

Innovating for a better future

STARTING with a focus on agriculture, Universiti Putra Malaysia (UPM) understood the intricate relationship between the environment, economy and society – the three components of sustainable development.

Expanding its focus into other areas such as biotechnology, nanotechnology, engineering and other green technologies, UPM embarked on many new studies and research to revolutionise novel ways to protect the country's resources for current and future generations.

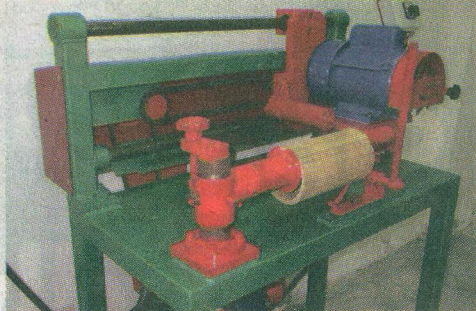
Recognising the potential of bamboo as a green material, Prof Dr Edi Suhaimi Bakar of the Faculty of Forestry invented the V-Grooving Bamboo Flattening Machine that can flatten bamboo for use as boards, flooring and as substitutes in the wood-based industry.

This machinery can be used by the local community where bamboo can be obtained easily to support the need for wooden furniture in schools, houses or public areas.

With the use of the machine, bamboo flattening is easier and less time consuming.

In the area of wastewater discharge management, Prof Dr Azni Idris introduced a method for treating domestic and industrial sludge as well as waste biomass, of which treated sludge are then converted into biochar.

Wastewater must be treated before being discharged into surface waters. This technique can lessen the operating and maintenance cost of a small city as well as decrease environmental problems caused by



The V-Grooving Bamboo Flattening Machine eases the flattening process of bamboo, which is widely used in Malaysia.

the wastewater discharge process.

The Environment Toxicant Detector was developed by Prof Madya Mohd Yunus Abd Shukor to detect foreign chemical substance within an organism (xenobiotics).

Detection of xenobiotics is carried out based on the inhibition of the luminescence of *Photobacterium* in the aqueous medium.

The advantages of the bioassay compared to other bioassays available in the market are its rapidity, simple and easy method, cost-effectiveness and stability in severe conditions such as extreme pH or temperatures.

Exploring the exciting potential of nanotechnology, Prof Dr Mahiran Basri developed environmentally friendly nanoemulsion herbicide.

The nano-emulsion particles increase penetration and uptake of glyphosate isopropylamine, which leads to this nano-emulsion system enhancing the bioactivity and bioavailability of the herbicide.

This formulation is better than the commercial formulation available in the market and is more effective in controlling weeds.

■ For more information, visit www.sciencepark.upm.edu.my