‘Bharat ka Amruth Mahotsav-2021’
Organised by Institute of Wood Science & Technology, Bengaluru
on 11 June, 2021

Azadi Ka Amruth Mahotsav is a program launched for 75 weeks starting March 12 2021 by H’ble Prime Minister of India Sri Narendra Modi to commemorate 75 years of India’s independence. As part of this celebration, ICFRE is conducting various programs like technical series, workshops, exhibitions, documentary shows, poster and essay competitions, cycle rallies etc. Institute of Wood Science and Technology, Bangalore organized the first event, an online seminar on Propagation and Cultivation of Indian Sandalwood during April 2021. The second program an online seminar on Wood Composites was organized on Friday 11 June 2021 together with knowledge and media partners, Surfaces Reporter and Ply Reporter.

Mr. V. S. Shetteppanavar, IFS, Group Coordinator Research, IWST welcomed the speakers, panelists and participants of the seminar. He also gave a brief overview of the activities envisaged and undertaken at IWST under the Bharath Ka Amruth Mahotsav program.

Ms. Veritica Diwedi – Editor in Chief, Surface Reporter.
Wood has been used as a building material over years. Composite material is an area which needs to be researched due to its environmental impact. The advantage of composite material is that, it reduces felling of wood and gives scope for utilization of wood waste.

The technical session included address/presentation by renowned industrialists, and scientists from wood, panel & ply industry, furniture industry, wood composite and related sector.

Mr. Sajjan Bhajanka, M/s Century Ply and President of FIPPI gave the inaugural address and presented the scenario of wood based industry from National and International perspective with special reference to China. Panel industry represents particle board, MDF, plywood, block board and flush doors. In the past five years the industry scenario is fast changing. Earlier, the industry was quite unorganized with respect to exemptions and size. Of a total of 1300 units, 250 were fully exempted, 750 partially and only 100 were paying duty. But, after the introduction of GST, it is now a 100% duty paying sector. Small units which were earlier exempted totally or partially are adversely affected as they have lost incentives because of the SSI status. The present size of panel products in India is plywood 10 million cubic meter, MDF 1.5 million cubic meter and PB 1.25 million cubic meter as against China’s production of plywood 200 million cubic meter, MDF 50 million cubic meter and PB 35 million cubic meter. However, in the next 10 years India is expected to increase its growth by about 20%. China saw its increase in panel products because of the development in housing sector. The, panel products moved to China from other parts of the world like Europe, America, Australia and even India. Later, China concentrated on large scale plantations and wood-based industries and is the world leader in panel products with > 65% of plywood, 50% of MDF and 25% of PB production world over. Currently, India is in a very advantageous position as the housing and furniture sector is taking good shape, specifically furniture industry is growing rapidly because of own market and cheap labour. In fact, Indian labour is 6-7 times cheaper than that of China. Turmoil in

international shipping will also play in favour of India. Even Government of India is proactive. Growth of agroforestry will be good for the future of the country. Considering the returns to farmers from agriculture, it would in their own interest to divert agricultural land to agroforestry. If 5% of the total 15 million hectare under agriculture is diverted to agroforesty, it will yield around 750 million cubic meter of timber, which will be much higher than China's production of agroforestry. Even 1% diversion will make a huge difference to India. In short furniture industry will meet housing, employment and exports.

Mr. Rudra Chatterji, Chairman, Furniture Committee, FICCI presented on "Wood composites for furniture making in India"

Furniture industry in India in not very big even though it has wood, labour and demand for furniture. India is not a big exporter. Furniture industry was regulated as a small-scale sector up to 2014 so investment was low. Furniture industry is design intensive, sample intensive, machine intensive and hence needs skill set in the form of trained workers or carpenters. India has ample supply of Wood, ply, MDF and PB. What is lacking today is large modern factories, wood certification, traceability and trained workers. So India should become a furniture hub especially home furnishing and not give up the privilege to Vietnam or Bangladesh who are in turn dependent on Chinese firms. Indian Government should allocate large working space for chemical treatment, workspace and preferably closer to ports for import/export convenience. Farming laws should be revised to produce more wood. Farmers should be permitted to cut and sell to furniture industry. It will be a monetary benefit to the farmers and at the same time solve labour issues, provide wood to the industry and in turn boost our economy. India must find a place as great furniture manufacturing industry next to China and Vietnam

Mr. Edward Carey, CEO, Maner and Mews jointly presented on "wood composites for furniture making in India"

Philippines were Asia's leaders in the furniture sector after USA and Europe. Actually, 30 years back India and China were on equal terms with a crude factory set up. Later china improved its infrastructure. It now buys its entire forest and is a competitor in efficiency and has developed global supply chain. China has invested in best machinery, people and systems to move ahead of other countries. Now, top Vietnamese factories are Chinese. India has rich potential in terms of supply chain like, plantation, chemical, and home grown facilities enough to compete with China and Vietnam if we can import them. Indian Furniture manufacturing should optimize its own resources and start using their waste wood and wood chips to make its own MDF, use its home grown plantations, chemicals, facilities on the lines of other thriving countries to be able to compete with China and Vietnam. Composites industry should stand up to supply reliable, quality wood composite that are FSC rated. India must become leaders and importers in this field as it has wood/chemical/byproducts for which once again the key to success is FSC rated products. India must strive to be best and sustainable. India has its own plantations and own resources, labour is its biggest advantage, what is lacking is that the supply chain needs to be streamlined to be competitive in the composites and furniture market.

Dr. S. R. Shukla, Scientist & Head, Wood Properties and Uses Division, IWST, Mr. Priyank Maithani, Research Scholar, IWST and Mr. Kelkar U. Bhushan, Research Scholar, IWST presented on "Status of research on LVL, BSL, Glulam and CLT at IWST".

Engineered wood is good for different end uses and also meets international standards. Engineered wood can be classified into structural which is load bearing component (LVL, Glulam, CLT, PSL etc) and Non-structural (Plywood, PB, MDF etc.). The advantage is that they are dimensionally stable, exhibit improved properties, stronger than solid wood etc. World engineered wood market is highly valued and is expected to soar further. Different adhesives and preservatives can be used. Some disadvantages being, they may burn faster, need more energy for production, release formaldehyde from finished products etc. Engineered woods which IWST is currently working are LVL, Glulam, BSL and CLT.

Mr. Ritesh D. Ram, Scientist, Wood Processing Division, IWST and Mr. Mahadev Chikkanna, Founder & CEO, Spectalite, Bangalore presented on "Wood plastic composites as promising green–composites for furniture, automotive and other industries".

Wood polymer composites add value to wood and lingo cellulosic waste, substitute plastics by almost 50-70% and most important it reduces carbon footprint. Natural lingo cellulosic fibers of both forestry and agriculture origin can be used. The composite varies depending on the polymer, fiber, coupling agent and the additives used in blending. Spectalite produces bio composites (biodegradable and recyclable) using crop waste (rice husk, coffee husk, bamboo fibers, barley waste etc) and fast renewable resources to produce sustainable products. Both industrial and consumer products are made out of these composites. Application of natural fiber composites are mainly in in automotive, construction, pallets for material handling, disposable food grade cutlery, furniture. The company is looking forward and working to move on to many other sectors.

Dr. S.K. Nath, Joint Director (rtd.), IPIRTI, Bangalore presented on "Panel products from plantation timber and amending BIS standards".

A product which passes the standard, is an assurance to customers, at the same time it will be binding on the manufacturer to produce quality product. Standards need to be amended based on scientific development, change in end use, change in material etc. Timber properties depends on source, age etc. etc. so producing a uniform product is a challenge to the industry. Standards on plywood have been formulated long back and though minor amendments have been made from time to time, based R&D, technology developments, change in raw material, diverse use of patterns etc. IPIRTI has submitted draft amendment on standards for plywood and panel products to BIS. Even test parameters need amendment.

Mr. Vaidyanathan Hariharan, Ececutive Member, Wood Technology Association (WTA), New Delhi presented on "Role of adhesives in wood composites and formaldehyde emission parameters". Adhesive performance is a science. Adhesive strength is defined as force required to pull apart two substrates bonded together. Lot of variables are involved in adhesives usage which depends on resins, wood, process used, service factor etc. Wood composite is combination of factors to get good life durability. Among the many resins used in wood composite, formaldehyde resin is the most significant and widely because of price, economy, expertize gained over long usage. Some of the other adhesives used are isocyanates, vinyl acetate, hot melts, bioadhesives etc. Wood based inputs used in wood composites depends on density, top finish, ease of processing, compression temperature etc. Choice of adhesives for wood composites includes cost, consistency, machinery, equipment, ease of processing, process safety, marketability of end product etc. Still there is mixed opinion from scientist world over on

formaldehyde emissions from wood composites. There is no universal production quality standard which may be acceptable worldwide for different kinds of wood composites.

Dr. Jimmy Thomas, Forestry Innovation Consulting India Pvt. Ltd (Canadian wood), Bangalore presented on 'Wood Composites for structural uses". Engineered woods are designed to precise shape, dimension and purpose to bear structural load. Few main feature are dimensionally stability, good strength weight ratio, seismic and acoustic performance, fire resistant and energy efficient. Now, mass timber is largely used for construction of big buildings. Mass timber is a category of wood products that uses large, engineered wood products and systems to form the primary structure of the building. They are light weight yet structurally superior. Benefits of mass timber are, sustainable with low carbon footprint, certification is easy, health benefits and prefabrication is possible both in factory and onsite and cost effective. Few mass timber products are glulam, CLT, LVL, DLT, NLT, MPP and PSL.

Dr. M. P. Singh, IFS, Director, IWST, Bangalore gave the following Concluding Remarks. This seminar was an endeavor to bring furniture, panel wood and plywood manufactures together with innovative scientists and discuss on new products in wood composite which will eventually be the future wood material. IWST is planning a structure using mass timber in its own campus. Certification of wood and its products should be our immediate focus. In view of climate change, emphasis must be on wood preservative and reducing carbon footprint.

Dr. K. K. Pandey, Scientists-G & Head, Wood Processing Division, IWST proposed the Vote of Thanks and seminar ended with very interesting and interactive session by the participants and speakers.