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Coconut Risk Management and Mitigation Manual for the Pacific Region

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4. THE FORTY RISKS ANALYSIS IN A SEQUENTIAL APPROACH

This section is the heart of the project and its main output. It contains descriptions of all identified risks, mobilizing the conceptual and methodological framework defined above. The texts are limited in length (three pages) and authored by 52 specialists or stakeholders who agreed to participate voluntarily.

A. RISKS LINKED TO CLIMATE CHANGE AND HAZARDS

By R. Bourdeix, M. Ghanem, U. Vave

The coconut industry is facing unprecedented threats due to climate change. A main challenge is to sustainably intensify coconut production in Pacific Island Countries and Territories (PICTs) while improving resilience and reducing vulnerability to the impacts of climate change. The consequences of extreme climatic events are devastating for millions of people worldwide as they become increasingly common, more severe, and less predictable. But with the right information and proper planning, it is possible to significantly reduce the related risks and impacts.

The finding that strategies and projects addressing community-based disaster risk reduction (DRR) and climate change adaptation (CCA) often duplicate each other has led some practitioners to develop the concept of integrated disaster risk management (DRM). There is a strong push to integrate the two fields - DRR and CCA - to enhance aid effectiveness and reduce confusion for targeted communities.

Globally, around 180,000 islands enclose a fifth of the world's biodiversity and certainly more than 50% of coconut diversity; coastal zones include at least two-thirds of coconut plantations and most of the coconut growing countries are islands (NareshKumar et al., 2018).

A recent risk assessment estimated that Pacific island countries together suffer 284 million USD (or nearly 2% in regional GDP) in economic losses from natural disasters annually. As shown in Plate 3 (next page) Water - related disasters are the most common and frequent natural hazards constituting 90% of the total disasters in the world.

Cyclones, tropical storms, and tsunamis destroy coconut palms or strongly reduce the yields during at least one year. They can introduce or favour the expansion of new pests and epidemics of human, animal and crop disease. They may also cause trauma from extreme weather events, compromised safety and security of water and food, psychosocial ill-health, population pressures, and health system deficiencies.

Climate change is a major cause of increased floods in some areas and water scarcity and droughts in others. Droughts caused by El Niño/Southern Oscillation (ENSO) episodes were reported in 1978, 1983, 1987, 1992, 1997 - 98, 2001, and 2003. Some stations recorded precipitation drops of up to 87% in the western Pacific, while resulting in unusually high rainfall in the central Pacific.

ReliefWeb is the leading humanitarian information source for global crises and disasters. It is a specialized digital service of the UN Office for the Coordination of Humanitarian Affairs (OCHA). The website provides reliable and timely information, enabling humanitarian workers to make informed decisions and plan effective response. They collect and deliver key information, including the latest reports, maps and infographics from trusted sources. Much information available on the website may be helpful for agricultural purposes.

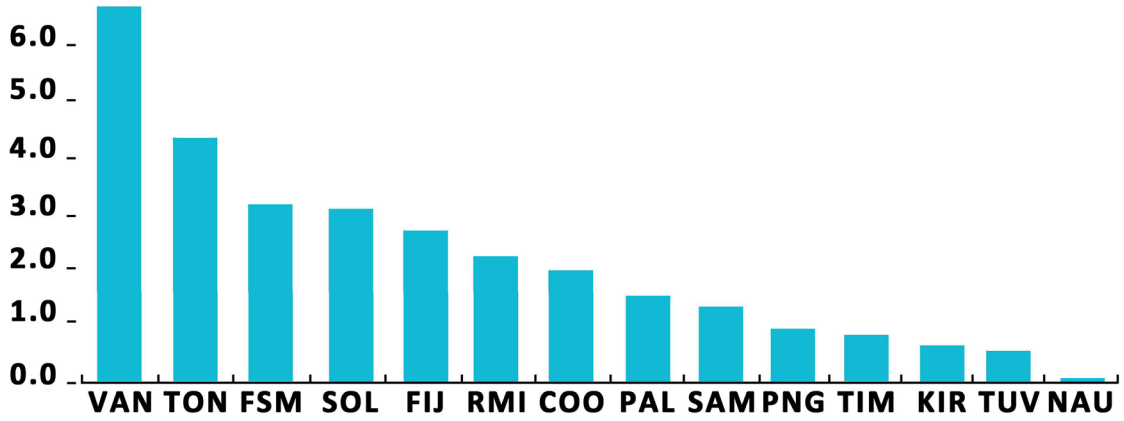

Plate 3. Estimated Annual Average Loss Due to Natural Disasters (% of gross domestic product), for the following countries: COO = Cook Islands, FIJ = Fiji, FSAA = Federated States of Micronesia, KI R = Kiribati, PAL = Palau, PNG = Papua New Guinea, RMI = Marshall Islands, SAM = Samoa, SOL = Solomon Islands, TIM =Timor-Leste, TON = Tonga, TUV = Tuvalu, VAN = Vanuatu. Source: Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), Catastrophe Risk Assessment Methodology, 2013.

A Flood and Drought portal was developed as part of the Flood and Drought Management Tools project funded by the Global Environment Facility (GEF) through the United Nations Environment Programme (UNEP). It responds to a specific need for improved capacity of managers operating in transboundary river basins to recognise and address the implications of changing climatic scenarios and land use on water resource management (see Table 3 next page). Even if such transboundary river basins are rare in the Pacific, it would be useful to develop a similar participative global approach adapted to the Pacific region.

Big Data is expected to have a significant impact on farming and involves the whole supply chain. Smart sensors and devices produce large amounts of data that may provide unprecedented decision-making capabilities. Big Data may cause major shifts in roles and power relations among different players in current food supply chain networks, and not necessary to the advantage of small farmers. It may unravel a continuum of two extreme scenarios: 1) closed, proprietary systems in which the farmer is part of – and highly dependent on an integrated food supply chain; or 2) open, collaborative participatory systems in which the farmer and every other stakeholder in the chain network is flexible in choosing business partners for the technology as well for the food production side.

Table 3. Observed and projected changes in the climate of the Pacific region (From Australian Bureau of Meteorology and CSIRO, 2014).

Variable	Observed Change	Projected Change
Atmospheric Temperature	Increase of 0.18 °C since 1961	Increase of 0.5– 1.0 °C and 2.0– 4.0 °C for 2030 and 2090, respectively, under very high emissions scenario
Rainfall	SW and NW Pacific – wetter; Central Pacific – drier over past 30 years	Increase in average annual rainfall; fewer droughts; extreme rainfall events will be more common
Sea Level	Variable across the region	Increase of 26– 55 cm by 2081 – 2100 relative to 1986 – 2005 (RCP2.6) Increase of 45– 82 cm (RCP8.5)
Cyclones	Decrease in total number of cyclones	Less frequent but more severe cyclones

Ideally, farmers should have interactive maps that can be easily accessed for information on average risks and more timely forecasts, such as for the next three months or the next 24 hours. The farmer would obtain, for their plot, the average probability over the year of experiencing a cyclone or flood, and these probabilities for the three-month or 24-hour periods, considering the meteorological situation at the moment of their request. The ReliefWeb site already offers maps, but they do not have this degree of precision and are rather focussed on events that have already occurred than on the forecasts in the long and short terms.

In many Pacific countries, lack of capacity to address climate change and natural disaster risks remains a central constraint. Building a robust understanding of available tools and resources is essential for planning and responding to future impacts and disaster events. Since 2016, the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) has provided Pacific Island states with insurance against tropical cyclones, earthquakes and tsunamis. Vanuatu, Tonga, Marshall Islands, Samoa and Cook Islands were the first policy holders to join PCRAFI in 2016. The World Bank has announced the start of the fifth round, along with the recent establishment of a new Cook Islands-based insurance company, called the PCRAFI Facility, which will deliver this innovative and competitive insurance. It secures Pacific Island countries with a total coverage of 38.2 million USD against tropical cyclones, earthquakes, and tsunamis. World Bank Treasury played an integral role in securing participating Pacific Island countries competitive rates from the international reinsurance market.

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Plate 4. Coconut palms in Tuvalu, in the part of a motu most affected by tides and wind. They help in the fight against marine erosion.