Strengthen capacity of local dietitians to assess sustainable food systems in three geographically distinct indigenous Solomon Island populations.

Solomon Islands is a less-commonly known country located in the Pacific. This Melanesian country is an archipelago made up of over 900 islands. These islands contain vast genetic, biological and culture diversity unique to this part of the world. Solomon Islands is also home to over 650,000 indigenous people who speak over 75 distinct languages. The vast majority live in smaller rural villages. However, many are moving towards the urban capital of Honiara in hopes of finding work outside of subsistence agriculture.

Figure 1: View of Solomon Islands from plane

Solomon Islands are recognized as a “Center of Plant Diversity” by the Center for Biological Diversity (CBD), and are home to 4,500 different species of plants – 3,200 of which are indigenous and at least 120 are edible. I personally have never seen such variety of foods in my life, such as the dozens of varieties of bananas I was able to see and taste.
Until the past few decades, indigenous Solomon Islanders traditionally relied on locally grown, biodiverse food systems as their primary source of nutrition. Today, however, traditional diets are being replaced with ultra-processed foods, which is causing a rapid growth in noncommunicable diseases for the first time in the country's history. Noncommunicable diseases like heart disease and diabetes are now the leading cause of mortality.

Climate changes are also impacting Solomon Islands, bringing heavier rainfalls, more severe droughts, and rising sea levels – further threatening the sustainability of their indigenous food systems. The unfortunate part is that Pacific Islanders are contributing next to no greenhouse gas emissions (0.03% of global emissions), yet they are getting hit the hardest by the adverse impacts of climate change.

Currently, minimal literature exists examining diet patterns and food system transitions in this country. This research project aimed to gather improved insights into the history, present challenges and opportunities, and future outlooks of indigenous food systems in three geographically distinct Solomon Island populations.
This research is a collaborative effort between Bioversity International (CGIAR), United Nations Food and Agriculture Organization (FAO), Solomon Islands Nutrition University (SINU), and Massey University. To conduct this research, I fostered collaboration with a team of seven local dietitians from the Solomon Islands National University (SINU). Here I was able to share knowledge and skills by strengthening the research capacity of the dietitians through training in novel dietary and food systems data collection methodologies. These skillsets can help improve their clinical and academic practices by introducing them to new ideas surrounding biodiverse and sustainable diet patterns. Many of the dietitians are also lecturers at SINU and can apply these learnings to their classroom teachings.

My team ventured to the remote coastal village of Baniata in 2018, and more recently to the rural inland village of Tuturu on Guadalcanal Island (Figure 6), and urban population in Honiara (2019). The goal was
to track and compare local food system transitions, diet quality, food insecurity, and opportunities for improving nutrition and health through insights from traditional knowledge.

Using a mixed method approach, the dietitians used qualitative participatory focus group discussions, food security assessments (FAO-FIES), body composition metrics (lean muscle mass, body fat percentage), and species-specific repeat 24-hour household dietary recalls. With these methods we were able to study household diet quality, diversity, and changing trends over time.

Initial results from the first round of data collection (2018) indicate that even in a remote coastal village (without minimal access to stores), about 33% of diets were heavily reliant on ultra-processed, low-nutrient imported foods such as white rice, instant noodles, biscuits, and sugary drinks. Estimated
average intakes (EAR) of nutrients indicates that majority of cooks were significantly below the recommended intakes of numerous essential nutrients, including vitamin A, calcium, protein, thiamine, and riboflavin. Food security was also increasing due to dramatic changes in weather patterns, and 80% of households interviewed were worried about not having enough food throughout the year.

Gardens in certain areas are drastically declining in diversity, primarily linked to one cause - the invasive African slug (Figure 8). This slug appeared from the rivers nearly three years ago and has caused widespread damage to essential crops - including kumara (sweet potato), slippery cabbage, and bananas. Villagers shared that their tolerance is low for this invasive species and it is causing great stress.

Though Solomon Islands is known as a biodiversity hotspot, numerous species are neglected or underutilized. As example, the bright orange Fe‘i bananas (Figure 9) are not commonly consumed but contain over 100x the Vitamin A of a typical banana. Leveraging existing biodiversity can be a valuable tool to maintain cultural knowledge while improving food systems to deliver more nutrient-rich diet patterns.
Findings from this research will help strengthen discourse around scaling up and leveraging biodiverse food systems for improved health. These findings also aim to help guide educational and agricultural policy interventions for the Solomon Island Ministry of Agriculture, Ministry of Health, and researchers at The Solomon Islands National University. Results from the first data collection in 2018 are under review for publication in the Journal of Food Security. Qualitative data is also under review as an indigenous food systems food chapter in a UN FAO book release, scheduled for early 2020. Results from the September 2019 data collection trip will be submitted for publication in early 2020.

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