



Mapping UNSW Impact Global Development

Primary SDG	15: LIFE ON LAND
Broad theme	Training and educating public officials to identify insect threats to crops
Research	Providing insect identification and biodiversity training and resources to public officials in Pacific Island countries to protect fragile local food supply
Impact region	PNG
Faculty	Science
School/Institute	School of Biological, Earth and Environmental Sciences
Academic	Professor Gerry Cassis
Project partners	DFAT - \$750,000 in funding over four years, ended 2016
	National Agriculture Research Institute (NARI - government agency in PNG)
	Australian Museum
Related SDGs	2: Zero Hunger
	3: Good Health and Wellbeing

Elevator pitch

UNSW researchers are equipped to train public servants in Pacific Island countries on insects crops and biodiversity, using PNG as a hub for a regional approach to protect fragile local food supplies that are under threat from emerging insects.

The Challenge: How can Pacific Island countries limit threats to local food supply?

PNG's population is heavily reliant on local food crops. In 2016 this became a national problem when drought and pests caused severe food shortages, resulting in deaths, malnutrition and the spread of disease. Food security is now a serious and ongoing issue in PNG.

Insects account for 60% of the world's species, with many aiding the growth of crops. Yet climate change and increased trade are seeing emerging pests recorded in PNG and across the southwest Pacific. Farmers do

not have the money or knowledge to protect crops - like taro, sweet potato, banana and green vegetables - that are suffering at the hands of insects and the diseases they transmit.

At the same time, human population in the region is expanding, limiting the amount of land available and pressuring food supply. Imports are also on the rise, bringing in new types of pests and disease. A lack of know-how in PNG and other nations to counter these emerging pests is threatening food security and socioeconomic development.

UNSW's solution: Train and educate local public officials in insect identification and biodiversity

While in the US attending a conference, Gerry ran into a US friend running an NGO in the north coast of PNG who was looking for help to educate local public officials in identifying insects that were damaging crops. UNSW received funding from DFAT to train 60 public officials. They ended up training 102 officials from 24 different public organisations - including cargo inspectors, border security officers, extension officers who work directly with farmers, and students and academics - in how to identify insect and pest threats to local crops. They also built a website that acts as an online database for trained and in-training officials to use.

With further funding, Gerry sees a unique opportunity to train public officials across Southwest Pacific, including the Solomon Islands, Fiji, Vanuatu, Tonga and Samoa. Gerry envisages using NARI in PNG as a training hub for government representatives of these other countries. Funding would assist with a fact-finding mission, training workshops, expanding the scope of the PNG website and a succession plan. Gerry presented the idea to a regional agricultural forum who were very supportive of the idea.

In another PNG project, Gerry and his team are undertaking research on a pest outbreak of the native galip tree. A wood-boring beetle is causing catastrophic losses of the tree, threatening its commercialisation. With funding from ACIAR, Gerry and his team are working together with NARI to understand what's happening and are developing strategies to control the impact of the insect.

The Impact: Prevent food shortage and upheaval, and conserve regional biodiversity

Gerry's work is helping PNG to protect crops from pest outbreaks that could result in food shortages and create instability and migration issues. He is also helping to preserve the biodiversity wonderland in PNG and neighbouring Pacific Island countries.

With further funding Gerry could empower countries across the region to better identify pest threats to their crops, helping to secure food supply and to promote socio-economic development and natural resource management. A regional approach would also improve knowledge exchange and relations between the countries and limit biosecurity threats to Australia.

With the Galip tree, Gerry is helping the country to commercialise an emerging product. This tree promises to increase farmer income and potentially become a large and significant export industry.

Researcher

Professor Gerry Cassis worked for the Australian Museum for 20 years where he was Head of its Centre for Biodiversity and Conservation Research. He has worked for the CSIRO, and was Co-director of a project on planetary biodiversity funded by the US National Science Foundation. He is currently a Professor in Insect Systematics and Biodiversity at UNSW. Gerry was inspired to work in Pacific Island countries as they are evolutionary powerhouses with remarkable biodiversity.

Ben Falkenmire 21.09.17