Multi-level Governance of Climate Change Adaptation: A Case Study of Country-Wide Adaptation Projects in Samoa

Anna McGinn and Anama Solofa

Abstract Countries across the Pacific region have experienced a surge in internationally funding for climate adaptation initiatives. In the Independent State of Samoa, two major projects—funded by the Adaptation Fund and the World Bank Pilot Program for Climate Resilience (PPCR)—have supported adaptation planning and activity implementation in most villages across the country. These country-wide initiatives range from conducting LiDAR studies and updating Community Integrated Management (CIM) plans to installing rainwater catchment and storage tanks and reforesting water catchment areas. These projects inherently present a multi-level governance challenge because they are developed at the national level, are funded and monitored at the international level, and ultimately implemented in communities. This chapter explores the extent to which interactions across governance levels and scales advance effective adaptation to climate change. Based on in-country interviews, site observations, and observations of the Adaptation Fund's terminal evaluation process, this chapter presents evidence from these major adaptation initiatives in Samoa to highlight where multi-level governance had been leveraged to enhance the governance of adaptation as well as areas of the projects where this has not occurred. It further examines the trade-offs inherent in efforts to work across governance scales and levels in conducting climate change adaptation.

Keywords Multi-level governance · Climate change adaptation · Samoa · Climate finance

Introduction

Pacific Island countries are on the front lines of climate change impacts. At a 1.5 °C temperature rise above pre-industrial levels, the Intergovernmental Panel on Climate

A. McGinn (✉)
Climate Change Institute and School of Policy and International Affairs, University of Maine, Orono, USA
e-mail: anna.mcginn@maine.edu

A. Solofa
School of Marine Sciences, University of Maine, Orono, USA

W. Leal Filho (ed.), *Managing Climate Change Adaptation in the Pacific Region*, Climate Change Management, https://doi.org/10.1007/978-3-030-40552-6_12

Change (IPCC) projects that small islands will experience freshwater stress, coastal flooding, negative impacts on marine ecosystems, and migration induced, at least partially, by sea level rise (Hoegh-Guldberg et al. 2018). In fact, island states such as Samoa are already experiencing some of these changes. In Samoa, since 1950, annual maximum temperatures have increased by about 0.22 °C each decade (MNRE 2011). Sea level rise in Samoa, at 4 mm per year since 1993 (MNRE 2011), is above the global average of 2.8–3.6 mm per year. Additional impacts include ocean acidification which is particularly detrimental to corals, shifting rainfall patterns (i.e., less rain in the dry season and more rain during the rainy season), and more intense tropical cyclones (MNRE 2011).

These external forces compel Pacific Island countries to place climate change at the core of their national priorities and to advocate for swift and robust international action to curb greenhouse gas emissions. Yet, many of the impacts listed above must be addressed regardless of future greenhouse gas mitigation efforts because livelihoods, healthy ecosystems, and assets are at stake. Adaptation efforts initiated around the Pacific Islands region range from incremental steps to more transformational change. Some countries in the region have already started to develop relocation strategies to prepare for worst case future climate scenarios. For example, Fiji has initiated discussions on building relocation into their National Climate Change Policy, and Kiribati has already developed a "migration with dignity" policy (Yamamoto and Esteban 2017, 146). Given that Pacific Island countries, and developing countries more broadly, are largely not responsible for the cause of these impacts, funding for adaptation is expected to come from high-emitting developed countries.

Significant international funding has been allocated to climate change projects, especially mitigation projects, in developing countries for over 25 years. Donor entities include the World Bank, developed countries and their international development agencies, the European Union, non-governmental organizations, UN programmes and offices, and funding mechanisms under the United Nations Framework Convention on Climate Change (UNFCCC). According to the UNFCCC Standing Committee on Finance's 2018 assessment of climate finance flows, from 2015–2016 multilateral climate funds—which include the Adaptation Fund and the Green Climate Fund (GCF)—provided an average of US$1.9 billion for climate mitigation and adaptation (UNFCCC 2018). By comparison, bilateral climate finance provided US$31.7 billion and multilateral development bank climate finance summed to US$24.4 billion. All three categories continue to primarily fund mitigation with between 21 and 29% of funds allocated to adaptation (UNFCCC 2018). This extensive funding apparatus, coupled with the latest reports from the IPCC detailing the wide-reaching extent of climate change impacts, suggest that international funding for climate mitigation and adaptation projects in developing countries will continue to be a central feature of international climate governance.

The projects stemming from these funding apparatuses inherently present a multilevel governance challenge. In the case of climate change adaptation projects, they are often developed by national level ministries or multilateral development organizations (i.e., UNDP, UNEP, World Bank, etc.). Project proposals are reviewed by international panels and funding is distributed based on internationally determined

rubrics and standards. Funding moves back to countries, usually to the national government, where it can be administered in a multitude of different ways. Ultimately, project implementation happens at the community level where rainwater catchment and storage systems are installed, or riparian buffers are planted along rivers.

It is well understood that all these levels of governance exist and function within the overall system of climate adaptation (Hooghe and Marks 2001). This chapter explores the extent to which interactions across governance levels and scales advance effective climate change adaptation. Understanding these systems is critical, especially in the context of developing countries, because the involvement of so many actors can potentially cause more harm than good if not facilitated effectively (Chaudhari and Mishra 2016). To examine these systems, the chapter explores evidence from an Adaptation Fund project and a World Bank Pilot Program for Climate Resilience (PPCR) in Samoa.

The chapter first outlines a brief history of multi-level governance and describes its value as a framework to understand implementation of climate adaptation projects. Next, it suggests eight characteristics of multi-level governance that emerge from the literature. Through an analysis of the Adaptation Fund and PPCR projects in Samoa, the chapter then tests the extent to which these characteristics are apparent in a governance system which inherently involved many different levels and scales of governance. Finally, the chapter highlights the trade-offs embedded in this systems approach to adaptation governance.

Background: The Multi-level Governance Framework

Rationale

Histories of international development and sustainable development show that when projects are conducted exclusively by a top-down actor they usually fail (Adams 2009). As a result, funders now seek projects that emphasize collaborative, community-based, and stakeholder-driven approaches. But, writing this plan in a proposal is vastly different from carrying it out effectively. Further, community-based approaches face another set of challenges if the responsibility for these projects move to the community level, but the resources for implementation and long-term management do not (Elyachar 2005). Given that internationally-funded climate adaptation projects seem to be following in the footsteps of international and sustainable development initiatives (i.e., funded by many of the same sources, following similar monitoring and evaluation processes, and aligning proposals with the Sustainable Development Goals), avoiding these same pitfalls will be essential. This paper explores how multi-level governance (MLG) is a useful framework to understand the extent to which projects truly engage across the levels and scales of governance versus evoking the above buzzwords—community-based and locally-driven—in a more superficial form.

In order to see how MLG can be used to understand internationally funded climate adaptation projects, it is critical to understand the multiplicity of ways that MLG has been conceived since the term emerged in the 1990s. At its root, MLG describes the diffusion of power from a central government to other levels of governance. In this way, governance roles would be shared from the local to the international levels—an effort to correct for the failures of national, top-down approaches to development. Yet, today it is largely recognized that there is a need for balance across levels of governance after critiques of state interventions swung the pendulum away from state responsibility, as with the Washington Consensus and neo-liberalization, which moved power and responsibility away from the central government to the markets. As described by Steger and Roy, neo-liberalism is "a mode of governance that embraces the idea of the self-regulating free market, with its associated values of competition and self-interest, as a model for effective and efficient government" (2010, 12). These structures, embraced by the US and imposed on many developing countries, move responsibility to other levels of government, but do not provide any resources or support for those levels of government to manage the services previously administered by the central government (Elyachar 2005). This is chiefly because under neoliberalism, the state's goals are the "deregulation of the economy, the liberalization of trade and industry, and the privatization of state-owned enterprises," so a central government would assume that decentralized services would be supported via market mechanisms (Steger and Roy 2010, 14).

Today, scholars employ MLG as an instrument which recognizes the faults of both overly-centralized or overly market-based governance. Instead, contemporary MLG provides a frame to describe "political decentralization within states" which refers to distributing power to the supranational level, to the sub-national level, and out to private entities (Hooghe and Marks 2001, 3). This form of governance, originally conceived as a way to understand the governance of the European Union, was expected to be more efficient and inclusive of all stakeholders. There are many derivatives of MLG discussed in the literature as "multi-tiered governance; polycentric governance; multi-perspectival governance; functional, overlapping, competing jurisdictions (FOCJ); fragmegration (or SOAs); and consortio and condominio" (Hooghe and Marks 2001, 3). This idea of MLG as a frame to understand governance structures has been employed by scholars to study international environmental change (Janicke 2017). Drawing on Janicke (2017), this chapter uses MLG to study internationally funded climate change adaptation projects.

We aim to test what aspects of MLG are present in the Samoan adaptation projects as well as aspects of the framework that are less applicable to this specific context. Samoa is home to two country-wide adaptation projects, of which one is complete and the other is in its final phase. The Government of Samoa considers climate change a national priority. Thus, the Samoa case provided an ideal location for preliminary research to test this form of adaptation project analysis. Further, emerging trends from the Samoa case, while not generalizable to all Adaptation Fund or World Bank projects, may provide valuable takeaways to consider in future projects development and implementation.

We explore MLG within the context of the Cash et al. (2006) model of MLG interactions. Cash et al. define scales "as the spatial, temporal, quantitative or analytical dimensions used to measure and study any phenomenon" (Gibson et al. 2000 in Cash et al. 2006, 2). Levels are seen as the "unit of analysis that are located at different positions on a scale (Gibson et al. 2000 in Cash et al. 2006, 4). For example, the jurisdictional scale includes the local, regional, national, and international levels. Cash et al. (2006) provide a differentiation between cross- and multi- scale and level interactions. Cross-scale indicates that there is actual interaction between the scale, level, or both, while multi-scale simply implies that the different levels or scales exist. Throughout this chapter, the term MLG is intended to encompass the above definition. Using this understanding of existence and potential for interaction between scales and levels, we explore the characteristics of MLG as defined in the literature below.

Characteristics of MLG

Eight central characteristics of MLG are evident in the literature: (1) Devolution of power to the supra- and sub-national levels; (2) inclusion of state and non-state actors; (3) involvement of all scales; (4) nested levels of governance; (5) intentionality; (6) equal power across levels; (7) fluidity; and (8) new policy solutions.

Devolution of power to the supra- and sub-national levels: MLG includes actors at both the supra- and sub-national levels. However, it is not simply that these entities are named in a proposal, but rather that power (i.e., resources, decision-making ability, etc.) is devolved to them (Keskitalo 2010). This implies that the entities have access to participation in the governance process (Stephenson 2013).

Inclusion of state and non-state actors: While governments may have a central role in facilitating MLG processes, non-state actors are also integrated in this framework. Keskitalo (2010) adds that both private and public entities need to be engaged across all the levels meaning that inclusion of multilateral development organizations is not sufficient to consider non-state actors adequately integrated into the governance process. Gumeta-Gómez et al. (2016) cite government agencies, communities, non-governmental organizations, and the private sector as specific examples of stakeholders in a MLG process. This makes the system necessarily complex with the involvement of "a multitude of actors" (Brockhaus et al. 2012, 201).

Involvement of all scales: Cash et al. (2006) identifies seven scales that are necessary to consider when studying human–environment interactions (see Fig. 2). The scales are spatial (with levels being areas from global to a single landscape), temporal (dealing with rates, durations, and frequencies), jurisdictional (governance levels from international to national to provincial to localities), institutional (dealing with rules that exist from international law to local norms), management (from strategies

to plans to tasks), networks (dealing with links between people from 'trans-society' to family), and knowledge (defining truth from universal to contextual) (Cash et al. 2006, 3). To understand how MLG functions, it is important to explore the interaction across all these scales and their levels which creates a complex matrix of actors, institutions, and structures (Bulkeley and Betsill 2005; Hooghe and Marks 2001; Keskitalo 2010).

Nested levels of governance: Drawing from Ostrom's (2012) polycentric governance, the idea of nested governance is that the levels of governance need simultaneous independence and interdependence (Cole 2011; Keskitalo 2010). While dependence creates linkages between entities, any level can also produce independent policy and decisions which are based on the outcome of interactions across the levels. Stephenson describes this as "a mutual dependency through the intertwining of policy-making activities" (2013, 817). This concept of the nature of interactions between levels and across scales is central to the functioning of a MLG system.

Intentionality: Cole (2011) emphasizes that these MLG systems and the interactions, nested or otherwise, that characterize the system do not happen by accident. Rather, they are an intentional strategy to "determine the appropriate division of responsibility and authority between governance institutions and organizations at global, national, state, and local levels" (Cole 2011, 2). Interesting, in the case of internationally funded adaptation projects, multiple levels of governance are always involved in an adaptation project. This makes intentionality paramount because otherwise the involvement of so many actors can be more of a burden than a support system (Chaudhari and Mishra 2016). So, the extent to which MLG is strategically embraced in order to facilitate adaptation may dictate certain elements of *success* in the project.

Equal power across levels: Stephenson (2013) suggests that a part of this intentional effort to foster effective MLG is creating an environment where the levels of governance interact on equal footing. He states, "MLG implies engagement and influence—no level of activity being superior to the other" (Stephenson 2013, 817). Similarly, Cash et al. (2006) highlights that knowledge should be co-produced in MLG systems. This may be one of the most challenging characteristics of MLG in the context of internationally funded climate adaptation because it envisions that a community has the same power as the national government or the funding entity. Understanding how power structures are reinforced, renegotiated, or redesigned as a result of a MLG process is central to this study.

Fluidity: All the characteristics listed above are evolving—not static. This fluidity in the MLG system is central to how Bulkeley and Betsill (2005) and Hooghe and

Marks (2001) describe MLG. It is supposed to be a system that is adaptive and formed by the sum of its parts.

New policy solutions: In terms of outcomes of a MLG system, Cash et al. (2006) argue that MLG should facilitate the generation of new policy solutions that were not accessible prior to the effective usage of MLG. These solutions incorporate, and build on, co-production of knowledge and continuous negotiation across levels and scales.

Applying MLG to Internationally Funded Climate Adaptation Projects in Developing Countries

From the broadest perspective, MLG translates well to the study of climate change governance because while climate change is a global phenomenon, the international scale is not always the most appropriate place to address the challenge (Adger 2001). Evaluating the characteristics of MLG can be particularly instructive when thinking about internationally funded climate adaptation projects taking place in developing countries because not only the concept of climate change, but the projects themselves are constantly maneuvering across and between governance levels and scales.

MLG in the developing country context can be complicated by a number of factors. First, effective institutions are needed for MLG to function, yet countries taking on climate adaption measures do not necessarily have those institutions in place. Second, scholars argue that MLG of climate change adaptation will only work if it is consistent with broader development objectives. Chaudhari and Mishra suggest that in the case of linking watershed development and climate change adaptation in India, "for multi-level governance, to be efficient for bringing in the climate adaptation, coordinating and integrating climate and non-climate strategies across jurisdictions and sectors would be essential. Without these, the multiplicity of actors, scales and levels might be more of a hindrance rather than of any assistance" (2016, 326). Adger et al. (2003) echo Chaudhari and Mishra (2016) by suggesting that climate change adaptation in the developing country context will not work at any level if it is not done in tandem with general sustainable development objectives. The third complicating factor, as Adger et al. (2003) describe, is that developing countries are often working with limited options often because of financial resource constraints. Finally, MLG of adaptation in developing countries often involves funding from international sources (e.g., UNFCCC, World Bank, and other development agencies) which changes the players involved with governance and who dictates the adaptation needs (Adger et al. 2003). Adaptation implementation faces a different set of challenges in the developing country context, and it critical to understand how MLG functions in this space given the magnitude and scope of funding mobilized at the international level to support adaptation in developing countries.

Research Methodology

This project uses a case study methodology to study climate change adaptation projects in Samoa (Creswell 2013; Yin 2014). The case study included a literature review, a review of project documents, and fieldwork in Samoa. We conducted the fieldwork in Samoa in July 2018.

During our 2.5 weeks of fieldwork, we conducted semi-structured interviews with seven key informants which ranged from 45 min to 3 h in length. The interviews are referred to in the chapter as interviews 1–6 and include the date conducted (one interview included two interviewees, referred to as A and B). We also spent two days observing the terminal evaluation of the Adaptation Fund project. This included traveling around the entire island of Savai'i visiting adaptation projects funded by the Adaptation Fund with three Ministry of Natural Resources and Environment (MNRE) officials, one United Nations Development Programme (UNDP) staff member, and the international independent consultant conducting the evaluation. During this process, we observed interviews between the consultant and community stakeholders, informal conversations between the consultant and the other staff on the trip, and we learned all of their observations of the Adaptation Fund projects we visited. Separate from the terminal evaluation, we also visited Adaptation Fund and PPCR funded activities on Upolu.

We analyzed the transcribed interviews, field notes, and project documents using discourse analysis (Gee 2004). Applied broadly, discourse analysis explores the use of language in a set of texts with the understanding that all language is both from a specific context and situated in a larger framework of socially constructed conventions (Abrams 1999). Gee suggests that critical discourse analysis views language as a way of communicating social practices which "always have implications for inherently political things like status, solidarity…and power" (Gee in Rogers 2004, 33). In this context, we were reading for descriptions of when, how, and to what extent the national government distributed power to other levels; the difference, if any, in perspective on the projects from stakeholder approaching the projects from different levels and scales; and the processes and outcomes that interviewees suggested were both effective and ineffective.

The discourse analysis was conducted using the qualitative data analysis software NVivo by QSR International. Through a process of inductive and then deductive coding, we categorized how elements of the projects interacted across scales and levels as well as their alignment with the characteristics of MLG to identify where MLG occurred, to some extent, as well as where it did not happen effectively.

The study's main limitation is the fieldwork duration. The chapter presents first-hand observations of a snapshot in time rather than observations starting at the beginning of the project process and following through to post-implementation project management. Thus, the chapter relies on interviewee's accounts of the entire process. Time constrains also meant that we did not have sufficient opportunity to build relationship with village leaders and community members to accurately capture their perceptions of the project process. Thus, this article draws on a small set of observed

interviewees between community members and the international consultant. An additional limitation is that, while general lessons may be drawn to inform adaptation across the Pacific region, the case study focuses specifically on the Samoan context. Generalizations out to the regional level should be done with careful consideration of countries' specific history, culture, economy, and geography.

The Case Study

Case Study Introduction: Climate Change Adaptation Projects in Samoa

The Independent State of Samoa is a Small Island Developing State (SID) located in the Pacific Islands region (Fig. 1). Samoa is composed of ten islands, of which four are inhabited. The two main islands are Upolu, where the country's capital Apia is located, and Savai'i. As of 2017, the population of Samoa was just over 196,000 people. About the same number of Samoans that live in country, live abroad, and the economy is dominated by remittances (Meleisea et al. 2012). Given Samoa's long history and rich culture, the country is often referred to as the 'Cradle of Polynesia.'

From the 1830s to 1962, Germany, and then New Zealand held administrative authority in Samoa. During the last decade of this period, New Zealand initiated work with the United Nations and Samoan leaders to craft a path to independence which was achieved in 1962. Thus, Samoa became the first politically independent island state in the Pacific Island region (Meleisea et al. 2012). Since gaining independence, the Government of Samoa has faced significant challenges, including balancing traditional norms and rules with that of Western institutional structures that

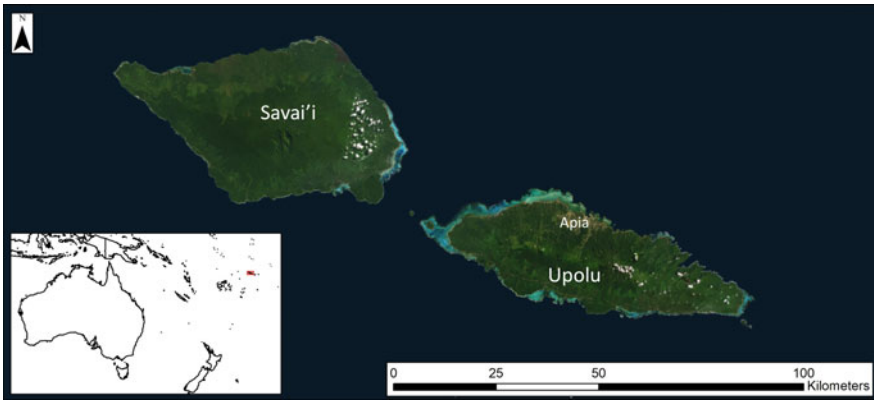

Fig. 1 Map of the independent state of Samoa

had been put in place prior to independence; broad pressures of globalization; and most recently the impacts of climate change (Macpherson and Macpherson 2009).

In the world of international climate change policy and planning, Samoa, and other Pacific island countries, are on the front lines—both in terms of facing climate change impacts, and in conveying the gravity of this challenge to the international community. The region is also at the forefront of climate change adaptation and are some of the main drivers behind obtaining climate change adaptation financing from the international community. Samoa has made climate change central to their overall development agenda and a broad national priority. This is seen through their focus on climate throughout the 2016–2020 Strategy for the Development of Samoa (SDS), their position as a founding member of the United Nations Group of Friends on Climate and Security, and their ambitious greenhouse gas mitigation goals laid out in their Nationally Determined Contribution (NDC) under the Paris Agreement. Because Samoa sees addressing climate change as central to their country's development and security, it seems fair to expect that the country would have the most motivation to effectively address the issue. Thus, a country like Samoa, that is ahead of the curve on thinking about climate change, represents a useful case to explore the extent to which stakeholders leverage MLG to facilitate adaptation. Further, the synergies and barriers that emerge from Samoa's experience implementing internationally funded adaptation projects could serve as a tool for monitoring adaptation project effectiveness more broadly.

This case study explores two of the most recent internationally-funded adaptation projects implemented in Samoa. The initiatives are considered sister projects designed to complement each other—carrying out the same set of activities in different parts of the country and sharing data throughout the duration of the projects. The first project falls under the Adaptation Fund which is a funding mechanism designed and overseen by parties to the UNFCCC. The Adaptation Fund project, *Enhancing Resilience of Samoa's Coastal Communities to Climate Change*, was proposed by the Samoan national government to the Adaptation Fund, and approved by the Adaptation Fund Board in December 2011 as a US$8.7 million project. It started in January 2013, and officially concluded mid-2018. The Samoa Ministry of Natural Resources and Environment (MNRE) served as the executing entity for the project, and the implementing entity was UNDP. The sister project is part of the World Bank's Pilot Program for Climate Resilience (PPCR) initiative which provided US$14.6 million for the project, *Enhancing the Climate Resilience of Coastal Resources and Communities*. The project was approved in 2013 and is set to close in June 2020. The Ministry of Finance (MOF) is responsible for the project.

Both projects have three main components: Adaptation planning, community grants, and major infrastructure projects. First, each project was responsible for working with a set of villages to update their Coastal Infrastructure Management (CIM) plans which were originally drafted between 2002 and 2005. During this process of planning and consulting with village leaders, the implementers updated the plan name to the Community Integrated Management (CIM) plans to reflect their new 'ridge-to-reef' approach to adaptation planning. The idea is that activities on the island have impact on the coastal ecosystem, and vice versa, so the focus of the

management plans needs to broadly consider island-wide implications for the coast. The PPCR project additionally funded LiDAR mapping of Upolu and Savai'i for use in both projects CIM planning processes.

The second part of the projects were community grants. These grants, administered through the national government's Civil Society Support Program (CSSP), aimed to provide up to 50,000 Tala (~US$18,900) per grant to villages to implement adaptation projects in line with their CIM plans. Of the 45 Adaptation Fund supported CSSP projects, some of the major areas of work included 23 projects to install rainwater harvesting and storage systems; nine projects carried out some form of construction including retrofitting schools to serve as evacuation shelters and building revetment walls; and, three focused on mangrove rehabilitation and planting.

The final element of the projects was larger infrastructure activities including building bridges to replace river fords, and tar sealing (i.e., paving) inland access roads for storm evacuation and to encourage inland relocation of coastal villages.

Case Study Results

Building on the description by Cash et al. (2006) of the scales that are necessary to consider when studying human–environment interactions, we examine these adaptation projects in Samoa to identify examples where a series of scales and levels work effectively together and exhibit some of the eight characteristics of MLG (i.e., functioning MLG), and contrast that with where the levels and scales do not seem to interact despite evidence pointing to the value these interactions add. Figure 2 shows the Samoa case overlaid on the scales and levels identified by Cash et al. (2006) to display the multitude of factors, actors, institutions, and structures involved in this governance and implementation process.

The sections below describe the following Adaptation Fund and PPCR project elements: (1) programmatic and pragmatic approach; (2) management of safeguards; (3) resources available to project implementers; (4) project timelines; and, (5) stakeholder participation in decision-making and project implementation. While the sections outlined above may seem to provide disparate examples, they are selected to display the diversity of ways that MLG could be integrated into international donor-funded adaptation projects.

Programmatic and Pragmatic Approach

Technical and relevant government ministries in Samoa have substantial experience in seeking and accessing development funding assistance. Evidence of international development aid is visible on the two main islands, from schools' signs labeled 'built by the Chinese government' and park benches sponsored by 'The People of Japan,' to trash stands with signage from the Global Environment Facility.

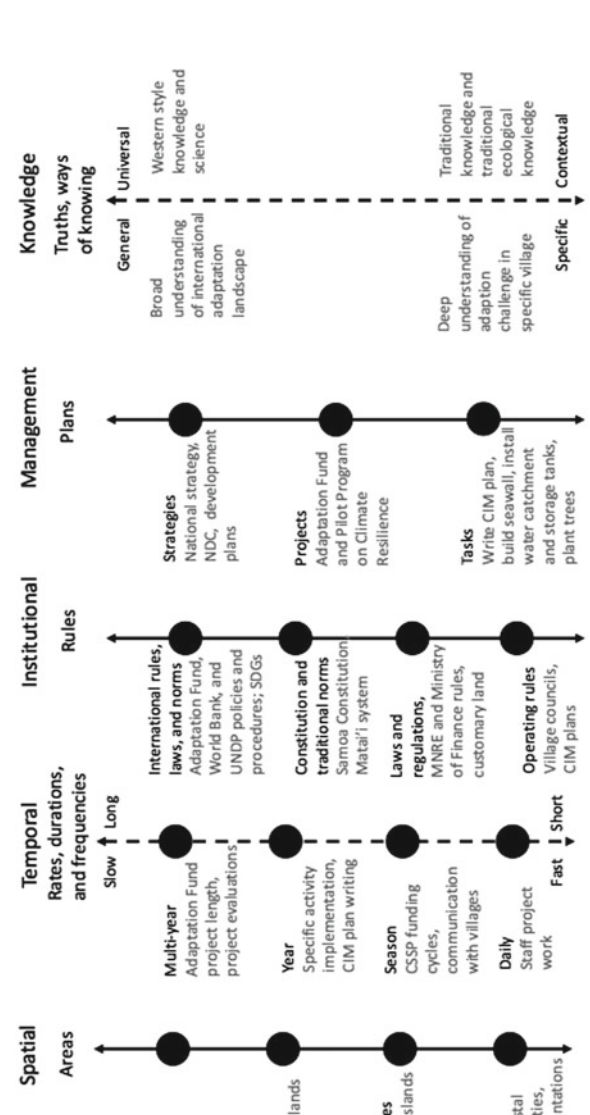

Fig. 2 Scales and levels involved in environment–human systems. Details list the factors, actors, institutions, and structures in some way connected to the internationally-funded adaptation projects in Samoa Adapted from Cash et al. (2006)

Interviewees remarked that the need to transition from a project-based approach—the dominant paradigm used by most of the above entities—to a programmatic and pragmatic approach to managing international funding became apparent during the development of the Community Integrated Management (CIM) plan process (Interview 6A and 6B, 9 July 2018). Adaptation Fund and PPCR implementing agencies saw the revised CIM plan process as an opportunity to increase the cohesiveness of the country's adaptation efforts by more effectively designing connections across scales and levels, demonstrating the intentionality characteristic of MLG. Interviewees also highlighted that a well-developed programmatic and pragmatic approach to adaptation could serve as a model for other Pacific island countries dealing with similar influxes of funds for climate adaptation and mitigation with convergent implementation objectives (Interview 4, 12 July 2018).

The PPCR project is housed within the Samoa Ministry of Finance (MOF). This placement has been key to developing the programmatic and pragmatic approach because MOF houses financial records for all government ministries and agencies within the Government of Samoa. Thus, they can identify areas of work within ministries and agencies that are unfunded and related to adaptation and can then direct PPCR funding to fill those gaps. Rather than develop new projects that may or may not align with agencies' long-term strategies, the funding supports on-going work that may not be implemented because of a lack of resources. For example, "SWA, [Samoa Water Authority], is already getting funding from the EU, but there are gaps in the funding that they need to source from other finance, so PPCR can fill those gaps. In that way, you have partner projects working together" (Interview 2 18 July 2018, also reflected in Interview 4, 12 July 2018). The same interviewee explained,

> A lot of what we are doing now with the large projects, it is aligned to government work plans, so what we did was collect the information on government priorities with districts, we cross checked with what districts identified in the community, so we come across, oh they need this road and it is identified here [in the government work plan], so it was already planned, but there was no funding, so this is one way to fund it. (Interview 2 18 July 2018, also reflected in Interview 4, 12 July 2018)

Going forward, another interviewee stated, "any money coming in, any proposal that goes out, we see it from this national planning level" (Interview 6B, 9 July 2018).

The implementing agencies of these adaptation projects see the programmatic and pragmatic approach as valuable because it may increase the likelihood that the activities carried out in these discrete projects will be sustained once the project funding ends. Interviewees noted heightened cross-ministry buy-in over the course of project implementation. For example, in the past, representatives from the Land Transportation Authority (LTA) and the Ministry of Works, Transportation, and Infrastructure (WTI) departments would not attend climate related meetings, but this has changed because they now feel ownership of projects that incorporate climate considerations (Interview 6B, 9 July 2018).

The approach is also beneficial in that it facilitates injection of additional funding resources into existing funding gaps to bolster implementation of activities that have already been approved, rather than creating new projects. One example of existing

projects waiting for funding is improving inland roads. While these roads are in existing plans largely to facilitate improved economic conditions for inland plantations, they can also serve as evacuation routes. Thus, the project falls under the prevue of the adaptation funding. The expectation is that the ministries and agencies will maintain the activities over the long term because they had already been incorporated into their workplans before the Adaptation Fund and PPCR projects were developed. Here, we see that through the process of working across scales and levels, the implementing agencies generated new policy solutions that were not operationalized in this context before the initiation of this MLG process.

Interviewees indicated that this programmatic and pragmatic approach is already influencing change in that it has increased collaboration between government ministries on project implementation—one of the measures of effective MLG. There are interactions between the jurisdictional scale and institutional scale with efforts by the different government ministries influencing operational rules and norms around mainstreaming adaptation in their work areas. Finally, this example displays interactions between the jurisdictional scale and the management scale where the local-to-national level stakeholders move from only thinking in terms of ad hoc projects, to thinking about projects as a part of a higher-level strategy. A weaker aspect of the introduction of the programmatic and pragmatic approach is that, while local and international stakeholders did have some involvement in shaping this new approach, the national government played a central role. Thus, we see the involvement across the jurisdictional scale, but not at equal weight.

Embedded in this example of efforts to leverage MLG to support adaptation are trade-offs. Given that projects have finite resources and time, only certain areas of MLG are utilized, often at the expense of others. In this case, the national government heavily engaged its line ministries across the national level which created a sort of horizontal nested structure, but not a vertical one. This is particularly important in countries like Samoa where the local village and chiefly/social system structures play an important role in how initiatives are taken up and sustained.

Safeguards

Safeguards are a tool to identify and manage externalities of adaptation projects that could end up causing more harm than good to the people, ecosystem, or culture impacted by the project. Both the World Bank and the Adaptation Fund have safeguard policies which are supposed to guide project planning and implementation. Safeguards are an interesting challenge of MLG because the funding organizations provide broad expectations for the project, and the country implementers must interpret and apply the expectations to the projects. This challenge requires work across the jurisdictional scale, as well as interactions between the jurisdictional and institutional scales. It is also mediated by types of knowledge.

Inconsistencies between the World Bank and the Adaptation Fund project safeguards caused disagreement over how certain parts of projects were conducted. This

suggests that, in practice, refinement of safeguards is necessary for them to function effectively across jurisdictional levels. This tension is captured by one interviewee working closely on the PPCR project,

> Safeguards and gender were put in [the project plan] and the environment and social criteria, those were developed under the PPCR, but were used by both projects. The PPCR also required the villages to go through the development consent process. That is like the government safeguards, so that is very important, but before not a lot of projects were going through this process. So, I think all the key players now understand the importance, because also, the Adaptation Fund through UNDP, they do not really emphasize the importance of safeguards unlike the World Bank, and that is a key difference because in Samoa, in a lot of projects, safeguards are the issues. And the reason why some partners insist on their procedures is because they see a gap in the national [procedure]. (Interview 3, 18 July 2018)

Interviewees put forward that Samoa is working to integrate the World Bank's safeguards into government procedures regardless of the funding source. This example of nested governance levels shows that the national level has observed and experienced a process developed at the supra-national level and sees a path to borrow that process to improve their governance procedures. Further, from the World Bank level, they are implementing a new approach to align safeguards with country priorities. An interviewee said that in a recent workshop, the World Bank presented a new framework which will prioritize "find[ing] a common approach with the government before, and agree on that approach, before [the project] gets implemented" (Interview 1, 20 July 2018). Again, a demonstration of how the levels have nested to improve overall governance.

However, this example again raises the question of power across the levels. While the national level appears to be reclaiming power over this process by adopting the World Bank safeguards on their own terms, the involvement of the sub-national level is variable. In some instances, the safeguard process did work to support the local level, from the perspective of the interviewees. For example, for all roads tar sealed by the government, the World Bank required the government to compensate people living on, or farming, land immediately adjacent to the roadwork, regardless of who actually owned the land. This certainly provided more protection for people than they would have received if the World Bank was not involved. However, the funds to pay these costs cannot come out of the project budget, they must come out of the government budget which causes the safeguards to be a strain on government resources. While interviewees reported that the government followed through on these payments, it is worth noting that there is less incentive to do so when the funds must be additional to the international funding allocated in the project. This is an instance where the different levels of rules and norms along the institutional scale can create barriers to following the safeguards.

In another case, a project under the Adaptation Fund built a revetment wall along a river which caused more flooding instead of preventing it. The wall was developed in its present location because of requests from the village leaders against the recommendation of engineers. This represents a lack of communication across the knowledge scale—perhaps with more discussion the village leaders' experienced and contextual knowledge could have been integrated with the analysis of the geography

to come up with an output that would have worked. This points to a need to increase the involvement of all scales in this aspect of the projects. Additionally, the level to which these issues are reported back up to the international jurisdictional level is not clear. If safeguard issues are underreported, it gives a different perception on the effectiveness of safeguards as you move across the jurisdictional levels, which does not foster nested levels of governance.

Resources

Three types of interconnected resources were highlighted by interviewees: operational costs, staff, and institutional memory. We observe a juxtaposition between the influx of funding from the international level, and the expectation by the international level of additional resources at the national and local jurisdictional levels that may or may not exist. In the case of the PPCR project, one interviewee explained that the World Bank provides the funds for the project, but not the operational costs. The expectation is that the country shows its commitment to the project through supporting these operational costs which range from work computers to the payments for using land to improve roads as discussed in the safeguards section.

This raised a particular challenge in Samoa because the CIM plans required that ministry officials and consultants travel to every village in the country. But, to pay visits to villages means that they must practice "the cultural protocol which is very expensive. And those are not funded by the projects" (Interview 3, 18 July 2018). The interviewee suggested that the number of village consultations correlated with the funding that the government ministries could put forward to pay for the gifts and activities integral to the cultural protocol. This represents a blockage between the jurisdictional levels and the institutional levels where universal rules generated at the international level do not allow countries to use funding for what can be a critical part of the project process. This primary blockage also creates secondary issues like unequal power across levels because the national and the local had limited interactions given logical barriers.

One of the most popular lines among the consultants and ministry officials interviewed was that, in their one job, they wear about twelve different 'hats.' There are simply a limited number of qualified and/or experienced staff in the relevant agencies, and resources are also limited. Thus, staff working directly on climate adaptation are required to serve in a multitude of other capacities. This impacts the effectiveness of MLG because it is hard to be intentional about integrating new approaches and coordination when staff are already overworked. One interviewee explained,

> I can't think about replication. So, it is nothing to do with the capacity of our people to be able to do it. It has to do with the fact that it is overwhelming. You have a hat on and say you have twelve [hats] already, then you are asked to do this pragmatic approach because we are looking at replicating. (Interview 6B, 9 July 2018)

This same interviewee underscored the imperative of the pragmatic approach, but simply cautioned that implementation is challenging with limited personnel.

An interlinked challenge is that of institutional memory. Not only are the staff hard to find, but in the case of the Adaptation Fund project, they were transient. At the time of the project's terminal evaluation, only one ministry official who started with the project when the original Adaptation Fund proposal was drafted, was still on the team. An observer of the project noted that it is hard to effectively facilitate work across the jurisdictional levels—not to mention build higher-level strategy (management scale), work across types of knowledge, and align timescales—when staff are constantly changing (Interview 5, 18 July 2018). The observer continued by noting that this is a frequent challenge in internationally-funded climate projects across the board. Not only is institutional memory missing within projects, but it is often almost non-existent across large projects especially when they involve different sectoral partners. Thus, these resource barriers to effective MLG might be more broadly applicable across climate projects.

Aligning Timelines

The implementing agencies did not effectively use MGL to manage the different project timetables for the Adaptation Fund and the PPCR, respectively. This challenge traverses the management, temporal, jurisdictional and institutional scales. According to several interviewees, the ministries decided to link up the Adaptation Fund project and the PPCR project once they were both approved. The initial challenge this created was that the PPCR project was approved later and thus had more administrative matters to address before beginning implementation. Those implementing PPCR also noted that the World Bank requires more administrative reporting throughout the duration of the project. Conversely, the Adaptation Fund provided those implementing the Adaptation Fund project with the flexibility to change decisions during implementation without prior approval from the Fund. Given these different processes, the Adaptation Fund implementation was put on hold while the PPCR carried out its preparatory phase. This highlights that there was, from the start, intentionality to connect the projects linking up many different stakeholders and structures across scales. However, this connectivity became a problem when the Adaptation Fund Secretariat, according to interviewees, contacted the implementers to say that if they did not start implementation, they would lose the funding. So, while the in-country teams were working to align the workplan across the many different scales, this was prevented by international institutions' temporal expectations.

This announcement caused the Adaptation Fund project team to uncouple the sister projects, which removed the explicit alignment of the temporal and management scales. Hence, the project timelines were disconnected, and so, to some degree, were the project strategies. One observer of the Adaptation Fund project noted that this is, in their opinion, one of the most remarkable aspects of the project—that such rapid directional change was possible (Interview 5, 18 July 2018). While the

separation process may have been impressive, it also resulted in some substantial challenges. Most importantly, since the Adaptation Fund still wanted to conduct the CIM planning in line with the PPCR, they started the implementation step with the infrastructure projects based off the 2002–2005 CIM plans, and then updated the plans after the projects were at least partially carried out. In the case of the CSSP projects for the Adaptation Fund, all the villages in Savai'i also ended up applying for projects without an updated CIM plan on which to base their project proposals. The Adaptation Fund implementers said that, while it was not ideal, they had no choice if they wanted the CIM planning to be effective countrywide and finish by the Adaptation Fund's deadline, even with a granted extension. Observations suggest that the implementation was also rushed which may connect closely with the safeguard challenges discussed above. Thus, the clash of the temporal scale with the institutional and jurisdictional scales significantly impacted the efficacy of the project process.

Stakeholder Participation in the Decision-Making Process

It is well documented in the literature that top-down development projects continuously fail to give critical stakeholders a seat at the table (Adams 2009). The Adaptation Fund was charged with shifting this paradigm by being a Fund that would be responsive to the voices of the 'vulnerable' people it was set up to serve. In terms of MLG, this means that the Adaptation Fund is structured for movement of power to the supra-national and sub-national levels. In Samoa's project proposal to the Adaptation Fund, the national government laid out their plan to engage local non-governmental organizations (NGOs) in the planning and implementation process. Namely, NGOs would be brought on board to work with communities to develop, apply for, and implement their CSSP projects. However, due to the shortened timeline and lack of resources for the NGO trainings, the NGOs were not involved in the project in favor of ministry staff putting on another hat to advice the villages. This exemplifies how limited time and resources snowball into a stakeholder's exclusion from the project which leads to forgoing a key characteristic of effective MLG which is the inclusion of both state and non-state actors. It should be noted that NGOs were engaged with the PPCR project in a limited capacity.

Observations suggest that the Adaptation Fund and PPCR planning and implementation was dominated by the national level ministries. The projects seem to have done an exemplary job engaging ministries across the government to support different elements of the project including housing and implementing many elements of both the Adaptation Fund project and the PPCR project. As one interviewee explained, "So apart from the community consultations, we also did site assessments with the technical experts that were on the team. So, we had an ecosystem specialist, a civil engineer, a spatial risk planner, a geomorphologist, and plus the representatives from implementing entities like LTA, SWA, MWTI, MNRE, and the Ministry of Women" (Interview 2, 18 July 2018). Village leaders had direct opportunities to run projects

through the CSSP portion of the programs which proved to be a useful way to create ongoing conversation between the government ministries and the villages beyond the CIM plan consultations. However, the villages did not receive full autonomy over the project namely because they were not given the grant in money and the discretion on how to spend it; rather, they were provided the physical materials only. According to Stephenson (2013), in an effective MLG arrangement "no level of activity [is] superior to the other." The case in Samoa reflects a clear imbalance.

Discussion

Characteristics of MLG

This chapter sets out to test the extent to which eight characteristics of effective MLG, as described in the literature, are evident as stakeholders maneuver across levels and scales to implement internationally-funded climate change adaptation projects in Samoa. This is of particular interest because, in cases of international funding flowing to national governments who implement projects at the local level, multiple levels of governance are inherent in the project governance process. However, the extent to which stakeholders recognize and actively work to facilitate MLG is not predetermined and may play an important role in how effectively these forms of adaptation are managed.

The eight characteristics of MLG are evident in this case study to varied degrees. In a broad sense, there was an *intentional effort* by the Adaptation Fund and PPCR implementers to work within the MLG framework baked into the projects. Similarly, the implementers embraced the *fluid nature* of MLG especially in managing the different project timelines.

Despite the inherent multi-jurisdictional level interactions built into an internationally-funded adaptation project, the national government holds much of the control over both the Adaptation Fund and PPCR projects. The national government did work closely with *supra-national entities* such as the World Bank, the Adaptation Fund, and the UNDP. Especially in the case of the World Bank, the national government gave power to these organizations to vet each step of the project process including small logistical changes. Power was shared with the *local level* to a lesser extent. Villages were consulted as a part of the CIM planning process and had the opportunity to apply for and implement CSSP projects. However, both these aspects of the projects were closely overseen by the national government at every step. The interviewees summarize that the ministries saw the villages as dependent on them for support, but the ministries did not feel a mutual sense of dependency on the villages. This mutual dependency, which leads to more flattened power structures, is a tenant of Stephenson's (2013) understanding of MLG. This example highlights that the characteristic of *equal power across levels* did not manifest in these projects.

Returning to Keskitalo's (2010) understanding of MLG, both *private and public entities* are supposed to be involved at every level. At the international to national levels, we do see a mix of interactions between the World Bank, the UNDP, the Adaptation Fund, and the government ministries. However, as highlighted by the discussion of stakeholders engaged in the projects, there is less collaboration between state and non-state actors in-country. Further integrating Samoan civil society, in the form of NGOs and village leadership groups, into the project process could enhance their engagement with this characteristic of MLG.

In terms of engaging *across all scales*, the introduction of the programmatic and pragmatic approach is an example where the project does work across multiple scales (i.e., jurisdictional, temporal, institutional, and management). Yet, the approach does not necessarily integrate levels across the knowledge scale. Given village members and leaders' deep, contextual knowledge of the islands, this is a critical scale to include in the Samoan context. Thus, while we do observe continuous efforts to work across scales, it is apparent that resource and time constraints moderate the ability to do so.

Cash et al. (2006) suggests that, when effective, MLG should create opportunities for *new policy solutions* that were not possible before the levels and scales started working both interdependently and independently (Cole 2011). In Samoa, the introduction of the pragmatic and programmatic approach represents the most significant structural change inspired by these projects. Moving away from the approach that deals with all internationally-funded projects in a vacuum towards one that integrates the use of international funds with existing ministry projects and priorities will likely have a long-term impact on Samoa's approach to international development finance. Further, two of the implementers also explained that they were encouraging communities to use the new CIM plans to hold their elected officials accountable. Villages should request that their elected officials use the plan to form their policy positions in the Legislative Assembly. They explained that this could be one of the most effective paths to ensure long term usage of the CIM plans. If the CIM plans become a tool for villages to increase climate resilience through legislative actions this would represent another policy solution born out of the MLG process. Thus, while there were barriers to leveraging MLG for effective adaptation, we still see substantial policy impact coming out of these two sister projects.

Conclusion

MLG, polycentric governance, and nested governance have been discussed in the literature for over 25 years (Stephenson 2013). Yet, this case shows that despite the attention, implementation of MLG is challenging and there is no clear playbook for how to do it well. In Samoa, we see that the obstacles to carry out effective MLG are generated at various levels and scales with no particular actor or area serving as

the central source of the issues. Interviewees suggested that, over the course of the projects, they were increasingly aware of the value of working across the levels and scales.

However, the analysis also suggests that even when project implementers embrace MLG, not all characteristics of MLG are apparent in each element of the project nor does each element of the project include cross-level and scale interactions. This illuminates the spectrum and quantities of trade-offs embedded in this systems approach to project management and governance. In fact, it brings into questions when, if ever, MLG aligned with all of the characteristics is possible. In the case of Samoa, decisions to work across all jurisdictional levels were constantly modified by access to resources and time. Thus, project implementers had to decide when to engage with the sub-national level entities rather than having a more nested governance approach. Since there are so many variables embedded in this systems approach, they cannot all be maximized at the same time. This chapter finds that effective MLG also requires an awareness of these diverse trade-offs throughout the governance process.

As Pacific island countries continue to apply for and receive international funding for climate adaptation, embracing MLG and understanding the trade-offs woven into the system can be informative in both the planning and project implementation phases. At the same time, it is critical that project funders place value in the characteristics of effective MLG and aim to support them through institutional policies and procedures. In particular, ministries responsible for writing project proposals ought to work with key stakeholders to build interactions between levels and scales into project proposals to set the project on a trajectory to be inclusive, strategic, and inline with broader sustainable development goals. For example, providing funding for cultural protocols in the grants could enable more sustainable relationships between a national government and communities. At the implementation phase, project implementers need sufficient time to build relationships across scales and levels in order to see the programmatic and pragmatic approach to fruition. These are critical points for project funders to embrace.

Tracking future adaptation projects in Samoa to see how they build on or diverge from the project efforts described in this chapter as well as revisiting the Adaptation Fund and PPCR project elements in future years would be instructive to understand the extent to which MLG actually influenced the long-term sustainability of the projects. Further, an analysis of climate adaptation projects in other Pacific island countries, similar to the work throughout this book, will increase our understanding of the tools that are essential for effective climate adaptation in the Pacific context—essential knowledge for a region on the front lines of climate change impacts.

Acknowledgements This material is based upon work supported by the National Science Foundation Graduate Research Fellowship under Grant No. DGE-1144205. Any opinion, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation. This research is also supported by Dan and Betty Churchill Exploration Fund, the Richardson-Churchill SPIA Scholarship, and the University of Maine Graduate Student Government.

The authors are also grateful for the support of Dr. Cindy Isenhour for her guidance throughout the research process. The project would not have been possible without the participation and engagement from the interviewees and their colleagues who welcomed us into the climate adaptation project processes.

References

Abrams MH (1999) A glossary of literary terms, 7th edn. Heinle & Heinle, Thomson Learning, Boston

Adams WM (2009) Green development: environment and sustainability in a developing world. Routledge, New York

Adger WN (2001) Scales of governance and environmental justice for adaptation and mitigation of climate change. J Int Dev 13:921–931

Adger WN, Huq S, Brown K, Conway D, Hulme M (2003) Adaptation to climate change in the developing world. Progress Develop Stud 3(3):179–195

Brockhaus M, Djoudi H, Kambire H (2012) Multi-level governance and adaptive capacity in West Africa. Int J Commons 6(2):200–232

Bulkeley H, Betsill M (2005) Rethinking sustainable cities: multilevel governance and the 'urban' politics of climate change. Environ Politics 14(1):42–63

Cash DW, Adger WN, Berkes F, Garden P, Lebel L, Olsson P, Pritchard L, Young O (2006) Scale and cross-scale dynamics: governance and information in a multilevel world. Ecol Soc 11:2–8

Chaudhari VR, Mishra A (2016) Multilevel policy responses to mainstream climate adaptation through watershed development in rainfed farming systems in India. Climate Dev 8(4):324–335

Cole DH (2011) From global to polycentric climate governance. European University Institute: Robert Schuman Centre for Advanced Studies Global Governance Programme. Working paper

Creswell JW (2013) Qualitative inquiry and research design: choosing among five approaches. Sage, Los Angeles

Elyachar J (2005) Markets of dispossession: NGOs, economic development, and the state in Cairo. Duke University Press, Durham

Gee JP (2004) Discourse analysis: what makes it critical? In: Rogers R (ed) An introduction to critical discourse analysis in education. Lawrence Erlbaum Associates, Mahwah

Gumeta-Gómez F, Durán E, Bray DB (2016) Multilevel governance for local management of drinking water in Latin America: case studies from Costa Rica, Honduras, and Mexico. Acta Universitaria 26(3):3–13

Hoegh-Guldberg O, Jacob D, Taylor M, Bindi M, Brown S, Camilloni I, Diedhiou A, Djalante R, Ebi KL, Engelbrecht F, Guiot J, Hijioka Y, Mehrotra S, Payne A, Seneviratne SI, Thomas A, Warren R, Zhou G (2018) Impacts of 1.5 °C global warming on natural and human systems. In: Masson-Delmotte V, Zhai P, Pörtner H-O, Roberts D, Skea J, Shukla PR, Pirani A, Moufouma-Okia W, Péan C, Pidcock R, Connors S, Matthews JBR, Chen Y, Zhou X, Gomis MI, Lonnoy E, Maycock T, Tignor M, Waterfield T (eds) Global Warming of 1.5 °C. An IPCC Special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty. World Meteorological Organization, Geneva, Switzerland

Hooghe L, Marks G (2001) Types of multi-level governance. Europ Integr Online Pap 5(11):1–32

Janicke M (2017) The multi-level system of global climate governance- the model and its current state. Environ Policy Govern 27:108–121

Keskitalo ECH (2010) Developing adaptation policy and practice in Europe: multi-level governance of climate change. Springer, Dordrecht

Macpherson C, Macpherson L (2009) The warm winds of change: globalization in contemporary Samoa. Auckland University Press, Auckland
Meleisea M, Meleisea SP, Meleisea E (2012) Samoa's journey 1962–2012: aspects of history. Victoria University Press, Wellington
MNRE, Australia Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organization (2011) Pacific climate change science program: current and future climate of Samoa. International Climate Change Adaptation Initiative. Available online at https://tinyurl.com/y4kgocb2. Last access 23 June 2019
Ostrom E (2012) Nested externalities and polycentric institutions: must we wait for global solutions to climate change before taking actions at other scales? Econ Theor 49:353–369
Rogers R (ed) (2004) An introduction to critical discourse analysis in education. Lawrence Erlbaum Associates, New Jersey
Steger MB, Roy RK (2010) Neoliberalism: a very short introduction. Oxford University Press, Oxford
Stephenson P (2013) Twenty years of multi-level governance: 'where does it come from? What is it? Where is it going? J Europ Public Policy 20(6):817–837
UNFCCC (2018) UNFCCC Standing Committee on Finance 2018. Biennial assessment and overview of climate finance flows technical report. United Nations Framework Convention on Climate Change. Available online at https://tinyurl.com/y2h5yc8c. Last accessed 22 June 2019
Yamamoto L, Esteban M (2017) Migration as an adaptation strategy for Atoll Island States. Int Migr 55(2):144–158
Yin RK (2014) Case study research: design and methods. Sage, Los Angeles