

Modified wood aims to save forests from the axe

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By CALEB RADFORD | A hardwood substitute has been developed to effectively end the need to log native forests.



3Wood blocks manufactured from (left to right) Blackbutt, Bluegum and Radiata Pine.

Researchers from the Flinders Centre for NanoScale Science & Technology in South Australia have collaborated with Australian company 3RT Holdings to develop a method for converting cheap pulpwood into a highly sustainable tropical hardwood substitute.

3Wood contains the same properties as tropical hardwood but maintains a stronger dimensional stability and eliminates wastage.

3RT managing director Peter Torreele said the availability of the new “smartwood” made it easier to reduce the carbon footprint of the manufacturing industry.

“There are a lot of materials with a very high carbon footprint, whereas wood has a very low carbon footprint,” he said. “Almost 40 per cent of all logs in the world are being cut into chips for the pulp and paper industry.

“This 3Wood makes the harvesting of native forests, unnecessary. We are aiming to replace all applications where today hardwood would be used if it were available – furniture, floors, frames and there are other possibilities – it is endless.”

Cheap pulpwood

3Wood is made from a complete log – includes wastewood – and does not bleed out or stain nearby floors or walls.

It is developed using ordinary pulpwood – which is cheap and accessible – and then a unique water-based adhesive that reacts with the fibres in the wood to make it stronger.

This process is known as lignocellulose manufacturing technology, which works to compress softwood to create a new product that is denser, harder and more durable than the original.

The wood is then exposed to a combination of temperature and pressure to form it into a rectangular shaped 3wood block with dimensions of 120cm x 13cm x 5cm.

Torreele said 3RT were in discussions with various companies around the world to commercialise the product.

According to the World Wildlife Fund about 46–58 thousand square miles of forest are lost each year.

CNST Director and co-developer David Lewis said 3Wood helped to eliminate wastage and was a more environmentally friendly alternative to other products.

“We can manufacture blocks of wood out of pulpwood with the same strength as a 100-year-old tree but without the problems,” he said.

Friendly glue

“There is a lot of wastage in current hardwood production. If you take a big tree only a small percentage of that becomes hardwood, the rest is chipped and burned.

“We use a glue to stick it (the wood-waste) together and reconstitute it, get it into one block and do it in an environmentally friendly system. Our adhesive is formaldehyde free.”

He said by changing its form it was easier to manipulate the wood and shape into different products without the downsides of normal hardwood.

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