

The UPM campus's reputation for green awareness arose from its prominent water features and extensive green cover

Bringing SUSTAINABILITY to education

Top Class sits down with UPM to discuss how Malaysian institutions are inculcating environmental awareness and best practices in their students and faculty

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The green movement has been underway in Malaysia for some time, with advocacy groups such as EcoKnights and Malaysian Nature Society frequently making headlines for their conservation work. Taking their cue from such organisations, local campuses such as Universiti Putra Malaysia (UPM) are going the distance to preserve the country's natural heritage.

Today, UPM is counted among the top 20 sustainable institutions out of 301 surveyed worldwide, according to the UI GreenMetric World University Rankings 2013, with other Malaysian campuses such as Universiti Teknologi Malaysia (UTM), Universiti Malaya (UM) and Universiti Kebangsaan Malaysia (UKM) taking 98th, 213th and 276th place respectively.

Developed by Universitas Indonesia, the system measures a spectrum of indicators ranging from setting and infrastructure, energy and climate change, and waste and water management to rank institutions globally. UPM was the only campus in the Asian region to make it to the Top 20, which was otherwise dominated by North American and European contenders.

"Our environmental policy has been around for some time, since before we joined the UI rankings. The campus's reputation for green awareness started due to its extensive green cover and water features, along with our tree-planting efforts in Bintulu in the 90s, and it took off from there," says UPM Environmental Management System (EMS) Steering Committee secretary Dr Mohd Amran Mohd Salleh.

Building on this legacy, the institution has since committed itself to the practice and propagation of green policies, including the building of bike lanes to reduce vehicle traffic, various recycling and energy conservation programmes, and implementation of EMS MS ISO 14001, an onsite process for the control and continual improvement of environmental performance.

A senior lecturer at the institution's Faculty of Engineering, Mohd Amran was chosen to spearhead the implementation of the ISO certification at UPM due to his previous work with sustainable materials, particularly the co-development of pyrolytic biochar production from oil palm empty fruit bunches with fellow UPM researcher Prof Dr Azni Idris.

"The production of biochar or biocharcoal has a dual impact on the environment. First of all, it creates a carbon negative scenario by preventing carbon dioxide release from decaying biomass, which has a long-term effect on global warming. Secondly, the accumulation of carbon in the soil promotes fertility, as seen in some areas of the Central Amazon," says Mohd Amran.



Green campuses are becoming common in Malaysia, with UPM, UTM, UM and UKM taking the lead



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EMS MS ISO 14001 compliance is commonly adopted in the corporate sphere, though it is less prevalent among educational institutions. In refining the approach of participating organisations to environmental processes, it assists them in reducing the costs of waste management and the consumption of energy and materials, as well as lowering distribution costs and improving awareness.

The certification is just one of a number of initiatives that UPM has undertaken to improve its green profile, and while it is still in the process of receiving final ISO 14001 approval from the Standard and Industrial Research Institute of Malaysia (SIRIM), the auditing process has been encouraging, with additional focus on safety and health systems as the implementation goes forward.

"We were inspired to adopt ISO 14001 after a trip to Japan in 2012, where we saw its application at Shinshu

University in Nagano, the first institution in the country to attain the certificate. Shinshu also chose to pursue compliance with ISO guidelines due to its green surroundings, much like UPM's," says Mohd Amran.

"The Japanese are a good role model in this sense, because they've turned themselves around. Kitakyushu, where the Kyushu Institute of Technology is based, was one of the most polluted places in the world in the 1960s. However, with the establishment of their Pollution Control Ordinance and the Green Kitakyushu Plan, it is now a prime example of what a green or eco-city could be."

Understandably, UPM's long-running collaboration with Mitsubishi to conserve local forests and flora over the past 23 years is a highlight among its other environmental programmes. Beginning in 1991, the project saw the planting of 500,000 seedlings at its Bintulu campus over a formerly barren 27 acres, representing 126 species native to Sarawak.

According to Mohd Amran, the site developed into a secondary forest over less than two decades, utilising a silvicultural technique promoting growth through the cultivation of closely packed trees to encourage competition for sunlight. Along with another 0.6ha project in Serdang, the collaboration has provided numerous research opportunities in the areas of soil science, water quality, entomology, climate change, wildlife and biodiversity.

"Our students and staff in Bintulu have done a good job taking care of the site, and many visitors have trouble believing that just a while ago, there was nothing there at all. A few years back, we started a second project in Serdang. Though the location has less acreage, we planted more than 300 species there, so we've got more diversity in a smaller location," says Mohd Amran.

UPM has also established a network of bicycle lanes and covered walkways throughout the Serdang campus to cater for students relying on public transport to get to classes, cutting down on emissions from motor traffic. The initiative is supported by an on-campus bicycle workshop offering rebates and dis-

counts for student purchases, particularly targeted at first-year students.

The programme has been successful, reinforced by support of current UPM vice chancellor Prof Datuk Dr Mohd Fauzi Ramlan, who was heavily involved with the project since his tenure as Student Affairs deputy vice chancellor. An avid fan of the sport himself, he frequently takes the time to cycle around campus on Fridays, with students invited to join.

"I think it's good for the students. Based on feedback, some adjustments are necessary, because it's true that in the afternoon and during the rainy season, cycling as a mode of transport is less practical. But we can work around that, for example, we could schedule more classes later in the afternoon, when it's a bit more comfortable to be outside," says Mohd Amran.

The initiative also saw the launch of a Recycle to Cycle partnership with The Coca-Cola Foundation in 2013, which contributed a RM750,000 grant to provide UPM students and staff with bicycles on loan in exchange for PET bottles and aluminum cans as deposit and payment.

As expected of an institution with a reputation for environmental awareness, the campus also runs a host of related recycling activities and events, such as the UPM University Community Transformation Centre's recent Recycling Day 2014, an ambitious programme aimed at reducing household waste by 40% in the surrounding Serdang township by 2016.

"These projects are often initiated by students, with several events every year to collect recyclable materials. They are often embedded directly into other student activities, such as festivals. It's all voluntary, like our energy saving programme which uses sensors to monitor electricity use in participating buildings," says Mohd Amran.

"We initially had a few hiccups in implementing that one," he adds, laughing. "I remember the first time we installed it, it was in a fairly long aisle with two sensors at both ends. Unfortunately, we were still working out the blind spots, so a lecturer walking down the aisle later that night got the fright of her life as the lights went out when she was in the middle!"

As UPM inculcates environmental awareness and best practices among its graduates and faculty, Mohd Amran believes that a focus on both the individual and community is necessary when moving forward to promote green lifestyles in Malaysia as a whole, as well as a wake-up call addressing the world's dwindling fossil fuels.

"If you fully harness the skill sets of the people in your community, you'd be amazed how much you can accomplish, because everything's there. I think that smart grids, which are communal energy networks independent of the national grid, will also play a greater role. At the end of the day, it's about how resilient we are," he concludes. ■

UPM vice chancellor
Prof Datuk Dr Mohd
Fauzi Ramlan

