

## GIVRAPD Working Paper – St Lucia

**Title:** Identifying and lifting climate adaptation barriers in St Lucia using a participatory approach

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### 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 St Lucia.

**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 St Lucia, 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 planning or implementing adaptation actions. It also allowed the identification of three adaptation barriers, two being policy-related and one culture-based. Land use tenure and land use planning in St Lucia seems to be a major issue as it was recurrent across all the three sectors. Practical actions to overcome these barriers point towards not only the development of a comprehensive national land use management plan but also towards mainstreaming climate change considerations across sectors (i.e. mainstreaming into local policies/plans and existing activities) and across levels (i.e. developing integrated plans that include both national and local representatives).

**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 an 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 St Lucia, 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

St Lucia is a middle-income SIDS located in the Eastern Caribbean. It has a rugged topography and sits on an ancient volcanic ridge connecting Martinique to the north and St. Vincent to the south. The country's climate is characterised by a dry season (January to May) and a wet season (June to December), with a hurricane season lasting from late June until the end of November.

Due to its small size and relative lack of geological resources, St Lucia's economy relies primarily on the sale of banana crops, and the income generated from tourism, with additional input from small-scale manufacturing. Although banana revenues have helped fund the country's development since the 1960s, the industry is now in a terminal decline, due to competition from lower-cost Latin American banana producers and reduced European Union trade preferences. The country is encouraging farmers to plant crops such as cocoa, mangos, and avocados to diversify its agricultural production and provide jobs for displaced banana workers.

Tourism to St Lucia is so vital, that it is the runner-up for the position of the most economically important industry, behind bananas. It is expected that tourism will take the place of the most economically important industry in St Lucia in the near future. St Lucia benefits from an impressive array of biodiversity, and approximately 35 per cent of its land area is covered by natural forest and rainforest. The island's reef systems extend along its west and east coasts, with the healthiest and most diverse reefs being found along the central west coast. In general, the island's reefs are subject to damage from land-based pollutants and sedimentation, which has threatened near-shore fisheries. Deforestation and soil erosion, particularly in the northern region is also an increasing problem for St Lucia.

The expansion of the tourism sector, the technological changes in the fishing industry, and an increase in negative impacts from land-based activities, notably from agriculture, industry and construction, give way to various conflicts. For example, there is an increased competition between seine fishers and yachters over the use of fishing areas, disputes occur between pot fishers and recreational divers over the use of reefs and restriction of access caused by the construction of coastal jetties and new hotel sites cause local opposition.

A changing climate is also challenging the agriculture, fisheries and tourism sectors in St Lucia and the livelihoods of the communities. Like other SIDS, St Lucia faces extreme vulnerability to present and projected climatic changes. Because of its low-lying location relative to sea level and high exposure to extreme weather, expected impacts include increased damage from weather events, amplified drought conditions, changes in agricultural patterns and the sinking of low-lying areas.

Extreme weather events have already had significant impacts on St Lucia's economy, environment and people. The last Hurricane to hit St Lucia was hurricane Tomas in 2010. It has been estimated that damage and other economic losses associated with the hurricane totalled over US\$ 336 million in St Lucia alone (representing 43.4% of its GDP)<sup>1</sup> and that 9,000 hectares of Government forest reserve sustained severe and serious damage in the form of massive landslides and slippage with hundreds of trees uprooted or broken<sup>2</sup>.

Recognising the challenges ahead, the Government of St Lucia approved in 2003, a National Climate Change Adaptation Policy aiming to foster and guide a national process of addressing the short, medium and long term effects of climate change in a co-ordinated, holistic and participatory manner in order to ensure that, to the greatest extent possible, the quality of life of the people of St. Lucia, and opportunities for sustainable development are not compromised.

St Lucia was involved in a number of regional adaptation projects (e.g. the GEF-funded "Special Program on Adaptation to Climate Change" that focussed on adaptation in the coastal zones) and is benefitting from funding from the Climate Investments Fund (CIF), to develop and implement a Strategic Program for Climate Resilience (SPCR). The SPCR is designed to pilot and demonstrate ways to integrate climate risk and resilience into core development planning as well as provide incentives for scaled-up action and transformational change.

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<sup>1</sup> From: <https://www.climateinvestmentfunds.org/cifnet/?q=country/saint-lucia> [Accessed 16/06/2014]

<sup>2</sup> From: <http://aid.dfat.gov.au/countries/cla/caribbean/Pages/initiative-response-to-hurricane-tomas-2010.aspx> [Accessed 16/06/2014]

As a small island with a small population and despite institutional and other economic, financial and technological challenges, St Lucia is committed to confront and address the challenges posed by climate variability and change (CV&C). Efforts are still needed 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 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 St Lucia. 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 St Lucia 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 St Lucia 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*

The workshop group working on agriculture has participants from the National Emergency Management Organisation (NEMO), the Water Resource Agency, the Veterinary and Livestock Services as well as the Forestry and the Agriculture Departments from the Ministry of Agriculture, Food Production, Fisheries, Co-operatives and Rural Development (referred to as the Ministry of Agriculture thereafter) and local farmers.

The agriculture network show that the actors with the most connections to other actors are the Ministry of Agriculture, the Ministry of Sustainable Development, Energy, Science and Technology and the Ministry of Finance.

The actors with the highest influence over the implementation of adaptation actions are diverse national ministries (e.g. Cabinet of Ministers, Ministry of Agriculture, Ministry of Communication, Works, Transport & Public Utilities, Ministry of Finance, Ministry of Health, Ministry of Physical Development, Housing & Urban Renewal the Ministry of Sustainable Development, Energy, Science and Technology), international donor agencies (i.e. E.U., F.A.O. and World Bank) but also local district representatives.

Of less influence are the Ministry of Social Transformation and Local Government, international organisations involved in cooperation activities with St Lucia, some international donor organisations (e.g. G.E.F. & U.N.D.P. & U.N.E.P.), the Caribbean Disaster Emergency Response Agency, NEMO, the National Trust, the National Water & Sewerage Company, O.E.C.S. & CARICOM & the Caribbean Development Bank, local farmers cooperatives (e.g. Bellevue Farmers Cooperative, Fond St Jacques Farming Group), local actors (e.g. farmers, local churches, local community development officers, the Soufrière Regional Development Foundation, local forestry officers, local land owners, local extensions of the Ministry of Agriculture, local water officers).

The group participants thought that the following actors had no influence: local cooperative officer, local disaster committee, local market vendors, local N.G.O., local restaurants & hotels, local rural women's group and St Lucia Tourism & Hotel Association.

In terms of information flows, no connection seems to exist between international level actors and other actors. Information is however well-distributed amongst national level ministries. The Ministry of Agriculture, the Ministry of Sustainable Development, Energy, Science and Technology, the Cabinet of Ministers and NEMO are at the heart of the information flows at national level. At local level, local farmers are well-connected to other local actors for information: they are connected to farmers cooperatives and farming groups, local extensions and advisory services of the Ministry of Agriculture, local veterinary and livestock services, local rural women's groups and local market vendors. Information from national to local level flows mainly through local extensions and advisory services of the Ministry of Agriculture, the local veterinary and livestock services, the Ministry of Social Transformation and Local Government.



This network also highlights the isolation of the local disaster committee; not only it is found to have no influence over adaptation actions but it is only connected to one other actor, NEMO, for information. Another important aspect of this network is the mention of women's groups and their connections to other local level actors, showing awareness about gender groups in the community.

Funding comes from international donor organisations and is channelled through the Ministry of Agriculture and the Ministry of Finance. These ministries give funding to other Ministries and national-level organisations (e.g. Ministry of Sustainable Development, Energy, Science and Technology, Ministry of Physical Development, Housing and Urban Renewal, NEMO). Little funding goes from national to the local level. Some funding seems to reach the local farmers through the farmers cooperatives. Interestingly the participants thought that the Bellevue Farmers Cooperative had a higher influence (i.e. 2) than the Fond St Jacques Farming Group (i.e. 1); a possible explanation for this might be the funding link that exists between the Inter-American Institute for Cooperation on Agriculture (IICA) and the Bellevue Farmers Group whereas no funding link reaches the Fond St Jacques Farming Group.

The line of action is initiated by the Ministry of Agriculture and the Ministry of Finance but seems to stay confined at the national level as no link reaches the local level.

For this group, the principal barrier of implementation of adaptation actions at local level was identified as "Conflicting values and preferences from stakeholders involved that do not allow for consensus or agreement". The causes for that barrier are "Short political timeframes, agendas and cycles – which do not coincide with planning time frames, reluctance to make long term decisions", "No acknowledgement that the issues cut across all tiers of government (national and local)", "Obstructive vested interests", "Land tenure system". The actors responsible for the barrier are politicians and the political system, large landowners, Government, existing policies and Constitution. To overcome the barrier identified, the group prioritised the practical action: "Develop formal mechanisms to integrate climate change considerations into local policies /plans & existing activities". They also highlighted that good governance and reforms in the existing Constitution would contribute to lift the barrier. Ministry of Sustainable Development, Science & Technology, the Ministry of Agriculture, the Ministry for Social Transformation, Local Government and Community Empowerment should be responsible to implement the practical action.

### **Fisheries sector**

The workshop group working on the fisheries sector gather representatives from the Department of Fisheries, the Organization of Eastern Caribbean States (OECS) Secretariat, the Caribbean Environmental Health Institute, Ministry of Sustainable Development, Science & Technology, the Soufrière Marine Management Association (SMMA) and the Anbaglo dive association.

The actors the most well-connected across the network are the Ministry of Agriculture, the Ministry of Finance at national level and the SMMA and the Soufrière Regional Development Foundation (SRDF) at local level.

Of high influence in this network are international funding agencies (GEF, USAID, UNEP, EU, etc.), Organisation of Eastern Caribbean States (OECS), Caribbean Community (CARICOM), national ministries (i.e. Ministry of Agriculture, Ministry of Finance). It is interesting to note that this group also thought that the local farmers had high influence over the implementation of adaptation actions at local level.

Of less influence are the international research institutes, the international tourists, the St Lucia Air & Sea Ports Authority, the National Day Boat Operators, the National Marine Police, the National Trust, the Piton Management Authority, the SRDF, the SMMA and other local actors (i.e. local dive operators, local fishermen, local fish vendors, Soufrière Fisheries Cooperative, local hoteliers, Soufrière Water Taxi Association, Soufrière local residents, consumers, local divers, snorkelers). No actor mentioned on the network was noted as having no influence.

The flow of information is well-distributed amongst all actors. International research institutes are connected to the Ministry of Tourism, the Ministry of Social Transformation, the Ministry of Agriculture, the Ministry of Sustainable Development, the National Trust, and the SMMA. There is a good information exchange of information at national level between the different ministries and the Cabinet of Ministers. The information is cascading to local level actors through the Ministry of Agriculture and the SMMA to local fishermen cooperatives, fishermen, day boat operators and farmers. The Ministry of Social Transformation and the Ministry of Physical Development also share information with the SMMA and the SRDF. At local level the SMMA is at the centre for the information network, not only connected to national and international actors but also distributing information at local level to the Soufrière fisheries cooperative, the divers, the fishermen and the dive operators.

The international donors and the Ministry of Finance initiate most of the funding flows. The Ministry of Finance distribute funding to other national ministries. Little funding is trickling down from the national ministries to the local actors with the exception of the Ministry of Social Transformation who gives funding to the SRDF. Tourists are also seen as an important source of funding especially at local level, where they direct funding to local hoteliers, yacht agents, dive operators, SMMA, and the water taxi associations.

The Cabinet of Ministers initiates the flow of command to the national ministries (e.g. Ministry of Agriculture and the Ministry of Social Transformation). The Ministry of Physical Development directs the SMMA, who then prompt the divers/snorkelers, the water taxi associations and the day-boat and dive operators for action (more tourism-orientated actors). Local fishermen and farmers are connected to other actors only through information exchange and are not included in the flow of command.

For this group, the principal barrier of implementation of adaptation actions at local level was identified as "Poor planning of land use at national level: main problem in the region is land-based sources of marine pollution". Causes for this barrier are "Short-term planning" and "Absence of long term national development implementation, vision and implementation plan". The Ministry of Finance, the Ministry of Physical Development and the Cabinet of Ministers controls the barrier. To overcome the barrier identified, the group prioritised the practical action: "Develop a comprehensive national land use management plan, including national and local



representatives". To implement this practical action the actors found to have a key role are relevant government agencies and NGOs.

### *Tourism sector*

The group working on tourism had representatives from different divisions of the Ministry of Physical Development, Housing and Urban Renewal (i.e. the physical planning division, the Sustainable Development and Environment Division), the Piton Management Area, the SMMA, the SRDF and the Anbaglo dive association.

The Cabinet of Ministers, the Ministry of Tourism, the Ministry of Physical Development, the Ministry of Sustainable Development, the SRDF and the SMMA are the actors the most well-connected in this network.

Actors with high influence are exclusively international actors (i.e. EU, international donor organisations, UNESCO) and national actors (Cabinet of Ministers, Ministry of Finance, Ministry of Sustainable Development, St Lucia Hotel & Tourism Association and St Lucia Air and Sea Port Authority).

Of lesser influence are some international actors (i.e. MARPOL, OECS, CARICOM), some national ministries (i.e. Ministry of Tourism, Ministry of Agriculture, Ministry of Social Transformation and Local Government, Ministry of Education), national actors (i.e. National Trust, National Tour Companies, National Law Enforcement Authorities, St Lucia Dive Association, Piton Management Authority) and local actors (i.e. SMMA, SRDF, fishermen & Soufrière fishermen cooperative, community and religious groups, local dive operators, local hotels, local tour operators). No actor mentioned on the network was noted as having no influence.

Flows of information exist between international and national levels: there are some connections between CARICOM and OECS and the Cabinet of Ministers and also between international donors and the Ministry of Finance as well as between MARPOL (at international level) and the SMMA (at local level). Flows of information are also well-represented between the national ministries at national level. At local level, the SMMA and the SRDF are at the heart of the information network with the most connections to other local actors and links to national actors. The SRDF is also an important platform of information sharing at local level, connecting with local groups and with the Piton Management Authority.

Good connections of information also exist between national and local levels. The Ministry of Sustainable Development send information to the SMMA and the Piton Management Authority. Also, the Ministry of Tourism sends information to the National St Lucia Dive Association, who then transmits information to the SMMA, local dive operators and local dive associations. The Ministry of Tourism also shares information with local hotels. The Ministry of Social Transformation and Local Government communicates with local community groups, religious groups, and the SRDF.

The Ministry of Finance channels funding from international donors (CARICOM and the EU) to other ministries (Ministry of Sustainable Development, Ministry of Tourism, Ministry of Agriculture). At local level, the SMMA receives funding from national

ministries and national tour companies, as well as from local dive operators and associations.

The Cabinet of Ministers initiates adaptation actions in the other ministries (Tourism, Planning, Agriculture, Finance, Sustainable Development). The Ministry of Tourism then instructs the local hotels, national and local dive associations and operators. At local level, the SMMA coordinates the local dive operators and the Soufrière fishermen cooperative and fishermen.

For this group, the principal barrier of implementation of adaptation actions at local level was identified as “Poor planning of land use at national level including development and implementation of national land use policies, plans and legislation” The causes of this barrier are “Inconsistent approach”, “Short term planning”, “Lack of incentives to do now (defer costs to future office bearers or other aims of governments)” and “Legacy issues of past planners decisions”. The Cabinet of Ministers, and the Development Control Authority are responsible for this barrier. But the Cabinet of Ministers, pressures groups and civil society can also lift that barrier. To overcome the barrier identified, the group prioritised the practical action: “Develop national integrated development plan for St Lucia”. To implement this practical action the actor found to have a key role is the Ministry with responsibility for physical planning and sustainable development.

## 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. All the practical actions identified mentioned the national ministries as responsible to implement the actions. Adaptation is still seen as needing to be driven from the top-down. But there is also an awareness of the need to involve local governments (as seen for the agriculture network) and local NGOs (as seen for the fisheries network) in the process.

Information seems to flow well at national level and local level within the three networks. However, information flow between the national and local levels seems to be channelled through a limited number of actors for the agriculture and tourism networks but be more distributed across actors and across levels for the fisheries sector.

International donor organisations or international funding agencies are 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. An interesting point made in the Fisheries network is the inclusion of tourists and the funding link that emanate from them towards national and local actors.

The line of action remains predominantly at the national level across the three networks but does trickle down to a limited number of actors.

Two of the chosen barriers are policy-orientated (i.e. Poor planning of land use at national level for both barriers) and one is culture-based (i.e. Conflicting values and preferences from stakeholders involved that do not allow for consensus or agreement). The culture-based barrier is more entrenched and more difficult to address than the policy-related barrier.

It is also interesting to note that two out of the three sectors identified the poor planning of land use at national level as their barrier, and the third sector mentioned the existing land tenure system as a cause for the barrier, thus highlighting the importance of the issue of land tenure and land use planning across all sectors.

Additionally, the causes behind the barriers identified, all pointed towards the issue of long-term planning. The participants across the groups all agreed that short political timeframes, agendas and cycles, the reluctance to make long term decisions, absence of long term national development implementation, vision and implementation plan were underpinning the barriers identified are challenges for the country.

Reflecting on the lack of long term planning for the country, the participants 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.

Another important point made by the workshop participants was that communities should take ownership of their own environment as climate change is still viewed as a government issue. However, participants also expressed their concerns over the lack of understanding of climate change issues at local level and the need to support communities, advocate for climate change adaptation at local level and the need to relate climate change to the local understanding. Suggestions were made that communication to local communities should be expressed in “dollar values”, e.g. by not protecting the coral reef at local level, the government might have to close any activities linked to that coral reef and this might trigger job loss and income loss for the local community.

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 little 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. According to the participants, some project proposals do contain actions to mediate environmental impacts and budgets allocated to these; but in practice, when these projects are implemented, these actions seem to fall through.

Practical actions to overcome these barriers point towards not only the development of a comprehensive national land use management plan but also towards mainstreaming climate change considerations across sectors (i.e. mainstreaming into

local policies/plans and existing activities) and across levels (i.e. developing integrated plans that include both national and local representatives).

Lastly, participants from local organisations in Soufrière pointed out that although the UNESCO World Heritage (WH) status given to the Piton Area is an important driver for tourism activities in the area, it is also challenging the implementation of possible actions as they need to comply with the Piton WH status first.

These observations brought by the workshop participants show that they have a good understanding about what is going on in St Lucia 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.

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.

One of the barriers identified was more deeply-rooted (i.e. Conflicting values and preferences from stakeholders involved that do not allow for consensus or agreement) and will therefore be more difficult and take longer to address. But these can be addressed subsequently, as starting with what can already be implemented within the context and capacities of the island 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 St Lucia. 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.

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