Case Study on Loss and Damage in Kosrae (Micronesia)

Prepared by: Simpson Abraham -

“Limits to autonomous adaptation in response to coastal erosion in Kosrae, Micronesia”

This article addresses the degree to which households on the island of Kosrae, Federated States of Micronesia (FSM), are affected by coastal erosion, the autonomous adaptation measures they have implemented, the limitations thereof, and the loss and damage incurred as a result. This analysis is based on quantitative and qualitative data. We found that 70% of the 363 households we interviewed experienced adverse effects of coastal erosion. Of those suffering from impacts, 60% carried out adaptation measures. Yet, 92% of those respondents who carried out adaptation measures indicated that these measures were insufficient, resulting in loss and damage to livelihoods, housing and culture. This empirical case study contributes to the critical debate on the impacts of climate change beyond adaptation.

Kosrae is one of the four states of the FSM. FSM is located in the western North Pacific Ocean comprised of 607 islands with a total land area of approximately 702 sq. km. This small land area contrasts sharply with the size of the exclusive economic zone (EEZ), which totals over 2.98 million sq. km. FSM is plagued by persistent coastal erosion that threatens farming, housing, roads and shallow coastal aquifers. As well as slow-onset coastal erosion, FSM communities are increasingly affected by storms that erode beaches and land and undercut and damage roads. Kosrae is a small volcanic island of 110 km2 lying along the equator, with mountains rising to a maximum elevation of 628 m. The large outer ring of low-lying coast is by far the most densely populated area. The majority of the 6.616 residents3 live on land that is less than 4 m above mean sea level. Most of the island’s infrastructure is on the coast and the four main villages on Kosrae are all at significant risk from coastal erosion, storms and spring tides. The main island of Kosrae is connected via a causeway to a very small island called Lelu Island.

Limits to autonomous adaptation in response to coastal erosion in Kosrae 421 In this case study, we have investigated the autonomous adaptation of households to coastal erosion. We were particularly interested in the impacts of gradual changes in coastal erosion over time; the adaptation measures people adopted and the effectiveness thereof. For this purpose, we administered 363 household questionnaires, conducted six focus group discussions with a variety of stakeholders and 12 in-depth interviews. Nine in-depth interviews were conducted with residents who have been affected by coastal erosion. Enumerators highlighted these people to the authors of this paper after they had conducted a survey with them or they were brought to our attention through the focus groups discussions. Three in-depth interviews were carried out with key experts. The research thus involved both qualitative and quantitative research methods. The survey was based on a general survey model used by all nine cases studies in the Loss and Damage project but was adapted to fit each case-study’s focus. In our survey, we first gathered basic demographic and socio-economic information of the household. Secondly, we inquired about the impacts of gradual changes in coastal erosion over time; the adaptation measures

people adopted and the effectiveness of these measures. Adaptation is defined and explained to respondents as longer-term responses to more gradual changes, while coping strategies were defined as short-term responses to the impacts of sudden events and thus refer to more temporary, ad hoc, responses. Thirdly, we asked about impacts of more extreme events, like storms and coastal floods, over the past 20 years and people's coping strategies. Section two and three started with open-ended questions to gather people's own perception of the climate stressor as well as the potential changes, impacts and adaptation or coping strategies. This was followed by closed question gathering, inter alia, information on impacts on crops, livestock, fishing, trade and housing and frequent adaptation strategies, i.e. in the field of agriculture, livelihood diversification and human mobility. The closed questions enabled a quantitative analysis of results. The last section consisted of open questions about vulnerability, gender and policy options. The 363 households were chosen on the basis of a 100% target population of 374 households living within the first approximately 60 metres of the coastline and in one river-mouth area. The target population was taken from a map of Kosrae with all 1,170 households5 . Eleven households were unavailable to participate in the questionnaire.6 Although our main focus has been on autonomous adaptation by households, the surveys, in-depth interviews and focus groups discussions also provided information about planned adaptations measures on Kosrae.