Chapter 6
Farming Adaptations to the Impacts of Climate Change and Extreme Events in Pacific Island Countries: Case Study of Bellona Atoll, Solomon Islands

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ABSTRACT

Farmers in Pacific Islands’ communities are considered to be most vulnerable to the impacts of increased temperature, sea-level rise, droughts, cyclones, and heavy rainfall. Farmers living on a raised atoll in the Solomon Islands (Bellona) were interviewed to understand their perceptions and experiences on the impacts of climate change and extreme events on their crops. Some examples of damage and impacts according to the farmers included rotting of roots, damage to leaves and branches, and destruction of fruits and valuable yields. Interviews also revealed that the ability of farmers to recover after disasters was dependent on their pre-disaster conditions, number and varieties of crops they had planted, type of cropping system in use, and consistent use of simple, traditional, and innovative adaptive techniques. Such techniques included crop rotation, change of planting and harvesting dates, and the planting of new resilient varieties.

INTRODUCTION

The growth, development and production of food crops depend on both climatic (e.g. rainfall, temperature, humidity) and environmental (e.g. soil, water availability and topography) variables being sufficiently available and there is adequate protection from external factors (invasive species, pest and disease) (Wairiu et al. 2012). Any changes or shifts in the climate will therefore affect the physiology and output of food crops. While climate change will have global impacts, impacts on small islands are likely to be particularly significant. Mimura et al. 2007 asserted “Small islands, whether located in the tropics or higher latitudes, have characteristics which make them especially vulnerable to the effects of climate change, sea-level rise and extreme events”. These small island characteristics include their small area size, remote-ness, isolation, exposure to extreme events or natural hazards, high or increasing population, low adaptive capacity and poor infrastructure and governance (Barnett and Adger, 2003). Both subsistence and commercial agriculture will be affected on small islands (Mimura et al. 2007). However, while coastal agriculture is likely to be most impacted by sea level rise causing inundation, intrusion and soil salinization, inland agriculture will be most vulnerable to extreme events such as flooding and drought (Mimura et al. 2007). As a consequence of climate change, the highest reductions in agriculture potential will be felt by the small Pacific Island countries (PICs) amongst other developing countries (ADB, 2009). Within PICs, it is the atoll islands and their inhabitants that are at greatest risk of climate change and extreme events (Barnett and Adger, 2003). Exacerbating this situation is the large depen-
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