saving and Emission-Reduction for Developing Countries” sponsored by the Ministry of Commerce and organized by Suzhou University of Science and Technology at Suzhou, the People’s Republic of China.



**15-05-2011 to 20-05-2011:** Dr. C.N. Pandey, Director IPIRTI, Bangalore participated in the 11<sup>th</sup> International Conference on Wood & Bio-Fiber Plastic Composites and a Symposium on Nanotechnology in Wood Composites at the USDA Forest Products Laboratory, Madison, USA.

**25-05-2011 to 14-06-2011:** Shri. Anand Nandanwar, Scientist attended International seminar on “Bamboo and Rattan Industry for developing countries” in Beijing, China and also presented a paper on “Bamboo Based Composites- a material of the future”.



**01-06-2011 to 06-06-2011:** Dr. C.N. Pandey, Director and Dr. S.K. Nath, Joint Director attended Germany-LIGNA, Hannover and also visited WKI Institute and HNEE University and also participated in seminar held on 06<sup>th</sup> June, 2011.



*Dr. C.N. Pandey, Director & Dr. S.K. Nath, Joint Director, IPIRTI, Bangalore discussing with Prof. Dr. Volker Thole, Dr. Dirk Berthold of Fraunhofer Institute for Holzforschung about Research & Development collaboration.*

Dr. C.N. Pandey, Director and Dr. S.K. Nath, Joint Director visited Germany to evaluate mutually beneficial R&D collaboration between IPIRTI and German Research Institute/University related to Wood Science.

During their stay in Germany, Fraunhofer Institute for Holzforschung, WKI at Braunschweig was visited and discussed about the research projects on (i) Development of technology for manufacture of Medium Density Fibre Board (MDF) using bamboo as raw material and (ii) Development of light weight interior door using hollow core particle board as infill.

Dr. Pandey, Director and Dr. Nath, Joint Director, IPIRTI also visited University of Applied Science, HNE, Eberswalde and had discussions for undertaking joint research projects on (i) Development of housing components specially by using bamboo (ii) Development of bamboo Glulam and (iii) Bamboo housing using restructured bamboo products/components.



*Dr. C.N. Pandey, Director, Dr. S.K. Nath Joint Director, IPIRTI, Bangalore with Prof. Dr. Wilhelm Gunther Vahron, and Prof. Dr. Ulrich Schwarz, University of Applied Science, Eberswalde*

26-10-2011 to 1-11-2011: Shri. Prakash V., Scientist, attended Ministerial Seminar on “Strengthening Co-operation on Forestry (Bamboo) among China and Other Developing Countries” in Hongzhou, Beijing, Yiwu and Anji, China and also participated in 2<sup>nd</sup> China International Forest Industry Fair & the 4th China Yiwu International Forest products fair.



*Shri. Prakash.V Scientist, IPIRTI, Bangalore with Ministers and Officials who attended Ministerial Seminar on “Strengthening Co-operation on Forestry (Bamboo) among China and Other Developing Countries” - China*

### VISIT OF DIGNITARIES

1. 12-04-2011: Shri. R.K. Buhani, Director, M/s. Mridul Chemicals Pvt. Ltd. visited IPIRTI, Field Station, Kolkata for discussion regarding sponsoring a project on “Study on substitution of conventional extender/filler with XTRA BOND of different grades”.
2. 18-04-2011 to 19-04-2011: Shri. Prasant Ingole, Partner of UVA’S Associates, Rourkela, visited IPIRTI, Field Station, Kolkata for discussion regarding sponsoring a project on “Development of Bamboo wood for replacement of Jungle Hard wood for Packaging Industry”.

### CALENDAR OF SHORT TERM TRAINING COURSES AT IPIRTI, BANGALORE 2012

Sl. No.	Title of the Training Course	Duration	Date	Fee	Tax	Total
1.	Testing Of Plywood And Block Board As Per IS: 03,IS:710,IS:1328,IS:4990 And IS:1659	5 days	Jan 16- 20	10000	1030	11030.00
2.	Resin Manufacturing	3 days	Jan 23-25	5000	515	5515.00
3.	Preservative Treatment Methods For Wood And Wood Based Panels	3 days	Feb 6-8	5000	515	5515.00
4.	Analysis Of Raw Materials For Resin Manufacture	3 days	Mar 12-14	5000	515	5515.00
5.	Estimation Of Preservative Chemicals content In Wood/Plywood	5 days	April 9-13	7500	772.50	8272.50
6.	Peeling & Knife Grinding	3 days	May 14-16	5000	515	5515.00
7.	Wood Seasoning	3 days	May 28-30	5000	515	5515.00

Sl. No.	Title of the Training Course	Duration	Date	Fee	Tax	Total
8.	Testing Of Flush Door And Block Board As Per IS:2202 And IS:1659	5 days	June 11-15	10000	1030	11030.00
9.	Plywood Manufacturing-I ( Log Storage, Centering, Peeling, Clipping, Drying, Knife Grinding)	5 days	July 9-13	7500	772.50	8272.50
10.	Plywood Manufacturing- II ( Adhesives For Plywood And Plywood Manufacturing-Resin Preparation, Gluing, Hot Pressing)	5 days	July 23-27	7500	772.50	8272.50
11.	Testing Of Plywood And Block Board As Per IS:303,IS:710,IS:1328,IS:4990 And IS: 1659	5 days	Aug 6-10	10000	1030	11030.00
12.	Preliminary Bamboo Processing	3 days	Aug 22-24	5000	515	5515.00
13.	Low Cost Phenolic Resins Using Renewable Bio Materials As Replacement For Phenol	5 days	Sep 10-14	7500	772.50	8272.50
14.	Low Formaldehyde Emission Adhesives For Plywood And Particle Board	5 days	Oct 15-19	7500	772.50	8272.50
15.	Defects And Remedial Measures In Plywood Manufacture	5 days	Nov 19-23	7500	772.50	8272.50
16.	Testing Of Plywood And Block Board As Per IS: 303,IS:710,IS:1328,IS:4990 And IS:1659	5 days	Dec 3- 7	10000	1030	11030.00

## XI CONFERENCE OF PARTIES CONVENTION ON BIOLOGICAL DIVERSITY HYDERABAD INDIA 2012

India is hosting the Eleventh Conference of the Parties (CoP-11) to the Convention on Biological Diversity (CBD) to be held from 8-19 October, 2012 at Hyderabad, India. Hosting of CoP-11 in India is a matter of national pride for all of us.



**XI Conference of Parties**  
CONVENTION ON BIOLOGICAL DIVERSITY  
HYDERABAD INDIA 2012

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Chairman, Board of Governors - Secretary, Ministry of Environment & Forests, Govt. of India  
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**Smt. Jayanthi Natarajan**  
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