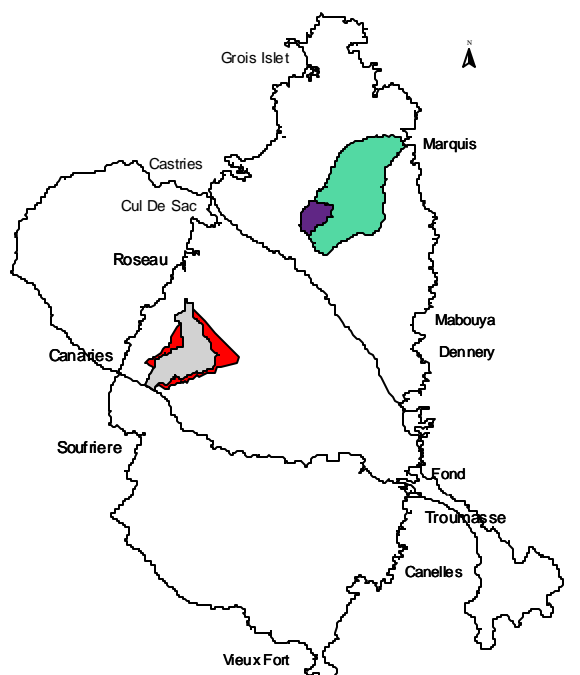




THE WAY FORWARD: AN INTEGRATED WATERSHED MANAGEMENT POLICY FRAMEWORK FOR THREE OECS ISLANDS



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February, 2002

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1.0 INTRODUCTION

The organization of Eastern Caribbean States (OECS) through its Natural Resources Management Unit (NRMU) has invested in community-based projects at Talvan in St. Lucia, Marriaqua in St. Vincent, and Wingfield in St. Kitts. The general purpose of this program was to improve the quantity and quality of water flowing through the watersheds. This was done through participatory mechanisms involving rural communities, grassroots organizations, local social actors and government institutions.

The purpose of this report is to present findings of a review of Lessons Learned under the OECS-NRMU Watershed Program and consequently provide considerations on the way forward, including a Policy framework for integrated watershed management.

2.0 TERMS OF REFERENCE

Terms of Reference for this consultancy were as follows:

- i Review existing documentation and experiences regarding watershed management in the OECS region.
- ii Identify lessons learned in the implementation of the OECS Watershed Management Programme. The consultant will travel to select Member States to conduct interviews.
- iii Recommend mechanisms for advancing integrated watershed management within the OECS region.
- iv Make recommendations based on lessons learned for the development of a watershed management policy framework.

3.0 METHODOLOGY

A review of reports and other documentation relating to the OECS-NRMU Watershed Management Program was conducted. This was complimented with island and project site visits as follows:

St. Vincent (Marriaqua)	- January 7 to 8, 2002
St. Kitts (Wingfield)	- January 8 to 9, 2002
St. Lucia (Talvan)	- January 10, 2002 (Consultant is based in St. Lucia)

During these brief visits to St. Vincent and St. Kitts, field trips to project sites and interviews were conducted with key participants of the projects. As a time saving strategy, the interviews were based on an informal list of issues specific to the sites, which covered areas such as watershed description, public awareness, institutional arrangements, community participation, performance on project activities, research, legislation, and policy. Logistical arrangements were made by OECS-NRMU main office in St. Lucia and local focal points in St. Vincent and St. Kitts.

4.0 DEFINITIONS

The distinction made between a watershed and a water catchment by Gregoire (1997), was considered appropriate for this study, with a minor modification. Gregoire defined a watershed as an entire basin having a “common system of drainage”. A water catchment may be defined as a “sub-watershed up-slope from a water intake” at which water is abstracted for domestic, commercial or agricultural use by a utility company. Use of the appropriate terminology is an issue of scale and also, in the case of water catchment, the presence of an intake. Therefore, one may define watershed management as the sustainable use of land, water, vegetation, and other natural resources on a watershed basis.

5.0 BACKGROUND

5.1 St. Lucia

5.1.1 Description of Project Area

The Talvan water catchment is located on the northeastern side of the island, within the Marquis Watershed (Figure 1). It has an area of approximately 3.25 km². Most of the land use consists of mixed agriculture and low intensity rural settlements. Only a small fraction of the water catchment lies within the Forest Reserves, making it highly susceptible to impacts from human activity. This water catchment remains an important source of water supply for several communities in the North of the island.

5.1.2 Project Activities

Activities undertaken at the Talvan water catchment included:

- Building awareness within adjacent communities on water supply issues related to the Talvan intake (Figure 2);
- Mobilization of community members around the issues of water quality and quantity;
- Installation of rehabilitation measures aimed at reducing water pollution;
- Group strengthening exercises.

A more comprehensive report on project activities and achievements can be found in the OECS Environmental Review (2001).

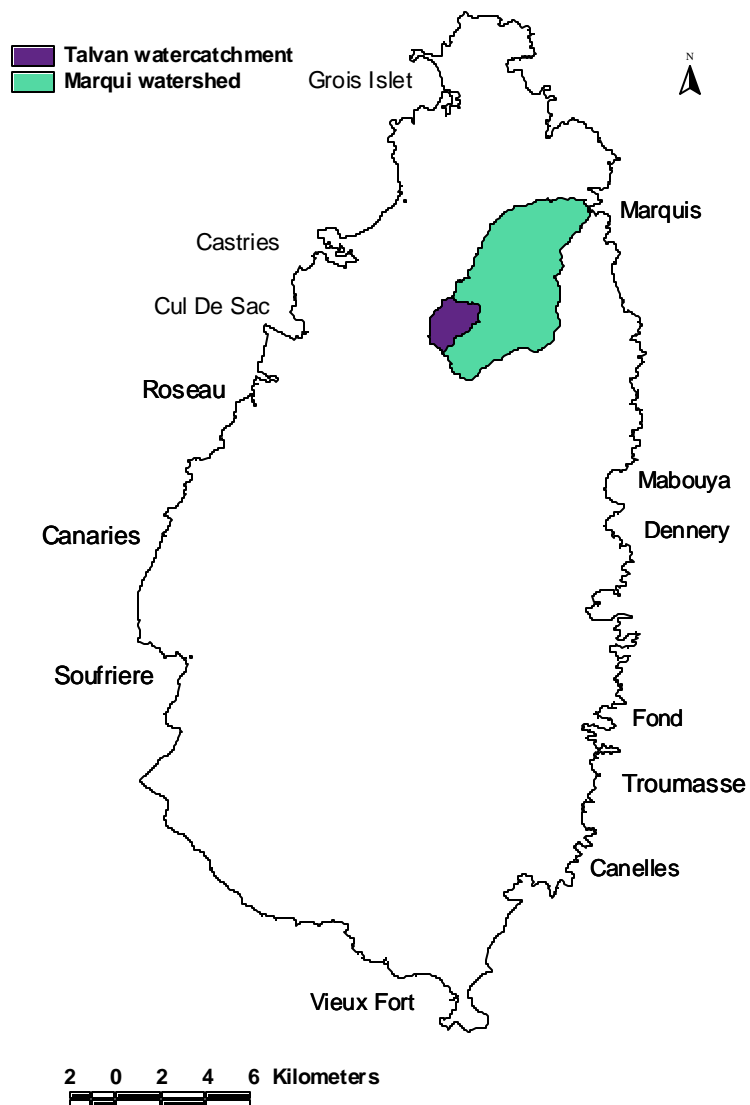


Figure 1. Location of Talvan water catchment and Marquis watershed in St. Lucia.



Figure 2. Field trip by the Talvan Water Catchment Group to the Talvan intake.

5.1.3 Implementation Mechanism

In 1998, a group of farmers came together after an intensive water resources sensitization workshop conducted by the Forestry Department. Their main objective was to address the issue of poor water quality harvested from the Talvan intake. This community-based group known as the Talvan Water Catchment Group subsequently received institutional and financial assistance from the OECS secretariat through its Natural Resources Management Unit, for the development and implementation of a “Riverbank Rehabilitation Project”. Technical assistance for this project was provided by the Forestry Department, in collaboration with its allied agencies such as, the Agricultural

Engineering Division, the Water and Sewage Company, and the Environmental Division of the Ministry of Health.

5.2 St. Vincent

5.2.1 Description of Project Area

The Marriaqua watershed is situated in the southeastern part of St. Vincent and the Grenadines. It covers approximately 23.3 km² or 6.5% of the total island area. Two water catchments are located within the watershed, namely: the Majorca and Montreal water catchments. The topography is mainly steep to very steep. The dominant land uses are low intensity rural settlements, mixed agriculture, and forest (Figure 3). Most project activities concentrated on reduction of erosion within the upper watershed areas. Further description of the project area can be found in Jessamy (1999).

5.2.2 Project Activities

The main activities carried out under this project included:

- Community consultations/mobilization;
- Implementation of riverbank stabilization and general soil and water conservation measures;
- Public awareness/education exercises;
- Institutional strengthening of the Forestry Department as the lead executing agency;
- Formation of a core group of stakeholders for the purpose of promoting, guiding, and evaluating the project.

Comprehensive reviews of project activities can be found in the OECS Annual Report (1999) and the OECS Environmental Review (2001).



Figure 3. Land use pattern in Marriagua watershed.

5.2.3 Implementation Mechanism

The Forestry Department was the lead agency involved in implementing the project. However, in July 1999, a core group consisting of people from communities within the watershed and other stakeholder organizations was formed. The core group comprised representatives of the Forestry Department, the Water and Sewage Authority, Ministry of

Agriculture, Ministry of Health, the Police, Ministry of Community Development, Farmers and Teachers. An elaborate “Terms of Reference” articulating the role of this core group in the project was developed. However, the core group did not function as expected for reasons which were stated in progress reports to OECS-NRMU and discussed later in this report. As a result, the staff of the Forestry Department carried out most of the activities.

5.3 St. Kitts

5.3.1 Description of Project Area

The Wingfield watershed is located in the southern central part of the island (Figure 4). It covers approximately 9.0 km². The major land uses are settlements, eco-tourism, farming, water supply and forest. Highest elevation is approximately 3000 feet (asl), with slopes ranging from gently to excessively steep (Figure 5). The watershed has only one water catchment, which is reported to be the largest on the island. Further description of the project area can be found in Jessamy (1999).

5.3.2 Project Activities

The Wingfield Watershed Project has implemented the following activities:

- Construction of a nature trail
- Community consultations
- Public awareness exercises
- Mapping and demarcation of the Natural park and its Nature Trail Networks

- Development of a management plan

The Wingfield Watershed Technical Report (2001) provides a more detailed listing of project activities.

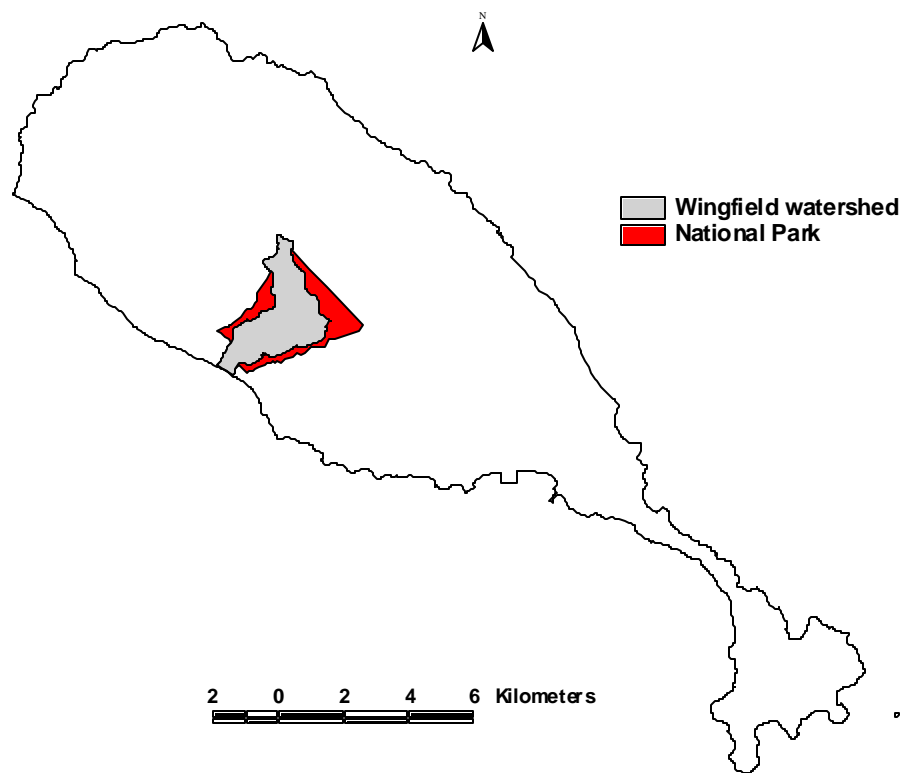


Figure 4. Relative configuration of Wingfield watershed and National Park boundaries.



Figure 5. Vegetation type and land use patterns in the Wingfield watershed.

5.3.3 Implementation Mechanism

The Ministry of Health and Environment is the executing agency for the project. A project manager supervises all project operations. Technical, institutional, and administrative support are provided by a steering committee comprising both government and non-government organizations. A core group comprising resident stakeholders of the watershed was also organized. This core group is the mechanism responsible for ensuring community participating in the project. The steering committee and the core group jointly hosted several activities such as a “Watershed Awareness Day”, with the overall coordination done by the project manager.

6.0 ISSUES AND LESSONS LEARNED

6.1 Institutional Arrangements and Stakeholder Participation

While the institutional arrangements for project implementation in the three islands have general similarities, they do contain some important differences. They all recognize that the design, planning, and implementation of watershed management interventions are for the benefit of the communities concerned as well as for other sectors. They also recognize that technical consultations with a variety of agencies can potentially increase the number of different activities to be implemented by the project. Therefore, they have instituted technical advisory committees comprising of several government, public, and private agencies as an essential attribute for success. The composition of these technical committees are also similar due to similarity in the types of natural resources and land uses found within the watersheds.

The differences that do exist are as a direct result of the processes that gave rise to the participatory structures, as well as the capacity of the lead agencies, to coordinate and sustain the various contributions and adopt appropriate strategies.

The Talvan Water Catchment Group and its collaborative structures with the Forestry Department were formed before the inception of the Talvan project. Group members, as well as other landowners and farmers directly affected by the project, were consulted while the project document was being developed. This may be the single most important factor that led to a successful participatory implementation phase. This is in contrast with

the St. Vincent experience, where the Marriagua community was not consulted prior to the project-implementation phase, and the core group in the watershed created as a product of the project. Therefore, one may conclude that because members of the Marriagua community were not involved in the project development phase of the exercise, a sense of community ownership of the process did not get established. Additionally, the specific role of the core group vis-a-vis that of the Forestry Department was very confusing to participants, including staff of the Forestry Department who, upon reflection, described themselves as inexperienced, insufficiently trained, and not capable of effectively implementing a strategy to ensure proper functioning of the core group.

The main lesson here is that, while St. Lucia and St. Kitts appear to be ahead of St. Vincent in terms of the functioning of their participatory structures, it may be ill advised to present any of these models as standard solutions. This is based on the fact that attitudes and behavior of local people towards proper natural resource management in terms of the level of recognition of the need to organize themselves for that purpose, and the enabling environment for participatory institutional development are different. Therefore, the establishment of structures for implementing watershed projects must be locally negotiated, whereby compromised structures acceptable to all stakeholders can be adopted on the basis of project site realities, available resources, and local capacity. Such a process may give consideration to the potential viability of a range of possible institutional arrangements rather than a predetermined model.

The level of commitment shown by individual members of the technical advisory committees was an area of concern to project managers. While the organization that they represent expressed full support for watershed initiatives, it was usually left to the individual to determine his/her level of involvement, commitment, and allocation of time to project activities. This had the effect of undermining the ability of lead agencies to effectively coordinate the work of committee members so as to achieve a sustained integration of efforts. This was considered a major issue in St. Vincent and to a lesser degree in St. Lucia and St. Kitts.

A possible solution to this issue is for stakeholder agencies to ensure that work done by officers be treated as an integral part of their normal duties and that of the agency which they represent, as they relate to watershed management. They need to give due recognition and support to the contributions made by individuals serving on the technical advisory committees. It is also important to find ways to decrease indifference towards strategic watershed initiatives at the top level and prevent this indifference from permeating downwards, perhaps by sensitizing that level to the importance of an integrated watershed and water catchment approach before the implementation of watershed projects.

6.2 Sustainability of Project

6.2.1 Benefits

One of the early lessons learned from this program is that “participation is critical if investments in watershed management and in rural communities are to pay off” (OECS Environmental Review, 2001). However, direct or indirect benefits to participants must be clarified early in the process if full participation and process ownership has to be sustained. Generally, if natural resource management does not directly address the immediate concerns of people living within the affected communities in the short-term, they will most likely not consider it a priority.

The experience arising out of this program clearly indicates that several factors such as encouragement, awareness, demonstration, and direct or indirect monetary incentives can sustain community and agency enthusiasm for participation in the short-term.

The issue of monetary reward is an extremely important one in St. Vincent and the Grenadines. It surfaced repeatedly in reports to the OECS-NRMU and most recently, in discussions for purposes of this consultation, with a farmer serving on the Core Group of the Marriaqua watershed. The relative success of the Talvan Water Catchment Group proves that monetary reward is not always the only source of motivation, given that the group was engaged in voluntary riverbank stabilization before financial assistance was given to them. In this situation, payment is seen as an incentive rather than wages and the participants continue to feel that they are owners of the project.

This does not suggest precluding the exploitation of opportunities for direct benefits such as economic returns from tree crops or wages, if it is within the project's ability to provide such benefits. Such is the case with St. Kitts, where a revenue generating Nature Trail is so constructed, that it does not conflict with the principle of sustainable use of natural resources, while providing members of the local community with direct benefits.

The main lesson here is that it is important that an analysis of the immediate basic concerns of community members be undertaken prior to project development. This is necessary so as to ascertain the types and level of benefits aspired for by members, the capacity of the program to meet those needs, and to facilitate their sustained participation in project activities towards integrated natural resource conservation. It was also suggested that this analysis include exploration of possibilities for financial incentives to project leaders to offset non-scheduled project related work.

In all three projects, there seemed to be a lack of systematic planning towards sustaining benefits to community members after the OECS-NRMU project ends. For example, while it can be assumed that benefits will continue from the Wingfield Nature Trail, no deliberate consultation has taken place to discuss anticipated barriers to continued benefits such as political interference, group dis-function, and member mobility out of the communities.

6.2.2 Awareness

An important lesson learned from the watershed program is that, it is not enough for members of a participatory process to know that the work being done is of value to the environment. Public awareness and recognition of that work is an extremely powerful morale booster to group members. It also enhances the enabling environment through which they can receive support for their work, opportunities for direct personal benefits, and initiation of similar watershed activities elsewhere on the island.

The Talvan Water Catchment Project, through its public awareness activities, has gained considerable recognition by Government Ministers, policy-level public officials, and key agencies. While most have not translated this recognition into concrete support, a few critical gestures were made. The group was recently the recipient of an award as “Best Water Catchment Group”, at a nationally televised ceremony hosted by the Ministry of Agriculture, Forestry, and Fisheries, for contributions to the Agricultural Sector. They were also recently registered with the Ministry of Community Development, whereby they are now entitled for support and recognition normally extended to legally acknowledge community-based organizations. This will allow them easier access to other government and international agencies for support with their watershed activities. Additionally, the Talvan Water Catchment Group has been identified by the Poverty Reduction Fund, as the local focal partner to implement a watershed-wide environmental rehabilitation project within the Marquis watershed. Similar sentiments and expectations were expressed by members of the St. Kitts Wingfield Project, particularly, the extension of activities to other watersheds.

The above statements are in no way measures of the level of success attained by the various awareness activities. Instead, it is an expression of benefits that can be derived from outreach programs for the groups. In fact, the level of public awareness of the importance of watershed management was described as “very low”, by several members of the three projects. It is therefore, an important necessity for the groups to continue promoting changes in values and attitudes for greater public consciousness, participation, and involvement, towards an ecologically healthier watershed and improved water supply. Awareness programs must continue until people at all levels have internalized good watershed management values and translate them into concrete actions and support for watershed activities, programs, and policies.

One of the concrete actions needed to be translated from recognition by Government Ministers, policy-level public officials, and key agencies of the work done by water catchment groups is the support for an Integrated Watershed Management Policy. Under this policy, a National Watershed Program can be developed towards sustainable development and the use of natural resources. Such a program should specify responsibilities and roles of agencies involved in implementing watershed activities, national standards for evaluating watershed performance, mechanisms for effective stakeholder participation, opportunities for adequate project financing and allocation of resources, strategies for updating enabling legislation, and other support strategies.

6.2.3 Soil Conservation Infrastructure

There are some farmers who go by faith in believing that the rehabilitative infrastructure will somehow bring benefits to them. A member of the Talvan Water Catchment Group personally expressed her belief that these structures have actually improved the quality and quantity of water in the stream, in spite of the absence of a scientific monitoring system. It shows that projects have a better chance of continuity if benefits to the participants are apparent. When this occurs, they become fully integrated into the process and may continue to maintain the infrastructure implemented during project life. In the absence of this apparent benefit, especially if maintenance of infrastructure is labor intensive, farmers will see them as a land use type, which competes with more beneficial crops. This was clearly the case in Marriaqua, St. Vincent, where wattle structures were subjected to tremendous shading and competition from bananas.

The situation in Wingfield, St. Kitts, was quite different. The main issue there was the cost of maintenance of trail infrastructure after project life. Emphasis should be place on utilizing as much local materials as possible to construct soil conservation treatments, steps, bridges, etc. While the imported material may appear more attractive, its overall effect could reduce visitor's "nature experience" and most importantly, reduce profit margin and stakeholder benefits, due to high maintenance costs.

6.2.4 Training

The program implemented training activities very early in the project life. This was done upon recognizing that technical capacity of project personnel was a key factor guaranteeing sustainability. Although project participants expressed the need for more training, they however, agreed that their ability to analyze and deal with their social and environmental situation was enhanced. It was also expressed that although technical capacity building should continue, organization capacity building must be given priority at this point in time.

A main achievement of the project in St. Lucia was a reduction in dependency on outside support for help in dealing effectively with government bureaucracy. Members of the Talvan Water Catchment Group have established informal linkages with government officials and the private sector from which they have benefited. For example, they independently service the group's bank account and have dealt directly with the Ministry of Community Development on matters pertaining to registration. Additionally, their connections with the Forestry Department of the Ministry of Agriculture have also brought significant recognition as described earlier. This indicates that, given the right combination of incentives, the groups possess a higher capacity to continue developing into mature and independent entities.

The network of farmer to farmer contact in the case of St. Lucia and St. Vincent, and trail manager to trail manager contact between St. Lucia and St. Kitts was an excellent strategy used by the watershed program. This was very effective in transferring

information, technology, experience, and most important, it built confidence in their ability to successfully implement the necessary works. However, the process should expand to include more participants to compensate for mobility.

As mentioned earlier, leadership capacity was one of the most critical factors in implementation project activities. This speaks to both the lead agencies as well as leadership of farmer and community groups participating in the project. The qualities most spoken about were visionary, focus, ability to resolve conflicts, time management skills, and political acumen. A significant weakness of the program was that it did not address the issue of building leadership capacity and succession as a strategic human resource solution.

6.3 List of People Interviewed:

St. Lucia	St. Kitts	St. Vincent
Martin Satney General Manager Water and Sewage Co.	Elvis Newton Permanent Secretary Ministry of Health and Environment	Brian Johnson Senior Forest Supervisor Forestry Department
Michael Andrew Deputy Chief Forestry Officer Forestry Department Ministry of Agriculture	Raymond Solomon Director Ministry of Health and Environment	Cornelius Richards Forest Supervisor Forestry Department
Christopher Cox Assistant Chief Forestry Officer Forestry Department Ministry of Agriculture	Brian Farrell Project Leader Ministry of Health and Environment	Ruth Knights Coordinator, Forest Conservation
David Lewis Project Leader Talvan Water Catchment Project	Member of Core Group Wingfield Watershed Project	Casmus Mcleod Forestry Officer Watershed Management
Claudina Roberts Member of Talvan Water Catchment Group		Andrew Lockhart Forestry Officer, Silviculture
		Temmoth Anthony Forestry Officer, Central Range
		Kenneth DaSilva Chief Surveyor (M.A.L.F.)
		Daniel Cummings General Manager Central Water and Sewage Authority
		Member of Core Group Wingfield Watershed Project

7.0 THE WAY FORWARD;

Integrated Watershed Management Policy Framework

7.1 Objectives

1. Promote Integrated Watershed Management (IWM) as a fundamental means of effective coordination and collaboration between relevant stakeholders towards sustainable development and the use of natural resources.
2. Promote Integrated Watershed Management as a means of ensuring orderly access and use of water and other natural resources by all citizens.
3. Base watershed management on scientific principles and methods.
4. Use scientific information from research and management experience in setting watershed management goals, plans, and programs.
5. Develop a science-based approach to watershed assessment for identifying management opportunities and priorities
6. Ensure implementation of measures to restore and enhance the quality and quantity of available water flowing through the watersheds.
7. Maintain ecosystem integrity through the protection of biological resources from negative impacts caused by development and natural processes.
8. Ensure a broad appreciation of the conservation and sustainable use of natural resources through the implementation of a comprehensive environmental education program.

7.2 Implementation Strategies for IWM Programme

7.2.1 National Watershed Programme

A National Watershed Programme will be developed. This programme will specify responsibilities and roles of agencies involved in implementing watershed activities, national standards for evaluating watershed performance, mechanisms for stakeholder

participation, opportunities for project financing, strategies for updating enabling legislation, and other support strategies.

7.2.2 Institutional Responsibilities

A well-organized and coordinated distribution of authority amongst stakeholder agencies is the foundation for achieving Integrated Watershed Management objectives. This essentially requires a clear understanding of the coordinating mechanism and responsibilities among participating agencies to ensure that all issues related to sustainable natural resource management, bio-diversity, and environment protection are addressed.

In areas with a Local Government Authority, coordination of activities will occur within Watershed Management Committees under the chairmanship of a local non-elected (executive) operations director. In areas without a Local Government Authority, coordination will occur within Watershed Management Committees under the chairmanship of the Ministry of Planning. Each agency involved will implement the programme according to its own jurisdiction.

Responsibility must be assigned for;

1. Management of water resources
2. Management of forest and other biological resources
3. Public Health
4. Environmental education

5. Maintenance of infrastructure within major communities
6. Maintenance of parks and open spaces
7. Environmental monitoring and enforcement of standards
8. Land use planning and development control
9. Physical planning
10. River management including riverbank protection and desilting

7.2.3 National Standards

National standards for stream water quality and water uses will be integrated into watershed management goals. Local requirements for preventing and controlling water pollution will be enforced. There will be regular review of policies and procedures that affect water quality or watershed conditions to ensure compliance to national standards.

7.2.4 Public Participation

Develop a comprehensive participatory implementation strategy. This will include expanding opportunities for interested stakeholders in watershed planning, decision making, monitoring and assessing watershed conditions, and in implementing watershed rehabilitative projects. Special efforts will be made to enhance dialogue with private landowners.

7.3 Financing

It is necessary to obtain adequate budgetary support for investment in watershed management. This will be done through a number of arrangements which will include the following:

Government general Grants: General Grants are for standard activities which are local in nature and controlled by Local Government Authorities.

Government Agency Grants: Agency Grants allocated to respective agencies to finance watershed activities specified in the Watershed Programme. They include both capital and recurrent allocations.

Local Government Authority Taxes and Fees: These are normally collected at the local level as a means of raising revenue. For example:

- Allocation of a small percentage of the cost of major construction projects taking place for watershed protection purposes.
- Collection of a small percentage of water utility bills to protect watersheds.
- A percentage of the fees collected for permit applications for projects within watersheds.
- Allocation of a percentage of the fees collected for recreational activities within the watershed.

Non Government Grants, Loans, and Funds: Opportunities will be explored to develop autonomy and self-reliance, such as, establishment of a fund for watershed management to receive contributions from various Non-Government sources and benefactors.

7.4 Legislation

Review of current legislation and enactment of new integrated legislation will be pursued to facilitate implementation of this Policy. It will incorporate new values and approaches to Integrated Watershed Management, address critical institutional issues, guide sustainable development of watershed natural resources, and provide legal basis to protect and conserve local biodiversity.

7.5 Enabling Environment and Supporting Strategies

In order to effectively implement this policy of Integrated Watershed Management, emphasis will be placed on promoting a coordinated and integrated approach to land use planning, environmental education, stake holder participation, human resource capacity building, watershed research and environmental monitoring.

7.5.1 Land Use

Appropriate land use is the basis of a successful watershed management policy. Therefore, options and programmes for the rationalization of land use, including watershed zoning, zoning of production lands, and utilization of idle lands will be

developed through improved systems of land evaluation. This will be done taking into account land suitability analysis, land capability, carrying capacities, and fragile ecosystems.

7.5.2 Environmental Education

For the purpose of this Policy, environmental education is defined as the educational process dealing with the scientific, cultural, and economic relationship of humans to their natural and artificial surroundings. It is considered as being of utmost importance to the watershed program. Environmental education strategies will include access to, and transfer of information on the complex relationship of development, pollution, resource allocation, conservation, and technology to the environment. The involvement of civil society, grassroots organizations, and schools will be actively encouraged to play a significant role in this process.

7.5.3 Human Resources and Training

Adequately trained human resources are essential to implement IWM programmes. Training must be provided for specialized professionals as well as generalists. This will ensure self-sufficiency and some level of independence from external consultants and experts. However, to attain this goal, it is necessary to implement a study of national human resource needs for watershed management for the short, medium, and long term.

7.5.4 Research

Information from watershed assessment will be an integral part of the process for identifying management opportunities and the establishment of priorities. Watershed assessment will include scientific information from research and management experience in designing, and implementing management objectives. This will help expand current knowledge and also provide opportunities to collaborate with external research agencies, which can contribute to, or sponsor our research needs when and where appropriate.

7.5.5 Monitoring

Monitoring for purposes of this Policy refers to the formal process of ascertaining the progress made in addressing watershed management priority issues. It will be an ongoing process that will require careful planning in order to be an effective component of the IWM programme.

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