

Andrew Chew

With experiences in the banking, finance, business, law and marketing sectors, Dr. Andrew Dekguang Jhou Chew ventured into the entrepreneurship about 19 years ago with the intent of contributing to Mother Nature rather than taking from her. His latest endeavour as an eco-preneur was to find a suitable alternative to plywood used in construction.

Thus came the Lignoson company, for which Dr. Andrew is the Founder and CEO, successfully 'making wood from no wood.'



Tell us briefly about your background and how this innovation and idea to create a plywood replacement started from?

I was a banker for more than a decade and then an entrepreneur for the last 19 years. While my academic background is in economics, marketing, banking and law, I have always had a curious nature - dabbling into technology, innovations and inventions. As an entrepreneur, I became known as one of the new breed 'eco-preneurs', as I was previously involved in renewable wind energy business, life-sciences and health-sciences. When I was renovating my home in 2018, I realized that my contractor was using a lot of plywood for the carpentry works. I was told that plywood was the preferred material because of its superior qualities and longevity compared to MDF and particle board. But it is the most expensive amongst all the boards. I asked my interior designer if the plywood was 'green' since it was termed as organic, but she couldn't respond properly.

I decided to investigate the matter and realized that plywood is one of the major contributors to CO2 in the world and a major reason for deforestation. The world consumes about 180 million cubic metres of plywood which produces more than 3.3 billion tons of CO2.

I decided immediately to embark on the journey to find and develop a replacement for conventional plywood and not to log or sacrifice any more trees to make 'plywood'.

From day one Lignoson has held nature at its heart, what is the company's view on sustainability and climate change on the world at large?

The name Lignoson comes from 'ligno' the first 5 letters of lignocellulosic fibre waste, 's' stands for sustainability, 'o' stands for circularity and 'n' stands for nature protect. Lignoson was born from the passion to heal and protect Mother Earth, nature is our heart. I do not believe in climate change; the terminology is too weak and does not invoke sufficient action nor credible traction. I believe the world is experiencing a climate crisis, unfortunately we have produced more CO2 in the past 25 years post Kyoto Protocol Agreement in 1997, compared to the 25 years before that. Every country in the world is experiencing extreme weather conditions, it is costing billions in damages to infrastructure and the economy. Sadly, it cost lives as well and this is not tenable. We need to make credible steps forward and we need to do it now, without further delay.

I believe our understanding of the concept of circularity today is misaligned. Today, circularity means we first get natural resources to make the product or material, then after we have consumed or used it, it is renewed or regenerated as many times as possible at the same value or lower value through time, instead of being wasted, extending the life of natural resources. While I agree with the

second part of the equation, I disagree with the first. Respectfully, we should not even touch natural resources. Globally, we produce more than 2 billion tons of waste every year, the potential to use this as valuable resources to recycle, to renew and to replace is huge. We don't need to rely on natural resources.

Lignoson is a true example of circularity. We use upstream waste (agri-fibre waste that has no competitive use) and produce a direct replacement for conventional plywood, negating the need to go to Mother Nature for natural resources. Lignosonia boards can be recycled and regenerated numerous times and can also go down the value chain as feedstock for MDF and particle boards. In other words, we are a complete and pure testimony for circularity, from waste to high value-added product to waste and regenerate to product again and so on, a perfect closed loop circular 'green-ocean' solution.



What are the critical social environmental issues Lignoson is trying to solve?

The three most abundant and burgeoning lignocellulosic fibre waste is rice, wheat straw waste and palm biomass waste. Currently, with little competitive use, most of it is burnt to fertilize the land. Rice and wheat are grown

in more than 120 countries, palm oil is grown in 42 countries, so this lignocellulosic fibre waste is practically everywhere on our planet. Most of this fibre waste is concentrated in developing countries, where poverty is rampant and the people have low quality of life, such as India, Indonesia and South America. However, these countries have untapped 'gold', that is, the rice and wheat straw waste which can be used to produce our Lignosonia boards. We can elevate the livelihood of the farmers, build low-cost housing for the poor and still operate a highly profitable business.

More importantly, we save forests from being logged, we preserve the eco-system, the biodiversity and the lives in the forests. Scientists have also come to realize that forests are responsible for regulating the water and carbon cycle in our atmosphere which gives the moderate and predictable weather.



How well does this sit with the concepts that government endorses through the Singapore Green Plan 2030?

The Singapore Green Plan 2030 aims to reduce carbon emissions and increase the green gross floor area of Singapore buildings. The manufacturing process for Lignoson helps

hugely in the reduction of CO2 production and using it as a building material will contribute to making the built structure green. We also hope to be a prime example for entrepreneurship to those who aim to contribute to the Singapore Green Plan 2030, so the earlier we start using Lignoson in our buildings, the better reach we will have by 2030.

What's the next step for the company? And what opportunities are you looking to create to contribute to the economy?

We have completed our proof of concept, proof of product, we are now at the door of commercialization. We would like to transfer our technology to countries with rice and wheat fields and palm oil plantations, so we can produce Lignosonia boards to replace existing demand for conventional plywood in these countries.

If we execute on this basis, we will be well on our way to clawing back 95% or 3 billion tons of CO2 as CO2 credits apart from saving our precious forests. We are a solution that is executable today with real and impactful multiple collateral benefits to many people and to many tomorrows.

Our Deputy Prime Minister, Lawrence Wong mentioned in a recent seating of parliament that the future of Singapore is Singapore 4.0. Our assets are our people, and our future assets will be technology and innovations that can be exported to developed countries. So far, we have been highly successful in the past 5 decades learning, adapting, adopting, and evolving the technologies and innovations from developed countries to suit Singapore.

Lignoson and Lignosonia is a great example of Singapore 4.0, where Singapore can export its success to not only the neighbouring countries but also to the developed ones.

