AWARENESS CAMPAIGN IN WOOD AND PANEL INDUSTRIES THROUGH INSTITUTE - INDUSTRY MEET AT IPIRTI FIELD STATION, KOLKATA ON 23rd DECEMBER, 2019

Forest based industries have undergone profound changes due to increasing globalization, concerns over climate change, rising energy prices and, more recently, the financial crisis. Wood based panel industries in India are rapidly changing due to change in nature and supply of raw materials, along
with end-users demand for diversified and high quality products. There is a need to develop long term R & D programs, based on market feedback from industry and research groups and encourage manufacturing of value added products & efficient processes. In addition, education and training in panel industries should also be encouraged. In the backdrop of said issues the proposed interactive session would immensely benefit all the stakeholders in their understanding to meet the future concerns of the wood and panel industries. It also helps to chalk out a road map. The session will address the latest developments relevant to wood processing, wood products/ panel industries and discuss current scientific, technological, environmental and legal issues affecting the panel industries.

It will be a multipronged approach for quick dissemination of new technologies for the benefit of the industry through Institute - Industry meet which will provide valuable opportunities for wood/ panel industries and consumers to exchange facts, views and challenges for trade and technological development. Scientists from Indian Plywood Industries Research & Training Institute (IPIRTI), Forest Research Institute (FRI) and Institute of Wood Science and Technology (IWST) of MoEF&CC jointly gave presentations on R&D works carried out followed by interactive session and B2B discussion.

In this context, IPIRTI Field Station Kolkata organized Awareness Campaign In Wood And Panel Industries Through Institute - Industry Meet on 23rd December, 2019 at Kolkata to disseminate the R & D work among the industries in eastern and north eastern belt of India.

Dr. M. P. Singh, IFS, Director, IPIRTI welcomed the dignitaries, members and invited guests and inaugurated Institute - Industry Meet. Shri. Amitava Sil, Scientist and Officer-In-Charge, Field Station Kolkata was the organizing secretary and nodal officer for the meet. More than 65 delegates from industries based in eastern region attended the interactive session. The main objectives of the interactive session are to offer opportunities for industries and stakeholders to:

- Exchange recent research developments related to wood processing and innovation in wood and wood based composites.
- To discuss current scientific, technological advancements
- The challenges faced by panel industry such as insufficient supply of raw material, setting up of new units,
- Environment credentials of wood based panels to the consumers, product certification and harmonized standards
Environmental and legal issues affecting wood and bamboo panel industries.
To provide suggestions and recommendations to concerned

The delegates were from plywood industries, resin industries, entrepreneurs, timber merchants, architects, interior designers, professionals, scientists and forest administrators.

Dr. M.P. Singh, IFS, Director, IPIRTI in his inaugural address stated about the current market size of plywood in India which is 6.3 million cum, particle board is about 1.8 million cum and MDF is 1.2 million cum with market shares of 68%, 19% and 13% respectively. The Compound Annual Growth Rate (CAGR) expected for the panels ranges from 10-22%. He also emphasize that agro forestry can expand if markets where farmers can sell their produce are close at hand. There would be many farmers who are facing the above crisis

Shri. Sajjan Bhajanka, Chairman, FIPPI who was the Chief Guest for the meet grace the occasion with his informative speech saying that both Europe and America total share in the panel products by more than 80% and more particularly that is why, it is predominantly plywood fifty years back, during seventies. It is now gradually replaced by MDF, Particle Board and that time Asia altogether head less than 20% share. He also pointed out that India has total production of these three panel products, MDF is around 1.2 million cum, Particle Board is 1.2 million cum and plywood is around 10 million cum, where is China particle board around is 34-35 million cum and MDF board 48-50 million cum and plywood, it is around 200 million cum. Hence, per capita consumption of panel products in India is hardly 2m². Scientists of IPIRTI, IWST, Bengaluru and FRI, Dehradun made brief presentations on Research and Development works carried out at their institutes.

Dr. Ashok Pratap Singh, IFS, Conservator of Forests, Govt. of West Bengal and Guest of Honour in his speech said that plywood industry have to contribute much in India’s GDP so that it can grow up since the economy is bad condition and also in West Bengal.
Shri. D. Bhadra, Scientist, BIS, EROL in his speech stated that India is one of the largest and fastest growing industry where quality is something which cannot be brought into it or hammered it, something which has to be inhibit by itself. In all over the world, nowhere there is mandatory certification and in India, we have mandatory certification for package drinking water, cement he appealed to the industry and the technocrats to come up with global standards testing its quality assurance, so that the ultimate goal is to satisfy the customer need for quality safety for good service.

Dr. Shakti Singh Chauhan, Scientist, IWST elaborated different technology developed by their institute. Focus was on thermal modification of wood, chemical modification of wood, wood plastic composite and acoustic technology for wood.

Dr. N.K. Upreti, Group Coordinator (Research) FRI, Dehradun emphasize on best method for wood seasoning process through kiln seasoning, steam heated kiln and solar kiln. He also briefly discussed on the recent technologies developed by FRI ready for commercialization.

Ms. Sujatha. D, Scientist, IPIRTI, Bengaluru briefed about innovation in the field of adhesives for panel products. She also focus on latest developments on resin viz. Uron resins, bio resin from organic waste – hydroxymethyl furfural, geo polymer, transparent wood, low formaldehyde emission amino resins modified with keratin powder, composites from tetra pack waste with self binder.

Shri. Uday D.N. Scientist, IPIRTI, Bengaluru informed the gathering on latest technologies developed by IPIRTI on panel products. He mainly discussed on wood based composites viz. plywood, block boards, lumber core, laminated veneer lumber, particle/chip boards, fiber boards, MDF, HDF, insulation boards, bamboo mat based composites, agro/forest residues based composites (rice husk, rice straw, wheat straw, pine needle , casuarina needle, bagasse, banana stem, coconut coirs), layered composite from plantation timber potential uses of Melia dubia for panel products, plywood from rubber wood and poplar for packaging purpose conforming to nefab asia standards development of particle board from plantation grown timbers like eucalyptus and poplar.

The Scientists highlighted the technological innovations of IPIRTI. The detailed technological input, the economy of adopting these technologies and also its impact on environment were presented to the members. scientists informed that the technology is ready for transfer and if any industry is interested, immediately it would be demonstrated or the technology package will be provided. After the technical presentation, industrial presentation given by Shri. Partha Nath, M/s. Green Ply Industries, Kolkata on overview of plywood industries.
Dr. Manoj Kumar Dubey, Joint Director, Scientists, Administrative and Technical staff of IPIRTI welcome Dr. M.P. Singh, IFS who has taken over the Additional Charge of Director, IPIRTI on 16th of July, 2019. He is presently holding the post of Director, Institute of Wood Science and Technology (IWST), Bengaluru.

Dr. M.P. Singh, IFS joined Indian Forest Service in the year 1989 in Jharkhand cadre. He has worked as Additional Principal Chief Conservator of Forest (APCCF), Special Projects, Jharkhand; Field Director, Palamau Tiger Project, Medininagar, Jharkhand; Director, Forest Education, Government of India, Dehradun; Head of Climate Change & Forest Influence Division, FRI; Assistant Director General, Monitoring & Evaluation, Indian Council of Forest Research Education (ICFRE); Head of Resource Survey & Management Division, FRI; Conservator of Forests, Plantation Research and Evaluation Circle, Department of Forests and Environment, Government of Jharkhand; Divisional Forest Officer, Social Forestry Training & Monitoring, Ranchi; Divisional Forest Officer, Bokaro Forest Division, Bokaro; Divisional Forest Officer, Chatra (N) Forest Division, Chatra; Divisional Forest Officer, Palamu Afforestation Division, Medininagar; Assistant Conservator of Forests, Punpun Soil Conservation, Aurangabad, Bihar and Assistant Conservator of Forests, Drought Prone Area Programme Division, Nawada, Bihar. He has pursued M.Sc., from Delhi University in the year 1988. He is a Ph.D holder in Silviculture in the studies titled “Growth and suitability of tree species in forest plantations in Jharkhand” from Forest Research Institute (FRI), Dehradun in the year 2016. He has authored 6 books and published 18 papers in National and International journals. He has a special experience in the field of forestry research and education.
COLLABORATIONS BETWEEN IPIRTI AND IWST

A meeting to discuss about the areas of expertise and specialization, major achievements and current research & development activities to explore the potential areas of collaboration was held on 29.07.19 and 30.07.19 at IWST and IPIRTI, Bangalore respectively under the Chairmanship of Dr. M.P. Singh, IFS, Director, IWST and IPIRTI. Dr. Manoj Kumar Dubey, Joint Director, IPIRTI, Dr. Krishna. K Pandey, Scientist - G, IWST and all other Scientists of IPIRTI and IWST were involved in the discussions. At the outset, Dr. M.P. Singh, IFS suggested that both the institutes may contribute to policy framework for wood and panel industries. There is a strong need to interact with industries and other stakeholders to understand the technical challenges and policy constraints they are facing. Efforts should also be made to discourage the import of wood in the country and promote development of industrial raw materials through agro-forestry programme which will save the valuable foreign exchange as well as increase the income of farmers. We should also think about how we can strengthen the Make in India and Skill India Programmes in forest/wood based industries to double the income of the farmers and other community. He also suggested to organize workshops on specific focused areas such as nano-technology, thermally modified wood involving all major stakeholders to get their inputs in the collaborative projects. Dr. Krishna. K Pandey, Scientist - G, IWST and Dr. Manoj Kumar Dubey, Joint Director, IPIRTI briefed about research and training activities of their respective Institutes. This was followed by the presentations of Scientists of both the Institutes about their area of expertise, major achievements and potential areas of future collaboration. A visit of Scientists of IPIRTI at the laboratories and workshops of IWST was also held on 29.07.19. This was followed by a reciprocal visit of IWST Scientists to different labs and pilot plants of IPIRTI on 30.07.2019. Couple of movies related to IPIRTI activities were also played during their visit. Some of the major areas were identified for potential collaboration between the two Institutes such as nano-technology, thermal modification of wood, bio-adhesives and concerned Scientists of both the institutes are further working to refine the proposals.
Visit of IPIRTI Scientists at IWST, Bengaluru on 29.07.2019

Visit of IWST Scientists at IPIRTI, Bengaluru on 30.07.2019
Bamboo mat board (BMB) as per IS 13958:1994 (RA 2009) and Bamboo Mat Veneer Composite (BMVC) as per IS 14588:1999 (RA 2009) developed by IPIRTI have high in-plane rigidity and hence the high racking strength and are more flexible than equivalent strength of plywood. This property of BMB and BMVC can be advantageously used in many engineering applications such as wall paneling, composite beams, composite floor deck and stress skinned panels. Bamboo mat corrugated sheet (BMCS) as per IS 15476:2004 (RA 2009) is water proof and resistant to decay, termites, insects and fire. These sheets can be used as roofing material in bamboo based housing systems for light weight structures. Precast bamboo reinforced cement concrete and reconstituted wood from destructured bamboo can also be used in structural applications. Along with bamboo, bamboo composites such as bamboo mat board, bamboo mat veneer composite can also be successfully used in combination with timber for making efficient structural components like web because where high shear strength of bamboo mat board and bamboo mat veneer composite can be utilized as web and timber flanges for transmitting tensile and compressive stress. Phenol formaldehyde, phenol resorcinol formaldehyde adhesives are commonly used for gluing web and flanges. Beams fabricated from round bamboo and bamboo composites can be straight, single tapered, double tapered or haunched type as shown in the figure below.

Bamboo mat board and bamboo mat veneer composite can also be used for roof and wall sheathing (shear walls) and diaphragms, gusset plates, arch panels, barrel vaults, etc. It can also be used as skin material in sandwich construction. The permissible safe working stresses are given below.

### Table: Comparison of mechanical properties of BMB and BMVC

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Properties</th>
<th>Bamboo Mat Board (BMB)</th>
<th>Bamboo Mat Veneer Composite (BMVC)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Along the grain</td>
<td>Across the grain</td>
</tr>
<tr>
<td>1.</td>
<td>Tensile strength, (N/mm²)</td>
<td>8.5</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>Compressive strength, (N/mm²)</td>
<td>10.80</td>
<td>13</td>
</tr>
<tr>
<td>3.</td>
<td>Modulus of Rupture, (N/mm²)</td>
<td>19.00</td>
<td>19</td>
</tr>
<tr>
<td>4.</td>
<td>Modulus of Elasticity, (N/mm²)</td>
<td>3 200</td>
<td>4 600</td>
</tr>
<tr>
<td>5.</td>
<td>Modulus of Rigidity, (N/mm²)</td>
<td>4 970</td>
<td>1 930</td>
</tr>
</tbody>
</table>
In order to promote sustainable use of bamboo based products in civil engineering construction and related activities, the Bureau of Indian Standards (BIS) has revised IS 15912: 2018 (Structural Design using Bamboo - Code of Practice) in which Shri. Amitava Sil, Scientist-D, IPIRTI Field Station, Kolkata is member of Building Construction Practices Sectional Committee, CED 13.
Industry/Organisation visits

01-05.07.2019: Dr. V.K. Upadhyay, Scientist visited Sikkim for project data collection on Industrial, traditional and State Bamboo Mission, Sikkim and met Shri. N.K. Gurung, Bamboo Mission Director; Shri. S.K. Tamang, A.D. Horticulture, Sikkim and Ms. Mrilani Shrivastava, IPS & Director, Temi Tea Estate for a discussion about Bamboo utilization in Sikkim. He also met Artisans from Gangtok and Namthang Purva Thamang for traditional use of bamboo in Sikkim.


10-11.07.2019: Dr. Narasimha Murthy and Dr. Rashmi Ramesh Shanbhag, Scientists visited Tamil Nadu State Forest Department for the purpose of data collection for a sponsored project titled “Identification and promotion of Secondary timber species from the Tamil Nadu forests”.

24.08.2019-01.09.2019: Dr. Pradeep Kumar Kushwaha, Scientist visited Common Facility Centre (CFC) at South Sikkim for installation bamboo processing unit and provided training for the staff from Temi tea estate on round stick making and primary processing of bamboo processing unit.

25-29.08.2019: Dr. V.K. Upadhyay, Scientist visited Itanagar for project data collection on Industrial, traditional and State Bamboo Mission, Arunachal Pradesh and met Shri. G. Murtam, Member Secretary Cum CEO, Arunachal Pradesh Bamboo Resources & Development Agency (APBRDA) and Mr. R.K. Taj, Scientist, Nodal Officer for a discussion on bamboo utilization and also visited Namsai with Shri. Nabam Kinam who is Bamboo artisan’s supporter and promoter for traditional bamboo utilization.

27-30.08.2019: Dr. Narasimha Murthy, Scientist visited M/s. Lucky Ply and laminates, Vapi, Gujarat for attending floor level problems faced during production of Plywood, Block board & Flush doors.


13.09.2019: Shri. Amitava Sil, Scientist and Officer In-Charge, IPIRTI Field Station, Kolkata visited office of District Magistrate and Collector, Adilabad, Telangana and had meeting with Smt. Divya Devarajan, IAS regarding Construction of Pre-Fabricated Bamboo Composite structures for Anganwadi Centers at remote villages.

29.09.2019-02.10.2019: Dr. Vipin Kumar Chawla and Dr. Pradeep Kumar Kushwaha, Scientists visited Dewas, Madhya Pradesh for technical and performance inspection of Bamboo processing machines.

04-06.10.2019: Dr. Vipin Kumar Chawla, Scientist visited Cycle brand Agarbati making unit, Mysuru and had an official discussion with Chief Executive Officer (CEO) regarding sustainable business model for production of Incense sticks in India.

05-06.10.2019: Dr. Narasimha Murthy and Shri. Kiran M.C, Scientists visited Tamil Nadu Forest Department for collecting raw materials for a project titled “Identification and promotion of secondary timber species from Tamil Nadu Forest”.


04-07.11.2019: Dr. Vipin Kumar Chawla and Dr. Pradeep Kumar Kushwaha, Scientists visited Dewas for pre-despatch inspection of Bamboo processing machines to be installed at Khangshim, Manipur.

18–20.11.2019: Dr. Pradeep Kumar Kushwaha, Scientist visited Kowaifang, Jolaibari, South Tripura for inspection of site regarding electrical connection, civil works and machine layout of bamboo processing unit.

27–29.11.2019: Dr. V.K. Upadhyay, Scientist visited M/s. Green Panel Industry at Srikalahasti for the purpose of data collection on Medium Density Fibre (MDF) board for an institute project titled “Estimation and forecasting of particle board and MDF in India”.

24.12.2019: Dr. V.K. Upadhyay, Scientist visited Directorate General of Commercial Intelligence and Statistics (DGCIS), Anandapur, Kolkata for the purpose of data collection on import of wood based panels.


Meetings/Seminars/Workshops/Conferences

10.07.2019: Shri. Mohan Karnat, IFS, Director had an Official meeting with Shri. Deepak Kumar Sinha, Inspector General of Forests (IGF), MoEF&CC, New Delhi and Dr. Pankaj Srivastava, Director, Indian Institute of Forest Management (IIFM), Bhopal.
Director, Indian Institute of Forest Management (IIFM), Bhopal who visited IPIRTI to know about research facilities on bamboo.

05.08.2019: Dr. Vinod Kumar Upadhyay, Scientist attended the first meeting of Town Official Language Implementation Committee (TOLIC) for the year 2019-2020 at Meghdoot Auditorium, GPO building, Bengaluru.

08.08.2019: Shri. Amitava Sil, Scientist and Officer In-Charge, IPIRTI Field Station, Kolkata attended One-day National Workshop on “Tribal Enterprise with focus on Honey, Bamboo & Lac in NCUI”, New Delhi organized by TRIFED and GIZ. He also attended a meeting on construction using bamboo under the Chairpersonship of Dr. Alka Bhargava, Additional Secretary, DAC&FW at New Delhi.

20.08.2019: Dr. Manoj Kumar Dubey, Joint Director, IPIRTI Chaired a committee consisting of Dr. K.K Pandey and Dr. S.S Chauhan, Scientists, IWST and Dr. Vipin Kumar Chawla, Scientist, IPIRTI to interview the candidates enrolled for Ph.D in Forest Research Institute (FRI), Dehradun under Institute of Wood Science and Technology (IWST) held at IPIRTI, Bengaluru.

23.08.2019: Dr. M.P. Singh, IFS, Director, IPIRTI had an Official discussion with Ms. Shweta Sharan, The ComeBack Foundation, Jharkhand regarding Bamboo System.

09-11.09.2019: Shri. Amitava Sil, Scientist and Officer In-Charge, IPIRTI Field Station, Kolkata attended three days conference on “The International Building Energy” organized by Augmenting Nature by Green affordable new habitate (ANGAN) and GIZ at New Delhi.

12.09.2019: Dr. V.K. Upadhyay, Scientist attended meeting of International Tropical Timber Organization (ITTO) Task Force at MoEF&CC, Indira Paryavaran Bhawan, New Delhi.

12.09.2019: Shri. Amitava Sil, Scientist and Officer In-Charge, IPIRTI Field Station, Kolkata attended second meeting of Bamboo cell under Chairmanship of Ms. Bharti, Inspector General of Forest (IGF), Survey & Utilization (SU), MoEF&CC at Indira Paryavaran Bhawan, New Delhi.

13.09.2019: Dr. M.P. Singh, IFS, Director, IPIRTI, Dr. Manoj Kumar Dubey, Joint Director, IPIRTI, Smt. Jayanthi. S, Administrative Officer and Scientists of IPIRTI had an Official meeting with Shri. Saibal Dasgupta, Additional Director General (ADG), Forest Conservation (FC), MoEF&CC, New Delhi who visited Institute of Wood Science & Technology (IWST), Bengaluru.

25.09.2019: Dr. Manoj Kumar Dubey, Joint Director, IPIRTI had an official discussion with Shri. Jikesh Thakkar, General Secretary, Indian Laminate Manufacturers Association (ILMA), Ahmedabad at IPIRTI, Bengaluru.
26.09.2019: Dr. M.P. Singh, IFS, Director, IPIRTI attended 25th meeting of Research Advisory Group (RAG) of Forest Research Institute (FRI) at Dehradun as a distinguished Member and provided valuable suggestions during the course of Meeting. After the project proposals presented by Project Investigators, the new project proposals were critically examined based on the importance of the concept, mandate and thrust areas of the institute and recommended for necessary amendments in the proposals. The physical and financial progress of on-going research projects were also reviewed as per the objectives and action plan of the project.

30.09.2019: Dr. M.P. Singh, IFS, Director, IPIRTI Chaired the 23rd Meeting of Wood and Other Lignocellulosic Products Sectional Committee, CED 20 in Joint session with Subcommittees CED 20:1 and CED 20:6 of Bureau of Indian Standards (BIS) held at Conference Hall, IPIRTI, Bengaluru. The meeting was attended by Shri. Anand Nandanwar, Scientist, IPIRTI & Principal member (CED 20), Shri. Pradeep Singh Shekhawat, Scientist (Civil Engg.), Bureau of Indian Standards (BIS) & Member Secretary of the meeting and Shri. B.S Aswathanarayana, Scientist (Retd.), IPIRTI and Convenor, CED 20:1. Dr. Manoj Kumar Dubey, Joint Director, IPIRTI; Ms. Sujatha. D, Scientist, IPIRTI & Alternate member (CED 20); Dr. Narasimha Murthy, Scientist, IPIRTI & Alternate member (CED 20:1); Dr. Pankaj Aggarwal, Dr. S.R. Shukla, Dr. S.S. Chauhan, Scientists & representatives from Institute of Wood Science and Technology (IWST); Dr. C.N. Pandey, Principal Technical Adviser; M/s. Century Plyboard, Kolkata; Shri. Anil Mutha, Chairman, M/s. Mutha Industries Pvt. Ltd, Mumbai; Dr. Asokan Pappu, Sr. Principal Scientist & Shri. Ashwin Aryan, ACM Staff, CSIR-AMPRI, Bhopal; Shri. Rajeshwar Nair, Vice President, M/s. Balaji Action Buildwell, New Delhi; Shri. Ankur Hora, Director, ECOSTE WPC, New Delhi; Shri. Deepankar Garg, Director, ALSTONE WPC, New Delhi; Mr. Tommy Mathew, M/s. Natura Greentech Pvt. Ltd., Bengaluru and Dr. R.N. Kumar from M/s. The Western India Plywood Ltd., Kerala and Shri. S.S. Zoolagud in Personal capacity also participated in the meeting.

As a Chairman, Director, IPIRTI informed the Committee that, while formulating such standards, awareness regarding some pertinent issues like environmental issues, confidence among the consumers, and harmonization with ISO standards to support exports/imports, are required. He emphasized that no industry, stakeholders and consumers should suffer due to lack of Standards.

The meeting was conducted smoothly and successfully with the proper guidance of the Chairman and valuable inputs of the members during the deliberations in the meeting.
Outcome:

- The Committee desired to upgrade the committee with new Members who can give more contribution to the Committee for the beneficial of BIS and industries coopted few organizations.
- The Committee adopted, reviewed and taken decisions on the draft Standards based on the detailed discussions and comments of the members.
- The Committee opined for amendment of few Standards and finalized draft amendments for its publications during the meeting.

Members attended the meeting had general discussions with Dr. M.P. Singh, IFS, Director, IPIRTI after the meeting.

03.10.2019: Shri. Amitava Sil, Scientist & Officer-in-Charge, IPIRTI Field Station, Kolkata attended one day national seminar on “Innovative Bamboo Structure” organised by Cane and Bamboo Technology Centre (CBTC), Burnihat in collaboration with Ministry of Development of North Eastern Region (MDoNER), Government of India & Mizoram University. He also gave a technical presentation on “Energy efficient bamboo structure for seismic area and eco-tourism camps”.


Dr. Vipin Kumar Chawla submitted a road map on application of Bamboo in Construction Sector. Dr. Vipin Kumar Chawla received a token of award from Shri. Siddhanta Das, Director General of Forest & Special Secretary, Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India.
23.10.2019: Dr. Narasimha Murthy, Scientist presented a talk on “Wood properties and wood preservation” at Karnataka Science and Technology Academy (KSTA), Department of Science and Technology, Government of Karnataka, Yelahanka Bengaluru.

10.11.2019: Dr. M.P. Singh, IFS, Director, IPIRTI and Dr. Vipin Kumar Chawla, Scientist attended an event “Sustainable Living” 02 organized by Center for Green Building Material and Technology (CGBMT) and co-hosted by BMS School of Architecture at BMS School of Architecture auditorium, Bengaluru.

12.11.2019: Shri. Amitava Sil, Scientist and Officer In-Charge, IPIRTI Field Station Kolkata participated in National Industry Consultation workshop on North East Economic Indian Corridor (NEEC) organized by Indian Chamber of Commerce, Kolkata at Oberoi Grand, Kolkata and addressed key session on Infrastructure Developments on Bamboo.

13.11.19: Shri. Anand Nandanwar, Scientist attended CEDC meeting of Bureau of Indian Standards (BIS) at BIS Headquarters, New Delhi.

14.11.2019: Dr. Manoj Kumar Dubey, Joint Director, IPIRTI attended a meeting for evaluation of the project entitled “Formaldehyde emission reduction from panel products” at Institute of Wood Science & Technology (IWST), Bengaluru.

22-23.11.2019: Dr. Narasimha Murthy, Scientist attended meeting of Federation of All India Timber Merchants, Saw Miller and Allied Industries at Kandla Timber Association (KTA), Gandhidham, Gujarat.

21-23.11.2019: Dr. Vipin Kumar Chawla, Scientist lead presenter for Forestry and allied Sciences Specific popular topics at Dolphin Institute of Biomedical and Natural Sciences, Dehradun and presented a technical talk on “IPR in the Field of Bamboo and Bamboo Composite Technology”.

28.11.2019: Shri. Amitava Sil, Scientist & Officer-in-Charge, IPIRTI Field Station, Kolkata attended one day national seminar on “Video Standards” organized by Bureau of Indian Standards (BIS), Eastern Region, Kolkata as a part of “World Standards day-2019” celebration.

20.12.2019: Dr. M.P. Singh, IFS, Director, IPIRTI, Dr. Manoj Kumar Dubey, Joint Director, IPIRTI and Dr. Ranjana Yadav, Scientist & Officer-in-Charge, IPIRTI Centre, Mohali attended One-day Institute-Industry Meet for presenting transferable technologies developed by IPIRTI organized by Forest Research Institute, Dehradun.

27.12.2019: Dr. Mamatha. B.S, Scientist presented a talk on “Role of IPIRTI in promoting Handicrafts”
for 40 artisans from different field in the exclusive workshop in artistic craft at Development Handicrafts Corporation, Government of India, Bengaluru.

Abroad Visit
15.10.2019-04.11.2019: Dr. Mamatha. B.S and Shri. Ramkumar. V, Scientists attended a “Seminar on High Value added Bamboo application for ITTO member countries” sponsored by Ministry of Commerce of China (MoFCOM) and organized by China National Bamboo Research Center (CBRC) at Hangzhou, Zhejiang province of China.

Exhibition
02-10.09.2019: Dr. Vipin Kumar Chawla and Dr. Manish Ranjan, Scientists participated in Technology Fair and Exhibition organized as a part of 14th Conference of Parties to the United Nations Convention to Combat Desertification (UNCCD-COP-14) by Ministry of Environment, Forest & Climate Change (MoEF&CC), New Delhi.

18-20.10.2019: Shri. Amitava Sil, Scientist & Officer-in-Charge, IPIRTI, Field Station, Kolkata participated in three days 6th Vibrant India and Meri Delhi Utsav-2019 held at Pitampura, New Delhi. The main theme of the exhibition was to highlight the achievements and schemes of Indian Plywood
Industries Research and Training Institute (IPIRTI) and to demonstrate technology in the entire allied value chain. IPIRTI was awarded 2nd prize for Excellent Achievements and Best Display by National Bureau, NNS Media group.

06-10.12.2019: Shri. Ram Kumar. V, Scientist participated and exhibited the technology and products of the institute at Kerala Bamboo Fest 2019 exhibition held at Ernakulam, Kerala.

Other activities
15.08.2019: 73rd Independence Day of the Nation was celebrated in the Institute with full enthusiasm. Dr. Manoj Kumar Dubey, Joint Director hoisted the National Flag and addressed the staff members. Various competitions were also organized on this occasion.

14-28.09.2019: IPIRTI celebrated Hindi Pakhwada by organizing various competitions viz., essay writing, memory test, short speech, dictation, antakshari and singing competitions in which staff and trainees took an active participation. Prize distribution ceremony was organized on the concluding day of the celebration.
20.09.2019: Hindi Divas was celebrated at IPIRTI Field Station, Kolkata under the Chairpersonship of Smt. Manju Shreen, Deputy Director, Rajbhasha Department, Government of India.

02.10.2019: Dr. M.P. Singh, IFS, Director, IPIRTI organized and celebrated 150th Gandhi Jayanthi at IPIRTI Campus along with Joint Director and other Officials. On this occasion, Swachhata Drive was also organized by cleaning the campus and facilities.

28.10.2019-02.11.2019: Vigilance Awareness Week, 2019 with the theme “Integrity – A way of life” was observed in the institute. Dr. Manoj Kumar Dubey, Joint Director, IPIRTI and staff administered the Integrity Pledge on 01.11.2019.

01.11.2019: Dr. M.P. Singh, IFS, Director, IPIRTI organized and celebrated 64th Kannada Rajyotsava (Karnataka Statehood Day) along with Dr. Manoj Kumar Dubey, Joint Director and other Officials. Flag hoisting, Lighting of lamp, quiz competition, cultural
activities like Anthakshari, dancing & singing were conducted for staff. On this occasion, felicitation to Shri. H.B. Malleshaiah, Driver and Shri. Hanumantharayappa, MTS was also arranged as a token of respect for serving the institution for more than 30 years. The programme concluded by prize distribution.

26.11.2019: 70th year of adoption of the Indian Constitution (Constitution day) was celebrated at IPIRTI, Bengaluru. All the staff and trainees administered the Preamble of the Constitution in bilingual. This event was marked as an awareness campaign focused on Citizens duties including Fundamental duties.

Visit of Dignitaries/Universities

01.07.2019: Shri. Ram Kumar, Scientist coordinated and demonstrated institute activities to a team of 45 students of B.Sc., (Forestry), Tamil Nadu Agricultural University, Mettupalayam, Tamil Nadu who visited IPIRTI, Bengaluru as a part of their study tour.

10.07.2019: Shri. Anand Nandanwar and Shri. M.C. Kiran, Scientists had an interactive discussion with Ms. HuiLengYap, Executive Director, M/s. WENG MENG Industries, Malaysia who visited IPIRTI, Bengaluru regarding Fire Retardant Door testing.

16.07.2019: Shri. Ram Kumar and Dr. Manish Ranjan, Scientists coordinated and demonstrated institute activities to a team of 43 Students of B.Sc., of State horticulture & Forestry University from College of Forestry, Ranichauri, Uttarakand who visited IPIRTI, Bengaluru as a part of their study tour.

27.07.2019: Shri. Anand Nandanwar, Scientist had an official discussion with Mr. Lucas from Spain and Shri. Tarun Subramanie from Gospace, Bengaluru regarding Fire Door test facilities and exploring possibilities of collaborative work with IPIRTI.

25.08.2019: Shri. Ram Kumar, Scientist familiarised about Bamboo housing and Bamboo composites to a team of 3 Engineers from Andhra Pradesh who visited IPIRTI, Bengaluru.

26.08.2019: Shri. Ajit Sen, Associate Director, ESAF visited IPIRTI Field Station, Kolkata and had a discussion with Shri. S.C. Sahoo regarding the adhesive used for bamboo products.

29.08.2019: Shri. Arbin Saha, General Manager, M/s. Green Ply, Kolkata visited IPIRTI Field Station, Kolkata and had a discussion with Shri. S.C. Sahoo regarding composite panels and other technical information.
27.09.2019: Shri. Ram Kumar and Dr. Manish Ranjan, Scientists Coordinated and demonstrated the various activities of IPIRTI to a team of 41 Forest Range Officers (FRO) from Kundal Forest Academy, Maharashtra who visited IPIRTI as a part of their study tour.

24.10.2019: Dr. Manoj Kumar Dubey, Joint Director, IPIRTI addressed 40 rangers’ trainees from Central Academy of Forest Education, Kuresong who visited IPIRTI, Bengaluru.

31.10.2019: Dr. Manoj Kumar Dubey, Joint Director, IPIRTI addressed 40 students of M.Sc., Wood Science & Technology of Forest Research Institute (FRI), Dehradun who visited IPIRTI, Bengaluru.

08.11.2019: Shri. Ram Kumar, Scientist familiarized the institute activities and demonstrated bamboo housing techniques to 32 architecture students of PES University who visited IPIRTI, Bengaluru.

11.11.2019: Shri. Ram Kumar, Scientist familiarized the institute activities and demonstrated bamboo housing techniques to 35 architecture students of BMS School of Architecture who visited IPIRTI, Bengaluru.

03.12.2019: Shri. Manish Kumar, CMD, Dynamic Tarang Pvt. Ltd., Ranchi visited IPIRTI Field Station, Kolkata regarding demonstration of bamboo composite based eco-tourism hut to be established at Ghatshila and Bahragoda.


27.12.2019: Dr. Manoj Kumar Dubey, Joint Director, IPIRTI and Dr. Vipin Kumar Chawla, Scientist had an official meeting with Dr. D.D. Haokip, IFS, Additional Principal Chief Conservator of Forest (APCCF) and SMD, National Bamboo Mission (NBM), Government of Manipur who visited IPIRTI, Bengaluru.

27.12.2019: Shri. Ram Kumar, Scientist coordinated the visit of Shri. Abhishek Das, Managing Director, (Entrepreneur), Prime Thermals Pvt. Ltd., Kolkata about institute activities and possibilities of industrial production in wood and bamboo based products.
MoUs Signed


26.12.2019: A Memorandum of Understanding (MoU) signed with The Federation of Indian Plywood & Panel Industry (FIPPI), New Delhi for Review of Indian standard on Medium density particle board for revising the prescribed limits of Swelling and Internal bond strength tests”. Apart from above, the following MoUs were also signed for testing of Fire rated doors of different ratings under consultancy project with:

- M/s. Navair International Pvt. Ltd. on 17.06.2019
- M/s. Millennium engineers & Contractors Ltd. on 21.08.2019
- M/s. Greta Door solution on 28.08.2019 & M/s. V Can furnitech on 24.10.2019

TRAINING

One Year Post-Graduate Diploma Course (PGDC) in Wood and Panel Products Technology (WPPT):

16-20.09.2019: Dr. V.K Upadhyay, Scientist organized and Dr. Rashmi Shanbhag, Scientist coordinated the study tour for 30th Batch of Post Graduate Diploma Course in Wood and Panel Products Technology (PGDC-WPPT) trainees to industries at Mysore, Hunsur, Mangalore and Chikkamagalur to have field knowledge of wood processing industry and its operations.

23.10.2019: Dr. M.P. Singh, IFS, Director, IPIRTI and Dr. V.K. Upadhyay, Scientist organized campus interview for 30th Batch of PGD-WPPT trainees wherein 29 trainees were placed in different industries viz. M/s. Century Ply, M/s. Everest Ply, M/s. Colure Lam, M/s. Bhagwati Plywood, M/s. Duro Ply
25.11.2019: Dr. M.P. Singh, IFS, Director, IPIRTI and Dr. V.K. Upadhyay, Scientist organized valedictory function for 30th Batch of One year Post Graduate Diploma Course (PGDC) in Wood and Panel Products Technology (WPPT) at IPIRTI. Smt. Madhu Sharma, IFS, Principal Chief Conservator of Forest (PCCF) and Managing Director, Karnataka Forest Development Corporation Ltd., (KFDC) and Dr. B.N. Mohanty, IFS (Retd.), Ex-Director, Indian Plywood Industries Research & Training Institute (IPIRTI), Bengaluru graced the occasion as Chief Guest and Guest of Honor respectively.

Training for 31st batch of One year Post Graduate Diploma Course (PGDC) in “Plywood and Panel Products Technology” (PPPT) will be commencing from January 2020.

Short Term Vocational Training Course
01.07.2019-02.08.2019: One Month short term training course on “Plywood manufacturing technology” was conducted for 5 candidates at IPIRTI Field Station, Kolkata. As a part of training, a visit was organized to M/s. Century Plyboards (P) Ltd., Kolkata.

19-24.08.2019: Dr. Pradeep Kumar Kushwaha, Scientist conducted short term training course on Primary Processing of Bamboo for mat making and round stick for Agarbatti for 10 candidates at Churachandpur, Manipur.

24.08.2019-01.09.2019: Dr. Pradeep Kumar Kushwaha, Scientist conducted short term training course on Primary Processing of Bamboo for mat making and round stick for Agarbatti for 10 candidates at Temi Tea Estate, South Sikkim.

Training Undertaken
01-03.08.2019: Dr. V.R. Ramkumar, Scientist attended three days training and capacity building
programme on “Performance evaluation tools for sustainable buildings” organized by The Energy and Resource Institute (TERI) at Bangalore International Centre.

19-20.08.2019: Dr. Ranjana Yadav, Scientist attended two days Quality Management Training on “Laboratory Quality System, Management & Internal Audit requirements as per IS/ISO 17025:2017” at IPIRTI Center, Mohali.

23-27.09.2019: Ms. Sujatha, D, Scientist attended the training for women Scientists on “Science and sustainability in India” organized by NIAS-DST at NIAS campus, Bengaluru.

**Special Training Course**

16-20.09.2019: Organized One Week Compulsory Training Course for Indian Forest Service Officers on “Bamboo/Wood Resource Development and Value Addition for Sustained Livelihood” at IPIRTI, Bengaluru. The objective of training was to create awareness among IFS Officers towards the need for addressing livelihood concerns of communities through wood/bamboo resource development. Dr. Vipin Kumar Chawla and Shri. Ram Kumar. V, Scientists were the Course Director and Course Coordinator respectively. During the course of training, Shri. Shettapannavar, IFS, Dr. Shakti Singh Chauhan, Dr. S.R. Shukla, Scientists, IWST, Dr. C.V Reddy, Dy. General Manager, Farm Sector Policy Department, NABARD, Dr. Alka Bhargava, Additional Secretary, Ministry of Agriculture and Farmers Welfare, Dr. Shreekant Sharma, NIMSME, Hyderabad, Shri. Anil Mutha, Managing Director, M/s. Mutha Industries gave presentations on various topics related to bamboo.

As a part of training, IFS Officers visited to M/s. Growmore Biotech, Hosur; Institute of Wood Science and Technology (IWST), Bengaluru; National Institute of Design (NID), Bengaluru and also attended the World Bamboo Day celebration and Bamboo Exhibition organized by Bamboo Society of India at Lalbagh Botanical Garden, Bengaluru. Panel discussion on “Role of forest department in bamboo/wood industries: Capacity constraints of IFS Officers” along with certificate distribution was conducted on the concluding day of the training in which Dr. Sushant, Faculty, NID, Shri. TSK Reddy, IFS and Mr. MD. Abdul Rasheed were the speakers of the session.
## Shortterm Training Courses for Jan - Jul, 2020 at Bengaluru

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Title of the Training Course</th>
<th>Duration</th>
<th>Date</th>
<th>Fees*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Testing Of Plywood And Block Board As Per IS:303, IS:710, IS:1328, IS:4990 And IS:1659</td>
<td>5 days</td>
<td>Feb 03-07</td>
<td>24000</td>
</tr>
<tr>
<td>2.</td>
<td>Resin Manufacturing</td>
<td>3 days</td>
<td>Feb 26-28</td>
<td>12000</td>
</tr>
<tr>
<td>3.</td>
<td>Preservative Treatment Methods For Wood And Wood Based Panels</td>
<td>3 days</td>
<td>Mar 04-06</td>
<td>12000</td>
</tr>
<tr>
<td>4.</td>
<td>Manufacture of Particle Board</td>
<td>5 Days</td>
<td>Mar 16-20</td>
<td>18000</td>
</tr>
<tr>
<td>5.</td>
<td>Analysis Of Raw Materials For Resin Manufacture</td>
<td>3 days</td>
<td>Apr 15-17</td>
<td>12000</td>
</tr>
<tr>
<td>6.</td>
<td>Testing Of Door Shutters As Per IS: 2202, IS:1003, IS: 4020</td>
<td>5 Days</td>
<td>Apr 20-24</td>
<td>18000</td>
</tr>
<tr>
<td>7.</td>
<td>Estimation Of Preservative Chemicals content In Wood/Plywood</td>
<td>5 Days</td>
<td>May 11-15</td>
<td>18000</td>
</tr>
<tr>
<td>Sl. No</td>
<td>Title of the Training Course</td>
<td>Duration</td>
<td>Date</td>
<td>Fees</td>
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<tr>
<td>8.</td>
<td>Peeling &amp; Knife Grinding</td>
<td>3 Days</td>
<td>May 18-20</td>
<td>12000</td>
</tr>
<tr>
<td>9.</td>
<td>Wood Seasoning</td>
<td>3 Days</td>
<td>May 27-29</td>
<td>12000</td>
</tr>
<tr>
<td>10.</td>
<td>Testing Of Flush Door And Block Board As Per IS:2202 And IS:1659</td>
<td>5 Days</td>
<td>Jun 08-12</td>
<td>24000</td>
</tr>
<tr>
<td>11</td>
<td>Plywood Manufacturing- I (Log Storage, Centering, Peeling, Clipping, Drying, Knife Grinding)</td>
<td>5 Days</td>
<td>Jul 06-10</td>
<td>18000</td>
</tr>
<tr>
<td>12</td>
<td>Plywood Manufacturing- II (Adhesives For Plywood And Plywood Manufacturing-Resin Preparation, Gluing, Hot Pressing)</td>
<td>5 Days</td>
<td>Jul 13-17</td>
<td>18000</td>
</tr>
<tr>
<td>13</td>
<td>Testing Of Plywood And Block Board As Per IS:303,IS:710,IS:1328,IS:4990 And IS: 1659</td>
<td>5 Days</td>
<td>Jul 20 -24</td>
<td>24000</td>
</tr>
</tbody>
</table>

**Programme Coordinator: Dr. V K Upadhyay, Head, IT & SORIT (upadhyay@ipirti.gov.in). You can apply online by filling and submitting the Registration Form (PDF)/Registration Form (doc). Registration has to be done 10 days before the date of commencement of the course by remitting prescribed course fee. Fees payable to the organization may be sent by crossed Demand Draft in favour of Director, IPIRTI, Bengaluru and sent by post to Post Bag No.2273, Tumkur Road, Yeshwanthpur PO, Bengaluru - 560 022. * 18% GST**

**SHORT TERM TRAINING COURSES FOR JAN - JUL, 2020 AT KOLKATA**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Title of the Training Course</th>
<th>Duration</th>
<th>Date</th>
<th>Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Testing of Plywood, Block Board, Flush Door</td>
<td>5 days</td>
<td>Jan 20-24</td>
<td>18000</td>
</tr>
<tr>
<td>2.</td>
<td>One Month Training Course on “Plywood Manufacturing Technology”</td>
<td>1 Month</td>
<td>Jan 20 - Feb 20</td>
<td>24000</td>
</tr>
<tr>
<td>3.</td>
<td>Analysis of raw material for resin manufacturing.</td>
<td>3 days</td>
<td>Mar 11-13</td>
<td>12000</td>
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<tr>
<td>4.</td>
<td>Preliminary Bamboo Processing</td>
<td>3 days</td>
<td>Mar 25-27</td>
<td>12000</td>
</tr>
<tr>
<td>5.</td>
<td>Resin Manufacturing</td>
<td>3 days</td>
<td>Apr 22-24</td>
<td>12000</td>
</tr>
<tr>
<td>6.</td>
<td>Particle Board Manufacturing</td>
<td>5 days</td>
<td>May 18-22</td>
<td>18000</td>
</tr>
</tbody>
</table>
7. One Month Training Course on “Plywood Manufacturing Technology” 1 Month Jun 01-30 24000
8. Block Board & Flush Door Manufacturing 5 days Jul 27-30 18000

** Programme Coordinator: Mr. Amitava Sil, IPIRTI Field Station Kolkata, 2/2 Biren Roy Road (West), Sarsuna, Kolkata-61, Tele Fax:033-24983120, Mob:09874219758 (ipirtikolkata@ipirti.gov.in). Registration has to be done 10 days before the date of commencement of the course by remitting prescribed course fee. Fees payable to the organization may be sent by crossed Demand Draft in favour of Director, Indian Plywood Industries Research & Training Institute. You can apply online by filing and submitting the Registration Form.

* 18% GST

** Lodging and Boarding are not included and have to be arranged by the trainees. 

** SHORT TERM TRAINING COURSES FOR JAN - JUL, 2020 AT MOHALI **

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Title of the Training Course</th>
<th>Duration</th>
<th>Date</th>
<th>Fees*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Analysis of Raw Material and Resin Manufacturing (PF &amp; UF)</td>
<td>5 days</td>
<td>Mar 20-24</td>
<td>12000</td>
</tr>
<tr>
<td>2.</td>
<td>Testing Of Block board And Flush Door As Per IS:1659 &amp; IS: 2202 (Part - I)</td>
<td>3 days</td>
<td>Apr 14-16</td>
<td>12000</td>
</tr>
<tr>
<td>3.</td>
<td>Testing of Fire Retardant Plywood As Per IS: 5509</td>
<td>2 days</td>
<td>Apr 28-29</td>
<td>6000</td>
</tr>
<tr>
<td>4.</td>
<td>Testing of Plywood As Per IS 303, 1328, 710 &amp; 4990</td>
<td>5 days</td>
<td>May 11-15</td>
<td>14400</td>
</tr>
<tr>
<td>5.</td>
<td>Testing Of Block board And Flush Door As Per IS:1659 &amp; IS: 2202 (Part - I)</td>
<td>5 days</td>
<td>Jun 01-05</td>
<td>12000</td>
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<td>6.</td>
<td>Testing Of Fire Retardant Plywood As Per IS: 5509</td>
<td>2 days</td>
<td>Jul 07-08</td>
<td>6000</td>
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<td>7.</td>
<td>Testing Of Plywood As Per IS 303, 1328, 710 &amp; 4990</td>
<td>5 days</td>
<td>Jul 20-24</td>
<td>12000</td>
</tr>
</tbody>
</table>

* 18% GST

Programme Coordinator: Dr. Ranjana Yadav (ranjana@ipirti.gov.in) IPIRTI Centre (MoEF&CC, Govt of India) B-65, Phase -7, Industrial Area, Mohali-160055, Punjab. Tele: 0172-5095875. Registration has to be done 10 days before the date of commencement of the course by remitting prescribed course fee. Fees payable to the organization may be sent by crossed Demand Draft in favour of Director, IPIRTI, Bengaluru. You can apply online by filing and submitting the Registration Form.
REPATRIATION

Dr. B.N. Mohanty, IFS who worked as Director, IPIRTI on deputation from October, 2014 has repatriated on 2nd July, 2019 to his parent cadre, Manipur. As Director of IPIRTI, he contributed immensely towards the growth of the institute in the field of the research, training and outreach activities related to wood based panel products and bamboo based technologies for high value added products spread throughout the country. He was of the view that panel industry in the country must be self sufficient in terms of raw material and guided the Scientists of institute to take up projects which would encourage the utilization of indigenous tree species for panel manufacturing which ultimately would bring down the quantity of imported wood for panel manufacturing. He promoted Bamboo based technologies innovated by IPIRTI in different international forums such as IUFRO, APAFRI, China, Malaysia and South Korea, INBAR on Bamboo policy and development. He has also supported special training courses on bamboo processing under Skill Development Programme at IPIRTI. He was heading a Technical committee to advise National Bamboo Mission of India. In his tenure he co-authored a book entitled “Synthetic Resin Adhesives for Panel Products” along with Ms. Sujatha. D and Dr. Mamatha B.S, Scientists, IPIRTI which focuses on in-depth information on environmental friendly resin making technologies and it was published in the year 2017.

The institute acknowledges the services rendered by him and wishes him a Prosperous and Healthy life ahead.