GIVRAPD Working Paper 1: Jamaica

Title: Identifying and lifting climate adaptation barriers in Jamaica using a participatory approach

Authors: Ms Muriel BONJEAN STANTON and Dr Thomas E. DOWNING

Suggested citation: BONJEAN STANTON, M.C. and DOWNING T.E. (2014) Identifying and lifting climate adaptation barriers in Jamaica using a participatory approach, GIVRAPD Working paper, Global Climate Adaptation Partnership

Corresponding addresses of the authors: Global Climate Adaptation Partnership (GCAP), http://www.climateadaptation.cc/
Muriel BONJEAN STANTON: mbonjean@climateadaptation.cc
Thomas E. DOWNING: tdowning@climateadaptation.cc

Abstract

Purpose: The purpose of this working paper is to present an innovative and participatory methodology to identify and overcome climate adaptation barriers and an example of its application in Jamaica.

Design/methodology/approach: The approach builds upon stakeholder mapping (i.e. Net-Map) and uses barrier and practical actions cards to support stakeholders through the process of identifying together potential adaptation barriers and potential actions that can be implemented to overcome them. The approach was used in workshops in four Small Island Developing States (SIDS): Jamaica, Mauritius, Seychelles and St Lucia. In each island, the workshops involved national and local level actors from three sectors: agriculture, fisheries and tourism.

Findings: In Jamaica, the methodology highlighted the predominance of the national government and national agencies in planning climate adaptation and the still limited inclusion of local actors in adaptation. It also allowed the identification of three adaptation barriers, two being policy-related and one funding-related. Practical actions to overcome these barriers point towards a better inclusion of local actors in the adaptation planning, decision-making and implementation as well as towards the development of financial evidence to support better investments in adaptation.

Originality/value: The participatory identification of adaptation barrier and how to overcome them could be a successful planning process that reconciles national adaptation policies with the implementation of local adaptation actions. It involves different stakeholders devising solutions that not only are in the line with national adaptation policies but also are a step towards reducing vulnerability against climate extremes at local level. Prioritising the identified barriers that are surmountable and that can already be addressed within the islands' capacities would be the beginning of building climate resilience at national and local level.

Introduction

Small Islands Developing States (SIDS) are particularly vulnerable to the effects of climate change due to their limited size, geographical dislocation, proneness to natural hazards and external shocks, high exposure of population and infrastructure and limited adaptive capacity.

Although SIDS are among the least emitters of GHGs, they are likely to suffer strongly from the adverse effects of climate variability and change and could in some cases even become uninhabitable. Additionally existing and forthcoming challenges related to climate variability and change are just some of many pressing problems that most SIDS face. Their socio-economic concerns include poverty alleviation, high unemployment, and the improvement of housing, education and health care facilities – all of which often compete for the slender natural and financial resources available.

Adaptation measures are central to addressing the challenges posed by climate variability and change in SIDS. But under their existing circumstances, adaptation will require innovative solutions involving stakeholders across different geographical scales and sectors and the integration of adaptation into existing sectoral policy initiatives in areas such as sustainable development, planning, disaster prevention and management, integrated coastal management, and health care.

But some barriers still persist and the implementation of adaptation actions at local level remains scarce. This paper presents and innovative, participatory methodology to identify these adaptation barriers as well as potential ways to overcome them. This methodology was used successfully during a workshop in Jamaica, and covered 3 sectors of activities: agriculture, fisheries and tourism. The results from the workshop are summarised here along with some recommendations on next steps.

Background

A changing climate is already challenging the agriculture, fisheries and tourism sectors Jamaica and the livelihoods of the communities. Extreme events have already had a significant impact on Jamaica's economy, environment and people; five major storm events between 2004 and 2008 reportedly caused 1.2 billion U.S. dollars in losses and damages (Neufville, 2012). Furthermore, climate change projections for Jamaica predict an increase in average atmospheric temperature, reduced average annual rainfall, increased Sea Surface Temperatures (SST); and the potential for an increase in the intensity of tropical storms (CaribSave Partnership, 2012).

Key vulnerable sectors to climate change in Jamaica, as identified in the country's First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) include the coastal zone (which produces approximately 90% of the country's GDP), as well as water and agriculture (Medeiros D. et al., 2011). Tourism is by far the largest and most important sector of the Jamaican economy. Agriculture, along with forestry and fisheries is also one of the key economic sectors of Jamaica.

Recognising the challenges ahead, the Government of Jamaica has made significant progresses in developing national-level adaptation policies and plans. According to a recent document prepared by the government, Jamaica is drafting a National Climate Change Policy and Action Plan (JNCCPA). The Plan is closed to completion stage and should be approved and enforced this year. The government also announced in

2006 planning to establish a climate change unit that would act as a clearinghouse for information on climate change in Jamaica and support activities such as development of its National Communications. However, this unit has not yet been established (Medeiros D. et al., 2011) but plans for how it would be organised have been recommended (UNDP, 2013). Within the context of the country's National Development Plan: "Vision 2030 - Jamaica", climate change is emerging as a crosscutting issue as strategies related to adaptation are emerging throughout the Plan.

Whilst the above constitutes a significant degree of government activity in climate change related areas, there is still room in Jamaica to mainstream climate adaptation considerations into key institutional/ sectoral goals, to improve inter-ministerial collaboration and to link national adaptation policies with local implementation of adaptation actions and overcome some adaptation barriers.

Adaptation barriers referred to here are defined as "any condition that makes it difficult to achieve progress towards adaptation" (Huang et al., 2011) or as "obstacles that can be overcome with concerted efforts, creative management, change of thinking and related shifts in resources, land use institutions etc." (Moser and Ekstrom, 2010).

Limits to climate adaptation differ from barriers as they are absolute obstacles that render adaptation to climate change ineffective and as such cannot be overcome (Adger et al. 2007). However, barriers to climate adaptation differ from limits in that they are obstacles that can be overcome with (Moser and Ekstrom 2010).

Adaptation barriers are expected to constrain how adaptive capacity to future climate change might be translated into action (Ford and Pearce, 2010) and deeply influence the likelihood of successful adaptation strategies at local level (Burch, 2010). Understanding the nature of barriers to climate adaptation is important (e.g. Patt and Schroeter 2008; Adger et al. 2009; Nielsen and Reenberg 2010) and even more so to find strategic ways of overcoming with them. Current understanding of these barriers in SIDS is however very limited. This paper summarises the results from the participative assessment of barriers to climate change adaptation in Jamaica. It also presents some of the implementable practical actions devised by sectoral stakeholder groups to overcome these barriers. The assessment of the barrier and the formulation of practical actions follow a unique participative methodology presented in the next section.

Methodology

In trying to gain a better understanding of the possible barriers underlying the disconnect between national adaptation policies and local implementation of adaptation actions in the specific context of Jamaica and how to overcome them, a one-day workshop was organised. Before the workshop, some desk studies were carried out to better understand the context of the island.

The workshop formed an integral part of the GIVRAPD project. The CDKN project: "Global Islands' Vulnerability Research, Adaptation, Policy and Development" is a 2-year research project in 4 coastal communities in the Caribbean (Jamaica and St Lucia) and the Indian Ocean (Mauritius and Seychelles). It seeks to understand the multi-scale socio-economic, governance and environmental conditions that shape vulnerability and capacity to adapt to climate change.

The workshop in Jamaica included representatives of local organisations as well as national organisations, covering 3 sectors identified as most vulnerable to climate impacts: agriculture, fisheries and tourism. Three main activities were planned throughout the workshop, bringing the participants together within one sector. The first group activity was to identify the existing stakeholders involved in adaptation planning implementation for one of the sector and to assess 'horizontal' and 'vertical' linkages/relationships between the various stakeholders. The linkages captured were: a) information/advice, b) funding and c) line of command/authority. The activity also looked at the influence of each actor on the implementation of adaptation activities at local level. The stakeholder mapping methodology used for this activity dwell from the Net-Map protocol (Schiffer E., 2007).

The second activity of the workshop aimed to: i) gain a group consensus on the critical barrier related to the implementation of adaptation measures for a sector and ii) identify the underlying causes behind the chosen barrier. The groups had access to a list of possible barriers and possible causes and were invited to prioritise one barrier they thought was the most significant for the sector. Each group had to fill one "adaptation barrier" card detailing the chosen barrier (i.e. name of the barrier, cause, organisation/person responsible for the barrier and who could lift the barrier). The groups were also free to come up with their own "off-list" barriers and causes or modified the ones from the lists.

The last activity aimed to identify strategies and actions that could contribute to overcome the causes driving the adaptation barrier identified in the second activity. The groups had access to a list of possible adaptation good practice actions but were also free to come up with their own. Each group had to fill in one "adaptation good practice action" card per barrier identified. The emphasis on the adaptation good practice action" card was on the implementation and feasibility of the action(s) chosen (i.e. who is responsible to implement the adaptation action, how, the resources needed and measures of the effectiveness of the action).

The second and third activities iteratively referred to the stakeholder maps devised at the beginning of the workshop to try and identify the actors that are responsible for the barriers and those who can lift the barriers (sometime the same, sometime different). The two activities, using "adaptation barrier" and "adaptation good practice action" cards were developed as a practical application of Moser and Ekstrom (2010).

The advantages of using stakeholder participation in the assessment of barriers and formulation of practical actions are many folds. Firstly, involving stakeholders into drawing the network maps allows them to visualise how their organisation or themselves fit into the network. Then, all stakeholders present during the workshop can express their opinions in-situ and these can spark further discussions between participants, thus enabling reaching consensus on the adaptation barriers identified and the possible ways to overcome them. Furthermore, bringing different stakeholders from different backgrounds, communities, literacy proficiencies together allows them to bring their points of view across and possibly clarify opinions and ideas.

A lot of consideration was given during the workshop to appease ethical worries that participants might have had. For example, as participants expressed their concerns over their discussions being recorded, no notes were taken during their group discussions throughout the workshop. In not doing so, collecting additional

information might have been compromised but the authors felt that respecting the wishes of the participants was of greater importance.

Results

Agriculture sector

In the agriculture sector working group, both national and local level stakeholders were well-represented. At national level, participants included representatives from the Ministry of Agriculture and Fisheries (MoA), the Rural Agricultural Development Authority (RADA), the Jamaican National Environment and Planning Agency (NEPA), the Forestry Department, the Ministry of Finance and Planning, the Water Resource Authority (WRA), and the Jamaica Organic Agriculture Movement. At local level, the following organisations were represented: the Negril Green Island Area Local Planning Authority (NGIALPA), the Social Development Commission (SDC) and the Organic Farmers Cooperative of Bluefields.

The stakeholder map developed by this group includes actors at international, national and local levels. The Ministry of Agriculture and Fisheries and International Donors are the stakeholders with the most connections to the other actors, hence the most well-connected in the network.

Both actors are found to have a high influence (i.e. a ranking of 3 on the influence scale described above) on the implementation of adaptation solutions at local level. Other actors are noted to be as influential, but not as well-connected; among which are other national ministries (e.g. Finance, Land, Water, Environment and Climate Change (MoWECC), Health), national government agencies (e.g. Rural Agricultural Development Authority (RADA), National Irrigation Commission (NIC)), organisations linking national and local levels (e.g. Jamaica 4 H clubs, Jamaica Social Investment Fund, Social Development Commission (SDC)), research organisations (e.g. Caribbean Agricultural Research and Development Institute (CARDI)), organisations representing local actors at national level (e.g. Jamaica Cocoa Farmers Association, Jamaica Organic Agriculture Movement), local actors (e.g. farmers, secondary schools, Westmoreland Organic Farmers Society, agro-processors).

Actors found to have less influence (i.e. a ranking of 1 and 2) on the implementation of adaptation solutions at local level, are the IPCC at international level, other national government agencies (e.g. Jamaica Agriculture Society (JAS), National Environment and Planning Agency (NEPA), Office of Disaster Preparedness and Emergency Management (ODPEM)), the National Water Commission (NWC), national information services (e.g. Jamaica Information Service (JIS)), the Jamaica Hotel & Tourist Association (JHTA), scientific research organisations (e.g. Scientific Research Council (SRC) and the University of the West Indies (UWI) climate study group), the Chamber of Commerce and at local level the local NGOs and Parish Councils.

The participants included the agro suppliers, custom broker associations and the Pesticides Control Authority (PCA) in the network of stakeholders but thought that they have no influence (i.e. ranking of 0) on the implementation of adaptation solutions at local level.

In terms of the nature of the connections between the stakeholders, the Ministry of Agriculture and Fisheries is at the centre of the information flows; not only does it provide information to other stakeholders (e.g. other ministries, ODPEM, RADA at national level and farmers through the JAS and the Westmoreland Organic Farmers Society) but he also receives information from different levels (e.g. at international level from the IPCC, at national level from UWI, SDC and CARDI and at local level agro-suppliers and parish councils). Information also seems to flow well between the national and local levels.

The cascade of responsibilities for implementation of adaptation actions at local level seems also to be well established. At national level, the Ministry of Agriculture and Fisheries instructs RADA, which then turns to the JAS. The Jamaica Agricultural Society then liaises with ODPEM, farmers associations (e.g. Jamaica Organic Agriculture Movement) and farmers.

International donors seem to control a lot of the funding for adaptation, which is mainly directed at national level actors; they finance the Ministry of Agriculture and Fisheries, Ministry of Finance, RADA, CARDI and the SRC and UWI at national level as well as NGOs. The Ministry of Finance also provides the Ministry of Agriculture and Fisheries with finance and also some farmers associations (e.g. the Jamaica Organic Agriculture Movement). Funding to farmers at local level is made through the Chamber of Commerce.

For this group, the principal barrier of implementation of adaptation actions are local level was identified as being the lack of funding to plan and implement responses. Causes put forward to explain this barrier were short political cycles, short term planning, absence of strategic and coordinated approach to funding adaptation priorities, no statutory obligations, no guidance from other levels of government which is flexible enough to allow the community to use judgment and apply local knowledge, but rigorous enough to provide back-up and support to decision makers.

Controlling that barrier is not only the most influential and well-connected organisation, the Ministry of Agriculture and Fisheries but also the Ministry of Finance, who plays an important financial role at national level.

To overcome the barrier identified, the group prioritised the practical action: “Improve evidence for business / investment decisions (e.g. monetary value of adaptation options & interventions)”. To implement this practical action RADA is found to have a key role. Private sector, NGOs and the Chamber of Commerce also were mentioned, highlighting a will to make the link to the more local levels.

Fisheries sector

The working group on the fisheries sector gathered representatives from the following organisations: at national level, the Ministry of Agriculture and Fisheries (including the Fisheries Division), the Planning Institute of Jamaica and the Caribbean Coastal Area Management Foundation and at local level the Parish Council Westmoreland and the Gillings Gully Fishermen Coop Ltd.

The stakeholder network for the fisheries sector drawn by the participants has a few international actors (i.e. donors and funding agencies), and a good distribution of national and local actors. The Ministry of Agriculture and Fisheries, the ODPEM and Fishermen were all well connected actors. The Cabinet and the ODPEM are identified as actors with high influence over the implementation of adaptation actions

at local level (i.e. ranking of 3). The donors at international level, ministries (e.g. Finance, Ministry of Water, Land, Environment and Climate Change, Agriculture and Fisheries, Health, Education, NEPA), Meteorological Services, Politicians and the Media at national level and the SDC, Local Government Planning Authority, Fishermen's cooperatives, coast guards, marine police, private sector, general community members, emergency services all had a lower influence (i.e. ranking of 2 and below).

The information is well-distributed across the different geographical levels and stakeholders. The Ministry of Agriculture and Fisheries, the ODPEM, the Meteorological Services, the Coast Guards, Fishermen and the NGOs act as the biggest platforms for information exchange. The media is mentioned and connected to the Politicians, the Meteorological Services and the ODPEM. Flows of information also exist between the ministries themselves (e.g. Finance, Ministry of Water, Land, Environment and Climate Change, Health). Information is also exchanged between the international donors and the PIOJ. The fishermen receive information from the Fisheries Division of the Ministry of Agriculture and Fisheries through the Fishermen Cooperatives and directly. Fishermen also receive information from NGOs, Coast Guards and the Marine Police. The ODPEM, the Coast Guards and the Marine Police also exchange information between them.

Funding for adaptation originates mainly from international donors. The donors channel the funding directly to the Ministry of Finance, ODPEM, PIOJ, RADA, NGOs and CBOs. The Ministry of Finance provides funding for the Ministry of Agriculture and Fisheries. No funding reaches the Fishermen directly. The Fishermen Cooperatives however do receive funding from the private sector and the NGOs.

The implementation line of action remains mainly concentrated at the national level: the Cabinet to the Politicians, the Ministry of Finance and the ODPEM; from the Ministry of Finance to the Ministry of Agriculture and Fisheries; from the Ministry of Agriculture and Fisheries to its own Fisheries Division and RADA. At local level Fishermen are connected in the line of action through the Fisheries Division of the Ministry of Agriculture and Fisheries.

The workshop group working on the fisheries sector identifies the lack of political leadership to drive the implementation of adaptation activities at the local level as the most important barrier. Underpinning this barrier are short political timeframes, agendas and cycles – which do not coincide with planning time frames, reluctance to make long term decisions, short political cycles, legacy issues of past planners decisions, lack of support for tough decisions and no acknowledgement that the issues cut across all tiers of government (national and local). The Government (both decision and policy-makers) is identified as the actor who controls that barrier.

To overcome the barrier the group identified 2 practical actions: on one hand, developing formal mechanisms to integrate climate change considerations into local policies / plans & existing activities and on another hand to ensure civil societies participation in planning, decision-making and implementation. The implementation of the practical actions should be the responsibility of the Government (especially the Social Development Commission), the Climate Change Department of the Ministry of Water, Land, Environment and Climate Change and the civil servants.

Tourism sector

The group working on the tourism sector during the workshop counted representatives from the Ministry of Tourism and Entertainment, the Ministry of Transport, Works and Housing, the Ministry of Local Government, the ODPEM, the Negril Chamber of Commerce and the Bluefields Bay Fishermen's Friendly Society.

The Cabinet, Ministry of Tourism and Ministry of Finance are the actors with the most connections across the network. Of high influence over the implementation of adaptation actions for the tourism sector are the Cabinet, the International Funding Agencies and the International Development Partners.
Ministries (e.g. Tourism; Water, Land, Environment and Climate Change; Agriculture and Fisheries; Finance; Mining and Energy; Industry; Investment and Commerce; National Security), government agencies (e.g. NEPA, ODPEM, Planning Institute of Jamaica, Urban Development Corporation, National Water Resource Authority, National Works Agency, Port Authority, Tourism Product Development Company, Tourism Enhancement Fund, National Land Agency), national agencies (e.g. Jamaica Tourism Board, Jamaica Public Service Company), tourism boards, associations and large businesses (e.g. Caribbean Hotel & Tourism Association, Jamaica Hotel & Tourist Association, Resort Boards, Cruise Shipping Companies) also have some influence (ranking of influence of 1 and 2). Some local level actors also fit in this category; among these are the Parish Development Coordinator, Community Development Committees, Local NGOs, Fishing and Farming Cooperatives, Small Tourism Business Operators and Tourists.
Tour operators, tourism workers and vendors, traders have no influence over the implementation of local adaptation actions.

Information in this network comes from the Cabinet; the Cabinet sends information to the other ministries (e.g. Tourism, Energy and mining, Agriculture and Fisheries, Land, Environment and Climate Change, local Government) and the planning institutions (e.g. Local Planning Authority, Urban Development Corporations, NEPA, ODPEM) to the National Land Agency (NLA).
Information also trickles down to tourism workers from the Jamaica Tourism Board, through the Tourism Product Development Company (TPDCo) and the Tourism Enhancement Fund (TEF) and to farmers and fishermen through the Farming and Fisheries Cooperatives.

Funding flows from the Ministry of Finance and the International Funding Agencies to the other actors. The Ministry of Finance directs some funds to the other ministries (e.g. Tourism; Water, Land, Environment and Climate Change; Local Government; Agriculture and Fisheries; Mining and Energy) and the Planning Institute of Jamaica. The Ministry of Tourism and the Tourism Enhancement Fund provides the Tourism Product Development Company with funding that then is trickled down to the Chamber of Commerce and Tourism Business Operators.

The implementation line of action flows from the Cabinet to the other Ministries and national agencies and organisations. At local level no connection is made with the local tourist workers nor is there any funding link reaching them.

The group working on the tourism sector identified poor integration of adaptation across all tiers of government as the main barrier to the implementation of adaptation actions. This barrier is due to poor communication of climate change science, short political timeframes, agendas and cycles – which do not coincide with planning time frames, reluctance to make long term decisions, lack of awareness of the impacts, financial and human resource constraints and out-dated legislation. National and local governments and national agencies such as NEPA are responsible for this barrier.

To overcome this barrier, the group proposed the elaboration of an integrated climate change action plan. The Ministry of Land, Environment and Climate Change, the Planning Institute of Jamaica and Local Government would be responsible to implement this practical action.

Discussion

The three sectoral groups all pointed towards the importance of the Government and Ministries in the networks. Not only were they among the most well-connected stakeholders, they also have high influence over the implementation of adaptation actions.

Information seems to flow well across all the geographical levels and within the three networks. Information tends to be generated by the national level and cascading down through different organisations. Farmers and fishermen receive information from a variety of sources whereas for the local tourism workers, information is accessible but limited.

International donor organisations or international funding agencies are consistently identified as the main sources of funding for adaptation in the three sectors. The funding from international sources is mainly directed to national organisations and ministries. Funding can also be originating from the Ministry of Finance. Funding seems to be remaining mainly at national level and becoming scarcer when reaching the local level. The Chamber of Commerce is an important intermediary between national and local level.

The line of action remains predominantly at the national level across the three networks. However the three sectors are increasingly aware of the need to include local stakeholders in the planning, decision-making and implementation of adaptation actions. The practical actions identified to tackle the barriers all points at both national and local organisation responsibilities for their implementation.

Two of the chosen practical actions are policy-orientated (i.e. develop formal mechanisms to integrate climate change considerations into local policies / plans and existing activities and elaborate an integrated climate change action plan) and one is funding-orientated (i.e. improve evidence for business / investment decisions (e.g. monetary value of adaptation options & interventions).

Despite recognising the importance of policies, the participants were also aware of the long time frame needed to develop integrated policies across sectors and geographical levels and highlighted the urgent need to start acting. They pointed out that a few years ago little was known about the effects of a changing climate and that for dealing with these impacts learning is needed. Learning can be organised through acting and then re-evaluating the actions undertaken. Adaptation is then seen as a process and not a product.

Participants also realised through drawing the networks and their different flows that so far adaptation is mainly in its planning phase and confined to the national level; there is no provision to include the local level in the planning nor is there much evidence of implementation at local or national levels. Additionally, funding is still mainly used for planning with little left for implementation. It is important to note that the practical action devised by one of the group around funding did not focus on

getting more funding but in building evidence of the monetary value of adaptation options and decisions.

Another important point made by the workshop participants was that communities should take ownership of their own environment and that provision should be made to facilitate their engagement.

These observations brought by the workshop participants show that they have a good understanding about what is going on in Jamaica regarding climate adaptation. But rarely do they get together to discuss issues; one of the main feedback of the workshop was how much they appreciated to have had the opportunity to be brought together. The methodology developed for the workshop is easily reproducible and do not require a high level of expertise in climate change or climate adaptation. It also provides a structured way to get the participants to interact with each other, identify potential barriers and devise possible practical actions to overcome these barriers.

Most of the barriers identified are surmountable, i.e. can be addressed using existing capacities within the islands without requiring the support of external consulting advice. Practical solutions to overcome the barriers are not always complicated and nor should they always call for the assistance of capacities out of the island.

Workshop participants were able not only to identify barriers but also come up with implementable solutions. This demonstrates that participants had a real commitment in building consensus to address specific issues in these islands. And the strategies are ready to be utilised. This takes the exercise beyond 'barriers' to readiness to implement solutions.

A few of the barriers identified were more deeply-rooted into history (i.e. difficulties in planning changes because of historically entrenched development, infrastructure, cultural values and education) and will therefore be more difficult and take longer to address. But these can be addressed subsequently, as starting with the "easy wins" should be prioritised.

The key message is that some of the barriers identified can already be overcome by looking at the consensus solutions proposed by the participants during the workshop and thinking about implementing them within the capacity and governance structure of these islands. Involving national and local stakeholders into overcoming these barriers will contribute to develop communities of practice on adaptation in Jamaica. This second step has not so far been implemented but would be very interesting to follow-up with.

Conclusion and future research

National governments do play a crucial role in the governance of adaptation as they are seen as key actors that can intervene and confront existing barriers by changing policies or providing additional resources (Ford and Pearce, 2010, Measham et al., 2011). But they are also reported to constrain local bottom-up initiatives on adaptation (Amundsen et al., 2010, McNeeley, 2012).

The participatory identification of adaptation barrier and how to overcome them could be a successful planning process that reconciles national adaptation policies with the implementation of local adaptation actions. It involves the different stakeholders in devising solutions that not only are in the line with national adaptation policies but also are a step towards reducing vulnerability against climate extremes at local level.

Prioritising the identified barriers that are surmountable and that can already be addressed within the islands' capacities would be the beginning of building climate resilience at national and local level.

The majority of studies on barriers use small and inductive case approaches while comparative studies across different contexts are limited. Applying the methodology outlined here to further case studies, beyond the 4 SIDS covered in the GIVRAPD project might reduce this gap and build on the existing knowledge pool.

References

Adger, W.N., Agrawala, S., Mirza, M.M.Q., Conde, C., O'Brien, K., Pulhin, J., Pulwarty, R., Smit, B. and Takahashi, K. (2007). Assessment of adaptation practices, options, constraints and capacity. in Parry, M.L., Canziani, O.F., Palutikof, J.P., van der Linden, P.J. and Hanson, C.E. (eds.), Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, pp 717-743.

Adger, W.N., Dessai, S., Goulden, M., Hulme, M., Lorenzoni, I., Nelson, D.R., Naess, L.O., Wolf, J. and Wreford, A. (2009). Are there social limits to adaptation to climate change?, Climatic Change 93, 335-354.

Amundsen, H., Berglund, F. & Westskogo, H. 2010. Overcoming barriers to climate change adaptation: a question of multilevel governance? Environment and Planning C: Government and Policy, 28, 276-289.

Burch, S. (2010) Transforming barriers into enablers of action on climate change: insights from three municipal case studies in British Columbia, Canada. Global Environmental Change, Vol 20, No 2, pp. 287-297.

CaribSave Partnership (2012) The CaribSave Climate Change Risk Atlas (CCCRA), Climate Change Risk Profile for Jamaica, UKaid from the Department for International Development (DFID) and Australian Agency for International Development (AusAID).
Available from: http://givrapd.org/resources/ [Accessed 25/01/2013]

Ford, J. D. & Pearce, T. (2010) What we know, do not know, and need to know about climate change vulnerability in the western Canadian Arctic: a systematic literature review. Environmental Research Letters, Vol 5, No 1, pp. 014008.

Huang, C., Vaneckova, P., Wang, X., Fitzgerald, G., Guo, Y. & Tong, S. 2011. Constraints and barriers to public health adaptation to climate change: a review of the literature. American journal of preventive medicine, 40, 183-190.

McNeeley, S. M. 2012. Examining barriers and opportunities for sustainable adaptation to climate change in Interior Alaska. Climatic change, 111, 835-857.

Measham, T., Preston, B., Smith, T., Brooke, C., Gorddard, R., Withycombe, G. & Morrison, C. 2011. Adapting to climate change through local municipal planning: barriers and challenges. Mitigation and Adaptation Strategies for Global Change, 16, 889-909.

Medeiros, D., Hove, H., Keller, M., Echeverría, D., and Parry, J.E. (2011) Review of Current and Planned Adaptation Action: The Caribbean. International Institute for Sustainable Development.
Available from:
http://dms.caribbeanclimate.bz/php/DocumentList_cbz_pn.php?page=1&ipp=All&search=Jamaica [Accessed 25/01/2013]

Ministry of Water and Housing (MWH) and National Meteorological Service (NMS) (2000). Jamaica's First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC). Kingston: Ministry of Water & Housing.
Available from:
http://unfccc.int/essential_background/library/items/3599.php?rec=j&priref=2751#beg [Accessed 25/01/2013]

Moser, S. C. & Ekstrom, J. A. 2010. A framework to diagnose barriers to climate change adaptation. Proceedings of the National Academy of Sciences, 107, 22026-22031.

Nielsen, J.O. and Reenberg, A. (2010). Cultural barriers to climate change adaptation: A case study from Northern Burkina Faso, Global Environmental Change-Human and Policy Dimensions 20, 142-152.

Neufville, Zadie (2012) Working to Cope with Climate Change, Jamaica Calculates Costs, Inter Press Service, Issue of the 8th of April 2012,
Available from: http://www.ipsnews.net/2012/04/working-to-cope-with-climate-change-jamaica-calculates-costs/ [Accessed 21/04/2014]

Patt, A.G. and Schroeter, D. (2008). Perceptions of climate risk in Mozambique: Implications for the success of adaptation strategies, Global Environmental Change-Human and Policy Dimensions 18, 458-467

Schiffer, E. (2007) Net- Map Toolbox, Presented at the Sunbelt Conference of the International Network of Social Network Analysis, 01-06 May 2007, Corfu, Greece

UNDP (2013) Establishment of a Climate Change Department: UNDP's Analytical Report to the Ministry of Water, Land, Environment and Climate Change, Government of Jamaica, July 2013.
Available from:
http://www.jm.undp.org/content/dam/jamaica/docs/researchpublications/crisisprevention/EstablishingAClimateChangeDeptInJamaica2012.pdf [Accessed 22/04/2014]