



Salvaging oil palm trunks to promote forest sustainability

Does Malaysia need to find an alternative to tropical timbers and rubberwood as raw material for its timber-related industries?

The short answer: Yes.



Inspiring the next “material revolution” by creating sustainable and high-performance materials from oil palm waste, **Peter Fitch** together with IOI have set up IOI Palm Wood to commercialise this untapped potential.

In Malaysia, rubber plantations have all but been replaced by oil palm, and the unrelenting logging of natural tropical forests have become unsustainable. So how can we return to a sustainable supply of raw materials?

Firstly, we need to understand what “sustainability” really means. The United Nations defines “sustainability” as acting in a way that ensures future generations have the natural resources available to live an equal, if not better, way of life as current generations.

“Forest sustainability” is defined as the use of forest lands at a rate that maintains their biodiversity, productivity, regeneration capacity, and vitality, and their potential to fulfill, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems.

The first definition is all encompassing but lacks specifics. By detailing forest

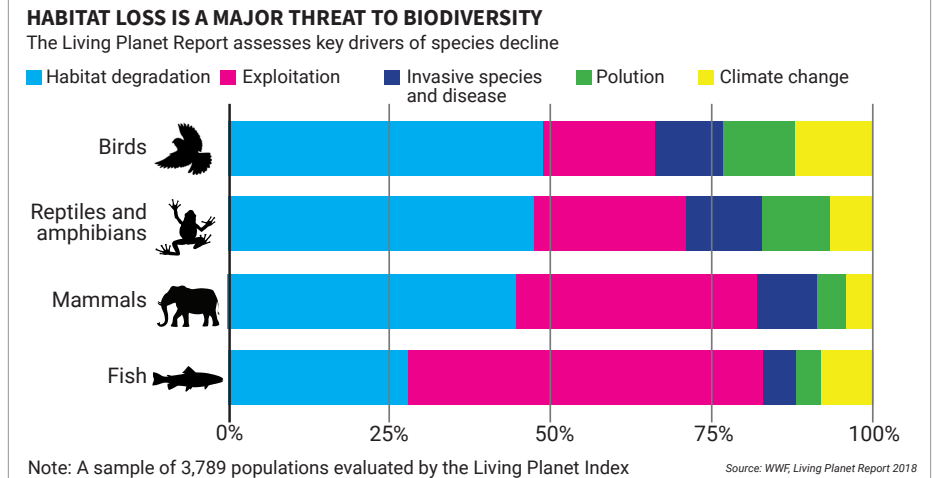


Figure 1

sustainability, we can get a clearer picture of what needs to be achieved to ensure a balanced ecosystem. If we are to assume that the threats posed by climate change today are real, and that humanity needs to take urgent action now to avoid a pending societal collapse, then forest sustainability is a must. But wait – if we are serious about this, then we have probably already

reached a totally unsustainable environment! The devil is in the detail and when we take a closer look at what is currently happening, we see the problems more clearly.

LOSS OF BIODIVERSITY

According to the World Wildlife Foundation's Living Planet Report 2018 (Figure 1), the greatest cause in the loss of biodiversity is habitat degradation. Deforestation and the cultivation of “mono-culture” plantations are often given as the main reasons for habitat degradation, but in reality, the main reasons are urbanisation and conversion to agriculture use for animal feed and cattle ranches. Research has found that species extinction events are 1,000 times more likely to occur today than before the onset of industrialisation, and is set to accelerate.

GLOBAL DEFORESTATION

It is estimated that 1.5 billion hectares of global forests have been lost between the 1700s and 2020. This is equivalent to an area the size of Russia. The rate of deforestation peaked in the 1980s when 151 million hectares (equivalent to the size of India) were lost during this decade alone. Since the 2000s, temperate forests have managed to achieve a “net gain” due to reforestation programs in China, the United States and Europe. Regrettably, tropical forests continue their losses at a rate of approximately 50 million hectares per decade – an area equivalent to the size of Sweden.

Figure 2 shows the causes of deforestation in 2018.

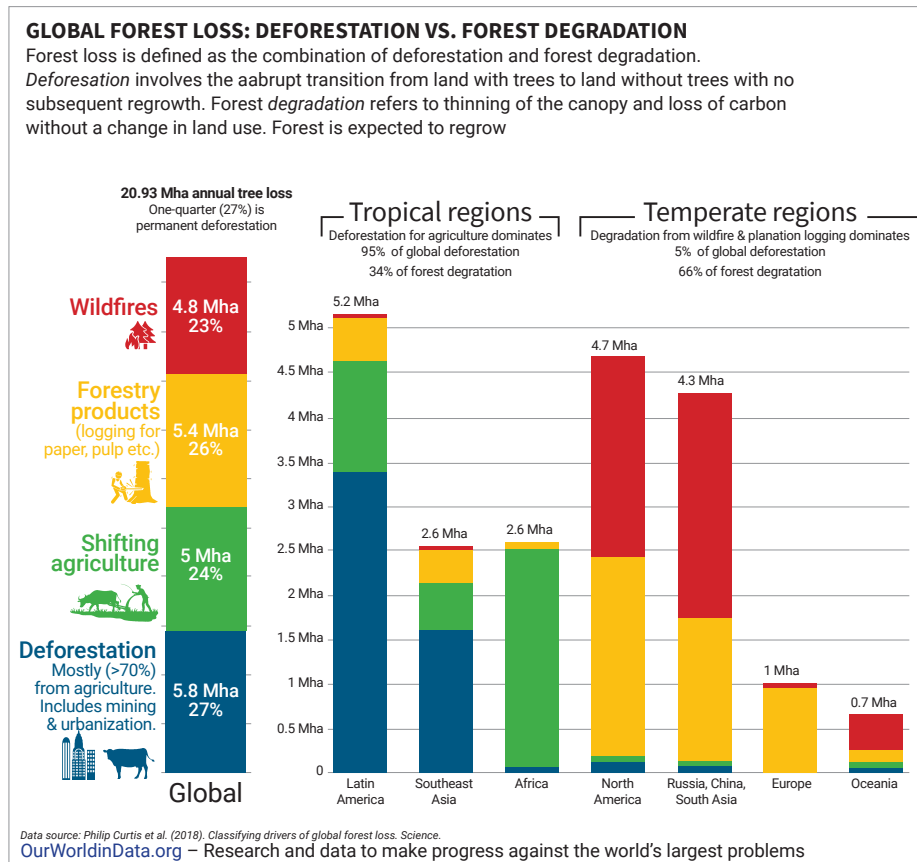


Figure 2

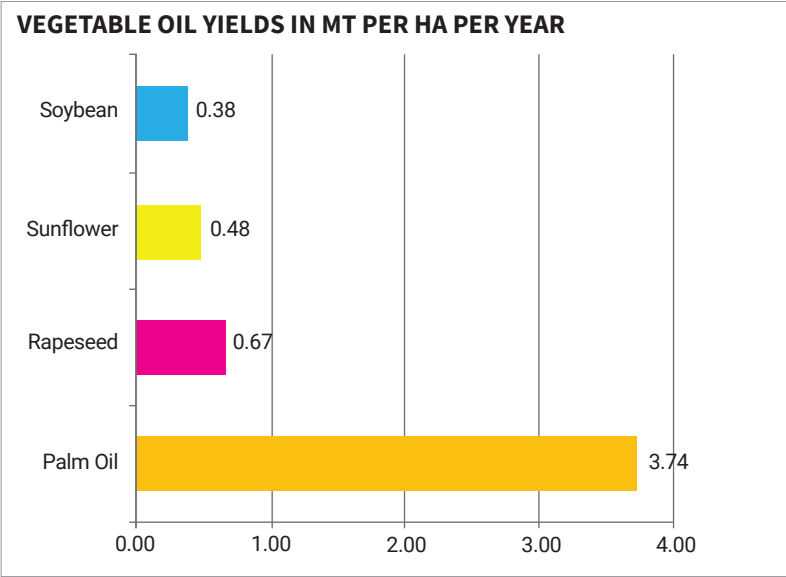


Figure 3

Countries including Malaysia are faced with huge challenges on how to maintain economic growth while securing the economic development of growing populations, yet ensuring that this growth is sustainable.

The vision of IOI Palm Wood is to create totally new materials using the biomass available from the mature and established cultivation of oil palm. The British introduced oil palm to Malaysia in 1870 and the first commercial plantations were set up in 1917, with many plantations currently exceeding 60 years in maturity. Only the fruits from the oil palm are used to produce crude palm oil (CPO) – the raw material for the production of edible oils and oleo chemicals used for everything from foods to cosmetics to biofuel. It is also worth mentioning that the production of edible oils from oil palms are far more efficient in terms of hectareage required to produce the crude oil, compared to those derived from soya, rapeseed and other natural sources (Figure 3). The biomass produced from the fruits, which are used to extract the oil, only constitutes about 15% of the total volume of an oil palm. The oil palm trunks (OPT), which are left to rot in the field after replanting, constitute approximately 20% of the total biomass. IOI Palm

Wood will be using these discarded OPT to produce sustainable light-weight wood panels.

Just like the rapid growth of the wooden furniture and panel manufacturing industries in Malaysia that followed the utilisation of rubberwood in the 1980s, we see future potential for palm wood. As we know, *hevea brasiliensis* was introduced as an agricultural plantation crop for the production of Latex. But, since becoming one of the most important sources of raw material for the production of furniture, medium-density fibreboards and particleboards, it has been responsible for spurring a multi-billion-dollar industry not just in Malaysia but also in other South East Asian countries. At IOI Palm Wood, we are not asking for logging concessions or demanding any conversion of natural forests for our raw materials. We will start with the development of engineered materials produced from the humble OPT, which is sustainably available from existing plantation replanting programmes. In the future, we may even consider engineering materials from the fronds, which constitute almost 60% of the available biomass! **P**

