SESSION 3 ACHIEVING A PATHWAY TO CLIMATE RESILIENCE

Lessons from the Pacific

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Abstract

This paper examines the evolving landscape of climate resilience within the agrifood systems of Pacific Island countries, where agriculture, fisheries, transportation, and food distribution networks are deeply interconnected and highly vulnerable to climate change. Pacific Island agrifood systems – spanning smallholder crop and livestock production, subsistence and semi-commercial fishing, food processing, and marketing – are facing escalating threats from more frequent extreme weather, sea level rise, and resource scarcity. Through regional case studies drawn from Papua New Guinea, Fiji, Samoa, Solomon Islands, and Vanuatu, the analysis highlights how climate-smart agriculture, local innovations, and strengthened institutional collaboration are not only helping to safeguard production but also ensuring that food supply chains, market access, and rural livelihoods remain viable under changing climatic conditions.

The paper underscores the importance of evidence-based interventions, such as crop diversification, extension services, and improved value chain connectivity, for fostering a more adaptive and inclusive agrifood sector. Despite positive developments, significant challenges persist, such as underdeveloped infrastructure, limited agrifood financing, and challenges in knowledge-sharing across the region.

The study provides actionable recommendations aimed at strengthening the agrifood system's adaptive capacity – emphasising the need for integrated policies, investment in resilient infrastructure, and multistakeholder engagement – so Pacific Island countries can achieve sustainable food security and resilient rural economies in the midst of ongoing climate pressures.

Introduction

Good afternoon, ladies and gentlemen. I wish I could be there in person, but I am grateful that technology allows me to join you virtually. My thanks to Crawford Farm for inviting me to contribute to this important discussion on climate resilience and agrifood systems in the Pacific. Today, I want to share some lessons we are learning across the region. I will begin with why climate resilience in agriculture is so important for Pacific Island countries, then outline the climate impacts we are witnessing, the specific challenges facing our agrifood systems, and some emerging solutions. I will also reflect on regional support and policy alignment, and conclude with actionable recommendations.

Why Climate Resilience Matters in the Pacific

The Pacific Islands are heavily reliant on agriculture and fisheries, both of which are increasingly threatened by climate change. Droughts, floods, and rising sea levels jeopardise local food production, and disruptions in agriculture push communities towards imported processed foods. These dietary shifts worsen health outcomes, contributing to obesity and non-communicable diseases, which—as recent headlines in Papua New Guinea remind us—are now the leading cause of death.

Population growth places further pressure on food systems, while agriculture and fisheries remain the backbone of livelihoods and economic development. For this reason, climate-resilient agrifood systems are not just about farming—they are about sustaining incomes, protecting jobs, and ensuring long-term food security, health, and sustainable development.

Climate change impacts in the Pacific

The Pacific is currently experiencing the harsh realities of climate change:

- **Rising sea levels** are causing land erosion, contaminating freshwater sources, and threatening the livelihoods of coastal communities.
- **Erratic rainfall** leads to both droughts and floods, disrupting planting cycles and compromising water availability.
- **Saltwater intrusion** diminishes water quality and adversely affects crop yields.
- **More intense tropical cyclones** are wreaking havoc on infrastructure, ecosystems, and agricultural systems.

These impacts and challenges render agriculture — an essential source of sustenance for Pacific communities - particularly susceptible to climate fluctuations. Changes in temperature and rainfall patterns are reducing crop yields, while extreme events can wipe out entire farms within a matter of days.

Challenges for Agrifood Systems

Pacific agrifood systems are primarily composed of smallholder farmers who encounter numerous obstacles:

- Limited access to data and technology: Many farmers struggle with inadequate access to critical data and technology for effective weather forecasting and early warning systems, hindering their ability to prepare for climate-related events.
- Slow adoption of climate-resilient crop varieties: Financial constraints and the lack of knowledge prevent many farmers from adopting climate-resilient crop varieties, which are essential for adapting to changing conditions.
- Insufficient infrastructure- the absence of adequate infrastructure for irrigation, water storage, transport, and market access makes it challenging for farmers to optimise production and reach consumers efficiently.
- Minimal insurance option – There are few insurance products available to help farmers protect themselves against the financial repercussions of climate shocks, leaving them vulnerable to losses. Supply chain disruptions - natural disasters can severely disrupt supply chains, isolating communities and impeding their capacity to recover and continue agricultural activities.

These constraints make building resilience urgent and also deeply challenging.

Emerging Solutions

In the face of numerous challenges, innovative solutions are emerging and taking root across the Pacific:

- **Climate-resilient crops**- Initiatives are underway to cultivate climate-resilient crops such as salt-tolerant taro in Fiji and drought-tolerant varieties in Samoa, enabling farmers to adapt to changing environmental conditions.
- **Agroforestry systems** – The integration of crops with trees in agroforestry systems is proving beneficial. This approach not only reduces flood damage but also diversifies income sources for farmers, enhancing their resilience.
- **Early warning systems** and mobile technology – Advanced early warning systems and mobile technology are now providing real-time climate information directly to farmers, helping them make informed decisions and better prepare for adverse weather conditions.
- **Community seed banks** – The establishment of community seed banks is crucial for safeguarding local varieties and supporting recovery efforts following natural disasters. These banks ensure that farmers have access to culturally significant and climate-resilient seeds.
- **Collaborative Initiatives -** Partnerships such as the Australia–PNG coffee and cocoa initiative focus on strengthening climate risk management, providing training, and improving market access for farmers in the region.

While, these solutions are promising, successfully scaling them up will require substantial investment, collaborative partnerships, and robust institutional support.

Regional Support and Partnerships

Regional cooperation is essential for addressing the challenges faced by agrifood systems in the Pacific. Key organisations and partners play a vital role in providing the necessary support: Secretariat of the Pacific Community (SPC)- SPC is actively involved in promoting sustainable development across the region, offering technical and capacity-building assistance to enhance resilience among Pacific Island communities.

Bilateral partners – Countries such as Australia contribute significantly to regional efforts, providing both financial support and technical expertise aimed at climate adaptation and sustainable agricultural practices.

Multilateral donors – Institutions like the World Bank provide technical, financial, and capacity-building support to bolster agrifood systems, ensuring that resources are allocated effectively to tackle climate-related challenges.

Programs such as the Pacific Adaptation to Climate Change project focused on implementing strategies to mitigate the impacts of climate change, while the Pacific Island Farmers Organisation Network fosters collaboration among farmers to share knowledge and best practices. Additionally, integrated agroforestry initiatives aim to enhance biodiversity and improve sustainability within agricultural systems across countries.

By leveraging these partnerships and programmes, the Pacific region can enhance its capacity to

adapt to climate change, ultimately strengthening food security and community resilience.

Recommendations

To strengthen the climate resilience of agrifood systems across the Pacific agrifood systems, I recommend implementing the following four key actions:

- **Promote Climate-Smart Agriculture –** invest in extensive training for farmers, enhance access to innovative technologies, and provide robust incentives to encourage the adoption of sustainable practices.
- **Expand financial resources and insurance** – broaden access to financing options and insurance products by leveraging microfinance, offering crop insurance, and exploring innovative financing mechanisms, such as climate green bonds.
- **Improve disaster risk management** – enhance early warning systems, develop community-based recovery plans, and conduct comprehensive risk assessments to improve preparedness and response to climate-related disasters.
- **Encourage regional cooperation – Facilitate cooperation** through shared platforms, farmer networks, promote collaborative research efforts, and align policies across Pacific island countries to address climate change challenges collectively.

Conclusion

Pacific agrifood systems are adapting to significant changes in response to new challenges. but these systems still face many hurdles. To effectively tackle these issues, collaboration is essential. Governments, local communities, researchers, and development partners must work together. Such unified efforts can strengthen food security, improve health outcomes, and foster sustainable livelihoods for Pacific Island communities in the face of a changing climate.

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Professor Graham Sem is a leading figure in climate change adaptation, environmental conservation, and sustainable development. His extensive experience in academia and consultancy roles underscores his commitment to enhancing community resilience and informing policy and practice in the face of climate challenges. His work significantly contributes to the global discourse on environmental sustainability and climate action, particularly in the Pacific region.

Professor Graham Sem boasts over 20 years of experience addressing climate change and disaster risk reduction issues in collaboration with communities, governments, and international organisations. His work primarily focuses on strengthening capacities and capabilities to combat the adverse impacts of climate change and disaster risks at national, regional, and international levels. He plays a crucial role in assisting countries in mobilising financial, technical, and human resources necessary for the implementation and management of climate change activities, projects, and programs. A significant aspect of his recent efforts includes the preparation of Nationally Determined Contributions for Kiribati and the Solomon Islands.

In addition, Professor Sem has been actively managing the Managalas Project on Forest Protection, Climate Change Adaptation and Mitigation, and Biodiversity Conservation in Oro Province, Papua New Guinea. He possesses extensive experience in conducting stakeholder consultations with local communities, national governments, and international organisations, developing a deep understanding of their unique challenges and needs. Professor Sem excels in preparing technical and policy documents related to climate change, and he has successfully assisted Pacific Island countries in crafting project proposals for various funding opportunities.

His contributions include involvement in initiatives such as the Pacific Islands Climate Change Assistance Programme, national communications, national adaptation programme of action, vulnerability and adaptation assessments, and regional disaster risk reduction projects. Moreover, he has been instrumental in the development of key policies and frameworks, including NAPA, the International Climate Change Adaptation Initiative, the Pilot Programme on Climate Resilience, and the Pacific Adaptation Strategies Assistance Programme. His understanding of the Pacific small island developing states government systems is profound, having lived and worked in the region for over three decades. Additionally, he engages in mentoring experts across these countries, facilitating capacity building and training on various aspects of climate change adaptation and disaster risk reduction.