Mapping UNSW Impact

Global Development

Primary SDG	**3: GOOD HEALTH AND WELL-BEING**
Broad theme	Nutrition and adding vitamins to food
Research	Assessing nutrient levels and diets, adding vitamins to food, and educating about the best diets to enhance nutrition
Impact region	PNG, Philippines
Faculty	Engineering
School/Institute	Food Science and Technology
Academic	Associate Professor Jayashree Arcot
Project partners	PNG: University of Technology in Lae, PNG's Department of Health, Goodman Fielder - $150,000 in funding until 2018
	Philippines: Mercedes Regional Cooperation, Food and Nutrition Research Institute (FNRI), UNSW Public Health, Mercedes local council
Related SDGs	10: Reduced Inequalities
	4: Quality Education

Elevator pitch

Jayashree is assessing diet intake behaviour, the benefits of fortifying foods with nutrients, and delivering nutrition education programs in PNG to improve children's nutrition and help them avoid development complications such as anaemia, vitamin A deficiency, zinc deficiency and stunted growth.

The Challenge: Current diets are not providing the nutrients required

In PNG nutrition is poor. People are missing out on micronutrients such as B complex, vitamin A, iron and zinc. This is because the local diet is based on subsistence farming, and the country's geography makes it difficult to transport food across the country. Nutrient deficiencies are having adverse effects such as the stunting of growth in children, blindness, and anaemia. Changing people's eating behaviour is a tough ask and there is a lack of resources to act appropriately. Children aged 6-12 years old are one of the most vulnerable segments of the population in regards to malnutrition.

In rural Philippines breastfeeding is common practise but complementary foods are not being given to young children after 6 months of age. This is resulting in malnutrition in the child and a host of other health issues immediately and later in the child's life.

UNSW's solution: Identify deficiencies, add nutrients to food and evaluate impact

Jayashree is a nutritionist specialising in the adding of nutrients to food. Since 2009 Australia fortifies bread flour with folic acid. Jayashree's work contributed to this outcome. More recently she was approached by one of the largest flour millers in Australia, Goodman Fielder, to test the adding of nutrients to wheat flour to

improve overall nutrition among the general population. Currently, over 400 children (6-12 years of age) are being provided with eight added micronutrients (Iron, Zinc, Vitamin A, Thiamin, Riboflavin, Niacin, folic acid and Vitamin B12) in the form of a biscuit. The impact on nutrition levels will be evaluated in November 2018 when the trial finishes. The eight nutrients selected are in line with WHO recommendations. This project is conducted by a PhD student with a team of researchers from UNSW.

In the Philippines, Jayashree and her team are surveying three regions and over 500 mothers and their children (9-23 months) to determine nutritional deficiencies. They are also examining locally available food and its ability to combat deficiencies. The team will then look to train local village and primary health care workers to teach mothers what food they and their children should be eating at different stages in the newborn's development. Mothers come regularly into clinics in the Philippines to have their babies weighed and measured. The education program will focus on the local council of Mercedes and is slated to kick off in October 2018, with evaluations to take place throughout 2019.

Jayashree is also working on a project in Indonesia that involves the adding of sorghum to tempeh for children aged 5-12 years to improve their protein and energy levels. Further funding is required for an intervention.

The Impact: Improve nutrition and diets nationally, and childhood development in particular

The PNG Government is following Jayashree's trial in Lae closely. If the trial is successful, the government will look to implement national policy to have millers add these eight nutrients to wheat flour, helping the population to improve nutrition levels and wellbeing. Children will benefit the most, avoiding the stunting of growth, blindness, disease, and other nutrition-related development issues. A more nutritious diet will also improve a child's intellectual capacity, and energy for school and play.

Jayashree's work in the Philippines is helping local mothers and health workers to identify where the deficiencies are in their diet and what local food can help bridge these deficiencies. Training local workers will ensure more mothers are educated about what kind of food they and their baby should be eating at different stages in the baby's development, improving the child's development and minimising health complications. Should the model prove successful, Jayashree will encourage its replication in other councils across the country, meaning more babies will benefit. The training will also help build local capacity, improving job prospects, education levels, and the ability to self-determine.

Researcher

Associate Professor Jayashree Arcot is an expert in food composition and nutrients. She established micronutrient (Vitamins) analysis as a major research area at UNSW, which is the only reputed food analytical laboratory in the Oceania region. In the past, she has assisted the Food Standards Australia and New Zealand (FSANZ), and she is currently on the Expert Panel of AOAC International (Scientific Association for Analytical Excellence) for Vitamin methodology (Folate and Vitamin C) in infant and adult nutritionals. Jayashree is passionate about improving the nutritional status of vulnerable people, and preventing malnutrition.

Ben Falkenmire 10.07.18