



tree-hugging tech

Paula Lepore Burrough talks to environmentalist Dr Willie Smits who pioneers the use of new technologies to protect our forests and our primate cousins

A google search will give you a picture of Dutch-born, Indonesian citizen Dr Willie Smits' passions – nature, forest conservation and orangutans. Dr Smits' efforts to save the rainforests of Borneo require knowledge and constant commitment, and incorporate the use of revolutionary new technologies. He is often in Hong Kong, speaking at conferences and schools, since Hong Kong is a key centre for the transport of illegally-smuggled wildlife from Indonesia. During a recent chat, he received a message on his Blackberry saying that his work on the DeforestAction project (www.deforestAction.org) had won an award from the European Space Agency for Best Technology Innovation.



Dr Willie Smits teaching an orphan to eat termites

Rainforest monitoring

DeforestAction EarthWatchers is a project that empowers young people worldwide in rainforest monitoring from satellite images, to stop illegal deforestation in Indonesia. Student volunteers are involved in analysing near real-time radar-satellite imagery. These 'earthwatchers' use social media to cooperate; they then report their findings to a team of 'eco-warriors'. The eco-warriors follow up on the reports, check out the sites and use programmed drones to collect the proof needed to send in a police report. The police then confirm whether or not action is required. This approach takes students beyond the classroom walls and directly involves them in conservation efforts.

Environment watch

Dr Smits is raising funds to build a remote-sensing system, which integrates a digital elevation model, the internet, satellite technology and high-resolution optics to connect techies to a real-world environment. As part of the DeforestAction programme, students can 'adopt' land and check how their trees are growing by plugging in the geographical coordinates. Weekly, the camera takes a panoramic image of the area and from that they can measure how many centimetres the trees have grown. The height of the trees helps to approximate their biomass and fruit production, correlate how much carbon they store in the soil, and even how many jobs the area generates.

Monkey business

With Dr Hanna Wirman at Hong Kong Polytechnic University, Dr Smits is also working on a pilot research and design project on orangutan digital-game play. One of the aims of the project is developing a technology to improve the lives of animals living in captivity through increased opportunity for stimulation and (touch-screen) play. The project is also looking at how animals interpret meanings in games, examining technologically mediated communication between humans and orangutans, and exploring similarities and differences between human and orangutan players. All this is important since studies suggest that happy orangutans live longer in captivity.

Biofuel technology

Dr Smits' ingenious scientific research shows no tree can produce alternative fuel (from sugar) as well as the sugar palm. In fact, a single sugar palm can produce enough sugar each day to power a car once it has been converted into ethanol. Dr Smits is one of the founders and the chairman of the Masarang Foundation, which in 2007 opened a sugar-palm factory that uses geothermal waste energy to turn tapped juice into sugar or ethanol. This effort returns cash and power to the community, while saving up to 200,000 trees per year from being used as fuel. The Masarang Foundation was voted one of the world's best charities by the BBC in 2007. [B](#)