Our people, our food, our planet: Sustainable food systems policy in the Pacific

Cath Conn, Radilaite Cammock, Katrina Ford, Gloria Faesen Kloet, Shoba Nayar

Abstract

Pacific Island Countries and Territories are facing a health crisis with noncommunicable diseases (NCDs) currently accounting for more than 80% of deaths. In the 21st century, advances in health intervention and policy render this figure unacceptable. Multiple risk factors contribute to the NCD crisis; a leading driver being obesity due to changing dietary practices arising from the global food system. A system which is dominated by processed foods high in starch and sugars. This situation is compounded by changes in the natural and built environments relating to climate change. Tackling this issue is beyond the sole domain of public health and is, therefore, more suited to a planetary health approach. This paper applies a sustainable food systems approach to analysing NCD policy developments in the Pacific region. In particular, three domains of policy which impact diets in the Pacific are examined: food production, climate change and sustainability, and trade. It is argued that countering the NCD crisis demands a global multisectoral approach, with governments leading the way, to develop integrated policy and interventions that will secure the future wellbeing and protection of our people, our food, our planet.

Keywords climate change, sustainable food systems, multisectoral approach, Pacific, planetary health

Cath Conn, Radilaite Cammock, Gloria Faesen Kloet, and Shoba Nayar are affiliated to the Child and Youth Health Research Centre, Auckland University of Technology, New Zealand, https://cyhrc.aut.ac.nz/ and Katrina Ford is an independent health researcher.

Key Messages

- The obesity epidemic and the NCD crisis in PICTs are symptoms of global food and economic systems that concentrate upon *consumption-based growth* as the only viable form of economic development.
- Underdeveloped infrastructure and climate change are *eroding local production and food security* within PICTs, making the NCD crisis a global concern.
- Food systems need to be envisioned as nutrition and health systems; but also as relating to *planetary health*.
- Tackling the issue requires a *multisectoral approach* integrating policy that addresses food production, climate change and sustainability, trade, and health interventions.
- Governments, internationally, need to assume more proactive leadership in creating *sustainable food systems* and incentivising people to make healthy food choices.

Introduction

Pacific Island Countries and Territories (PICT) are experiencing a health crisis. The rates of non-communicable diseases (NCDs)—cardiovascular disease, diabetes, cancers and chronic respiratory disease—have soared in recent decades and account for more than 80% of all deaths in the region (World Health Organization [WHO], 2013a. Around 75-80% of hospital admissions, general surgeries and renal dialysis patients are due to NCDs which places a huge strain on already overstretched national health budgets. Furthermore, the costs associated with relatives having to care for NCD patients and taking time away from work or school are catastrophic for families and communities (UNDP, 2013).

The risk factors for NCDs are primarily tobacco use, unhealthy diets, physical inactivity and the harmful use of alcohol (WHO, 2013b). In particular, the global obesity pandemic has been identified as a driver of NCDs—a major concern given adult obesity exceeds 60% in all PICTs (Swinburn et al., 2011). Across the Pacific region, national governments and regional organisations have been working to combat rising rates of NCDs; yet, no country has successfully reversed its obesity epidemic (Roberto et al., 2015), indicating that attempts to shift diets away from a reliance on energy-dense, nutrient-poor foods have had limited effective.

The Pacific NCD Roadmap noted that "relying on the health sector alone to reduce the NCD crisis is ineffectual. The social determinants of health need to be addressed" (World Bank, 2014, p. 9). The importance of a multisectoral approach in combating NCDs was reiterated at the Twelfth Pacific Health Ministers' Meeting in 2017, which called for "multiple, sustained and cross-sectoral actions to effectively reduce and prevent childhood obesity" (WHO, 2017). However, the call has not been heeded. Piukala et al. (2016) noted, "achieving … coherence across difference ministries and sectors—each with

their own mandates, priorities, and budgets—has been one of the persistent bottlenecks in getting effective NCD response around the world" (p. 899). In addition, and more recently, there has been recognition that food systems are not only having a significant effect on human health, they are also contributing to climate change (Swinburn et al., 2011). For the sake of our people, our food, our planet, this situation must change.

This paper applies a sustainable food systems approach to analysing NCD policy developments in the Pacific region. First, the meaning of a sustainable food systems approach, its significance and usefulness for analysing the complex problem of dietary change in the Pacific, is outlined. Then, three domains of policy which impact diets in the Pacific are examined: food production, climate change and sustainability, and trade. In examining how these interlocking domains contribute to the overall picture of diet in the Pacific, this review considers research from a variety of disciplines and sectors. The intention is to bring a wider lens to the issue of food in the Pacific, aligning with the consistent demand for a multisectoral approach in dealing with the NCD crisis.

A sustainable food systems approach to tackling the Pacific NCD crisis

The health and wellbeing of communities are dependent on a wide range of factors, many of which lie outside the parameters of what has been considered traditionally as the health system. Hence, the boundaries of the health system have needed to become increasingly fluid. Broad thinking and collaborative strategies for identifying problems and finding solutions are a feature of a new public health paradigm that is anchored in a greater emphasis upon the social determinants of health (Baum, 2016). Research has shown that the roots of NCDs lie in a highly complex interaction between behaviours, values, institutions, regulations, policies and socioeconomic structures. Indeed, Health-in-all-Policies frameworks have gained significance, as policy makers recognise that efforts to deal with this health crisis require inter-sectoral commitment and action (Puska & Ståhl, 2010). Thus, the NCD crisis has highlighted the need for the broadest possible approach to public health policy.

The Alliance for Health Policy and Systems Research, an international collaboration based within the WHO, argued for the importance of systems thinking—"an approach to problem solving that views 'problems' as part of a wider, dynamic system" (de Savigny & Adam, 2009, p. 33)—to guide police interventions. Such an approach emphasises the need for deeper understanding of the relationships and interactions between the various elements that characterise the health system in order to create effective policy and utilise collaborative arrangements between the various stakeholders.

Given the understanding that diet and nutritional practices are the results of individual choices and food preferences, and the product of a comprehensive food system, policy efforts to effect change in dietary practices in the community must encompass the food system in its entirety. The Food and Agriculture Organization of the United Nations (FAO, 2018) described the food system as encompassing the entire range of activities involved in the

production, processing, marketing, consumption and disposal of goods that originate from agriculture, forestry or fisheries, including the inputs needed and the outputs generated at each of these steps. Food systems also involve the sociopolitical, economic and technological environment in which these activities take place, as well as the people and institutions that initiate or inhibit change in the system.

People are an important component of the food system. The food they eat influences what food is produced by way of food cultures, values and beliefs. Furthermore, food systems influence consumer food preferences, attitudes and beliefs, because they shape food environments; that is, the foods that are available to people in their surroundings as they go about their everyday lives. These food environments provide the available choices for people (IFPRI, 2017).

A systems approach emphasises how the component parts work together in a dynamic relationship. Changing one part of the system can potentially shift the whole system towards supporting healthy diets and better nutrition, making it easier for communities to access healthy food options. However, policy should aim to create alignment within food systems, as policy change in one area is likely to fail if it is not supported or it is undermined by policy action (or inaction) within another part of the food system. At present, policy on agriculture, food and diet is rarely designed in concert. For example, Tonga has had a national NCD-prevention strategy in place since 2004 which has stressed the need to increase consumption of fruit and vegetables, but there has been little research or action regarding Tonga's declining domestic fruit production industry (Underhill & Singh-Peterson, 2017).

The NCD crisis in the Pacific region indicates that people are not making food choices that are consistent with good nutrition; and there is a lack of access to good food choices. Current food systems across the globe are failing to produce food that is nutritious, affordable and sustainable. The focus is upon feeding people rather than nourishing them and food systems are invariably underpinned by consumerist economic imperatives instead of a concern for health and sustainability. This situation is damaging the health of people and endangering the future of the planet.

The EAT–Lancet Commission study on healthy diets from sustainable food systems argued for the need for a Great Food Transformation, involving multiple stakeholders "from individual consumers to policy makers and all actors in the food supply chain, working together towards the shared global goal of healthy and sustainable diets for all," which emphasise plant-based, fresh foods (Willett et al., 2019, p. 448). This change will take a conscious and sustained effort to transform how people engage with food systems. By examining policy levers across the food system, PICTs can find new paths to solutions for the NCD crisis.

Domain 1: Producing food in the Pacific

In recent decades, the diet of Pacific people has undergone massive transformation from the consumption of traditional diets, consisting of

starchy root crops supplemented by fish, coconut and occasional livestock products, to a diet based upon imported foods, particularly staples such as white rice and refined flour, tinned meats and fish, and a variety of high-energy, low-nutrient processed foods (Iese et al., 2015). Although fish remains a major source of protein, recent years have seen a significant increase in the proportion of meat-based protein in nearly all PICTs. These changes have been most marked in urban areas. This dietary transformation, commonly referred to as the nutrition transition, along with increasingly sedentary lifestyles, has been identified as a key factor for the explosion in NCDs in Pacific communities.

One of the main challenges facing Pacific communities in combating the NCD crisis is the problem of low food self-sufficiency and lack of production of local, fresh foods (Bell & Taylor, 2015). PICTs have become highly dependent upon imported, often highly processed and/or nutritionally deficient, food to feed their communities. The heavy reliance on imported food is also problematic for food security as it makes PICTs more vulnerable to global fluctuations in food markets (Iese et al., 2015).

Increased importation of food stems from demand and supply issues. Many PICTs have experienced rapid population growth in recent decades and increased urbanisation (2.5% per annum in some parts of the Pacific) (Bell & Taylor, 2015); the populations of Papua New Guinea, Solomon Islands and Vanuatu are projected to double by 2050 (Taylor, McGregor, & Dawson, 2016). Population growth creates more mouths to feed and puts pressure on land availability for food production, resulting in increased food prices. For example, Bell et al. (2009) noted the increasing gap between what is produced by coastal Pacific fisheries and what is required to meet the demands of a growing population.

Concurrently, per capita, food production in nearly all PICTs in the past decade has been declining (Iese et al., 2015) due to a complex mix of environmental, economic, social and cultural factors: urbanisation, loss of traditional farming knowledge, lack of youth interest in farming careers, unsustainable management of fisheries, unsustainable farming practices which have affected soil fertility and plant/crop diversity, issues with land tenure and access to arable land, poor governance, low investment, and climate change. Further, government economic policies that continue to focus upon cash crops and export agriculture are to the detriment of investment in local food production (Thow & Snowden, 2009).

Problems with transport and other infrastructure in many parts of the Pacific further affect the food supply chain, making it difficult to get food from farm to market (Hendriks et al., 2015; Underhill & Singh-Peterson, 2017). Basic facilities such as cool-storage are lacking in many places, leading to post-harvest wastage of crops, a key problem in food systems. Modelling of the potential impact of food policy interventions by Snowdon, Moodie, Schultz, and Swinburn (2011) has indicated that the development of cool-storage facilities at all markets has the potential to avert around 3% of all NCD-related deaths in Fiji. The EAT–Lancet Commission on healthy diets from sustainable food systems advocates for at least halving food loss and waste as one of five key strategies, and particularly focuses on the need for increased investment

in cool-storage facilities in low- and middle-income countries (Willett et al., 2019). Thus, educating people about healthy diets and nutrition, or targeting the consumption of high-energy, low-nutrient products, is inadequate if the food system is not able to produce enough fresh, nutrient-rich food, at a suitable cost to those who need it.

The need for a multisectoral approach to combating the NCD crisis is unrefuted; yet agriculture and fisheries policies and health policies are often still conceived in isolation from each other. For example, the Fiji 2020 Agricultural Policy document, while concentrating on the need to improve food security by boosting the agricultural economy, contains no reference to health imperatives as key goals (Ministry of Agriculture, 2014). Likewise, the public health sector does not always consider agricultural production and difficulties of food supply chains when encouraging people to eat more fresh fruit and vegetables. Underhill and Singh-Peterson (2017) observed that, "current obesity-prevention and NCD policies and remedial interventions in Tonga are based on the underlying assumption of a domestic fresh fruits and vegetables production capacity that could be easily expanded to support dietary transition," (p. 92); when in fact they argue that consumer access to fruit and vegetables can be "highly capricious" due to discontinuous domestic supply chains. This highlights the shortcoming of framing the NCD issue as simply one of inadequate knowledge about nutritional choices.

Therefore, increasing the productivity of Pacific food systems in sustainable ways to provide affordable fresh foods across local communities requires a multisectoral approach to combating NCDs. Currently, policy across PICTs is concentrated on improving the productivity of smallholder farmers, promoting the benefits of agroforestry, protecting traditional knowledge, supporting research into soil productivity and encouraging youth participation and entrepreneurship in agriculture (FAO, 2010; Iese et al., 2015). Moving away from monocultural, export-driven cropping systems, which in the past have led to disastrous outcomes for some Pacific communities, towards the development of sustainable farming systems, is a key priority:

> PICT governments and communities should develop and promote the use of farming systems more suited to changing environmental conditions. Traditional agroforestry and "modern" organic farming systems focus on crop diversification, crop integration and low-input production practices. These farming systems take a balanced approach to crop production and have been shown to provide greater food security during variable and/or adverse climatic conditions. They also tend to conserve soil and water resources and the many ecosystem services that are critical to sustaining agricultural production. (FAO, 2010, p. 56)

Projects such as the Vanuatu Ministry of Agriculture and Livestock supporting the revival of traditional supsup gardens in urban Honiara, as a means of providing residents with fresh food and developing the farming skills of urban dwellers; and the European Union and Secretariat of the Pacific Community-funded project to set up agroforestry pilot sites in Tuvalu, are examples of sustainable approaches to increasing agricultural productivity which merge traditional knowledge with modern techniques (Iese et al., 2015).

Encouraging young people into agriculture is a crucial strategy to increase agricultural productivity, reduce dependence on imported foods, and increase food security (Ali & Masianini, 2010); while highlighting the overall importance of the issue of food production, food security and its interconnection with health to help raise the status of farming as a legitimate career option for Pacific young people.

Domain 2: Climate change, resilience and health

In building sustainable food systems, PICTs must also address the challenges of climate change. The EAT–Lancet Commission has highlighted the interconnection between diet, human health and environmental sustainability (Willett et al., 2019). It is in the Pacific region that the consequences of ignoring these connections are most evident. PICTs are in a difficult position. They are experiencing some of the highest rates of NCDs in the world, linked to dysfunctional food systems; and are most vulnerable to the effects of climate change, which is in part caused by unsustainable systems of food production and is predicted to intensify over the coming decades. Barnett (2011) noted that "climate change puts at risk the very basic and universal need for people in the islands to have access to sufficient, safe and nutritious food at all times" (p. 229).

For instance, fostering local agriculture, promoting the health benefits of traditional crops, increasing access to tuna resources for local consumption and developing freshwater aquaculture are all strategies intended to produce increased quantities of healthy, nutritious food; yet, these plans will be affected by climate change. This awareness stems from global research into the expected effects of climate change, and from the "experience of Pacific people in coping with the effect of climate variability on fisheries and agriculture" (Bell & Taylor, 2015, p. 9). Rising temperatures, variable rainfall, salinisation of the soil, erosion, changes to pests and crop diseases, and increases in the frequency and intensity of natural disasters such as floods and tropical cyclones are among the effects of climate change likely to have an impact upon domestic agricultural production. These factors are also likely to result in increasing urbanisation, which has been identified as a key factor in unhealthy diets (Bell & Taylor, 2015; Iese et al., 2015).

The Fijian village of Vusama has struggled with an inadequate water supply, exacerbated by the increasing unpredictability of the rainy season in recent years (Pearce, Currenti, Mateiwai, & Doran, 2018). Severe droughts have led to crop failure, leaving families unable to grow their own fruit and vegetables. People have responded either by going without fruit and vegetables or purchasing them from the local markets, and often substituting fruit and vegetables in their diet with less healthy store-bought food such as roti, scones and cake. In addition, the need to buy food increases the demand for wage employment, further encouraging a shift away from local agriculture. This depletes the labour force previously available to tend to crops, further impacting agricultural production. Thus, building food systems that can deliver nutritious food and are resilient to the effects of climate change is the

challenge faced by communities and policy makers in the Pacific and, indeed, globally.

Another example of climate change adaptive behaviour resulting in diet change relates to the negative impact of natural disasters. In Vanuatu, 80% of local food production was lost due to Cyclone Pam in 2015 (Cvitanovic et al., 2016). As part of the provision of disaster food, the supply of Western staples, such as rice and flour, has contributed to changing food preferences and reduced incentives to continue traditional mixed-cropping agricultural methods (Thow et al., 2011; Thow & Snowden, 2009). Temporary dietary changes in response to natural disasters become a habit that is integrated into lifestyles. It is predicted that extreme weather events such as cyclones and floods will become more common in the Pacific as a result of the changing climate, potentially leading to more negative changes in Pacific diets.

Issues with food security in the face of climate change relate to recent transformations in the food system. Barnett (2011) noted that recent attempts to modernise agriculture has had the effect of making Pacific communities less resilient to climate change. Traditionally, Pacific com-munities grew multiple crops, which tended to confer some resilience on the food supply as not all crops would be equally affected by droughts or floods. Families also tended to have multiple small gardens in various places, which lessened the risk of losing the entire crop (Bell & Taylor, 2015). However, moves to establish monocultural cash crops such as copra, coffee and sugar cane, combined with the effects of the cash economy, have weakened the diversity and intensity of local production in many places. In Papua New Guinea, coffee has become a major export commodity, and large parts of the agricultural industry are devoted to it. However, coffee is expected to be highly susceptible to the effects of global warming and yields are predicted to fall significantly over the coming years, with parts of Papua New Guinea becoming unsuitable for coffee production post-2050 (Bell & Taylor, 2015). Barnett argued that

> these attempted shifts towards modern agricultural economies and more generally affluent industrial societies have failed to deliver the kinds of resilient agriculture and food systems that developed countries enjoy, while at the same time undermining the resilience associated with traditional agricultural systems. (p. 232).

Current models suggest that the overall impact of climate change on the staple Pacific food crops will be low over the next few decades and will in fact be less than the impact of global warming upon imported staple crops such as rice and wheat. Traditional staple crops, such as cassava and breadfruit, have demonstrated high levels of resilience against the effects of climate change (Bell & Taylor, 2015). This creates an opportunity to decrease the reliance of PICTs upon imported staples.

Food security in Pacific communities is heavily dependent upon fish consumption because of the limited scope for animal husbandry in most PICTs (Bell & Taylor, 2015). Fish provide 50-90% of animal protein for rural communities in most PICTs (Bell et al., 2013; Cvitanovic et al., 2016). Therefore, strategies to build healthy food systems in the Pacific are heavily dependent on the continued supply of fish as an essential component of a

nutritious diet. Fisheries are already under immense pressure because of the projected impact of rapid population growth over the coming decades and there are looming shortfalls predicted in the supply of fish required for good nutrition (Bell & Taylor, 2015). Additionally, due to climate change, it is expected that coastal fisheries, which supply most of the local population, will decrease in productivity. Increases in ocean warming and acidification will directly affect fish stocks; and projected loss of coral reefs, mangroves and seagrasses will have further impacts through the loss of habitats and disruptions to the food systems on which the fish depend (Bell & Taylor, 2015; Bell et al., 2018; Bell et al., 2013). It is estimated that the productivity of coral reef fisheries will decline by 20% by 2050, under current climate change scenarios (Bell et al., 2018).

PICTs need support to help deal with the challenges of locally producing increasing amounts of food in the face of climate change. Bell and Taylor (2015) suggested a variety of policies to support successful climate change adaptation. These include: initiatives that integrate traditional and modern farming techniques; promoting the benefits of agroforestry; supporting farming techniques that enhance soil productivity; promoting the production and consumption of local foods, especially staple crops, and highlighting to communities their benefits both in terms of nutrition and climate resilience; providing subsidies and incentives for crop and livestock substitutions that will improve the climate resilience of food production systems; recognising the importance of crop, tree and livestock diversity; supporting national and regional crop and livestock improvement and breeding programmes for climate resilience; and improving access to water through investments in storage facilities, water-capturing technologies, eco-sanitation and community-managed irrigation systems. For example, the Pacific Adaptation to Climate Change Programme (PACC) has worked with agricultural communities in coastal Fiji to develop drainage systems in the face of increasing flash floods and sea-level rise, and to test varieties of crops resistant to water-logging; with communities in Palau to trial taro varieties that are salt-water tolerant in the face of sea-level rise; and with communities in Papua New Guinea to trial drought-resistant crops and promote ground-water and surface-water-management techniques among farmers (Bell & Taylor).

To support fisheries production, Bell and Taylor (2015) advocated a range of policy initiatives designed to enhance adaptive strategies. These include: strengthening governance for the sustained use and protection of coastal fish habitats; promoting eco-system-based management measures to prevent damage to fish habitats through run-off from erosion; minimising barriers to the migration of mangroves; promoting mangrove replanting programmes; restricting the export of demersal (bottom-dwelling) coastal fish species; supporting the development of pond aquaculture; and encouraging coastal fishing communities to transfer fishing efforts from coastal fishing to oceanic fisheries resources. The latter is regarded as a particularly significant aspect of food security for Pacific communities; for example, providing local populations with increased access to tuna fisheries is key to addressing the growing gap between what can be sustainably harvested from coastal fisheries and what is required for food. Access to tuna resources can be encouraged through the provision of nearshore fish-aggregating devices to assist small-

scale fishers to catch tuna distributing small tuna and bycatch offloaded by industrial fleets in local ports, and improving access to tinned tuna for inland populations.

While Pacific people have shown a high degree of resilience to environmental change, the rate, scale and impact of climate change over the coming decades will be unprecedented and Pacific communities will require assistance to adapt to the effects (Bell & Taylor, 2015; WHO, 2015). However, many communities still lack the knowledge, skills and capital necessary to produce increased quantities of food under a changing climate (Bell & Taylor, 2015; Cvitanovic et al., 2016). These gaps need to be addressed before many of the policy initiatives to support adaptations suggested above can be implemented.

Climate change adaptation requires the development of closer connections between various disciplines and sectors, scientists and technologists, and the various Pacific communities that can benefit from scientific and technology-based knowledge. Indeed, to be effective, "adaptation science for Pacific Island Communities must be multi-disciplinary, with a particular emphasis on integrating the social science to ensure that the end products are practical and meaningful for Pacific Island people" (Cvitanovic et al., 2016, p. 60). However, the science and policy of climate change, food systems and health remain disconnected across a range of institutions and portfolios.

Domain 3: Trading health? Trade and diet in the Pacific

PICTs depend heavily upon imported goods and services which, as a proportion of GDP, are nearly twice as high in the Pacific as in the rest of the world—59% versus 30% (Sahal Estimé, Lutz, & Strobel, 2014). Expenditure on imports, in particular food, is greater than export earnings, with the gap filled by remittances from migrants overseas and development aid. In Fiji, the human energy supply derived from imported food rose from 43% in 1985 to 60% in 1996 (Hawkes, Chopra, & Friel., 2009). Nauru's food supply is almost entirely dependent upon imported food (Thow & Snowden, 2009). Dependence upon imported food products makes PICTs particularly vulnerable to the inequalities and dysfunctions of the global food supply.

Since the beginning of the 21st century, there has been increasing attention devoted to the role played by globalisation and trade in contributing to dietary changes. As Thow, Swinburn et al. (2010) noted, "Trade in food is one of the upstream drivers of the nutrition transition" (p. 556). Research has focused upon elucidating the pathways by which trade influences diet, in the hope of identifying potential policy options that might be used to create a healthier food system in the Pacific (Cassels, 2006; Evans, Sinclair, Fusimalohi, & Liava'a, 2001; Labonté, Mohindra, & Lencucha, 2011; Sahal Estimé et al., 2014; Thow, 2009; Thow et al., 2011; Thow et al., 2017; Thow & Snowden, 2009; Thow, Swinburn, et al., 2010). As Thow and Snowden (2009) explained, many of the dietary changes in Pacific communities have their roots in the systems of agriculture and trade that were established as a result of colonisation. However, it is apparent that Pacific food systems have been radically altered as a result of globalisation since the late-20th century. Labonté et al. (2011) argued that the liberalisation of trade and investment

since the 1980s has led to the international transmission of risk factors for NCDs: "Trade-related global market integration has essentially made such risk factors 'communicable'… blurring the conventional distinction between communicable and chronic diseases" (p. 2).

One of the key pathways by which trade policy has affected diets in the Pacific is through its impact upon domestic agricultural. Agricultural production of traditional staple foods in the Pacific has been in steady decline over several decades in part due to trade and economic policies (Thow & Snowden, 2009). Export promotion has been a key trade policy tool used by PICTs and encouraged by development agendas to rectify trade imbalances. The main export industries in the Pacific have been agricultural commodities (e.g., coffee, cocoa, copra and sugar). These have taken up land and labour resources which have interrupted traditional subsistence agricultural economies and led to a greater reliance upon imported foods. Thow and Snowden (2009) observed the closely entwined relationship between export production and food imports, noting "export-orientated policies and increasing food imports have acted synergistically to reinforce each other. As food imports have increased (in part due to export earning), commodity exports have been a mechanism for earning foreign exchange, in part to pay for imports of basic foods" (p. 156).

Trade liberalisation policies have also removed protections for domestic agricultural production, making it more difficult for locally produced food to compete against cheap, processed imported food. Plahe, Hawkes, and Ponnamperuma (2013) argued that the concessions made by PICTs as part of the World Trade Organization (WTO) accession process have compromised their ability to develop policy that supports the development of local agriculture. For example, the Fijian Farm Assistance scheme, which was designed to provide resources to farmers, was highlighted in the 2009 WTO trade policy review report as an undesirable form of farm subsidy which distorted the market and institutionalised unprofitable farming practices. The removal of tariffs as part of trade liberalisation has also decreased a major source of revenue for governments, making investment in local agriculture more difficult.

Another major source of foreign exchange for PICTs has been commercial fisheries, but here too policy has tended to create a shift away from domestic supply. In the case of Micronesia, fishing rights are sold to foreign nations because of the lack of capacity to develop domestic fishing fleets (Cassels, 2006). Other nations then export tuna back to Micronesia in tins, creating a situation where "Micronesians are essentially selling their own natural food resources for a fraction of the true value, then using the revenue to import nutrient-poor food from the U.S." (p. 7).

In addition to affecting local agricultural production, trade liberalisation has encouraged increases in the volume and variety of imported foods. The trade policy agenda set by the WTO has focused upon economic development through reducing tariff and non-tariff barriers to trade, including regulatory measures, as well as opening up national economies to foreign direct investment (FDI) (Hawkes, 2005; Hawkes et al., 2009; Labonté et al., 2011). Thow et al. (2011) demonstrated the connection between trade liberalisation

and the consumption of imported food by comparing the timing of trade policy changes and changes in the food supply in Fiji and Samoa. In both countries, increases in the availability of imported cereals, meat, fats and oils, and processed foods have followed the introduction of trade liberalisation measures. The types of food that are being imported tend to be energy dense, low in nutrients, and high in sugar, fat and salt. A study in five PICTs of Household Consumption and Expenditure Survey data (Sahal Estimé et al., 2014) found positive associations between consumption of imported foods and consumption of unhealthy foods, and a positive association between consumption of imported foods and obesity prevalence. A more recent study of food imports in Fiji concluded that trade liberalisation measures have resulted in increasing importation of both healthy and unhealthy food products, highlighting the complexities of the relationship between the global food trade and diet (Ravuvu et al., 2017).

The globalisation and liberalisation of the food trade has encouraged the growth of transnational food companies (TFCs) and has had a significant impact on the availability of processed food across the globe, including in the Pacific (Hawkes et al., 2009). FDI has been a key mechanism for the growth of TFCs, with food processing a major target (Hawkes, 2005). Fiji, as one of the largest PICTs and with a commitment to trade liberalisation since the mid-1980s, has seen investment by TFCs since the 1990s. This has resulted in significant growth in the food retail industry in the form of supermarkets and a proliferation of global fast food outlets (Ravuvu et al., 2017; Thow & Snowden, 2009). The specific impact of FDI on local Fijian diets can be seen in the case of instant noodle consumption; in 1980 it was not identified as a food item in a national food survey, but by 1993 it appeared in the list of the 10 most commonly eaten foods. This was connected to Nestlé's investment in 1984 in a factory in Fiji producing instant noodles (Thow & Snowden, 2009).

The increasing involvement of TFCs in Pacific economies impacts the volume and sophistication of the marketing of unhealthy foods, and increases corporate political activity in PICTs (Hawkes et al., 2009; Mialon et al., 2016). Globally, lobbying by "Big Food" to obstruct public health policies designed to deal with the global obesity epidemic has been identified as a key barrier to progress (Roberto et al., 2015; Stuckler & Nestle, 2012). There is also evidence of TFC corporate political activity in the Pacific region, both in terms of influencing attempts to introduce tariffs on unhealthy foods and obstructing efforts to regulate the marketing of products (Mialon et al., 2016).

The response of some PICTs to the connection between trade, poor diets and ill health has been to attempt to use trade policies to achieve improved public health outcomes. Balancing trade and economic goals with positive health outcomes has proven to be complex. As Fiji, Samoa, Tonga, Vanuatu and Papua New Guinea are members of the WTO, they are subject to WTO rules, and this limits, to some extent, the policy space available for pursuing public health outcomes. Thow and Snowden (2009) noted that there has been considerable interest among PICTs in using trade and sales bans to reduce the availability of unhealthy food, particularly fatty, low-quality meat cuts such as mutton flaps and turkey tails. These items, imported from Australia, New Zealand and the United States, have been heavily implicated in public discussion of health in the Pacific as making key contributions to the obesity

epidemic (Gewertz, 2010; Thow et al., 2017; Thow, Swinburn, et al., 2010). In 2000, Fiji banned the sale of mutton flaps, and Samoa banned imports of turkey tails in 2007. Tonga considered imposing a quota on mutton flaps in 2004; however, decided not to pursue the policy due to concerns that it would complicate WTO accession negotiations, and fears that a quota would antagonise New Zealand, a major aid donor to Tonga (Snowdon & Thow, 2013; Thow, Swinburn, et al., 2010). In Samoa, a consumer survey indicated that about half of consumers replaced turkey tails with other cheap meats such as chicken, sausage or mutton, while about quarter shifted to eating lower fat meat or seafood (Thow, Swinburn, et al., 2010).

The bans on some unhealthy meat products attracted a great deal of international attention with public opinion generally supportive (Gewertz, 2010; Thow, Swinburn, et al., 2010); although many people felt that the ban, on its own, was not enough to stem the rising tide of NCDs. Samoa's ban on turkey tails was reversed in 2011 as part of trade concessions made during the WTO accession process. The working party overseeing the accession process raised concerns that the ban violated the principle of using the least restrictive trade measure to achieve a policy objective, also known as the "necessity test" and went against the principle of non-discrimination because there were many other high-fat foods, both imported and domestic, that were still available for sale in Samoa. The policy reversal illustrated the potential of international trade agreements to "stifle innovation" in nutrition-policy making through "constraining policy space" (Thow et al., 2017, p. 723). The power inequalities between Pacific countries, such as Fiji, and the WTO are a constraint in forming effective health policy. Hendriks et al. (2015) reported that some Fijian policy makers were concerned about developing policies that limited the importation of unhealthy food, because of the perceived risk that this could lead to the Fijian government being taken to the WTO Dispute Settlement Body.

Implementing taxes on unhealthy food products has been another popular trade-related policy among PICTs. The NCD Roadmap Report for the 2014 Joint Forum Economic and Pacific Health Ministers' Meeting noted that "increased taxes on unhealthy food products, especially sugar-sweetened drinks are … a strategically important option in the Pacific" (World Bank, 2014, p. 40). As of 2014, 12 out of 24 PICTs had adopted some form of sugar-sweetened beverages (SSB) tax. Tokelau completely banned importation of SSBs in 2009 (McDonald, 2015). However, in Fiji, attempts by the Ministry of Health to get an increase in the domestic excise tax on SSBs failed, due to industry lobbying, indicating the impact of corporate political activity on public health policy (Mialon et al., 2016; Thow, Quested, et al., 2010). Data from Fiji indicate that consumption of SSBs doubled in the 10 years to 2007 (Snowden, 2014). McDonald (2015) argued that a carefully designed SSB tax would be a useful tool when used alongside other tools such as health promotion and regulation of marketing. Alongside taxes on SSBs, taxing foods high in salt and trans-fats was also under consideration in the NCD Roadmap Report.

The examples of Tonga, Samoa and Fiji highlight the role of trade agreements in restricting governments' freedom to develop health policies that benefit their citizens. Trade agreements increasingly go beyond the movement of

goods and services across borders to facilitate investment, intellectual property rights and other issues which have significance for policy space for public health, including NCD policy (UNDP, 2013). In addition to membership of the WTO, regional agreements such as the Pacific Island Countries Trade Agreement (PICTA), and the Pacific Agreement on Closer Economic Relations Plus (PACER Plus) focus on economic development through trade liberalisation and investment. Economic partnership agreements between PICTs and other nations are also regarded as instruments of development to assist the integration of PICTs into the world economy (UNDP, 2013). Friel et al. (2013) highlighted the risks inherent in new forms of free trade agreements, epitomised by the Trans Pacific Partnership, to nutrition-related health policy. They suggested such agreements place substantial "behind-the-border" regulatory controls on governments that limit the policy space available to introduce public health policies that investors might consider to be in contravention of the trade agreement. Such agreements could potentially strengthen the influence of TFCs on government policy and weaken the ability of public health institutions to act on NCDs.

In response to barriers to using trade policy in the interest of public health, Thow et al. (2017) highlighted the importance of a proactive and integrated approach to making sure public health concerns are present at the trade negotiating table. The importance of public health policy makers understanding the evidence required for something to be accepted as a health risk under trade agreements, and of having a sound understanding of WTO regulations, was emphasised in the 2013 workshop on trade and public health in the Pacific (UNDP, 2013). For example, in the case of the Samoan reversal of the turkey tail ban, the Samoan negotiation team reached agreement to conduct a study on policy options to replace the turkey tail ban, and a concession from the WTO to allow a temporary 300% tax. The resultant study highlighted a range of evidence-based policy options which were all in line with WTO regulations, including non-discriminatory fiscal policy measures, in terms of both taxes and subsidies, to create incentives for healthy food production and consumption (Thow & Reeve, 2015). The study estimated that the introduction of taxes would result in about 20% reductions of fat, salt and sugar from the food categories targeted; confectionary, SSB, savoury snacks, processed meats, oils high in saturated fats and fatty meats cuts such as mutton flaps and turkey tails, which would represent a significant overall reduction. Studies note the importance of working relations between trade officials and public health officials in the development of "healthy trade policy" (UNDP, 2013). In the case of Samoa, involvement from Ministry of Health with the WTO accession working party ensured that public health agendas were a priority in the trade negotiations.

Implications for policy

This paper argues that the transformations in Pacific communities' diet can be traced to radical changes in food systems in which people make decisions about what and how to eat, based on availability, convenience, tastes and cost; resulting in increased consumption of unhealthy, highly processed foods (Hawkes et al., 2015). Combating the NCD crisis will require a combination of

policy interventions, and actions by private sector and community actors with a focus upon changing food systems to create food environments that present people with healthier food choices at an appropriate cost, along with programmes that support and empower people to make changes in diet and lifestyle. Yet, these kinds of transformations cannot occur within the current norms in the Pacific. Creating food systems that deliver nutritious food and incentivise people to make healthy food choices requires strong leadership and support from governments, as well as transformation in the ways of working by "Big Food" and small-to-medium private-sector actors, and inclusion and fostering of empowered and informed communities.

Most commentary on the obesity crisis has noted that leadership has been lacking in many parts of the world. Swinburn et al. (2011) observed that "governments have largely abdicated the responsibility for addressing obesity to individuals, the private sector, and non-governmental organisations, yet the obesity epidemic will not be reversed without government leadership…" (p. 804). Likewise, the EAT–Lancet Commission observed that many governments have adopted laissez-faire approaches to consumer choice, when the scale of the problem of creating healthy and sustainable food systems requires strong leadership. "This leadership demands coordination, consultation and good policy facilitation by important policy actors" (Willett et al., 2019, p. 484).

Currently, food systems are treated as commercial systems for making profit, not as nutrition and health systems; or, until recently, as a key factor in climate change. The obesity epidemic and the NCD crisis are symptoms of an economic system that concentrates upon consumption-based growth as the only viable form of economic development. This approach has also underpinned development agendas in low- and middle-income countries, which is part of the reason why the NCD crisis has been so pronounced in the Pacific. The "Great Food Transformation" advocated by the EAT–Lancet Commission cannot occur within this economic model. As Swinburn et al. (2011) stated, "solutions to obesity and to improve health and development cannot be based on the existing framework (consumption-driven growth creating financially-defined prosperity) because this approach helped to create the difficulties in the first place" (p. 811). Therefore, healthy sustainable food systems rest upon the development of sustainable economics, allowing for new definitions of growth and prosperity that prioritise social, health and environmental outcomes.

Conclusion

The importance of multisectoral approaches to the NCD crisis is one of the most consistent messages in the literature, yet it appears to be one of the main barriers to success. The most basic government structures appear to militate against effective multisectoral approaches and instead encourage narrow and entrenched thinking. This paper has shown the need for closer relationships between Pacific policy makers in agriculture, trade and public health. Indeed, the most successful outcomes have occurred when public health agendas have been regarded as complementary to other policy

domains, rather than seen as competing. The NCD crisis is not only a Pacific problem it is of global concern. Urgent action is needed for the health of our people, our food, our planet.

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