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Designing flexible governance for climate adaptation pathways in small islands: insights from multiple case studies

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Small islands are widely used to illustrate vulnerability to climate change and the urgency to adapt because they are facing its impacts at an accelerated rate. The ability to anticipate and plan for climate risks—especially from marine flooding and coastal erosion induced by hurricanes, storms and sea-level change—is significantly tied to idiosyncratic governance arrangements shaped by past-to-present risk experiences and management trends. Designing and implementing future adaptation pathways depends on the capacity to break path dependencies of such arrangements, and narrow down the scope of risk management options.

Drawing from a portfolio of six small islands across the Pacific, Caribbean and Indian Ocean, this *Policy Brief* surveys the enabling conditions for effective governance of climate adaptation challenges. These territories present contrasting situations, each with a specific combination of climate-sensitive physical, environmental, institutional, economic and social features. A comparative analysis offers ground rooted evidence on the constraints and opportunities for long-term adaptation policy and planning across different island contexts. The cases highlight the need for *flexibilising* climate-proof governance arrangements in order to manage different hazards trends across time.

Policy recommendations are proposed on framing flexible adaptation governance at the crossroads of multiple dimensions (including the nature of climate hazards, institutional capacities and community engagement). They are structured on a tiered approach to inform international and regional adaptation policy dialogues while also calling attention to island context specificities for the successful implementation of long-term adaptation pathways at the national and sub-national levels.

KEY MESSAGES

Small islands demonstrate that flexibility is a key feature of adaptation governance to manage across timescales and risk drivers (climate-related and others), and therefore for the design of long-term adaptation pathways.

Flexibilising adaptation governance presents opportunities to navigate the complementarities across policy areas (long-term risk reduction and adaptation, sustainable development planning, disaster risk reduction), coordinate resources and actors, and balance actions between now and the medium-to-long term, while giving that margin of movement needed to adjust to changing hazard, vulnerability and risk conditions.

A cross-island study shows that two major enabling conditions are at the juncture of developing flexible governance for successful adaptation: i) institutional capacity on managing interests and resources, and ii) the community in inclusive decision-making and the importance of social acceptability. The former stems from cross-institutional dialogue and openness to cultivate partnerships, while the latter is captured in risk attitudes and island culture inherent in past to present development trends, experiences with risks and a willingness to explore locally tailored adaptive solutions.

POLICYBRIEF

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1. GOVERNANCE ISSUES IN SMALL ISLANDS

a. Dealing with multiple hazards and time scales

Small islands illustrate the dual adaptation policy and planning challenge against cyclical climate extremes and slow onset changes (e.g. shoreline gradual retreat and sea-level rise), while at the same time addressing development needs (e.g. job creation, economic activities, social well-being, etc.) and balancing adaptation activities across time scales (urgent action now and planning in the medium-to-long term).

Climate change multi-hazard and risk integration calls for a holistic adaptation strategy. This means harnessing the synergies across crisis management, disaster recovery and reconstruction and sustainable development with forecasting both changing climate and hazard patterns (e.g. sea-level rise, marine flooding and coastal erosion) and socioeconomic trends to allow for climate risk anticipation, preparedness (reactivity) and planning (long-term risk reduction). Observed disasters provide opportunities to better understand the root causes of vulnerability—as in the case of cyclones that affected Reunion Island, and Saint-Martin, Tortola and Anguilla (Magnan and Duvat, 2018; Duvat *et al., submitted*; Anisimov *et al.*, *submitted*)—and highlight a range of potential solutions to reduce future risk. For example, in Reunion Island after Bejisa cyclone in 2014, crisis response coordination to oversee individual recovery efforts (e.g. the building of ad hoc beach front property protective structures) is critical to avoid maladaptation, and the restoration of natural coastal systems (dunes and vegetation as natural buffers) has been highlighted as part of the unavoidable solutions to adaptation (Magnan & Duvat, 2018). Synergistic activities can help combat the problems of fragmented sediment cells while giving a coherent framing for national coastal adaptation.

Climate-related extremes require a set of preparedness, response, recovery and reconstruction governance arrangements, as shown in Anguilla and the British Virgin Islands (BVI) in the aftermath of Hurricanes Irma and Maria in September 2017 (Anisimov *et al.*, *submitted*). However, these islands face challenges to foster an integrated approach, where post-disaster recovery is often politicized and funding sources including external aid and re(insurance) schemes face competing departmental interests. As a result, increasing climate extremes in the region can hinder effective long-term planning as rebuilding cycles are often treated separately from issues such as erosion and sea-level rise (i.e. disaster resilience and 'build back better' *versus* climate change adaptation).

Noteworthy, the case of Mauritius Island shows that adaptation options can involve co-benefits and build bridges between risk reduction and sustainable development. For example, the implementation of pilot projects on mangroves restoration enhances natural flood barriers to reduce the exposure of communities and coastal road infrastructure while promoting the health of local fisheries (Anisimov *et al.*, 2019).

b. Adaptation planning around constraints (physical, population, environmental)

Small islands have specific territorial features (especially limited population size and land availability, and highly climate-sensitive ecosystems and economies) that are also part of the adaptation challenge. In some islands, the availability of land will play a critical role in adaptive spatial planning of highly exposed human assets and sensitive ecosystems. For example, Tortola has volcanic steep slopes that create a limited flat land base and therefore close-to-shoreline development trends, which is a concern for reconstruction processes of important infrastructure, such as the coastal road given its high exposure to repeated climate extremes. While development on the coast is a common problem in many islands, in the same Caribbean region, Anguilla's span of flat land, inland capital and spread out population makes retreat and relocation a potential opportunity for adaptation governance to explore.

Similarly, adaptation in small islands has to consider the feasibility of 'popularised responses', especially the wide endorsement of nature-based solutions (NBS). While ecosystem restoration is most often a fundamental necessity for adaptive solutions, it should not come as a stand-alone project—as in some cases climate change impacts are irreversible. In Mauritius, up to 90% of the coral reef fringe are dead or dying, and these natural systems regulate sedimentation processes. As in other islands facing such threats, mangrove planting has been explored but should be reinforced with the use of permeable structures to protect the baby propagules from strong waves giving them time to grow. Planning long-term adaptation in this context requires coordination to act now, while also reinforcing protection and allowing the environment (ecosystem, vegetation and habitat) to restore over a longer period, when the adaptive benefits will take shape. In the Maldives, strengthening ecosystem resilience is seen as one among five generic pillars of adaptation, with various degrees of implementation depending on whether island ecosystems are still in place or have already been severely degraded (Magnan and Duvat, 2020).

Integrating various constraints, such as physical attributes, ecosystems and more are inherent to successful adaptation governance. While these may present adaptation challenges, there are also important levers for designing adaptation pathways.

c. Institutional capacities: managing interests and resources

Institutional capacities to organize stakeholders and forge partnerships can garner support and open funding channels for the implementation of 'bankable' adaptation projects.

As in many islands, in Mauritius, competing interests in environmental protection, tourism and economic development have undermined the use of the coast and hindered a comprehensive coastal adaptation plan. While tourism is a main GDP engine, islands such as Mauritius could shift governance measures towards private sector engagement, that would allow to leverage on their capacities to carry out vulnerability and risk assessments and reshape the design of coordinated beach

management and adaptation projects (Anisimov *et al.*, 2020; Duvat *et al.*, 2020). A recent MOU signed between the Mauritius government and Business Mauritius (a consortium of businesses, hotels and more with activities along the coast) will explore such coastal risk management opportunities. Success points to a land swapping agreement carried out between the two sectors that allowed to move a highly exposed coastal road inland (St. Felix, southwest of the island).

Engagement with the private sector in risk reduction and adaptation is less apparent in Anguilla and Tortola. Instead, institutional capacity is at the crux of managing resources. In particular, in Tortola after the 2017 hurricane season, post-disaster procurement has been led by an ad hoc organization operated by the UK, which has created tensions around local planning needs and frustration across government departments to coordinate and prioritize reconstruction of public facilities (Anisimov *et al.*, *submitted*). In this case, institutional capacity is key to help organise stakeholders and manage interests to get hold of appropriate funding for disaster risk reduction and long-term adaptation in the future.

d. Community: risk attitudes and island culture

Communities are impacted by climate risks and adaptation decisions. Therefore, they are at the hinges of constraining or enabling long-term planning. Experience with climate risks and community traditions around development shape a certain understanding of hazards, climate change and willingness to accept different kinds of adaptation measures.

A common adaptation challenge across islands is how to protect communities located on dangerous shorefronts while reducing exposure in the long term. For example, the community of Rivière de Galets in Mauritius has experienced severe impacts from extreme weather and storm surge. The community is now protected by a sea wall, which was reinforced in 2017 (financed by UNDP Adaptation Fund). While certain limitations of this measure have been acknowledged—notably, capacity in the face of climate change and a lack of budget for maintenance and reinforcement—it was chosen over relocation because the community was not willing to move. The case shows that consensus is a signature piece of the puzzle when dealing with 'social acceptability', which can challenge certain adaptation solutions, especially if they risk to uproot cultural attachments to the land. In French Polynesia atolls, the implementation of nationally-driven risk reduction plans as well as of post-disaster building relocation are confronted by a traditional land tenure system that structure the local community's organization and identity (Magnan *et al.*, 2019).

In many cases, the conflicts around adaptation and social acceptability are entrenched in land use and urban planning legal frameworks (e.g. policies and legislation) and proprietary agreements. Local land use traditions and development patterns may come secondary to legislation; as in the case of Anguilla. Therefore, development trends are dependent on an understanding of coastal risks and experiences of tropical cyclones. Taking into account those attitudes of risk and local traditions are then key to participatory long-term adaptation governance measures (i.e. raising awareness initiatives).

2. THE WAY FORWARD: POLICY FLEXIBILITY SET IN MOTION ADAPTATION PATHWAYS

The above calls for a shift from traditional risk reduction governance to evolving adaptation pathways, where *flexibility* can help break path dependencies and maladaptation. Flexibility refers to, 'opportunities for switching between adaptation strategies and capture the diversity of potential adaptation options available' (Cinner *et al.*, 2018, p. 118) and therefore serves as a critical dimension to support climate adaptation pathways (Haasnoot *et al.*, 2013; Werners *et al.*, 2015) that are policy tools sequencing a combination of risk reduction measures over time as part of a long-term adaptation strategy. The benefit of the adaptation pathways approach is that it is intrinsically designed with changing socio-economic and climate conditions in mind, which means the limitations of measures are monitored while alternative measures are envisioned down the road. Flexible governance of risk provides—together with iterative studies on the implementation and effectiveness of various adaptation options tested—the basis for operationalising such adaptation pathways.

Field investigations suggest that flexibility is key to overcome a wide range of governance issues. A framework of flexibility for climate-proof governance arrangements is characterised as follows:

- *Flexibility helps navigate across hazards, time scales and policies.* Flexibility is about facilitating the organisation of adaptation actions along multiple time scales (and varying hazards), from balancing action now and sequencing future adaptation plans (e.g. the intersections of crisis management, DRR, forecasting hazards, sustainable development, environmental protection and adaptation).
- *Flexibility helps adjusting adaptation actions and plans around current constraints and future limitations (e.g. when changing conditions make a risk reduction option obsolete).* This can help planning around island size, flat land availability, ecosystems and more.
- *Institutional flexibility harnesses multi-stakeholder involvement and manage interests to facilitate comprehensive strategies and financing channels for testing adaptation measures.* Adaptation policy is often slow to keep up with changes in the socio-economic and climate risk environment, especially vulnerability conditions; therefore, that space is needed for quick reactivity of funding channels to move from one adaptation measure to another.
- *Flexibility ensures a continually evolving framework in relation to socio-economic changes, community needs and risk attitudes, where acceptability is the basis for supporting any long-term adaptation planning.* Adaptation actions are implemented at a local level with effects on the community, therefore open governance beyond 'check the box consultations' with local people in the design and testing of measures is essential to a real iterative process.

The components of this flexibility framework for climate-proof governance arrangements provides guidance to, first, design national adaptation policies and translate them into operational national-to-local decisions and, second, survey adaptation options while managing the urgency to act now and planning for the future in the small island context.

3. POLICY RECOMMENDATIONS

What does flexibility mean for successful adaptation planning? What kinds of governance arrangements encourage and assist in forward-looking approaches instrumental for long-term adaptation?

Firstly, It is recommended that small islands adopt flexible adaptation governance frameworks, which should be raised at international policy dialogues and climate negotiations represented by SIDS. This will call for evolving national adaptation plans and policies—in particular, the inclusion of flexibility to push country reporting under the UNFCCC process. This would encourage national adaptation planning to:

(i) Restructure on the idea of 'pathways' and not a simple sequence of measures/policies that are divided across sector-specific plans;

(ii) Include the time dimension in adaptation planning strategies that would allow to organise risk management activities around alternative futures and give guidance on the allocation of resources.

Secondly, regional platforms are also key to this process by bridging on the ground experiences and adaptation challenges faced by a diversity of islands to higher-level international policy dialogues.

Thirdly, the successful implementation of adaptation governance will have to adjust to context specificities. For example, La Reunion faces small island issues but is negotiated as a part of mainland France in climate discussions. Policy recommendations to drive national and sub-national decision-making for adaptation focus on the role of flexibility in the operationalisation of adaptation pathways and the learning processes inherent to such an approach. In conclusion, small Islands can be leaders of international processes by demonstrating flexibility in climate proof adaptation governance.

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