Cost pricing for water production and water protection services in Saint Lucia

Cletus Springer
October 2005

iied
International Institute for Environment and Development

DFID Department for International Development

Contacts:

Cletus Springer • Impact Consultancy Services Incorporated • Impact Consulting Services Incorporated, P.O. Box 1410, Castries, St. Lucia • Tel: +758 4522501 • Fax: 758 453 2721• Email: springer@candw.lc

Caribbean Natural Resources Institute (CANARI) • Tel: +868 626 6062 • Fax: +868 626 1788 • Email: info@canari.org • Website: www.canari.org.

Forestry and Land Use, Natural Resources Group, International Institute for Environment and Development, 3 Endsleigh Street, London WC1H 0DD, UK • Tel: +44 (0)20 7388 2117 • Fax: +44 (0)20 7388 2826 • Email: ivan.bond@iied.org

Citation:

Springer, C. (2005) *Cost pricing for water production and water protection services in Saint Lucia.* Impact Consultancy Services Incorporated on behalf of The Caribbean Natural Resources Institute (CANARI), Laventille, Trinidad and Tobago and International Institute for Environment and Development, London, UK.

Developing markets for watershed protection services and improved livelihoods

Based on evidence from a range of field sites the IIED project, 'Developing markets for watershed services and improved livelihoods' is generating debate on the potential role of markets for watershed services. Under this subset of markets for environmental services, downstream users of water compensate upstream land managers for activities that influence the quantity and quality of downstream water. The project purpose is to increase understanding of the potential role of market mechanisms in promoting the provision of watershed services for improving livelihoods in developing countries.

The project is funded by the UK Department for International Development (DFID).

Table of contents

Acronyms and abbreviations

ALG	Action Learning Group
BNTF	Basic Needs Trust Fund
CANARI	Caribbean Natural Resources Institute
CEHI	Caribbean Environmental Health Institute
CWWA	Caribbean Water and Wastewater Association
DFID	Department for International Development
EC$	East Caribbean dollar
EIA	Environmental impact assessment
FAO	The UN Food and Agriculture Organization
GAP	Good Agricultural Practices
GEF	Global Environment Facility
IIED	International Institute for Environment and Development
IWCAM	Integrated Watershed and Coastal Area Management
IWRM	Integrated water resources management
IWRN	Integrated Water Resources Network
MAFF	Ministry of Agriculture, Fisheries and Forestry
MBI	Market-based instruments
MCM	Million cubic metres
NEMO	National Emergency Management Organisation
NWSC	National Water and Sewerage Commission
OAS	Organization of American States
OECD	Organisation for Economic Cooperation and Development
PRF	Poverty Reduction Fund
RAI	Right Angle Imaging
UNEP	United Nations Environment Programme
WASA	Water and Sewerage Authority
WASCO	Water and Sewerage Company

Executive summary

This report represents part of the deliverables of a regional project being implemented by the Caribbean Natural Resources Institute (CANARI) aimed at:

- Exploring the usefulness of market- and incentive-based approaches as tools for optimising watershed services and improving livelihoods, especially of the rural poor.

- Assessing the requirements for implementing market-based approaches, at both the supply and demand sides of the water cycle, in ways that internalise the costs of watershed protection relating to the production, protection, and delivery of water.

The regional project is part of a larger global project entitled 'Developing markets for watershed protection services and improved livelihoods', which is being implemented by the International Institute for Environment and Development with support from the Department for International Development (DFID) of the United Kingdom.

The report reviews existing and planned developments in Saint Lucia's water sector that are of relevance to the objectives of the regional project. Specifically, the report reviews the provisions of Saint Lucia's *Water Sector Policy* and Water Sector Reform initiative as they relate to the proposed use of market-based approaches in the sourcing, production, and delivery of water, and the protection of water resources.

Accordingly, the report is structured in three (3) parts. Chapter 1 assesses the existing situation; Chapter 2 outlines the planned situation as set out in the provisions of the *National Water Policy*. Chapter 3 provides an assessment of the some of the challenges that would need to be addressed if the planned or desired situation (relative to the issue of cost pricing, and water production and conservation) is to materialise.

1. Review of the current situation in water resources management

1.1 Water supply and demand dynamics

Saint Lucia depends solely on surface water to meet its water requirements. Rainfall is both spatially and temporally distributed, with annual values ranging from 1,524 mm in the north west and south east, to more than 3,048 mm in the mountainous interior. The island's freshwater needs are supplied via an integrated network of river intakes, treatment plants, and transmission pipelines and distribution systems, under the operation and control of the Water and Sewerage Company (WASCO). Approximately 42,000 customers are served by the system, evenly distributed between the northern and southern networks.

Water is supplied from thirty seven watersheds, seven of which are classified as major sources of surface water. In 1995, a new water supply system was developed to serve the northern half of the island, the centrepiece of which is the Roseau Dam and Millet Reservoir development, with a storage capacity of 3,182 million litres. Significant investments are being made to improve the water transmission and treatment facilities between the dam and the consumer bases in the north.

Saint Lucia's public water sector has had to contend with increased demand, as well as a dramatic reduction in supply caused in part by the destruction of upper watersheds, low river base flows, and an inefficient, inadequate, and aging water distribution network. It is widely suggested that the potential increase in future demand will exacerbate this deficit, especially in regions impacted by high infrastructural development and migration (AGRICO 2001).

The rural water supply situation is also in a critical state. Facilities for the treatment and storage of raw water, as well as treated water, are inadequate to meet the growing demand for freshwater, especially in the dry season. Rural water sources, comprising mainly small and medium intakes, are frequently affected during the rainy season due to heavy silting of water sources.

Soil erosion is the largest contributor to land degradation and is the single most important environmental problem facing the island. The scale of the impact of soil erosion on the water supply is evident in increased river siltation and reduced water quality, especially during the rainy season. Furthermore, while flooding induces high dilution ratios with respect to chemical contamination, it washes away top soil and debris into streams and rivers, thereby clogging water intakes and impairing the operation of water treatment plants.

Attempts at reducing or removing these threats to the integrity of the watersheds have focused on regulatory and enforcement measures, state ownership and control of watersheds, and public education and awareness programmes. However, these measures have met with only limited success, mainly because the scale of the problem far exceeds the resources that are available to enforcement agencies.

1.1.1 The situation relating to water for health and sanitation

Saint Lucia has made significant progress in providing water services to its people, with 95% of households having access to pipe-borne water. The percentage of households relying on water from rivers, springs and ponds for everyday use has fallen, while the use of pit latrines and other such types of sanitation has declined. Unfortunately, the poorest of the population have not shared widely in these improvements, and in some areas the poor are still relying on untreated sources (such as rivers) for their water needs. Rapid population growth and high rates of urbanisation have contributed to increased pollution of freshwater resources from solid and liquid waste, thereby exposing the population to significant health risks.

1.1.2 The situation relating to water for agriculture and food production

While the agriculture sector depends on the availability of an adequate supply of water for its survival, the evidence indicates that freshwater resources are facing a serious threat from unsustainable farming practices, including uncontrolled agricultural intensification, inappropriate land use (such as cultivation on steep slopes and river banks), and poor irrigation practices. Increased abstraction from rivers has reduced downstream flows, particularly during the dry season.

The supply of water to the agriculture and food sector is plagued by several weaknesses, including poor cost recovery, low operating efficiencies, and high levels of wastage. This may be due to the fact that the price of water in the agriculture sector (as in other sectors) does not reflect its true cost and thus farmers are not induced to conserve water or to use water efficiently. The situation is unlikely to improve as an island-wide irrigation expansion programme gathers pace.

This situation points to a policy conflict where farmers receive considerable state aid to boost productivity but are not induced to conserve water and/or use it efficiently. The Good Agricultural Practices (GAP) programme, supported by the European Union, offers an opportunity for farmers to be encouraged to adopt sound water management practices.

1.1.3 The situation relating to water for industry

The rapid growth of the tourism industry and manufacturing industries (beer, soft drinks, rum, bottled water, paper, and agro-processing) has increased demand on the water supply. The tourism industry is a major user of water. Visitor accommodation stands at approximately 4,000 rooms, the majority of which are located in the north of the island. The allocation of water to this sector, especially during the dry season (which also coincides with the cruise ship tourism season), has presented a major problem. In an attempt at becoming more competitive, some hotels and manufacturing companies have installed water-saving devices and demand-reduction practices.

Several hotels (especially those in the ‘Sandals’ chain) have attained ‘Green Globe’ certification, which allows them to position themselves in the marketplace as environmentally-conscious/environmentally-friendly properties. Green Globe certification also allows the hotels to enlist the support of guests in reducing the demand for, and consumption of, water and energy.

1.1.4 The situation relating to water for nature

The interactions between the hydrological cycle and associated priority issues – such as ecosystems health, land-use impacts and forest cover, climate change and climate variability and attendant vulnerability to floods and droughts – are not fully understood. The rapidly growing population and attendant demands for land and water for income generation have led to significant encroachment on sensitive water catchments, and in some instances to unregulated abstraction of water. In addition, waste discharge (domestic, industrial, agricultural) is not regulated, resulting in poor water quality – especially in the lower reaches of a river system. As the residual stream flows necessary to support aquatic biota have not been determined, it is possible that current abstractions may, in some cases, exceed those required for sustaining environmental quality. Table 1 provides some indication of trends in water distribution among the various sectors.

Table 1: Demand distribution among sectors

Description	Percentage %	
	1987	2010
Domestic / minor commercial	48.6	53.0
Hotels	9.6	10.0
Government / institutional	7.0	6.7
Industrial	2.5	5.3
New commercial	0	2.0
Unaccounted for	32.3	23.0

1.2 Allocation and pricing mechanisms

Water has not been treated as an economic good and consequently water rights, water markets, and water pricing are not used to improve management. There is no incentive for consumers to use water efficiently, and no clear strategy or criterion by which to establish allocation priorities. Generally, allocation mechanisms are administratively-based, with current sector demand used to guide allocation. In addition, priority is given to uses such as tourism, and health and sanitation, where health risks are linked to water shortages.

The current water tariff structure was inherited from the Water and Sewerage Authority (WASA).[1] The tariff was last increased in 2000 to partially offset the financial indebtedness of the new company WASCO. Whilst this move has helped to improve WASCO's financial position and has permitted a certain degree of cost recovery, this has not been quantified against medium- to long-term plans. Presently, the expenditure of the average household on water is less than half that spent on electricity (AGRICO 2001). A financial plan is being drawn up, but thus far no steps have been taken to determine the economic value of water. Table 2 provides an indication of the previous and existing tariff structure.

Table 2: Previous and existing tariff structure

		Rates / 1,000 gallons	
		Prior to 2000 ($ EC)	Current ($)
Domestic	less than 3,000 gals	4.10	7.35
Domestic	more than 3,000 gals	7.78	15.00
Commercial		10.28	20.00
Government		6.4	14.00
Ships		40	40.00
Hotels		11	22.00

The mobilisation of the necessary financial resources for water resources management remains a critical management issue. Historically, water supply projects have been financed by the government, with very little private sector participation.

1.3 Legal, policy and institutional framework

Under the *Water and Sewerage Act* (No.13 of 1999), the National Water and Sewerage Commission (NWSC) was assigned responsibility for the orderly and co-ordinated

[1] WASA was replaced by the Water and Sewerage Company in 1999.

development and use of water resources, and for the promotion of a national policy for water. Prior to 2004, no such policy existed; furthermore, responsibilities for water resource management were not fully defined. These deficiencies have been addressed in the *Water and Sewerage Act* of 2004, the key elements of which are described in Chapter 2 of this report.

1.3.1 Resource monitoring and assessment

Present knowledge and understanding of the island's water resources situation is limited due to the unavailability of data and information. Only rainfall data is available, thus preventing any realistic assessment of water resources. Monitoring of stream flows and river water quality is inadequate. In the mid-1980s, attempts were made to establish a system for river flow monitoring, but this has not been maintained. Instead, the Ministry of Agriculture Forestry and Fisheries (MAFF) takes spot measurements of river flow on a weekly basis. A current assessment of the water available for public water supply indicates an approximate yield of 18.9 million cubic metres per year (MCM/yr). Net production is presently estimated at 16.55 MCM/yr due to relatively high losses in the system.

1.3.2 Natural disaster management

The more pronounced impacts of natural disasters on the water sector have been linked mainly to extreme weather events such as hurricanes, droughts, and floods. Hurricane Allen (1980) and Tropical Storm Debbie (1994) caused landslides and extensive flooding in low-lying areas, destroyed biodiversity and crops, and damaged critical social and economic infrastructure. Several public sector agencies including the National Emergency Management Organisation (NEMO), WASCO, and the Ministry of Communications, Works and Public Utilities have disaster management plans in place. However, these plans have generally focused mainly on post-disaster mitigation rather than on proactive measures to reduce the impacts of such disasters.

1.4 Conclusions

The following findings and conclusions from the analysis have a bearing on cost pricing for water production and watershed protection:

- The average annual per capita availability of renewable water resources is expected to fall.
- Given the already unequal distribution of these resources, marginal groups (especially in the rural areas) will experience water stress.
- The supply of water for health and sanitation (especially in the rural areas) is inadequate.
- Indiscriminate use of forest resources, and encroachment upon protected areas, are severely affecting the sustainability of water resources.
- Notwithstanding increases in the water tariff, the cost of producing water is being heavily subsidised by government.
- Users are not being encouraged to value water.
- Water conservation technologies are still rudimentary, and incentives for innovation are weak.
- Poor land-use planning and soil management, especially in and around watersheds, is severely reducing freshwater capture and production.

- Sedimentation, and over-utilisation of chemicals for agriculture and industrial use, are deteriorating water quality and are posing significant risks to public health.
- Institutional arrangements for monitoring, collecting, researching, and evaluating water-related data and associated environmental conditions are poor.
- Considerable fragmentation exists among a multiplicity of institutions whose mandates and activities impact the water resource.
- Human resource capacity in the water sector is weak, especially in such critical areas as water and wastewater management, pollution control, finance, integrated water resource planning, and the operation and maintenance of water-related infrastructure and services.
- The absence of environmentally-sound and cost-effective sewerage collection and treatment facilities threatens the integrity of the water supply and the sustainability of water resources and supporting ecosystems.
- Increasing the productivity of agriculture through expanded irrigation could increase water stress unless effective and timely technical and management measures are introduced to improve the productivity of irrigated water.
- By itself, a system of licences is insufficient to permit the NWSC to allocate available water resources among competing uses in an effective manner.

2. The planned situation

In 2000, the Government of Saint Lucia embarked on a Water Sector Reform initiative to ensure the sustainability of freshwater resources by managing them in a way that balances competing demands on the sector.

In this chapter, we examine the central elements of the reform process, which include:

1. The adoption of a *National Water Policy.*

2. The adoption of a new *Water and Sewerage Act*.

2.1 The *National Water Policy*

The policy design process was framed by dialogue and consultation among social partners to generate awareness of the major issues and challenges facing the water sector, to develop a co-ordinated approach to overcoming these challenges, and to achieve fundamental and sustainable water resource use and development.

2.1.1 The objectives and guiding principles of the *National Water Policy*

The specific objectives of the *National Water Policy* are to:

1. Foster the adoption of an integrated approach to the management of water resources.

2. Enable people to lead healthier and more productive lives through improved management of water resources, and increased and sustained access to water supply, sanitation, and water-based services.

3. Increase and sustain the contribution made by water resources to the development of the agriculture/food and industrial sectors respectively, and to environmental sustainability.

4. Ensure efficient and equitable allocation of water among competing uses.

The *National Water Policy* espouses the following key principles:

- All water in the water cycle – whether on land, underground, or in surface channels, falling on, flowing through, or infiltrating such systems – will be treated as part of the common resource.

- Water required to meet basic human needs and maintain environmental sustainability will be guaranteed as a right.

- All other water uses will be recognised only if they are in the public interest and will be subjected to a system of allocation which is optimal for the achievement of equitable and sustainable economic and social development.

- Water development and management will be based on a participatory approach involving users, planners and policymakers at all levels.

- Putting people at the centre of water policies involves recognising their right to enjoy healthier and more productive lives and to participate in water resources management.

- Women have a central role to play in the provision, management, and safeguarding of water.

- The ideal approach to water resources management is one that is demand-driven.
- Water should be priced in such a way as to encourage judicious use and to generate the money needed to maintain water services.
- Prices that accurately reflect water's economic or scarcity value enable consumers' choices regarding water consumption and use.
- Investments in the water sector should balance economic development with poverty alleviation and improvement in public health.

2.2 The strategic focus of the *National Water Policy*

2.2.1 Capacity building for integrated water resources management

Table 3 sets out the objectives and accompanying strategies aimed at building the capacity of institutions to practise integrated water resources management (IWRM), which is being embraced by government as the basis for: co-ordinating the development of water, land, and related resources; maximising equitable economic and social welfare while maintaining environmental sustainability; and sustaining the involvement of all stakeholders in the management of water, in all its aspects and interactions.

Table 3: Objectives and related strategies for capacity building for IWRM

Objectives	Strategic actions
1. Foster the integrated management of water resources. 2. Strengthen the human resource capacity, and improve the efficiency and effectiveness, of water resource management agencies. 3. Promote effective water pollution prevention and control. 4. Improve the information base for sustainable water resources management. 5. Engender the appropriate changes in cultures and in the perception and attitudes of users of water resources. 6. Establish effective and efficient mechanisms for allocating water among competing uses. 7. Reduce the negative impacts of water-related disasters on society, the economy, and the environment, and reduce the impact of natural disasters on the water sector.	1. Implement basic structures and functions for an effective water resources management and regulatory organisation. 2. Undertake long-term planning for the water sector. 3. Co-ordinate and monitor interventions within the sector. 4. Implement a strategy for the sustainable use of water resources. 5. Provide for public participation in the formulation and implementation of policies and strategies. 6. Provide for the use and facilitation, mediation, assisted negotiations, and other techniques of alternative dispute settlement, to better manage competition among users. 7. Realign national standards and guidelines in the context of national legislation. 8. Design and adopt measures to prevent and control the pollution of water resources and their supporting ecosystems. 9. Build the appropriate regulatory capacity and legislative framework outlining appropriate preventive and corrective measures. 10. Strengthen enforcement agencies. 11. Evaluate the total economic value of water resources. 12. Conduct regular assessments of climate and hydrological data.

2.2.2 Establishing equitable and efficient allocation and pricing mechanisms

The *National Water Policy* espouses the Government of Saint Lucia's belief that a well-defined allocation strategy would address many of the conflicts in management of water resources. The view is that allocation of water must be married with efficient water use, and that efficiency can best be assured by:

1. Charging the full cost of water, including the cost of building and operating water supply systems.
2. Reducing losses in distribution.
3. Protecting forests, watersheds, and other ecosystems required to regulate and maintain water quality.

Government proposes to apply a combination of appropriate administrative and economic instruments, including tariffs that are affordable, acceptable, and administratively feasible. In setting these tariffs, the government intends to ensure that the poor and other disadvantaged groups are not harmed. For those groups engaged in productive activities – such as agriculture – some of the charges may be waived for a determined period in emergency situations.

All major water user sectors will be required to develop a water use, conservation and protection policy, and regulations will be introduced to ensure compliance with the policy in key areas.

Economic incentives will be applied to encourage the use of water conservation and storage technologies. Recognising that water use is determined not only by its own price, but also by the prices of goods and services that consume water, the government will consider the implementation of a balanced programme of reforms to correct price distortions in agriculture, industry, and other areas that affect water.

Current administrative and market-based mechanisms for allocating water resources will be expanded based on the following basic allocation criteria:

- Historical water rights.
- Availability of water.
- Effects on existing sources and downstream users.
- Water quality.
- Economic considerations.
- Efficiency of use.
- Protection of the supporting ecology and ecosystems.
- Investments made by the user in providing infrastructure.

A system of cross-subsidies will be considered as a means of reducing prices for the poorer groups.

In the short term, the government intends to pursue prioritised investments to break the cycle of inadequate income and poor service, and to build management capacity at the central and local levels. Investments will target priority needs and reactivate under-utilised systems. At the same time, a long-term investment plan will be prepared to co-ordinate

sector activities at both the community and national levels with investments in the economic and social sectors. A related programme will also identify sources of finance for these investments and will explore the creation of development funds.

Cost recovery mechanisms will be used to ensure that the direct beneficiary pays and that the supply of service is maintained. A regulatory regime will be developed to ensure that only efficient cost levels are recovered from consumers. Licensed operators will continue to recover operating costs through tariffs. Where necessary – in order to achieve social objectives – the government intends to provide subsidies equal to the tariff, fees and charges otherwise payable by the consumer for "social water". Recovery of these costs is fundamental to the sustained viability of the entity providing the service.

The government intends that the sector is able to access a wide range of sources of finance in the future. These sources will include:

- Charges levied on consumers in addition to the tariff, to fund new projects from which they will benefit.
- Finance provided by the private sector where feasible.
- Government grants for specific works with high social or environmental value.

2.3 Water for health and sanitation

The *National Water Policy* recognises that in addition to being a basic human right, universal access to a safe water supply and appropriate sanitation can also increase economic wellbeing and contribute to human development by providing real personal benefits in the form of greater privacy, convenience, safety and dignity – all important aspects but especially for women and children. Moreover, bringing water and sanitation to households and communities can reduce the time and energy that is lost in fetching water from long distances, and due to illness caused by water-borne diseases, and will allow the time saved to be applied to economically productive and educational activities. The objectives and strategies in the area of water and sanitation are set out in Table 4 below.

Table 4: Objectives and strategies: health and sanitation

Objectives	Strategies
1. Ensure the availability of minimum necessary quantities of water and standards of sanitation service to all in a cost-effective manner, and mindful of health and environmental considerations. 2. Ensure a sustained flow of financing for water and sanitation services. 3. Strengthen institutional capacity for monitoring, surveillance and management of water supplies and treatment facilities. 4. Increasing private sector participation in provision and maintenance of supply and sanitation services.	1. Expand the sewerage network in areas with high population. 2. Implement laws to protect public safety. 3. Support accountable and autonomous service providers, private sector participation, and public-private partnerships, emphasising equity in access to water for the poor and under-served. 4. Implement tariffs that enable access to a minimum quantity of safe water for the poor – including packages that combine water use and resource management charges to cover costs, improved regulation, and increased public awareness. 5. Define the minimum standards for "social water". 6. Train community members to undertake monitoring, surveillance and management of water and sanitation services.

2.3.1 Financing the provision and maintenance of water and sanitation services

The *National Water Policy* recognises that in order to protect human and environmental health, minimal levels of water and sanitation services will have to be provided to meet basic human needs, irrespective of the citizen's ability to pay. Accordingly, the Poverty Reduction Fund (PRF) and the Basic Needs Trust Fund (BNTF) will be required to play an integral role in supporting the provision of social water.

The NWSC is given the responsibility to approve fees and tariffs based on prescribed/agreed water quality and service quality standards, minimum standards of sewerage services coverage, and other appropriate parameters. The NWSC and all licensed operators are required to implement a public awareness campaign whenever tariffs are adjusted. This will include information on ways in which consumers can reduce their demand for water.

2.3.2 Increasing private sector ownership and participation

Cognisant of the capital-intensive nature of the water supply and sanitation sector, the government is keen to relieve itself of the full burden of financing the sector by encouraging private sector ownership and investment in new infrastructure, and in the operation of water services. However, the government will continue to own and/or control (directly or through designated entities) the natural resources and existing infrastructure assets. The policy emphasises private sector participation that:

- Is in the country's best interest.
- Improves economic efficiency in the sector, in terms of operating performance and the use of capital investment.
- Brings technical and managerial expertise and new and appropriate technology into the sector and thus improves the productivity of water.
- Injects investment capital into the sector and/or facilitates access to private capital markets, thereby reducing public investment.
- Insulates the sector from short-term political intervention in utility operations, and limits opportunities for intervention by powerful interest groups.
- Transfers the risks and responsibilities of ownership from government to the private sector over the long term.
- Delivers a reliable and efficient service to communities throughout the island.
- Makes the water sector more responsive to consumer needs and preferences.

2.4 Water for agriculture and food

The *National Water Policy* accepts the critical role of water in boosting food security, in helping to conserve foreign exchange, and in improving the livelihoods of the poor. Table 5 sets out the key objectives and accompanying strategies in managing water for agriculture and food production.

Table 5: The strategic response in water and food

Objectives	Strategies
1. Increase food production by providing access to water in a cost-effective and efficient manner, and at a price which incorporates the opportunity cost of the commodity produced as well as the social dimension of agriculture, to reflect the real value of the sector. 2. Encourage implementation of measures to ensure conservation and sustainability by providers and consumers of water. 3. Promote effective research that can boost the productivity of water for food and agriculture production. 4. Mobilise additional sources of funding and investment support, introducing cost recovery mechanisms.	1. Introduce drought-tolerant and drought-resistant varieties of crops and livestock. 2. Promote better production techniques. 3. Improve irrigation management. 4. Increase overall support for research in land development. 5. Develop new approaches for delivery of cost-effective water services. 6. Develop contingency plans to deal with the negative impact of disasters on water quality and quantity.

2.4.1 Financing and cost recovery for water for agriculture and food

To ensure that irrigation and other water management systems are financially viable, the policy proposes that operation and maintenance costs of existing systems should be met from charges paid by the users of those systems. This policy objective will be phased in within 5 years. In the case of new systems to be constructed under any national irrigation and water management development plan, users will also be required to pay a reasonable proportion of the capital costs. The proportion of the cost which will be carried by users will depend on the ability of the users to pay, and will be decided on a case-by-case basis. In addition, the government plans to promote:

- The achievement of cost-efficiencies.
- Mobilisation of additional sources of funding and investment support from the private sector and external sources.
- The introduction of cost recovery mechanisms to ensure that the direct beneficiary pays and that the supply of services can be maintained and expanded.

It is envisaged that the current practice for servicing water needs for agriculture and food will continue. The intention is that private sector and co-operative involvement in public irrigation and water management systems will be facilitated through groups or associations that could function as legal entities (e.g. co-operatives or limited liability companies) where this is deemed the best model for any particular system. The membership of these associations will be drawn from among farmers.

2.5 Water for industry

Table 6 outlines the key elements of the strategic response in the use of water by industry.

The policy demonstrates sensitivity to the fact that some hotels and manufacturing plants have installed, or are considering installing, desalination plants so as to enhance their international competitiveness. However, the policy stipulates that except in emergency cases, or in cases where freshwater resources are exhausted or are in limited supply, licences will not be granted to applicants wishing to produce desalinated water for public

consumption. Other applications will be considered on a case-by-case basis. In all cases, due consideration will be given to:

- The strategic importance of the business.
- The degree of reliability of its current source of freshwater.
- The results of an environmental impact assessment (EIA) of the operations of the proposed desalination plant.
- The production capacity of the proposed plant.

Table 6: Key objectives and strategies in water and industry

Objectives	Strategies
1. Ensure the availability of a safe, reliable and affordable supply of water for use by industry. 2. Reduce the negative environmental impacts of industry on water resources and supporting ecosystems.	1. Establish minimum standards of service. 2. Encourage the use of water-saving devices. 3. Introduce regulations and voluntary compliance instruments including: demand management, waste control, and process and emission standards. 4. Develop and enforce strict standards regarding the use of recycled water. 5. Strengthen the capacity of all resource management agencies to manage the EIA process.

2.6 Water for environmental sustainability

An interesting feature of the policy is its explicit recognition of the role of freshwater (and the ecosystems that support it) in environmental sustainability and in the regeneration of many ecological processes. Table 7 sets out the key objectives and strategies in the use of water for environmental sustainability.

Table 7: Key objectives and strategies – water and environmental sustainability

Objectives	Strategies
1. Integrate the development of water resources with conservation of ecosystems that play a key role in the water cycle. 2. Mitigate the impacts of natural disasters on water resources.	1. Establish regimes that control development activity within and around watersheds. 2. Allocate – and acquire where necessary – areas for the conservation and protection of water supplies. 3. Give priority attention to the implementation of the *National Biodiversity Strategy and Action Plan*. 4. Undertake risk assessments that can inform decisions on appropriate levels and mitigation strategies to deal with water-related, natural, and human-induced hazards, such as resource scarcity, water quality, non-average climatic events, public health issues, and ecosystem change.

2.7 Implementing the *National Water Policy*

It is proposed that institutional arrangements be put in place to monitor the impact of the policy against the vision and objectives that have been set, and to adjust the policy in the light of changes in the situation. Significant roles are identified in the policy for diverse actors and agencies at the national and community levels. The roles envisaged for these actors are summarised in Table 8 below.

Table 8: Roles and responsibilities of major actors in policy implementation

Role of the government
1. Provide leadership and co-ordination. 2. Establish effective, accountable IWRM institutions with transparent decision-making. 3. Incorporate IWRM in sustainable development strategies. 4. Promote public education and awareness. 5. Promote participatory decision-making in IWRM. 6. Allocate water efficiently between competing sectors. 7. Regulate the activities of water service providers. 8. Facilitate private sector involvement in the water sector. 9. Promote the objectives and strategies of the policy. 10. Monitor the implementation of the policy. 11. Manage natural hazards impacting the water supply. 12. Plan for prevention and mitigation of disasters related to floods and droughts.
Role of private sector
1. Implement policies that emphasise water conservation. 2. Observe the 'polluter pays' principle; the 'user pays' principle; and the 'precautionary' principle. 3. Make informed investments in the water and sewerage sector.
Role of citizens
1. Articulate needs in relation to their respective livelihood priorities. 2. Take full responsibility for arming himself/herself with appropriate information regarding water resources management.
Role of civil society
1. Monitor the responses of government and the private sector to the demands of consumers. 2. Enable the poor and other marginalised groups to determine their livelihoods, practise sustainable water resources management, and access essential and appropriate services. 3. Form a communication channel between government and the people about service levels, difficulties arising from the implementation of the policy, and the role of the different players. 4. Disseminate information and knowledge about new IWRM approaches within communities. 5. Assist in monitoring the impact of the policy. 6. Assist with assessments of water quality and the health of freshwater ecosystems.
Role of international community
1. Provide guidance on efficient and sustainable service provision. 2. Provide financial and technical assistance. 3. Assist the public sector in compiling and disseminating accurate information about water and sanitation services. 4. Support the institutions that provide training and education for water resource managers. 5. Share more effectively the existing knowledge that can contribute to meeting the various water challenges.

2.8 The new legal framework

The *Water and Sewerage Act* of 2004 takes it cue from, and builds on, the *National Water Policy*. The two main elements of the Act are:

1. The establishment of a Water Resource Management Agency.

2. The establishment of a National Water and Sewerage Commission.

2.8.1 The Water Resource Management Agency

The establishment of the Water Resource Management Agency is a major feature in the environmental management landscape in Saint Lucia. The agency will operate under the portfolio of the minister responsible for agriculture and will be headed by a director who will report to the minister. The functions and powers of the agency include the following:

1. Receiving and considering applications for abstraction licences and permits for use of water in control areas, and permits for discharge of waste in waste control areas.
2. Establishing and maintaining a database of information relating to water resources management.
3. Promoting the sustainability of water resources.
4. Advising on the conservation and use of water resources.
5. Undertaking water resources assessment and planning including: surveying, monitoring, research, and development.
6. Developing watershed management plans.
7. Providing technical advice to the National Water and Sewerage Commission.

2.8.2 The National Water and Sewerage Commission (NWSC)

The NWSC is charged with responsibility for designing and operating a system in which conflicts between providers of water and sewerage services are resolved in a manner that ensures that water resources are used as efficiently and economically as possible.

The functions and powers of the NWSC include:

1. Receiving and considering applications for the provision of water and sewerage services.
2. Establishing and approving tariff schemes.
3. Promoting economy and efficiency in the delivery of any service.

The NWSC will be responsible for setting tariffs at a level which will allow the licensed operators to fully recover efficient cost levels (including both capital and operating costs). The licensed operators will be responsible for increasing the efficiency of their operations, and thus reducing costs to the lowest efficient levels. Where exceptional circumstances dictate the need for additional funds for systems improvements or rehabilitation, the NWSC is to take this into account in setting tariffs.

The *Water and Sewerage Act* requires that a tariff scheme must recover the efficiently-incurred costs of the service and offer a reasonable return on capital, thereby permitting a service licensee to attain the objective of economic equilibrium. The Act also provides that, except when demand permits, a tariff scheme must not be unduly discriminating. When

demand does permit, and the costs of the service justify it, tariffs may be established for differing localities, seasons, categories of customers, volumes of water provided, and volumes of sewerage discharged. In addition to the tariff, the Act provides for the establishment of a water and sewerage levy, which every customer will be charged.

The Act also provides for Cabinet to provide a cross-subsidy and/or a direct subsidy for the provision of a service in order to ensure that low-income households obtain access to the service.

3. Prospects and challenges for cost pricing for water production and protection

3.1 Prospects

Saint Lucia's *National Water Policy* promises a significant improvement in the overall approach to the management of water resources. Of central importance to the concerns of this report are the following measures that offer a framework for the introduction and management of market-based instruments in the water sector:

A. The adoption of a participatory approach to water development and management involving users, planners, and policymakers at all levels. This principle is enshrined in, and supported by, concrete proposals to adopt IWRM approaches as the basis for co-ordinating the development of water, land and related resources; maximising equitable economic and social welfare while maintaining environmental sustainability; and sustaining the involvement of all stakeholders in the management of water in all its aspects and interactions.

B. The adoption of equitable and efficient allocation and pricing mechanisms. Of relevance here is government's stated intention to apply a combination of appropriate administrative and economic instruments including tariffs that are affordable, acceptable and administratively feasible. The use of economic incentives to encourage water conservation and storage technologies, and the proposed implementation of a balanced programme of reforms to correct price distortions in the major economic sectors, are noteworthy features of the policy.

C. The promotion of community participation in water resources management. Also noteworthy is government's intention to build adequate management capacity at the central and local levels. In this regard, government intends to train community members to undertake monitoring, surveillance and management of water and sanitation services (presumably for a fee). Private and co-operative involvement in public irrigation and water management systems is to be facilitated through groups or associations that could function as legal entities where this is deemed to be the best model for a particular system. In this respect, the intention to form water user associations at the local or community level, in theory at least, should provide identifiable and cohesive groups that could facilitate sustained dialogue and negotiations between water resource managers and providers on the one hand, and users on the other hand.

3.2 Challenges

The situational analysis of the water sector in Saint Lucia confirms the deep and wide-ranging challenges that attend efforts at financing water production and protection services in small island developing states. Given the current state of the infrastructure and institutional arrangements in that island, investments will involve a high minimum capital outlay (approximately EC$ 90 million over the next decade) and long payback periods, as well as greater risks and lower rates of return than other forms of infrastructure. The monopolistic nature of the sector and its social sensitivity will undoubtedly require continued government intervention, (especially to protect marginalised groups and to ensure service quality), which generally does not always bring about financial sustainability and private sector participation in the sector.

While the *National Water Policy* and the *Water and Sewerage Act* propose various mechanisms for financing water production and watershed protection, it is clear that full cost recovery in the Saint Lucia water sector is not likely to be achieved solely from the water tariff, and that the government will be required to provide direct and indirect subsidies for

some period of time. With over 90% of consumers in the residential/domestic user category paying the lowest water rate, and with high rates of poverty (averaging 20%) and unemployment (8%), the effect of cross-subsidies will be minimal.

It is also clear that in the absence of sustained reform of the governance of the sector, high capital investments are not likely to lead to effective provision of services. Even if the desired level of investment is achieved, this may only place unbearable pressure on already weak institutions and outstrip the growth of income necessary to generate revenue for sustainable operation and maintenance (OECD 2004).

The approach used in other jurisdictions – particularly in OECD countries – of gradually increasing user fees to first cover operational and maintenance costs, then later to recover capital investments, and ultimately reflecting environmental costs, has some applicability to Saint Lucia. The 100% tariff increase in 2000 can be treated as the first stage of the OECD approach. However, this increase covered only 50% of the cost of producing, treating, and distributing raw water (estimated at $EC 13.00 per 1,000 gallons) and was imposed more with the aim of assisting WASCO to service its loans than as a realistic attempt at cost recovery. Whilst this tariff hike, combined with improvements in billing and collection through an expanded metering programme, helped to increase cash flow, the capital investments needed to reduce unaccounted-for-water (estimated at 47%) were not undertaken. The result is that the public has not perceived any marked improvement arising from the increase. A 2004 Water and Sewerage Baseline Survey Report has revealed that 55% of people interviewed were definitely not willing to pay more for water (RAI 2004).

The government's approach is to act on those matters that are within its immediate sphere of control by, *inter alia*:

1. Establishing the policy and institutional framework needed to mobilise and allocate resources for the water sector.
2. Ensuring the delivery of water services in an efficient and effective manner.
3. Separating policymaking, regulation, and service provision functions.
4. Making service providers accountable to both customers and to regulators, through performance contracts.
5. Moving away from a reliance on taxes to user charges as the basis of cost recovery in the sector.
6. Pursuing private sector participation in the water sector.

The effectiveness of the first five initiatives will determine government's ability to induce private sector participation in the water sector. However, whether or not private sector participation is achieved, these reforms must be implemented.

The successful reform of the electricity sector offers hope for the success of ongoing reform of the water sector. But as was the case with the electricity sector, the reform of the water sector must be treated as an iterative process that is refined and modified in the light of data and experience. All the major stakeholders should be involved in the process, and there should be regular feedback between policymakers and those involved in implementing and financing the requisite policy changes.

3.3 Rationalisation of institutional roles and responsibilities

Effective implementation of the *National Water Policy* and the *Water and Sewerage Act* will fall to the Water Resources Management Agency and the National Water and Sewerage Commission respectively. The real challenge for these entities will be in their "management

disposition" that is, the degree to which they are structured and organised to practise IWRM principles. It is clear that the current centralised approaches are inappropriate, and would have to be changed to permit horizontal and vertical integration and co-ordination of systems that facilitate the active participation and involvement of communities living in and around watersheds, as well as water users. In this regard, the pertinent operational issues would revolve equally around the way in which the entities will discharge their functions, and the principles they will uphold.

Some significant pointers of the new institutional culture would include: the composition of the respective entities; and the level of inclusion of national water user groups and associations, and communities living in or near watersheds, in decisions regarding:

- The issuance of abstraction licences and permits for use of water in water control areas.
- The development of watershed management plans.
- The preparation of water master plans and allocations schemes.
- The implementation of water resources assessment and planning, including surveying, monitoring, research, and development.

Much will depend on the level of awareness of water resource managers of innovative water resource management approaches used elsewhere, and their willingness to examine the adaptability of these approaches within the national context. In this regard, active participation of the WRMA and the NWSC in CANARI's Action Learning Group (ALG) – and in other regional water-based initiatives such as the CEHI/GEF/UNEP Integrated Watershed and Coastal Area Management Project (IWCAM), and the OAS Integrated Water Resources Network (IWRN) – should assist in building the requisite knowledge and awareness.

3.4 Recommendations

It is recommended that CANARI should, as a first step, develop a short- to medium-term strategy to engage water sector managers in Saint Lucia in dialogue regarding the prospects of introducing market-based instruments (MBIs) to support the objectives of the *National Water Policy* and the *Water and Sewerage Act.* Elements of this strategy might include:

- Reaching agreement with water resource management entities on an education and awareness programme regarding the use of MBIs in cost pricing for water production and protection.
- Exposing representatives of water resource management entities to best practice in the use of MBIs in cost pricing for water production and protection.
- Identifying and designing pilot initiatives to test the feasibility of MBIs in cost pricing for water production and protection in select locations.
- Assisting in reviewing potential or actual areas of policy conflicts in Saint Lucia's water sector.

References

AGRICO Ltd. (2001) *Draft Report on the National Water Situation and Assessment of the National Water Profile.* Saint Lucia.

DFID (2001) *Addressing the Water Crisis: Strategies for Achieving the International Water Targets*. London, UK.

Eudovique R. and L. Arnold (2001) 'Evaluation of the Improved Water Supply Intake for Surface Water Courses'. Paper presented at the 10th Conference of the Caribbean Water and Wastewater Association (CWWA), Grand Cayman, October 2001.

FAO (1998) *Prefeasibility study for small-scale irrigation*. Report /98/082 TCP-STL. Rome.

Global Water Partnership (2002) *Policy Guidance and Operational Tools*, Version 1.

Government of Saint Lucia (2004) *Saint Lucia National Water Policy*.

Hunting Technical Services and Mott MacDonald Ltd (1998): *Watershed and Environmental Management Project Phase 2, Final Report - Volume 2*.

Government of St. Lucia (1998) *Biodiversity Country Report of St. Lucia.* Ministry of Agriculture, Forestry, Fisheries and the Environment of St. Lucia Available online at: www.slubiodiv.org (accessed 11th August 2006)

OECD (2003) *Financing Water and Environmental Infrastructure for All: Summary of Global Forum on Sustainable Development*. Available online at: http://www.un.org/esa/sustdev/csd/csd12/Background6.pdf (accessed 11th August 2006)

RAI (2004) *Water and Sewerage Baseline Survey Report*.