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Indian Wood & Allied Panels

Volume 14 • Issue 1&2 *A Quarterly Publication on Plywood / Wood & Bamboo Based Panel Products* April - June 2020

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Indian Wood & Allied Panels

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C O N T E N T S

Top 9 Wood Based Industries in India, its Challanges and Measures

By Sumit Roy and Dr. C N Pandey, Century Plyboards (India) Limited

Any industry which depends on forests for their raw material requirement is considered to be forest or wood based industry. India is one of the leading countries with mushrooming of wood based industries which include pulp and paper, match, saw wood, veneer and plywood, pencil and dendro biomass industries.

The forest based industry is growing rapidly with the increasing demand for furniture, housing, construction material, packaging, agriculture good, sports goods, plywood, veneer, matches etc. Similarly the biomass based power generation industries are also on the raise across the country to generate electricity from forest biomass. This growing demand of wood and wood based industries will create a wood deficit of 20-70 million cubic meter by 2020.

It is estimated that approximately 40 per cent of the forest products are supplied from outside forest areas and more than 95 per cent of fuel wood and major timber requirement are obtained from outside forest areas. The following are the major forest based industries which depend heavily on forest and agroforestry plantation to meet the raw material requirement.

Pulp and Paper Industries

The pulp and paper industry is one of the key industries in India and it is highly fragmented. Today, there are about 700 paper mills in India with 33 in the large scale sector. During 1990s, the per capita consumption of paper was 3.3 kg which has now escalated to 8 kg, but still lower compared to the global average of 47.7 kg. The current production of raw material for pulp and paper production is 2.76 million tons as against the demand of 5.04 million tonnes. The shortfall is as high as 45 per cent.

The total installed capacity of pulp & paper mills in the country is estimated to be over 7.5 million tons which is likely to increase to 14 million tons by the year 2020. In India, paper is manufactured from wide range of raw material like wood, recovered paper, baggasse and other agro residues. Based on that the paper mills have been classified and furnished in Fig.1.

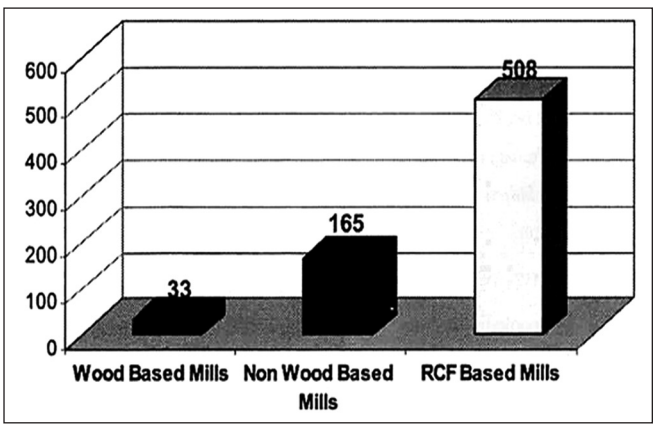

Figure 1: Categorization of the Paper Mills Based on Cellulosic Raw Materials.

Currently the paper industries in the country face serious problem in terms of raw material availability which became a major deterrent to competitiveness and growth of industry. Hence all the industries have started massive plantation programme with varying degree of success.

Match Industries

Match wood industry is one of the oldest wood based industries in India. About 75 per cent of the total match wood industries in the country are located in the state of Tamil Nadu which comprises nearly 6,000 match industries with mechanized, semi mechanized and as cottage industry. The per capita consumption of matches in India increased steadily from 2.45 kg (1970) to 4.25 kg (1987). The current per capita consumption rose to 6.0 kg which is more staggering. The increasing demand for the matches coupled with declining wood resources is a major bottle neck faced by the entire match industries in India including the ancillary splint and veneer industries. In fact, there was a short fall of 9,00,000 m3 in the year 2000. The veneer quality wood for match boxes, which accounts for 44 per cent of match wood used, is also in short supply.

Timber and Sawn Wood Industries:

Traditionally people in the country predominantly use timber and other converted wood in all their domestic and industrial wood requirement. The rapid population growth, urbanization and industrialization resulted in greater usage of wood in furniture, housing and construction material. During, 2010-2012 more than 500 million square feet of space is estimated to be built in urban areas of the country and the wood products were valued around US Dollar 3 billion. With greater usage wood as a predominant material for housing and construction material in urban and semi urban areas there is going to be a great demand for timber and other sawn wood requirement. The Indian furniture market is estimated at 8 billion US Dollar and in most cases raw materials are imported from various countries.

Plywood Industries

One of the fastest growing in India is the plywood industry. The industrialization and urbanization and the increased interest on interior decorations have made great usage of plywood in the country. Wide range of species have been found amenable for making face, core and inner veneers resulted in establishment of more than 2,000 small scale industries involved in plywood manufacture. The liberalization and privatization policy of government of India also significantly contributed towards establishment of new rural industries. These industries also depend heavily on various species which thereby attracted large scale promotion of plywood based industrial wood plantations.

Particle Board Industries

Particle board is reconstituted constructional panel particularly developed as a substitute for natural constructional wood and is made from low grade waste woods or from ligneous

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agricultural residues. These particle boards are predominantly used for wall paneling and interior decorations in domestic and industrial wood sector. In India, the first particle board industry was set up in late 1950s at Sitapur in Uttar Pradesh and from then onwards large number of industries has been installed across the country.

Fibre Board Industries

Fibre board is constituted using sheet materials of widely varying diversities manufactured from refined or partially refined wood fibers or other vegetable fibers.

Dendro Biomass Power Generation Industries

Biomass is an important fuel source in overall energy scenario. Biomass is produced through chemical storage of solar energy in plants and other organic matter as a result of photosynthesis. This biomass include plantation that produces energy crops, natural vegetable growth and other organic waste and residues.

Among all these biomass, the role of dendro biomass is very significant due to their higher calorific value and increased fuel efficiency. Hence, large number of dendro biomass based power plants has been established across the country to generate electricity.

Oil and Biodiesel Industries

The demand for edible and non-edible oil is continuously on the rise due to industrial and economic development. But there is no concomitant effort to augment the production potential of oil seeds in the country. This resulted in a massive import of nearly 46 per cent of edible oil till the recent past thus claiming huge amount of country's exchequer. Similarly the crude oil requirement in the country is also increasing due to development in transport and industrial sector.

Till the recent past the consumption of crude oil was about 184.68 million tones and the rate energy consumption is increasing at the rate of 6.5 per cent per annum. India's share of crude oil production is about one per cent of total world crude oil production while in consumption its share is about 3.1 per cent of total world consumption which necessitated massive imports of crude oil.

The import of crude oil has increased from 63 per cent in 1971-1980 to nearly about 80 per cent in 2007-2008 which is an alarming issue for the country and warrants development of alternate renewable resources. Under such circumstances, efforts have been taken by various departments of Government of India to promote non edible oil seeds in the country to augment the vegetable oil feed stock to generate biofuel.

Simultaneously large number of private sector oil and biodiesel production industries has been established across the country but for want of sustainable raw material resource availability these industries are under great threat. This facilitated promotion of tree borne oil seeds across the country and their inclusion under farm and agroforestry system.

Value Addition Industries

The wood based industries have to store the harvested raw materials during rainy season in order to have sustainable raw material availability and to sustain the industrial process during lean season. The post-harvest management of huge volume of industrial wood necessitates proper handling, storage and utilization which demand a scientific intervention in order to reduce post-harvest losses due to biological agents particularly powder post beetles and pin hole borers.

These biological agents are taking heavy toll of stored industrial raw materials which need to be addressed. Hence large number wood seasoning and preservative industries have been established to avoid post-harvest losses. Similarly, the plantation and industrial processing activities accounts for 20-30 per cent of wood residues which are either unutilized or underutilized for want of suitable recycling technologies.

These plantation and industrial wood residues have been successfully value added into briquettes and as on today many industries have been established across the country and successful value addition using plantation residues have been evidenced. These value added briquettes acted as excellent feed stock for biomass power generation industry, boiler industries and other industries requiring biomass for meeting the energy demands.

Forest-Based Industries: Challenges and Measures | Forestry

With only two per cent of the world's total forest area and 15 per cent of its human and cattle population, India encounters a critical disequilibrium in its natural resource pool. Half of the country's legal forest is deplorably degraded and deforestation occurs at alarming rate of 1.5 million ha per year till the recent past. These have ushered in not only a total mismatch between supply and demand of both domestic and industrial wood requirements but also leads to degradation of the land surface.

The forests have very low growing stock at 74 m3 per ha compared to the world average of 110 m3 per ha. Similarly, the mean annual increment is very low at less than 1 m3 per ha per year compared to the world average of 2.1 m3 per ha per year. The shortfall in forest area coupled with poor productivity resulted in dwindling supply of raw material requirements of various wood based industries.

Most of the wood based industries like pulp, paper, match and veneers are largely dependent on forest department supply but due to government policies and the promulgation of Forest Conservation Act, 1980 restricted the supply of raw material to the wood based industries which necessitated massive import of sawn timber, pulp and even newsprints.

Substantial improvement in productivity of forest resources on sustainable basis and large scale expansion of industrial linked agroforestry plantations are critically important for meeting the industrial raw material requirements besides achieving the national goal of 33 per cent forest cover. Diversification of agriculture should receive high priority as water resources are depleting.

However, tangible results can be achieved only if the farmers are offered practical, viable and economically attractive alternative land use options. Technology based farm forestry plantation with genetically improved, high yielding and fast growing clonal planting stock has tremendous potential for diversification and meeting growing shortages of industrial wood on sustainable basis. However, meticulous planning and integrated development of farm forestry and wood based industries are required to ensure regular demand and remunerative prices to the growers.

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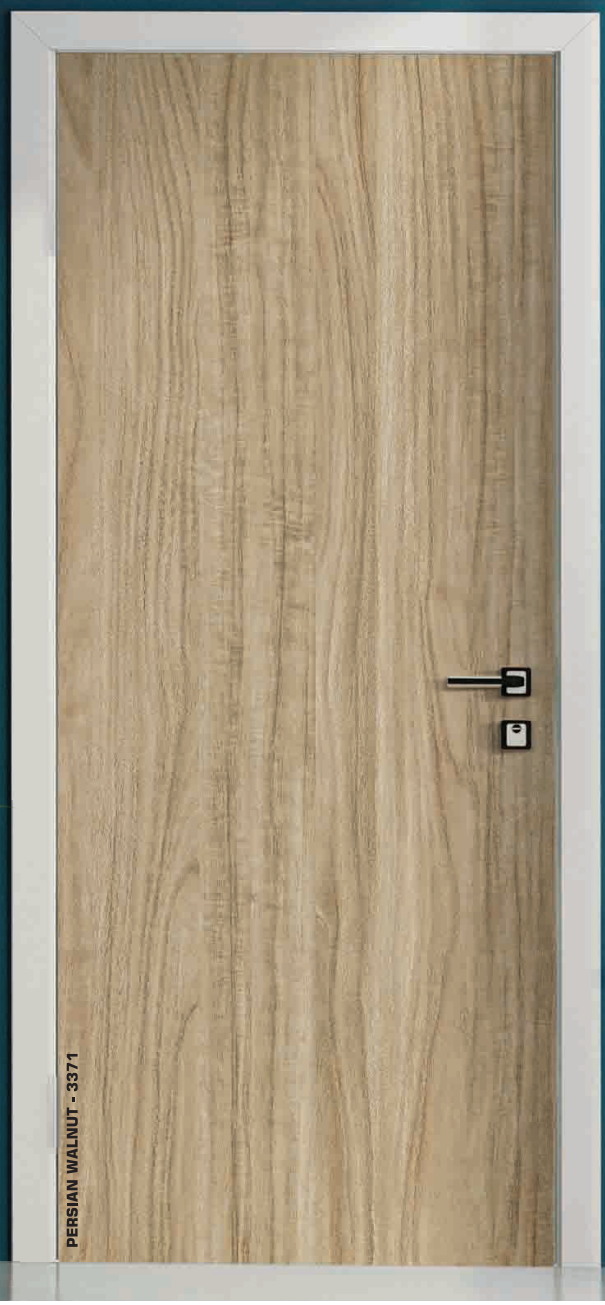

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Contract Farming Methods of Forest Based Industries

The following contract farming methods designed by Forest College and Research Institute of Tamil Nadu Agricultural University are successfully adopted and implemented by paper, match and biomass based power generation industries.

i. **Farm Forestry Method:** In this method, the industry supply the quality planting materials of site specific variety identified by the research institute to the interested farmers on a subsidized rate. The farmers in turn, develop his own plantation and obtain the needed technological support from the research institute.

   If needed, the farmers get credit facility from the financial institutions and final felling and transportation by the concerned industry. An agreement is made before the plantation establishment. In this method, the farmers grow only trees without any intercrop and mostly practiced in dry land condition.

ii. **Agroforestry Method:** The farmers raise industrial wood plantation as a major crop and grow suitable intercrops and this method is practiced mostly in garden land conditions. The other conditions are similar to that of Farm Forestry Method.

iii. **Captive Plantation Method:** In this method, the industry could develop their own plantation through land lease or benefit share model. The large land holders and the lands available with government and private sector which were unutilized for a longer period can be utilized. A minimum land size requirement of 25 acres for 1 cluster unit is needed. Once the land is identified the land holder can opt either land lease model or benefit share model.

iv. **Land Lease Model:** In this method, the land owner and the industry will have an agreement for lease amount and the lease period. The lease agreement of INR 1000 per annum for dry lands and INR 3000 per annum for garden lands is practiced. Once the lease agreement is signed, the industry will establish their captive plantation and the period of lease is for one rotation and tenable further based on mutual consultations.

v. **Benefit Share Model:** Under this method, the land owner agrees to share the benefits at the time of harvest. Accordingly, an agreement is made wherein the industry will establish the plantation at its own cost and the benefit will be shared at 70 (industry):30 (land owner) for dry lands and 60 (industry):40 (land owner) for garden lands. The benefit share is worked at the total yield of the produce.

Industrial Policy and Forest Based Industry

While establishing forest based industries, it is essential to consider precautions in order to avoid environmental disturbances. Establishment and development of forest based industries form an important part of National Forest Policy of 1988. The policy indicated the following guidelines towards establishment and sustainable functioning of forest based industries:

i. As far as possible a forest based industry should raise the raw materials needed for meeting its own requirement, preferably by establishment of a direct relationship between the factory and the individuals who can grow the raw material by supporting the individuals with inputs including credit, technological advice and finally harvest and transportation.

ii. No forest-based enterprise, except that the village or cottage level, should be permitted in the future unless it has been first cleared after careful scrutiny with regard to assured availability of raw material. In any case, the fuel, fodder and timber requirements of the local population should not be sacrificed for this purpose.

iii. Forest-based industries must not only provide employment to local people on priority but also involve them fully in raising trees and raw material.

iv. Natural forests serve as a gene pool resource and help to maintain ecological balance. Such forests will not therefore be made available to industries for undertaking plantation and for any other activities.

v. Farmers, particularly small and marginal farmers, would be encouraged to grow, on marginal, degraded lands available with them, wood species required for industries. These may also be grown along with fuel and fodder species on community lands not required for pasture purposes and by Forest Department/ Corporations on degraded forests, not earmarked for natural regeneration.

vi. The practice of supply of forest produce to industry at concessional price should cease. Industry should be encouraged to use alternative raw materials. Import of wood and wood products should be liberalized.

vii. The above considerations will, however, be subject to the current policy relating to land ceiling and laws.

Challenges of Forest Based Industries

1. Non Availability of Adequate and Quality Raw Material.
2. Lack of Quality Planting Material and Productive Plantations.
3. Poor Understanding on Value Addition Process.
4. Unorganized Supply Chain and Trade.

Measures for Better Development of Forest Based Industries

The wood based industries have faced serious challenges in terms of raw material availability, unorganized supply chain and lack of synergy among various stake holders. The legal and policy changes also created major threat to the successful running of wood based industries. Under such circumstances, the following measures will help to augment the production potential of all wood based industries besides creating sustainability in their production process.

Technology Development and Adoption:

i. Development of High Yielding Varieties and Clonal Technology.
ii. Precision Silviculture Technology.
iii. Cogeneration of Wood and Food.
iv. Value Addition Technology.
v. Designing and Promotion of Contract Farming.❑

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Century Plyboards revises growth outlook down to 6 percent for FY20

Hopes to track 10 percent growth next fiscal on new biz initiatives

Keshav Bhajanka, Executive Director, Century Plyboards

Century Plyboards (India) Ltd has revised its outlook for FY20 and is now expecting to grow at 6 per cent this fiscal. The plyboards and laminate-maker had earlier expected a "double-digit growth". The downward revision came on account of the current economic slowdown and the new initiatives taken by the company.

According to Keshav Bhajanka, Executive Director, Century Plyboards, the company should track 10 per cent growth next fiscal (FY21) with the business initiatives gaining ground.

While some initiatives like increasing distribution and pushing its mass brand, 'Sainik', have already been implemented, the company has also been working on reducing focus on the commercial veneer segment.

For the first nine months of the current fiscal (April to December), there has been a near 40 per cent year-on-year decline in turnover from the segment at Rs.37 crore (fromRs.61 crore in April-December 2018).

"It is conscious decision to reduce dependence on commercial veneer; especially since the segment is not profitable because of increased competition from Gabon (Africa) and Indonesia. Growth has been subdued in Q3 (October-December) and is expected to be decent in Q4 (January-March).

However, with different business initiatives being taken up, we should be back to 10 per cent growth in FY21," he told BusinessLine.

Century Ply reported a standalone net profit of Rs.19.09 crore in the quarter ended December, down 54 per cent over the corresponding year-ago period. Net revenue from operations for the quarter was over Rs.595 crore, an increase of 3 per cent year on year.

Laos arm

The company's Q3 earnings also took a hit on an impairment loss of Rs.46 crore on its investment in the Laos subsidiary. The loss was primarily on account of restrictions on production of semi-finished products imposed by the government there.

According to Bhajanka, the production prohibition has been in place for nearly two years now. Since there were no immediate signs of withdrawal of these restriction, it was decided to write-down investments in the subsidiary.

Growth in other sectors

Verticals like laminates, plyboards, MDF and particle board are witnessing growth.

Laminates witnessed a near 12.5–13 per cent growth for the first nine months of the current fiscal. Plyboards turnover grew 9 per cent in the December quarter and for the first nine months, the combined the growth in plyboards' turnover was 3 per cent year-on-year.

"The first two quarters (Q1 and Q2) were flat for plyboards, while Q3 witnessed growth," Bhajanka said.

According to him, the MDF segment saw 5-6 per cent price rise recently and margins have improved to 24 per cent (as against 12 per cent a year-ago). The particle-board segment saw 5 per cent revenue de-growth with the Chennai plant suffering a break-down and there being a subsequent upgrade.

"Particle board as a whole is witnessing consistent growth," he added.❑

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OFFICE MEMORANDUM

Sub: Use of wood in construction of buildings / habitat development.

The use of timber in CPWD works was banned in 1993. The Ministry of Environment, Forest and Climate Change has asked to remove the ban on use of wood in construction, since it will create demand for wood-based industries that would spur the local economy, particularly in rural areas, create large scale employment and encourage farmers and others to bring degraded areas under tree cover that, in turn, will augment production of a multitude of ecosystem services for the benefit of the country.

Wood is a versatile renewable construction material and the life cycle economic cost of timber is also often much lower. On the other hand, building materials such as steel, aluminium, PVC, glass, cement and polymers that are used in place of wood depend on non-renewable sources of raw materials with polluting and energy intensive methods of production, where as timber is naturally available.

It is appreciated now that capturing and storing atmospheric carbon in growing forests and in timber help mitigate climate change. As India has committed to an UNFCCC-NDC target of creating additional sink of 2.5-3 billion MT of CO_2 equivalent through additional forest and tree cover by 2030, raising the demand for forest products including wood so as to create a favourable investment ecosystem for planting more trees is an imperative.

Therefore, it has been decided to remove the ban on use of timber in construction and to promote its use in construction of buildings/habitat development.

This issues with the approval of DG, CPWD.

(DIVAKAR AGRAWAL)
Superintending Engineer (TAS)

(Through CPWD website)

1. All SDGs, ADGs, CEs, CPMs, SEs, PMs, EEs of CPWD and PWD Delhi.

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(DIVAKAR AGRAWAL)
Superintending Engineer (TAS)

Tightening the grip on Formaldehyde Emissions

By Szeto Hiu Yan

With Malaysia preparing to introduce regulations on formaldehyde emission in woodbased boards, the measurement and control of this chemical may be of growing interest for manufacturers in this region.

In Malaysia, the government has recommended last year for formaldehyde emission to be set at a limit of ≤ 1.5 mg/L (F**/E1 class) on imported and locally produced woodbased panels products. Even in Southeast Asian countries where formaldehyde emission levels are not regulated, formaldehyde emission standard is something that manufacturers are familiar with as many export-oriented producers have to adhere to the standards set by importing countries.

In Vietnam, for example, its main woodbased panel furniture and composite materials markets are the U.S. (40 per cent), the EU (20 per cent), India, South Korea and Japan in 2018. Of these countries, the U.S., EU and Japan have different formaldehyde emission standards to be met, and these standards are continuously revised over time.

The Effects of Formaldehyde Emissions

As the wood products industry grows rapidly in Southeast Asia, the use of formaldehyde-based resins continues to be extensive in the production of woodbased panels such as particleboard, medium-density fibreboards, plywood and oriented strand board.

According to a paper released in 2018 by the Organisation for Economic Cooperation and Development (OECD) that studied the economic valuation in formaldehyde regulation, Asia accounts for almost half (48 per cent) of global formaldehyde production, followed by Europe (23 per cent) and North America (17 per cent) in 2013. Asia is also the largest consumer (47 per cent) of formaldehyde. This could mean that Asian consumers may be at a higher risk of being exposed to formaldehyde than in countries where formaldehyde emissions levels are regulated, such as in the U.S., EU, Japan and China.

Formaldehyde exposure can be harmful to human health; not only is it a carcinogen but it can impact on female fertility, and cause respiratory conditions as well as a range of less severe, acute conditions such as skin and eye irritations.

As consumers are also becoming more health-conscious, there may be increasing demand for wood products that are better for health. The need for wood-based panel manufacturers to better meet formaldehyde emission standards may eventually be as inevitable as is necessary.

Accurately Measuring Formaldehyde Levels

IMAL PAL produces the most widely used unit for such measurements, specifically the GA300, which utilises a rapid and accurate method using gas for testing formaldehyde level and is accepted by CARB from North America.

The perforator method, known as the traditional method, will soon be phased out as it requires a highly toxic and very expensive chemical component for the test. The gas analysis method complies with the 717 standard requirements and water is used in place of chemical components.

The GA300 Lab Formaldehyde Tester

The test chambers

Testing Process Using the GA300

The GA300 apparatus for the gas analysis test permits a rapid calculation of the amount of formaldehyde released by wood-based panels. Testing is conducted to meet EN ISO 12460-3 standard requirements.

The sample, which has been suitably prepared for testing, is placed inside an airtight chamber at a controlled temperature, pressure and air flow. The formaldehyde released by the sample is collected in the controlled flow of hot air that travels through the chamber. The air containing the formaldehyde is passed through wash bottles at outfeed where the formaldehyde recombines with the water. The amount of formaldehyde contained in the water is measured using the photometric method. The result is given in milligrams of formaldehyde per square metre of board surface in one hour (mg/m2h).

Shortening Testing Time

The GA300 gas analyser rapidly provides details on the amount of formaldehyde released by the boards produced to

enable timely corrections to the production parameters. A full test using only one chamber takes approximately four hours. For faster results, using a two chamber lab tester will yield results in half the time, while a four-chamber tester will produce results every hour.

Other Advantages

- Possibility of controlling two or even four test chambers with one device.
- Each chamber is able to control temperature and air flow regulation independently.
- Test data may be printed and recorded after the analysis.
- The gas collection times and temperature regulation may be configured should any changes be introduced to standard, or for experimenting purposes.
- Besides processing the data for each analysis, the central processor is able to supply the calibration value of the spectrophotometer.
- Can be tested on particleboard, oriented strand board and medium-density fibreboard.

Source: Panels & Furniture Asia.❑

Where Colours Define Culture

Rakesh Agarwal, Managing Director, Amulya Mica briefs about the brand and its product range. (As featured in Realty Coffee Table Book – Pillars of Real Estate).

With strong bonds bearing the impression of excellence Purbanchal Laminates Pvt. Ltd, the maker of "Amulya Mica", yearns for quality and perfection and is known for providing priceless solution to its patrons. The company always follows the mantra of "constant up-gradation'.

We believe in crafting masterpieces of fine quality and unmatched perfection. Our whole endeavour is to create a niche in the market and attain the top spot in the industry. With innovation as our bedrock, we work as a team to execute our best in order to meet the changing demands of our domestic as well as foreign consumers.

To join in the ambitious national 'Make-In-India' initiative and to diversify, the company has opened a new manufacturing unit named 'Purbanchal Composite Panel (India) Pvt. Ltd, with the brand name "Amulya WPC" for manufacturing Lead Free WPC/PVC Foam Board and 900 Bendable PVC Laminate which is widely used for interior and exterior decoration. It is located adjoining the Amulya Mica Plant at Gandhidham-Kutch-Gujarat.

Amulya Mica is popular among leading designers throughout the country and its products are widely used to make stylish interiors, decorating offices, homes, shopping malls, hotels and other places with a contemporary as well as stylish design. Amulya Mica designs its laminate to enhance the look and feel of spaces.

The company has an edge over its competitors as it warranties all interior related products for 7 years if laminates are preserved under normal storage condition and 10 years warranties for exterior grade products.

The Product Range

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4. Door Skin
5. Synchronized Laminates 1.25mm
6. Amulya Cladding (with 10-year warranty)
7. Amulya Digital 1.25mm
8. Amul Plywood
9. Amulya WPC / PVC lead-free Foam Board
10. Amulya PVC 900 bendable Laminate 1.25mm

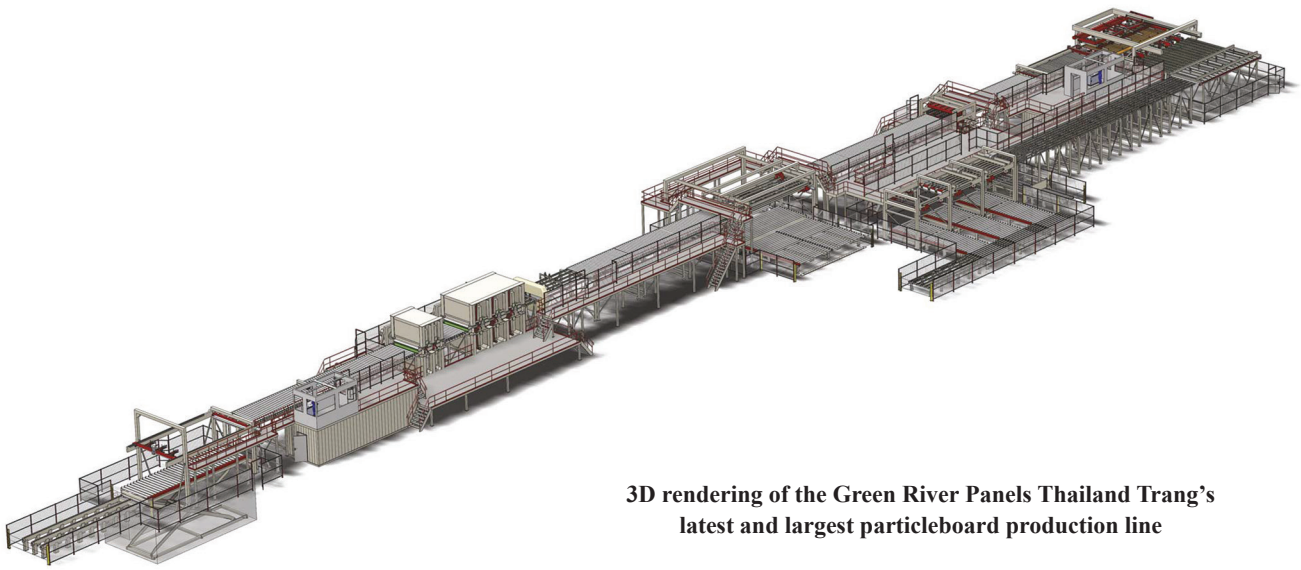
The Brand

Beginning its odyssey from Gandhidham, Gujarat in 2004, under the dynamic tutelage of its Chairman Om Prakash Agarwal & Managing Directors Rakesh Agarwal, Mukesh Agarwal and Girdhari Lal Dokania, today it has become one of the renowned names in the Indian Laminates Industry and is also emerging fast in international markets, by exporting to more than 20 countries including Dubai, U.A.E, U.S.A, London, Switzerland & Germany etc.

Amulya Mica brand is recognized as among the powerful rising brands of India and has received a number of prestigious awards by world-renowned organizations. The company firmly believes that Corporate Social Responsibility (CSR) is not just an additional function to the business. Rather, it is ingrained in our core business operation. Under CSR activities, the company carries out every year Tree Plantation.❑

Highest Capacity Particle Board Cutting Plant in South East Asia

The Southeast Asian market has always been an important market of Anthon's. One of the biggest projects over the years was the high capacity sanding and sawing plant for the new particleboard plant in Trang (South Thailand), ordered by Green River Panels Thailand in 2017. The project has once again shined a spotlight on Anthon's know-how in the fi eld of high capacity sawing systems.



3D rendering of the Green River Panels Thailand Trang's latest and largest particleboard production line

Anthon GmbH, based in Flensburg, specialises in complex machine and plant systems for the panel processing industry. Significant emphasis is placed on board sizing systems including feeding, stacking and sorting systems for a wide range of materials in the wood and building materials processing industry.

By the end of 2019, with after the successful delivery and installation of Anthon's sanding and sawing line, Green River Panels Thailand started operation of its third production line in Trang, which is also its largest particleboard production line with a sawing capacity of up to 2,800 m³/day.

All of Green River's requests and requirements have been implemented and optimised to the highest level of productivity: high capacity feeding of single boards high speed double side sanding automatic surface inspection automatic quality grading high capacity angular cutting destacking of different quality grades lowest tolerances of sanding, cutting and destacking

Anthon throughfeed saw model PVL/PVQ – a highly efficient cutting solution

PVL/PVQ, the throughfeed sawing system, is more often used to cut single boards or mini boards, compared to the pressure beam saw system. This results in significantly lower drive power of the sawing units and thinner saw blades - energy and raw materials are reduced. Currently, sawing systems are equipped with saw blades of approximately 3.0 to 4.0 mm width, whereas saw blades with twice the thickness are not uncommon with pressure beam saws. This is one of the reasons why well-known manufacturers and now, Green River Panels Trang Thailand, chose Anthon's throughfeed saws systems.

Longest, widest, highest, heaviest particleboard stack in sea

The fully automatic sanding and sawing line has been in operation at the newly built chipboard plant in Trang since the end of 2019. At this plant, up to 2,800m³/day of chipboard are sanded, sawn to various formats and destacked with the highly efficient Anthon equipment. The particleboard stack at Green River also sets the record of being the longest, widest, highest and the heaviest one in Southeast Asia. At 7.4m long, 2.5m wide, 5.0m high and weighing 60 tonnes, the particleboard stack is used to transport particleboards from the storage to the Anthon sanding and sawing line for final sizing and processing before delivery to Green River's customer worldwide.

Fully Automatic Sanding and Sawing Line

At the infeed of the line, a Storage Transport System delivers the Masterboard stack to the infeed system of the Anthon Sanding line. When the stack is lifted, a push-feeder pushes single boards onto a roller conveyor where they are accelerated to a speed of approximately 120m/min. The newest generation of a ten-head sanding machine is integrated into the line for sanding the raw boards on both top and bottom side with a single pass, according to the requested quality and thickness. The sanding machines come with an automatic thickness measurement system that measure thickness throughout the sanding process for quality control.❑

Where Passion Meets Excellence

"At Greenlam we believe in collaboration with internal and external stakeholders and we encourage learning and nurturing talent. " Parul Mittal, Director, Greenlam Industries Ltd.

Parul Mittal, Director, Greenlam Industries.

Brief on the Company's operations

With over two decades of experience in the surface décor space, Greenlam has been a pioneer in introducing the international décor trend, in India & to the international markets. Greenlam's strengths come from its product offerings, efficiencies in manufacturing, distribution network, brand equity and above all a young and motivated team of professionals. Greenlam has the largest and widest distribution network of over 14,000 distributors, dealers and retailers across the country. With 18% share in the organized domestic market, Greenlam is the largest laminate player in the country.

Greenlam's products are produced in the world class state of the art manufacturing facilities situated at Behror – Rajasthan and Nalagarh – Himachal Pradesh. Greenlam is an environmentally responsible company that takes the role of a leader with the belief of leading by example.

Some of the distinct products of the Company

- **Laminates:** Greenlam's laminates come in variety of forms to suit various needs. From standard to speciality laminates, you can now choose from plethora of options. Our laminates are of high quality which also makes the surface look rich and stylish.
- **Standard High Pressure Laminates (HPL) –** These are Tough and easy to look after surfaces with Anti-Bacterial protection for everyday use. They come in a plethora of options such as solid colours, wood looks and mineral effects for a variety of spaces

Speciality Laminates

- **AFX:** Anti-fingerprint laminate which makes the surface impression free. This laminate makes the surface non-porous and hydro-repellent making it easy to clean of impurities and grease mark.
- **Unicore:** These are easy to look after surfaces that hide scratches and bring Anti-Bacterial protection. They come in beautiful solid surfaces with colour running throughout to give a pure and chic finish.
- **HD Gloss:** They come in super shine surfaces in fabulous colours and wood designs. Being twice the abrasion resistant, they are also antibacterial.
- **Reflection:** These are custom digital laminates which have patterns digitally printed on them. One can also get their own design converted into laminate.
- **Chalk and Marker Grade:** Chalk-board surface ensures perfect continuity in chalk marks for hassle free and readable writing and surface colour renders excellent contrast against chalk marks.
- **Other:** Doors, Anti-Static, Fire Retardant, Post forming Laminates Standard Compacts: These laminates are easy to assemble with no edging or adhesive needed and are ideal for both horizontal and vertical surfaces.

Speciality Compact

- **Lab Guardian:** Specially developed chemical resistant to shield surfaces from chemical attack.
- **Sandwich Compact:** Self-supporting properties with greater dimensional stability and flatness
- **Interior Grade Cladding:** These are tough and easy to look after surfaces with Anti-Bacterial protection for everyday use.
- **Exterior Grade Cladding:** These bring added colour to outside spaces with durability and resilience to withstand years of outside use Restroom Cubicles and Locker Solutions.These perform exceptionally well even in heavy traffic areas under high moisture and high humid conditions.

The company also offers end to end surfacing solutions spread across decorative veneers, engineered wooden floors and engineered wooden doors under the name of Decowood and Mikasa within the umbrella brand of Greenlam Industries Ltd.❑

#DontBecomeFurniture during this lockdown!

Manoj Tulsian, Joint Managing Director & CEO of Greenply Industries updates on the measures adopted by industry giant to combat the global pandemic, Covid 19 in an interview with Wood & Panel

The ongoing Covid – 19 pandemic has disrupted the way a company function. What support is available from your company with regards to statutory lockdown?

As per the guidelines of the government, we fall into the category of non-essential goods; hence we had to shut down our operations. However, we have ensured safety and well-being of our employees through various initiatives focusing on health and hygiene practices that one can do at home during and post Covid-19, sanitized our factories, disinfectants were used, we provided masks, factory workers were provided food packages and groceries and we utilized our office canteen to give away food to the workers and their family members. We are in touch with our traders' community, continuously communicating with our employees and other business partners.

I believe that we will all come out stronger.

What internal precautions have you taken so far?

Economic cycles cannot be planned for and certainly not with a black swan event like the global pandemic impacting every segment of the economy. It is worth noting that businesses which has a long-term purpose should not get rattled with short term mishaps completely outside their control.

Economic slowdown will prevail for the next few quarters and we have prepared ourselves with a rebalanced business model including revalidating target segments, risk management practices, treasury operations, continuous communication with the traders community, strategizing our sales and distribution while optimizing costs and human capital.

What about the supply chain? How are you addressing the challenges?

Before the lockdown we had inventory and orders for our products. But once the complete lockdown started since our

products ar not categorized under 'essential goods' we could not deliver our orders. Since lockdown has been partially lifted, we are delivering goods on limited basis.

Digital technology is something one must adopt to cope up this crisis. Where do you place yourself when it comes to digital technology?

As the entire Indian economy grapple with the impact of Covid-19 and its implication on business, we have taken measures and imbibed digital methodologies to continue our business. At corporate level we are organizing regular video conference for the training and overall development of our internal sales team.

We have initiated training session for our business partners such as dealers and distributors, zone wise with our officials training them in presence of the product heads, regional heads, zonal managers and factory officials for holistic transfer of knowledge and in-depth training and development followed by a question and answer session to clear any doubts that might have about the product policy or processes.

We are conducting a few digital campaigs during this time to help our consumers during the lockdown. One of our campaign is #DontBecomeFurniture wherein we are asking people to share with us how they are utilizing their furniture to the fullest during this time. For example – tables are not just for eating meals but maybe to play board games with the family, how chairs can be effectively used for exercise and staying fit. Another campaign that we have recently conducted is that - # On The Greener Side- wherein at regular interval we share various positives insights and activities that can help people to stay away from chaos and crisis.

How long will it take for the market to recover considering our industry does not fall into the category of essential commodity?

While corona is a global pandemic and the situation is beyond the control of mankind, I estimate it would take couple of quarters to recover but I am optimistic that the plywood sector will bounce back soon.

Source: Wood & Panel Europe.❑

In Conversation with

Madhusudan Lohia, Director, Merino Group

In an exclusive interview with Wood & Panel, Madhusudan Lohia, Director, MERINO Group spoke on the current state of affairs within the group. Over the years, the Group graduated from being a product manufacturer to an interior solution group with an array of products for all kinds of the surfaces

What internal precautions you have taken as the Merino Group?

We are following every mandate that has been prescribed by Government. If we are asked to shut plants or offices, we have and when we have to restart we will start again with the appropriate norms practicing social distancing and definitely with the right kind of sanitization. Everybody who is staying within the plant premises are made aware of the lockdown scenario, so we are doing everything that is required.

The lockdown has disrupted the way a company functions. What support is available? Is you customer care and after sales service still open?

Yes, we are always available over the phone. So, we are in touch with the customer and suppliers and stakeholders as well

How has the lockdown, 1.0,2.0 and now 3.0, has this affected your business as furniture industry and laminates industry are not among the essential services?

Yes, we had to shut some of our plants. In fact, all the plants for furniture and for laminates had to shut down during Lockdown 1.0. Following that, some ease and some permission were given to us now during recent in Lockdown 2.0. We have started off following every safety measures we had to take. Also, one of our plants is still not operational because we did not get the permission to do that.

Digital technology is something one must adopt to cope up with this crisis. So, where do you place yourself when it comes to digital technology?

We at Merino have already been investing into digital technology since the last year or so. I think it becomes even more important now in order to integrate and channelize the different digital platforms which we are using. I will add to it all the electronic and digital platforms which we are using. So we are all planning for this kind of integration which is happening right now within Merino

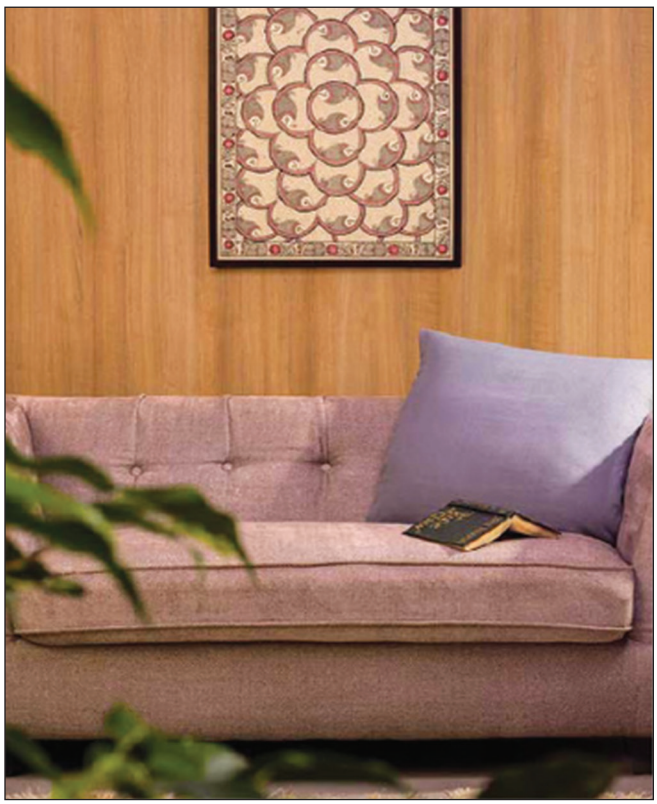
Coming to market recovery, as you are one of the pioneers of the woodworking industry, can you tell how long it will take?

It is a very difficult question and I think this can be re-asked every week and some evolution in the answer would be there! I don't think, too much is happening in the first quarter of

the Indian financial year. I don't know how the second quarter would pan out but it's not going to be easy for sure! But so far what we have seen both the human race as well as Indian is quite resilient. The bounce back will be there but we just cannot measure for sure as to how long it will take because also the furniture industry will perhaps bounce back in a different way. The laminates industry which is a supplier to the furniture industry and specially caters to a large segment of unorganised market also how that will get affected we are not sure yet, but yes parts of the whole business may bounce back faster and a part of business may take a little longer time to bounce back. But of course we have to remain prepared!

Many important trade show are also getting cancelled and postponed around the world. So, what do you think since these trade shows are very important places for face to face meetings but these are not happening now?

Well, face to face meetings in some cases will remain very important but the kind of face to face meetings that used to happen before will become like screen to screen meetings: a face in front of screen and another face also in front of screen. We



will see use of much more digital technology. In India, we went into Lockdown in mid March and it's now going upto mid May. So, two months is actually a pretty long time and good enough to start altering habits. So, we are getting used to working on video conferencing and more of teleconferencing and seeing it's productive and yes, we are experiencing things still happen. I am sure this will lead to what people are talking about new normal. I would not be so radical as things will absolutely change but definitely there is going to be an evolution and disruption against what used to normally happen. So there will be a new normal and we should understand that face to face meetings will probably be reduced on the business forum to some extent, at least.

Source: Wood & Panel Europe.❑

A New Way to Design and Build Our Houses and Cities at The Madrid Design Festival

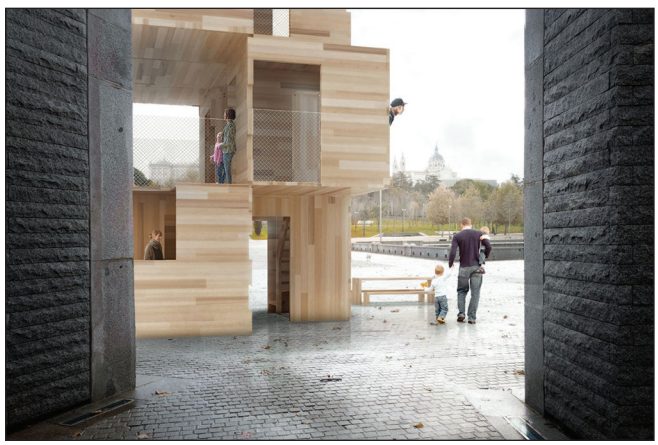
MultiPly, an eight-meter-high, carbon neutral, timber pavilion, made exclusively from American tulipwood, has opened to the public in Madrid Rio at its entrance to the Casa de Campo, as part of the Madrid Design Festival. The installation was unveiled on the 1st of February and will remain open for two weeks. A collaboration between Waugh Thistleton Architects, the American Hardwood Export Council (AHEC) and ARUP, MultiPly responds to two of the greatest challenges of our time: the growing need for housing and the urgency to fight climate change, presenting as a solution the combination of modular systems and sustainable building materials.

"MultiPly is comprised of a maze-like series of interconnected spaces that overlap and intertwine. It has been conceived and constructed to encourage visitors to re-think the way we design and build our homes and cities. The three-dimensional structure is constructed from a flexible system of 12 cross-laminated timber (CLT) modules of American tulipwood with digitally manufactured joints, as if it were a piece of furniture ready to assemble. More importantly, the 32 cubic meters of tulipwood used for MultiPly stores the equivalent of 22 tonnes of carbon dioxide and is naturally replaced with new growth in the U.S. forests in less than two minutes," said Roderick Wiles, AHEC Regional Director.

Because it is composed of modules, the construction can be disassembled and reassembled. It was first shown as a part of the London Design Festival in 2018, in the Sackler Courtyard of the Victoria and Albert Museum, then outside the Building Centre in London with New London Architecture, and then at the Universite deglie Studi di Milano, as part of Interni's 'Human Spaces' exhibition at Milan Design Week 2019. Multiply is currently on display in Madrid for its fourth iteration.

"The main objective of this project is to publicly discuss how environmental challenges can be addressed through innovative and affordable construction," said Andrew Waugh, Cofounder of Waugh Thistleton Architects - a practice that has been at the forefront of engineered timber construction for decades. "We are at a point of crisis in terms of housing and CO2 emissions and we believe that building with a versatile and sustainable material such as tulipwood is an important way to address these problems."

In 2018, the population of the Eurozone's fastest growing major economy, Spain, increased to 47 million - the fastest annual growth since 2009. In order to keep up with population growth in ever-expanding cities, in a way that is not harmful to our planet, it is crucial to utilize new technologies that use sustainable materials. Off-site timber construction, that can provide quick-to-assemble, high quality housing with low carbon emissions, provides a viable solution.



"MultiPly uses a wood engineering technique known as cross-laminate where boards of one layer are placed perpendicularly to the boards of the next layer and glued to form very strong, rigid and stable panels. CLT has been traditionally manufactured with coniferous wood. However, AHEC and Arup have been experimenting with cross-laminated American tulipwood for a decade, which is a fast-growing abundant hardwood that constitutes 7.7 percent of the total volume of

standing timber in the hardwood forests of North America," added Wiles.

Research and projects have shown that, by comparing identical weights, CLT tulipwood is stronger than steel and concrete and can be machined with incredibly high precision. This makes it ideal for prefabrication and rapid assembly, reducing construction times by around 30 percent. Tulipwood is an economical and easy to machine timber and incredibly strong for its weight. The use of tulipwood CLT means that large-scale wooden buildings can be built without the use of concrete or steel. These properties, together with its impressive appearance, make tulipwood a perfect pioneer for innovative wood construction.

"The Madrid Design Festival has built its identity around the theme - Redesigning the World. In its third year, the festival takes a step further to boost the visibility of this 'world under redesign' by adding new ideas, venues and institutions to enrich a dialogue that will stimulate the creation of a design culture, from Madrid for the entire society. MultiPly fits in perfectly with the overall theme of the festival given that it explores a new and more sustainable form of construction that combines an abundantly available carbon negative material, and we hope this inspires how we design and build our houses and cities going forward," concluded Wiles.❑

Greenply Industries launches Green Club Plus Seven Hundred

Championing the cause for interior and exterior plywood for healthy homes, plywood major – Greenply Industries Limited, launched all new Green Club Plus Seven Hundred, a first-of-its-kind zero emission plywood in India, a unique product with a brand promise to provide healthy homes with superior strength, with no undulation and 7 times money back guarantee on manufacturing defects. The emission-free plywood used for making furniture, partitions, paneling, false ceilings and other interior applications conforms to E0 grade emission standards. It offers safer air quality in interior spaces and healthy homes.

Green Club Plus Seven Hundred

2 in 1 power:

- Structural grade as per IS 10701
- Fire retardant properties as per IS 5509

Packed with features:

- Zero emission plywood
- Anti-bacterial coating
- Additional 2 layers of thickness
- Penta (5) tech
- Acoustic properties
- Extended BWP resin
- CE European conformity
- 100% composed core
- Fully preservative treated
- Boling waterproof

Speaking on the launch, Mr. Sanidhya Mittal, Joint Managing Director of Greenply Industries Limited said, "We always strive to craft products that are safer for our consumers and with increasing awareness on the benefits of healthy living among our consumers, it is imperative that we not only offer good quality products but align ourselves to the specific interests of our customers. Through Green Club Seven Hundred, we ensure that the interior of the home is healthy, emission free and have crafted a plywood that cares. Today consumers need more than just a beautifully designed interior space and through our product offering, we cater to that consumer need."

Green Club Plus Seven Hundred brings plethora of properties together. It is a structural grade plywood as per IS 10701 and possesses fire retardant properties as per IS 5509 making it the first ever twin power plywood with multiple benefits including anti-bacterial coating, additional layer of thickness and conforming to CE, makes this an ideal choice for residential, hospitality and healthcare sector.

Green Club Plus Seven Hundred equipped with Penta (5) Tech, ensures there is no core gaps and no overlaps. It is available across the country through well entrenched distribution network.❑

Pandemic Pandemonium in the Tropical Timber Sector

Measures to contain COVID-19 are having devastating impacts on the tropical timber sector.

Virus-affected: A wood-processing factory in Viet Nam. Timber enterprises in many tropical countries have reduced production, and some have closed.

Tropical timber producers are facing a crisis due to the measures taken to contain the spread of COVID-19. Some governments have instituted total lockdowns, others have restricted movement and others have adopted less stringent approaches. An ITTO survey of stakeholders shows that the measures are having devastating impacts on the tropical timber sector.

Impact of pandemic—early results of a survey

Correspondents in Brazil, Ghana, India, Indonesia, Malaysia, Myanmar and Viet Nam writing for the twice-monthly Tropical Timber Market Report (a product of ITTO's Market Information Service—MIS) were asked in April to use their networks to seek answers to questions on the impacts of the pandemic. Highlights from the responses received are provided below, with the full results available in the Tropical Timber Market Report 24(7), published on 16 April 2020.[1] The same questions have been distributed to members of the ITTO Trade Advisory Group (TAG), and their responses will be compiled and made available on the ITTO website and in the Tropical Timber Market Report in due course.

Africa

There is no clear picture on how the pandemic is affecting timber companies in Africa. Almost all countries are reporting cases of COVID-19 and, as the number of infections grows, more countries are finding that the virus has spread beyond the main cities.

Considerable variation in responses to the pandemic in African countries makes analysis difficult. What is certain is that jobs are being lost, and African economies will seea drastic drop in export earnings from the timber sector in coming months.

ITTO MIS correspondents report that sawmills in Cameroon are unable to operate. There is a lockdown in the Democratic Republic of the Congo, although some timber companies there have authority to continue operations. A similar situation prevails in the Congo, where some companies are still in production. Correspondents report that timber shipments are continuing from Equatorial Guinea, despite a "national state of alarm" declared there.

Mills in Ghana with available raw materials and outstanding orders are maintaining production, although government-driven COVID-19 containment measures are restricting movement in Accra and Kumasi. Workers in the timber sector outside the cities have not yet been laid off, and mills outside the lockdown zones are producing for both domestic and international markets. The ITTO MIS correspondent for Ghana reports that, should the virus be brought under control and measures lifted, the time needed to ramp up production to pre-crisis levels will vary by company and the number of orders held. Nevertheless, "all things being equal with raw-material availability," he says, "production levels could be raised [back to pre-crisis levels] within three months."

Asia

Malaysia's lockdown, which started on 17 March 2020, has been extended to 28 April. This requires everyone to self-isolate at home, and only essential services are allowed.The correspondent for Malaysia reports that production in the forestry and timber sector has slowed drastically, and trade associations are negotiating with authorities to allow at least partial operations. Some states, such as Sarawak and Johor, have permitted scaled-down manufacturing operations.

A survey of members by the Muar Furniture Association found that the cash reserves of 48% of factories had been exhausted by March 2020. Thirty-eight percent of members indicated that they anticipate losing MYR 1 million–5 million in the next six months, and most members thought the government's support package would be inadequate to enable them to maintain their businesses.

The ITTO MIS correspondent for Indonesia reports that most wood industries in that country are still operating but are slowing production. Some factory operations will continue for the next few months because Indonesia has implemented only a semi-lockdown in Jakarta, beginning 10 April, to be followed by a lockdown in West and East Java in the near future.

Slower production is due to the postponement of orders by importers in Europe, the United States of America and some Asian markets. Nevertheless, Indonesia's 2020 first-quarter wood product exports were not seriously affected by the pandemic. On the time required to ramp up production in Indonesia to pre-crisis levels (should conditions stabilize), the consensus is that it could be more than one year, assuming that the government provides the industry with incentives, such as reduced taxes and low interest rates.

According to media reports, the Secretary General of the Indonesian Furniture and Crafts Industry Association, Abdul Sobur, said that, in addition to the thousands of workers laid off

[1]*The information in this article was current as of mid-April 2020. The situation is highly dynamic and subject to change. Subscribe to ITTO's Tropical Timber Market Report for updates.*

in the retail, hotel, and restaurant sectors, furniture manufacturers have indicated that they have had to (or soon will) lay off some 280 000 workers.

In Myanmar, COVID-19 and measures to combat it are hurting small businesses, and the informal sector is particularly hard hit. Myanmar celebrated its national New Year holiday on 10 April, and all factories were open until then. In response to the pandemic, however, the government has urged "voluntary home stay" and suspended domestic travel. Some orders have been postponed in the timber industry, but it is difficult to get accurate information. Should the virus outbreak be brought under control, it is estimated that the sector will need at least two months to raise production to pre-crisis levels.

The COVID-19 pandemic is having a devastating impact on the timber sector in Viet Nam. The situation is changing fast, and the worst is still to come. Responding to a questionnaire circulated by VIFOREST and its associates, 76% of enterprises said they are facing losses estimated at VND 3.066 trillion (around USD 130 million); only 24% of surveyed enterprises said they are not yet affected financially. More than half of respondents said they have had to reduce production; 35% of enterprises assume that their businesses can be maintained for some time, but closures may be inevitable in the near future; and only 7% of enterprises remain fully operational. The survey also revealed that about 45% of workers in the wood-processing sector have lost their jobs due to the pandemic.

India has extended its lockdown until 3 May 2020 and imposed strict measures to fight the pandemic. India's economy is at a standstill, and unemployment is at about 20%—although this doesn't include millions in the informal sector now without incomes.

Indian ports are closed to both imports and exports. Containers cannot move because, in most cases, the receiving ports are closed. Import containers are waiting to be offloaded and transported, but workers cannot travel. Until restrictions are lifted, nothing can move.

South America

The economic impact of COVID-19 and the measures adopted to slow its spread are having a huge impact in Latin American countries. Brazilian manufacturing activity declined in March at the fastest rate in three years. This has damaged small and medium-sized enterprises, especially those in the informal sector, with lockdown restrictions and containment measures meaning that most workers in the sector are now without incomes. Brazil's pulp and paper sector continues to operate, but the production of solid wood products varies by state and municipality. Most states have no significant restrictions, but some municipalities have completely halted industrial operations. The government has made provisions to mitigate the impacts of worker lay-offs. To date, few timber companies have laid off workers, but the effects of the virus and associated measures are only starting and will intensify in coming weeks. Some domestic and international orders have been cancelled, invoking force majeure.

Forestry and timber operations in Peru have been paralyzed by the nationwide lockdown, which was announced 16 March. All activities in the sector have stopped until further notice.

Road to recovery

These are extraordinary times, and extraordinary measures will be needed to reverse job losses and rebuild revenue flows in the tropical timber sector. The ITTO survey of TAG members, currently underway, will deliver additional information on the impacts of the pandemic in the tropical timber sector. This will help generate ideas on how best to assist in the recovery of jobs, production and exports in ITTO's tropical timber-producing member countries—when the worst of the impacts of COVID-19 have passed.❑

Indian Woodworking Industry

India is a growing economy at a rate of 7.3% and there are multiple policies in effect to encourage business owners to be in the driver's seat. Some of the policies which positively impact the furniture manufacturing industry are specialized agencies for MSME loans, Credit Guarantee Fund Schemes, Foreign Direct Investment etc. The Government of India raised the tax deduction limit to 3.5 Lakhs on the interest paid on home loans upto March 31, 2020 for the purchase of a house value up to Rs.45 lakh. The Government also approved the construction of nearly 1.4 lakh more houses under the Pradhan Mantri Awas Yojana, taking the total number of houses to be built under the scheme to more than 85 lakh expected to drive furniture and laminates demand.

Indian plywood market reached a value of US$ 4.6 billion in 2019. India is the second largest urban community in the world and urbanization is likely to increase from 34% to 40% by 2030 catalysing laminates offtake.

In the past decades the expenditure on furniture has increased as a result of increasing incomes, urbanization, investment in real estate, western influence, etc. Moreover, the introduction of new designs and diverse product range of furniture have further helped in creating a demand among the consumers. Expanding distribution network and exclusive outlets of furniture manufacturers in the region has also helped in influencing the market for plywood. Looking forward, IMARC Group expects the Indian plywood market to exhibit moderate growth during 2020-2025.

With GST rationalization on plywood from 28% to 18%, organized plywood players are hopeful of increasing their market share. The price gap between organized and unorganized players could narrow to ~20% from the earlier 30-35%, helping large organized players carve out a larger sectoral share.

However, given the current global pandemic, Indian industries has taken a backseat. India enforced lockdown of the entire country starting March 24, 2020 which is still continuing and expected to continue till the middle of July as per reports. The nationwide lockdown leading to the closure of the factories and business has brought a severe toll in the Indian economy.❑

Stronger than steel, able to stop a speeding bullet – it's super wood!

Some varieties of wood, such as oak and maple, are renowned for their strength. But scientists say a simple and inexpensive new process can transform any type of wood into a material stronger than steel, and even some high-tech titanium alloys. Besides taking a star turn in buildings and vehicles, the substance could even be used to make bullet-resistant armor plates.

Wood is abundant and relatively low-cost—it literally grows on trees. And although it has been used for millennia to build everything from furniture to homes and larger structures, untreated wood is rarely as strong as metals used in construction. Researchers have long tried to enhance its strength, especially by compressing and "densifying" it, says Liangbing Hu, a materials scientist at the University of Maryland, College Park. But densified wood tends to weaken and spring back toward its original size and shape, especially in humid conditions.

Now, Hu and his colleagues say they have come up with a better way to densify wood, which they report in the February 7 Nature. Their simple, two-step process starts with boiling wood in a solution of sodium hydroxide (NaOH) and sodium sulfite (Na2SO3), a chemical treatment similar to the first step in creating the wood pulp used to make paper. This partially removes lignin and hemicellulose (natural polymers that help stiffen a plant's cell walls)—but it largely leaves the wood's cellulose (another natural polymer) intact, Hu says.

The second step is almost as simple as the first: Compressing the treated wood until its cell walls collapse, then maintaining that compression as it is gently heated. The pressure and heat encourage the formation of chemical bonds between large numbers of hydrogen atoms and neighboring atoms in adjacent nanofibers of cellulose, greatly strengthening the material.

The results are impressive. The team's compressed wood is three times as dense as the untreated substance, Hu says, adding that its resistance to being ripped apart is increased more than 10-fold. It also can become about 50 times more resistant to compression and almost 20 times as stiff. The densified wood is also substantially harder, more scratch-resistant and more impact-resistant. It can be molded into almost any shape. Perhaps most importantly, the densified wood is also moisture-resistant: In lab tests, compressed samples exposed to extreme humidity for more than five days swelled less than 10 percent—and in subsequent tests, Hu says, a simple coat of paint eliminated that swelling entirely.

A five-layer, plywood like sandwich of densified wood stopped simulated bullets fired into the material—a result Hu and his colleagues suggest could lead to low-cost armor. The material does not protect quite as well as a Kevlar sheet of the same thickness—but it only costs about 5 percent as much, he notes.

The team's results "appear to open the door to a new class of lightweight materials," says Ping Liu, a materials chemist at the University of California, San Diego, unaffiliated with the Nature study. Vehicle manufacturers have often tried to save weight by switching from regular steel to high-strength steel, aluminum alloys or carbon-fiber composites—but those materials are costly, and consumers "rarely make that money back in fuel savings," Liu says. And densified wood has another leg up on carbon-fiber composites: It does not require expensive adhesives that also can make components difficult, if not impossible, to recycle.

Densified wood provides new design possibilities and uses for which natural wood is too weak, says Peter Fratzl, a materials scientist at the Max Planck Institute of Colloids and Interfaces in Germany who did not take part in the study. "Instead of creating a design for the material at hand, researchers can create a material to suit the design they want," he says, alluding to a familiar process among aerospace engineers who have a long history of developing ever-stronger alloys to meet their needs.

One possible obstacle to the widespread use of densified wood will be engineers' ability to scale up and accelerate the process, Liu notes. Hu and his team spent several hours making each coffee-table book–size slab of densified wood used for testing. But there are no practical reasons the process could not be sped up or used to make larger components, Hu contends.

Although Hu and his team have sought to enhance wood's strength, other researchers have pursued more unusual goals—such as making it transparent. One team, led by materials scientist Lars Berglund at the KTH Royal Institute of Technology in Stockholm, has come up with a way to make windowpanes of wood. The first step in that process (as in Hu's) is to remove lignin, a substance that not only stiffens wood but also creates its brownish color. The researchers infuse the lignin-free wood with a polymer called methyl methacrylate (MMA), a material better known by trade names such as Plexiglas and Lucite.

Because MMA's index of refraction (a measure of how much it bends light) matches that of the lignin-free wood, rays of light pass right through the MMA-infused composite instead of getting bounced around inside empty cells. This renders the material remarkably clear. Berglund and his team described their feat two years ago in Biomacromolecules. Coincidentally, at the same time Hu and his colleagues were also developing a method for rendering wood transparent.❑

India plywood and laminates market to expand with growing urbanization in the nation by a cagr of 4.83% throughout 2019-2027

Research Nester has released a report titled "India Plywood and Laminates Market –Demand Analysis & Opportunity Outlook 2027" which also includes some of the prominent market analyzing parameters such as industry growth drivers, restraints, supply and demand risk, market attractiveness, year-on-year (Y-O-Y) growth comparisons, market share comparisons, BPS analysis, SWOT analysis and Porter's five force model.

The Ministry of Housing and Urban Affairs of the Government of India, stated in one of its statistics that out of the total population as recorded in the 2011 census, 31.16% of the population live in the urban areas.

The statistics portray the growing urbanization in the country which is considered as one of the key factors for promoting the growth of the India plywood and laminates market. Individuals shift to urban areas for a source of living. As such, people shift from farthest of the remote rural areas to the urban cities. Backed by the growing economy of the nation and the rising household disposable income, there is a rising demand amongst people living in the urban areas for furniture and other modern wooden products. The rising demand for furniture from the consumers will need the furniture manufacturers to increase their production scale. Moreover, supportive low and affordable housing facilities by the government of India to the citizens of the nation is also anticipated to raise the demand for plywood and furniture. Additionally, the change in tax reforms by the implementation of goods and service tax (GST), which has lowered the price difference between the organized and unorganized sectors are some of the factors anticipated to drive the growth of the India plywood and laminates market.

The India plywood and laminates market, which was valued at USD 4790 million in the year 2018, is anticipated to grow at a CAGR of 4.83% during the forecast period, i.e. 2019-2027. The market is thriving on the back of rising focus of the government for low cost housing and infrastructure development, rising demand for plywood and laminates in various end user industries, growing construction industry and increasing urbanization are some of the factors anticipated to contribute significantly towards the growth of the India plywood and laminates market in the upcoming years. Further, the market of plywood and laminates in India is anticipated to reach a market value of USD 7323.3 million in the year 2027.

However, concern for the impact on overall production cost of the manufacturer on account of the challenges faced with the unavailability of certain raw materials used in the manufacturing of plywood and laminates are some of the factors estimated to act as a barrier to the growth of the India plywood and laminates market.

The report also studies existing competitive scenario of some of the key players of the India plywood and laminates market, which includes profiling of Greenlam Industries Limited (NSE: GREENLAM), Greenply Industries Limited (NSE: GREENPLY), Century Plyboards (I) Limited (NSE: CENTURYPLY), Uniply (NSE: UNIPLY), Duroply Industries Limited (BOM: 516003) and National Plywood Industries Ltd (BOM: 516062).

The profiling enfolds key information of the companies which comprises of business overview, products and services, key financials and recent news and developments. Conclusively, the report titled "India Plywood and Laminates Market –Demand Analysis & Opportunity Outlook2027", analyses the overall India plywood and laminates industry to help new entrants to understand the details of the market. In addition to that, this report also guides existing players looking for expansion and major investors looking for investment in the India plywood and laminates market in the near future.❑

Asia's largest timber industry incurs Rs 1,500-crore loss due to coronavirus

Every year, Kandla based timber industry imports around 40 lakh cubic meter of timber from different countries, which is over 65% of India's total timber import.

With almost 70% timber units shut down, even after the government's nod to run business operations, Asia's largest timber cluster in Gujarat, situated near Kandla port, may take a year to function normally. The industry, which flourished in the bordering Kutch district, has already incurred loss of Rs 1500 crore since the lockdown was announced first from March 25. According to sources, the Rs 10,000-crore industry's loss is constantly increasing in absence of buyers based in states like Rajasthan, Punjab, Delhi, Uttar Pradesh, Bihar, Madhya Pradesh and parts of Maharashtra.

Although the government has decided to grant permission to recommence operation of sawing mills and plywood units after the implementation of lockdown 2.0, most of the timber units are still closed as demand has gone down by nearly 80%. Even after the rise in demand in coming days, it would be difficult for the sawing mills as well as plywood manufacturers to start in full swing as the exodus of migrant labourers has started. There are nearly 2,000 saw mills and more than 100 plywood units in the proximity of Kandla port where 80,000-1,00,000 labourers are employed directly. Most of them are migrant workers from Odisha, Andhra Pradesh, Bihar, Uttar Pradesh and Rajasthan.

"In absence of buyers hardly 30% units are functional in Kandla-Gandhidham area that too with limited capacity. For the first 40 days of ongoing lockdown, the owners of timber units somehow persuaded labourers to wait.

"Now, the migrant labourers have become impatient over the prevailing uncertainty over Covid-19 pandemic. Since last 10-12 days, 50% of the labour force went back to their native places and more are in the process to return to their home-states," says Navneet Gajjar, president of Kandla Timber Association (KTA). He adds that looking at the situation, it would take at least a year to bring normalcy in the industry as those labourers who have gone back to their states wouldn't come in next 4-5 months. Every year, Kandla based timber industry imports around 40 lakh cubic meter of timber from different countries, which is over 65% of India's total timber import.

"Those who had given import order before March 25 are in complete mess as their goods are coming at Kandla port. With work at sawing and plywood units have coming to a halt, these importers are not able to receive the timber due to liquidity crunch," says Gajjar. The importers are supposed to pay 18% GST and 5% import duty, he says, adding that in case of non-payment the imported timber would go to custom bonded warehouses. Post lockdown, nearly 3 lakh cubic meter timber is lying in these warehouses, he lamented. Sooner or later, the importers will have to release timber from these government warehouses and at that time they need to pay extra money in form of ground rent, he adds.

Most of the sawing mills and plywood owners in the district believe that in order to restore normalcy, the government should reduce GST from 18% to 5% as relief to the timber industry due to such an unprecedented situation.❑

Yamunanagar's famous timber market reopens after over 2 months

North India's major timber market in Yamunanagar district of Haryana has opened for the first time since the lockdown was imposed in March to control coronavirus infection, traders said. More than 20 per cent of units resumed work on the first day of reopening on Monday, traders said, adding that they were following all the guidelines of the state government in view of the COVID-19 pandemic. The first day of reopening also saw a drop in the price of poplar, the basic raw material for manufacturing plywood, to Rs 750-800 per quintal from its usual rate of Rs 900-950 per quintal. Around 350 to 400 trolleys arrived in market on Monday against about 800 to 900 trolleys that used to come in the market daily before the lockdown, traders said. Traders also said that a chemical which is used in the manufacturing of plywood is not available as per the demand. President of Yamunanagar Timber market Association Shubham Rana advised farmers to follow the COVID-19 guidelines and should bring poplar as per market demand so that they can get the appropriate rates of their produce.❑

CenturyPly forays into Indian e-commerce market by joining hands with Flipkart

This is a first of its kind association where a building material company has stepped into the e-commerce space to cash in on the spike in online shopping and digital consumption post the pandemic outbreak, said a press statement issued by the company.

Century Plyboards (India) on Thursday announced its foray into the Indian e-commerce platform by entering into an agreement with Flipkart. This is a first of its kind association where a building material company has stepped into the e-commerce space to cash in on the spike in online shopping and digital consumption post the pandemic outbreak, said a press statement issued by the company. To begin with, the company's product line namely Club Prime, Sainik 710 and Sainik MR will be available on Flipkart. With time, it intends to offer more variants on the platform. Initially, the products will be exclusively available for consumers in Bangalore, Hyderabad and Chennai. Subsequently, the company plans to foray into other cities. Explaining the rationale behind the move, Century Plyboards panel division - President Navarun Sen said: "Consumers sometimes get duped while buying plywood from offline retail market due to presence of duplicate products in market. The agreement will address the issue of authenticity and quality as consumers will buy directly from CenturyPly NSE 1.58 %." Through its association with Flipkart, the company is aiming to reach the net savvy consumers.

Kolkata based Century Plyboards has manufacturing units at Kolkata, Chennai, Guwahati, Karnal, Kandla, Myanmar and Laos. It manufactures the entire range of commercial, marine, shuttering and decorative plywood, laminates, veneers, doors, MDF, prelam, fibre cement boards, PVC sheets, faceveneers as well as exteria exterior laminates.❑

India may impose anti-dumping duty on certain kind of fibre boards imported from Vietnamese company

The companies filed an application before the ministry's Directorate General of Trade Remedies (DGTR) for initiation of anti-dumping investigations on imports of plain medium density fibre board having thickness of 6 mm and above produced by Kim Tin MDF Joint Stock Company, Vietnam.

India may impose anti-dumping duty on import of a certain variety of fibre board, used in furniture and other related industries, as the Commerce Ministry has initiated a probe for alleged dumping of the product from a Vietnamese company. The probe follows a complaint by domestic manufacturers -- Greenply Industries, Greenpanel Industries, Century Plyboards, and Rushil Decor. The companies filed an application before the ministry's Directorate General of Trade Remedies (DGTR) for initiation of anti-dumping investigations on imports of plain medium density fibre board having thickness of 6 mm and above produced by Kim Tin MDF Joint Stock Company, Vietnam. The manufacturers have alleged that they are being impacted due to dumped imports from the company. The DGTR, in a notification, said that on the basis of prima facie evidence submitted by these domestic firms, "the authority, hereby, initiates an investigation to determine the existence, degree and effect of any alleged dumping" of the product by this Vietnam-based firm.

The directorate would recommend imposition of anti-dumping duty if the probe concludes that there is dumping of the product. The Revenue Department takes the final decision to impose the duty. In international trade parlance, dumping happens when a country or a firm exports an item at a price lower than the price of that product in its domestic market. Dumping impacts price of the product in importing country, hitting margins and profits of manufacturing firms. According to global trade norms,

In international trade parlance, dumping happens when a country or a firm exports an item at a price lower than the price of that product in its domestic market.

a country is allowed to impose tariffs on such dumped products to provide a level-playing field to domestic manufacturers. The duty is imposed only after a thorough investigation by a quasi-judicial body, such as DGTR, in India.

Imposition of anti-dumping duty is permissible under the World Trade Organization (WTO) regime. India and Vietnam are members of the Geneva-based organisation, which deals with global trade norms. The duty is aimed at ensuring fair trading practices and creating a level-playing field for domestic producers vis-a-vis foreign producers and exporters.❑

Govt to Finalise New Chemical Accident Guidelines Quickly to Stop Vizag Like Accidents

Gas leak in LG Polymers plant in Vizag.

With several industrial accidents in recent past highlighting gaps, the government is finalizing the amendment to chemical accident rules to minimize disasters such as the one that happened at Visakhapatnam polymer factory killing at least 11 and hospitalizing hundreds. Following the 1984 Bhopal gas disaster, the ministry of environment and forest (MoEF) notified two sets of rules - Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 and Chemical Accidents (Emergency Planning, Preparedness, and Response), (CAEPPR) Rules, 1996 - to regulate the manufacturing, use, and handling of hazardous chemicals.

The objective of MSIHC Rules is to prevent major chemical accidents arising from industrial activities and limit the effects of chemical (industrial) accidents. The CAEPPR Rules provide the statutory back-up for Crisis Management.

In 2016, MoEF proposed to upgrade the rules to keep pace with the time. A draft amendment to rules that sought effective enforcement of regulations in the chemical industry, was floated for stakeholder consultation. But the rules could not be finalized, officials with direct knowledge of the development said. The amendment was referred to a committee that took a "lot of time" in finalizing its recommendations, an official said. In the meanwhile, the department of chemicals and petrochemicals (DCPC) wanted some kind of power to regulate the usage of all chemicals incorporating best practices around the globe.

DCPC was keen on pre-use registration and inventory management, they said adding it is a kind of licensing. MoEF, on the other hand, continued to be a nodal authority on the handling of hazardous chemicals. The difference was resolved by allowing DCPC to frame regulations for chemicals, and hazardous chemicals would be one sub-set for which MoEF will assist in framing regulations. A draft Cabinet note has been circulated and regulation would be in place after inter-ministerial discussion, they said. "The rules should be out in a short time," an official said. Gas leaked from a chemical plant owned by a subsidiary of South Korea's LG Chem in Visakhapatnam in the early hours of Thursday and quickly spread to villages in a five-kilometer radius, killing at least 11 people and impacting about 1,000, many collapsing to the ground as they tried to escape the toxic vapors. The main objectives of the MSIHC Rules are to prevent major chemical accidents arising from industrial activities and limit the effects of chemical (industrial) accidents.

Similarly, the CAEPPR Rules, 1996 provide the statutory backup for crisis management set-up and prescribe criteria for identification of Major Accident Hazard (MAH) installations. All districts with such installations are required to establish crisis management groups, it said. In addition, as prescribed by the MSIHC Rules, 1989, the occupiers of the MAH units are responsible for the preparation of on-site Emergency Plans while the Chief Inspector of Factories (CIFs) in consultation with district authorities are required to prepare off-site emergency plans as well.

India witnessed its worst industrial accident due to an accidental leakage of nearly 42 tonnes of toxic gas, Methyl Iso Cyanate (MIC), in the intervening night of December 2-3, 1984 in Bhopal. Official estimates put the toll at 5,000, though activists who have long been fighting for both justice and compensation for the victims put the figure at 25,000.

Besides the deaths, the accident led to physical disabilities in people of the area, and thousands of children born to parents, who had been exposed to the gas, in subsequent years suffered from birth defects.❑

Global Softwood Lumber Track on Trace to be Higher

Global trade of softwood lumber slowed in the 3Q/19 but was still on pace to be higher than in 2018. Russia, Belarus, Germany and Finland have boosted their lumber sales the most this year, report the WRQ.

Global Softwood Lumber Trade

Russia has surpassed Canada to become the world's largest exporter of softwood lumber, and is on track to ship almost 32 million m3 of lumber in 2019 (23 per cent of globally trade lumber this year). Despite showing economies in North America, Europe and Asia, lumber imports to these markets were higher in 2019 than in 2018. Volume traded during the first nine months of 2019 represented the second lowest y-o-y increase for the period in eight years, according to the WRQ. Of the world's 10 leading exporting countries, Russia, Belarus, Germany and Finland have boosted their lumber sales the most this year.

Lumber market in North America

Lumber production has fallen in both the US and Canada in 2019 because of disappointingly low activity in the US housing market and meagre demand for North American lumber in overseas markets. From January to September in 2019, lumber exports from Canada were down five per cent year-on-year, while US shipments fell as much as 23 per cent. All the major

lumber-producing companies in British Columbia have taken downtime this fall, causing production to plummet 19 percent in 2019. Prices for softwood lumber were quite stable during the summer and fall in three of the four major lumber-producing regions of North America, only in the US. Northwest, where log supply has been tight and demand for lumber along the US west coast has stayed healthy, did lumber prices move up from their lower prices early in the year.

Lumber markets in China

China imported 15 percent more softwood lumber in the first nine months of 2019 than during the same period in 2018. Importation has trended upward for over five years.

Russia supplied 60 percent of the import volume to China in the 3Q/19, a slight decline from the 3Q/18. Imports from Canada rose 18 percent year-o-year and import volumes more than doubled from a few smaller suppliers this past year, including Germany, Ukraine and Belarus, Lumber import prices have fallen for three consecutive quarters to average $174/cubic metre in the 3Q/19, the lowest level since 2016.

Lumber market in Germany

Germany's exports of softwood lumber reached a ten-year record high of 8.2 million cubic metre in 2018, which was 10 percent higher than the previous year and 23 percent more than in 2014. Exports have continued to grow in 2019, with the biggest increases coming in shipments to China, the US, the UK and India. The development in trade with China has been quite remarkable, with export volumes surging from 102,000 cubic metre during the first nine months of 2018 to 580,000 cubic metres during the same period in 2019.

The US has become the major destination for German lumber, with shipments increasing 10-fold in just three years. The US is not only the largest market for German lumber exporters, but it has also been the market that has paid the highest prices, as reported in the latest issue of the WRQ.❑

Interzum 2021 to focus on flooring and interior innovations

Interzum 2021 to turn hotspot of flooring innovations. Interior innovations are the new business mantra in the upcoming trade shows and interzum 2021 will focus on "interzum flooring". Increase in health uncertainties have paved way for innovations, and with new normal work life set up people are focusing more on interiors as they are spending time at home. Interior designers, floor laying companies, craftsmen are gearing up to meet and participate at the upcoming show, and enrich "interzum flooring" the hotspot of flooring innovations.

Interiors as a growth market for interzum 2021, is expected to accelerate investments in floors, walls and ceilings. The leading global trade fair interzum in Cologne has always had two important pillars: Supplier products for the furniture industry on the one hand and for the interior industry on the other. Modern flooring falls among the latter – a product segment which hardly leaves anything to be desired both in terms of function and design. The interzum team is going to place an even stronger focus on the manufacturers of flooring at the coming 2021 event. It's still a year until interzum 2021, but preparations are in full swing – and the industry is already looking forward to it. The trade fair has recorded a continuing high demand, including industry leaders as well as some newcomers and returners.

An attractive pavilion will offer German and international companies from this segment a high-quality presentation platform. "Regarding the visitors, we are targetedly addressing floor layers, craftsmen, building owners and architects," the interzum Director, Maik Fischer, stressed, adding "because almost a third of our trade fair visitors belong to these professions. Furthermore, our exhibitors are confirming the rapidly growing appeal of precisely this clientele."

Recently around 75,000 trade visitors were registered at interzum. Around 13% of whom belonged to the target group "Interiors/shopfitting", 9% were from the carpenter/joiner trade and 7% were interior design and decoration companies. The leading Cologne-based trade fair for suppliers is thus one of the most coveted hotspots for floor laying companies and the flooring specialised trade.

The preparations for 2021 with regards to flooring are currently running at full speed. Grouped under the product segment "Materials & Nature", the emphasis of which lies on resource-saving, sustainability and innovative surface design, interzum is awaiting exciting corporate presentations for parquet, solid wood and cork flooring, elastic flooring as well as for LVT or designer flooring and laminate.

The special area "interzum flooring" is going to be a particular highlight next year. Koelnmesse is creating attractive business promotional opportunities for all participants and interested aspirants. The red carpet is literally being rolled out for exhibitors and visitors whose commercial focus is flooring in Cologne next May.❑

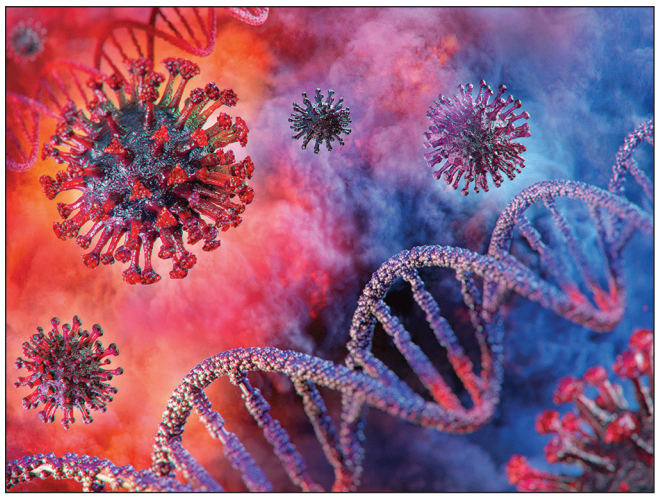
Coronavirus having impact on timber supply chain and international shows

The spread of coronavirus COVID-19 has resulted in the postponement of major international timber technology and furniture component exhibitions Holz-Handwerk and Salone del Mobile. Importers and distributors of wood products are also looking at drawing up contingency plans for shipment of some products, especially plywood from China. It was perhaps unsurprising when the China International Furniture Fair (CIFF) and China International Furniture Machinery & Furniture Fair (CIFF) and China International Furniture Machinery & Furniture Raw Materials Fair 2020 (CIFM Interzum) due to take place in March were postponed indefinitely as these are hosted in China's Guangdon province.

With the outbreak now affecting areas of northern Italy, Salone del Mobile – the international furniture and design show in Milan – has been postponed until June. And now the massive German woodworking technology exhibition Holz-Handwerk and Fensterbau Frontale of Number Messe – slated for March 18-21 has been postponed. No new dates have been confirmed.

Talking to UK timber importers it is becoming clear that Chinese exports have been severely curtailed, with one distributor stating that no shipments have left Chinese ports for more than three weeks. "We can only expect to receive whatever is already on the water," the importer said. "In about a month's time there will be a sudden drop-off,"

UK timber distributor James Latham posted a message on its website stating it was monitoring the position in China



with regards to coronavirus and any supply issues that might be caused. "We are in regular dialogue with our suppliers in these regions and monitoring our shipments closely," it said. "We will advise affected customers of any delays, but we are well-positioned for stock in the UK and at this stage do not predict any serious disruption."

The UK Timber Trade Federation has reported that the virus was cause for concern in the Asian timber markets and was expedted to reduce China's GDP by one whole percentage point with Japan also facing a slowing economy.❑

Indian state of Gujarat to build more particleboard plants in 2020

DUE to a perceived increase in availability of raw wood materials from local sawmills, the Indian state of Gujarat is expected to build more particleboard plants this year. Gujarat is a pioneer in particleboard manufacturing and holds major market share in the country, reported Ply Reporter. There are currently more than two dozen lines producing particleboard at a production capacity of more than 3500 m3 per day in the region. Most of the plants have machinery that produces 4 feet sized boards, with several producing six feet boards.

There is news of two upcoming particleboard plants in Morbi and Rajkot, which will begin production in the next few months. However, raw materials may yet be sufficient to bolster the increasing number of sawmills, as thought to be.

Gandhidham, India's biggest saw mill cluster, has around 3000 sawmills producing sawn timber waste and is an important source of raw materials for local particleboard manufacturers. Most of these sawmills process pinewood where sizing and kerf waste are sold to the manufacturers. Additionally, sawmills in the Saurashtra region have begun to receive a stable quantity of local Neelgiri wood. However, the increase in supply of raw material may not be able to catch up with the surging demand from particleboard manufacturers. Particleboard manufacturers are also facing more challenges with the fast growing supply of particleboards which may not be absorbed as quickly by the local market, resulting in falling particleboard prices in the past two years.

Mr. Kanti Patel, Director of Realtouch Particle Board said that the units located in Morbi and Saurasthtra area are procuring adequate quantity of local timber but it is not consistent throughout the year. "We can hardly find sufficient timber for running plants on 100 per cent capacity with present installed capacity mainly because of raw material issues. It is anticipated that, if local wood supply improves, a few more plants may spring up in this area although there is already a price war among existing ones. The prices of finished particleboards have bottomed in the last two years and if more plants open, prices would begin to go into minus," he added.

As surveyed by Ply Reporter, the Gujarat-based particleboard plants are utilising, on average, 60 percent of their capacity lately. These plants mainly depend on Gujarat, Maharashtra, North India, Central and Eastern markets that sell through retail counters. With around 25 plants in this region alone, it can be considered as a large hub for particleboard manufacturing in India.❑

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