Policy Brief

Farmer Organisations and Climate Change Adaptation

Summary

Climate projections for the region serve to emphasize the climate unpredictability, variability and intensity that farmers will have to adapt to in the future. The impact that climate change is having on agriculture in the Pacific is evident from the data around agriculture loss and damage from extreme weather events such as flooding and cyclones. Anecdotal evidence from farmers and others in the agriculture sector highlights crop problems such as early maturity, change in taste, decline in yields and negative effects on flowering/fruiting linked to increased rainfall, saltwater intrusion and temperature changes, including extreme heat days and higher night temperatures.

It is clear that food systems will have to be resilient and farmers will have to adapt, if food security is not to be seriously threatened. The factors considered as essential for building adaptive capacity are:

(a) social capital;
(b) ability of communities to engage effectively with external agents;
(c) access to knowledge including how knowledge is generated, shared and exchanged;
(d) merging of local and external knowledge;
(e) space for farmers to interact, communicate, experiment and learn from each other;
(f) trust in the adaptation measure(s)being promoted;
(g) effective capacity building;
(h) decentralised research; and
(i) supportive policy.

Membership of a farmer organization (FO) provides an enabling platform for the effective and efficient delivery of these conditions, thereby providing farmers with the tools essential for adaptation to a changing climate.

Key message

FOs are critical in providing farmers with learning, legitimacy, governance, diffusion of innovation, and information necessary for adaptation to changes.

Pacific farmers and agriculture

Pacific Island farmers have coped with the effects of climate variability on agriculture for decades, largely as a result of the region's exposure to the vagaries of the El Niño Southern Oscillation (ENSO). Traditional farming systems bolstered with local knowledge have been sufficiently resilient to cope with changing weather patterns, and other external shocks. Today, however the more resilient food systems of the past are less common and as a result, food production in the region is increasingly vulnerable to climate change. The pressures on food production have increased, and include an expanding population, land degradation, loss of biodiversity, etc., and inadequate investment. Climate change adds a further dimension to these pressures. Climate models and projections indicate what the future climate might be like to aid planning, but the main message around climate change, that of extreme variability and unpredictability, highlights the challenge that farmers are facing and will increasingly face in producing food. Local knowledge may not be sufficient to bring about the level of adaptation required to effectively manage climate change in the future.

Pacific Island Farmers pictured in a breadfruit nursery. Breadfruit is grown as a climate resilient food crop.

What are the climate change projections for the Pacific Islands?

Climate projections continue to remind us that future climate and weather patterns will continue to change. Key messages[1] for climate projections in the Pacific Island region are: (a) warmer air temperatures with more heat extremes; (b) shifts in the normal rainfall patterns and the likelihood that extreme rainfall events will become more intense and frequent; (c) rising sea levels and storm surges; (d) warmer sea surface temperatures with more marine heatwaves; (e) increasing intensity of cyclones and their impacts; and (f) unpredictability and variability. And what of ENSO — how will climate change influence that important climate pattern? Projections for the future suggest more intense and frequent El Niño and La Niña events and also more frequent swings from a strong El Niño to a strong La Niña the following year[2]. It is also likely that in the near term, global warming is more likely than not to reach 1.5°C even under the very low greenhouse gas emission scenario and likely or very likely to exceed 1.5°C under higher emissions scenarios[3]. Scientists consider 1.5°C of warming as a key tipping point, beyond which the chances of extreme flooding, drought, wildfires and food shortages could increase dramatically.

What has been the impact of climate change on agriculture in the region?

Climate change is impacting agricultural production in the region. Much of the data supporting this statement focuses on tropical cyclones (TC) and flooding[4]. For example: TC Winston in 2016 incurred losses and damages on the Fiji agriculture sector valued at USD 254.7 million, and in 2018, TC Gita resulted in losses and damage to the Tonga agriculture sector valued at USD 42.8 million. There is also anecdotal evidence from farmers and others working in agriculture of crop yield and quality losses as a result of changes in climate[5].

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1 *https://www.rccap.org/climate-change-update-for-the-pacific/*
2 *https://www.csiro.au/en/news/all/articles/2023/may/climate-change-affecting-el-nino*
3 *IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001*

Do we know what impact climate change will have on Pacific Island crops and imported crops?

For most crops, increases in extreme weather events are likely to have greater impact than changes in temperature in the short-to-medium term. High winds from more intense tropical cyclones can have a significant impact on crops such as bananas and breadfruit. More frequent and more intense rainfall is likely to test the skills of farmers in those countries where rainfall is already high. High temperatures could affect the formation of sweet potato and yam. For livestock, indigenous, locally adapted breeds can be more resilient, while introduced breeds may be more vulnerable. Poultry, an important food source in the region, are particularly vulnerable to projected temperature shifts.

But what about the imported staples, such as rice and wheat, which are major components of the diet in many Pacific Island countries, particularly in urban areas? How will they be affected by climate change? Climate change impact studies suggest that these global staples will be more negatively affected than Pacific staples in a changing climate. Further, reliance on these imports leaves the Pacific region vulnerable to global shocks as seen by the price rises caused by COVID-19 supply chain challenges and the Ukraine-Russia conflict.

A papaya farm devastated by extreme rain events, waterlogging and disease pressure.

The climate change risks posed to global rice and wheat production, linked with increasing global demand, are likely to lead to less secure and more costly supplies of imported staples in the region. In contrast, the climate resilience of some Pacific staple food crops provides opportunities to soften the potential effects of climate change on food security and livelihoods, and contribute to alleviating non-communicable diseases (NCDs) through reducing consumption of imported staples.

What are the factors/conditions that favour adaptation by Pacific Island farmers and what role FOs can play in providing those conditions?

It is clear that climate change presents farmers with a significant challenge, not least the unpredictability and variability of future weather patterns. Food systems will have to be resilient and farmers will have to adapt, if food security is not to be seriously threatened. Farmer adaptive capacity is an essential prerequisite for building farm resilience. Numerous studies have examined the factors that are essential for building adaptive capacity. Table 1 outlines these factors and indicates how membership of a FO can provide farmers with these essential conditions.

4 *Iese, V. Halavatau, S. De Ramon N'Yeurt, A. Wairiu, M. Holland, E. Dean, A. Veisa, F. Patolo, S. Havea, R. Bosenaqali, S. and Navunicagi, O. 2020. Agriculture under a changing climate In: Climate Change and Impacts in the Pacific. Kumar, L (ed). Springer Climate*

5 *Iese et al., 2020. Agriculture under a changing climate In: Climate Change and Impacts in the Pacific. Kumar, L (ed). Springer Climate*

Table 1: The role of FOs in providing the conditions farmers need for adaptation to climate change

Factors/conditions essential for building adaptive capacity.	Role of FOs in providing those conditions.
Ability to organize and act collectively, that is social capital.	Social capital & learning help farmers to adapt. Farmers undertaking adaptation are characterised by bonding & bridging social capital, are early adopters of innovation, & have high self-efficacy[9]. FOs can facilitate social capital.
Ability to engage effectively with external agents so as to source adaptation resources (such as finance and technology).	FOs can assist farmers in accessing resources from governments, development agencies & private sector. Access to financial services such as credit & insurance institutions can be more readily available because service providers prefer to work with large groups[10]. Economies of scale may also support investment in communal resources, such as storage & processing facilities.
Access to knowledge (which includes how that knowledge is generated, shared and exchanged.	FOs can provide continuous access to knowledge, as well as providing learning platforms & social support. FOs can facilitate farmer exchange programmes so less experienced farmers can learn from those with more experience.
Platform that facilitates the merging of local and external knowledge.	FOs can be the mechanism for effective communication of external knowledge & integration of local knowledge. Merging local & external knowledge broadens farmers' knowledge base & in doing so helps in nurturing more forward-looking/proactive considerations[12].
Factors/conditions essential for building adaptive capacity.	**Role of FOs in providing those conditions.**
Space for farmers to interact, communicate, experiment and learn from each other which is supportive of innovation.	Innovation relies on access to finance, information & other resources. Not all individuals will be innovators, hence the need for platforms & mechanisms that enable successful innovations to be shared more widely. FOs can bring together diverse actors (farmers, scientists, advisory services, agricultural companies), acting as 'innovation intermediaries'[12].
Trust in the adaptation measure(s) being promoted.	Participation in decision-making within a FO can encourage local ownership & support community empowerment which all work together to strengthen trust in decisions made & their consequences.
Ability to plan ahead	Membership of a FO can help to increase the planning horizon for individual farmers. Decision-making that is flexible, collaborative and learning-based is likely to be better able to cope with changing circumstances[13].

Effective capacity building.	Technical training and skills transfer — building capacity requires access to knowledge, skills, and an enabling environment supportive of learning through dialogue and practice. FOs can provide these conditions and have been shown to be very effective in the area of capacity building.
Decentralised research	Decentralization allows for policies and practices specific to the local environmental needs - essential for effective climate change adaptation. It is supportive of innovation, & also of outcomes that are more useful at the local level. FOs are best placed to implement decentralised research, especially in Pacific region, where membership covers farmer associations from different islands.
Supportive policy	FOs can provide farmers with a voice in regional & international fora & support farmers to be advocates for policy change. They can lobby for the needs & preferences of farmers with evidence based on local experiential knowledge.

Case studies — examples of how FOs can support farmers in adapting to climate change.

1. **Uptake of the agroforestry initiatives in Fiji's Cakaudrove Province:** the Tutu Rural Training Centre (TRTC) and TeiTei Taveuni are foundation members of PIFON. In response to decreasing fertility affecting taro and kava production in Cakaudrove Province and the unsustainable shift into new forest areas, the two FOs trialled agroforestry initiatives. Farmers are now exploring these initiatives, including the use of nitrogen-fixing Mucuna. These messages are now being spread to other farmers in Fiji and the region through farmer-to-farmer exchanges organised through PIFON. Agroforestry is an important adaptation tool, reducing vulnerability and reducing climate risk (Quandt et al. 2023).

2. **Enhanced agricultural biodiversity In Vanuatu:** collaboration between the Vanuatu Farm Support Association (FSA) and Vanuatu Agricultural Research Centre (VARTC) saw the distribution of different taro and yam varieties to 10 villages in different locations. Two years after distribution, monitoring of the diversity showed an 86 per cent gain in yam diversity and a 61 per cent gain in taro diversity, with no loss of traditional varieties. Without the support of the FSA the improved diversity would not have made it into farmers' fields. Improving agricultural biodiversity is seen as underpinning resilient farm ecosystems (Frison et al. 2011).

[10] *Taylor, M. Crimp, S. Dawson, B. McGregor, A. Cvitanovic, C. Lough, J. Thomson, L. & M. Howden, 2016. Adapting Pacific agriculture & forestry to climate change: management measures and investments. In: Taylor M, McGregor A & Dawson B, eds. Vulnerability of Pacific Agriculture and Forestry to Climate Change. Noumea: Pacific Community*

[11] *Silici, L. Rowe, A. Suppiramaniam, N. & J.W. Knox, 2021. Building adaptive capacity of smallholder agriculture to climate change: evidence synthesis on learning outcomes, Environ. Res. Commun. 3 122001*

[12] *Aboubakar, I. Klerkx, L. Faure, G. & A. Toillier, 2022. Farmers'Organizations as innovation intermediaries for agroecological innovations in Burkina Faso., Int. Journal of Agricultural Sustainability. 20(5):857-873 https://doi.org/10.1080/14735903.2021.20020*

[13] *Frank, J & Penrose Buckley, C. 2012. Small-scale farmers and climate change. How can farmer organisations & Fairtrade build the adaptive capacity of smallholders? IIED, London. https://www.iied.org/sites/default/files/pdfs/migrate/16518IIED.pdf*

Government and Development Partners

Despite the successes of FOs in the Pacific and elsewhere, continued and strengthened support for FOs is necessary so as to enhance their effectiveness and sustainability, to enable efficient and effective delivery of the key services necessary to build farmers' adaptive capacity.

Governments and development partners should:

- Recognise and acknowledge the central role of farmers and FOs in addressing climate change, ensuring food security, and protecting biodiversity by supporting their efforts at adaptation and capacity development.
- Ensure an enabling policy environment and support the participation of farmers and FOs in climate and biodiversity policy-making at national, regional and global levels, as well as in the debate on the structure of the Loss and Damage Fund.
- Acknowledge the crucial role of youth in sustaining a resilient agriculture sector, in particular small farms, and ensure that this is reflected in public policies, programmes and funding allocation.
- Ensure proportional access to climate funds by acknowledging the damaging impact of climate change on farming systems and at the same time, the crucial role that small farms play in providing food security[14].
- Pursue partnerships with FOs to address the knowledge gaps related to the impact of climate change on agriculture through decentralised research.
- Involve FOs in the setting of agricultural research priorities to ensure farmer needs are met.
- Work with FOs to improve overall understanding of how farmers can continuously adapt their farming practices to unpredictably changing environmental conditions so that policies can be developed which support farmers as they face unpredictable climatic conditions.
- Support and invest in traditional crops and production systems which are relatively resilient to climatic variations, and which can contribute to reducing the impact of non-communicable diseases (NCDs) — a win-win situation.
- Provide financial support — subsidies, incentives, loans and revolving funds can all provide pathways for the growth of FOs.

[14] *Total climate finance targeting small-scale agriculture is close to USD 10 billion. It represents 1.7% of the total climate finance tracked covering only a small fraction of the general needs of small-scale agriculture actors. https://www.climatepolicyinitiative.org/publication/climate-finance-small-scale-agriculture/*

Farmer Organisations

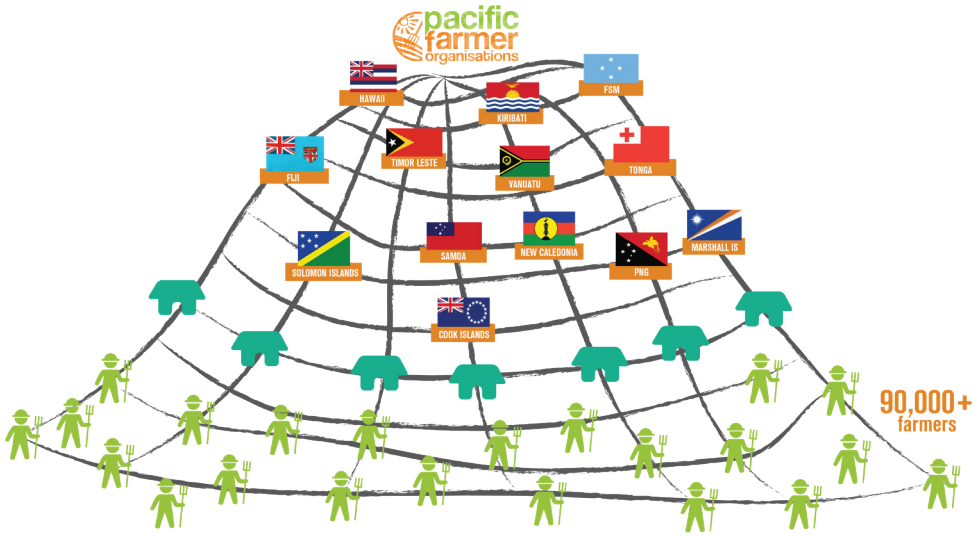
What can FOs do to ensure support for their role in building farmers' adaptive capacity and strengthening the resilience of Pacific food systems?

- Increase visibility - improve awareness of the benefits and advantages that governments and development partners gain in working with FOs.
- Ensure that farmer-focussed research priorities are known to governments, development partners and private sector.
- Seek out and nurture partnerships with public research organisations and the private sector to undertake the necessary research.
- Promote the relative climate resilience of traditional crops and farming systems and stress how a focus on traditional crops can contribute to alleviating the increasing incidence of NCDs.
- Strengthen the coordination/linkages between policy, research and practice so policies better build on local experiential knowledge and develop partnerships and networks with other stakeholders to strengthen role in influencing policy.
- Assess ways in which farmers can be supported to: (a) improve decision-making under uncertainty; (b) be proactive; and (c) respond to continuously changing weather patterns and strengthen understanding of how to encourage farmers' capacity in forward planning.
- Aim to better quantify the impact of FOs including the scope and extent of the transformation[15].
- Strengthen understanding of the limits to adaptation, and develop ways in which adaptation limits can be identified. Such an approach can help to better plan for climate impacts.

[15] *While adaptation entails preserving existing structures and ways of being, transformation is often associated with large-scale, profound and deep-rooted changes. For example, this could changes in where farms are located and the types of crops that they grow (https://www.lse.ac.uk/granthaminstitute/explainers/what-is-the-difference-between-climate-change-adaptation-and-resilience/)*

PFO - Who We Are

Pacific Farmers Organisation (PFO) is the umbrella body for national farmer organisations in the Pacific Island Countries and Territories (PICT's). Agriculture is the main livelihood of the majority (typically 70%+) of the Pacific Islands population. Farmer organisations play a critical role in supporting small farmers to connect, influence, and access information and technologies to improve livelihoods. PFO is a key partner in supporting farmers and rural communities to respond to the challenges of climate change.



PFO is a vibrant and growing network of national farmer organisations that are supporting improved livelihoods for their members and rural communities generally. PFO began operating in 2008 comprising a small group of Farmer organisations (FO) in five countries, and following its legal establishment in 2013, it has grown to embrace 30 member organisations] and over 95,000 farming households (55% are women farmers) in 12 PICT's (Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, New Caledonia, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, and Vanuatu) and has member FOs in Hawaii (United States). PFO's Secretariat is based in Fiji with a satellite office in Hawaii.

About FO4ACP

With an implementation period of 54 months, the Farmers Organisations for Africa, Caribbean and the Pacific (FO4ACP) is expected to directly benefit 150,000 farmers in the (Pacific) region.

The overall goal and objective of the Program is to increase income and to improve livelihood, food and nutrition security and safety of organized smallholder and family farmers in the target areas of the ACP countries. The Program's specific objectives are 1) FOs and farmer-led enterprises improve technical and economic services to their members along the value chains. 2) FOs influence policies and business environments for the transformation of family farming and the development of sustainable, adaptive economic initiatives and farmer-led enterprises. And 3) FOs are accountable organizations able to effectively perform their institutional functions.

The Program is a joint partnership between the European Union, the African, Caribbean and Pacific Group of States, the International fund for Agricultural Development and the Pacific Island Farmers Organisations Network.