

COMMUNITY WATER STRATEGIES: A FRAMEWORK FOR IMPLEMENTATION

Working Document

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TABLE OF CONTENTS

ACRONYMS	ii
EXECUTIVE SUMMARY	iii
INTRODUCTION	1
PART I: IWRM AND COMMUNITY-BASED MANAGEMENT	2
IWRM: Definition of the Concept	2
Community Management & Participatory Development	3
The Challenge of Empowerment	6
Capacity Building	7
Gender Mainstreaming	8
In Summary: Building Blocks of Community Management	10
PART II: COMMUNITY WATER STRATEGY FRAMEWORK	11
A. ASSESSMENT	13
A1. Stakeholder Analysis.....	13
A2. Socio-economic Context	14
A3. Governance Framework.....	16
A4. Environmental Assessment	16
A5. Information Management.....	17
A6. Awareness-raising	18
B. PLANNING	21
B1. Priority Setting	21
B2. Detailed Plan Development.....	22
B3. Creation/Reform of Decision-Making Body.....	23
B4. Definition of Roles & Responsibilities	24
B5. Enabling Environment.....	25
B6. Financing & Cost Recovery	26
B7. Conflict Management.....	27
C. IMPLEMENTATION	30
C1. Plan Implementation	30
C2. Process Monitoring & Documentation.....	31
C3. Information Sharing & Communications	31
D. MONITORING	33
D1. Development of Indicators	33
D2. Monitoring System.....	36
D3. Sharing & Learning.....	37
REFERENCES	39
CASE STUDIES	43

ACRONYMS

Cap-Net	Capacity Building for Integrated Water Resources Management
CARIWIN	Caribbean Water Initiative
CEHI	Caribbean Environmental Health Institute
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute for Meteorology and Hydrology
CWS	Community Water Strategy
DRA	Demand-Responsive Approach
EC	European Commission
EHP	USAID Environmental Health Project
GEF-IWCAM	Global Environment Facility-funded Integrating Watershed and Coastal Areas Management
GWP	Global Water Partnership
IRC	International Water and Sanitation Centre
INWRDAM	Inter-Islamic Network on Water Resources Development and Management
IWRM	Integrated Water Resources Management
MPA	Methodology for Participatory Assessment
NGO	Non Governmental Organisation
PLAI	Participatory Learning and Action Initiative
PRA	Participatory Rural Appraisal
QIS	Qualitative Information System
SIDA	Swedish International Development Agency
UN	United Nations
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WSP	Water and Sanitation Program

EXECUTIVE SUMMARY

There is now a general consensus in the water community that effective water resources management requires collaboration not only across different sectors, but also across different scales of action. At the local scale, the community is recognised as an important partner for water management, and a number of guidelines and tools have been developed to promote participatory management and stakeholder involvement. Capacity building and empowerment for decision-making at the community level are considered to be key to long-term sustainability; this process is not disconnected from national priorities, but allows the communities to participate in the identification of priorities and goals, and how to achieve them in collaboration with the government and other stakeholders.

Despite these broad principles, much of the literature on the implementation of Integrated Water Resources Management (IWRM) has focused on higher levels of management such as the national or watershed scales. At the same time however, a vast range of resources has been produced on the wider topics of community-based natural resources management and participatory methods. Accordingly, this report aims at synthesising key components of IWRM at the community level, and lessons learned from case studies, into a manageable process to guide the development of Community Water Strategies, to be refined at the community level into context-specific strategies. This generic framework is intended for use as part of the Caribbean Water Initiative (CARIWIN) for collaboration with its partner countries (Jamaica, Grenada and Guyana) and application in pilot communities.

The framework proposed in this report is based on a four-phase process of assessment, planning, implementation and monitoring, each associated with specific expected outputs. Several sub-components are described in more detail under each phase. The overall framework is based on the principles of demand-responsiveness, community ownership and flexibility. The importance of gender-sensitive approaches is particularly emphasised in order to achieve broad participation and commitment that moves beyond traditional roles and power inequalities. Transparency in decision-making, monitoring, and information sharing is also highlighted throughout the process.

Community management represents a great capacity challenge because it requires capacity in several areas that are likely to be new to the community, including human, financial, institutional and legal, as well as general management capacities. A main focus of the framework therefore remains on the development of these new capacities and the balance required between community autonomy and the need for support and facilitation.

INTRODUCTION

The last few decades have seen a broadening of the approach to water management, and an emergence of new guiding principles such as decentralised decision-making, stakeholder involvement, and cross-sector integration and collaboration. As an alternative to the outdated, sectoral approach to water management, Integrated Water Resources Management (IWRM) regroups those principles under what has become the leading paradigm for water management. In parallel to these changes has been the growing interest in participatory and community-based management, which has gained momentum not only in the water sector, but also in other fields of natural resources management. The objective here is to strengthen the capacity in problem-solving and decision-making, building towards a long-lasting ability for the communities to mitigate arising issues. This new emphasis on the community as an important partner to address water management challenges has renewed the focus on community-managed initiatives, but also revealed several obstacles to their success, and identified various key elements to consider as part of participatory management projects.

In this context, the purpose of this report is to establish a framework that will serve as a guide for the development and implementation of Community Water Strategies (CWS) as part of the Caribbean Water Initiative (CARIWIN) in the pilot communities of its partner countries (Jamaica, Grenada and Guyana). Specific objectives of this report include:

- ❖ To review international best management practices in the application of IWRM principles at the community level, along with lessons learned from case studies
- ❖ To identify necessary conditions for successful community empowerment and participatory management, and define indicators and outcomes to measure it
- ❖ To develop a logical framework for the various elements of a Community Water Strategy

Accordingly, Part I of this report reviews the concepts of IWRM and participatory management, as well as key elements that provide the foundation for the formulation of a CWS. Part II of the report then proposes a framework for implementation, supplemented by a variety of case studies used to inform it. These guidelines are designed to be used as a reference, and not all elements may be applicable in all communities. The framework has been developed to be as inclusive as possible of a variety of applications relevant to the Caribbean context, including water supply and sanitation, watershed management, agricultural practices, environmental sustainability, rainwater harvesting, and flood and drought management. Nonetheless, an important element of IWRM is that it should not be used as a blueprint approach, but rather as a set of tools to be adapted and moulded to the specific local context.

PART I: IWRM AND COMMUNITY-BASED MANAGEMENT

IWRM: Definition of the Concept

The four Dublin Principles, adopted at the International Conference on Water and the Environment in Dublin in 1992, marked a cornerstone in the evolution of IWRM, where stakeholder participation, gender and the value of water were highlighted as central considerations:

1. Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.
2. Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels.
3. Women play a central part in the provision, management and safeguarding of water.
4. Water has an economic value in all its competing uses and should be recognised as an economic good.

IWRM has since become the leading paradigm in water management, and has been widely adopted by bilateral organisations, capacity building initiatives, civil society and government reforms as a guide for action. The Global Water Partnership (GWP), as one of the main advocates of IWRM, provides one of the most widely accepted definitions:

a process which promotes the coordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (GWP, 2000).

The IWRM process is characterised by its iterative, rather than linear, nature, reflecting the dynamic interaction between society and the environment (GWP, 2005). An IWRM strategy differs from the conventional approach to water resources in several respects; the involvement of multiple sectors, a broader focus, management based on natural watershed boundaries rather than administrative boundaries, decentralisation of decision-making and stakeholder participation represent some of the key differences. As a whole, IWRM provides a framework to balance the water needs required to sustain economic efficiency, ensure equity in the allocation of resources, and promote environmental sustainability.

The rise of IWRM has triggered a wide range of reforms in the water sector; however, much of these efforts have been focused at the national or watershed scale, and there is a general lack of practical tools to guide the implementation of IWRM at the local level (Moriarty et al., 2007).

Additionally, in cases where such guidelines have been developed, there appears to be a greater focus on the water and sanitation sector at the expense of other areas of water management. The GWP general framework for IWRM implementation is one of the most comprehensive set of tools developed to guide reforms at the country or watershed level; nonetheless, since IWRM implementation occurs at multiple scales, several of the guidelines offered by the GWP are also relevant for the community level. Box 1 outlines the 13 key areas for change that make up the ‘toolbox’ developed by the GWP to support implementation of IWRM.

Box 1. The GWP 13 target areas for IWRM implementation

1. Enabling environment
 - Policies
 - Legislative framework
 - Financing and incentive structures
2. Institutional roles
 - Organisation framework
 - Institutional capacity building
3. Management instruments
 - Water resources assessment
 - Demand management
 - Social change instruments
 - Conflict resolution
 - Regulatory instruments
 - Economic instruments
 - Information management and exchange

IWRM guidelines have also been developed by a wide range of international bodies, bilateral organisations and civil society (e.g. European Commission, UNDP, CIDA, Cap-Net, International Water and Sanitation Centre (IRC), and numerous project-based initiatives). As a result, the scope of resources available to support IWRM application can be somewhat overwhelming, making it difficult to narrow IWRM down to a manageable process for communities. In response to this concern, this framework aims at synthesising key components of IWRM at the community level into a manageable process for the development of Community Water Strategies.

Community Management & Participatory Development

Community management is defined by community ownership, decision-making power, and control over the outcome of decisions (Wegelin-Schuringa, 1998). The field of community

management has however given rise to various applications of those basic principles and different degrees of community involvement. Accordingly, the following section examines some of the basic principles behind community management, and discusses overarching themes of participatory development that should be considered throughout the development of a CWS.

The difficulty in developing guidelines for community applications of IWRM arises in part from the fact that different communities have different needs, and different capacities. Participatory management covers a broad spectrum of approaches (Figure 1). In the past, community involvement has often meant that communities took part in the implementation stages, such as construction work, or simply implied a consultation process. Recently however, there has been a move towards more inclusive approaches that seek to make the community the main decision-makers at every step of the process, from planning to implementation and monitoring. Also implied with greater community ownership however is a requirement for greater community capacity. Similarly, different community management models will require different levels of assistance and support from external actors (Calaguas and Francis, 2004). Regardless of the level of community involvement however, participatory development represents a tremendous capacity challenge, from which results the need for empowerment and capacity building as crucial components of a CWS.

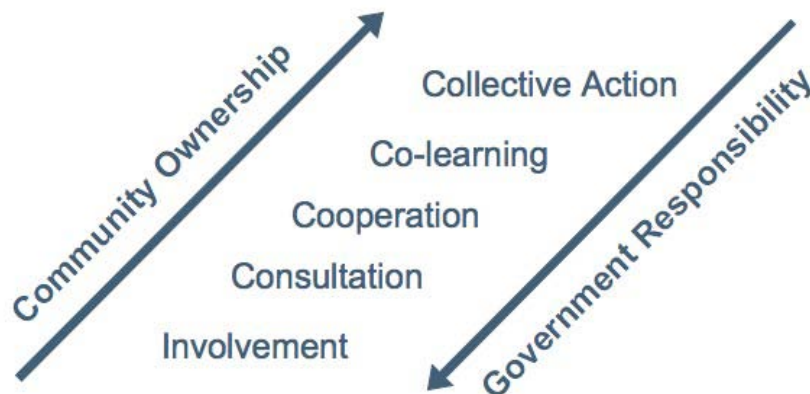


Figure 1. Different community management models, associated with varying levels of community ownership and government responsibility (modified from Howard-Grabman, 2007).

Demand-responsiveness has been promoted extensively in the participatory development literature, with a variety of definitions. Traditionally viewed purely in economic terms, demand has been redefined to include a broader array of elements not only limited to cost but also to decision-making power: “willingness to pay, based on informed choices” (Mukherjee and van Wjik, 2003). This has been described as the Demand-Responsive Approach (DRA), which is based on the core principles of managing water as an economic and social good, in a holistic

manner and at the lowest appropriate level, while recognising the important role of women (Rall, 1999). Box 2 summarises some of the key characteristics of DRA.

Box 2. Key characteristics of the Demand-Responsive Approach (DRA) (Rall, 1999)

- The community makes informed decisions about service options, based on willingness to pay and responsibilities
- The community contributed to investment costs and manages funds
- Ownership and responsibility of the community are promoted
- There is a procedure to facilitate collective decision-making in the community and adequate flow of information
- Government acts as a facilitator by creating an enabling environment
- There is an element of capacity building in the community
- Innovation and flexibility are promoted

Along with demand-responsiveness, a variety of participatory tools and methods emerged in the 1970s and 1980s to facilitate the move towards greater community involvement. Participatory methods have evolved through a series of acronyms, from Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) to the more recent Participatory Learning and Action (PLA). As a whole, they describe “a growing family of approaches and methods to enable local people to share, enhance and analyze their knowledge of life and conditions, to plan and to act” (Chambers, 1994). Examples of tools include community social mapping, transect walks, focus groups, lists and tables (matrices), preference ranking and cost-benefit analyses (Mukherjee and van Wijk, 2003).

The Participatory Learning and Action Initiative (PLAI) is one of the most recent developments in the field of participatory methodologies. Led by the Water and Sanitation Program (WSP) and the International Water and Sanitation Centre (IRC), the PLAI developed a Methodology for Participatory Assessment (MPA), focusing on gender, poverty and sustainability. The approach combines guidelines for assessment of social equity and sustainability of community-driven development in water and sanitation, including specific indicators, a number of participatory tools, and a scoring system to quantify qualitative data (Mukherjee and van Wijk, 2003). Although originally developed as a methodology for large-scale programs to include a participatory component, many of the tools provided by the MPA are relevant to community-based initiatives.

As part of the MPA, a Qualitative Information System (QIS) has been developed in order to quantify, store and analyse qualitative data for monitoring progress (Postma et al., 2004). The three-step Qualitative Information Appraisal (QIA) involves guidelines for participatory assessment, stakeholder meetings and reporting. The QIA system aims to address the problem of

quantifying much of the data from participatory assessments and offers a simple flexible system to convert qualitative data into numbers and scores for a variety of uses (e.g. women empowerment and effectiveness of soil erosion control) (James, 2007).

The Challenge of Empowerment

The achievement of ‘meaningful participation’ is a recurrent objective in IWRM approaches. However, moving beyond simply increased participation or equal representation to meaningful empowerment is challenging, and is not automatically accomplished through community involvement. The following case from Water User Associations in Nepal and India exemplifies this difficulty in the context of gender equity:

Even if women are committee members, this does not necessarily guarantee that they have any say. Male committee members reportedly gave women’s names as committee members, without the women themselves even knowing, to please an external agency, politician, or donor to get more money (Schreiner and van Koppen, 2001).

Consequently, although empowerment and participation are clearly accepted as main components of IWRM, they remain difficult to achieve in practice. Assessing to what extent the theory is truly being translated into participation and empowerment on-the-ground also represents a main challenge, which will be discussed in more detail in the CWS framework itself. Overall, the process of empowerment is difficult to define, and so are the steps to achieve it. Rather, the focus should be on creating the necessary conditions to foster empowerment:

empowerment is not something that we – as policy makers, agricultural scientists, and development workers – can do to rural people; rather is it a consequence of something that rural people do for themselves... empowerment cannot be seen as a sequence of project activities, nor can it be reduced to a measurable objective; instead, it involves rural people setting their own goals, managing their own activities, and assessing their own performance (Bartlett, 2008).

Accountability is an important precondition for the empowerment of a community, and is a twofold concept involving the acknowledgement by the community of its responsibilities, and its awareness of its right to hold other people accountable for their responsibilities (Haddad et al., 2007). Accountability and ownership of a project will become possible when a given community has (Haddad et al., 2007):

- ❖ access to and control over resources
- ❖ knowledge and capacity to implement this control
- ❖ claim-making-power to make sure that these conditions can be fulfilled and maintained

Capacity Building

Community-based management of water resources requires capacity in several areas that are new to the community, and different types of capacities need to be reinforced: human, financial, institutional and legal, as well as general management capacities (Moriarty et al., 2007). Other examples include skills in communications, negotiation, conflict resolution, facilitation, consensus building, time management and community mobilisation (GWP, 2005).

Regardless of the initial approach or level of decentralisation, the most successful community water management initiatives seem to be the ones that promote the evolution towards a greater degree of community ownership and independence. This is especially important in donor-funded projects where the long-term sustainability must be ensured beyond the support from the funding agency.

Part of the challenge of participatory development is balancing community autonomy with the need for support and facilitation. Given the variations among different communities, capacity building needs and strategies to support community management will be community-specific. It is also important that there is a common understanding among the different actors (government, NGOs, the community, etc.) of the definition of the community and of its roles, responsibilities, rights, and capacities (Marcus, 2007).

A case study from Madagascar documents some of the problems and challenges that arise when such conditions are not met. Marcus (2007) examined the case of community-based water supply management in Ambovombe, Southern Madagascar, where decentralisation has resulted in disengagement of the state, and ultimately disempowerment of the community. Complete delegation of powers to the community, as opposed to a progressive transition accompanied by capacity building, in this case led to increased poverty and worsened water supply. Similarly, Lockwood (2002) notes the need to recognise that community management has limits and that it requires some level of external assistance:

There is also a real danger in failing to acknowledge that community management has its limitations. Every year in Latin America tens of millions of dollars are invested in constructing new community-managed projects by a combination of central government funding and international donor agencies, but a significant proportion of these projects will fail to sustain the intended benefits over time (Lockwood, 2002).

In response to this, Marcus (2007) highlights the need to clearly identify where the capabilities of the state and the community lie in order to balance the responsibilities of each. Some questions that should be considered in order to understand community dynamics include:

- ❖ What is the power structure in the community (leadership type)?
- ❖ What cost recovery schemes are acceptable?

- ❖ What are acceptable trade-offs?
- ❖ What are potential enforcement mechanisms and penalties?

The division of responsibilities is not however only limited to the community or government, and includes a wider range of actors, such as NGOs, the private sector, bilateral donors, research institutions, etc. Beyond simply defining roles and responsibilities for each, mutual trust between the community and external actors is essential for the viability of community management (Wegelin-Schuringa, 1998).

Gender Mainstreaming

Gender mainstreaming forms an inherent part of the IWRM approach, as reflected in the Dublin Principles, which emphasise the crucial role of women in water management. The empowerment of women for broad participation and commitment beyond the traditional roles is also often highlighted in the participatory development literature (Calaguas and Francis, 2004). Especially in the water sector, women are often main water users, either for domestic purposes or livelihoods, but rarely involved in decision-making processes (UN, 2005).

Gender differences can arise in different aspects of water management: household responsibilities, productive uses of water, access and control over resources, priority setting, and the ability to join in the participatory process (Thomas et al., 1996). Gender mainstreaming is necessary in IWRM projects because of the importance of recognising inequalities and differences between men and women, whether they arise from power relations in the community or at the household level (UNDP, 2006). These in turn influence the ability to participate and can affect the efficiency of participatory development through simple factors, for example the scheduling of meetings. Water projects also often have different impacts for men and women; irrigation canals for example may not only play a role in irrigation, but also serve the women in a variety of ways, including bathing and washing clothes (UNDP, 2006). Taking into consideration gender-specific impacts is therefore crucial for the design of systems and of the rules governing access to water.

According to the UNDP definition, “gender refers to the different roles, rights, and responsibilities of men and women and the relations between them” (UNDP, 2006). Gender mainstreaming in turn implies expanding the focus on women as a disadvantaged group into an approach that examines the relations between men and women and their impact on access to resources and decision-making (UN, 2005).

The UN report *Women and Water* (2005) notes that, although gender mainstreaming is often assumed to be automatically incorporated in community-based approaches, this is not always the case, and a gender-sensitive approach requires a conscious effort to incorporate gender-sensitive

components throughout the project cycle. Specific considerations will be revisited as part of each phase of the framework.

Beyond the understanding of what gender mainstreaming constitutes is the development of practical methodologies to achieve it on the ground, and this is where the existing literature is somewhat lacking. House (2005) suggests a variety of methodologies:

- ❖ When there is evidence of exclusion, ensure that the project team communicates separately with all key stakeholder groups in communities
- ❖ Support open discussions over difficult issues between representatives of minority and majority groups
- ❖ Postpone meetings where women are not present, in severe minority or not discussing openly, until causes are investigated
- ❖ Openly congratulate women on their ideas in open forums to build confidence
- ❖ Support representation of both women and men in the more powerful committee roles
- ❖ Encourage community representatives to openly monitor the participation of the various key groups in community
- ❖ Include gender and equity in all community trainings
- ❖ Include male and female elders from all groups concerned in key decision-making processes, particularly for sensitive issues

Separate meetings for women can also be an effective method to build confidence, overcome shyness and address gender-specific empowerment needs. The UNDP (2006) reports successes with such an approach in irrigation development projects in Indonesia, where separate meetings for women ultimately led to greater participation in water users associations, and the empowerment of women to occupy important positions within them such as treasurer or secretary.

A number of detailed guides for gender mainstreaming in water management have been published, one of the most comprehensive ones being the *Resource Guide on Mainstreaming Gender in Water Management* produced by the UNDP (second edition released in 2006). The guide provides a compilation of case studies, tools and guidance to mainstream gender within IWRM approaches, and offers an overview of gender issues in different areas of water management, such as water supply and sanitation, agriculture, and natural disasters. It is a rich resource for toolkits and handbooks related to the integration of gender concerns throughout the IWRM process.

Gender mainstreaming forms a main component of the CARIWIN project. A number of gender equality targets are outlined in its Working Document on a *Gender Equality Strategy for*

CARIWIN, one of which is to stimulate the creation of a regional Caribbean Water and Gender Network (CARIWAND). Existing activities in the region however, notably the Women, Gender & Water Network led by the Centre for Gender and Development Studies of the University of the West Indies and the GWP-Caribbean, indicate that there is potential for strengthening existing regional initiatives in gender mainstreaming in the Caribbean rather than creating a new structure.

In Summary: Building Blocks of Community Management

Integration: the CWS involves identifying and prioritising problems, and developing specific plans to address them. Inherent to this however is the recognition that the different uses of water and the various water-related problems are interconnected and require an integrated approach. Most importantly, this involves acknowledging that good water management practices can only be achieved by considering the broader context that affect them (e.g. economic sustainability).

Ownership and accountability: the participatory process fosters the development of a sense of ownership in the community, which is essential for long-term commitment. A clear definition of roles and responsibilities combined with accountability mechanisms throughout the process are essential to ensure an adequate balance between ownership and external support.

Capacity and empowerment: the CWS involves the development of plans to address existing water-related problems, but most importantly it aims to build the capacity of the community to respond to future water issues in an adaptive manner. Given that a variety of new responsibilities are required from the community for the establishment of a CWS, capacity building elements are needed at every step of the process.

Transparency and information: equal access to information prevents power inequalities. Information flow within the community contributes to awareness-raising, while information sharing with outside actors will ensure alignment across scales and a stronger support environment.

Adaptation and flexibility: the emphasis on assessment, monitoring, and knowledge sharing is important for the cyclical nature of the process. The CWS is not a rigid framework and should allow adaptation to changing conditions.

PART II: COMMUNITY WATER STRATEGY FRAMEWORK

In light of the general concepts of IWRM and community management, a generic framework is proposed here to address the main challenges presented above and to provide a structure for the development of Community Water Strategies. The framework is presented as a four-phase process involving assessment, planning, implementation and monitoring, where each phase is broken down into several sub-components and associated with specific expected outputs (Table 1).

Table 1. Overview of the CWS framework

Phases	Components
Assessment	<ul style="list-style-type: none"> A1. Stakeholder analysis A2. Socio-economic context A3. Governance framework A4. Environmental assessment A5. Information management A6. Awareness-raising
Planning	<ul style="list-style-type: none"> B1. Priority setting B2. Detailed plan development B3. Creation/reform of decision-making body B4. Definition of roles & responsibilities B5. Enabling environment B6. Financing & cost recovery B7. Conflict management
Implementation	<ul style="list-style-type: none"> C1. Plan implementation C2. Process monitoring and documentation C3. Information sharing & communications
Monitoring	<ul style="list-style-type: none"> D1. Development of indicators D2. Monitoring system D3. Sharing & learning

The development of the framework was based on existing case studies, guidelines, training manuals, reports and documented experiences with IWRM at the community level. The most relevant case studies are summarised in appendix as practical examples of the issues addressed. The framework provided here is not an exhaustive list of the components that should be included in a CWS but provides a basis to initiate dialogue for the development of a CWS in a given local context. Some of the key resources, existing frameworks and guidelines used include:

- ❖ The EMPOWERS Partnership is a regional programme running in Egypt, Jordan, and West Bank and Gaza, aimed at empowering local communities in IWRM, with the long-term goal of improved access to water. As part of the programme, a framework for participatory water planning and management has been developed and tested in villages and towns and at district level in Egypt, Jordan and Palestine. A number of guiding documents have also been produced.
- ❖ CIDA has developed a variety of guidelines, including a guide on gender-sensitive indicators.
- ❖ IRC *Action Monitoring for Effectiveness (aMe)* is a comprehensive guide of practical approaches for the monitoring of community-level water, hygiene and environmental sanitation programs.
- ❖ Cap-Net has produced a number of resources on capacity building for IWRM, including a guide to conflict management.
- ❖ The European Commission, the World Bank, the UNDP and other bilateral organisations have all produced guiding materials on the implementation of IWRM.
- ❖ The GWP Toolbox, despite its broader focus, does offer extensive information on all aspects of the IWRM process, and documents several case studies applicable at the community-level.
- ❖ The Integrated Watershed and Coastal Area Management Project (IWCAM), supported by funding from the Global Environmental Facility (GEF), has for objective to “demonstrate a strategic approach to participatory watershed management” through the establishment of a series of demonstration projects. Activities are planned in 13 countries in the Caribbean, and several community-based projects have been initiated.
- ❖ The USAID Environmental Health Project (EHP) has produced various documents related to community involvement and participatory management in the water and sanitation sector, with some projects in the Caribbean.
- ❖ The NGO Live and Learn Environmental Education has developed several guides, toolkits and fact sheets both for community water management and river monitoring as part of its River Care Project.

A. ASSESSMENT

In line with IWRM principles, the assessment phase aims at developing an understanding of the social, environmental, economic and political context of a community in order to inform the planning process. Assessment does not only focus on the current situation, but also on elements that might influence changes to this situation. This is also the time to initiate several of the broader elements discussed above, including participatory processes, awareness-raising, gender mainstreaming, and capacity building.

Main Outputs from the Assessment Phase

- ❖ The various stakeholders, their capacities, and the relationships and potential conflicts among them are identified
- ❖ An assessment of water resources has been conducted as part of the stakeholder analysis
- ❖ Vulnerable groups are identified
- ❖ The main problems highlighted at each step of the assessment are identified (e.g. main environmental problems, equity issues, lack of awareness of specific groups within the community, etc.), as well as the different stakeholders' perceptions of these problems
- ❖ An information management system is in place
- ❖ Awareness-raising activities have been initiated
- ❖ Environmental indicators have been developed and environmental assessment is ongoing
- ❖ The creation of a platform for stakeholder involvement is initiated

A1. Stakeholder Analysis

Despite the recognition of the need for an integrated approach, water management often remains divided in terms of water for domestic purposes, water for livelihoods, water for commercial or industrial purposes, and water for the environment (UN, 2005). In reality, the interactions and dependencies that exist between all of these necessitate a good understanding of the different stakeholders and their relationships with one another.

Objective: To identify the different stakeholders, their water needs, and the relationships between them

Key Components

- ❖ The shared character of water both as a social and economic good calls for the consideration of three main stakeholder groups (Moriarty et al., 2007):
 - Social groups (divided by gender, financial status, etc.)
 - Water-user groups (domestic uses, productive uses, industries, etc.)
 - Institutional stakeholders (private water providers, NGOs, community-based organisations, local government, donor agencies, etc.)
- ❖ The identification of key stakeholders implies paying particular attention to vulnerable and marginalised groups in preparation for the participatory process.
- ❖ The stakeholder analysis should distinguish between stakeholders at different institutional levels (e.g. local vs. regional).
- ❖ An assessment of the different water needs of the various stakeholders is required. This involves:
 - The demand for water of different stakeholders (quantity, quality, reliability, location)
 - The extent to which this demand is satisfied
 - The identification of existing barriers to meet the demand (high cost of water, lack of infrastructure, etc.)

The RIDA (Resources, Infrastructure, Demand and Access) framework used by Moriarty et al. (2007) is useful here as a guiding tool for some of the key points that should be addressed (see Case Study I).

- ❖ The assessment should also identify the current capacities and degrees of organisation of the different stakeholders and the existing power relations between them, as these will later inform specific needs for capacity building, training, education, and awareness-raising.
- ❖ Representatives for each stakeholder group should be identified at this point in prevision of the formation of a participatory water body.

A2. Socio-economic Context

The establishment of a CWS requires a good understanding of the differences among the stakeholders, including poverty levels, ability to pay, power relations, and socioeconomic makeup (Calaguas and Francis, 2004). The GWP (2005b) stresses that “one of the most common pitfalls is coming up with solutions that are technically sound but do not take into account the

real world context in which they will have to be implemented”, resulting in “ivory tower” solutions. The stakeholder analysis will provide much of this information and there may be some overlap here, but an analysis of the broader socio-economic context is also important in determining the appropriateness of a project within the local context, and in identifying who will benefit from a particular project.

Objective: To gain an understanding of the social, economic, political and cultural factors that will affect water management

Key Components

- ❖ Tools here include a combination of surveys, interviews, questionnaires, focus groups and open-ended discussions (UNDP, 2006).
- ❖ An analysis of social equity, poverty and livelihoods will allow identification of vulnerable groups.
- ❖ Cultural elements that may influence user behaviour, or the ability of different stakeholders to participate, should be considered, such as social norms and customs, different perceptions of the importance of various water management practices, or customary practices (water collection, storage, irrigation, time schedules, etc.) and their importance as part of social structure (EC, 1998).
- ❖ This is also where the process of gender mainstreaming should be initiated. Examples of elements to include as part of a gender-sensitive analysis include (UN, 2005; UNDP, 2006):
 - How men and women use water and for what purposes
 - How men and women contribute to decision-making, water supply improvement, etc.
 - Do costs and benefits of equitable water management vary between men and women of different groups (age, wealth, ethnic, religious)
 - How access to information differs for men and women. Given their daily activities, men tend to have access to more channels of communication and therefore more information than women who are more active in the home. A gender analysis framework should include elements such as the assessment of traditional gender roles, access to and control of means of communications and other resources.
- ❖ A survey of the willingness and ability to pay of different social groups for improved water management in the community is necessary here as a preliminary step to planning and will be essential to inform the adequacy of potential cost recovery mechanisms.

A3. Governance Framework

Water governance is about the way in which decisions pertaining to water management and water resources development are made (how, by whom and under what conditions) (Moench et al., 2003). IWRM projects, no matter what scale they occur at, generally include an element of governance reform, or the creation of new institutions. Given the different scales of action for water management, there is also a need here for the CWS to be compatible with and strengthen other levels of management. Accordingly, an important role of capacity building is to ensure that all stakeholders understand the environment for water management.

Objective: To develop a shared understanding among all stakeholders of the existing governance framework at the community level, including its strengths and weaknesses, along with the broader water governance in the country

Key Components

- ❖ Two main aspects should be considered as part of community governance: the *ability* of the community to manage a project, and its *willingness* to manage it (Wegelin-Schuringa, 1998).
- ❖ The assessment of the existing governance framework should include both formal and informal decision-making systems. The establishment of new committees for example often stems from the assumption that existing ones are inappropriate, which is not always the case (Wegelin-Schuringa, 1998). The new set of institutions required by IWRM should not translate into the dismissal of existing capacity, and existing groups or committees may simply be reformed to meet the new objectives.
- ❖ The need for the creation or restructuring of decision-making bodies (e.g. water committees) should be identified, based on the identification of strengths and weaknesses in the current system (e.g. representativeness, capacity)
- ❖ Capacity building here would also involve workshops on the wider governance framework at the national and regional levels. More specifically, these should address national water policy and legislation, and provide a clear picture of the different agencies governing water management at the various levels and their jurisdictions.

A4. Environmental Assessment

Lack of data is a recurrent challenge in water management, and accurate environmental data is essential to identify problems, their causes, and possible scenarios to address them. The environmental assessment also represents a great entry point for community mobilisation and

sensitisation, and will be an ongoing component of the monitoring system in order to track change and progress over time.

Objective: To develop and implement an environmental assessment program, including indicators and a monitoring plan

Key Components

- ❖ Identifying the spatial and temporal boundaries for data collection will require coordination with ongoing monitoring that may already be conducted by other actors, including higher government levels, civil society, the private sector, etc.
- ❖ Indicators need to be developed at this point (see development of indicators and monitoring system in the monitoring section). In addition to habitat assessment, the minimum physical tests recommended by the *River Care Fact Sheets* are temperature, stream velocity, pH and dissolved oxygen.
- ❖ Community involvement can be an effective way to reduce the costs of the assessment and innovative ways for sampling should be explored
 - School involvement in assessment/monitoring is currently being evaluated in the Fond d'Or Watershed in St. Lucia (Case Study A) as an alternative to the more expensive laboratory tests by comparing the results obtained from the two methods
 - The NGO Live & Learn Environmental Education has developed numerous tools to guide environmental assessment through their River Care Project, many of which have been tested in islands of the South Pacific (Live and Learn Environmental Education, 2003)

A5. Information Management

Access to reliable, accessible, and commonly-owned information is crucial as the basis for participatory decision-making. The development of a system to record, store and disseminate information is necessary at this point since the assessment phase involves extensive data collection. In addition, information management, just as monitoring, is ongoing throughout the process of developing and implementing a CWS.

Objective: To establish an easily accessible, freely available information system for all stakeholders

Key Components

- ❖ Existing forms of communication and information management should first be investigated (formal and informal).
- ❖ The information management system should include guidelines for information collection, analysis, storage and dissemination (the latter also falls under awareness-raising).
- ❖ Roles and responsibilities for the above components need to be clearly defined.
- ❖ Moriarty et al. (2007) emphasises the importance of giving as much attention to hard (technical) and soft (societal and perception based) information; the focus is often on hard information, which is more easily quantified.
- ❖ Involvement of stakeholders in data collection is a good starting point to increase awareness and trigger community involvement.
- ❖ The information system should also ensure that all stakeholders have access to the same information.

A6. Awareness-raising

Awareness-raising is a precondition for community involvement, and for the success of participatory initiatives in general. It is also an ongoing component throughout the CWS, with some long-term and short-term objectives. In the assessment phase, the focus should be particularly on raising awareness of the participatory process and objectives of the CWS in the local context, and of the existing problems in the community.

Objective: To ensure that the different stakeholders understand the process of developing and implementing a CWS, and its relevance in the local context

Key Components

- ❖ Efforts at this stage of the CWS should mainly target increased awareness of:
 - IWRM and its principles/approach
 - The process of establishing a CWS, its components and relevance
 - Why water management is an issue in the context of the community (main problem areas)
- ❖ A combination of different forms of awareness-raising are necessary. More traditional ones may include (INWRDAM, 2007):
 - Educational material and school curricula

- Mass media campaigns
- Creation of a regional network for community-based initiatives
- Specialised training programmes for community IWRM
- Collaboration with civil society, academic institutions, government

Innovative and creative knowledge transfer methods have also been recently explored. Examples include:

- The South African NGO Ecolink is experimenting with puppet theatres as a way to promote IWRM in rural communities
 - A *Community Theatre Guide* has been developed as part of the River Care Project of Live and Learn Environmental Education
 - Games and sporting events are another way to increase the reach of awareness events; e.g. Sports & Environment Day created as part of the GEF-IWCAM demonstration project in Jamaica
 - The Ridge to Reef Watershed Project in Jamaica used a combination of approaches: religion as a conduit for different projects, skits and poster competitions (Case Study C)
 - Audio-visual tools and action learning are now often preferred to more traditional styles of teaching; e.g. the *Seventh Video* developed by the IRC has been successful as a public awareness and advocacy tool, combining experiences on community water supply management from six different countries
- ❖ Awareness-raising should not only focus on the local scale, and it can also flow from increased transparency at higher levels of management. Existing water strategies or programmes at the national, regional or local level can be used as a starting point for awareness-raising.
- ❖ There should be a particular focus on targeting awareness-raising efforts to vulnerable, or marginalised groups.

Further References

Live and Learn Environmental Education. 2003. *River Care Fact Sheets*. Fiji: Live and Learn Environmental Education.

Mukherjee, N., C. van Wijk. 2003. *Sustainability Planning and Monitoring in Community Water Supply and Sanitation*. Water and Sanitation Program and IRC International Water and Sanitation Centre, Delft, Netherlands.

Moriarty, P., C. Batchelor, F.T. Abd-Alhadi, P. Laban, H. Fahmy. 2007. *EMPOWERS Guidelines, Methods and Tools*. Retrieved 2009-01-21 from [://www.project.empowers.info/page/3344](http://www.project.empowers.info/page/3344)

CEHI and GEF-IWCAM. 2008. *Training Manual: Community-based Water Resources Assessment for Caribbean Small Island Developing States*.¹

UNDP. 2006. *Resource Guide: Mainstreaming Gender in Water Management*. Version 2.1, November 2006.

¹ GEF-IWCAM has developed a Training Manual for Community-Based Resources Assessment. A consultancy is currently turning the manual into an interactive DVD / web tool in partnership with the Sandwatch project (Personal Communication with Sasha Beth Gottlieb, Technical Coordinator at the GEF-IWCAM Project Coordination Unit, 2009-04-08).

B. PLANNING

The planning phase integrates the knowledge gained in the assessment phase in order to decide how to move forward. This involves specific projects and detailed plan development to improve water management practices, but also the definition of the support system for the implementation of the CWS, including decision-making, financing, and outlining of roles and responsibilities.

Main Outputs from the Planning Phase

- ❖ Problems identified in the assessment phase are prioritised
- ❖ A detailed plan identifying target actions to address the prioritised problems is developed
- ❖ A community decision-making body is in place
- ❖ A platform for community involvement is established (forums, workshops, etc.)
- ❖ A detailed financial plan and budget is outlined
- ❖ Funding has been secured
- ❖ The roles and responsibilities of the different actors are clearly defined, and accountability mechanisms are in place
- ❖ A conflict resolution mechanism is in place

B1. Priority Setting

One of the main criticisms of IWRM has been that by attempting to be inclusive in its approach to water management, it sometimes strives to achieve too much at once. Whether at the national or local level, determining priority areas is therefore an important step, where goal-setting must match the existing capacity. Setting priorities also involves determining the order for different changes to occur. Similarly, the success of a given initiative at the local scale may be dependent on prior changes at other scales first (e.g. legislation).

Objective: To reach a broad consensus among the different stakeholder groups on the priorities to address, based on problem identification from the assessment phase

Key Components

- ❖ Different stakeholder groups will likely have different priorities. A number of participatory tools are available to facilitate ranking and prioritisation (e.g. matrices).

- ❖ Criteria for project selection need to be identified to facilitate the prioritisation process. Examples include:
 - Cost limit
 - Benefits to a broad range of stakeholders
 - Execution time
 - Sustainability
- ❖ Alignment with policies and strategies at other levels is necessary (national, regional, etc.) to ensure consistency and compatibility and be aware of potential obstacles that may arise (see Case Study I) (Moriarty et al., 2007).
- ❖ Some key questions to ask in setting priorities (GWP, 2005b):
 - What is feasible given the current political, economic and social context?
 - Do some changes need to happen first to make others possible?
 - What are the relative costs and benefits between various change options (these will vary among the different stakeholders)?
 - How do the changes work together as a mutually reinforcing package?

B2. Detailed Plan Development

At this stage detailed actions to address the previously identified priorities are outlined. This may involve a change in current practices, infrastructure development, capacity building, etc. Care should be taken here in considering and evaluating all possible solutions rather than focusing only on preconceived solutions (Bolt and Fonseca, 2001). The case studies provided in appendix provide several examples in different areas of water management.

Objective: To reach a broad consensus on the plan of action for the identified priorities

Key Components

- ❖ Different types of decision-making methods can be considered (not only applicable for plan development but for other steps of the process as well) (Bolt and Fonseca, 2001):
 - By majority: quicker, but should be limited to decisions that do not have a large impact
 - By consensus: may be time-consuming and will require some degree of compromise, but generally leads to most sustainable decisions
 - By delegation to a decision-making body: quicker, but must be representative of all interests

- By authority: decision made by a formal or informal leader; often too quick and prone to power conflicts
- ❖ Disagreement is likely to occur over priority setting, given the different interests of the various stakeholders. However, compromise and agreement by all stakeholders over the final plan is necessary to ensure a broad commitment and sustainability (Cassinath et al., 2006).
- ❖ Alignment with policies and strategies at other levels is necessary (national, regional, etc.) to ensure consistency and compatibility (Moriarty et al., 2007).
- ❖ External factors that are beyond the control of the local community should be identified, as opposed to local factors that can be targeted through the plan development.
- ❖ Factors ensuring the sustainability of a project may include (EC, 1998):
 - Policy and legislative changes
 - The selection of an appropriate level of technology
 - Environmental sustainability
 - Socio-cultural aspects and gender sensitivity
 - Institutional management capacity
 - Financial sustainability

Most of these points are discussed in more detail below.

- ❖ A timeline for action, with clear objectives/deliverables should also be determined here.
- ❖ Uncertainties, risks and constraints should be identified (see Case Study I).

B3. Creation/Reform of Decision-Making Body

Several case studies have criticised this particular aspect of IWRM at the local level, where the implementation of IWRM has often been associated with the creation of completely new decision-making bodies rather than making use of ones that may already be in place. Often these existing structures may serve as the basis for the formation of a representative, inclusive body for decision-making, and the dismissal of the existing capacity can significantly slow down the overall process. This is where the understanding of the governance system and local context gained in the assessment phase can be used to determine the best option.

Objective: To strengthen or create a system for decision-making that will regroup representatives of all stakeholder groups

Key Components

- ❖ The need for the creation of a new body (e.g. water committee), or for changes to an existing decision-making system, is determined based on the assessment phase.
- ❖ Both formal and informal institutions should be considered here, as there may be significant capacity in both.
- ❖ The composition of the decision-making body must be determined on a case-to-case basis, but certain conditions can be set to respect given considerations (e.g. women must represent 50% of committee members).
- ❖ Beyond the identification of stakeholder representatives for the decision-making body, a platform for wider public involvement should also be clearly defined. This may include regular forums, workshops, etc.

B4. Definition of Roles & Responsibilities

The integrated approach of IWRM implies the need for coordination among the different actors involved. Overlaps or gaps in responsibilities represent a main challenge, especially given the traditional sectoral approach to water management. The GWP emphasises the importance of creating an organisational framework, which outlines the roles and responsibilities of the institutions involved (GWP, 2005). Since community management works within a broader set of institutions, both vertical and horizontal linkages need to be understood to ensure coordination.

Objective: To define the roles and responsibilities of the different players involved in the CWS and associated accountability mechanisms

Key Components

- ❖ The definition of roles and responsibilities is essential to strengthen local level ownership and accountability (INWRDAM, 2007). This is also key to avoid resistance to delegation of powers from higher levels of management.
- ❖ The limits of community management should however also be clearly defined. The roles and responsibilities of the community, and levels of support from higher levels of management (national, regional, donor, etc.) need to be outlined at this point (see Case Study E).
- ❖ Accountability mechanisms should be put in place for the different actors.
- ❖ Elements that fall under the responsibility of more than one entity require particular attention to coordination; for example monitoring may occur at the local, regional and

national levels, but differ in what exactly is being monitored at the different scales (Wegelin-Schuringa, 1998). Coordination is essential to avoid duplicated efforts.

- ❖ Direct and indirect benefits to the different parties should also be clarified early in the process in order to sustain participation (see Case Study F).

B5. Enabling Environment

External factors, including politics, economy and legislation, all influence the capacity of the community. Policy alignment is particularly important, since several elements beyond the control of the water sector, such as energy prices, trade agreements and poverty reduction strategies ultimately affect water management (Moriarty et al., 2007). While one of the key principles of IWRM is that decision-making should occur at the lowest appropriate level, there is also the need for some level of support for community initiatives, and for a link with the broader issues that occur at a different scale. Community management faces a wide range of challenges and barriers (policy, operational, resources, institutional), and requires support to overcome them (Calaguas and Francis, 2004).

Objective: To understand the external environment that the CWS operates in, and to determine the level of support that is available to it and the main actors providing this support

Key Components

- ❖ The institutions and resources necessary to support the CWS are identified in relation to the needs outlined in the assessment phase.
- ❖ The harmonisation of efforts of all actors (government, donors, civil society, private sector) is necessary to the achievement of local plans (INWRDAM, 2007).
- ❖ There is also an element of capacity building here, since the community needs to understand the policy and governance environment that supports it.
- ❖ It is important to keep in mind that the state does not represent the only source of support for community projects. Notably, NGOs can be powerful catalysts for community action, and their partnership can provide the required support to set up community institutions and build capacity towards self-sustaining organisations (see Case Study H). Additionally, given the increased involvement of the private sector in social and environmental responsibility programs, its potential here should not be neglected, and options to encourage private sector involvement should be explored.
- ❖ Components of a comprehensive Institutional Support Mechanism will include (Lockwood, 2002):
 - Technical assistance

- Training
 - Legal support
 - Monitoring and information collection
 - Coordination and facilitation
- ❖ The level of support must also be balanced with community autonomy in order to avoid dependency and ensure sustainability over the long term.
 - ❖ External communication and awareness-raising outside of the community can also be important tools to enhance the enabling environment of project.
 - e.g. The Talvan Water Catchment Project (see Case Study F) gained increased recognition by government, public officials and key agencies through its public awareness activities.

B6. Financing & Cost Recovery

Long-term financial sustainability tends to be a major constraint for community-managed projects, and a mechanism for it should be built in to the strategy from the start of the project. External sources may provide funding necessary for the implementation phase of a project, but long-term sustainability often depends on cost recovery within the community itself. Accurate cost estimates are key, since tariffs that are too low will fail to ensure the sustainability of the system, whereas if they are too high there is a risk of exclusion of the poorer groups in the community.

Objective: To identify potential funding sources, and a context-appropriate scheme for cost recovery over the long term

Key Components

- ❖ A budget needs to be established for the project, including costs for construction, maintenance, and administration.
- ❖ Efforts to secure funding should be initiated as early as possible in the process in order to avoid project stagnation while funding is mobilised (GWP, 2005).
- ❖ Local government and donor project cycles of planning can slow down project implementation; consequently, complete reliance on external funds may be an obstacle to expedient implementation (Calaguas and Francis, 2004).
- ❖ Some degree of financial participation on the part of the community can be an important part of fostering ownership and a sense of responsibility: “past experience has

demonstrated that being able to contribute to project implementation increases the sustainability of the activities” (CARE, 2005).

- ❖ Funding mechanisms can also promote broader goals, for example providing grants only for group projects can encourage the formation of associations (see Case Study C).
- ❖ Cost recovery mechanisms should be developed in consultation with the different stakeholder groups; this includes tariff setting and the tariff collection system (when and how fees will be collected, as well as measures to address non-payment).
- ❖ The development of a cost recovery system also involves a monitoring component. Four main issues can be identified here (Schordt, 2000):
 - Estimating costs and budgeting
 - Water tariffs
 - Tariff collection and cost recovery
 - Transparency, honesty and efficiency in finance

B7. Conflict Management

The integration of diverse interests and stakeholders as part of the IWRM process creates an environment for cooperation, but also one where clashing interests may lead to conflict. Accordingly, a framework for conflict management involving anticipating, preventing and reacting to conflicts, is a necessary component of the CWS. As a capacity building network for IWRM, Cap-Net has developed a comprehensive Training Manual on conflict resolution and negotiation skills, which forms the basis for the approach presented here (Swatuk et al., 2008).

Objective: To establish a mechanism for conflict management, with the main goal of anticipating and preventing conflict and, if necessary, mitigating it

Key Components

- ❖ Conflict management should be an ongoing process aimed at avoiding possible conflicts. Unfortunately, ‘win-win’ outcomes are not always possible, and compromise and trade-offs among stakeholders are necessary. Methods to address conflict include negotiation, mediation, conciliation and consensus building.
- ❖ Swatuk et al. (2008) identifies the following necessary conditions for successful conflict management:
 - Willingness to participate
 - Opportunity for mutual gain (benefits from cooperative action)

- Opportunity for participation of all parties
 - Identification of interests of all parties
 - Neutral development of possible solutions and options
 - Entering into and carrying out an agreement
- ❖ Engel and Korf (2005) outline a 10-step 'Process Map' for conflict resolution with a mediator or facilitator:
- 1- Preparing Entry: clarification of the mediator's role
 - 2- Entering the conflict scene: the mediator's first contact with the conflict parties
 - 3- Analysing the conflict: analysis of the different stakeholders positions
- Achievement of Milestone A – Entry**
- 4- Broadening stakeholder engagement: the mediator helps the stakeholders to conduct their own analysis of the conflict
 - 5- Assessing options: the mediator helps the stakeholders outline possible solutions
- Achievement of Milestone B – Broadening stakeholder engagement**
- 6- Preparing negotiations: preparation of stakeholders, strategies and setting
 - 7- Facilitating negotiations: negotiation is complete when the conflict parties agree on one option that is acceptable to everyone
 - 8- Designing the agreement: the conflict parties determine a plan for the implementation of the agreement
- Achievement of Milestone C - Negotiation**
- 9- Monitoring the agreement: determination of the monitoring process for the agreement
 - 10- Preparing exit: responsibility for further implementation and monitoring of the agreement is handed over to the stakeholders (this may include the development of a future conflict resolution platform within the community)
- Achievement of Milestone D – Exit**

Further references

Engel, A., B. Korf. 2005. Negotiation and mediation techniques for natural resource management. Rome: Food and Agricultural Organisation (FAO).

Lockwood, H. 2002. Institutional Support Mechanisms for Community-managed Rural Water Supply & Sanitation Systems in Latin America. Strategic Report 6. Arlington, VA: Environmental Health Project.

Mukherjee, N., C. van Wijk. 2003. *Sustainability Planning and Monitoring in Community Water Supply and Sanitation*. Water and Sanitation Program and IRC International Water and Sanitation Centre, Delft, Netherlands.

Schordt, K. 2000. Action monitoring for effectiveness: improving water, hygiene and environmental sanitation programmes. Technical Paper Series no. 35. IRC International Water and Sanitation Centre: Delft, The Netherlands.

Swatuk, L.A., A. Mengiste, K. Jembere. 2008. *Conflict Resolution and Negotiation Skills for Integrated Water Resources Management: Training Manual*. Cap-Net.

C. IMPLEMENTATION

The implementation phase is where the plans and management systems developed in the assessment and planning phases are put into action. Much of the implementation phase will focus on the realisation of projects, mitigation of arising conflicts and problems, ongoing progress monitoring and capacity building, information sharing, and maintaining transparency throughout the process.

Main Outputs from the Implementation Phase

- ❖ Planned projects are realised within budget
- ❖ Progress indicators are developed for ongoing monitoring of the project
- ❖ Transparent records of the process are publicly available
- ❖ Awareness-raising specifically concerning the project is ongoing
- ❖ Required training activities have been conducted

C1. Plan Implementation

The specific steps of plan implementation will vary depending on the nature of the project. Plans may involve new infrastructure development (e.g. rainwater tanks) or may be of a softer nature (e.g. change in practices).

Objective: To carry out the project(s) developed in the planning phase

Key Components

- ❖ Flexibility and adaptation are required to adapt to a changing environment or arising problems.
- ❖ Awareness-raising efforts should continue throughout the implementation process. The focus at this point should be on ensuring the exposure of all stakeholders to the project and its progress.
- ❖ Continued strengthening of capacity is also required, given that most projects will involve a training component.

C2. Process Monitoring & Documentation

Process documentation can be seen as a tool for qualitative monitoring, learning and communication, with the main aim to learn from the obstacles, difficulties and successes encountered (Schouten et al., 2007). Its main purpose is to monitor the progress of the plan implementation, as well as to inform future initiatives of precisely what worked or did not.

Objective: To ensure that the project is developing as planned and to capture the process of change

Key Components

- ❖ Process documentation should record change as it is occurring, resistance to it, conflict and resolution, as well as reflection, learning, and outcomes. It should particularly consider both the factors that hinder change and those that accelerate it (Schouten et al., 2007).
- ❖ Process documentation involves looking at *how* changes are being achieved rather than *what* is being achieved (Abd-Alhadi et al., 2006).
- ❖ The EMPOWERS experience emphasised that process documentation often occurs naturally within a community and does not need to be conceptually difficult or formal in nature.
- ❖ Financial monitoring should be ongoing throughout the project realisation to ensure that expenses are within budget.
- ❖ Qualitative methods to process monitoring, also revisited in the monitoring phase, may include (Schouten et al., 2007):
 - Individual interviews
 - Focus group discussions
 - Observations at meetings
 - Documentation of anecdotes, stories, etc.

C3. Information Sharing & Communications

In addition to information sharing within the community, it is also important to strengthen horizontal and vertical linkages for information sharing, since actions taking place at a given level (local, regional, national) both inform and are in turn informed by actions taking place at other levels (Moriarty et al., 2007). In other words, these processes should not occur independently since they influence each other.

Objective: To promote information sharing within the community, and to maintain communications with other levels of management, the support system and external actors

Key Components

- ❖ Two main purposes can be distinguished here: internal learning within the community and external communications (Schouten et al., 2007). This involves determining which information should be communicated with internal and external actors, and what the best formats to do so are.
- ❖ Examples of channels within the community include much of the same ones discussed for awareness-raising and a mix of approaches should be used. The focus here is on disseminating information on the progress of the project, and allow for concerns to be raised and addressed as they arise.
- ❖ External communications may involve collaboration with different levels of government, municipalities, NGOs, funding agencies, and the private sector.
- ❖ Combined with process monitoring, communications and information sharing will ensure transparency throughout the implementation process.

Further References

Abd-Alhadi, F.T., B. Mizyed, R. El-Zoubi, M. El-Soda, T. Schouten. The effect of process documentation on building the capacities of EMPOWERS stakeholders for local water governance. *Symposium on Sustainable Water Supply and Sanitation: Strengthening Capacity for Local Governance*. Delft, The Netherlands, 26-28 September 2006.

Schouten, T., B. Mizyed, R. Al-Zoubi, M. Abu-Elseoud, F.T. Abd-Alhadi. 2007. *The Inside Story: Process Documentation Experiences from EMPOWERS*. Amman, Jordan: Inter-Islamic Network on Water Resources Development and Management (INWRDAM).

D. MONITORING

Monitoring and evaluation tend to be the most neglected steps of community-based initiatives, given that external support is sometimes only available for the actual implementation of the project. Targeted, effective monitoring is essential for the long-term sustainability of projects, to detect arising problems, and to inform future needs and projects required as part of a CWS. The monitoring phase will focus on the specific projects that have been conducted, but also on any changes that may have occurred in the various components evaluated under the assessment phase. Overall, the monitoring phase aims at stimulating two-way flow of information between the community and other actors, and forms the basis for adapting the CWS to the changing local context (Wegelin-Schuringa, 1998).

Main Outputs from the Monitoring Phase

- ❖ Relevant indicators are identified by the community
- ❖ A system for monitoring is in place
- ❖ Awareness-raising activities are conducted based on the results of the projects
- ❖ The next planning phase is initiated based on the outcomes of the monitoring phase

D1. Development of Indicators

Although the process surrounding the development of indicators is discussed here, this is really an ongoing process from the assessment phase. This section refers more specifically to the assessment of the project upon completion, but the guidelines offered here should also be applied to the development of indicators to assess the completion of the previous phases.

Objective: To identify indicators that are both informative and relatively easy to implement

Key Components

- ❖ Indicators will vary with each project, and the objectives of the project will guide the selection of the most appropriate indicators (EC, 1998). Accordingly, the development of indicators should be done by the communities themselves.
- ❖ Identifying the potential stumbling blocks is one way to identify what exactly should be monitored (GWP, 2005c).
- ❖ GWP (2005) identifies five main elements that should be evaluated:
 - Efficiency – could the same results be achieved differently?

- Effectiveness – to what extent have the objectives been achieved?
 - Impact – what changes (positive and negative) have occurred?
 - Relevance – to what extent are the projects in agreement with local and national priorities?
 - Sustainability – can the positive effects be expected to be maintained over time?
- ❖ Different types of indicators will need to be considered. These can be grouped in five main categories (Lockwood, 2002; Wegelin-Schuringa, 1998):
- **Social** – Examples: gender-sensitive indicators such as the percentage of women (or other marginalised groups) represented in decision-making; proportion of population with access to safe water and sanitation; incidence of waterborne illnesses.
 - **Technical** – Examples: number of new water supply points; state of infrastructure
 - **Environmental** – Examples: percentage of riparian where a buffer zone is present; chemical, physical or biological parameters (pH, coliform counts)
 - **Administrative** – Examples: financial indicators (levels of non-payment, cost compared to budget)
 - **Organisational** - Examples: level of stakeholder participation, number of people trained
- ❖ Options for monitoring include both checklists and indicators; whereas checklists usually include yes or no answers, indicators will provide more information on how far along the process is (GWP, 2005c). Checklists may be more useful for earlier stages in the projects, to assess whether necessary conditions are met (e.g. women’s involvement in the project).
- ❖ Both input and output indicators should be considered (EC, 1998). Input indicators assess the resources used in a project (cost, training, etc.), while output indicators measure the outcome of the project.
- ❖ Indicators should be relatively easy and cheap to measure: “in data collection it is better to be almost correct, cheap and timely rather than exact, expensive and too late” (Wegelin-Schuringa, 1998). Along these lines the ‘SMART indicators’ concept outlines the following criteria for the selection of indicators:
- **Simple** – easy to understand and to monitor
 - **Measurable** – reproducible over time, consistent and reliable
 - **Accessible** – can be regularly and inexpensively monitored

- **Relevant** – directly reflect management needs, problems and objectives
 - **Time-bound** – can be frequently enough to inform the process and detect changes
- ❖ Indicators may be quantitative or qualitative; while qualitative indicators generally provide more detailed information, it is also important to keep with indicators that are as simple and easy to monitor as possible (GWP, 2005c). Similarly, the use of proxies rather than direct measurement may simplify monitoring.
- ❖ The GWP (2006) offers one example of a model for defining indicators:
1. Make sure that targets associated with strategy goals, objectives and actions are clearly defined and agreed upon
 2. Define indicators for each target
 3. Select indicators to track human and financial resources and ensure that they are being disbursed and used efficiently
 4. Check to make sure that indicators relate clearly to targets, and that these in turn support the achievement of actions, objectives and goals
 5. Calculate human and financial resources needed to apply the indicators
 6. Agree on who will be responsible for applying the different indicators, how, and how often
 7. Determine how information resulting from the different indicators will be managed
 8. Include requirements for monitoring in capacity building plan
- ❖ Some common pitfalls of monitoring systems include (GWP, 2006):
- Loose collection of disparate indicators, rather than a clear system of indicators that relate to each other and to the goals and objectives
 - Poor fit between targets and indicators
 - Poor baseline data or unreliable indicators
 - Poor feedback mechanism, where indicator results are not fed back into the decision-making and planning process
- ❖ Participation and empowerment are probably the hardest components to monitor and assess. In a comprehensive guide on gender-sensitive indicators, CIDA (1997) notes that participation indicators tend to focus on group formation, and omit separate assessments of men and women in terms of input to and benefit from the project, as well as project control and decision-making. Whenever possible, indicators should be disaggregated to

measure equity between different groups (e.g. gender, socio-economic, ethnic grouping, and age) (see Case Study J for examples of participation indicators).

D2. Monitoring System

In addition to indicators, a monitoring system is required to outline the scheduling of monitoring activities, as well as roles and responsibilities. The components of a monitoring system are outlined here, but much of it should be established earlier on in the process since several stages of the assessment, planning and implementation phases involve the collection, analysis and storage of data.

Objective: To define a system for the collection, analysis and reporting of data.

Key Components:

- ❖ The frequency of monitoring needs to be defined here; monitoring may be continuous, periodic, or a one-time event for some indicators. Periodic reports with key performance indicators, special monitoring workshops, and undertaking special studies represent various options (Schordt, 2000).
- ❖ Roles and responsibilities of the different actors within the community will need to be defined, for example who will be collecting and analysing the information.
- ❖ A database or system for data management and storage needs to be developed.
- ❖ Participatory Rural Appraisal (PRA) regroups a wide range of participatory tools, such as mapping or transect walks, that can be used for monitoring (see Schordt (2000) for more information).
- ❖ Triangulation from different sources should be considered to ensure the reliability of results.
- ❖ The representativeness of samples selection also needs to be considered. For physical assessments (i.e. environmental assessment), this involves site selection, whereas for other aspects this may involve ensuring equal sampling of different stakeholders.
- ❖ Setting benchmarks based on Best Management Practices, or acceptable levels (e.g. pH) will form the basis for comparison and progress (James, 2007).
- ❖ Monitoring also involves collaboration with other actors such as NGOs, universities or other agencies to coordinate monitoring efforts and make use of information that may already exist.

D3. Sharing & Learning

An important step of the monitoring process is making use of the information obtained in order to inform decision-making, identification of new priorities, and future planning. This also involves ensuring that information is both appropriate and accessible for stakeholders at different levels (Moriarty et al., 2007).

Objective: To ensure that the information learned through the project is disseminated to the various stakeholders, and that the resulting reflections are incorporated in the next planning phase

Key Components

- ❖ The involvement of stakeholders in the M&E process can not only be a powerful tool for mobilisation, but is also often necessary for detailed qualitative assessments (GWP, 2005).
- ❖ The stakeholder platform created for the earlier stages of planning and implementation provides the basis for reflection activities.
- ❖ Data collected as part of the monitoring component should be open access information for all stakeholders.
- ❖ The sharing & learning activities should allow for both structured and unstructured learning.

Further References

CEHI and GEF-IWCAM. Training Manual: Community-based Water Resources Assessment for Caribbean Small Island Developing States. 2008.

James, A.J. 2007. Qualitative Information Appraisal (QIA). Unpublished.

Live and Learn Environmental Education. 2006. *Community Water: A community based water monitoring toolkit using the H₂S paper strip test*. Male, Maldives: Live and Learn Environmental Education.

Mukherjee, N., C. van Wijk. 2003. *Sustainability Planning and Monitoring in Community Water Supply and Sanitation*. Water and Sanitation Program and IRC International Water and Sanitation Centre, Delft, Netherlands. Provides a complete list of indicators and methodology for monitoring suggested as part of the MPA approach for community water supply and sanitation.

Postma, L., A.J. James, C. van Wijk. 2004. QIS: a new participatory management tool to assess and act on field reality. 30th WEDC International Conference, Vientiane, Lao PDR.

Schordt. 2000. Action monitoring for effectiveness: improving water, hygiene and environmental sanitation programmes. Technical Paper Series no. 35. IRC International Water and Sanitation Centre: Delft, The Netherlands.

World Bank. 1998. Participation and Social Assessment: Tools and Techniques. The International Bank for Reconstruction and Development / The World Bank: Washington, D.C.

REFERENCES

- Abd-Alhadi, F.T., B. Mizyed, R. El-Zoubi, M. El-Soda, T. Schouten. The effect of process documentation on building the capacities of EMPOWERS stakeholders for local water governance. *Symposium on Sustainable Water Supply and Sanitation: Strengthening Capacity for Local Governance*. Delft, The Netherlands, 26-28 September 2006.
- Bartlett, A. 2008. No more adoption rates! Looking for empowerment in agricultural development programmes. *Development in Practice* 18(4): 524-238.
- Bolt, E., C. Fonseca. 2001. *Keep it working: A field manual to support community management of rural water supplies*. IRC Technical Paper Series 36. Delft, The Netherlands: IRC.
- Calaguas, B., J. Francis. 2004. Community capacity building and empowerment: wasting resources or ensuring sustainability? In *Water and Poverty: The Themes, A Collection of Thematic Papers*. Asian Development Bank.
- Cassinath, N., R.E. Garcia, M.H. Vargas, D. Bethune, J. McCullough, M. Wilson, L. Jaques, N. Preston. 2006. *Trabajando Juntos: Un manual de campo para trabajar con comunidades en proyectos de agua. Segunda Edicion*. Nicaragua: CARA [Red Centroamericana de Manejo de Recursos Hidricos].
- CARE Canada. 2005. PASOS III Concept Paper, November 2005.
- Chambers, R. 1994. The origins and practice of Participatory Rural Appraisal. *World Development* 22(7): 953-969.
- CEHI and GEF-IWCAM. 2008. *Training Manual: Community-based Water Resources Assessment for Caribbean Small Island Developing States*.
- CIDA [Canadian International Development Agency]. 1997. Guide to gender-sensitive indicators. Retrieved 2009-02-06 from [://www.acdi-cida.gc.ca/inet/images.nsf/vLUIImages/Policy/\\$file/WID-GUID-E.pdf](http://www.acdi-cida.gc.ca/inet/images.nsf/vLUIImages/Policy/$file/WID-GUID-E.pdf)
- Engel, A., B. Korf. 2005. *Negotiation and mediation techniques for natural resource management*. Rome: Food and Agricultural Organisation (FAO).
- EC [European Commission]. 1998. *Guidelines for water resources development co-operation: Towards sustainable water resources management*. Brussels, Luxembourg: EC.
- Gopaul, H. 2005. Best practices for public/private sector and community participation in integrated watershed management in Caribbean Small Islands Developing States

(SIDS). EMPOWERS Regional Symposium: End-Users Ownership and Involvement in IWRM, 13-17 November 2005, Cairo, Egypt.

GWP. 2005. Catalyzing Change: A handbook for developing integrated water resources management (IWRM) and water efficiency strategies. Background Paper No. 5.

GWP. 2005b. Checklists for change: defining areas for action in an IWRM strategy or plan, Technical Brief 1.

GWP. 2005c. Tools for keeping IWRM strategic planning on track, Technical Brief 2.

GWP. 2006. Monitoring and evaluation indicators for IWRM strategies and plans, Technical Brief 3.

GWP. (2000). *Integrated Water Resources Management*. TAC Background Papers No. 4. Stockholm: GWP Secretariat.

Haddad, F., R. Al Zoubi. M. Alaween, F. Shraideh. 2007. *Local community participation for sustainable water resource management*. Paper presented at MEDA WATER International Conference on Sustainable Water Management, 21-24 March 2007, Tunis, Tunisia.

House, S. 2005. Easier to say, harder to do: gender, equity and water. In Coles, A., T. Wallace (Eds.). *Gender, Water and Development*. Oxford, UK: Berg.

Howard-Grabman, L. 2007. *Demystifying Community Mobilization: An Effective Strategy to Improve Maternal and Newborn Health*. ACCESS Program Community Mobilization Working Group.

INWRDAM [Inter-Islamic Network on Water Resources Development and Management]. 2007. *Amman Seven Principles and Policy Recommendations for Improved Local Water Governance*. Retrieved 2009-02-15 from [://www.empowers.info/page/3188](http://www.empowers.info/page/3188)

James, A.J. 2007. Qualitative Information Appraisal (QIA). Unpublished.

Live and Learn Environmental Education. 2006. *Community Water: A community based water monitoring toolkit using the H₂S paper strip test*. Male, Maldives: Live and Learn Environmental Education.

Live and Learn Environmental Education. 2003. *River Care Fact Sheets*. Fiji: Live and Learn Environmental Education.

- Lockwood, H. 2002. Institutional Support Mechanisms for Community-managed Rural Water Supply & Sanitation Systems in Latin America. Strategic Report 6. Arlington, VA: Environmental Health Project.
- Marcus, R.R. 2007. Where community-based water resource management has gone too far: poverty and disempowerment in southern Madagascar. *Conservation and Society* 5(2): 202-231.
- Moench, M., A. Dixit, S. Janakarajan, M.S. Rathore, S. Mudrakartha. 2003. *The Fluid Mosaic: Water Governance in the Context of Variability, Uncertainty and Change*. Nepal Water Conservation Foundation, Kathmandu, Nepal, and The Institute for Social and Environmental Transition, Boulder, Colorado, United States.
- Moriarty, P., C. Batchelor, F.T. Abd-Alhadi, P. Laban, H. Fahmy. 2007. *EMPOWERS Guidelines, Methods and Tools*. Retrieved 2009-01-21 from [://www.project.empowers.info/page/3344](http://www.project.empowers.info/page/3344)
- Mukherjee, N., C. van Wijk. 2003. *Sustainability Planning and Monitoring in Community Water Supply and Sanitation*. Water and Sanitation Program and IRC International Water and Sanitation Centre, Delft, Netherlands.
- Postma, L., A.J. James, C. van Wijk. 2004. QIS: a new participatory management tool to assess and act on field reality. 30th WEDC International Conference, Vientiane, Lao PDR.
- Rall, M. 1999. *The Demand Responsive Approach to community water supply and sanitation, as interpreted and applied by the Mvula Trust*. Johannesburg, South Africa: Mvula Trust.
- Schordt, K. 2000. *Action monitoring for effectiveness: improving water, hygiene and environmental sanitation programmes*. Technical Paper Series no. 35. Delft, The Netherlands: IRC.
- Schouten, T., B. Mized, R. Al-Zoubi, M. Abu-Elseoud, F.T. Abd-Alhadi. 2007. *The Inside Story: Process Documentation Experiences from EMPOWERS*. Amman, Jordan: Inter-Islamic Network on Water Resources Development and Management (INWRDAM).
- Schreiner, B. and B. van Koppen. 2001. From bucket to basin: poverty, gender, and integrated water management in South Africa. In: Abernethy, C. L. (ed.) 2001. *Intersectoral management of river basins: Proceedings of an international workshop on "Integrated Water Management in Water-Stressed River Basins in Developing Countries: Strategies for Poverty Alleviation and Agricultural Growth,"* Loskop Dam, South Africa, 16-21 October 2000. Colombo, Sri Lanka: International Water Management Institute (IWMI) and German Foundation for International Development (DSE), pp. 45-70.

- Swatuk, L.A., A. Mengiste, K. Jembere. 2008. *Conflict Resolution and Negotiation Skills for Integrated Water Resources Management: Training Manual*. Cap-Net.
- Thomas, H., J. Schalkwyk, B. Woronuik. 1996. *A gender perspective in the water resources management sector: Handbook for mainstreaming*. Publications on Water Resources, No.6. Stockholm, Sweden: Swedish International Development Cooperation Agency (Sida).
- UN. 2005. *Women and Water. Women 2000 and Beyond*. United Nations Division for the Advancement of Women, Department of Economic and Social Affairs.
- UNDP. 2006. *Resource Guide: Mainstreaming Gender in Water Management*. Version 2.1, November 2006.
- Wegelin-Schuringa, M. 1998. Community management models for small scale water supply systems. Paper discussion in workshop on *Public-private partnerships in service provision for community managed water supply schemes*, Kakamega, Kenya, 7-10 December 1998.
- World Bank. 1998. *Participation and Social Assessment: Tools and Techniques*. Washington, D.C.: The International Bank for Reconstruction and Development / The World Bank.

LIST OF CASE STUDIES

- A. Participatory watershed management in the Fond d'or Watershed, St. Lucia
- B. Community-based flood warning system, Honduras
- C. Ridge to Reef Watershed Project (R2RW), Jamaica
- D. Community-managed water supply and sanitation – PASOS III, Honduras
- E. Community-managed rural water supply, Dominican Republic
- F. Talvan Water Catchment Project, St. Lucia
- G. Community watershed management societies, India
- H. Highland catchment management, Malaysia
- I. The EMPOWERS Framework – Participatory Planning in Meithaloun village, Palestine
- J. Development of indicators – Rural Water Supply and Sanitation Project, Honduras

Possible case studies to add:

Linden, Guyana – WSP

Plum Mitan, Trinidad and Tobago

Manitoba Conservation Districts

A. PARTICIPATORY WATERSHED MANAGEMENT IN THE FOND D'OR WATERSHED, ST. LUCIA

The Global Environment Facility-funded Integrating Watershed and Coastal Areas Management (GEF-IWCAM) initiative has for objective to “demonstrate a strategic approach to participatory watershed management” through a series of demonstration projects. Among these, the demonstration project established in the Fond D’or Watershed in St. Lucia since mid-2007 focuses on a range of problems resulting from a lack of forest cover and poor waste, land and soil management practices, including risk of waterborne diseases and water shortage. Activities as part of the project include: rainwater harvesting, sustainable pig waste management, river water quality monitoring, and river bank stabilisation.

The Fond D’or Watershed Management Committee (WMC) represents the main mechanism for community participation for implementation of projects in 15 rural communities. Consisting of community members, government representatives, the water utility, the Water and Sewerage Company (WASCO) and other stakeholders, it has been responsible for selecting pilot sites that would be highly visible to the rest of the community. Committee members have also become involved in activities such as point source pollution mapping and water quality monitoring.

Initial blame for the water quality problems faced by the community was largely directed at WASCO – involvement of the community has been particularly effective in developing a greater feeling of responsibility in the community and of its role in addressing the problem and seeking alternative solutions. Rainwater harvesting has been one main focus of the pilot projects; although rainwater harvesting had been used in the region previously, its use drastically declined when a centralised water delivery system was put in place in the country. Pilot projects in rainwater harvesting and storage offer significant potential to address water shortage and water quality problems.

Ongoing community education on the advantages of rainwater harvesting, maintenance of the systems, and disinfection with bleach formed an important part of the project. Public education and awareness activities included interviews on radio, television talk shows, local newspaper articles, and training session for Agriculture Extension Officers. Different monitoring systems are also currently being investigated as part of the project, including school involvement in monitoring. A comparison between laboratory sample tests and more informal testing is underway, with the objective to reduce the cost of monitoring.

Long-term objectives of the project include:

- Watershed monitoring, including a system for data collection and database
- Awareness and education

- Capacity building, including the development of a Watershed Management Fund to allocate user fees back into the management process
- Land use plans
- Drainage improvement plan
- Flood mitigation
- Soil and water conservation
- Establishment of a compensation mechanism for individuals and groups providing environmental services

References

Documentation from IWCAM:

Demonstration Project Paper, Protecting watershed services and developing management incentives in the Fond D'or Watershed area of St. Lucia.

Caribbean WaterWays: Newsletter of the GEF IWCAM Project Vol.1 Issue 4, December 2007.

Caribbean WaterWays: Newsletter of the GEF IWCAM Project Vol.1 Issue 1, March 2007.

“Harvesting the Heavens: The Rainwater Harvesting Initiative, Fond D'or Watershed, St. Lucia

“Harvesting the Heavens: The Rainwater Harvesting Initiative, Fond D'or Watershed, St. Lucia
– Part 2

B. COMMUNITY-BASED FLOOD WARNING SYSTEM, HONDURAS

Documented in the GWP Toolbox, this case study examines the evolution of a community-based flood warning system in La Masica Municipality, Honduras. Bordered by the Caribbean Sea, the region is particularly exposed to extreme weather events, and the system was developed in response to the need for improved information sharing in the communities. The importance of choosing a level of technology that is suited to the local context in order to create a sustainable system is highlighted here.

In 1997, the Organization of American States (OAS) and the Permanent Commission for Disaster Prevention and Preparedness (COPECO) initiated the Community Early Warning System (EWS), with the creation of Local and Municipal Emergency Committees to give flood warnings in the region. The German Agency for Technical Cooperation (GTZ) continued the project and expanded its focus on community management; its program mainly targeted technical operations and community social organisation, including Motivational and Sensitivity workshops to overcome the initial scepticism in the communities. In 1999, the municipal government allocated an annual budget for the EWS.

The operation of the EWS relies on the collection of data by water level recorders and rain gauges, transmitted through a radio communication system. The system has been put to the test during several hurricanes and tropical storms since 1997, greatly improving the reach of flood warnings. The management of the data and radio transmission is managed by volunteers from the community, which has resulted in the consolidation of volunteers and an increased sense of social responsibility in the community. By 2002, the main actors involved in the management of the EWS had shifted from OAS and COPECO to the municipal government, the Local Committee and the communities themselves. Risk management and EWS have been integrated in a Social Promotion Diploma academic program offered in La Masica.

Key to the success of the EWS are its integration into daily life in the community, and the volunteer basis for data collection. The system has also allowed the Municipality to become independent from external support in its flood management activities. Most importantly however is the fact that the establishment of the flood warning system has provided a strong social base for supporting further IWRM implementation in the community, by initiating the community mobilisation and involvement process.

Reference

Alonzo, R.D. (n.d.). Flood warning system, La Masica Municipality, Honduras (Case #125). Retrieved 2009-02-03 from GWP Toolbox, [://www.gwptoolbox.org/index.php?option=com_case&id=81&Itemid=41](http://www.gwptoolbox.org/index.php?option=com_case&id=81&Itemid=41)

C. RIDGE TO REEF WATERSHED PROJECT (R2RW), JAMAICA

The R2RW Project was a five-year initiative concluded in 2005 undertaken by the Government of Jamaica's National Environment and Planning Agency (NEPA) and USAID, to address watershed degradation. The project was initiated in the Great River Watershed, where agriculture and urban development represented the main environmental threats, and the Rio Grande Watershed, threatened by deforestation, soil erosion, inappropriate land use and mining activities. Local Watershed Management Committees formed the basis for the involvement of stakeholders, and regrouped representatives of the government, private sector and NGOs. The project took a broad and flexible approach to water management, acknowledging that stimulating economic growth was essential to reverse environmental degradation.

Initiatives to promote community participation included national symposia and training, but also more creative approaches such as skits, poster competitions, videos, and the use of religion as a conduit for projects. Awareness-raising efforts were built on the foundation of indigenous knowledge, traditional practices and folklore. Information dissemination strategies included training manuals for community members (attractive format and simple language), and compilations of project documents for dissemination both in print and on the project website.

The grant system used under the project allowed for funding for group applications only, therefore encouraging the formation of farmers groups or other stakeholder groups. Examples of projects realised by the Local Watershed Management Committees include:

- ❖ Pineapple Anchor Project: field training and public awareness-raising on more sustainable production methods for pineapple. Contributing to the success has been collaboration with the Ministry of Agriculture to introduce a more marketable variety, and the expansion of access to markets.
- ❖ Water and wastewater management: this included a variety of demonstration projects for rainwater harvesting, constructed wetlands, as well as the establishment of a laundry and car wash site 50m from the river.

References

Edwards, T., K. McDonald Gayle. (n.d.). Community-based water resources management: lessons from the Ridge to Reef Watershed Project. National Environment and Planning Agency and USAID, Jamaica.

Gopaul, H. 2005. Best practices for public/private sector and community participation in integrated watershed management in Caribbean Small Islands Developing States (SIDS). EMPOWERS Regional Symposium: End-Users Ownership and Involvement in IWRM, 13-17 November 2005, Cairo, Egypt.

D. COMMUNITY-MANAGED WATER SUPPLY AND SANITATION - PASOS III, HONDURAS

Financed by CIDA, CARE Canada is leading the implementation of the PASOS project in Honduras (Proyecto de Agua y Saneamiento en beneficio de los pobres). The project is now in its third phase, PASOS III (2006-2011), which aims to strengthen the capacity of community-based organisations in integrated management of water and sanitation services in 50 rural communities (sustainable water and sanitation, hygiene and health environment education, protection of micro-watershed areas). Capacity building forms a core component of the project, emphasising that a learning process is necessary for long-lasting change.

PASOS III relies on four main strategies:

- ❖ Community management approaches
- ❖ Community monitoring through participatory learning methods
- ❖ Community management of environment and land use zoning
- ❖ Capacity building of local municipalities to manage community development projects

Expected outcomes of the project include:

- ❖ Improved hygiene practices – to be accomplished through the introduction of adequate practices in the handling of drinking water, non-traditional disinfecting methods like solar energy, and personal and household hygiene. Culturally appropriate audio-visual materials are favoured for the diffusion of practices and knowledge.
- ❖ Reduced incidence of diarrhea
- ❖ Use of community management approaches for planning, implementation and monitoring of water and sanitation facilities
- ❖ Community management of environmental resources and land use planning
- ❖ Municipal management of community projects
- ❖ Improved women's leadership, decision-making and project management capacities

Output examples:

- ❖ Rehabilitation or construction of water and sanitation systems
- ❖ Improved access to potable water and sanitation services
- ❖ Establishment of water management committee, with women representing at least 30% of members

- ❖ Collection and management of user fees by Water Management Committees
- ❖ Purchase of micro-watershed lands with legal title to the communities
- ❖ Establishment of community environment and land-use planning committees, with at least 30% women representation

Reference

Care Canada. 2005. PASOS III Concept Paper, November 2005. Retrieved 15-03-2009 from [://www.care.org/careswork/projects/HND074.asp](http://www.care.org/careswork/projects/HND074.asp)

E. COMMUNITY-MANAGED RURAL WATER SUPPLY, DOMINICAN REPUBLIC

The U.S. Agency for International Development (USAID) Environmental Health Project (EHP) published a series of reports on its consultation process with the department of Acueductos Rurales (AR - Rural Water Supply) within the Insituto Nacional de Aguas Potables y Alcantarillados (INAPA - National Water Supply and Sewage Institute) in the Dominican Republic, with a special emphasis on the establishment of support mechanisms for rural water supply and sanitation systems operated and maintained by communities.

In 1997, the Dominican Republic introduced a decentralisation policy for water services. By 2001, 20 to 25 systems of INAPA had been transferred to communities. New rural systems were also constructed, using participatory management approaches, with support from INAPA/AR, NGOs, bilateral programs, and national government. The experience with decentralisation indicates that, although communities can and should take on the responsibilities of operation and maintenance of systems, they also generally require external institutional support and guidance in the long term. Support may come from various levels of government, or may be delegated to external actors such as NGOs. The strategy adopted for this ‘Institutional Support Mechanism’ will depend on:

- ❖ Target rural population and level of capacity and development
- ❖ Structure of the water and sanitation sector and level of decentralisation
- ❖ Technologies used
- ❖ Legal ownership of assets (rights of communities)
- ❖ Actual or potential role of the private sector in provision of services

Implementing agencies have used various approaches to community management, both creating new structures in communities for the management of water supply and sanitation, and building on existing ones. Post-project follow-up is also variable among the different NGOs, often due to a lack of capacity.

The interaction of different actors in the newly decentralised system has been reinforced through a clear definition of roles and responsibilities, summarised in the following table:

Community	INAPA/AR (Regional)	Other actors at local level	INAPA/AR (Central)
Routine and preventative operations & management, including chlorination	Regular monitoring Conflict resolution Assistance for cost recovery system	Provision of specialist services, legal advice Water quality monitoring	Official policies for operations & management Information monitoring and dissemination
System repairs	Technical advice & specialist services	Community awareness	Specialist services (system expansion, legal advice)
Community organisation	Link between community and other institutions	Funding	Interinstitutional coordination
Community awareness	Community awareness		
Cost recovery	Community awareness		
System expansion	Advising		
Protection of water source and watershed			
Environmental sanitation & solid waste management			

One main stumbling block arose in communities after the construction of most rural systems, when no monitoring, data collection, and information exchange between INAPA and the communities occurred. Similarly, NGO databases, if any, were generally isolated, resulting in limited flow of information. In response to this, USAID provided assistance for the development of a follow-up and monitoring strategy, and a number of indicators that would allow standardised information from the different communities were developed:

- ❖ Technical: condition and functioning of physical infrastructure (quality, quantity and continuity of service)
- ❖ Organisational: regular meetings of community organisation
- ❖ Administrative: regular collection of tariffs, ability of tariffs to cover costs, level of non-payment

- ❖ Health: incidence of diarrhea in children less than 5 years old, use of latrines, awareness programs for hygiene behaviour

References

Lockwood, H. 2001. Operations and Maintenance Strategy for Community-Managed Rural Water Supply Systems in the Dominican Republic. EHP Activity Report no. 105. Arlington, VA: Environmental Health Project.

Lockwood, H. 2002. Institutional Support Mechanisms for Community-managed Rural Water Supply & Sanitation Systems in Latin America. Strategic Report 6. Arlington, VA: Environmental Health Project.

F. RIVERBANK STABILISATION: TALVAN WATER CATCHMENT PROJECT, ST. LUCIA

The Talvan Water Catchment is a small watershed (3.25 km²), mainly consisting of mixed agriculture and low intensity rural settlements. It provides the water supply for many communities in the north of the island of St. Lucia. Water quality problems in the catchment are mainly attributed to poor agricultural practices that have led to soil and riverbank erosion, as well water pollution resulting from poor solid waste and agro-chemicals management.

The creation of a community-based group in 1998 led to the Riverbank Rehabilitation Project, which received financial assistance from the Organization of Eastern Caribbean States (OECS) Secretariat and technical assistance from the Forestry Department. Riverbank stabilisation measures included bioengineering and reforestation, in addition to the establishment of buffer zones, community education programs and river clean-up campaigns. Riverbank stabilisation objectives were further integrated with economic development goals; the tree crops used in buffer zones were picked for their high market potential, and contributed to agricultural diversification in the region.

Among some of the key factors for success identified:

- ❖ Community empowerment, with measures including workshops, technical training sessions and exchange programs with similar community-based organisations both in St. Lucia and elsewhere
- ❖ The creation of a technical advisory committee, formed by government, public and private agencies
- ❖ The early identification of direct and indirect benefits to participants: benefits and sources of motivation are not only limited to monetary reward (in this case voluntary riverbank stabilisation was undertaken before financial assistance was given to the community)

Main lesson learned: encouragement, awareness, demonstration, and direct or indirect monetary incentives are important in sustaining participation in the short term.

Reference

Gopaul, H. 2005. Best practices for public/private sector and community participation in integrated watershed management in Caribbean Small Islands Developing States (SIDS). EMPOWERS Regional Symposium: End-Users Ownership and Involvement in IWRM, 13-17 November 2005, Cairo, Egypt.

G. COMMUNITY WATERSHED MANAGEMENT SOCIETIES, INDIA

Following a successful experience with community initiatives to improve irrigation and forest management in India, further attempts to expand the approach to other communities in the country failed. This case study from the GWP Toolbox examines some of the conditions that differed between the communities and that determined the outcome of initiatives.

In the 1970s, the region of the Shiwalki Hills of Haryana, India, was facing increased siltation and forest degradation as a result of intensive cattle grazing and fuelwood collection. The Haryana Forest Division responded by constructing check dams to prevent siltation, which proved unsuccessful as the dams were destroyed by villages and grazing continued. Dialogue with communities revealed that inadequate irrigation was the cause for fodder scarcity and the resulting grazing in the forests. A watershed and joint forestry management strategy was then developed in collaboration with the community, and earthen dams were constructed to improve irrigation. This led to forest regeneration in two ways: increased fodder production allowed to reduce the grazing of forests, and to increase the production of cattle dung which could be used as cooking fuel instead of fuelwood. Water from the dam was shared among the families that paid an irrigation service fee, with one farmer assuming the responsibility to distribute water, collect fees and maintain the dam. Other changes included the reform of water user associations into more inclusive Hill Resource Management Societies, which dealt with the management of water and fodder grasses. A portion of the profits was also allocated to community development activities.

Following the success in the Shiwalki Hills, attempts to scale up the model were conducted in the 1990s, with mixed success. A survey of the 28 communities where the model was introduced identified a number of factors that determined success:

- ❖ Heterogeneity of household endowments – in communities with more heterogeneity, private contractors for the management of earthen dams were preferred, which led to more equitable and efficient water allocation
- ❖ Clearly defined roles of different groups
- ❖ Regular meetings and financial monitoring
- ❖ Power relations: wealthiest households located downstream from the other water users had an interest in ensuring sustainable use by all users, whereas this incentive was lost in villages where the wealthiest users were located upstream or had access to alternate sources of water (e.g. tubewells).
- ❖ Women involvement: women were provided with quota representation on managing committees, but often did not attend meetings and were not consulted for decision-making. This reduced the effectiveness of collective action, given the significant impacts of water

management decisions for women (among others, increased irrigation improved fodder production, resulting in more work for women, who are responsible for carrying the grass from the field to their homes). Women also feed and bathe the cattle, such that increased herd size has also added to their workload.

Reference

Kurian, M. (n.d.). Community watershed management societies in rural India (Case # 132). Retrieved 2009-02-03 from GWP Toolbox, [://www.gwptoolbox.org/index.php?option=com_case&id=117&Itemid=46](http://www.gwptoolbox.org/index.php?option=com_case&id=117&Itemid=46)

H. HIGHLAND CATCHMENT MANAGEMENT, MALAYSIA

This case study from the GWP Toolbox documents the evolution of a community-NGO partnership to address issues in highland catchment management in the district of Cameron Highlands, State of Pahang, Malaysia.

The local highland population faced various adverse environmental effects resulting from the intensifying agriculture and tourism in the region, which included landslides, mudslides, erosion, biodiversity loss, water supply interruptions during peak tourist seasons and heavy rainfall, and poor water quality resulting from increased erosion and sedimentation. A partnership established by WWF-Malaysia in 1999 with the local community led to the formation of the community-based organisation Regional Environmental Awareness of Cameron Highlands (REACH) in 2001. While WWF provided the technical backbone in terms of building capacity and facilitating collaboration with the different stakeholders, including government, REACH was responsible for coordinating community participation in planning, implementation and monitoring. The partnership was successful in triggering policy changes at the government level, including guidelines for future development of the highlands, a forest rehabilitation initiative and stricter law enforcement.

WWF withdrew its assistance in 2004 in order for REACH to become independent and reduce its reliance on external support. REACH is now mainly funded through membership fees, donations and fundraising.

This case study highlights the role that NGOs can play in empowering local communities, which is an important pre-requisite for community mobilisation for action. NGOs can therefore represent powerful catalysts and fulfil much of the role of external support.

Finally, a note from the case study on the relevance of the perception of community-based organisations by other stakeholders: “the good intentions and image of local community groups like REACH, if not effectively and accurately projected, can be wrongly perceived by other stakeholders and can result in the alienation of the community group”. Accordingly, awareness-raising that targets other actors or organisations that interact with the community-based organisation is also required, in addition to awareness-raising within the community.

Reference

Mathew, D. (n.d.) Malaysia: Community and non-governmental organisation partnership in highland catchment management (Case #174). Retrieved 2009-02-03 from GWP Toolbox, [://www.gwptoolbox.org/index.php?option=com_case&id=117&Itemid=46](http://www.gwptoolbox.org/index.php?option=com_case&id=117&Itemid=46)

I. THE EMPOWERS FRAMEWORK – PARTICIPATORY PLANNING IN MEITHALOUN VILLAGE, PALESTINE

The framework for participatory water planning and management developed by EMPOWERS has been applied in a case study of the village of Meithaloun, Palestine, which is presented here as an example of the application of the framework and associated tools.

The EMPOWERS approach is based on a 6-step process summarised in the figure below:

Visioning	Assessing	Strategising	Planning	Implementing	Reflecting
Stakeholder Analysis	Water user analysis	Vision & scenario revision	Agreement of priority activities	Clarification of roles	Development of indicators
Problem Identification	Information collection	Initial strategy development	Detailed plan development	Works implementation	Progress monitoring
Initial vision development	Quality control	Strategy testing	Sourcing of funding	Quality control	Analysis & reporting
Initial scenario development	Information analysis	Vision finalisation	Tendering of works	Troubleshooting	Sharing & learning
Awareness raising	Information dissemination	Strategy agreement & finalisation	Awareness raising	Maintaining communications	Awareness raising
	Awareness raising				

The case study provides an example of the application of the RIDA Framework for water resources assessment (Resources, Infrastructure, Demand and Access), with the following components:

- ❖ Demand and Access: investigates current demands for water by different stakeholders, extent to which it is satisfied, barriers that may be present (e.g. inability to pay, etc.)
- ❖ Infrastructure: capacity of existing infrastructure
- ❖ Water Resources: availability from different sources (springs, groundwater, rainwater harvesting, etc.), sustainability, effectiveness of current management

In addition to the water resources assessment, a societal component was included in the assessment phase, based on an analysis of the water-related problems for the different stakeholder groups (grouped according to income level and employment). In the case of Meithaloun, increased water supply and control of sources of pollution were identified as key elements of the vision. External factors influencing the ability to achieve this vision were identified, the two main problems being the availability of funding sources, and licensing, both for the drilling of a well and for the construction of water and wastewater infrastructure. The final selection of projects for implementation was based on the consideration that the most likely scenario was available funding, but unavailable licences. The two projects selected were:

- ❖ The construction of a water cistern and a grey water treatment unit to serve the school to improve water supply and allow reuse of the treated water for irrigation
- ❖ The construction of a culvert to divert the extra drainage from rainfall

Finally, clear definition of roles and responsibilities was emphasised as part of the approach:

Stakeholders	Role
EMPOWERS	Funding, monitoring of progress and achievement, technical assistance, guidance and capacity building of local committee for long-term management of pilot projects
Municipality	Issue construction licenses, provide engineering follow up, facilitate execution
Ministry of Education	Determine the location and provide approval for construction of cistern
Ministry of Agriculture	Provide guidance and expertise
Pilot committee	Establish a committee that will be responsible for execution, long-term management and maintenance
School representative	Follow up with workers
Local community	Fundraising, follow up in pilot implementation

Reference

Moriarty, P., C. Batchelor, F.T. Abd-Alhadi, P. Laban, H. Fahmy. 2007. *EMPOWERS Guidelines, Methods and Tools*. Retrieved 2009-01-21 from [://www.project.empowers.info/page/3344](http://www.project.empowers.info/page/3344)

J. DEVELOPMENT OF INDICATORS – RURAL WATER SUPPLY AND SANITATION PROJECT, HONDURAS

CIDA (1997) provides an example of the development of indicators from a case study of the Rural Water Supply and Sanitation Project (RWSSP) in Honduras, undertaken in partnership by CARE and CIDA. The indicators developed paid particular attention to gender sensitivity.

The objective of the project was to reduce the incidence of water-related diseases by providing potable water systems and latrine construction, improved watershed health and management, and community health education and organisation. The following table summarise the five main types of indicators that were defined and examples for each:

Risk/enabling indicators	Input indicators	Process indicators	Output indicators	Outcome indicators
Level of government support for local participation	Funds allocated to project	Regular audit of resources and funds	Benefits for men and women	Use of benefits to men and women
Lack of long-term commitment by donors	Attendance and level of participation by local stakeholders at meetings and workshops (by sex, age, gender)	Membership of groups by sex	Benefits for the community	Uses made of community benefits
Project dominated by certain stakeholders	Education programs	Rate of growth or drop-out of groups by sex		Levels of participation of different stakeholders in evaluation
		Number of men/women trained		

Reference

CIDA [Canadian International Development Agency]. 1997. Guide to gender-sensitive indicators. Retrieved 2009-02-06 from [://www.acdi-cida.gc.ca/inet/images.nsf/vLUIImages/Policy/\\$file/WID-GUID-E.pdf](http://www.acdi-cida.gc.ca/inet/images.nsf/vLUIImages/Policy/$file/WID-GUID-E.pdf)