



# Mapping UNSW Impact Global Development

<b>Primary SDG</b>	<b>2: ZERO HUNGER</b>
<b>Broad theme</b>	Sustainable fish farming in Vietnam and India
<b>Research</b>	Investigating the best techniques to farm fish and shrimp sustainably taking into account crop varieties, soil and water qualities, feed and local environmental conditions
<b>Impact region</b>	Vietnam, India
<b>Faculty</b>	Science
<b>School/Institute</b>	School of Biological, Earth and Environmental Sciences
<b>Academic</b>	Associate Professor Jes Sammut
<b>Project partners</b>	Australian Centre for International Agricultural Research (ACIAR) - \$2.1 million in funding for Vietnam, ends October 2019
	Vietnamese partners: Can Tho University, Cu'u Long Delta Rice Research Institute, Research Institute for Agriculture 2 (Government)
	Australian partners: Charles Sturt University, Griffith University
<b>Related SDGs</b>	15: Responsible Consumption and Production
	3: Good Health and Wellbeing

## Elevator pitch

UNSW is experienced in establishing and operating sustainable fish farms and overcoming hurdles, like poor soil and water quality, to help increase food security and protein levels in local diets, and provide a stable source of income for local farmers.

## The Challenge: How can we ensure the poor are eating enough protein?

More than 50% of fish eaten around the world are raised on fish farms. Fish farming is an important source of protein and income in developing countries like Vietnam and India. But creating sustainable fish farms is a big challenge due to issues like poor soil and water quality, unsustainable and expensive fish feed, and the lack of farming and scientific knowledge.

People in developing and rural areas often lack protein in their diets because they cannot afford to buy meat or other animal-based proteins. A lack of protein has negative effects on health, and stunts the development of children.

### **UNSW's solution: Set up sustainable fish farms in rural areas and train locals**

For the past 20 years, Jes Sammut has helped people in developing countries to farm fish sustainably. While completing his PhD, ACIAR recruited him to Indonesia to solve issues of soil degradation in shrimp farms. He went on to establish a nationally-recognised soil and water laboratory and research team for aquaculture there.

For the last seven years, Jes has been helping rural communities in PNG to set up and operate fish farms in partnership with ACIAR. Thanks to Jes and his team, annual fish production in the country has rocketed from 11,000 to over 60,000 in seven years. He teaches locals how to dig a fish pond, manage water quality, feed fish, identify the sex of fish, and expand fish numbers. Students include local farmers and the unemployed, prisoners, tribal gangs, and school children. Fish farms have stopped tribal wars and reduced violence.

For the past four years Jes has been working with local farmers and government officials in Vietnam to increase rice and shrimp production levels in the Mekong Delta. The Delta is where more than half of Vietnam's rice and over 40% of the country's income from seafood is produced. They have been trialling the farming of rice and shrimp together to get around water salinity and soil quality problems, and to ensure the farms are sustainable. Trial farms are now producing higher yields than traditional farms, and test results are influencing government zoning and planning decisions. Next they will look at reducing the cost of farming through better feeding and fertiliser strategies, and better management practices.

Jes has also teamed up with ANSTO (The Australian Nuclear Science and Technology Organisation) to research how organisms use nutrients in water and how to improve fish feed. Their goal is to become a world leader in fish and oyster nutrition. Using nuclear technology, they can determine vital information about fish and ways to make fish feed more sustainable, affordable and nutritional.

### **The Impact: Providing protein, food security and sustainable income for rural communities**

The science and capacity building approach taken by Jes increases and sustains fish farming levels in rural areas. His efforts aid food security, protein and health levels, and farmer income. The farming techniques also minimise degradation and use natural farm waste.

Work in Vietnam could be expanded along the Mekong and into other crops, if further funding was available. Jes is also interested in taking his experience and scientific knowledge to India where there is a lack of protein in diets and farmers are impoverished, and where Jes has contacts.

Jes is keen to undertake fish nutrition research in Vietnam and India. It could also be done in other developing countries. This research will help to reduce the cost of farming fish and increase fish volume and quality, benefiting the farmer and his or her local community.

### **Researcher**

Jes Sammut is an Associate Professor, member of the UNSW Centre of Ecosystem Science and leader of the UNSW Aquaculture Group. Motivated by a desire to help people and a love of fishing, Jes was recruited by ACRIA while completing his PhD in geology. He has been researching and implementing sustainable fish and shrimp farming practices across the Asia-Pacific ever since. Changing the lives of disadvantaged people is his livelihood.

Ben Falkenmire 13.09.17