Building the Evidence Base on Community Food Production Initiatives in Pacific Island Countries

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CTA Technical Brief

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In a nutshell

- Community food production initiatives (CFPIs) have been identified as part of the solution for addressing the triple burden of malnutrition in Pacific Island countries (PICs).
- CFPIs can contribute to increasing dietary diversity and incomes and reducing household food expenditure.
- In this study, methods and tools developed through the Community Food and Health (CFaH) Project have been applied to CFPIs in Fiji and the Solomon Islands to provide evidence of the impact on nutrition and livelihoods.
- Community empowerment is one of the three priority policy objectives for improving food security and nutrition – globally and in the Pacific region.
- More investments are needed to upscale CFPIs and evaluate their impacts on health, social and economic well-being through research that engages with communities and civil society organisations.
- Up-scaling CFPIs and providing evidence of impact through research will contribute towards building sustainable, resilient and nutrition-sensitive food systems in PICs.

Overview

Poor dietary diversity, low consumption of fruits and vegetables, and an increasing reliance on relatively expensive, processed and imported foods high in fat, salt and sugar, are linked to the triple burden of malnutrition. Under-nutrition, overweight and obesity (Figure 1), and micronutrient deficiencies, are challenging food and nutrition systems in PICs. Between 40 and 80% of adults are overweight and obese and approximately 15-25% suffer from type 2 diabetes in the region (Figure 2) (IDF, 2017 and NCD Risk Factor Collaboration, 2016). These prevalence rates are among the highest recorded globally. Related to this, adults in PICs have a high probability of premature mortality from non-communicable diseases (NCDs). Depending on the PIC, between one in six to one in four women, and one in four to over one in three men, will die from an NCD before their 70th birthday (WHO, 2018). In the seven InnovAg4Pacific project countries, death rates attributable to poor nutrition are around three to seven times higher than in New Zealand (Figure 3). A fifth to a third of *all* deaths in these countries are attributable to poor nutrition.

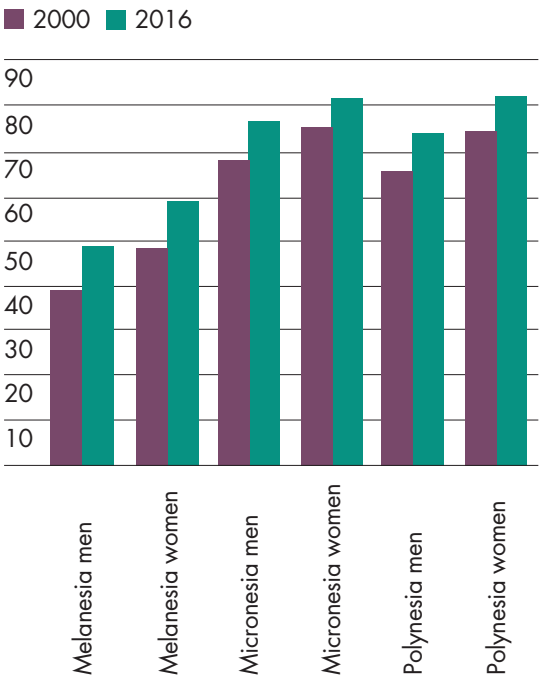
Important factors linked to the nutrition and health crisis are: an underperforming agricultural sector and reductions in physical activity alongside a dietary transition away from traditional diets based primarily on locally produced food crops and fish. The frequency of extreme weather events and pest and disease outbreaks also reduce access to nutrient-dense, affordably priced local foods.

The underlying systemic factors impacting on agriculture, health and nutrition, as well as environmental and social stability, must be comprehensively addressed to build resilience and ensure the sustainability of Pacific agri-food and nutrition systems.

Policy responses

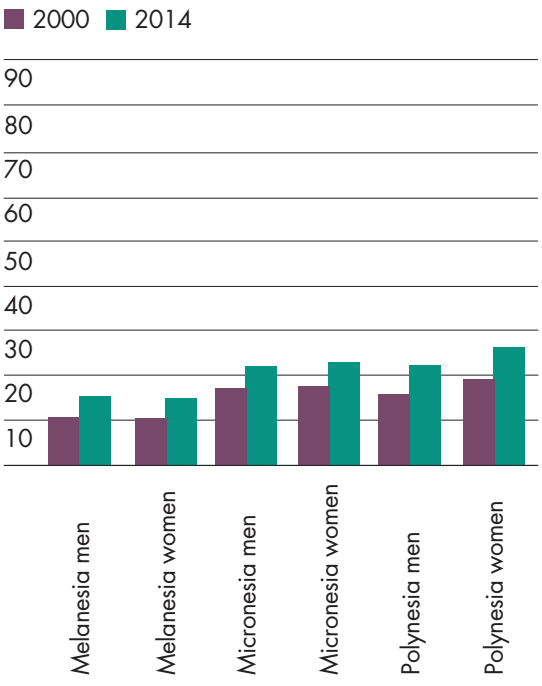
In their policy responses that demand urgent action, the governments and people of the Pacific Islands have prioritised improving food security and reducing NCDs – the latter seen as the major 21st century health challenge for Small Island Developing States. The Joint Action Framework for Food Security and Nutrition in the Pacific Islands 2018-2022, also referred to as the Pacific

Figure 1: Increase in prevalence (%) of overweight and obesity between 2000 and 2016



Source: NCD Risk Factor Collaboration, (2016)

Figure 2: Increase in prevalence (%) of diabetes between 2000 and 2014



Source: NCD Risk Factor Collaboration, (2016)

Food and Nutrition Framework (PFNF) was endorsed by Pacific Island leaders in 2018 (FAO, 2018). The PFNF aims to accelerate progress towards the attainment of national and regional food security and nutrition goals by *inter-alia* creating an enabling environment, strengthening the coherence and coordination of development partner support and empowering people and communities (FAO, 2018). The PFNF aligns with the 2014 *Rome Declaration on Nutrition* and its global *Framework for Action* which recognizes that "food systems should be at the heart of efforts to combat all forms of malnutrition" (FAO, 2014). A key priority outcome of the PFNF is a "strengthened evidence base to support multi-sectoral policy action".

Measuring the impact of CFPIs

Locally-owned and well-managed CFPIs, which increase access to fresh or minimally processed, diverse and nutrient-dense food for local and home consumption, are widespread across the Pacific. The successful implementation of these CFPIs is one possible approach to reducing NCDs and building sustainable and resilient food and nutrition systems. However, CFPIs are inconsistently evaluated, and very little evidence is available on their impacts on health, nutrition, social and economic well-being and the environment. The current contribution of CFPIs to addressing the triple burden of malnutrition, reducing household food expenditure and increasing incomes in PICs needs more rigorous investigation and documentation in order to guide their further successful dissemination.

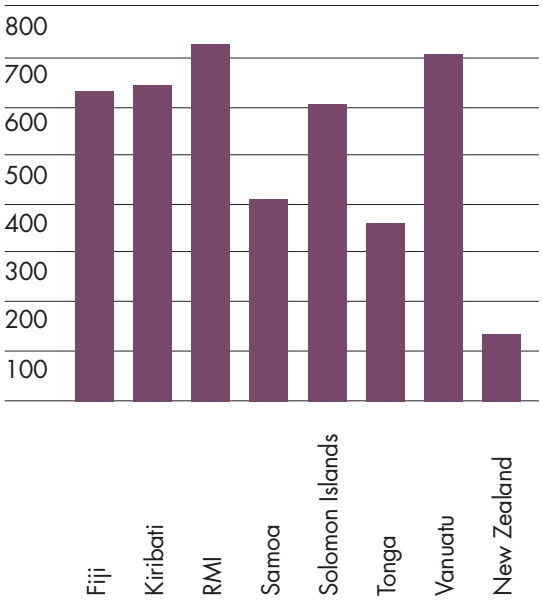
From 2017 to 2019, the Community Food and Health (CFaH) Project, which was implemented by a consortium of international research and non-research actors, developed a methodological framework for evaluating the impact of CFPIs on NCD risk factors, social and economic well-being and the environment. Partners were drawn from Europe, the Pacific, Caribbean and USA, and included community-based and farmers' organisations from Fiji and Saint Vincent and the Grenadines. The methodological framework comprised a quantitative and qualitative approach with accompanying tools and learning resources. The quantitative approach included an electronic diet survey made up of six questionnaires relating to dietary diversity, frequency of consumption of specific foods (such as ultra-processed foods), food security, food sources and physical wellbeing. Data were collected and entered using a tablet with an integrated data management software. The qualitative approach involved community focus group discussions and individual stakeholder interviews.

Evaluating CFPIs at local level in PICs

In 2018, the CTA and IFAD 4-year (Innov4AgPacific) project, Leveraging the Development of Local Food Crops and Fisheries Value Chains for Improved Nutrition and Sustainable Food Systems in the Pacific (also referred to as Promoting Nutritious Food Systems in Pacific Island States) launched the Community Nutrition Seed Funding Project (CNSFP), which links agriculture, nutrition and income. This was in keeping with the goal of the project to "strengthen the capacity of the Pacific Island governments, farmer and private sector

Figure 3: Number of nutrition-related deaths per 100,000 population per year in the seven Innov4AgPacific project countries

(New Zealand shown for comparison)



Source: GBD 2017 Diet Collaborators (2019)

organisations, and sub-regional institutions to develop strategies and programmes, as well as mobilise financing, that can increase poor rural peoples' access to nutritious and healthy food" in Fiji, Kiribati, the Republic of the Marshall Islands (RMI), Samoa, Solomon Islands, Tonga, and Vanuatu. The Innov4AgPacific project entered into partnership with eight Pacific civil society organisations (CSOs) in six PICs (excluding Vanuatu) that had been identified as having a track record of working with communities to improve agriculture, health and nutrition.

The Foundation for Rural Integrated Enterprises and Development (FRIEND) in Fiji and the Kastom Garden Association (KGA) in the Solomon Islands were two CSOs that received seed funding to upscale their CFPIs. FRIEND promotes the 9x9 backyard model gardening technique, which uses nine different varieties of nine different crops (fruits/vegetables/herbs). The integrated approach combines sustainable and organic agricultural practices with nutrition and health training sessions (see FRIEND *Garden to Fork* cookbook), to tackle malnutrition and poverty in the rural communities. The FRIEND Innov4AgPacific project supported the establishment of 300 backyard gardens of various sizes (20 gardens per community in 15 communities), that are actively maintained to enable at least 300 households to consume the harvested goods within healthy meals.

KGA, on the other hand, develops the capacity of smallholder farmers and community networks to improve the quality, consistency and sustainability of production systems to enhance the food security and livelihoods of rural populations in the Solomon Islands. The KGA training, which includes practical sessions, enabled the participating farmers and community members to: produce high quality planting material; carry out cross pollination; effectively package and store seeds; carry out rapid multiplication of selected root crops (sweet potato, African yam, and Taro); establish and maintain gardens and germplasm centres. The KGA Innov4AgPacific project strengthened the capacity of rural farmers, farming communities and a network of KGA famers known as the Plant Materials Network, in the Solomon Islands to increase the availability of affordable and high-quality planting material and enhance income-generating opportunities.

Applying the CFaH method in PICs

The CFaH methodological framework was used to evaluate the FRIEND and KGA CFPIs to investigate the impact on diet quality, nutrition knowledge and societal

benefits among other factors. Data were collected from the participants (91 in total) in the FRIEND and KGA CFPIs.

Sources of food and diet quality

Participants reported obtaining their food from diverse sources, i.e. own production, retail outlets, borrowing from neighbours and food aid. In response to questions about how they source their food, about 70% of Fijian respondents consumed their own, home-produced food, compared to around 90% of respondents from the Solomon Islands. About 91% of participants in Fiji and 96% in the Solomon Islands purchased foods from retailers, and about 70% of the Solomon Islands respondents reported that they borrowed food from neighbours as opposed to 20% in Fiji. About 10% of participants in Fiji used food aid, but this was not reported by any participant in the Solomon Islands.

Through focus group discussions, it was found that the Solomon Islands communities prioritise selling produce to neighbouring islands, but this depends on the availability of transport (boat). They also buy processed foods such as biscuits, noodles, rice and canned tuna – mainly for their children who ask for these types of foods. In Fiji, the main food items purchased from shops and markets are flour, rice, sugar and oil, and milk for the children.

Respondents from both countries reported that they save money by consuming vegetables produced in their home gardens. Villagers without home gardens claimed to purchase vegetables and root crops from their neighbours (with home gardens).

There were similarities between Fiji and the Solomon Islands in their dietary diversity scores (DDS), which has a potential maximum value of 10. The analysis showed that households consumed food from three to six different groups out of a possible 10 food groups: (1) grains, roots and tubers, and plantains; (2) pulses (beans, peas and lentils); (3) nuts and seeds; (4) dairy; (5) meat, poultry, fish; (6) eggs; (7) dark green leafy vegetables; (8) other vitamin A-rich fruits and vegetables; (9) other vegetables; (10) other fruits. Whilst the numbers are too small for robust statistical analysis, variations in DDS were observed with respect to age, gender and education status (Table 1). The mean

Table 1: Summary of DDS for the Fijian and Solomon Islands communities participating in the FRIEND and KGA CFPIs

Variable	DDS (Mean (SD))	
	Fiji (n=54)	SI (n=37)
Age		
15 to < 40 years	4.0 (2)	4.1 (2.0)
40 to < 65 years	4.2 (1.7)	4.1 (1.5)
65 years or older	3.4 (1.5)	3 (0)
15 to 49 years (WRA)*	4.2 (1.9)	3.8 (1.3)
Gender		
Male	3.6 (1.3)	3.7 (1.3)
Female	4.2 (1.9)	4.5 (2.1)
Education status		
No formal schooling	1 (0)	4.2 (3.2)
Primary education or lower	3.7 (1.6)	3.7 (1.4)
Secondary education completed	4.6 (1.7)	4.2 (1.4)
Higher education completed	6.5 (3.5)	5.5 (1.7)

DDS for women was 4.2 in Fiji and 4.5 in Solomon Islands and these were slightly higher than the score for men – 3.6 in Fiji and 3.7 in the Solomon Islands. Participants with higher education (completed tertiary education) had the highest DDS in both countries (Fiji 6.5, Solomon Islands 5.5).

Food and nutrition knowledge

Overall, 48% of the nutrition knowledge questions were answered correctly, with slight differences observed between participants in Fiji and the Solomon Islands (Table 2). The highest score achieved by any participant was 48, out of a possible total of 59. Generally, most respondents were aware of expert advice on the foods they should either eat more or less of. About 78% of those surveyed were aware of the need to eat more fruits and vegetables but only 8% knew the recommended serving amount (five or more servings per day).

When the participants were asked about the types of diseases that are related to diet, 78% were aware that high blood pressure is associated with high consumption of salt and that tooth decay (70%) and obesity (54%), are related to high sugar consumption. Regarding the prevention of diabetes, only 23% of respondents believed that eating less refined foods is beneficial, however, most participants (64%) acknowledged that eating more local foods and consuming less sugar (62%) is recommended. The results suggest the importance of the nutrition education component of CFPIs and the need for enhancing and perhaps standardising the content – specifically to improve participants' knowledge on the nutritional value of local foods, diet quality, good nutrition and on the relationship between sources and types of foods consumed in the effective management of NCDs, such as diabetes.

Several quotes from the community members surveyed suggest that they have been encouraged to change the way they eat because of the interventions implemented by FRIEND and KGA.

From the Solomon Islands:

"We saw it as very useful for us. KGA has taught farmers to grow more local food in a system they called organic farming."

"Now the community is more encouraged and serious since we learned about the different crop varieties introduced by KGA. Since the training, we now know that it is good for us."

And from Fiji:

"We have learnt from FRIEND to mix cassava, to grate it first and then mix it in a form of a dough to make roti. The same applies for breadfruit as well… They came and taught us, the women, on changing the kinds of food we eat within our household."

"Red meat was a common part of our diet but ever since FRIEND stepped in, our parents started to plant more vegetables so we could eat healthier food. Our family's diet improved because we are concerned about NCDs and are now eating healthier."

Table 2: Summary of nutrition knowledge scores from communities in Fiji and Solomon Islands

The maximum score possible was 59

	All (n=87)	Fiji (n=52)	Solomon Islands (n=35)
Mean nutrition knowledge score (and range)	28.2 (11-48)	27.2 (11-48)	29.7 (13-40)
Percentage of correct answers	48%	46%	50%
Nutrition knowledge score categories			
Lowest: 11-23 (%)	25 (29%)	19 (37%)	6 (17%)
Middle: 24-35 (%)	47 (54%)	25 (48%)	22 (63%)
Highest: 36-48 (%)	15 (17%)	8 (15%)	7 (20%)

Conclusion

The CFaH tools were useful in evaluating the CFPIs implemented by FRIEND and KGA. The results suggest that they are contributing to increasing the availability of local, nutrient-dense foods for household consumption. Communities are producing and harvesting produce from backyard and community gardens and this was reported to result in more diverse diets at the individual level, although as the findings show dietary diversity could be improved further. The home gardens also provide economic benefits, given that in some cases, they are being used to generate income for households as well as to reduce food expenditure. Participant knowledge on the links between diets and NCDs exists in the targeted communities but should be improved.

Evidence is needed to support the attainment of the policy objectives as identified in the PFNP. This calls for greater investment in multi-disciplinary research for evaluating and validating the impacts of CFPIs on improving access to nutrient-dense foods and dietary diversity at the household level, and empowering communities for building sustainable, resilient and nutrition-sensitive Pacific food systems. CFaH tools should be further contextualised, tested and used in the design, monitoring and evaluation of CFPIs in PICs. Additional funding should be made available to support CSOs to expand their CFPIs and strengthen the health and nutrition education component through partnerships with local health and nutrition professionals. When taking into consideration local context and differences, these additional investments in community empowerment and multi-disciplinary research will help to up-scale CFPIs and contribute to improving household incomes and nutrition in Pacific Island States.

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About the project

The project "Leveraging the Development of Local Food Crops and Fisheries Value Chains for Improved Nutrition and Sustainable Food Systems in the Pacific Islands with a focus on Fiji, Kiribati, Marshall Islands, Samoa, Solomon Islands, Tonga, and Vanuatu" was co-funded by the International Fund for Agricultural Development (IFAD) and the Technical Centre for Agricultural and Rural Cooperation (CTA) and is implemented in partnership with the Pacific Islands Private Sector Organisation (PIPSO). The goal was to strengthen the capacity of the Pacific Island governments, farmer and private sector organisations, and sub-regional institutions to develop strategies and programmes – as well as mobilise financing – that can increase poor rural people's access to nutritious and healthy food. CTA had overall responsibility for the implementation of the project.

About the project partners

IFAD
Investing in rural people

The International Fund for Agricultural Development (IFAD), a specialised agency of the United Nations, was established as an international financial institution in 1977 as one of the major outcomes of the 1974 World Food Conference.

PIPSO
Pacific Islands Private Sector Organisation

The Pacific Islands Private Sector Organization (PIPSO) is the premier private sector representative body in the Pacific Islands region. It was set up through the mandate of the Forum Economic Ministers in 2005, and legally established in 2007, to be the representative body of the Pacific region's private sector.

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Additional material

Two webinar sessions on Evaluating the Role of Community Food Production Initiatives for Improving Nutrition in Pacific Island States

Webinar 1: https://www.youtube.com/watch?v=yOU9l2-Nn8k

Webinar 2: https://www.youtube.com/watch?v=-VcBAbMlclM

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