Global Water Partnership Caribbean

Sustainability of Integrated Water Resources Management Initiatives in the Caribbean

About the Global Water Partnership-Caribbean

The Global Water Partnership-Caribbean (GWP-C) is one of thirteen Regional Water Partnerships of the Global Water Partnership (GWP) Organisation. The vision of the Global Water Partnership-Caribbean (GWP-C) is for a water secure Caribbean. GWP-C works with its partners to promote and strengthen interaction and co-operation at all levels and across different sectors to sustain Integrated Water Resources Management (IWRM) in the Caribbean region. IWRM is a process that promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner, without compromising the sustainability of vital ecosystems and the environment. For more information on GWP-C please visit www.gwp-caribbean.org.

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Executive summary

This report presents the findings of a study into the sustainability of national and regional Integrated Water Resources Management (IWRM) related initiatives in the Caribbean. A combination of literature review and interviews were used to compile information on the sustainability of a range of past and ongoing initiatives and to provide recommendations for enhancing the sustainability of future initiatives in the region.

Methodology and approach

The study focussed on the initiatives shown in Table ES.1 which provides a cross section of IWRM related initiatives. Some initiatives were complete, and offered the possibility of identifying long term impacts and follow on work. Others are ongoing and offer the possibility to understand how sustainability is being considered during implementation. In addition, a rapid review of the literature on lessons learnt was carried out to supplement evidence gathered from individual interviews and analyses.

Table ES.1: Summary of initiatives used in the sustainability assessment and their thematic focus areas. ● = primary focus of initiative / project ○ = supporting element

IWRM related initiatives	Thematic focus areas: Influencing policymaking	Developing plans and strategies	Pilot / demonstration projects	Tools and guidelines	Research, data, and information management	Capacity development and awareness raising	Networks and partnerships
GWP-C / CARPHA – Rainwater Harvesting Initiative		○	●	●	○	●	
CARPHA - Integrating Watershed and Coastal Area Management (IWCAM)	●	●	●	●		●	○
CIMH - Caribbean Water Initiative (CARIWIN) Project				●	●	●	○
CIMH - The Caribbean Drought and Precipitation Monitoring Network (CDPMN)				●	●	○	
UWI - Flood risk under climate change, community vulnerability and adaptation in Caroni, Trinidad and Tobago			○	○	●	○	
CANARI - Analysing climate change policy and institutions in Saint Lucia and Trinidad and Tobago: Piloting a Caribbean process			●	●	○	●	○
Cap-Net/Caribbean WaterNet – Cap-Net/Caribbean WaterNet IWRM Training Programme						●	○
CCCCC - Special Program on Adaptation to Climate Change (SPACC)	●		●	○			
CCCCC - Enhancing Capacity for Adaptation to Climate Change (ECACC) in the UK Caribbean Overseas Territories Project	●				●	●	●
CCCCC - Regional Framework for Achieving Development Resilient to Climate Change and Implementation Plan	●	●					○
CDEMA - Caribbean Disaster Management Project (CADM)	●	○			●	●	●
OECS - Reduce Risks to Human & Natural Assets Resulting from Climate Change (RRACC) Project	●		●		○	●	
University of Belize (national organisation) - Assessing the potential impacts of climate change on Belize's water resources	○			○	●	○	○

Findings and recommendations

The findings from the study and broad recommendations for the future are given below:

Development of policies, legislation, regulation or influencing policymaking processes

Influencing policy, legislation and regulation is arguably the most challenging aspect which regional IWRM related initiatives have sought to address. There are some success stories which should be fully utilised to understand the specific success factors, planned or unintended, which led to successful change. Learning lessons should be extended beyond the water sector to understand whether transferable novel approaches could be used. Getting national level stakeholders on board and owning the process of change is important, and this will require a brokering of aims to ensure objectives and outcomes are politically feasible and desirable.

Development of plans and strategies for implementation

Developing plans which go on to be financed and implemented is a key challenge for the region and lessons should be drawn from the IWRM planning process as well as more recent initiatives such as the Implementation Plan for the CARICOM Regional Framework for Achieving Development Resilient to Climate Change. In developing plans it is vital to consider in detail how elements will be financed and how funding will be sustained in the long term. This will require a programmatic approach to planning, with periodic revision of investment plans to maintain relevance, rather than a project based approach. Ensuring plans are grounded in regionally and nationally owned and led processes is a prerequisite for their progression towards implementation as this has been a hurdle in the past. Maximum use of international financing should be made and there is a need to increase the national level awareness of finance opportunities and the skills required to attract and access finance to implement plans and strategies. Mechanisms to incentivise private sector investment in resilience should also be developed to diversify sources of funding.

Implementation of pilot projects

Pilot projects have generated visible results in the region, as well as providing lessons on what works and what does not. Grounding pilot projects in existing institutional plans and decision making processes supports sustainability and requires a long transition period to integrate pilot projects into government and other beneficiaries day-to-day and strategic decision making processes. Funding the continued operation of pilot projects and obtaining in-kind contributions for national projects is a key limitation for sustainability and should be addressed early in the planning stage. Replication and upscaling of pilot projects is challenging and cannot be guaranteed. Lessons should be taken from individual stories of replication and upscaling in the region from initiatives such as IWCAM amongst others to understand the actions which are needed to maximise the potential for replication and upscaling.

Development of tools and guidelines

Tools and guidelines provide a practical synthesis of methods and approaches developed in pilot projects or other initiatives, help advance the knowledge base on Caribbean specific approaches, and can provide the basis for capacity development. However, the application of tools and guidelines is limited if they are not integrated into decision making processes of the relevant regional or national organisations. Once developed, thought must be given to how the uptake and institutionalisation of tools and guidelines can be achieved. This will require a programmatic approach to provide long term support and commitment of capacity development organisations and the tool developers. Potential opportunities to add value to existing initiatives by developing tools and guidelines on the back of successful pilots should be considered during implementation.

Research, data collection and information management

Research and the provision of data and information are the foundations of evidence based decision making. As such, decision makers at all levels should demand quality research and information to steer an applied research agenda on water issues in the region. Researchers have a role to play in demonstrating the value of research findings for decision making which should include the translation of research outputs into policy relevant and easily digestible outputs for non-specialists. The fundamental lack of basic water related data can limit the technical quality of research, and studies should be carefully scoped to adapt methods and approaches to this data scarce environment at an early stage rather than attempting ambitious and highly technical approaches which are not pragmatic and feasible. Finally, researchers should continue to advocate the benefits of data collection and management in clear terms such that decision makers can appreciate its underlying value.

Capacity development, awareness and advocacy

Capacity development is an essential component of all projects and programmes as it underpins mechanisms to support the progression from outputs to outcomes and ultimately to sustaining these. It requires long term commitment grounded in institutional strengthening and improved sector governance. The efficiency and effectiveness of capacity development and the allocation of scare resources, benefits from careful targeting to respond to demands and ensuring beneficiaries have the mandate to put into practice new knowledge, skills and approaches. An approach that encompassing a range of decision-making levels –policy, strategy, planning, implementation, and M&E – helps to build coherence and mutually reinforces new concepts and approaches across multi-level governance structures. Capacity development is a change process. Careful thought to this process – moving from knowing, to wanting, to owning, to implementing, and to reviewing and learning for continual improvement – requires different techniques and approaches at each step in the process.

Developing networks and partnerships

Developing partnerships and networks across regional and national organisations has yielded benefits in knowledge sharing, building on synergies, and avoiding duplication of effort. Regional coordination of projects can offer economies of scale and opportunities to share knowledge and learning, but can also add layers of management. Careful planning of complex regional projects is essential to maximise their benefits. Water management in particular requires dialogue across all dependent sectors to develop solutions which are sustainable. Many partnerships, both formal and informal, have been built in the region and should be capitalised on when planning future initiatives.

Cross cutting sustainability issues

Participants interviewed during the assessment were well aware of the challenges surrounding long term sustainability of initiatives in the region. When asked about general barriers to sustainability, replication, and upscaling of initiatives many common problems were cited by participants. These frequently centred around four seemingly intractable problems: funding, capacity, mandate, and evidence to support decision making. These factors cut across all types of initiative and are summarised in Figure ES.1.

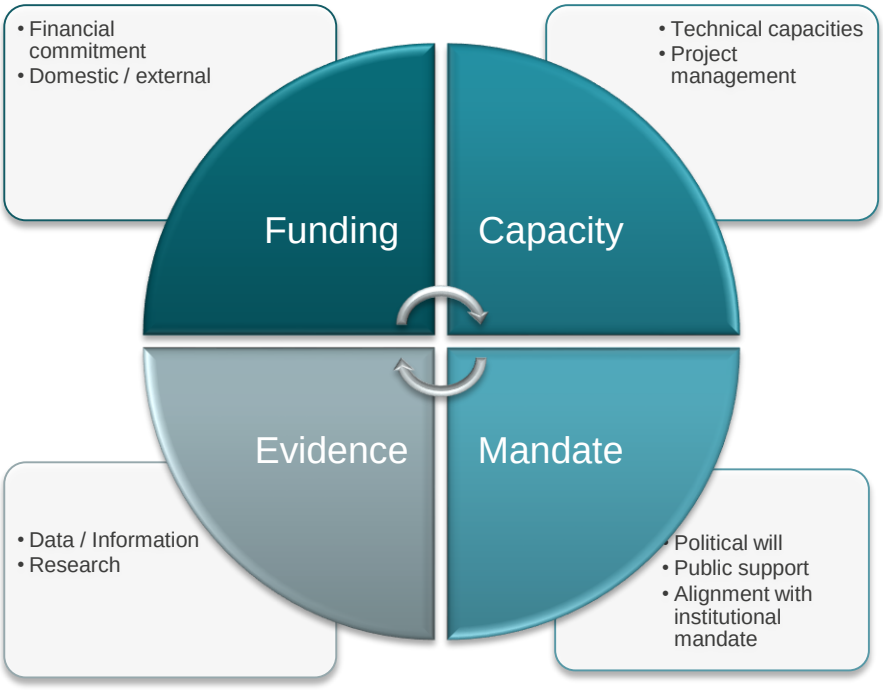

Figure ES.1: Overview of the cross cutting factors for sustainability

Broad based recommendations are provided in the assessment report on addressing these root sustainability issues.

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Acronyms

ACCC	Adaptation to Climate Change in the Caribbean
CANARI	Caribbean Natural Resources Institute
CARDI	Caribbean Agricultural Research and Development Institute
CARICOM	Caribbean Community
CARIWIG	Caribbean Weather Impacts Group
CARIWIN	Caribbean Water Initiative
CAWASA	Caribbean Water and Sewerage Association Inc.
CCCCC	Caribbean Community Climate Change Centre
CCRIF	Caribbean Catastrophic Risk Insurance Facility
CDB	Caribbean Development Bank
CDEMA	Caribbean Disaster Emergency Management Agency
CDKN	Climate and Development Knowledge Network
CEHI / CARPHA	Caribbean Environmental Health Institute now the Environmental Health Unit of the Caribbean Public Health Agency
CERMES	Centre for Resource Management and Environmental Studies
CIMH	Caribbean Institute of Meteorology and Hydrology
CPACC	Caribbean Planning for Adaptation to Climate Change
CWWA	Caribbean Water and Wastewater Association
FAO	Food and Agriculture Organization of the UN
GCCA	Global Climate Change Alliance
GEF	Global Environment Facility
GEF-CReW	Caribbean Regional Fund for Wastewater Management
GEF-IWCAM	Integrating Watershed & Coastal Areas Management in Caribbean SIDS
GEF-IWEco	IWEco - Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States
GWP-C	Global Water Partnership Caribbean
IDB	Inter-American Development Bank
IP	Implementation Plan
IPCC	Intergovernmental Panel on Climate Change
IWRM	Integrated Water Resources Management
LiDAR	Light Detection And Ranging
M&E	Monitoring and Evaluation
MACC	Mainstreaming Adaptation to Climate Change
OECS	Organisation of Eastern Caribbean States
PPCR	Pilot Program for Climate Resilience
RWH	Rainwater Harvesting
SIDS	Small Island Developing States
SPACC	Special Programme on Adaptation to Climate Change
SPCR	Caribbean Regional Strategic Program for Climate Resilience
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
WACDEP	GWP-C Water, Climate and Development Programme

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1. Introduction

This report presents the findings of a study into the sustainability of Integrated Water Resources Management[1] (IWRM) related initiatives in the Caribbean. These initiatives have addressed amongst others IWRM policy and governance, integrated watershed and coastal areas management, water security, water pollution, wastewater management, hydrological and meteorological data, and climate resilience in the water sector, supported by capacity development. Although many of these initiatives had built in monitoring systems and specific outputs addressing lessons learnt, few studies have attempted to document the sustainability and long term impact of these initiatives. Moreover, challenges in replicating and up-scaling the initiatives in new locations and other countries have not been captured.

The Global Water Partnership-Caribbean (GWP-C) under its Water, Climate and Development Programme (WACDEP) recently developed a database of IWRM initiatives focussing on water security and climate change (HR Wallingford, 2014). The database compiled information on 40 initiatives and is housed within the WACDEP Caribbean Water and Climate Knowledge Platform. The database serves as a reference point for future interventions by highlighting activities that could be built upon, identifying gaps and funding opportunities, and serving as a guide for partnerships and joint programming.

This study is an in-depth review of a selection of these initiatives examining impacts, challenges, successes, and lessons for the replication and upscaling of the initiatives. The database and study were carried out using literature review, questionnaires, and interviews with project staff and beneficiaries.

Scope of the sustainability assessment

Scoping the sustainability assessment required consideration of which types of initiatives and projects should be assessed and what questions on sustainability should be posed.

The cross cutting nature of IWRM and the multitude of regional and national funding and implementing agencies working on initiatives related to water complicates the clear bounding of the assessment but includes universities; regional agencies such as CARPHA, CDEMA, CCCCC, CIMH, CARDI, OECS and GWP-C amongst others; work implemented through MDBs (such as CDB and the IDB); and national level agencies.

The final selection of initiatives for the assessment is shown in Table 1.1. These provide a cross section of IWRM related initiatives. The main thematic focus areas and component elements are also provided to give an indication of the main objectives of each initiative. They have been themed as follows:

- Development of policies, legislation, regulation, or influencing policymaking processes
- Development of plans and strategies for implementation
- Implementation of pilot projects
- Development of tools and guidelines
- Applied research and information management
- Capacity development, awareness, and advocacy
- Developing networks and partnerships

[1] Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP, 2014a).

Table 1.1: Summary of initiatives used in the sustainability assessment and their thematic focus areas.

IWRM related initiatives	Thematic focus areas						
	Influencing policymaking	Developing plans and strategies	Pilot / demonstration projects	Tools and guidelines	Applied research and information	Capacity development and awareness raising	Networks and partnerships
GWP-C / CARPHA Rainwater Harvesting initiative		○	●	●	○	●	
CARPHA - Integrating Watershed and Coastal Area Management (IWCAM)	●	●	●	●		●	○
CIMH - Caribbean Water Initiative (CARIWIN) Project				●	●	●	○
CIMH - The Caribbean Drought and Precipitation Monitoring Network (CDPMN)				●	●	○	
UWI - Flood risk under climate change, community vulnerability and adaptation in Caroni, Trinidad and Tobago			○	○	●	○	
CANARI - Analysing climate change policy and institutions in St. Lucia and Trinidad and Tobago: Piloting a Caribbean process			●	●	○	●	○
Cap-Net/Caribbean WaterNet – Cap-Net/Caribbean WaterNet IWRM Training Programme						●	○
CCCCC - Special Program on Adaptation to Climate Change (SPACC)	●		●	○			
CCCCC - Enhancing Capacity for Adaptation to Climate Change (ECACC) in the UK Caribbean Overseas Territories	●				●	●	●
CCCCC - Regional Framework for Achieving Development Resilient to Climate Change and Implementation Plan	●	●					○
CDEMA - Caribbean Disaster Management Project (CADM)	○	○		●	●	●	○
OECS - Reduce Risks to Human & Natural Assets Resulting from Climate Change (RRACC) Project	●		●		○	●	
University of Belize (national organisation) - Assessing the potential impacts of climate change on Belize's water	○			○	●	○	○

● = primary focus of initiative / project ○ = supporting element

Source: HR Wallingford

The table presents those studies included in this study. Many relevant additional initiatives could be included but these provide a reasonable cross section of agencies and initiatives within the constraints of the assessment. Some initiatives are complete and offer the possibility of identifying long term impacts and follow on work. Others are ongoing and offer the possibility to understand how sustainability is being considered during implementation.

While the initiatives in Table 1.1 were used to frame the discussions on sustainability, the general experiences and lessons learnt by participants over their years of experience were also captured. This was considered relevant to allow a broader picture of issues affecting sustainability to be discussed.

Defining sustainability in the context of IWRM

Sustainability in this context relates to the positive impacts arising from projects and initiatives to continue in the long term. This implies a level of buy in from the initiatives beneficiaries such that the changes resulting from the initiative are maintained. In the broadest sense this requires financial, institutional, beneficiary, and political support beyond the life of the initiative.

Sustainability takes different forms depending on the type of project or initiative, for example, it might be a change in policy being reflected in long term changes in legislation or water management practices or the continued functioning of a rain gauge system following after the initial installation.

In addition, many pilot or demonstration projects aim to generate new knowledge and best practice and then stimulate replication or upscaling of this to deliver wider benefits across the country or region. Even if pilot project sites see long term beneficial impacts, replication, and upscaling, through changes to policies, incentives, legislation, and funding are necessary to realise the full potential of pilot projects.

Results based management, often employed by funding agencies, can be used to frame sustainability in this context. Figure 1.1 shows the theoretical links from project inputs to activities, outputs, outcomes, impacts, and sustainability.

This assessment is not examining the success of initiatives in achieving their intended outputs, it is taking a longer term view to examine what the long term impacts have been and the factors which have contributed to, or limited, these impacts. This is perhaps more challenging than output level analysis. Impacts and their sustainability are subject to a wide range of factors beyond the control of the implementing agency, so it can be difficult to attribute changes to the initiative itself. Furthermore, sustainability requires information to be collected on the performance of the initiative after it has been completed. Most initiatives only report on impacts once, upon completion, rather than periodically over the following years.

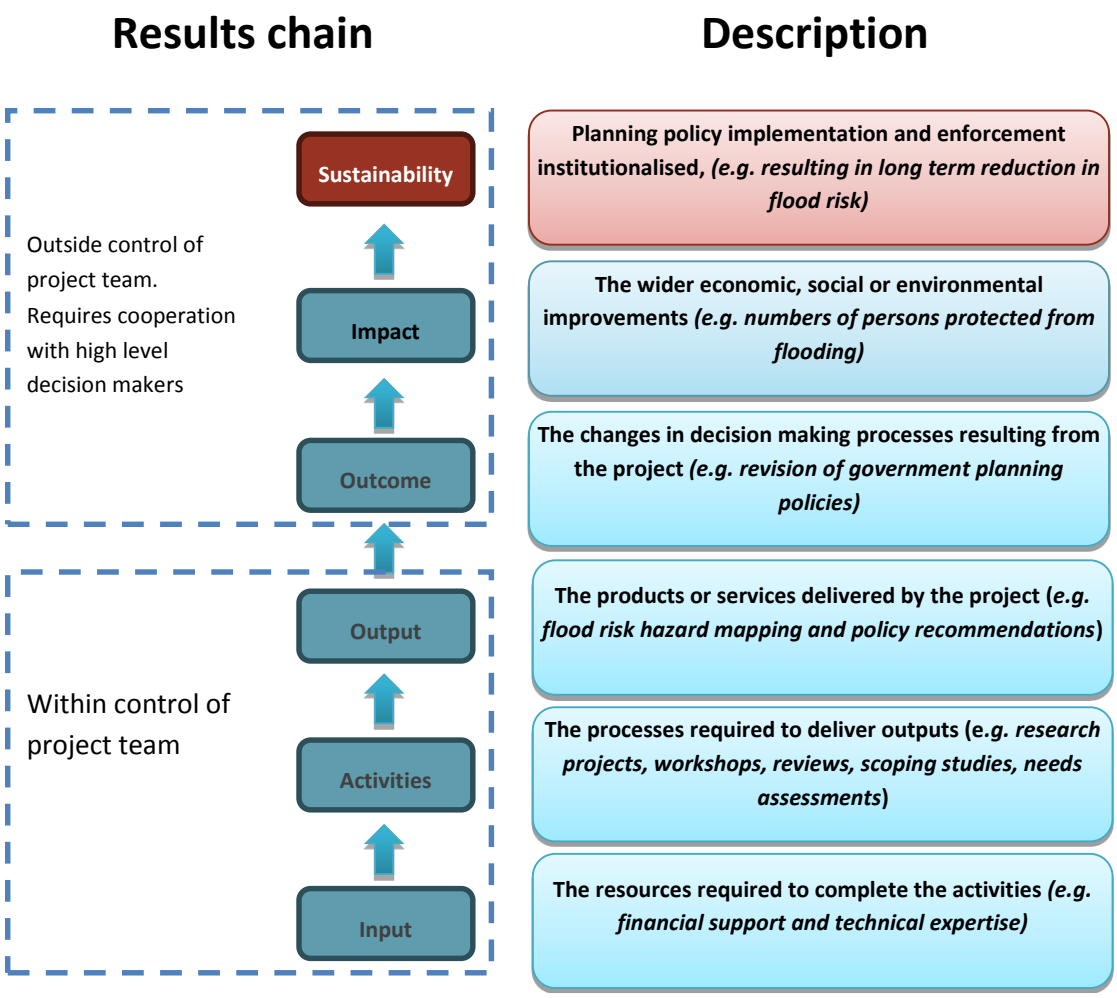

Figure 1.1: Conceptual results framework

Source: adapted from GWP-C and CCCCC, 2014

2. Methodology

The assessment has used a combination of literature review and interviews to compile information on the sustainability of IWRM initiatives. This section sets out the approach which the study has followed.

Data sources

Interviews with implementing agencies

A series of telephone interview were held with agencies shown in Table 1.1 to collect information for the sustainability assessment. These interviews were relatively informal, to allow the different perspectives and experiences of the participants to emerge.

The interviews were themed around the following questions:

- What does sustainability mean in terms of this initiative and your organisations work in general?
- What are the common barriers which limit sustainability?
- What factors need to be in place to support sustainability?
- What are the roles of different stakeholder groups in supporting sustainability?
- How successful has replication and upscaling of initiatives been (where this is an objective), and what factors have supported successful replication and upscaling?
- Your key message on maximising sustainability.

The questions were applied to the participant's general experiences and further elaborated through examples from the initiatives in Table 1.1.

Literature review

A rapid review of the literature on lessons learnt has been carried out where this is available in addition to interviews. Few sources are available which take a long term view of the sustainability of IWRM related initiatives in the Caribbean. Most evaluations address only project outputs, not long term sustainability. However, long term programme impact evaluations, although completed infrequently provide valuable information on the impacts and sustainability of projects, programmes, and portfolios.

One such important review which is detailed here is the Global Environment Facility (GEF) Cluster Country Portfolio Evaluation: GEF Beneficiary Countries of the OECS (1992–2011) (GEF, 2012). This evaluation provides coverage of many relevant initiatives related to water, environment, and climate change over a long period, with GEF funding totalling over $120 million USD. Thus, it is able to take a longer term view on sustainability than individual project evaluations. Although it covers only OECS states and GEF funded initiatives, many of the lessons learnt are applicable across the region and to any funding source.

Another useful document is the recent GWP Technical Focus Paper on Integrated Water Resources Management in the Caribbean (GWP, 2014b). This provides a general overview of the Caribbean experience in progressing change in the Caribbean water sector to advance the principles of IWRM in the region.

The key lessons on sustainability from these two documents have been extracted and used to supplement the findings from the interviews in the sustainability assessment.

Sustainability assessment

The assessment provides a synthesis of the evidence and insights from the interviews and literature sources. It provides key messages from the interviews, examples from the initiatives and draws further examples, lessons, and recommendations from the literature review. The section is structured using each of the thematic areas in Table 1.1.

Recommendations

A concise set of recommendations arising from the sustainability assessment are provided. These are intended to support the sustainability of future IWRM related initiatives in the region.

Caveats

This research has only been able to engage with a limited number of participants representing a cross section of those involved in implementing IWRM related initiatives. It has focussed on in depth discussions with a small number of participants rather than superficial coverage of a large number of participants. This has allowed flexibility to explore issues on a case by case basis, but does not allow a quantitative assessment of different sustainability issues. A much larger study would be required to systematically assess the barriers and opportunities for sustainability across all the regional and national IWRM related initiatives past and present. This would give the opportunity for a greater number of participants to express their views and experiences. This may alter the content and reliability of this study but whether it would alter the broad conclusions and recommendations is uncertain.

Likewise, a more comprehensive review of project and programme terminal evaluation documents would provide more detailed insights into the project level challenges which are being experienced. However, project level terminal evaluations generally focus on outputs and are conducted before longer term impacts and sustainability can be assessed. One exception is the long term review undertaken by the GEF for the period 1992 – 2011 which has been used to support this study.

3. Sustainability assessment

At a generic level sustainability looks beyond the outcomes of initiatives to the longer term benefits to economies, societies, and environments which these initiatives provide. It seeks to build on existing initiatives and achievements of regional initiatives to sustain their outputs and outcomes. Reflecting on their own experiences, participants of this study have identified a range of elements that contribute to sustainability of outputs and outcomes including:

- Institutionalisation of the processes designed, developed, and achieved in regional initiatives;
- Ensuring benefits generated by initiatives can be sustained in the recipient countries or more broadly at a regional-level;
- Sustainability of technical capacity, human resource capacity and institutional capacity;
- The multiplier effects of pilot and demonstration initiatives can be realised;
- Greater reliance and contribution of regional human and technological resources to meet the region's challenges;
- Strengthening academic and research institutes within the region;
- Identifying and sourcing sustainable funding and financing strategies, a critical component that underpins every aspect of the sustainability process; and
- Greater reliance on regional resources and efforts to reduce the need for donor intervention to propel the sustainability process.

This section provides an assessment of the sustainability issues experienced by participants and lessons for future initiatives in the region. This is supported by examples and evidence both from the participants and review of relevant literature. Each section is themed according to the focus of the type of initiatives involved.

Development of policies, legislation or regulation influencing policymaking processes

Initiatives which develop policies and plans generally target government decision making processes to influence the way in which natural resources are managed and regulated. This may involve developing thematic policies on climate change adaptation or IWRM. Once developed, there is a requirement for formal uptake and adoption by government. This section discusses some of the barriers and opportunities experienced in influencing policymaking, legislation, and regulation.

Influencing policy, legislation, and regulation is arguably the most challenging aspect which regional IWRM related initiatives have tried to address. The water sector should learn lessons from success stories in the region and from other sectors which have witnessed progress.

Challenges to sustainability in IWRM include water resources being a 'grey area' overlapping many agencies roles or sitting between their roles. Coupled with a lack of inter-agency communication this leads to water related issues not being addressed. Translating the efforts of regional and national efforts into nationally led action to improve water management has been a perennial challenge with some successes but little transformational change. Box 3.1.1 highlights the challenges to institutional reform in the Caribbean water sector, and Box 3.1.2 highlights similar challenges experienced in environmental management. The slow progress in legislative reform in the water sector requires a continued pressure with the aim of incrementally and slowly bringing about change over a long timescale, as well as testing new approaches.

Box 3.1.1 – The Caribbean experience of water reform, taking the long view

Overall, a decade of effort to significantly improve water management in the Caribbean region has so far yielded few tangible benefits, when measured against the Dublin Principles and the IWRM pillars. However, in terms of understanding and sensitivity to the need for reform, the Caribbean region is very well placed. The administrative and professional classes in the water sector are well acquainted with the issues and opportunities that an integrated approach presents and they are actively including it as far as they can in the working environment. In large part this is a result of the training and capacity building efforts that the advocacy organisations have made. The greatest impact can be seen in the specific 'demonstration' projects, usually at the community or watershed level. The tangible benefits that have emerged serve as testaments to the effectiveness and importance of an integrated approach. It reinforces the message that reform works best when it addresses real issues that resonate with people's everyday experiences with water and their environment.

Source: GWP. 2014b

One example of the challenge of influencing policy is that of the incentives for rainwater harvesting. While rainwater harvesting is viewed as a useful supplement to water supplies, incentivising uptake is difficult given that it can represent a loss of income for utilities, and requires subsidies and financial incentives from government. Moving from general awareness towards political and financial support can be challenging.

Box 3.1.2 - Lessons from GEF initiatives in OECS countries on the sustainability of developing policies, laws, and regulations

The OECS countries have promulgated numerous laws and regulations that govern aspects of the environment. Correspondingly, a variety of institutions are involved in the implementation, monitoring, and enforcement of this environmental legislation. This fragmented approach provides an inadequate framework for environmental protection.

OECS states have found it difficult to move environmental legislation and regulations from the draft stage to enactment. The GEF's potential role in the finalisation and adoption of these laws and regulations cannot be overstated.

OECS governments have signalled their commitment to environmental management by their official ratification of international environmental agreements (these ratifications were facilitated by GEF projects - GEF projects have facilitated the development of draft legislation and policies to support the commitments to these agreements, for example, legislation related to biosafety and sustainable land management). Further action is required, however. Political will must be demonstrated to finalise and adopt these laws, regulations, and policies. GEF support is expected to contribute to this final step in institutionalising laws and policies, thereby increasing sustainability of project results.

Source: GEF (2012)

The water sector could learn lessons from the success of policy and legislative reform in other sectors or thematic areas such as the climate change adaptation agenda which has garnered a high level of political interest.

The successful development of climate change adaptation in the region has been due at least in part to high level political commitments. For example, the Liliendaal Declaration, the Regional Framework, and IP have all been endorsed at high levels. Climate change is a permanent item when CARICOM heads of state meet. The President of Guyana was a high level champion for raising the profile of climate change on the regional agenda.

Running projects through UNFCCC focal points was a useful entry point at national level in order to broker the nationally relevant institutions and issues with the regional knowledge and capacity on climate change at the CCCCC. Focal points have been a useful catalyst in the process.

An awareness of government structures is vital, for example targeting Ministries of finance rather than ministries of environment and being aware of all the relevant government structures. Changes in government can be a significant impediment to the demand for research / policy reform. This can be mitigated by maintaining a broad dialogue with government stakeholders to maintain momentum.

Water is the medium through which climate change will manifest itself on societies, economics, and the environment. Therefore, political interest and financial resources for climate change adaptation can be directed towards water issues.

There is a great deal of political interest in climate change adaptation and a corresponding availability of international funding available for adaptation and mitigation. For example, the Regional Framework for Achieving Development Resilient to Climate Change places the water sector at the heart of climate change adaptation. Many of the actions to adapt to climate change will involve strengthening water management and enhancing the resilience of water infrastructure. The water sector should therefore position itself to make use of these resources. The GWP WACDEP programme is a good example of a water sector initiative which is harnessing the climate change adaptation agenda to support resilience in water management.

Enforcement of existing policies and regulations is a prerequisite to the sustainability of policy and legislative reform.

Weak enforcement and incentive regimes to implement existing legislation and regulation reduces the impact of reform processes. Creating an enabling environment for implementation, although it does not deliver 'new' change, will support future efforts. Coastal setbacks are classic example of policies which are not effectively enforced. This in turn has the effect of weakening the perception of the seriousness of legislation amongst developers and communities.

A long lead time and a sustained commitment of effort is required for institutional change.

One barrier highlighted was that of overcoming institutional inertia in getting governments to sustain and fully benefit from the outcomes of initiatives, and in particular to invest in the longer term integration of knowledge and capacity within national institutional contexts and settings.

For example, country level climate change policies were developed under CPACC (1997-2001) but to-date few have been ratified in country. With a time lapse of 10-15 years, this perhaps typifies the time required for developing capacity, raising awareness, and shifting institutional inertia.

There is a wide range in the high level interest in water issues at national level across the region. For example, in the case of rainwater harvesting (RWH) Saint Lucia and Jamaica both lead the way in terms of the engagement of high level politicians. Understanding why some countries are pushing forward with RWH while others are lagging behind offers in insights into the political economy of decision making on RWH. For example, Hurricane Tomas prompted interest in RWH in Saint Lucia, while the championing by a high level politician in Jamaica has provided the environment for RWH support. These are not circumstances which can be planned for or predicted, but where such circumstances arise they should be capitalised on to build support.

Many lessons from past initiatives are available should be built on in future efforts. These lessons should be formally captured and candidly discussed to build on successes and learn from failures. Box 3.1.3 provides some examples lessons learned from the RRACC project which included a policy development component.

Box 3.1.3 – Developing a model water policy and Act: Lessons from the RRACC project

The aim is to use the model policy and Act as a basis for countries to draft and endorse their own national policies and acts. The following broad lessons have emerged from this process:

- Consultations have been critical to gather information and gain buy in from relevant stakeholders
- Using the OECS meetings with Ministers of Environment has been a crucial entry point for raising the model Act on the political agenda and getting the mandate for developing a road map towards implementation
- RRACC has allocated funds specifically for moving the Act forward to endorsement at a country level
- Challenges in small countries' capacity to work on the Act is due to limited resources and technical capacities
- Respect for national level stakeholders and politicians is essential to garnering their support
- USAID grant agreement only covers 6 independent states in OECS, not dependent territories; further permissions needed from USAID to support implementation of Act in dependent territories

Source: Project consultations

3.1. Development of plans and strategies for implementation

Some initiatives develop plans, strategies and roadmaps which set out a pathway for future interventions. These have included IWRM plans and roadmaps at a national level as well as the Implementation Plan for the Regional Climate Change Framework, at the regional level. A key element in developing plans is the institutional setting and sources of finance for their implementation. This section discusses some of the barriers and opportunities experienced in initiatives which develop plans, strategies, and roadmaps.

The IWRM planning experience offers lessons on the validity and usefulness of developing plans for reform and investment in water management.

The issue of consultancy projects developing recommendations, which are then rarely acted on is too familiar in the region. There is a systematic lack of capacity to take recommendations forward for action. Furthermore, ensuring the legitimacy of external organisations, whether they are regional agencies or bilateral development partners in developing national plans for action is challenging.

> Only through the explicit support of government administrative processes can any sort of change be brought about in the water sector, particularly legal and organisational changes. In view of this, consideration should be given to the legitimacy of external bodies to initiate processes that lead to forming national plans that facilitate restructuring national water sectors. Why should changes be supported, in the absence of any clear public support and in the absence of any clear political mandate or political support?
>
> *GWP (2014b)*

There is a need to move away from any type of imposed planning regime on national governments. Focussing on supporting the development of planning systems which are already used will be more directly relevant to government planning and budgeting processes, and more likely to be implemented generating lasting change.

Taking a cyclical programmatic approach to planning is more sustainable that individual project based approaches.

Climate change adaptation in the Caribbean has typically followed a project based approach with each project working in isolation. A programmatic approach, which can bring together project interventions in a consistent framework for project development and reporting offers a more sustainable solution than running a disparate range of projects. The Implementation Plan (IP) for the Regional Framework for Achieving Development Resilient to Climate Change has been designed to provide a platform to draw together the diverse range of regional and national adaptation priorities (see Box 3.2.1). The IP is reviewed every two years giving the opportunity to maintain relevance and accommodate changes in the priority actions at national level. It is currently due for its first review. This continual adjustment is more sustainable than series of individual project based activities.

Box 3.2.1 – Lessons emerging from the Implementation Plan for the Regional Framework for Achieving Development Resilient to Climate Change

Factors enabling sustainability

Working in partnership with a broad stakeholder base is important to gain buy in and reflect national priorities

CCCCC works across a broad base of stakeholders at the regional and national level to ensure the IP reflects the linkages into sectoral and national priorities.

Working from the position of a strong mandate and agreed process supports sustainability

The IP is couched in the Liliendaal Declaration and the Regional Framework which were endorsed at the head of state level. In addition, the Three Ones[2] concept provides a management framework which is attractive to funding agencies allowing CCCCC to effectively broker between funding agencies and nationally relevant proposals for action. The regional and national M&E components are also likely to support long term sustainability by providing impact performance data over time.

Generating demand at the national level can be challenging but is critical to developing bankable projects and attracting competitive funding

The IP is developed in close consultation with national stakeholders to incorporate nationally relevant and demand led actions for climate change adaptation. However, generating demand and receiving proposals for action from national governments relies on their time and engagement with the process which can be lacking in some cases.

Using economies of scale to broker funding and know-how at the regional level

CCCCC is able to employ economies of scale as a regional hub for climate change. CCCCC's high capacity for project management and technical climate change knowledge provides resources for project implementation and support which are unavailable at a national level. CCCCC's ability to attract funding is also a regional asset which catalyses the opportunities for national level project activities.

Barriers to sustainability

Scale of financing needed for sustainable development and climate resilience is huge

Finance is a barrier to sustainability, IP will only be able to incorporate additional investment to manage climate risks, not large capital investment programmes, for example. CCCCC is mandated to seek finance for implementing actions within the IP. In the medium term, the Green Climate Fund offers some potential, but many sources of funding are available and CCCCC has a track record in accessing competitive sources of funding.

National level sustainability of climate change adaptation activities is outside the remit of the IP and requires continued national level support

There is a need to build the enabling environment for sustainability at the national level. CCCCC has limited influence on the sustainability of national actions. This includes creating strong national goals and visions on climate change adaptation.

Source: Project consultations

[2] One coordinating mechanism to manage the process, one plan that provides the framework for coordinated action by all partners and one monitoring and evaluation framework to measure progress, transparency, and value for money

Plans and programmes, even if not implemented in their entirety, provide a framework for action amongst a range of different organisations involved

There is a perception across the region that the development of programmes and plans which are then not followed through is a familiar problem. However, even if this is the case, even the partial completion of (often overambitious) plans moves development in the right direction, can stimulate further work and coordinate efforts amongst stakeholders. Box 3.2.2 presents the case of the Caribbean Rainwater Harvesting Programme.

Box 3.2.2 Lessons from the Caribbean Rainwater Harvesting (RWH) Programme

A joint UNEP / CEHI initiative developed a Caribbean Regional Rainwater Programme in 2006 costed at $1.8 million USD. This provided a comprehensive range of actions across awareness raising, capacity building, legislative and policy formation, and infrastructure development. Although funding was not available to implement the programme in its entirety, it provided a vital focal point to guide subsequent action on RWH over the following years when funding periodically became available. This flexible approach mitigated the uncertainty over donor funding streams, allowing multiple sources of finance to be accessed as and when opportunities arose. However, the monitoring and evaluation of the programme has not been comprehensively carried out; such a review would help give a comprehensive picture of the lessons learned from the implementation of the programme and RWH in the region more generally.

It also provided a focal point for the coordination of different agencies working on rainwater harvesting including GWP-C, CARPHA, and FAO. Their work has involved development of tools and guidance materials, demonstration projects, awareness raising, and capacity development.

The programme is currently being revised to reflect the eight years of progress on RWH in the region, which has built the knowledge and experience considerably. This development includes an increasing awareness of the importance of health and disease considerations in RWH, as well as the economic costs and benefits, and the growing appreciation of RWH as a low regret action to adapt to a changing climate.

The updated programme will continue to provide a strategic set of objectives which regional and national actions can be framed within.

Source: Project consultations

There is a need to incentivise the adoption of plans and strategies through demonstrating their cost effectiveness relevance, and funding modality to government.

The demand for IWRM is there in principle but this has not been backed up by the political commitment to instigate reforms and recommendations from IWRM plans. Benefits of IWRM related reforms are only realised during times of stress (drought, floods, etc.) while for most of the time status quo management practices do not reveal the underlying issues. There are few incentives for decision makers to fund improved water and environmental management. These incentives need to be clearly developed to justify the relevance, cost effectiveness, and funding sources for IWRM related interventions and reforms. These types of intervention are often considered low priority by politicians (who are looking for public support) and utilities (who are dealing with immediate problems). Lessons are being learned on incentives for change, exemplified by the recently started IWEco initiative which builds on the IWCAM initiative, see Box 3.2.3.

Box 3.2.3 – Learning lessons from IWCAM in the IWEco project

IWEco is the successor to the IWCAM project. Although the IWCAM project was a success story in the region, lessons have been drawn to improve the impact and sustainability of the IWEco project which is currently under implementation.

Focusing on private sector and public engagement

Previous initiatives have focused primarily on the public sector and have struggled to make headway in terms of institutionalising change, partially due to the challenge of incentivising investment in water and the environment. Engaging the private sector, primarily tourism which depends heavily on environmental management, is hoped to demonstrate the cost effectiveness of investing in better environmental management and water resources management in real business terms. In general multinational companies demonstrate a high standard of environmental management through their corporate social responsibility programmes and other certifications. There is a need to translate these improvements into local companies.

Coupled with this a much broader and more aggressive public engagement campaign will be initiated to influence the grass roots opinion, which in turn leads to a change in the societal perception of the value of water and environment.

Bringing CARICOM and OECS into the steering committee

A relatively simple change, bringing representatives of CARICOM and OECS into the IWEco steering committee will help to build ownership at a high regional level.

Hardwiring partnerships through shared implementation

The IWEco will build stronger partnerships by devolving the management of certain aspects of the project to other regional agencies such as GWP-C and UWI. Rather than being consultees, this will foster stronger partnerships through shared responsibility.

Enhancing the monitoring and evaluation of impacts

The reporting of deliverables such as training, reports, and other outputs is relatively straightforward, however, the resulting impacts of interventions on the high level environmental indicators are often limited. This makes it difficult to demonstrate successes and justify further funding. For example, under IWEco, UWI will be involved in the monitoring of environmental indicators before, during, and after national level projects for watershed management in Jamaica.

Source: Project consultations

3.2. Implementation of pilot projects

Pilot projects are often focussed on a defined community, sectoral, or thematic focus such as rainwater harvesting projects, or management of natural resources. Pilot projects demonstrate measurable results 'on the ground' and often contain a component of physical infrastructure. In addition to generating development benefits, pilot projects often test new approaches with the aim of replicating and upscaling successful interventions. These types of project are popular with funding agencies who are required to demonstrate quantitative indicators of change, which, for policy or advocacy type interventions can be more difficult to measure. This section discusses some of the barriers and opportunities experienced in sustaining, replicating, and upscaling pilot projects.

Grounding pilot projects in existing institutional plans and decision making processes supports sustainability and requires a long transition period to integrate pilot projects into government and other beneficiaries day-to-day and strategic decision making processes.

Projects and programmes should be firmly grounded in institutional strategies and plans to ensure that they are not bolt-ons nor duplicating what are effectively the core functions, roles, and responsibilities of existing institutional strategies. A long transition period is required, including making resources available for at least 2 years, for handing over projects to the government. This is essential to allow a demonstration of the effectiveness of project outcomes to beneficiaries and the government. Once the benefits are institutionalised it is much easier to maintain them. A long transition period also allows the government time to make the necessary decisions to support the outputs, which may take considerable time in itself.

For example, a fisheries project which aimed to preserve fish breeding habitats to maintain sustainable catches persuaded the funding agency (DFID) to purchase boats and support salaries of staff to maintain enforcement of protected areas for a sufficient time to demonstrate benefits. The benefits have been clearly demonstrated and the community can see tangible benefits to fish stocks. This has provided impetus for government support. In the longer term the fishing cooperatives and government will have bought into the idea and mainstreamed it into practice

A large and growing body of experience at regional and national level on planning and implementing pilot projects for water management should be used to improve future pilots. Box 3.3.1 gives an example of the emerging lessons from the RRACC project on the planning and implementation of pilot projects.

Box 3.3.1 – Planning for successful pilot projects, emerging lessons from the RRACC project

RRACC and the recently commenced EU GCCA funded Sustainable Land Management project follow broadly the lessons learned in coordinating large regional projects from earlier projects such as the CCCCC coordinated CPACC, MACC, ACCC, amongst others.

Public perception through pilot initiatives.

In the past OECS, by working at the policy level, has struggled with a public image problem in terms of not delivering measurable, visible changes at a national level. The strong focus in the RRACC project on pilots is in part to demonstrate to the public that the project is bringing real benefits to communities.

Challenge in procuring contractors for physical works

The RRACC project has struggled to find good quality construction contractors to fulfil physical infrastructure works. The small size of the countries and specialist nature of the works makes this a particular problem. Large corporate firms find the projects too small to be of commercial interest. There has been difficulty in getting good quality proposals following terms of reference and USAID grant agreement due diligence.

Learning lessons as part of the process

The RRACC project hosts an annual seminar, the final seminar will be themed on 'lessons learnt', providing a forum for discussing these issues and generating lessons for future projects.

Continually reinforcing demand for pilot projects

Project interventions are based on demand from national level stakeholders. Annual consultations are held to ensure the project is responding to the national level priorities in scoping new activities. This is a relatively flexible approach to maximise the relevance of the project interventions.

Stretched government departments hinders successful implementation

Government agencies do not have the capacity to deal with day to day duties and intermittent projects arising as a result of the RRACC or other projects. The RRACC grant agreement contains a USAID contribution and a contribution in kind. The contribution in kind is mainly the provision of government capacity to support the RRACC projects. This in-kind support has not been provided which is a serious limitation to the effectiveness of the USAID contribution. It would be more effective to avoid the in-kind contribution and use USAID funds to hire staff into government departments.

Importance of the handover period for project activities

The final year of the project is associated with handover of projects to national level stakeholders and monitoring and evaluation. This year long transition period is somewhat unusual. Longer term review (5 years or more) is extremely rare.

Source: Project consultations

Funding the continued operation of pilot projects and obtaining in-kind contributions for national projects is a key limitation for sustainability.

Differences exist in the ability of national and regional stakeholders to provide resources in a timely manner on joint projects. This includes a lack of predictability or control of national contributions to initiatives which puts successful impacts at risk. For example, a reverse osmosis plant in Grenada was expected to utilise government funding for connecting the plant into the water supply system, however, national funds were not available to do this.

Continuation of project activities through national government contributions are in most cases unfeasible due to the financial constraints within which national governments operate. Demonstrating savings achieved by initiatives for resilience may be one approach to securing buy in, as a precursor for funding. It is also important to consider the practical human and financial capacity constraints during project planning (see Box 3.3.2) and once the project has been completed (see Box 3.3.3).

Box 3.3.2 – Lessons learnt in national financial and human capacity for implementation, the case of the IWCAM project

Available human capacity within SIDS can be a critical success factor in project implementation. In islands with small populations and limited numbers of professionals, it is important to design projects so that this constraint does not become a limiting factor. Even with funds available to hire personnel, there are in many cases not enough persons to consider locally for hiring. It may defeat the purpose of a national demonstration if staff need to be recruited/hired from outside the local environment.

IWCAM identified the lesson that demonstration projects that have dedicated project funds (as distinct from counterpart funding) set aside for the project manager's salary have generally resulted in more effective and efficient project implementation. This is because the project manager is generally able to work full time on the project rather than having to also work on other jobs within a particular ministry.

Source: GEF (2012)

Box 3.3.3 – Example of increasing the sustainability of project outcomes through development of financing mechanisms

The Sustainable Financing and Management of Eastern Caribbean Marine Ecosystems Project, currently in final approval stages, is one GEF-supported effort focused on post project sustainability. The project has an explicit objective of developing national financing strategies and establishing sustainable financing mechanisms through initiatives such as national-level protected area trust funds. Furthermore, the project will establish a Caribbean Biodiversity Fund capitalised with resources from the GEF, the Kreditanstalt für Wiederaufbau (KFW) German Development Bank, and the Nature Conservancy.

Source: GEF (2012)

One example is the sea level monitoring network set up under the CPACC project. This was not sustained despite the national government agreement to take over ownership of the stations and regional organisations taking over the management and maintenance of the system using a revolving trust fund. A lack of financial resources and the technical skills necessary resulted in the inability to maintain the network. Future initiatives should learn from these experiences to understand how to mitigate such uncertainties in financing long term monitoring projects.

The capitalisation of the GCF will be a key opportunity for Caribbean nations. Capacity needs to be developed to access these funds and bankable projects need to be developed in preparation for it to come online.

Replication and upscaling is often cited as an aim of running pilot projects. The extent to which this occurs has not been systematically assessed but lessons can be taken from individual stories of replication and upscaling in the region.

Box 3.3.4 provides examples of replication and upscaling in GEF funded projects, focusing on the GEF IWCAM project. The environment and circumstances which led to replication and upscaling in these cases should be carefully considered when planning future interventions. In some cases it has arisen from water related hazards, such as floods and droughts, focusing attention on the utility of piloted approaches. However, there are also actions which can be taken to promote successful pilots through dissemination to a wide audience including press, civil society, government, and funding agencies amongst others.

Box 3.3.4 – Replication and upscaling, the experience of GEF funded projects experience in OECS countries and the GEF IWCAM project

The replication efforts of regional GEF projects in the OECS region are worth noting:

- All regional projects have a significant knowledge transfer component entailing dissemination of lessons through project results, documents, training workshops, information exchange and national and regional forums.
- Regional projects seek to build the capacity of and to train individuals and institutions to expand project achievements in the country and within the Caribbean region.
- Regional projects share knowledge and best practices with other SIDS regions. The IWCAM project has partnered with the Secretariat of the Pacific Community Applied Geoscience and Technology Division to prepare technical reports on Integrated Water Resources Management and sharing of best practices and lessons learnt.

The project catalysed the initial replication of best practices across project countries by fostering replication of successfully tested practices and the full consideration of lessons learnt. The similar nature of challenges confronting participating countries made the problems faced by one country replicable in others. This led, in a number of cases, to actual replication of management approaches and technologies. The case of Jamaica and its WAMM nation-wide policy replicating / adopting the lessons learnt in Portland, the application in Grenada of the IWRM approach tested in Saint Lucia, the extension to other watersheds of the management scheme of the Lower Haina Basin in the Dominican Republic are signs that, yet again, the Project did succeed.

Another example of replication followed the passage of Hurricane Tomas in December 2010. After the hurricane there was a greater appreciation for the availability of water in those institutions (schools and health centres) which had installed the system prior to the passage of the hurricane. As a consequence, a policy decision was made by the Ministry of Public Works to install RWH systems at all public institutions to overcome water shortages in the dry season and to ensure more reliable water storage in post-disaster situations.

Finally, an example of upscaling is the IWCAM demonstration project in Saint Lucia which included testing of technologies for rainwater harvesting. Rainwater harvesting sites were set up in households and in a primary health care centre. The significance of the technologies was noted during the 2010 drought. Now with PPCR funding, the government of St. Lucia is hoping to scale up these rainwater harvesting technologies nationwide.

Source: GEF (2012) and IWCAM (2013)

Planning for sustainability during the project development phase and revisiting this continually during project implementation asking the question 'How will the project outputs translate into useful outcomes when the initiative is complete?' are important.

The preparation of sustainability plans is rarely included as an output of a project, yet they can serve to help ensure continued benefits from programmes and projects. Sustainability planning will help to ensure that sustainability issues are considered either at the project planning phase or at the end of the project when handover and next steps are being considered. However, the extent to which sustainability plans are implemented in practice is unclear. Even if plans are not implemented, their development may lead more organically to interest from funding agencies to sustain and build on project outputs.

An example of a sustainability plan is presented in Box 3.3.5. In this context, the Sustainability Plan focuses on strengthening technical, human, institutional, and legislation capacities toward institutionalising outputs at regional or country level or expanding the outputs to other countries. Many projects are geared toward behavioural change thus a process of change management underpinned by a mix of structural and non-structural strategies and approaches will need to be instituted.

Box 3.3.5 Example of a Sustainability Plan, the Caribbean Disaster Management Project (CADM) project

The CDERA Caribbean Disaster Management Project (CADM) project included a sustainability plan as an output of the project, considered rare amongst regional projects. The sustainability plan takes lessons from project implementation, identifies gaps and needs, and costs the actions required to maintain and indeed expand the services and outcomes that the original project laid a foundation for. In this context, the sustainability plan involved the following elements over the ten-year period 2005-2015:

- Improvement of the Technical Capacity of CDERA member states with respect to identification and **mapping high risk flood hazard communities, acquisition of the technology** required to implement FH, and **enhancing the capacity** of CDERA to be the premier disaster information warehouse / clearing house in the Caribbean;
- Development of the Human Resource Capacity in disaster management generally, and flood hazard management particularly: pursuit of **knowledge enhancement** initiatives at all levels of the education system in the Caribbean; and continuing the training of professionals; and
- Improvement of the Institutional Capacity of CDERA member states to provide support for the expansion of the outputs of the CADM project: working closely with regional governments to **review the legislative and policy framework** at the community and national levels; continuing the initiative to **partner with regional governments** in the development and expansion of CADM; and development of **partnerships with the business community, public and civil entities** in the Caribbean, with a view to involving them in disaster reduction and instilling a culture of disaster management.

The plan also included elements for continuously **sourcing and securing funding** for implementation, with an emphasis on regional / country sources so as to initiate and maintain sustainability of the outputs of CADM. Approximately US$59 million was estimated to be required to sustain the outputs of CADM over the planning period, to be sourced from regional governments, donors, and the corporate sector.

Source: CDERA (undated)

3.3. Development of tools and guidelines

Tools and guidelines in the context of water management may include good practice guides for rainwater harvesting, water supply financing, and legislation, amongst others. It may also include technical tools such as modelling, mapping, and data analysis tools. Tools are often developed as a result of research or processes trialled during pilot projects. This section discusses some of the barriers and opportunities experienced when developing and applying tools and guidelines.

Integration of tools and guidelines into existing decision making processes is a prerequisite to sustainability.

One key challenge with the sustainability of tools and guidelines is tracking their uptake and usage, especially when they are not part of any statutory process, which is the case for most tools and guidelines developed at a regional level. Box 3.4.1 gives the example of the development and roll out of the Caribbean Climate Online Risk and Adaptation Tool (CCORAL).

Box 3.4.1 – The Caribbean Climate Online Risk and Adaptation Tool (CCORAL), integration into decision making processes

The CCORAL tool, developed by the CCCCC, is an online support system for climate resilient decision making. It can be used to screen a wide variety of decision making activities including legislation, national planning, strategy and / or policy, programme and / or project, and budget preparation / evaluation. CCORAL helps users to assess the risks posed by climate and identify measures to reduce those risks.

Ideally, CCORAL would be used widely across the region by a range of stakeholders as part of decision making processes. However, since it has been developed by a regional agency, outside of national decision making processes, sustained effort is required to promote the benefits of CCORAL and identify opportunities to leverage its use.

Two potential opportunities exist to achieve this. Firstly, making the use of CCORAL a conditionality for accessing funding through multilateral organisations such as the IDB. However, this will not address domestic or private sector decision making. Secondly, the development of case studies which clearly demonstrate the benefits of applying CCORAL in real world examples are being progressed. The ability to quantitatively show benefits will make a strong case for further roll out and uptake.

Supporting these activities, capacity development and awareness raising at national level across the region are required.

One potential opportunity to measure sustainability is to review the usage of tools and guidelines in the preparation of reporting documents such as UNFCCC National Communications. Others include tracking the download of guidelines from websites, although this provides a coarse measure of interest rather than application.

Engaging stakeholders is important in developing tools, both to ensure tools are tailored to meet needs and to generate awareness, capacity, and appreciation for the benefits of applying the tools.

Box 3.4.2 presents some of the lessons from the Caribbean Drought and Precipitation Monitoring Network (CDPMN) on the importance of stakeholder engagement, amongst other factors.

Box 3.4.2 – Lessons learnt from the Caribbean Drought and Precipitation Monitoring Network (CDPMN)

The Caribbean Drought and Precipitation Monitoring Network (CDPMN) was established as part of the Caribbean Water Initiative (CARIWIN). Linking national and local government organisations, the CDPMN collects drought and flood data and makes relevant information available to water managers, farmers, and citizens. Drawing on the broader network, CDPMN also identifies and monitors trends. This information is provided in a monthly update that is made available to the general public and in more targeted outreach to the directors of 16 national meteorological offices in the region. Lessons from the CDPMN include:

Capacity development is important to underpin awareness of the CDPMN and increase the utility of its information to decision makers

CIMH gathers feedback on the CDPMN from a diverse set of stakeholders throughout the Caribbean. It organises and holds workshops, bringing together ministries of agriculture water authorities. These workshops include trainings, presentations, and round table discussions in order to allow participants to learn more about the CIMH projects and provide feedback. Teaching participants to better use available tools is an important part of the workshops as is gathering information on how the tools on the site and the site in general may be improved. Workshops have helped CIMH to gain a better understanding of how to make its information more accessible to the general public.

A diverse range of stakeholders could benefit from the CDPMN but tailored information products are important for a diverse audience.

While the regional entities were at first primary users, national meteorological offices and water authorities increasingly use the regional SPI to monitor drought. CDPMN hopes to see its information integrated even more into policies by hydrological offices, water utilities, ministries of health, and national emergency management organisations.

Long term sustainability of funding to maintain the CDPMN is a concern and should be secured.

In the more distant future, it is unclear where funding will come from, how stable it may be, or if a shift in its source will push CDPMN to change significantly. It is hoped that the funding for CDPMN will be stable, since it is the only source of information for drought monitoring and prediction in the Caribbean and its important mitigation role in the 2009-2010 drought won it so much attention from Caribbean governments and their national meteorological offices.

The CDPMN has demonstrated its value in operational drought forecasting and monitoring in the 2009-2010 drought event.

Once the severity of the potential drought was recognised, CDPMN contacted affected governments and issued an alert on their website. The governments of Grenada and Barbados asked CIMH to issue warnings to their public. Governments used the drought information provided by the CDPMN in different ways. In Grenada, for instance, the Ministry of Agriculture partnered with the National Water And Sewage Authority and the National Disaster Management Agency to promote water conservation through radio, television, press conferences, print media, and educational programs.

Enhanced meteorological data collection and sharing will help to support more robust forecasting and monitoring services.

Another important lesson has to do with CDPMN's ability to scale and provide tailored information being dependent upon its users. Although national forecasts would be very useful, CDPMN is unable to provide them unless it can get long-term precipitation data. This illustrates the need for more data sharing between climate service institutions and governments.

Source: Blakeley, S. & Trotman, A. undated.

Uptake and application of tools must be addressed as early as possible in planning projects and programmes.

The incentives for using guidelines must be carefully considered at the outset, taking the perspective of national users who are under-resourced and dis-incentivised to change current approaches to decision making. This should be coupled with a clear understanding of the decision making processes which the tools and guidelines are trying to influence. General guidelines can provide useful background to support capacity building but may have to be adapted to be relevant at a national level.

Project planning should carefully consider the institutional environment and the aims and expectation of national and regional partners. Ensuring project preparation is participatory will ensure broad support for tools developed as part of the project, as exemplified by the lessons from the CADM project (see Box 3.4.3).

Box 3.4.3 – Key lessons on successful project planning for sustainability from the CADM project

The project was matched to regional Institute mandates and core strengths, with the institutes giving commitment to build into their core strategies the knowledge tools and capacities that emerged as a result of the programme. An example of this sustained uptake is evidenced in CIMH still undertaking hydraulic modelling, mapping and analyses, running training courses in these aspects, and continuing to support countries in these aspects.

- The project aimed to support regional aspirations to come to new and expanded initiatives under pilot programmes and with regional level leadership;
- Project was set within the realities of limited technical capacity in the region and a major focus of the programme was to build technical capacity;
- The funding stream was geared towards empowering and strengthening the capacity of regional and ultimately, national stakeholders;
- Funding upfront was used to carry out participatory processes and consultations with key stakeholders who were directly involved in shaping the design of the project;
- Programme design was a critical step in ensuring the programme responded to regional gaps and needs and was based on extensive consultation and engagement with JICA representatives;
- The design process engaged with key regional technical institutes such as CIMH and UWI; and
- Working across a range of levels – regional / national / local - helped to ensure a balance between top-down and bottom-up approaches and learning.

Source: project consultations

Tracking the usage of tools and guidelines is useful to help understand their long term benefits.

Tools such as the GWP-C Rainwater Harvesting Toolbox provide a useful resource for the region both through capacity development initiatives and more general usage by interested parties. However, tracking of the internet ‘hits’ or ‘downloads’ would provide further evidence on how the Toolbox is being used and which elements are most popular and what future improvements are needed. Tracing the use of the toolbox could potentially involve provision of email addresses to build a community of practice or other form of link into a broader rainwater harvesting stakeholder group.

3.4. Applied research and information management

Research projects in the context of water management may involve a broad range of physical water resources assessment and modelling studies as well as social and behavioural studies. The objective of applied research is often to inform decision making through guiding policy or planning. This section discusses some of the barriers and enablers for the sustainability of research focussed projects.

Improved data collection and sharing are essential to improve the quality of research.

The lack of environmental data such as meteorological, hydrological, and ecological data makes the application of technical tools difficult, reducing the quality and value of applied research findings. The lack of river flow data and accurate ground topography across the Caribbean is problematic for flood risk modelling (see Box 3.5.1). There is a general lack of understanding amongst governments of the value of primary data collection. It should be the role of government agencies rather than development partners to undertake this collection.

Data access is a substantial barrier with difficulty in accessing and sourcing data (e.g. for modelling and mapping purposes) - this is a common problem in the region and not one that can be easily resolved as different countries and agencies each have their own policies and practices. Data access issues require a regional perspective to support the economy of scale brought by specialist regional projects.

Box 3.5.1 – Basic data requirements, the case of topographic data for flood modelling and mapping

Upscaling and replication of flood risk modelling and mapping projects is limited by differences in data availability (especially across islands), this can make best practice from pilot studies less relevant for upscaling. There is a need to collect a consistent and accurate topography dataset (such as LiDAR topographic data) as a key regional baseline resource for flood risk and other decision making processes. This would be a one off activity and would allow a systematic approach to be taken to flood modelling, reducing the future cost of individual studies and providing a consistent level of accuracy nationally and regionally.

Source: Project consultations

A greater coordination and defined roles amongst government agencies on water issues such as flood risk would support progress on addressing water issues

Flood risk issues overlap with the remits of the office for disaster management, department of works and drainage, water resources, and water and sanitation departments. The level of coordination between these agencies is uncertain. The Caroni Research Project (see Box 3.5.2) has offered a useful co-benefit of bringing the various parties together in a neutral platform to discuss flood risk issues.

Researchers require support from government agencies for the implementation of research findings into policy.

Uptake of research into policy is largely outside the control of researchers, although workshops and the provision of policy relevant recommendations are tools which can be used to disseminate knowledge. The process for uptake is largely a lengthy process of osmosis through awareness raising amongst stakeholders, rather than being a top down process of demand for evidence.

Box 3.5.2 – The challenge of engaging with government in research, the case of the Caroni flood risk project

In this project, flood risk in the lower Caroni River basin is being assessed within the contexts of climate change, community vulnerability and adaptive capacity. The project aims to quantitatively assess current and future flood risk using computational modelling and integrate the results from this into a spatial analysis of vulnerability to flood risk, based on key indicators in Trinidad census data and the outcomes of community surveys and structured interviews.

The demand by government for policy relevant research findings is variable, government has shown a strong level of engagement in the Caroni project, and on flood risk in general, as it is increasingly considered as an issue of national importance. However, the fragmented responsibilities of government agencies regarding flooding risk increases the challenge of effective stakeholder engagement and dissemination of research findings.

Source: Project consultations

Demand from government for policy relevant research is essential to guide the applied research agenda.

Demand from policymakers is key to ensure uptake and use of research outputs. It is important to be specific on policy objectives during project formulation to give the technical research policy relevance. Connection to policymakers during project formulation and engagement throughout is crucial to ensuring buy in and uptake of outputs. This demand should be extended into the provision of resources to support national and regional research programmes. In the case of Trinidad, there is evidence of a domestic research agenda for flood risk (see Box 3.5.3).

Box 3.5.3 – Funding research, the example of the Caroni Flood Risk Project, Trinidad

Trinidad is not eligible for many developmental donor funding streams so must rely on other funding sources such as government research grants. These are scarce, especially for pure research. The recent Trinidad Research and Development Impact Fund has allowed the funding of the Caroni Project.

A broad level of awareness and support for research is needed to catalyse access to funding and the interest in research activity. Getting the Caroni research off the ground took a number of years and several unsuccessful attempts to access funding before the dedicated research development funding stream became available.

Stakeholder engagement workshops are the key entry point to disseminate the findings and benefits of research amongst government, to institutionalise the knowledge and to make the case for additional funding for replication and upscaling of research and adoption of research findings.

Source: Project consultations

Engaging with a broad stakeholder based can identify opportunities for replication and upscaling of successful research initiatives.

Replication and upscaling can either be an objective at the outset of an initiative (in which case it should be planned for) or opportunistic on the basis of successful outcomes of an initiative. Planning for replication of local level initiatives requires the inclusion of the national government from the outset, to maximise the chance of wider roll out. Box 3.5.4 presents the example of opportunities for replication across sectors through broad stakeholder engagement. In addition, using peer-to-peer networks such as industry and community organisations is valuable for disseminating successful outcomes and broadening support. Vertical and horizontal channels of stakeholder engagement are therefore important for increasing the chance of replication and upscaling.

Box 3.5.4 – Engaging a broad stakeholder base to support replication and upscaling, the case of water resources and climate change in Belize

A recent study into the potential impacts of climate change on water resources in Belize was carried out for the Belize national climate change committee. The study focussed on water resources but generated interest from other sectors such as agriculture and energy for similar research. This interest was stimulated due the climate change committee, being made up of stakeholders from a range of sectors. Ensuring research findings are disseminated and owned by a range of stakeholders has led to opportunities for replicating research across sectors.

Source: Project consultations

3.5. Capacity development, awareness, and advocacy

Capacity development can be either the primary focus of an initiative, such as training in technical aspects of water resources management or used to support roll out of project outputs amongst target beneficiaries. It can also include awareness raising and advocacy on key issues to the general public or policymakers amongst others. The benefits and impacts from capacity development and awareness raising can be challenging to measure in the short term. This section discusses some of the barriers and opportunities experienced in the sustainability of capacity development and awareness raising initiatives.

Long term commitment to capacity development is required to generate and sustain institutional capacity.

Capacity development in the Caribbean water sector has been driven through a range of different initiatives, detailed in Box 3.6.1, which have provided both longer term capacity programmes as well as specific training as part of project activities.

Box 3.6.1 – Capacity development in the Caribbean water sector

Complementing these projects are the ongoing efforts in training and capacity building. The most notable players in this respect are GWP-C, Caribbean WaterNet, and the CARIWIN project, although the GEF-IWCAM project also contributed. The knowledge and understanding of IWRM within the region have been significantly enhanced by these efforts, which included:

- Training for water operators and service providers by CAWASA;
- Training in wastewater management under the GEF-Caribbean Regional Fund for Wastewater Management project;
- Professional networking maintained and promoted by CWWA;
- Training in IWRM provided by GWP-C and Caribbean WaterNet; and
- Training provided under the GEF-IWCAM Project.

The initiatives have helped to introduce IWRM precepts to policy-making and institutional actors and have become the common currency for shaping water sector reform. The fact that there have been few positive outcomes is not a reflection of their failure, but rather speaks to other factors.

Source: GWP 2014b

Short-term capacity development, such as sponsoring academic courses, does not necessarily build long term capacity. The use of longer term engagement in capacity development as part of broader institutional and sectoral strategies and goals is preferable. Reliance on external funding has restricted somewhat the scope and delivery of training courses and programmes.

A major challenge is to ensure that trainees are able to put into practice what they have learnt. Mentoring and on the job support can be highly beneficial in ensuring new knowledge is acted upon and institutionalised selection of participants needs to be carefully scoped with appropriate criteria for acceptance into training courses as well as high level endorsement.

Monitoring and evaluating the impacts and outcomes of capacity development can be extremely difficult. Post training reviews and evaluation are critical. Continuous monitoring, review, and evaluation are important. It was suggested that monitoring and review of all participants benefiting from training should be undertaken every six months. Review and lessons learnt, for example, during ongoing capacity building and training programmes requires flexibility in programmes to respond to changes and to realign courses and initiatives when necessary.

There is evidence of the sustained benefits of capacity development for climate change adaptation in the region over the course of successive regional initiatives, see Box 3.6.2.

Box 3.6.2 – Long term impacts of sustained capacity development in climate change adaptation

Capacity development in climate change is a success story for the region. It has been sustainable and ongoing for decades with long term results, including the capacity of regional consulting firms to work on climate change initiatives being developed:

- UNFCCC National Communications now being produced with national and regional expertise
- Regional capacity for climate modelling being developed, instrumentally through the use of INSMET (Cuba), UWI, CCCCC, and outputs from regionally developed climate models now being used in regional climate change studies

Loss of capacity when major projects end is a consideration, but unavoidable if project based approaches are used.

Source: Project consultations

Efficiency and effectiveness of capacity development is required to make best use of scarce resources; training of trainers can support upscaling of impacts.

A key mechanism in this has been the training of trainers at a region level with trainers themselves taking this to the national level context. Bringing national participants to large regional training events is costly and less efficient. Other strategies have been to move to online training which gives greater flexibility to be able to deliver cost-effective training whilst also enabling participants to cover the training during times which are convenient or appropriate to them. Box 3.6.3 provides further lessons on effective capacity development based on the GEF experience in OECS countries.

Box 3.6.3 – Supporting sustainability in capacity development, the GEF experience in OECS countries

Tools that have been used in pursuing the sustainability of capacity-building initiatives within GEF projects include the following:

- Developing and disseminating a wide range of training materials and other reference materials and investing time in developing quality training materials that could be used beyond the classroom and at the workplace;
- Developing tools such as checklists and guides to quickly expand individual and organisational knowledge of environmental and sustainability issues;
- Responding to identified rather than perceived needs; and
- Ensuring that training materials link environmental management with economic and social issues, as most people quickly “buy in” to training when relationships between improvements in environmental quality and quality of life issues are explored.

Source: GEF (2012)

Beneficiaries of capacity development must be carefully targeted to respond to demands and ensure beneficiaries have the mandate to make use of increased capacity.

Sustainability may be considered by factors such as how capacity development has led to better informed policies, practices, and decision making. A number of factors can enhance capacity development outcomes. For example, there is sometimes a mismatch between where knowledge is strengthened, whose knowledge is strengthened and those who really make things happen. There needs to be a clear bridge between new knowledge and decision making influence. Mentoring and learning by doing are critical elements in grounding capacity development in institutional decision-making, roles, and responsibilities.

Capacity development must be demand driven and a key question to ask the institutions or individuals is 'What do they want to change?', thereby ensuring that the capacity development builds on current challenges.

Box 3.6.4 – Example of impacts achieved through Caribbean WaterNet

As part of Caribbean WaterNet, a course on the financial and economic aspects for IWRM was offered throughout the region. During the meeting in Grenada, one of the participants who was a Board member of the water agency requested that the same topic be presented to the all the board members of the water agency. It is said that as a result of this, their enhanced understanding of the issues surrounding financial and economic considerations in the water supply industry helped to trigger confidence in water tariff reviews and subsequently in the changing of water tariffs in the country.

It is evident that capacity development and the outcomes that result from this can be extremely difficult to monitor and measure. However, quantitative and qualitative assessments can be combined to aid outcome mapping.

Source: Project consultations

Capacity development of the private sector enables higher level objectives and aspirations to be practically implemented.

The private sector is responsible for much of the investment in infrastructure and technical support, as the project cycle is often delivered by private sector actors. Developing the awareness and skills of the private sector to support climate resilience in their day to day roles provides a practical entry point. A good example of private sector capacity building is the training of plumbers, architects, and contractors on the installation of safe and reliable rainwater harvesting initiatives. This type of training and certification is crucial to providing a cadre of technical professionals who are able to roll out rainwater harvesting across the region, once incentives are in place and demonstration projects have provided grounded lessons and best practices.

Capacity development should be included in research projects to ensure decision makers have the capacity to understand and use research based evidence for decision making.

Project implementation agencies must ensure that project beneficiaries have the capacities to use and understand the project outputs, see Box 3.6.6. This requires capacity development as a cross cutting theme across all types of intervention to support sustainable outcomes.

Box 3.6.6 – Capacity development as a driver for sustainability, the case of water resources in Belize

In a recent study on the implications of climate change for water resources in Belize, capacity development was carried out for the Belize National Climate Change Committee to ensure they were able to understand and use the research outputs. Capacity development was also carried out for local NGOs working at community level to further the understanding at a local level. Capacity development is essential to ensure research findings guide policymaking.

The Belize National Climate Change Committee was the main beneficiary for the policy advice and entry point into policy, therefore their engagement and buy in during project formulation was crucial. The demand for the project was in place through the regional implementation plan which had substantial regional and national buy in, validating project demand. This led to meaningful impacts as the project findings fed into the Belize National Climate Change Policy.

Source: Project consultations

Awareness raising at a high level is crucial to set the enabling environment for meaningful and long term change in the way decisions are taken.

Getting the enabling environment in place is essential for meaningful change. Pilot projects will not be upscaled or replicated without changing the attitudes and policies of government. Many policies are low cost and highly effective (e.g. changing building codes). This requires making policymakers aware of the policy options available and their benefits and costs as a precondition for generating the demand for change and removing the attitude of status quo amongst policymakers. Box 3.6.7 highlights the importance of communications to dissemination and stakeholder ownership in the IWCAM project.

Box 3.6.7 – Communications as a critical component for success: The IWCAM experience

The management team recognised very early that communications, a fundamental aspect of any multi-stakeholder initiative such as this Project, was not adequately addressed or resourced in the Project Document and budget allocation and therefore made a strategic decision to ensure that it was addressed. The result was a communications programme, which ensured that stakeholders and other partner organisations were made aware of the goals and objectives and kept informed of the achievements of the Project.

Source: IWCAM (2013)

Building awareness of climate change is required at community and government level to support participatory policymaking.

The twin barriers of a top down, centralised approach to policymaking coupled with a general lack of awareness of civil society on climate change issues limits the scope for participatory policymaking. Civil society is often relatively uninformed on climate change issues, which can limit their ability to advocate for change. Capacity development at the community level, including sharing case study experiences that can be undertaken at community level to can support awareness and the grassroots advocacy for change (see Box 3.6.8).

Box 3.6.8 – Stakeholder engagement and buy in, emerging lessons from research into community led climate change adaptation assessment

The *Analysing Climate Change Policy and Institutions in Saint Lucia and Trinidad and Tobago: Piloting a Caribbean process* (ARIA Caribbean Toolkit Pilot) project has built the capacity of civil society to assess and understand the institutional arrangements for climate change adaptation. This was undertaken by pioneering the use of the WRI's Adaptation: Rapid Institutional Analysis (ARIA) Toolkit in the Caribbean. This allows civil society to conduct analyses and generate evidence to influence policymaking processes.

An advisory panel was set up to oversee the project implementation, providing oversight review and also championing the process. It included high level regional and national representatives including the CCCCC. The Panel has been important in giving the pilot project profile, especially with the CCCCC as an important regional champion. The advisory panel was only set up half way through the project and more time should have been invested at the start of the project to bring the panel together in order to give a stronger sense of ownership.

A more thorough stakeholder analysis at the start of the project would have helped to ensure a broader stakeholder base during the pilot project which in turn would have supported the uptake and use of the research findings.

Source: Project consultations

3.6. Developing networks and partnerships

Many initiatives include a component aimed at building links between institutions and strengthening existing networks. This can include links between and within regional and national agencies, technical communities of practice, and community level networks. The benefits and impacts of networks and partnerships are difficult to quantify; this section explores the barriers and opportunities to successful building partnerships experienced in the region.

Water management requires dialogue across all dependent sectors to develop solutions which are sustainable. The enabling environment should include a dialogue between water dependent sectors.

Water resources deliver economic, social, and environmental benefits and poor water management places these benefits at risk, hampering development efforts. Water issues can therefore only be resolved with the cooperation and engagement of a broad range of stakeholders outside the water 'sector' but dependent on water. Dialogues and partnerships must therefore span water resources management, water supply, agriculture, health, environment, industry, energy, and other water dependent sectors.

Organisations which provide a neutral platform for dialogue are required to bring stakeholders together to deal with water management issues and develop solutions which seek to maximise win-win opportunities and minimise negative trade-offs across sectors.

Regional coordination of projects can not only offer economies of scale and opportunities for sharing knowledge, but can also add layers of administration. Careful planning of complex regional projects is essential to maximise their benefits.

Partnerships between regional organisations with overlapping or interacting mandates are essential to provide joined up solutions to water related problems in the region. The region has a strong history of collaboration across regional organisations which has fostered formal and informal networks and communities of practice.

Regional organisations also offer the ability to coordinate national responses to issues and offer economies of scale for regional initiatives with national components. However, it is critical that national stakeholders are fully engaged as equal partners to maximise ownership and impact of national activities. Box 3.7.1 provides some of the lessons from the GEF experience in OECS countries on the barriers to stakeholder ownership of regionally coordinated projects with national components.

Box 3.7.1 – Stakeholder buy in to regional projects, GEF experience in OECS countries

The effectiveness of a regional approach can be diluted by the number of participating states and the capacities available to deliver the project at the regional and national levels. Stakeholders interviewed (in the OECS Evaluation) spoke of limited ownership of regional projects stemming from several factors:

- Global and regional project objectives are difficult to align with national priorities;
- Regional project activities and outcomes have low visibility at the national level;
- The institutions and stakeholders involved in project activities and outcomes are not necessarily the right ones and stakeholder involvement is not sufficiently comprehensive; and
- The relevance of project objectives and outputs is not always clear to national stakeholders.

Where GEF-funded efforts have clearly been driven by OECS national stakeholders, there is a greater sense of stakeholder ownership, which is one of the critical elements for achieving and sustaining results.

Source: GEF (2012)

Many partnerships, both formal and informal, have been built in the region and should be capitalised on when planning future initiatives.

The GEF impact review (GEF, 2012) noted that projects are generating valuable experiences, lessons, and opportunities for increased regional collaboration (see Box 3.7.2) that will improve the effectiveness of project interventions. However, national and regional mechanisms are often lacking for sharing experiences and lessons from the development and implementation of GEF projects.

There is a need to build on existing partnerships to move from partnering as stakeholders or consultees to more active joint working partnerships, reinforcing these by taking a learning through doing approach.

Box 3.7.2 - Lessons on partnerships developed through climate change adaptation initiatives

CPACC helped establish national-level governance through climate change focal points and inter-sectoral national climate change committees, which continue to work as representatives of the countries' needs and aspirations in climate change on the regional stage while coordinating efforts at the national level. In addition, CPACC catalysed the development of national adaptation policies which were approved at the cabinet level in three OECS countries.

CPACC and MACC contributed to regional unification and cooperation on adaptation issues. Further, both projects significantly raised the profile and awareness of climate change adaptation issues throughout the Caribbean; this in turn has resulted in an increased appreciation of climate change issues at the regional policy-making level. CARICOM has recognised that the CPACC and MACC projects facilitated intraregional cooperation in the preparation of a regional agenda for negotiations under the UNFCCC and the Kyoto Protocol (World Bank 2009). This resulted in the development of a regional adaptation strategy, Climate Change and the Caribbean: A Regional Framework for Achieving Development Resilient to Climate Change (2009–2015), which was adopted by the heads of state in July 2009. Through the CPACC and MACC projects, the CCCCC was established. As a regional centre of excellence, the CCCCC coordinates the Caribbean region's response to climate change and is the key node for information and regional policy on climate change issues and on the region's response to managing and adapting to climate change. Prior to CPACC, little institutional capacity on climate change was available in the region. The project created an institutional arrangement and capacity at the national and regional levels upon which further adaptation efforts have been built.

Source: GEF (2012)

4. Cross cutting sustainability issues

Participants in the assessment were well aware of the challenges surrounding long term sustainability of initiatives in the region. This awareness reflects the general usage of logical frameworks and similar planning tools as required by funding agencies, in order to demonstrate how outputs will be sustained as long term impacts at the project proposal phase. When asked about general barriers to sustainability, replication, and upscaling many similar problems were cited by participants. These frequently centred around four seemingly intractable problems: financial resources, technical capacity, political mandate, and evidence to support decision making. These factors cut across all types of initiatives and are summarised in Figure 4.1 and elaborated in the following subsections.

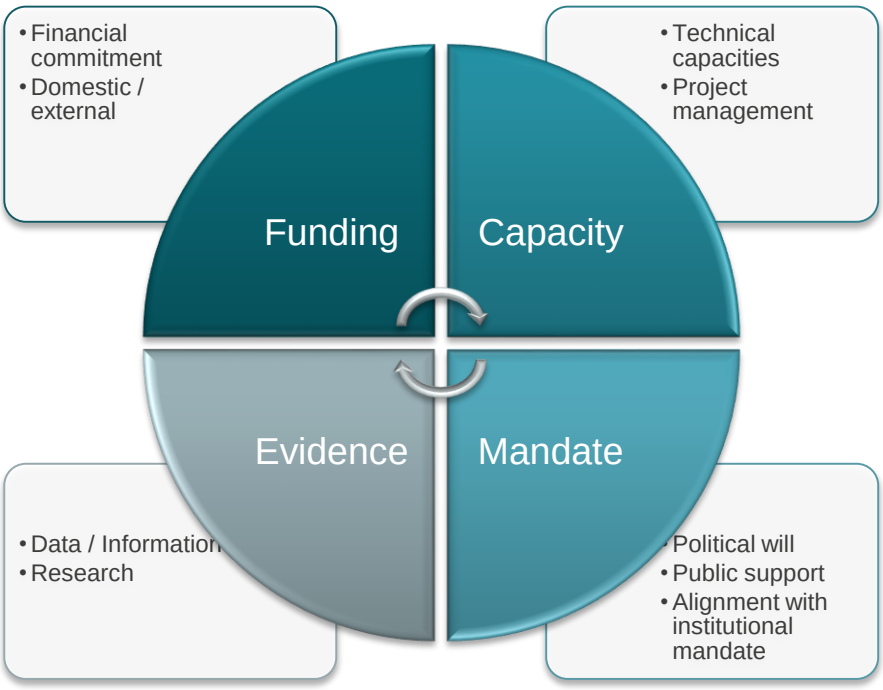

Figure 4.1: Overview of the cross cutting factors for sustainability

Source: HR Wallingford

Referring to projects, programmatic or impact evaluation studies will help to provide further lessons and ideas to support sustainability when planning a new initiative. Box 4.1 summarises key recommendations from the GEF borne out of two decades of implementing regional and national projects and programmes in environmental management issues, including water management.

Box 4.1 – Lessons from the GEF on project planning to support sustainable outcomes in OECS countries

- Regional projects formulated to include multiple countries need to ensure highly participatory and country-driven designs and approaches. Simply holding multiple stakeholder consultation meetings is not sufficient; the process must be truly stakeholder owned and driven;
- Extensive analysis must be conducted to assess technical as well as operational risks and to appropriately analyse barriers;
- While regional project design periods should not be unnecessarily extended, significant time may be required to ensure a satisfactorily participatory design process to build and secure stakeholder ownership in multiple countries. Data collected during the evaluation indicated that regional projects did not always reflect the priorities of each individual country participating in the regional initiative;
- Highly technical issues such as biosafety and climate change monitoring and adaptation are also better suited to regional approaches since national capacities and institutions are limited. Capacity building, training, and the formulation of frame policies and legislation are activities that can be more cost-effective if offered through regional mechanisms; and
- Civil society participation is critical and can fulfil diverse roles including watchdog, capacity developer, and data provider. The evaluation confirmed the general perception that, with a few exceptions, civil society in the environmental sector in the OECS region has limited institutional capacity to become effectively engaged; moreover, the systemic conditions are not in place to facilitate the fulfilment of their role.

Source: GEF (2012)

Funding – moving to a strategic and programmatic approach to funding

Improving water resources management and reducing water related risks generally deliver public benefits with social and environmental returns on investment. The lack of financial incentives, coupled with much stretched public budgets, limits the interest and ability for governments to invest in water management. There is a need to identify and develop the capacity to utilise alternative financing mechanisms to enhance the sustainability and long term institutionalisation of IWRM in public funding streams. For example, in the case of climate finance, the due diligence required to access funds means national and (especially) subnational entities do not have the capacity to either access or efficiently handle those funds. In the climate finance sector this is aimed to be solved via National Implementing Entities to make exactly this link between international funds and local implementation.

The Caribbean region has tended to follow a project based approach to planning water related initiatives undertaken by a range of agencies and funded through various bilateral and multilateral channels. This fragmented approach limits the long term sustainability and strategic planning which underpins long term benefits.

A more strategic approach would be beneficial in planning and financing water related initiatives, building on the experience of climate change adaptation programming in the region. A series of sequential climate change projects laid the foundations in the region but have now been superseded by the regional Implementation Plan which seeks to coordinate the region's response to climate change. It builds on a strong regional mandate (see Box 4.2) and provides a vehicle to report on the priority actions at regional and national level, coordinates responsibilities, provides a framework for resourcing the actions, and a harmonised monitoring and evaluation framework. Lessons from this approach should be taken forward as the process develops.

Box 4.2 – The Climate Change Implementation Plan, a model for the water sector?

The CARICOM declaration on climate change (the Liliendaal Declaration) provided the impetus for the development of the Regional Framework for Achieving Development Resilient to Climate Change. This included a number of strategic elements: to mainstream climate change adaptation strategies into the sustainable development agendas of CARICOM States, to promote the implementation of specific adaptation measures to address key vulnerabilities in the region, and to encourage actions to reduce vulnerability of natural and human systems in CARICOM countries to the impacts of a changing climate. The associated Implementation Plan (IP) also includes mandated actions assigned to regional and national organisations.

The Regional IP for climate resilience has provided a focal point for developing strategies, programmes, and projects to enhance climate resilience. Opportunities exist for developing a water plan within (or parallel to) the main IP. This would provide a regionally consistent approach to achieving water security, provide an entry point for development assistance, and align the fragmented responsibilities of the various regional agencies with a mandate related to water management.

Source: Project consultations

Capacity - human capacity limitations in SIDS should be planned for

Capacity underpins all initiatives in the Caribbean, whether technical capacity to manage water or project management capacity to successfully plan, implement, and monitor and review projects and programmes. Capacity development at a range of levels and appropriate to SIDS is required to underpin all future aspects of IWRM related projects, programmes, and initiatives in the future. Box 4.3 gives high level recommendations on capacity development from the GEF experience. In addition, the capacity of researchers to understand and feed into policy processes is a limitation which should be addressed in addition to capacity development of the research itself.

The small size of SIDS proportionately limits the availability of technical capacity amongst government agencies and supporting technical staff. Development partners and technical specialists should recognise this and adapt tools and methods accordingly. There are fundamental capacity issues in expecting countries to be able to address a range of complex water issues and meet international commitments. SIDS tailored technical approaches which are adapted to meet the capacity and resource constraints are required to ensure skill requirements are balanced against human capacity.

Box 4.3 – Capacity development needs for environmental management projects, recommendations from the GEF experience in OECS countries

- …linking a variety of approaches to form a coherent strategy with a long-term perspective and vision of social change. Thus, current capacity development initiatives within GEF projects should adopt approaches whereby different levels of action (at the individual, organisational, and system levels) are integrated, fostering greater sharing of knowledge and creating networks that are supported and can adapt to change;
- …greater consideration could be given to employing participatory planning processes in project design to serve as a capacity-building exercise ensuring better implementation of GEF programs and projects; and
- …capacity development in sustainable development requires strengthening of environmental agencies in their ability to enforce environmental regulations and address environmental issues; this must be a central focus of projects and will enhance prospects for sustainability.

Source: GEF (2012)

Mandate - Widespread awareness of water issues must be translated into political and public action towards improved water management

There is a need to overcome a lack of political support for improving water sector management, centred on shifting the institutional inertia away from a status quo philosophy of management to one of continual improvement. Garnering political support for change is challenged by public apathy on water issues which does not incentive top down demand for change, see Box 4.4.

Box 4.4 – Political support for change in the Caribbean water sector

In spite of the acknowledged failings, particularly in service delivery, consumers have shown very little appetite for change (in water sector management) and there is implicit support for continuing with existing arrangements. Suggestions of privatisation, or even contracts, have generally been met with opposition.

What is interesting is that the often employed exhortation that the public needs to be educated about water matters has resulted in efforts within many of the projects to raise levels of awareness. This suggests that the onus for at least some of the problems experienced in water services lies with the consumers and that, if they were to change their ways, things would be better. Paradoxically, none of the projects or efforts reported has addressed the need to educate the service providers to be responsive to the needs of their customers and citizens.

Evidence indicates that the lack of public interest in change is compounded by the perceived political risks of change (Batley, 2004). The risks arise from raising water rates, improved collection of unpaid bills, de-politicising investment decisions, loss of political patronage, and changes in employment levels and conditions. In contrast, the potential benefits arising from more efficient service provision are less visible, often long term and difficult to quantify, and convey to an electorate. It is easier to make the case for the retention of existing rights and privileges than to alter them. Given such a combination of disincentives, the incentives for politically-driven reform are low and even if there was a ministerial championing of reform efforts, this has seldom been sufficient to bring about change. Only when there has been sustained support at the highest political level has there been a degree of success.

Source: GWP (2014b)

Evidence – Data collection, analysis, and management to support evidence based decision making, monitoring, and evaluation

The complex landscape of regional and national initiatives related to water management makes identifying the various ongoing initiatives and the links between them difficult. This difficulty is further exacerbated when it comes to tracking the outputs and outcomes of these initiatives over time. The large number of different stakeholders involved coupled with inconsistent reporting of outputs runs the risk of duplication and repetition of efforts. In large regional initiatives the ownership of outputs such as reporting, tools, guidance, and lessons learnt is frequently unclear and such material is often not web accessible (see Box 4.5). Funding agencies, regional implementing agencies, and national beneficiaries should take a more coordinated approach to ownership and publication of project documentation in a transparent manner to allow future workers to understand the better the past body of work and experience on which initiatives are developed. There is too greater reliance on the knowledge of individuals within regional and national agencies, placing the long term institutional memory of project outputs at risk from turnover and reducing the accessibility of information across region.

> Assessing impact-level results in the OECS countries is extraordinarily challenging given a lack of solid baseline data on the status of environmental resources and a corresponding lack of systematic monitoring data to assess trends over time. Impact-level results are thus typically anecdotal or limited to small geographic sites specifically targeted by project activities where changes can be more easily documented.
>
> *Source: GEF (2012)*

The IWCAM study was exemplary in its focus on the provision of lessons learned products when the project was completed. These products are a valuable resource for future initiatives, avoiding the reliance on institutional memory for lessons. These lessons learnt came at relatively low cost, less than 0.5% of the value of the IWCAM project and provide a valuable resource for the future.

Many initiatives are evaluated on completion and these terminal evaluations provide useful lessons on project outcomes. However, few studies look at the longer term impacts and sustainability of such initiatives. There is a requirement for '+5' studies to be undertaken on significant initiatives to understand the 'story' behind change in the region. Because of the elapse time from completion of the initiative, this would allow a greater degree of candour in the failures as well of the successes, both of which aspects are important to inform the direction of future initiatives. For example, an IWCAM+5 study commissioned in 2017 would provide valuable lessons on the sustainability of pilot project and other project outputs.

Box 4.5 – Synthesis of challenges for evaluating programme impacts, the example of Canadian International Development Agency's (CIDA) Caribbean Regional Program Evaluation 2006-2011

Significant challenges were encountered with the Caribbean Program's **tracking of documents at the project and program level** as key inputs for the desk study. Problems of access, collection, organisation, and archiving of documents limited the evidence on performance of some the projects in the sample. The protracted process of obtaining necessary documents impaired the deskwork in advance of the field visit and created additional work for members of the evaluation team who worked on searching for and downloading archived key documents.

There was a **lack of comprehensive information on results**. For most projects, baseline data were lacking. In some cases, the focus of the project had changed without the logic model or performance measurement framework being adapted appropriately or the indicators being reported were incomplete. Attribution of results, especially with PBA-type projects or grant agreements implemented by international organisations, posed some additional challenges.

One of the challenges was to **delineate the evolving programming framework** for the projects in the sample over the 5-year period. Standard evaluation methodology requires that projects be assessed against their purpose and objectives and the programming framework at the time they were designed and implemented.

Data availability is a challenge in the region. Due to limited capacity of small states, many economic, social and environmental indicators are not collected or are available after a long time lag, data is not collected systematically by international organisations for the Caribbean.

Source: CIDA (2013)

5. Recommendations

The following sections draw together the findings from the study into broad conclusions and recommendations for the future. Many of the limitations to sustainability in the region are not new and appear to have been pervasive across the region for number of years. This assessment has not found a silver bullet solution to remove these limitations. However, incremental progress is being made towards improved water management in the region, and practical recommendations have been identified which can move the region in the right direction. Recommendations are presented both as a set of guiding questions for planning IWRM related initiatives and narrative thematic recommendations. Table 5.1 provides the guiding questions which are intended as a quick reference for those planning or implementing IWRM related initiatives in the region to prompt questions which require consideration for sustainability. Section 5.1 provides the narrative recommendations thematically based on the types of initiative in the sustainability assessment

Table 5.1: Example guiding questions on cross cutting sustainability issues to consider when planning different types of IWRM related initiatives

	Financial resources	Institutional capacity	Mandate and relevance	Supporting evidence and information
Influencing policymaking	What are the financial implications of the proposed policy reforms?	What are the capacity needs of national stakeholders to manage change?	What is the political economy of proposed changes in limiting or supporting proposed changes?	What research and evidence is required to inform policy change?
Developing plans and strategies	How will plans and strategies realistically be financed?	What capacities are needed at national and regional level to progress plans towards implementation?	What actions are needed to build national ownership of plans to support implementation?	What research and evidence are required to prioritise planned actions?
Pilot / demonstration projects	What are the financial implications of sustaining pilot projects?	What specialist capacity is needed to deliver pilot projects and to ensure their continuity?	What is needed for pilot projects to be adopted and sustained by stakeholders?	How will the lessons from pilots be disseminated and translated across the region?
Tools and guidelines	What are the financial requirements or incentives to use tools and guidelines?	What technical capacities are required to make use of tools and guidelines?	What existing decision making process do the tools support, why should stakeholders support their use?	What evidence is available on the benefits of applying tools and guidelines?
Research, data and information management	What do research findings mean in terms of financing recommended actions?	What technical capacity is available / needed to undertake research?	How is the research relevant to decision makers and how can it be delivered in an accessible format?	Which research methods are appropriate given the data and information available?
Capacity development and awareness raising	What are the financial requirements of applying and sustaining capacity?	What are the technical capacity requirements to maintain support for capacity development in the long term?	What actions are needed to build national support for utilising enhanced capacity?	How will capacity development generate useful evidence to support decision making?
Networks and partnerships	What are the financial requirements for maintaining networks and partnerships?	What capacities are needed to support the development of networks and partnerships in the long term?	What is the political economy of developing networks and partnerships and what stakeholder support is needed?	How can networks support the sharing of knowledge and information to support decision making?

5.1. Thematic recommendations

Development of policies, legislation, regulation, or influencing policymaking processes

Influencing policy, legislation, and regulation is arguably the most challenging aspect which regional IWRM related initiatives have sought to address. There are some success stories which should be fully utilised to understand the specific success factors, planned or unintended, which led to successful change. Learning lessons should be extended beyond the water sector to understand whether transferable novel approaches could be used. Getting national level stakeholders on board and owning the process of change is important and this will require a brokering of aims, to ensure objectives and outcomes are politically feasible and desirable.

Development of plans and strategies for implementation

Developing plans which go on to be financed and implemented is a key challenge for the region and lessons should be drawn from the IWRM planning process as well as more recent initiatives such as the Implementation Plan for the CARICOM Regional Framework for Achieving Development Resilient to Climate Change. In developing plans it is vital to consider in detail how elements will be financed and how funding will be sustained in the long term. This will require a programmatic approach to planning with periodic revision of investment plans to maintain relevance rather than a project based approach. Ensuring plans are grounded in regionally and nationally owned and led processes is a prerequisite for their progression towards implementation; this has been a hurdle in the past. Maximum use of international financing should be made and there is a need to increase the national level awareness of finance opportunities and the skills required to attract and access finance to implement plans and strategies.

Implementation of pilot projects

Pilot projects have generated visible results in the region, as well as providing lessons on what works and what does not. Grounding pilot projects in existing institutional plans and decision making processes supports sustainability and requires a long transition period to integrate pilot projects into government and other beneficiaries day-to-day and strategic decision making processes. Funding the continued operation of pilot projects and obtaining in-kind contributions for national projects is a key limitation for sustainability and should be addressed early in the planning stage. Replication and upscaling of pilot projects is challenging and cannot be guaranteed. Lessons should be taken from individual stories of replication and upscaling in the region to understand the actions which are needed to maximise the potential for replication and upscaling.

Development of tools and guidelines

Tools and guidelines provide a practical synthesis of methods and approaches developed in pilot projects or other initiatives, help advance the knowledge base on Caribbean specific approaches, and can provide the basis for capacity development. However, the application of tools and guidelines is limited if they are not integrated into decision making processes of the relevant regional or national organisations. Once developed, thought must be given to how the uptake and institutionalisation of tools and guidelines can be achieved. This will require a programmatic approach to provide long term support and commitment of capacity development organisations and the tool developers. Potential opportunities to add value to existing initiatives by developing tools and guidelines on the back of successful pilots should be considered during implementation.

Research, data collection, and information management

Research and the provision of data and information are the foundations of evidence based decision making. As such, decision makers at all levels should demand quality research and information to steer an applied research agenda on water issues in the region. Researchers have a role to play in demonstrating the value of research findings for decision making which should include the translation of research outputs into policy relevant and easily digestible outputs for non-specialists. The fundamental lack of basic water related data can limit the technical quality of research and studies should be carefully scoped to adapt methods and approaches to this data scarce environment at an early stage rather than attempting ambitious and highly technical approaches which are not pragmatic and feasible. Finally, researchers should continue to advocate the benefits of data collection and management in clear terms so that decision makers can appreciate its underlying value.

Capacity development, awareness, and advocacy

Capacity development is an essential component of all projects and programmes as it underpins mechanisms to support the progression from outputs to outcomes and ultimately to sustaining these. It requires long term commitment grounded in institutional strengthening and improved sector governance. The efficiency and effectiveness of capacity development and the allocation of scare resources benefits from careful targeting, to respond to demands, and ensure beneficiaries have the mandate to put into practice new knowledge, skills, and approaches. An approach that encompasses a range of decision-making levels – policy, strategy, planning, implementation, and M&E – helps to build coherence and mutually reinforces new concepts and approaches across multi-level governance structures. Capacity development is a change process. Careful thought to this process – moving from knowing, to wanting, to owning, to implementing, and to reviewing and learning for continual improvement – requires different techniques and approaches at each step in the process.

Developing networks and partnerships

Developing partnerships and networks across regional and national organisations has yielded benefits in knowledge sharing, building on synergies, and avoiding duplication of effort. Regional coordination of projects can offer economies of scale and opportunities to share knowledge and learning but can also add layers of management. Careful planning of complex regional projects is essential to maximise their benefits. Water management in particular requires dialogue across all dependent sectors to develop solutions which are sustainable. Many partnerships, both formal and informal, have been built in the region and should be capitalised on when planning future initiatives.

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