PUBLIC PARTICIPATION IN SOLID WASTE MANAGEMENT IN SMALL ISLAND DEVELOPING STATES

A Research Paper

by

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The author is a member of staff of the Caribbean Development Bank (CDB). However, the views expressed are his own and not those of the CDB.

ABSTRACT

"Public Participation in Solid Waste Management in Small Island Developing States"

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This paper is prepared based on discussions with solid waste managers and other stakeholders in the Organisation of Eastern Caribbean States (OECS), actual participatory observation by the author, analysis of primary and secondary data and information collected from solid waste management (SWM) operations in the OECS countries, Barbados, Belize and from other developing countries. Some examples are also drawn from two sub-regions (Mashreq and Maghreb Countries) in the Mediterranean region. The paper presents information on public consultation approaches and particularly on the best practices for successful public participation and consultation on SWM projects (SWMPs) in the Caribbean countries. Based on the special nature of SWM, the paper, in conclusion, sets out some guidelines on how to engage the public throughout the SWM project cycle. It posits that the Caribbean should mainstream public participation and also agree on ways to measure and monitor participation. In keeping with their commitment to the Millennium Development Goals (MDGs), the Countries should agree on Guidelines for Social Impact Assessments. These should allow them to identify risks to be mitigated and to adjust SWMPs designs to provide opportunities for the local population including the poor to participate in efficient and effective SWM. Special thanks to Janice Cumberbatch for her assistance.and comments

Key words: public participation; solid waste management; project cycle; town meetings.

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GLOSSARY OF TERMS

Cell	Basic unit on which a landfill site is developed. It is the general area where in-coming waste is tipped, spread, compacted and covered.
Composting	Biological decomposition of solid organic materials by bacteria, fungi and other organisms into soil-like product.
Design Criteria	Engineering guidelines specifying construction details and materials which must be met by a facility, structure or process in performance of its intended functions.
Disposal of Waste	Final handling of solid waste following collection, processing or incineration. Disposal most often means placement of waste in a dump or landfill
Diversion of Waste	A combination of waste prevention, recycling, reuse and composting activities that reduce waste disposed at the landfill
Dump	Unmanaged refuse disposal site.
Ecosystems	A community of interdependent organisms together with the environment which they inhabit and with which they interact.
Enforcement	Administrative or legal procedures and actions to require compliance with legislation, regulations or limitations.
Hazard	A danger, peril or source of harm.
Hazardous Waste	Any waste that is potentially damaging to environmental health because of toxicity, ignitability, corrosiveness, chemical reactivity or other reason.
Hydrology	The study of the water and water movement in a particular area.
Incineration	Combustion or controlled burning of volatile organic matter in sludge and solid waste which reduces the volume of the material while producing heat, dry inorganic ash, and gaseous emissions.
Landfill Gas	Gases produced from natural or artificial anaerobic decomposition, the most common being methane, carbon dioxide and hydrogen sulphide.
Leachate	Decomposition by-products that contain contaminants which may seep through underlying soil and permeable rocks posing a threat to surrounding environment.
Materials Recovery Facilities or "Buy Back Depots"	Facility which purchases recyclables from individuals for resale to industry or processes them to meet specific industrial requirements.

Monitoring	The routine observation, sampling and testing of designated locations of parameters to determine efficiency of treatment or compliance with standards or requirements.
Municipal/Domestic Waste	Generally liquid and solid waste originating from a mixture of domestic (household), commercial, and industrial sources.
NIMBY	Acronym for "Not In My Back Yard". An expression of residents or property owners in opposition to the proposal to locate solid waste facilities in their neighbourhood
Recovery	Removal of materials from the waste stream for reuse or recycling.
Recycle	Material used, reused or reclaimed.
Reuse	Application of appropriately treated materials for a constructive purpose.
Sanitary Landfill	An engineered method of disposing solid waste on land in a manner that meets most of the standards specifications, including sound location planning, extensive site preparation, proper leachate and gas management and monitoring, daily compaction and final cover, complete access control and record keeping.
Sludge	Accumulated solids separated from liquids, such as water or wastewater including sewage.
Tipping Fees	Fees for unloading or dumping waste at a landfill, transfer station, incinerator or re-cycling facility.
Transfer Stations	Temporary storage facility for waste used in circumstances where the landfill is located too far from the areas where waste is collected. Waste is later loaded into large capacity vehicles for disposal at the landfill.
Waste Minimisation	The reduction, to the extent feasible, of waste that is generated or subsequently treated, stored or disposed of. It may include any source reduction or recycling activity undertaken by a generator that results in a reduction in the total volume or quantity of waste.

Source: Adapted from: (1) UNEP International Source Book on Sound Technologies for Municipal Solid Waste Management- Technical Series no. 6; and (2) EPA web page: http:// www.epa.gov/epaoswer/non-hw/muncpl/dmg2/glossary-pdf

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ACRONYMS AND ABBREVIATIONS

BASEL	-	Convention on the control of Trans-Boundary Movement of Hazardous Waste
CBO	-	Community Based Organisation
CDB	-	Caribbean Development Bank
EIA	-	Environmental Impact Assessment
EIB	-	European Investment Bank
EPA	-	Environmental Protection Agency
FCCA	-	Florida Caribbean Cruise Association
GDP	-	Gross Domestic Product
GEF	-	Global Environmental Facility
GOBD	-	Government of Barbados
IAP	-	International Association of Public Participation
Km	-	Kilometre
LF	-	Landfill
M&E	-	Monitoring and Evaluation
MARPOL	-	Marine Pollution (Convention for prevention of)
METAP	-	Mediterranean Environmental Technical Assistance Programme
MFI	-	Multi-lateral Financial Institution
Mn.	-	Million
NGO	-	Non-Governmental Organisation
NIMBY	-	Not In My Back Yard
OECS	-	Organisation of Eastern Caribbean States
PIU	-	Project Implementation Unit
PMU	-	Project Management Unit
POA	-	Programme of Action
Rs	-	Reduce, Reuse, Recycle and Recover
RSWMP	-	Regional Solid Waste Management Project
SIA	-	Social Impact Assessment
SIDS	-	Small Island Developing States
SWM	-	Solid Waste Management
SWMA	-	Solid Waste Management Authority
SWMP	-	Solid Waste Management Project
SWME	-	Solid Waste Management Entity
UNEP	-	United Nations Environmental Programme
US (A)	-	United States (of America)
WB	-	World Bank
WEDC	-	Water, Engineering and Development Centre
WSSD	-	World Summit for Sustainable Development

1.0 INTRODUCTION AND BACKGROUND

1.1 The Research Problem, Approach and Objective

Sustainable solid waste management (SWM) is a relatively new discipline in Small Island Developing States (SIDS) and success of SWMPs has been threatened by social risks associated with the inadequate inclusion of the public in decision making on SWMPs. This research provides an opportunity for interdisciplinary work of the natural and social sciences to review the experiences and issues related to public participation of two regional SWMPs. The overall objective of the research is to determine how the timely and consistent application of appropriate public participation plans may assist in reducing project risks and enhancing efficiency. The problem is that in the Caribbean there is generally a lack of formal procedures and guidelines for the public participation and consultation and this naturally contributes to inefficiency in use of resources and to project risk. This paper highlights the role that an effective public participation process can play in sustainable development projects throughout the project cycle.

1.2 Rationale for Public Participation

Traditionally in the Caribbean, SWM was dealt with through Public Health Legislation that was part of a command and control approach. In some countries, for example, scavenging was unlawful (UNDP, 1996). In the early 1990s, particularly after the United Nations Conference on Environment and Development held in Rio de Janeiro in January 1992, countries began to formally adopt Environmental Impact Assessment (EIA) policies, undated legislation, strategies and guidelines that required information dissemination and public consultation on projects for which development permits were required. Environmentally sound management of waste was highlighted as a major environmental issue in Chapter 21 of Agenda 21 that was adopted at the Rio Conference which re-affirmed the Declaration of the United Nations Conference on Human Environment that was adopted in Stockholm in June 1972. Principle 10 of the Rio Declaration states:

> "*Environmental issues are best handled with the participation of all concerned citizens, on a relevant level. On a national basis, each individual should have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States should facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy should be provided.*"

This laid the basis for the participatory planning of SWMPs in SIDS, including the Caribbean. However, public participation in SWM was not well planned or coordinated and at times was in conflict with good environmental management.

After the Rio conference, development agencies and financial institutions, particularly Multi-lateral Development Banks also sought to address environmental and social risks associated with projects presented to them for financing. They developed and adopted EIA and Social Impact Assessment (SIA) Guidelines within which information dissemination and disclosure policies were enunciated. At the same time, and more so after the United Nations Global

Conference for Sustainable Development of SIDS held in Barbados in 1994, management of wastes was agreed as a major priority area to prevent and reduce pollution in SIDS. Accordingly, public consultation practices regarding SWMPs evolved over the last decade and this paper captures some of the critical lessons of experience of stakeholder participation.

The rationale of effective public participation is clearly based on the fact that everyone generates waste and can be affected directly and indirectly if waste is not well managed. Solid waste (SW) can be hazardous to man and the environment if not appropriately managed. Apart from the threat to poor air quality, inadequate SWM increases risk of morbidity (leptospirosis, dengue fever, gastroenteritis etc) (Pinnock 1998). Poor management of SW can also affect ground water and marine ecosystems. Consequently everyone has to be involved in SWM for effective and efficient SWM systems. On the other hand waste can be a resource that can be used and provide employment opportunities that may contribute to poverty alleviation if the populations are informed, educated and included in the SWM decision making process. With the decline of the sugar and banana industries in the Caribbean, the countries are even more dependent on tourism which is still very much nature based. Consequently every effort must be made to maintain public health and environment quality for residents and tourists. It is not only important to involve individuals in SWM but also groups and the private sector as full ownership and management by the government may not be the most efficient approach.

The World Bank (WB) posits that worldwide evidence indicates that SW collection services provided by public monopolies typically cost between 25 to 41 percent more than competitively contracted services (World Bank 2004). In Latin American cities, private contracted out service costs have been cut in half through higher labour and vehicle productivity and the promotion of micro-enterprise development. Recycling cooperatives have contributed to living conditions improvement and poverty reduction in Asia. This was echoed by the University of Loughborough's Water, Engineering and Development Centre (WEDC) which hypothesises that SW collection should be privatised based on a thorough understanding of the complex interactions between a wide range of actors. They agreed with the WB's findings on reduction to poverty and improved living conditions but highlighted contribution to reduced unemployment and socio-cultural disruption (WEDC 1998) WEDC's research was based on three South-Asian cities viz. Colombo (Sri Lanka), Dhaka (Bangladesh) and Faisalabad (Pakistan).

In the early 1990s the governments of six OECS countries and Development Partners (Caribbean Development Bank-CDB, European Investment Bank-EIB and the Global Environmental Trust Fund and the World Bank-WB) commenced the preparation and appraisal of a solid waste management project (SWMP) to address marine and terrestrial pollution. After a deliberate process of public consultation based on the then new guidelines adopted by the WB, the appraisal of the OECS SWMP was completed in 1995. Loans and grants were approved by the Development Partners and the project was implemented over the period 1995-2003. A review of the OECS SWMP and of some experiences in Belize and Barbados, provide a good basis for examining Public Participation in SWM in some Caribbean Small Island Developing States (SIDS). In addition, a review of a Mediterranean Environmental Technical Assistance Programme (METAP) in two regions (Mashreq and Maghreb Countries) assisted in identifying best practices of Public Participation approaches, especially in participation by the private sector.

1.3 Public Participation in Municipal SWM

Human existence is dependent on the use of material resources which eventually become waste. As developing countries achieve greater socio-economic well-being, the more waste per capita is realised and more critical is the need for effective and efficient SWM systems. Performance of such systems depends on the meaningful participation of individuals, communities and institutions, producers, NGOs and governments. Every individual generates waste and in the Caribbean, the scope of SWMPs is country-wide. Consequently, public participation is national in scope and would involve everyone in the country. Such participation may be the population as a whole, or specific interest groups such as: waste generators; waste pickers; recycling industries; waste collection contractors; SWM facility operators and staff, residents in close proximity to SWM facilities, politicians, central government and public agencies; financial agencies; etc. Since SWM involves everyone in the country, there is a wide range of stakeholders who are required to operate and manage SWM systems. In the Caribbean and Mediterranean areas, apart from the need for a clean physical environment for residents, it is important to maintain an aesthetically pleasing physical environment for visitors, as tourism is an important industry.

In the 1990's, it was decided by countries in the Caribbean and in the Mediterranean to establish new SWM systems and to close dump sites in an effort to upgrade the SWM operations. This gave the officials a good opportunity to involve the population in the planning and designing processes. These include: selecting sites for the location of critical SWM facilities; and in the operations, viz. the delivery of services such as waste picking, recycling, composting, collecting and transporting and LF management. More importantly, the population would have had some oversight of the performance in SWM activities in terms of collection schedules and routes and the effectiveness and efficiency of operating the system.

1.4 Research Methods

This report is based on an evaluation research approach based mainly on important cases and issues and secondary analysis of archival data and information. The data collection was effected through:

- Discussions with SW managers in the OECS, Turks and Caicos Islands and Barbados;
- Discussions within CDB and with WB staff in the Caribbean and in the Mediterranean;
- Discussions with waste recycling entities, individuals and community groups;
- Participatory observation based on sites visits to Antigua and Barbuda, Dominica, Grenada, St Lucia and St. Vincent and the Grenadines;
- Review of published and un-published CDB and WB documents and reports on the OECS SWMP and the METAP; and
- Review of conference material and CDB project Files.

The approach has been largely qualitative, based on an assessment of public participation experiences throughout the Project Cycle of SWMPs. This required the research of official country files and bank documents and project reports. The research took the form of post evaluation research where an attempt was made to determine how participative the processes were in formulating, preparing, appraising, implementing and managing SWMPs (Rossi P

and H Freeman, 1985). Discussions with SW managers supplemented the research of official documents, and public opinions expressed in press and radio call in programmes assisted in determining some of the critical gaps in the project planning process or issues which needed further ventilation in public fora. Participation by the private sector has been captured in project reports and from meetings held with solid waste contractors who shared their experiences as service providers. The literature on public participation in general and, in particular, on SWMPs was reviewed and relevant topics related to the project cycle were presented and discussed to provide the technical background.

One challenge was the lack of base-line information to assess the extent of public participation against original expectations. Not only was there not an outline of public participation methods, there was no monitoring system to record information in a consistent manner so written records had to be researched which did not speak directly to public participation. However the reports of WB and CDB assisted in following the OECS SWMPs issues through the stages of the project cycle. Experiences of METAP and other Caribbean countries assisted in completing an inventory of important public participation issues which were evaluated.

1.5 The Report

This report captures some important issues and lessons of experience in relation to public participation throughout the project cycle. Some experiences from the OECS and other Caribbean countries, outside of the OECS, are highlighted**.** The review of METAP also assisted in identifying lessons of experience of other Developing States and the wider development community. The paper is divided into seven sections and presents information on public consultation and participation approaches and particularly on the best practices for successful public participation and consultation on SWMPs. The results of the research are presented in sections 5, 6 and 7. The paper, in conclusion (section7), sets out some guidelines on how the public should be engaged throughout the SWM project cycle from initial project planning to post-evaluation and throughout the SWM cycle viz. waste generation, storage, collection, transportation, treatment and disposal, particularly in relation to the 4 Rs: Reduce; Reuse; Re-cycle; and Recover

2.0 SOLID WASTE MANAGEMENT IN THE CARIBBEAN AND THE MEDITERRANEAN COUNTRIES

2.1 Solid Waste Management in the Caribbean

Based on discussions with SW managers, a review of CDB Project files 1994-2005 and from field investigations, the waste management situation in the 1990s in the wider Caribbean (including the OECS countries, Belize, Jamaica, Turks and Caicos Islands, Barbados, Trinidad and Tobago and Guyana), was characterised by**:**

- Dumps poorly located around the country;
- Uncontrolled scavenging;
- Regular burning being an integral part of disposal site management as limited cover material was used. (Sometimes due to poor compaction and presence of bulky items placed on the disposal site, internal combustion resulted and fires burned over long periods of time causing a public nuisance);
- Inadequate management and maintenance of SWM systems;
- Inadequate budgetary allocation by Central Government to the responsible line ministry;
- Weak legal and regulatory framework and inadequate institutional capacity of SWM Entities (SWMEs). There were no strategies or policies articulated and no comprehensive SW legislation. Responsibility was shared among a number of entities including the Ministries of Finance, Environment, Public Works, and Health and Local Councils;
- Inappropriate and inadequate vehicular equipment;
- Inadequate management of hazardous waste;
- Low public education and awareness of SWM issues; and
- Populations underserved with collection service.

2.2 Special Area Designation

The Caribbean Sea, like the Mediterranean Sea, is an important area for cruise tourism and other productive activities that can only be sustainable if the marine environment and on-shore excursion facilities are maintained attractive and free from pollution. These are semi-enclosed seas that seek protection under the International Convention for the Prevention of Pollution from Ships (MARPOL 1973). This Convention was amended by the 1978 Protocol (MARPOL 73/78) and provides for the establishment of Special Areas. Under the auspices of the International Maritime Organisation, strict detailed pollution standards are applied to the discharge from ships in Special Areas. Annex 4 of the convention specifically addresses the discharge of solid waste. In particular in the Caribbean, there was no adequate plan to manage ships waste which was required to influence the Florida Caribbean Cruise Association (FCCA) members not to discharge certain types of waste indiscriminately into the Caribbean Sea which was designated as a Special Area. This, together with the threat to human health posed by poor waste management practices, formed the rationale for the establishment and maintenance of upgraded SWM systems in the Caribbean based on public consultation and participation.

2.3 SWM in the Organisation of Eastern Caribbean States (OECS)

The OECS) comprises the countries of Antigua and Barbuda, Dominica, Grenada, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines and Montserrat (a British Dependent Territory). The OECS Secretariat, formed in 1981 to further regional cooperation, is financed by its Member States and Aid Agencies. A map of the Caribbean showing the OECS countries is presented below at Figure 1.

Figure 1: Map showing OECS Countries

Solid waste management (SWM) has been one of the important election issues in the Caribbean over the last ten years as the countries sought to upgrade their SWM systems. The populations were affected by pollution (bad odour and smoke) from poor SWM practices and in some cases had to seek medical attention. In general, there was a negative attitude to SWM and a distrust of the authorities. The Independent Member Countries of the OECS are governed based on a system of separation of power of Legislative, Executive and Judiciary. There is limited local government and the countries are managed by Central Governments. The Head of State is the Governor General and the Head of each Government is the Prime Minister who chairs the Cabinet of Ministers whom he/she appoints. Elections are constitutionally due every five years. The OECS countries are small Independent (except Montserrat) Developing States with a total population of approximately 566,000 and land sizes varying from 261 square kilometres (Km.) in the case of St Kitts and Nevis to 754 square km. in the case of Dominica. Table 1.1 below indicates the Gross Domestic Product (GDP) per capita, the size and population of the Independent OECS countries

Table 1.1 Indicators of Size of OECS SWM Project Countries

Country	Population (000)	Area (Square Km)	GDP Per Capita US $(000)
Antigua and Barbuda	80.0	442	10.2
Dominica	70.4	754	4.1
Grenada	104.5	340	4.2
St. Kitts and Nevis	47.9	261	8.4
St. Lucia	162.4	620	4.7
St. Vincent and the Grenadines	100.6	389	4.1
TOTAL	**565.8**	**2,806**	

Source: Compiled from CDB 2005 Annual Economic Overview Report

By the time the Agenda 21 was adopted in 1992, MFIs and International Funding Agencies (CDB, WB, GEF, European Investment Bank) were already identifying and assisting six OECS States of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines in preparing the OECS SWMP. This coincided with the development of National Environmental Action Plans that identified several key priorities for action (World Bank 2003). One such priority was SWM.

The OECS sub-region is committed to supporting the implementation of the SIDS/POA and the designation of the Caribbean Sea as a Special Area and recognises the importance of waste management in pollution prevention. The project countries are SIDS and if SW is not managed effectively, it would impact not only terrestrial resources but also marine resources through terrestrial run off and stream flow. The objective of the project was to protect the environment and reduce health risk to residents and visitors through a reduction in terrestrial and marine pollution. Specifically, the project's aim was to improve the management of domestic and ship generated waste to:

1. reduce risk of loss of economic and environmental resources;
2. reduce risks to human (residents and visitors) health; and
3. contribute to the satisfaction of conditions relating to having the Caribbean Sea designated as a Special Area in accordance with MARPOL (73/78) (WB 1995)

While the project was not demonstrated to have any significant poverty reduction benefits, the urban poor (or 15-20% of the population) were identified as major beneficiaries. The benefits were not quantified but were linked to flood mitigation, improved health, cleaner streets, and employment opportunities in recycling, collection and disposal of SW. The formulation and preparation of this regional project was a particularly challenging one for all the countries and the MFIs. Consequently, the long preparation phase took approximately three years. Loans and grants were not approved until 1995 and the implementation phase took as long as eight years. The total project cost of US$61.0 mn. was financed by US$51 mn. in loans and grants, and total counterpart contributions of US$10 mn from the project countries. CDB has been the major funding source as it provided a total of US$27 mn

in loans and a grant of US$310,000 for supervision of the project (Source: CDB Loans and Grant Activity Records).

The major elements of the OECS SWMP include six national components and a regional component as follows:

(i) National Components

- Land purchase and development;
- Civil works associated with establishment and operating the SMW system (including internal roads, office buildings, transfer stations, utilities, etc.);
- Construction of 7 new sanitary LFs and upgrading of 6 existing LFs;
- Closure of 22 existing dumps;
- Procurement of collection and transport equipment and vehicles;
- LF equipment procurement;
- Medical waste facilities;
- Recycling facilities;
- Port waste reception facilities to satisfy requirements for the Special Area Designation of the Wider Caribbean Sea;
- Engineering services;
- Institutional development of SWMEs; and
- Financial expenses during implementation. (WB1995)

(ii) Regional Component (Project Management)

- Technical Assistance in Project Management;
- Model legislation;
- Promotion of strategies for re-cycling and waste minimisation and diversion;
- Public awareness and education programme;
- Training and education (local, regional and international);
- Enforcement of MARPOL;
- Development of Model Environmental education; and
- Joint procurement planning. (WB 1995)

The regional component was designed to support the national components and contribute to complete tasks that could be done more efficiently at the regional level.

2.4 Project Implementation

Project Implementation Units (PIUs), in the participating countries were responsible for the implementation of the national components. The establishment of PIUs and engagement of engineering consultants to design and construct LFs, were conditions precedent to first disbursement of project funds. Another important loan condition was the establishment of SWMEs to have overall responsibility for the operation and management of the SWM systems including monitoring the performance of the PIU and any private sector involvement in the implementation of the project.

A Project Management Unit (PMU) was established within the OECS Secretariat in St. Lucia to be responsible for the implementation of the regional component. A project manager was

not appointed until 1997. The PMU became inoperative by the middle of 2000 and the project countries had to assume direct responsibility for some of the regional component activities including procurement of equipment and follow up activities based on consultants' reports that were completed. The responsibility was later given to the Natural Resources Management Unit of the OECS Secretariat. While there were regular meetings between the PMU and the SWMEs/PIUs, these did little to expedite the implementation process. Other factors that contributed to delays in implementation include issues associated with the location of LF sites (Grenada and St. Vincent and the Grenadines), with the design and costs of LFs and with the time taken to complete the institutional arrangements. Based on periodic PMU reports, there was insufficient dialogue and consultation as there was no system established to engage the public during implementation of the regional component.

2.5 Lessons of Experience

Without discussing the full details of the lessons of experience of the OECS SWMP, it is necessary to provide a list of the major lessons. Based on a review of the project performance, the OECS SWMP and other Caribbean experiences in SWM, some of the important lessons are:

- Sound participatory processes must inform the planning of SWMPs that are very complex as everyone in the country is a stakeholder.
- Given the significant amount of project activities and the range and number of stakeholders across a group of countries, a great degree of flexibility is required.
- Given the small size of the countries, poorly managed waste is clearly visible to residents and tourists. Given the high visibility of SW, the population holds government accountable for adequate SWM.
- LF sites degenerate into dump sites as a result of poor management and inadequate financial resources.
- There is need for education and awareness to better understand the pollution problem. Participation can be facilitated by public education and awareness and inclusion in special programmes and contests to raise public awareness on SWM.
- Population growth and increase in imports will continue to place strain on small countries with limited land masses to properly manage their waste.
- Co-financing arrangements need to be well understood between all Financiers and Borrowing countries.
- Salesmen of waste to energy systems need to be more convincing about the technical capability of their goods.
- Countries should ratify and implement relevant conventions such as MARPOL and BASEL as part of their regulatory system.
- An appropriate M&E system is critical for the management of SWM systems
- Governments in the Caribbean must more aggressively pursue a policy of the 4 Rs.
- There is need for private public sector partnerships in waste management activities that should be guided by a system of incentives and disincentives, rules, regulations and agreements.
- Joint purchasing can only be effective if countries implement their national components at the same rates.
- Unresolved issues may result in public protest and threaten the project.

Based on the lessons it may be concluded that there is difficulty and risks associated with planning, implementing and managing SWMPs. The difficulty of SWMPs, super-imposed on the difficulty associated with of regional projects, would present challenges to project planners. Efficiency gains have to be weighed against the risks, including social risks. One important activity is public awareness and training which is a necessary ingredient in planning SWM projects.

The development community, along with its clients and partners, need to develop methodology to estimate project benefits of SWMPs. While in a qualitative sense, the benefits associated with reduced risks of morbidity, mortality and pollution have been presented, there has been no quantification of benefits. There is need for further study and research for the necessary hypotheses and approaches. Cost recovery is critical to the success of any SWMP and more effort should be placed in assessing risk associated with shortfall in revenues and government support. The public's capacity to pay should be determined as part of the social surveys associated with the project. There should also be an incentive system to guide behaviour especially in the waste collection and recycling and LF management.

Finally, there is need for a clear policy and regulatory framework and the political will by governments to fully implement SWM systems. Public Participation should be up-streamed into SWM policy. While the search should continue for technologies to address the 4 Rs, there should be some provision for an inventory of SWM sites based on sound technical, economic, financial, social and environmental criteria. Plans for the closure of LFs should be required in the initial planning phase.

2.6 Mediterranean Environmental Technical Assistance Programme -Regional Solid Waste Management Project (RSWMP)

In the Mediterranean, SWM is a serious problem as of the 35 mn. tonnes of municipal waste produced in the countries, only 15% of SW is managed properly, while the rest is a threat to the environment (World Bank 2004). In addition, there is a monopoly of public service providers and the countries budgets for SWM are insufficient. However, SWM is not nearly as important a political issue in the Mediterranean as in the Caribbean. One possible reason for this is the fact that the Mediterranean countries are much larger and waste disposal sites are relatively far away from communities. Consequently the issues related to NIMBY, nuisance of bad odour and smoke inhalation, are not of direct relevance. In addition people in the municipalities regard waste management as socio-economic opportunity for the poor persons to engage in waste recycling. (See a map of the Mediterranean area at Figure 2 below.).

Figure 2: Mediterranean Basin

The Mediterranean Environmental Technical Assistance Programme (METAP)-Regional Solid Waste management Project (RSWMP) was developed, funded and executed in eight countries adjacent to the Mediterranean Sea (in Northern Africa and 4 in the Middle East) to address the threat of SW pollution. See Box 1 below. The rationale for the RSWMP was based on a situation characterised by:

1. low collection efficiency;
2. inadequate waste collection, treatment and disposal;
3. poor monitoring; and
4. environmental damage (from odour, illegal burning, sites contamination**). (WB 2004)**

These are similar to the problems and issues which were identified to be addressed by the OECS SWMP. Cruise tourism is important to the economies of the Mediterranean as well as the Caribbean.

Box 1. Mediterranean Environmental Technical Assistance Programme - Regional Solid Waste Management Project (RSWMP)

The objective of the RSWMP is to promote and adopt sustainable Integrated SWM practices in the Mediterranean project countries. The project is being funded (6.25 million Euro) by the European Union and is being executed by the World Bank over the period 2004-2008 in the eight project countries of Algeria, Egypt, Jordan, Lebanon, Morocco, Palestinian Authority, Syria and Tunisia. As was the case with the OECS SWMP, a regional component was established and managed by a Regional Management Group which is based in Tunisia while national coordinators were allowed to drive the project activities in the countries. Common issues that require urgent action under the project include:

- Gaps in SWM policy and planning
- Institutional and legal constraints
- Inadequate technical and management capacity
- Lack of financial resources and mechanisms for sustainable cost recovery
- Constraints on private sector involvement
- Limited stakeholder participation and environmental awareness

Source: (World Bank.2004)

Some comparisons may be made between the OECS and the Mediterranean RSWMP countries. While the Mediterranean countries may not be considered small they are developing countries (with GDP per capita generally below that of the OECS region) adjacent to a very important marine ecosystem, the Mediterranean Sea, a designated Special Area.

3.0 SEARCH OF THE LITERATURE ON PUBLIC PARTICIPATION

Public Participation may be broadly defined as the involvement of citizens in governmental decision-making processes. This ranges from being given notice of public hearings to being actively included in decisions that affect communities. It is generally a process of engaging stakeholders so that those most likely to be impacted by a particular activity can influence the outcome. *Public* refers not only to private citizens but institutions, civil society, labour unions, the Government, public officials, industrial, agricultural and trade associations, scientific and professional societies, environmental, educational and Health associations and other minority Groups (EPA 2005).

There are many publics as "the public" is not a monolithic entity (Mc. Garity 2005) and the relevant publics would have to be identified to ensure that their rights are not compromised. Public Participation is a dialogue which enables the public to understand and influence decision-making.

It is necessary to establish the Public Involvement Framework and identify participants or stakeholders and determine their legitimacy by social analysis (UNEP 1996). There is a wide variety of models from which to choose. The one chosen should reflect the public input required. Some models of public participation are given below.

3.0.1 The Exclusionary Model

This model indicates that the government or agency is the exclusive guardian of the people and any self-acclaimed representative of the public interest was an officious meddler. Only competitors and other institutional stakeholders were allowed to participate. This proved inappropriate for risk-oriented decision-making. There may be some usefulness in cases of rate hearings and public utility regulation. (Mc. Garity 2005) In the Caribbean, some decision-makers adopt an approach that they have been appointed or selected to make decisions for the populations who may not have the knowledge and information to make decisions for themselves.

3.0.2 The Confrontational Model

The Confrontational Model is at the other end of the spectrum to the Exclusionary Model and results from a stringent application of the Exclusionary Model. This is really not a desirable model. It is not effective in addressing matters of intense local interest but may be effective if activists can attract the sympathy of a large number of other inactive members of public**.** It is a way of keeping certain topics or concerns on the public agenda or getting agencies to revisit decisions already made. (Mc. Garity 2005)

When a person feels excluded or that her/his interest has not been well represented she/he can confront the agency. Sometimes there is picketing and civil disobedience e.g. in the 1980s, outraged neighbours picketed for proposed hazardous waste dumps. Also there have been shouting matches at meetings during debates on SW disposal sites or incinerators or other SWMP components being located near their homes and offices.

Confrontations are usually intended to be very public but they are not designed to be participatory and certainly are not conducive to informed dialogue about risks and mitigation. Sometimes a decision-maker agrees to speak to the activists to induce them to stop their

action but they are rarely asked to participate in the actual decision-making process. This model is characterised by distrust and is restricted to local activities and usually employed by individuals or ad hoc groups. Activists, who at times participate at considerable risk to their own economic and physical well-being, seek a wider audience. Only highly emotional matters or matters of high principle are likely to justify such individual action. Purely economic interests do not often invoke the confrontational model. (Mc. Garity 2005)

3.0.3 The Adversarial Model

The Adversarial Model represents a situation where all interested groups have a right to participate by submitting facts, evidence, views and arguments. The agency assumes the role of neutral decision-maker. Based on courtroom adjudication, parties who may be represented by counsel are usually allowed testimony through experts. This is dominated by lawyers and the settlement presumes winners and losers. (Mc. Garity 2005) This model was experienced in cases where residents sought compensation from a Caribbean government in court for the health effects from an existing LF. In some cases, this is a slow and expensive process. In some cases, protesters to the location of a LF seek international attention. This can be a cheaper and more effective approach.

3.0.4 The Due Consideration Model

The Due Consideration Model is similar to the adversarial model except that the agency takes a position prior to the public hearing and invites the public to comment on their decision as well as on the issues generally. It does not adopt the procedural protection of the Adversarial Model and so is less burdensome. The agency is only required to give due consideration of outsiders and explain its chosen action. (Mc. Garity 2005)

This model is better adapted to issues that are policy dominated and for which factual accuracy is not essential. Participants are less directly involved in the actual decision making process. Suspicions are easily raised that due consideration is not given to participants points of view especially when the agency adopts the option it initially proposed with little or no adjustment. (Mc. Garity 2005)

3.0.5 The Mediation Model

The Mediation Model requires that representatives of groups meet together, often with the aid of a mediator or facilitator, to present facts and arguments so as to reach an agreement on the ultimate result. The agency may participate in the discussions and attempt to implement agreed solutions. Public participation may be invited at this stage while Negotiators meet until agreement is reached. This may be a useful approach in planning SWMPs as the relationship between government and residents is often confrontational. (Mc. Garity 2005)

3.0.6 The Advisory Committee Model

The Advisory Committee Model is similar to Mediation Model except that it relies heavily on scientific and technological expertise. The Agency appoints a committee of disinterested experts to advise on the technical issues and on a resolution. This model seems favoured by decision makers who are not scientifically trained and who do not want to “take the heat”. Agency may lose control of the outcome but this may be reduced by choosing experts for the

advisory committee whose views on technical issues will yield results that are in accordance with the decision-maker's policy preferences. (Mc. Garity 2005)

3.1 General Assessment

In the real world, there is not going to be an exact case that accurately represents any particular model. Based on preponderance, the models most detected are the *exclusionary* and *confrontational*. However, as more emphasis is placed on transparency and good governance, the Mediation model tends to reflect current reality

3.2 Measuring Success in Public Participation

Elizabeth Evans, in her paper presented at the International Association for Public Participation (IAP) in 2002, sought to address how the success of the Public Participation Process could be determined.

Her paper explores the question of evaluation of consultation processes and how these may be approached. She focussed on three issues:

1. What is meant by success in the context of Public Participation
2. Whether there are meaningful consistent ways of measuring success
3. Whether it is wise to attempt such measurement. (Evans 2002)

The practice of Public Participation is complex. It may be considered as a process that contributes to overall results of the business or enterprise. While it is not new, emphasis over the past five years has been on selling the idea to decision-makers that Public Participation would add value and reduce costs and risks. The problem with "success" is that those involved are likely to have different ideas of what success means. The process of Public Participation requires the invitation of stakeholders to participate and there is a need to identify:

- the range of stakeholders;
- the inputs required (financial and other resources) in information staff, training, policy etc.;
- processes (nuts and bolts of the programme); and
- outputs (products and deliverables that come out of the work done). (Evans 2002)

The range of activities that make up Public Participation is expanding rapidly and references are made to community engagement to build good will. Community participation can be a wide range of activities especially in SWM and it takes account of aspirations and views of people directly affected. It facilitates involvement of affected communities, businesses, etc. through discussions, debates, negotiations and planning.

Evans based measurement of success on four core values and associated principles previously articulated by the IAP as follows:

1. **Equity** – decision-makers should provide opportunities for all those with an interest in the subject
2. **Integrity** – decision-makers must act in good faith

3. **Openness** - provision of information to the public that is accurate, honest, comprehensive, clear and accessible
4. **Accountability** - specification of the degree to which public involvement would influence decision making and accurate reports on how commitments are discharged. (Evans 2002)

Evans, like other commentators, at best, provides only research methodologies based on qualitative approaches to measurement of success. Indeed, it is limited in terms of timing for the measurement as it depends on processes in planning and decision-making which can only be implemented long after the commencement of the consultation process. The effectiveness of the Public Participation Process would have to be determined over a period of time based on pre-determined performance indicators. Evans did indicate that there is a need for the establishment of value based, consistent, measurable standards for all Public Participation activities. Other attempts by the IAP have been qualitative, based on judgement. IAP provided a matrix called the *IAP2 Public Participation Spectrum* (IAP 2005) that is summarised below at Table 3.1.

Table 3.1: IAP2 PUBLIC PARTICIPATION SPECTRUM

INFORM	**CONSULT**	**INVOLVE**	**COLLABORATE**	**EMPOWER**
Goal: To provide the public with balanced and objective information to assist them to understand the problems, alternatives, opportunities and/or solutions.	**Goal** To obtain public feedback.	**Goal** To work directly with the public to ensure that their concerns and aspirations are understood and considered	**Goal** To partner with the public in each aspect of the decision.	**Goal** To place final decision-making in the hands of the public.
Promise: To keep public informed.	**Promise:** To keep public informed, listen to and acknowledge their concerns and provide feedback.	**Promise**: To work with the public and provide feedback on how the public inputs influence the decision.	**Promise:** To look to the public for advice and innovation in formulating solutions and incorporating such advice into decisions to the maximum extent possible.	**Promise**: To implement what the public decide.
Tools: -Fact sheets -Web sites -Open houses	**Tools:** -Public comment -Focus groups	**Tools:** -workshops -polling	**Tools**: -Citizen advisory Committees -Consensus building -Participatory decision-making	**Tools**: -Citizens jury -Ballots -Delegated decisions

(Source: IAP 2005)

This tool is no more than a re-visit of the United Nations Environmental Programme's (UNEP's) Public Involvement Framework. It is a convenient one-page 5x4 matrix which allows users to quickly identify and monitor the desired and achieved levels of public participation and impact. It requires deliberate identification of the public participation goals of *Inform, Consult, Involve, Collaborate* and *Empower.* The basic promises to the public are to:

- keep them informed;

- acknowledge concerns and provide feed-back on how their inputs influence the decision;
- work with them to ensure their concerns are directly reflected in the alternatives developed;
- look to them for direct advice and innovation in formulating solutions and incorporate recommendations into decisions to the maximum extent possible; and
- implement what they decide. (IAP 2005)

The Spectrum elaborates the types of techniques to be considered in realising the desired level of participation viz. fact sheets, web sites, focus groups, surveys, meetings, participatory decision-making, ballots, citizen advisory committees and the like. UNEP had already identified the best practices for successful public involvement. While the Spectrum does not really add much to the literature, it provides a handy tool or checklist. A procedures manual would complement the spectrum as the dynamics of public consultation and participation require even-handedness and appropriate approaches. There are issues relating to the trade off between proposals from different groups or between the technical and social aspects of the proposals being considered.

3.3 Some Best Practices for Successful Public Involvement

UNEP proposed a list of best practices as follows:

1. develop a public involvement framework as early as possible to establish the scope, timing and resource requirements necessary to support the process;
2. identify the participants and stakeholders and establish their legitimacy and "representativeness" (using social analysis). It should be noted that not all social actors can or should be consulted on every detail of the proposed project;
3. identify appropriate techniques of public participation/communication and provide relevant information in a form which can be easily understood (e.g. using a combination of seminars, simple written materials, visual aids and scale models can help to make the technical material accessible to the non-specialist);
4. plan and execute events at a time and venue that will encourage the maximum attendance and free exchange of views by all interested groups. Money may be specifically allocated to help facilitate community involvement (e.g. to pay for travelling expenses or costs involved in hosting meetings and inquiries);
5. allow stakeholders sufficient time to assimilate the information provided, consider the implications and present their views;
6. identify mechanisms which ensure decision makers consider views and suggestions made by stakeholders - integrate findings and recommendations into the environmental assessment report, financing proposal and agreement; and
7. ensure that responses and feedback are given on issues or concerns raised. (Source:UNEP 2000)

The best practices are quite representative of the methods outlined by other commentators and form the basis on which the performance evaluation of the OECS SWMP may be based. (UNEP 2000)

3.4 Social Assessment Tool Kit

Janis Berstein designed a *Tool kit* to provide guidance in the conduct of social assessments on SWMs to ensure appropriate levels of public participation in the planning and implementation of such investments (Berstein 2004). Berstein highlighted that this took the form of an approach to SIA which placed a high premium not only on identifying negative impacts on stakeholders but on the way how the public may be included in the project design and operation to the mutual benefit of the government and the population. She cited nine examples of the roles community might play. These include:

- Management of waste in the household and removing it from the premises;
- Reducing waste production and facilitating recovery for purposes of recycling;
- Keeping public areas clean;
- Participating in the design of SWMPs;
- Supplying "watchdogs";
- Providing input in SW facility siting decisions; participating in SWM plans;
- Participating in preparing strategic SWM plans;
- Providing public education for raising public awareness; and
- Sponsoring or participating in special campaigns and competitions to raise the profile of SWM. (Berstein 2004)

Berstein did not specifically mention particular groups within the community but based on the roles outlined and her attention to conflict resolution, one may deduce that she did not think that the stakeholders were a homogenous group. In her identification of relevant stakeholders, "community" is redistributed among the following:

1. **National level**: Ministries of Public Works, Local Government, Public Health, Finance and the Environment.
2. **Local Level**: municipal authorities, SWM agency, local politicians.
3. **User groups**: residential, commercial, institutional, industrial and medical facilities.
4. **Waste workers**: employees of SW services, waste pickers, sweepers, domestic workers and janitors.
5. **Vulnerable groups**: residents living near SWM facilities, persons responsible for the disposal of household waste and waste pickers.
6. **NGOs**: local environmental organisations, church groups, youth groups, etc.
7. **Community based Organisations (CBOs)**: local groups that may be responsible for the management of neighbourhood services.
8. **Private sector**; private enterprises that use recyclables, waste collection firms, chamber of commerce.
9. **Trade Unions**
10. **Other Stakeholders**: media, education institutions, etc. (Berstein 2004)

3.5 Rationale for Public Participation

In WEDC's research, it is suggested that the available literature may be categorised into broad areas as follows:

- **Privatisation**

There is a body of literature on privatisation of infrastructure and services to reduce governments' role, lower cost and increase efficiency of collection systems (for example Cook, 1988, Cointreau, 1994 and IFC, 1995). Much of the literature is based on experiences of developed countries and the privatisation process is rarely evaluated on the basis of adverse social impacts. More recently, grey literature on privatisation has been discussing holistic approaches to privatisation.

- **Public/Private Partnerships**

This category considers privatisation in a broader social context. It discusses ways of enhancing community participation in planning and operation, protecting users rights and considers community groups as contractors in the delivery of infrastructure and services.

- **Small and Micro Enterprises**

The literature on small and micro-enterprises is more relevant to research in micro-economics and management. There are very few publications that discuss the role of micro-enterprise in SWM.

- **"Policy and Planning "and "Institutional Aspects"**

Policy and Legislative framework and institutional capacity development are of essential importance to successful SWM systems.

3.6 The Private Sector

While private sector entities are some of the major stakeholders, it can be expected that based on particular cases some additions or subtractions may be made. Also, there may be the need to break the stakeholders into splinter groups.

The private sector is a very important group which may comprise sub groups with different interests. By the 1990s, the Washington Institutions (WB and the International Monetary Fund) were stressing that government should reduce its operations and provide an enabling environment for the private sector to invest and operate. This was expected to contribute to greater efficiency. These institutions also expected that as a consequence, private individuals might enhance their socio-economic well being by participating in business activities. The sector is not homogeneous and is made up of many interest groups that operate as private individuals, sole proprietorships, partnerships and private and public companies. There are also NGOs, CBOs and private/public partnerships. Sandra Cointreau (World Bank 2004) indicated that interest in private sector participation was based on the following:

- the investment from the private sector was required to limit government capital outlay; and
- the sector provided efficiency driven by competition.

She posited that there should be clear guidelines for private sector participation and that auditing, monitoring and inspection were essential for success. Based on a review of private sector participation in SWM in the Caribbean, it may be added that such participation

depends significantly on the incentives provided by government and the cost structure of the enterprises.

3.7 Incentives

Incentives are required to provide the private sector with the opportunity to participate in provision of SWM services and make adequate return on investment. Incentives may include revenue payments above consumers' willingness to pay or cost reductions in the form of tax reductions, subsidies or operating cost reductions. In providing incentives, government would have to determine the true costs it would have to meet if it were to provide the particular SWM service. The true cost would include some of Government's "hidden costs" which would require that a detail socio-economic cost-benefit analysis would have to inform the level of incentives that could be offered. These costs include: depreciation of fixed assets; debt service; seconded staff; social benefits (health and pension plans); and other administrative overheads. Some costs could be clearly quantified while others may be determined by *contingent valuations*. On the other hand, the private sector would have to budget for extra costs such as taxes and duties; insurance; marketing and promotion; debt service on capital items and overdraft facilities. An appropriate incentive system must therefore be based on a good understanding of the costs and possible collectable revenue and or benefits of particular SWM services to the economy and society.

3.8 Project Cycle

3.8.1 Original Concept

The concept Project Cycle which was first developed in the early 1970s by William Baum of the WB is used to analyse the stages through which a project passes from its conception to post completion evaluation i.e. ***Project design and formulation, Project identification, preparation, appraisal, negotiation and approval, implementation and supervision, and evaluation***. This brought some discipline to public investment in developing countries and was particularly well suited to infrastructure development in stable economies that had well-established institutions and predictable government policies (Picciotto and Weaving 1994).

3.8.2 The Bradford University's Project Spiral

By 1977, Bradford University introduced the *Project Spiral*. While this did not add much to the literature, it presented the project cycle as a more dynamic process. Whereas Baum's cycle which was grounded in engineering tradition, was projected as moving forward in orderly progression from one stage to the next, Bradford University depicted pictorially, a cycle that allowed planners to loop back into the design phase at every stage of the cycle, giving more flexibility to project planning and design. However, this would not have been enough to achieve development effectiveness and public participation goals that the development community had as a primary objective.

3.8.3 Search for Development Effectiveness

In the early 1990s, there was an up-surge in interest in the development community in poverty reduction and empowerment of people. Good governance required that people had a say in their own development that they were not voiceless, powerless or rootless. The development community took the initiative to build-in features in their project appraisal

process and criteria and financial conditions, and in a way enticed the developing countries to incorporate into their planning process poverty reduction strategies, good governance and mitigation measures based on sound EIAs and SIAs. At that time, project evaluations indicated that projects performed poorly for one or more of the following reasons:

- Insufficient beneficiary participation. Persons were informed but not really involved in decision-making;
- Developing countries did not commit to ownership of preparation and implementation and there was inadequate consensus building;
- Inadequate risk assessment and management; and
- Inflexible project designs. ((Picciotto and Weaving, 1994)

There was therefore the need for development agencies to enhance their development effectiveness by reviewing their operational policies and approaches and engage in continuous dialogue with primary and secondary stakeholders. This required the establishment of effective development partnerships between developing countries and development agencies with a focus on *participatory development*.

3.9 New Project Cycle

In 1994, just around the time of the preparation of the OECS SWMP, a *New Project Cycle* was adopted by the WB. This was to better adapt to increasingly risky, volatile and participatory framework of development assistance (Picciotto and Weaving 1994). The new cycle emphasised: adaptability; government commitment; capacity building; and effective monitoring. It brought focus on the beneficiaries, incorporated participation into the development process and provided for risk management. Development is not guaranteed by precise long-term planning, therefore *The New Project Cycle* is a learning cycle (Picciotto and Weaving, 1994). It comprises a four-stage sequence viz.:

1. Listening

Listening may be equated to *design* in the traditional project cycle and emphasises the central role of the country and stakeholder participation from the start. The old *top down* approach is therefore traded for a systematic open-ended approach. Participants are required to listen and learn from each other and together conclude on project design features and goals. Based on experience with national SWMPs, different interest groups have been volatile in their participation and some sessions have been inconclusive in a final agreement. However, listening gives the picture from the demand side and allows planners to learn the preferences and values of people and the commitment level of the country. National governments still engage in the *top-down* approach but are beginning to listen based on lessons of experience.

2. Piloting

Piloting is about exploring alternatives and may be informed by pilot and pre-feasibility studies. These are used for listening and further joint preparation work. This is sometimes not achieved as either the population is engaged too late or they are not given alternatives.

3. Demonstrating

The demonstration phase allows fine-tuning and adapting of the project concepts. The project development impact and matters relating to efficacy, efficiency, risks management, institutional impact, sustainability and ownership, are determined. This phase is only complete when it is determined that there has been adequate and appropriate participation and that consensus is strong to take the project to its final stage.

4. Mainstreaming

Mainstreaming is a process of transforming a development project or programme into a self-sustaining national programme, for lasting impact. Institutional development and impact is based on transparency and accountability. While the continuous commitment of stakeholders is a requirement, there must be continuous adaptation to change as implementation proceeds.

3.9.1 Discussion on *The New Project Cycle*

The New Project Cycle brings focus to a process that can reduce risk through a participatory approach. OECS countries had not been very familiar with such a process even though the democratic governments considered themselves elected to make choices for the people who may not always have the information, skill, or knowledge to determine what is best for them. In many ways, the process has been externally driven and not totally *home grown.* At times, this was enforced by loan terms and conditions and *ownership* was limited. In some of the grey literature, there is reference to the OECS SWMP as the World Bank's SWMP even though CDB has been the major financier and the project is a sub-regional one with national components and a regional component. In practice, while there is more commitment to participation by the Development Community, the phases of the *traditional Project Cycle* have been maintained. The *New Project Cycle* allows the building of strategic alliances between development partners and places responsibility for success on the developing countries. However this is complemented by international agreements such as the Rio Earth Conference of 1992, Barbados SIDS Programme of action (POA) conference of 1994, Barbados +10 Conference in Mauritius in 2005, the UN conference held in September 2000 on the *MDBs* and the World Summit on Sustainable Development (WSSD) Conference in Johannesburg in 2002. Countries have signed onto goals and development targets that would require the adoption of strategies, policies, goals and activities and would optimise human development. While the new project cycle concept is not totally new, it accentuates new skills in project planning which are taking some getting used to, especially by the politicians and the broad masses who have not been accustomed to debating their views in a public forum. By their own admission, the authors of this cycle indicated that the cycle should be expanded and intensified. It is a start but a clearer and more detailed road map should be provided to guide planners through a step-by-step process drawing on lessons learnt from case studies. In the meantime, it is prudent to use the stages of the *Traditional Project Cycle* and the discipline of the *New Project Cycle.*

4.0 THE SWM PROJECT CYCLE

4.1 Solid Waste

The word *waste* refers to *refuse* (resources that are to be **discarded** that are perceived as useless). *Solid* is a form of matter, it is different from the liquid or gaseous forms as it implies three dimensional materials rather than materials that take the shape of containers like liquids or like gases that may be stored in containers or allowed to escape into the atmosphere in different forms.

The Concise Oxford English Dictionary indicates that *solid* may be considered as something that "…..is firm and stable in shape." The meaning of the words *solid waste* does not equate to the combined meaning of the two words. The University of Florida defines solid waste as "*garbage, refuse, sludge or other discarded materials, liquids, semi-solids or contained gaseous materials"*. The definition from the University of Florida is in keeping with those adopted by developing countries and development agencies. For example**,** *solid waste*, as defined under Resource Conservation and Recovery Act of the USA Environmental Protection Agency (EPA), is any solid, semi-solid, liquid or contained gaseous materials discarded from industrial, commercial, mining, or agricultural operations, and from community activities. Solid waste includes garbage, construction debris, commercial refuse, liquids or other materials in containers, sludge from water supply or waste treatment plants or air pollution control facilities, and other discarded materials.

It is interesting to note that solid waste is made up of solids and also liquids and gases which are contained. Consequently, hazardous materials in the containers in solid waste stream can present significant risks that would have to be managed to avoid pollution and harm to human health and the environment. The OECS model policy legislation and regulation inception report of July 1998 indicated that there was need to standardise the definition of SW along the lines of the definition used in St. Vincent and the Grenadines and Dominica which allowed a distinction between materials that truly required disposal and secondary resources. The model legislation was passed in January 2002 (CDB project files 2003).

4.2 Solid Waste Management

SWM may be defined as systematic administration of activities that provide for the source separation, storage, collection, transportation, transfer, processing, treatment, and disposal of SW. The objective of SWM is basically the efficient use of resources in the process of managing waste materials.

In the developing countries, SWM has been identified as a priority area to be addressed as part of the sustainable development plans. Comprehensive SWM systems are being developed with an overall goal of pollution prevention and control and maximisation of waste as a resource. Therefore, apart from the planning and implementation of sound SWM systems, it is the responsibility of waste managers to operate based on sustainable development goals. Management should be facilitated by monitoring and evaluation (M&E) systems which would guide corrective action on an on-going and periodic basis. SWM controls have to address likely impacts on air quality (odour and noise), soil, ground water, marine environment and impacts on human safety and health.

Consequently, SWM is one of the biggest issues in small developing countries. Given its associated risks to human health and the environment, SWM requires an integrated approach. The stages of the SWM cycle include:

- Waste generation
- Pre-collection and storage
- Collection
- Transportation
- Treatment (incineration, recycling, composting etc)
- Final disposal

The current policy in developing countries is to consider waste as a resource and, as such, there is a deliberate strategy of waste recovery to save and recover resources, in particular, energy. Accordingly, one is often tempted to add *recovery* as an additional stage. SWMP interventions target environmental protection as part of the wider environment management.

Given the small size, fragility and importance of tourism and agriculture to SIDS, it is prudent that SWM issues are addressed to the satisfaction of a range of stakeholders. In the Caribbean, SWM systems are based on national coverage with centralised waste disposal sites. For the purposes of analysis, it is appropriate to present some of the issues within the context of *The Project Cycle* that allows an analysis of public participation process from the project *conception stage* through to and beyond the *evaluation stage.*

4.3 Generic Solid Waste Management Project Cycle

While it is recognised that a SWMP has many *soft* and *hard* components, the planning of an integrated SWMP based a sanitary LF is used to present some of the project planning and preparation issues. A generic *Project Cycle* is presented at Appendix 1.

4.3.1 Project Identification

At the identification stage, there has to be agreement that appropriate waste disposal facilities are required to deal with the problems and issues of SWM. Initial screening should provide a list of probable disposal sites. The volume of waste to be collected and disposed is based on a waste characterisation study which would assist in determining the quantity and composition of waste to be managed. The quantity and types of wastes to be disposed of would also be informed by analysis of increases in generation over time, and by waste diversion and treatment studies. The volume of waste and the expected life of the Landfill (LF) site would determine the size and capacity of the site required. Such figures are based on assumptions that could be tested by the project promoters but it would be prudent to start by knowing basic site requirements in terms of physical space requirement and availability of cover material. Based on broad criteria, a long list of sites should be prepared. A physical development plan should provide a good basis for determining an inventory of sites. In the Caribbean, there have not been such inventories and better long-term planning is required (Squires, 2005). Based on a pre-determined level of collection service and route planning, a waste collection component is designed. Even at this early stage, public consultation should be employed to guide the technical screening process.

4.3.2 Project Preparation

Once it has been agreed that a site is required to accommodate specific volumes of waste over a particular time period, a short list of sites is based on technical requirements. These may include:

1. Effective capacity of the site to contain the waste for the projected life.
2. Distance from the *Waste Centroid.*
3. Accessibility of the site.
4. Availability of suitable cover and sealing material.
5. Availability of utilities (water, electricity, telephone).
6. Land prices.
7. Geo-technical Characteristics.
8. Presence of minerals (e.g. quarry materials, oil and natural gas).
9. The geomorphology of the site.
10. Distance from the Airport (minimum of 5 km, not always possible in small states).

(Source: adapted from UWI material on *Integrated Solid Waste planning and Management*- ENVT 6143, 2005)

In the Caribbean, there is progressive difficulty in identifying suitable sites because of the following characteristics:

- Small and densely populated land mass.
- Fierce competition among various sectors for land resources.
- High aesthetics required for appropriate tourism product.
- Oil and natural gas exploration.
- Threats to ground water.
- Strong resistance by residents that sites should be "Not In My Back Yard" (NIMBY). (UWI 2005)

The selection criteria are super-imposed with environmental screening and scoping which identify the important impacts that would need to be addressed by EIA consultants but which can also serve to eliminate sites without incurring more expenses. Some the important considerations are:

(i) Public vs. private ownership of the site;
(ii) Compatibility with land use policy;
(iii) Proximity to zones 1 or 2 and depth of aquifers;
(iv) Proximity to settlements;
(v) Composition soils and presence of bedrock (lesson from the Mangrove Pond LF in Barbados);
(vi) Quality of the landscape;
(vii) Visual impact (aesthetics);
(viii) Possible loss of space used for cultural, recreational or scientific purposes;
(ix) Fauna and flora;
(x) Geological risk (landslides, erosion, flooding);
(xi) Surface drainage;
(xii) Permeability of soils and likely impact on ground water;
(xiii) Conflict with historical, heritage, cultural and eco-tourism sites; and
(xiv) Access and traffic implications; and

(xv) Climate (rainfall and wind patterns).

(Source: Adapted from Tchobanoglous etal. 1993).

A simple *Leopold's matrix* can be used in the screening but a detailed EIA would be required by the Multi-lateral Financial Institutions (MFIs) as a full EIA is required on SWMPs. This EIA should also incorporate a SIA and be based on **wide public consultation and participation**. Appropriate EIA and SIA approaches are still evolving and the Caribbean has to continue to improve on public consultation and participation approaches even though the public is fairly sensitised on SWM issues. Even at the preliminary stage of site selection, it is advisable that the public be informed and engaged in discussion.

4.3.3 Pre-feasibility Studies

The pre-feasibility assessment compares a set of feasible options and determines the best one. One lesson learnt in Grenada, St Lucia and Barbados was that options should not be eliminated before the costs of environmental and social risk mitigation are included which, if included in all the options, could have given a different ranking of the sites. The political directorate may deliberately impose criteria to eliminate an option. Some site options were eliminated as there were "above the ground" and contribute to negative visual impacts. Therefore, it seems prudent that all stakeholders' views should be incorporated prior to the finalisation of the short list of sites for more detailed investigation. The results of these investigations will assist in identifying the best site for the location of the LF. The final disposal site's distance from the *waste Centroid* would determine whether there will be a need for a *transfer station*. This will be based on a comparison of total economic costs (public and private costs) "with" and "without" the transfer station. This will have implication for the scale, frequency and intensity of work at the LF site. Pre-feasibility studies of the alternative sites must also be based on a geo-technical report that should include:

- Stability of slopes;
- Description of the geological structure;
- Determination of the appropriateness of low permeability strata;
- Loading capacity of the sub-soil;
- Hydro-geology and hydrology of the site in reference to underground and surface water; and
- Assessment of the facility for treatment of *leachate*.(UWI 2005)

These studies would determine whether:

- the sites are technically viable
- a LF of the required size may be contained on the sites; and
- adequate arrangements can be made to make the sites environmentally and economically viable. (Squires 2005)

At this stage, a cost (capital and operating) comparison is made to rank the site options. The final selection is made based on cost effectiveness and estimated risks associated with the sites.

4.3.4 Feasibility Study

Once the best site has been identified, the feasibility of the preferred site has to be proven as part of an integrated SWM plan. The site is now subjected to: detailed technical, environmental, social, financial, legal and commercial analyses. At this stage, a full EIA and SIA are completed and mitigation plans designed. It is critical that there be **further** public consultation at this stage. The updated costs relating to mitigation of environmental and social risks are included in the project cost. Once a feasible project has been fully designed, then final cost estimates and detailed designs are completed.

The volume of waste would determine whether it is necessary to have transfer stations, although arrangements for *waste diversion* would have to be made to restrict the daily waste for disposal, to the projected volumes. Road conditions, the distance from the *waste centroid* and quantity of waste generated by district, could assist in determining the size of vehicles and the frequency of collection, through time and motion studies.

The feasibility study should provide detailed containment plans. A leachate collection system would be based on information collected on types of waste, rainfall, percolation rates, etc. A LF gas management system would also be developed. The adequacy of cover and sealing material should be demonstrated and plans for daily covering and final cap would have to be pre-determined. Even at this stage, the design of LF must take into consideration restoration plans, as these would determine how the cells are constructed and re-filled. As part of the containment system, a monitoring plan has to be developed. Such a plan will give early opportunity for corrective measures. On an on-going basis, the LF site's impact on the environment (including the human environment) should be determined. Critical information should be collected on drainage and surface run off, leachate system and gas migration.

4.3.5 Review of Feasibility

The project feasibility report is formally reviewed by the relevant agencies. Adjustment in designs may be made and incorporated in the Final Report. This report forms the basis for funding considerations. The government would have already placed an estimate in its capital budget either to fund the project wholly or partially. If finance is sought from a Multi-Lateral Financial Institution (MFI), then that institution should have been included from the identification stage to ensure that its requirements are met and that any issue it may have, is addressed. Once the feasibility has been proven, consultants are retained to provide detailed designs at the preferred location. Tender documents are prepared and staff training manuals developed. The project is now ready to be considered for financing. The major project cost items will include:

1. Preliminary studies and public consultation;
2. Land purchase/acquisition;
3. Institutional strengthening (legal, operational, managerial and financial);
4. Land clearing and contractor mobilisation;
5. Access and internal roads construction;
6. Utilities installation;
7. Excavation and stock piling of soil;
8. LF construction (base layer, liner, drainage system etc);
9. Leachate and gas systems installation;
10. Site fencing, buffering and landscaping;

11. Signage;
12. Office building and other civil works;
13. Procurement, installation and testing of LF equipment;
14. Procurement of vehicles for managerial and operations staff;
15. Weigh scale purchase and installation;
16. Waste diversion and treatment facilities;
17. Hazardous waste facilities and material recovery;
18. Design and establishment of the LF monitoring and evaluation system;
19. Project management services;
20. Engineering services;
21. Public education and awareness programme for behavioural change;
22. Preparation of contracts to operate the disposal site;
23. Outline of capping, closure and restoration plans;
24. Start up supplies (spares, petrol, diesel, safety equipment, toiletries etc.);
25. Staff training and operations manual; and
26. Miscellaneous (Price and Physical contingencies, finance charges etc.). (CDB 1995)

The feasibility study would provide the scheduling of project activities based on a W*ork Break-down Structure* as presented at Appendix 2.

4.3.6 Pre-investment Stage

At this stage, the project is captured in an Appraisal Report that is used by funding agencies to present to their Board of Directors, for consideration. The report describes the project, its activities, costs, procurement of materials and services, implementation plans, monitoring plans, maintenance, risks and its overall feasibility based on cost recovery for tipping or governments subvention, and economic analysis. At this stage, the project description, scope, phasing and financing are agreed. If the project is being funded by a MFI, then once the loan is approved, the government is invited to sign a loan agreement setting out the terms and conditions under which the loan is granted. Special regard must be paid to procurement of goods and services, based on MFI Procurement Guidelines and the government's own Guidelines. Alternatively, if the project is to be funded by the government then it would be discussed internally and the Ministry of Finance would agree on the internal source of funds and the procurement process. Sometimes procurement requirements may hinder the local or regional private sector from participating in the implementation or operation of a SWM system.

4.3.7 Project Implementation

In the Caribbean, the SWM Entity (SWME) is usually the implementing agency and reports through the Ministry of Health, Environment, or Public Works to the cabinet and to the lending agency on the progress of work and performance of the contractors and consultants. The project management organisation structure would indicate the range of Government agencies that would be involved in the implementation process. Legal documents would be prepared and agreed by the Attorney General's office. The Ministry responsible for Physical Development would be required to issue a certificate of clearance for the site based on technical. A civil engineer or a SWM specialist would be named as Project Manager and staff of SWME would collaborate with a Tenders Committee in the evaluation of tenders for construction contracts and other related services. When contracts are let, SWME would monitor and supervise works with the assistance of Engineering Consultants. The Ministry of

Finance has cooperating responsibility in preparation of disbursement claims. For some projects, a Project Steering Committee is set up to oversee the implementation process and to advise on any corrective actions that may be required during the implementation phase. This committee would be made up mainly of various institutional stakeholders including, for example, the following:

- Permanent Secretary (Executing Ministry) Chairman;
- Project Manager (Secretary);
- SWME;
- Ministry of Finance;
- Ministry Public Works;
- Ministry of the Environment,
- The Water Authority;
- Residents' and land owners' representatives; and
- Private technical associations and interest groups.

During project implementation, a mid-term evaluation should be coordinated by SMWE and at the end of the project, a Project Completion Report is provided by the Engineering consultants. These reports assist in determining corrective actions and learning lessons. A more deliberate attempt is still required to facilitate the full participation of Non-Governmental Organisations (NGOs) and to implement a transparent monitoring and evaluation (M&E) system to allow information dissemination and feedback from the public.

4.3.8 The Operating Phase

Once the project is completed and handed over, the important activity of operating a SWM system based on sanitary LF, commences. If well designed, the project should achieve its objectives that relate to the SWM in such a way that pollution is reduced and prevented as far as possible. Based on sound M&E and management information systems, management will be able to track performance based on the collection and analysis of a range of data and information. Performance indicators will include:

- Performance indicators of the disposal system (waste disposed expressed e.g. in tons per vehicle, waste by "customer" tons per day, trip times and waste types and density);
- Environmental indicators like *visual impact* of litter, uncollected or dumped waste and presence of birds, vermin, flies and other insects, fires and bad odours, operating efficiency and effectiveness of leachate and gas venting systems;
- Public opinion; and
- Cost efficiency of operating the site.

Apart from the operations, the management of the SWME will have to pay attention to maintenance of equipment, vehicles and roads. If not well maintained, the collection vehicles would not be able to facilitate the required coverage and disposal site facilities would not be able to sustain the desired level of containment. Other issues to be addressed include safety on site, controlled access to the site, management of surface run off and storm water drainage system. The public is a major stakeholder and feed back is important to the SWME who should monitor public opinion throughout the operating phase.

5.0 ASSESSMENT OF CARIBBEAN EXPERIENCES AND LESSONS OF PUBLIC PARTICIPATION IN SWM

Based on the highlighted Caribbean experiences, the pattern is such that public participation peaked at the project preparation and appraisal stages. During the initial planning stages, the public was not included as this was a feature of the traditional top-down approach. Decisions were made on disposal site locations prior to public meetings and in some cases prior to the completion of full EIAs. Admittedly, the public would have had to be provided with assistance in understanding some of the key issues and technical details. While this was done to some extent, it came too late in the project cycle. In addition, the OECS and the Barbados SWMPs were prepared at a time when there was a new approach to planning based on public participation and information dissemination and there were no agreed guidelines or procedures to guide the process. These projects in themselves were constrained by the lack of appropriate policies, legislation and institutional framework on which to base a sound public participatory process. Public interest remained high during implementation as the countries began to work through the details of the loan agreements and the realisation that decisions were actually made in respect of location of LF sites. However, towards the operational phase of the projects, public interest was not maintained, except when there were issues of non-collection of waste. For example, there has been relatively low participation in the recycling industries as there has been weak markets and inadequate promotion by the Governments. Attempts at waste recovery have not been effective, as private overseas firms seeking to sell technology to reduce, treat or recover waste, have not been convincing about the effectiveness of their technology.

The participation process seemed to have been managed by the loan agencies and shaped by their procedures and loan terms and not fully 'owned" by the countries. Some people (CDB's St Vincent and the Grenadines town meeting records) expressed concern over the record of WB in designing and funding environment projects as though the project was a WB project rather than one to be owned and implemented in the OECS. At best, the public participation approaches seem to be along the lines of the *Due Consideration Model* but in many ways reflected *the Exclusionary and Advisory Models.* There were isolated cases in Barbados and Grenada when the flavour of the dialogue became *adversarial and confrontational.* The issues related to the switch of the proposed LF site from the Telescope District in Grenada and Greenland in Barbados and the effect of the existing Mangrove LF operations on Arch Hall residents in Barbados. While the Government of Grenada effected a change of the Telescope site (CDB project supervision reports), the situation in Barbados remains somewhat unresolved as GOBD continued to construct a sanitary LF at Greenland, St Andrew and the existing Mangrove LF which had to be expanded, still emits odours and remains a threat to the human and physical environment.

The absence of a reliable M&E system makes it difficult to measure the extent of public participation beyond the outputs level e.g. number of meetings held, attendance, issues raised, design changes etc. It would be interesting to determine the outcomes based on *post evaluation surveys*. This would be particularly difficult without base-line information on the needs, expectations and anxieties of the populations. However, based on discussions with individuals and communities, it may be concluded that in hindsight the public participation process was a first attempt from which much can be learnt. The process allowed persons to focus on their own self-interest but did not allow them to reach agreed conclusions based on negotiation. While some design changes were made some were not far enough and the public

was not kept informed of the responses to their suggestions and the extent of the implementation of any design changes that were suggested.

5.1 Public Participation Examples

In the planning of the SWMPs, some of the major issues during the project preparation and appraisal stages are related to *the selection of new disposal sites* and the conduct of *town meetings*. These were two of the most popular issues identified by respondent during the survey for detailed investigation. The survey instruments have been interviews, review of reports and publications and some participant observation. This research was facilitated by Author's attendance at the of the OECS SWMP meetings, discussions with development partners, SW managers and other primary and secondary stakeholders in the field in the OECS SWMP countries. In addition, participation in the original town meetings in Grenada, Antigua and Barbuda, Dominca, St Kitts and Nevis and St. Lucia provided a good basis for participant observation grounded on discussion, note taking and interaction among stakeholders.

5.1.1 Selection of New Disposal Sites

Planning of new disposal sites was done initially without the input of the public in the OECS. The WB consultants and the Planning and Political Directorate did the initial screening of sites. In one case (OECS country) the Prime Minister and members of Cabinet over flew the country to assist the planners in selection of an appropriate LF site. The initial decision was based on technical and political grounds. The inclusion of the population came too late and additional resources had to be used in un-doing design features already agreed by the technical teams. Admittedly, the EIA process was new and experience had not yet demonstrated the need for in-depth study of the SIA. In two cases (Grenada and St Lucia), the EIA was only completed after the appraisal process as site selection was delayed or changed. There was a significant departure from the natural steps of the project cycle and relatively poor application of the EIA and SIA tools.

The Governments eventually agreed on sites, except in the case of Barbados where public debate is still on-going on a future LF site which has been constructed to a large extent (Simmons and associates Inc, 2004). In St Lucia, there was resistance from a food operator who speculated on the impact of the proposed LF site at Deglos, on its sales. This matter was eventually resolved between Government of St. Lucia and the complainant. In addition, in Dominica, the owners of a bakery/bread depot objected on the existing LF site at Fond Colet based on the proposed routing of collection vehicles. In Grenada, the presence of two Grenada Doves (an endangered species) accounted for the shift of the proposed LF site from Perseverance to Telescope where there was an existing dump. However when the community at Telescope learned that there would be one LF site at Telescope that would receive waste from around the entire country, the NIMBY position was upheld. The proposed site was shifted back to Perseverance. In Barbados, a controversial LF was constructed at Greenland, part of the land identified as a National Park. While there was some narrow self-interest by one particular owner of land in the vicinity of the LF site, there has been a wider public debate on the stability of the site and its hydro-geological status. The participants in the debate are mainly the GOBD, residents in the St Andrew area, local environmentalists and local and international experts. In St Vincent and the Grenadines the initial plans were changed based on a firm decision that waste would not be trans-shipped between the Grenadine Islands and mainland St Vincent.

It may be concluded that in every case where there was the plan to locate LFs in new areas, there was significant debate and anxiety. There were no major issues in Dominica, St. Kitts and Nevis and Antigua and Barbuda as the new LFs were not placed in in new locations but the existing sites were to be upgraded in these countries. This suggests that the NIMBY effect still predominated the thinking. In Barbados, the intensity of the extensive debate that has been continuing did not take place in the OECS countries. Part of the reason for this may be the on-going nuisance from the existing disposal site in Barbados, the country's reliance on ground water and the sensitivity of the St Andrew physical environment, known as the Scotland District, which has special geological and hydro-geological features.

The Caribbean must accelerate the identification of appropriate waste reduction technologies and the physical planning process to identify inventories of SWM sites for general screening and early identification of the technical, economic, financial, environmental and social risks. In addition, public opinion on locating LF sites should be *managed* by the Public Authorities. The NIMBY element needs to be monitored and managed through education and public awareness programmes. Follow-up studies may determine the extent with which the NIMBY element could be diminished by public confidence based on: a track record of improved SWM and pollution control; and environmental training and public awareness.

The planning and implementation processes demonstrate the inter linking of various key agencies. In the SWM business, it is critical to consult the public and facilitate their participation. The task of designing a project involving the selection and development of an appropriate site could only be done by making a number of key assumptions to arrive at projected volumes of waste and sizing of the cell capacity, calculation of cover material required and determination of the leachate system. While public involvement is important, there must be a combination of various factors to determine the location of disposal sites. It is a best practice to develop a long list based on general criteria from which a short list of disposal sites is agreed. However, even with agreed criteria and weighting of those criteria, history has demonstrated that in many cases, the final decision on the preferred site from the short list is, to a large extent, a political one. This is why it is important for governments to be committed to sustainable development and adhere to sustainable waste management strategies and plans and good governance. The LF sites must be closely managed based on sound Management Information and M&E systems and during operations, the management must focus on maintaining the integrity of the waste disposal system as part of an integrated SWM system. Consequently, close attention must be paid to patterns of waste generation rates, adequacy of the facilities to meet containment requirement, safety, maintenance and the overall integrity and the ongoing evaluation of the system.

5.1.2 The OECS *Town Meetings*

Town meetings were held in all the OECS SWM project countries based on the then new WB procedures on public participation and information dissemination. Each Town Meeting was chaired by a staff member from the Ministry of Health or the Environment. The agenda of the town meetings were as follows:

1. Welcome and Introductory remarks.
2. Presentation of the project background, scope and objectives
3. Issues
4. Questions and Answers

This provided the participants with adequate opportunity to seek information or clarification and to discuss issues. The technical project team assisted in the presentation of items 3 and 4. The meetings lasted approximately two hours duration which proved to be adequate. There was an environmental specialist on the WB's team but no social analyst. The meetings in the OECS countries seem to have been held at times convenient to the project team and not at times conducive to provide the fullest access to persons who would have been interested in attending the meetings. In most cases the meetings were held at school buildings close to the proposed disposal sites during the afternoon. For example, the meeting in Grenada was held at the Happy Hill School 3:00 p.m. (World Bank Aide Memoire, 1994). Such times might have excluded working persons who would have otherwise attended. The attendance was on average 30–40 attendees along with the project team and local officials. In the case of St Vincent and the Grenadines the project team was not allowed to hold the town meeting as proposed but was requested to hold a radio call-in programme. This seemed to have excited the population who eventually participated in the town hall meeting that followed. By this time the project team had learned from the results of other town meetings and there was the biggest turn out (70 participants) in St Vincent. This may also be attributed to the fact that more media promotion and public discussion preceded the town meeting which was held at a more appropriate time.

Based on direct observation and the World Bank Aides Memoire (World Bank 1994) the public consultation meetings held for the OECS SWMP can be characterised by the following:

- Novelty of the event and undocumented procedures;
- Fairly wide advertisement in the media over a short time period and information dissemination at the meeting;
- Direct and strong involvement of the political directorate;
- The effectiveness of the call-in programme approach;
- Anxiety of the public based on a history of poor SWM;
- Presence of politicians that encouraged participants to divert to other issues of political importance;
- Serving of narrow self interest (The Grenada Dove, NIMBY issues etc.);
- Fear of coordinated multi-island approach to integrated SWM; and
- The significant NIMBY element.

5.2 The Barbados *Town (hall) Meeting*

In Barbados, the attempt at a *town meeting* at The Alleyne School in St Andrew, ended in disorder (Advocate Newspaper February 6 1995). The event only lasted one hour before the Minister of Environment was escorted out of the area by Police after there was a break in the electricity supply and the crowd became restless. The minister vowed later to return to St Andrew and quoted that ***"…..people must get a chance to vent their frustrations but a landfill is coming to Greenland. That is the decision of the Government and it will be implemented" (***Nation Newspaper February 6, 1995). This was echoed by the Prime minister who said that ***"Government will not be shifting from its position to site this island's next landfill at Greenland, St Andrew"*** (Advocate Newspaper February 6 1995). It seems that the meeting was one of important national significance with the presence of cabinet ministers, SWM staff, Chief Medical Officer, Permanent Secretaries, Magistrates, Residents of Arch Hall and St. Andrew and other interested persons and groups from all over the country. One notable absentee was the political representative for the area who might have been in a

dilemma of supporting GOBD's decision as a member of cabinet and at the same time representing the wishes of his constituents. The stage seemed set for a national debate among a local population, chaired by government officials. GOBD seemed inflexible on their decision to place a sanitary LF at Greenland and the people seemed set against it. The curtailed meeting was not successful in meeting its objectives. The GOBD's continued insistence to eventually construct the LF has resulted in significant delays in commencing operations at the Greenland site. GOBD attributes some of the delay to the time taken in finding suitable contractors to construct and operate the site. Consequently, there has been to date no return on the resources invested in the project that remains at risk of not realising its objectives.

In hindsight, it might have been advisable to have postponed the meeting when a march was planned by the Greenland Protection Group, to precede the town meeting. The march attracted about 500 persons who wore T-shirts with the slogan, "*No dump in our national park.*" It is believed that GOBD underestimated the level of resistance and they were unprepared for it. The matter was a national one beyond the boundaries of the local community which was well organised to inform GOBD of its position. GOBD seemed already committed to the site and was coming to defend its position at the meeting. It may be said therefore that based on the literature, the approach was *confrontational* and *exclusionary*. It was characterised by distrust. Interests were wide ranging and emotions were high. This was fuelled by significant press coverage and GOBD's stated views from which they did not intend to back down. The press adopted a negative approach to the proposed location of the LF and lost opportunities to educate and inform the public (Headley 1998).

GOBD should draw lessons from the meeting. While the participation process still needs refinement there has been improvement over the last 10 years. In recent construction projects involving relocation of residents, there has been demonstration of a planned process of consultation and a determination by GOBD of the reimbursement to affected parties while giving the affected parties some opportunity to indicate agreement. They have been able to replace the financial values of properties but affected parties are concerned about social, economic and psychological disruption. In Barbados there still seems to be an absence of procedure in summing up results of a town hall meeting when there are divergent interests. The approach is still relatively *top down* as professionals are still allowed to lead discussion (Bathsheba *town hall meeting*).

5.3 Experiences during the Formulation and Implementation of OECS SWMP

5.3.1 Project Formulation

The CARICOM Secretariat assisted in development of literature on the issues, problems, constraints and proposed technical solutions for discussion with the stakeholders in the sub-region. The WB funded consultants had developed feasibility studies for discussion. At that time, the WB had recently published their strategy on poverty reduction and had urgent priority on public participation and information dissemination. The EIA was a relatively new tool incorporated in the project preparation and appraisal process. The preparation for the public participation process was commendable but in due course the lack of experience in managing the process became evident. The EIA process, the financial sustainability of the proposed SWMEs and the NIMBY issues, got the most attention.

5.3.2 Project Implementation

Public participation experiences during implementation of the OECS SWMP were limited. There was no agreed M&E system with a feedback mechanism. The public was therefore not allowed to track activities and design features. The meetings between the PMU, the funding agencies and the SWMEs were held periodically but there was no public involvement. While the media assisted in lifting the general environmental awareness of the public, they could have been more involved in keeping the public informed of the OECS project issues. The meetings only gave the institutional stakeholders the opportunity to determine the status of the implementation of the project and the issues to be addressed.

Some of the expected synergy of the national components was lost as the project proceeded at different rates in different OECS States. The issues that got the most attention during implementation were:

(a) Anthropogenic impacts that caused the LF cell at Perseverance to collapse;
(b) Arrangements by St. Vincent and the Grenadines and Grenada to collect revenue for domestic SWM by way of utility (electricity and water and sewerage) bills in Grenada and St. Vincent and the Grenadines respectively);
(c) The Head tax which was agreed to be levied on all cruise ship passengers; and
(d) The project implementation delays

The people had no real say on the charging of the fees for SWM which was based on a percentage of their utility bills. However, effective and efficient collection has been reported. The Head Tax was an issue which the governments agreed to implement but the Florida Caribbean Cruise association (FCCA) negotiated postponement in some countries. This matter remained between the governments, FCCA and the cruise ship companies.

5.4 Measurement of Participation in OECS SWMP

While a quantification of the success of the process would have been challenging, a qualitative assessment of the participatory process was attempted. Public opinion research (Thomas and Holder, 2003) found that:

1. Few respondents knew (they were not well *informed*) about the OECS SWMP and they indicated that it was not well publicised. However, the public education and environmental awareness programmes were said to be effective and should be expanded to rural areas and focus on youth.

2. While the improvement in waste collection service through the *participation* by private contractors was applauded, there was poor handling of commercial waste by the private sector.

3. The sanitary LFs were effective in reducing/removing odour and smoke.

4. The feasibility of *public participation* in waste recycling was questionable given the small economies of scale. Respondents were of the view that more attention needed to be paid to the promotion of *waste separation*, *recycling*, *re-using* and *composting*.

5. Public participation was constrained by the lack of personal resources e.g. to purchase bins, remove derelict vehicles and bulky waste, establishment of *Material Recovery Facilities*

6. General participation was evident in an attitudinal change as residents complied with requirements to bag waste and put it out on collection days.

In no case in the OECS SWM project cycle, has there been a deliberate attempt to quantify the extent of public participation. The Development Agencies seemed satisfied that an inventory of concerns was recorded and attempts made to address them in project design. The records reflect reports based on the numbers of persons that attended and issues that were discussed. A lack of adequate M&E and information feedback systems, to inform the non-institutional stakeholders about the implementation process, meant that the process was started and not effectively continued beyond the project preparation and appraisal stages. Based on discussions, it is reported that public debate continued (radio call-in programmes and letters to the press) but there was no formal mechanism to record and address the issues raised by the public. However, the use of the media by the public contributed to further public education and awareness.

5.5 Types of Private/Public Sector Arrangements

The literature highlights the main methods of private sector participation as: Private/Public Partnership (Joint venture); service or management contracts; concessions (design, build, own and operate); open competition; and exclusive monopolies.

The governments have contracted private enterprises primarily to collect and transport waste in the OECS and Barbados. The contract periods generally match the 5-year life of vehicles and the terms are negotiated to allow the operators to recover cost. The operators are given responsibility for servicing routes based on agreed schedules. Their performance is monitored by the National SWME which is usually a statutory body that reports to the Ministry of Health or the Environment. In some cases the private sector is contracted to perform street sweeping and collection from urban areas and public places.

The recent (September 2005) experience of Barbados has been one of inadequate maintenance of public vehicles and the Government of Barbados (GOBD) selectively contracted private truckers. The service was inadequate as there was garbage pile-up and the population held GOBD responsible. It seems therefore that the Caribbean people see SWM services as the primary and ultimate responsibility of government whether there is a public/private sector joint venture or a contract. The private sector in Barbados does not own an adequate number of suitable transportation vehicles to fill the void. They indicated that they assisted when GOBD vehicles were out of use due to a lack of maintenance but that they were not given the confidence to invest in additional equipment as GOBD announced plans to buy a new fleet of vehicles which actually were pressed into operation in December 2005. There must be adequate communication, negotiation, planning and scheduling by the private sector and Government so that the private sector might be appropriately equipped to meaningfully participate. In Belize, a Member State in the Caribbean Community, Public Participation was seen as an important success determining factor. The Belize SWMP experience (Inter-American Development Bank, 2002) is captured in the Box 2 below.

Box 2. BELIZE SOLID WASTE MANAGEMENT PROJECT

An Inter-American Development Bank (IDB) loan of US$6.6 mn. was approved in November 2002 to assist in financing a Belize SWMP whose total cost was US$7.4 mn. Town Boards operate the SWM system and the plan was to form a Solid Waste Management Authority (SWMA) and have a system based on a central disposal site.

Like other Caribbean countries, in the 1990s, inadequate resources have been provided for the establishment and maintenance of appropriate SWM system.
SWM has suffered from:

- Lack of adequate financial resources for SWM (PAHO, 2003)
- Poorly designed and managed dump sites.
- Fires that burned for months, contributing to poor air quality.
- Poor documentation and monitoring and evaluation
- Weakness in organisation and legislative framework

Central government was responsible for effecting a coordinated role with the local government. This coordination needed better management. Scavenging was seen as a problem and project preparation also had to address the NIMBY issue in the EIA process. The Department of Environment is usually required to conduct public consultations on the EIA for submission to the National Environmental Appraisal Committee for final approval of the EIA.

Private Sector Involvement

IDB strategy was to assist for Belize in creating an enabling environment for private sector development. This was to assist in the gradual development of institutional and financial capacity to assure long term sustainability in service provision.

Involvement (open competitive bidding) of Private sector was recommended to manage, construct and operate, and maintain major facilities (central sanitary LF and associated transfer stations at Belize City, Caye Chalker and Ambergris Caye) and the access road to the Belize LF site. The contract will be for a period of 8 years and the company will use its own equipment. SWMA will supervise compliance with contractual obligations. Such supervision cost will be financed by the Environmental tax. The government will finance initial construction and retain ownership of the facilities. This is accompanied by institutional strengthening of the SWMA and public awareness activities to assure community participation and support. User fees are to be phased in gradually at a socially acceptable rate.

Community Participation

Educational and public awareness programme to obtain support (land acquisition, location of central LF site, and expand SW reduction and recycling. No deliberate attempt to reuse and generate energy. The plan was to improve management of special and hazardous wastes and diminish littering and illegal dumping.

Public participation was seen as an important success determining factor. The attempts at participation seem more to be project activities tacked on to projects and programmes, rather than elements to drive the process. The fact that there was no planned poverty reduction link suggests that more could have been done in engaging the public and involving them fully in activities to enhance their economic well being. This is particularly missing in the development of smaller low cost LFs required in communities around the country. Admittedly there has been some education by way of signage programmes targeting litter and community organisations, schools and government agencies occasionally participate in joint clean up activities funded by the sector.

In the Caribbean, the private sector participation in SWM has not been significant. In the OECS and Barbados, the private sector participation has been mainly in waste collection, transportation to the disposal site and recycling. Apart from in-door and out-door storage, some communities facilitate the collection process by placing waste out at curb side for collection. Sorting at source is limited to returnable containers at the household level and

cardboard, plastics and glass by the commercial waste generators (supermarkets and business houses). Primarily, plastic bottles are recycled as manufactured roofing material (Barbados). However, a lack of enforced legislation and the absence of an appropriate incentive system coupled with inadequate public education and awareness, limits participation at the household and community levels. Recycling industries would have to market their services and provide incentives to induce more active involvement at the individual, household and community levels. This would depend on the investment opportunities which have been limited in the Caribbean by: relatively low volumes of recyclable materials; small domestic markets, and relatively high international transport costs.

6.0 ASSESSMENT OF PUBLIC PARTICIPATION ISSUES AND LESSONS IN SOME DEVELOPING COUNTRIES IN THE MEDITERRANEAN

The RSWMP outputs are focussed on building regional capacity for SWM. These include a range of guidelines and training materials which are being produced. The long-term plan is to allow the countries to embark on investments in the SWM sector that will be supported by the outputs of the RSWMP viz. enhancement of institutional framework and capacity, and environmental awareness and education. While the issues that have been targeted are similar to those in the Caribbean area, for relevance, special attention is paid to the last two bullet points in Box 2 in section 2 above. These relate to constraints on private sector involvement and limited stakeholder participation for which the project (METAP) will provide guidelines. An analysis of these two issues along with an inventory of the public participation issues in the Caribbean area, provide a good inventory of issues on which to draw conclusions on public participation in small developing states. The OECS SWMP lacked the national and regional capacity and an appropriate M&E system. As a result, the project experienced significant time and cost overruns. The RSWMP component was designed to lay the groundwork for the infrastructure components to give good effect to SWM systems in the Mediterranean countries. It is prudent to have clear guidelines for policy, legal and institutional issues, finance and cost recovery, private sector and community participation. These would serve as aids to efficient project implementation. In hindsight the OECS SWMP was a major undertaking in a region with limited capacity to adopt a participatory approach in implementing a complex project which was wide in scope. The PMU did not work well with the SWME at the national levels in implementing regional components.

6.1 Public Participation Issues in the Mediterranean

It was recognised very early in the RSWMP cycle that the involvement of the people was necessary for project success (World Bank 2004). NGOs, schools, associations, shops and municipal services were targeted. The strategy was to target the very young and provide awareness and education on waste reduction and recycling and reuse and general environmental awareness.

6.2 EIA

RSWMP echoes the lessons of experience of Caribbean countries to use the EIA process as early as possible in the project planning process but stressed that this should be done in a proactive manner, paying special regard to staff, the informal sector and households. Apart from undertaking willingness to pay surveys, RSWMP reports indicate that complete social impacts should be assessed and there should be cooperation between the public and private sectors.

6.3 Transition from Public to Private Employers

In the RSWMP where there was a transition from public sector to private sector SWM providers, there was stakeholder coordination and negotiation with trade unions. In the Caribbean there are many cases of unresolved issues as workers are required to sign new contracts with a private entity or a quasi government organisation. Some Caribbean cases for follow up research may include: T.A. Marryshaw Community College in Grenada, or Harrison's Cave (Caves of Barbados Limited) and The Queen Elizabeth Hospital in Barbados. In all cases some of the employees refused to sign contracts with the new statutory

corporation and sought to retain the terms and conditions of the Civil Service. These had to be reassigned to other departments, allowed to work out there years of service, or resign. In the case of SWME in the Caribbean, the distrust led to workers seeking to retain the security of the government service or individual service contracts e.g. waste collection and transportation, street sweepers and landfill operation or management. In the Caribbean the populations have not demonstrated a strong entrepreneurial acumen and have been fairly comfortable depending on Centralised Government. In the Mediterranean countries, with the decentralised system of government, the population have been more self reliant and enterprising.

6.4 Cooperation of Public and Community Participation

Active public cooperation is required for effective SWM. Under the RSWMP there has been accent on public awareness and public attitude to proper SWM practices. As in the Caribbean, composting has in general not been successful due to low market demand. However there is some potential in Egypt (Arab Republic of Egypt 2000) where the private sector is encouraging Government to follow the integrated management concepts which include public participation e.g. the public's role in good segregation practices at the household level.

Public awareness and community participation would assist in obtaining guidance in carrying out strategic planning of SWM and to enhance appropriate levels of community participation and a two-way communication in planning and implementing of integrated SWM services (World Bank 2004).

6.5 Private Sector Participation

The RSWMP focussed on cost effective private sector participation. It highlighted fair competition and transparency as well as continuous monitoring and accountability. It has been demonstrated in Egypt, Lebanon, Morocco and Tunisia that such an approach has resulted in efficiency, effectiveness and lower price of SWM services. Step-by-step approaches to tendering and contracting and continuous monitoring were considered essential (Arab Republic of Egypt, 2000). In the Caribbean there is a need to harmonise procurement procedures to reduce conflict between the national guidelines and those specified by the development agencies. Private sector participation requires adjustment of various regulations and a competent regulatory institution. An appropriate incentive system is also required for successful private sector participation.

In the Mediterranean, it was demonstrated that in cases of inviting the private sector to participate in waste collection and transportation, that attention has to be paid to cost recovery by the private sector entity. It is important to provide appropriate contract periods and identify possible funding sources. More attention is required in this area by the Caribbean countries. In Barbados the SWME is still responsible for the collection of the majority of household waste while in Grenada and St Vincent and the Grenadines, closer monitoring can assist in performance collection efficiency.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The countries in the United Nations system have agreed to development goals and targets which require that people be allowed to participate in planning, designing, selecting and implementing activities, projects, programmes which could contribute to their social and economic development. In countries adjacent to important ecosystems like the Caribbean Sea and the Mediterranean, appropriate SWM systems should be well established and maintained. This is critical to pollution prevention and management of terrestrial and marine environments. Everyone generates waste and all persons are therefore stakeholders in SWMPs. In particular in the Caribbean where the countries are of smaller land masses, SWM is a sensitive issue as there are thin buffer zones and the NIMBY concerns create a major issue. SWM has become a national issue in the Caribbean as the planning and establishment of SWM has been based on centrally planned Integrated SWM Systems. There are limited roles for local government/councils. This is not the case in the Mediterranean countries where the countries are much bigger countries and have decentralised SWM systems. The NIMBY issue is a major concern in the Caribbean while in the Mediterranean more emphasis has been on poverty reduction and socio-economic opportunities from public participation in SWM activities.

The lessons from the OECS SWMP and the METAP suggest that the OECS SWMP was quite ambitious in combining infrastructural components with the *softer* components of education and awareness, policy, legislative and institutional development. Public participation was attempted in the preparation and appraisal of the OECS SWMP. However, its achievement was basically satisfactory but limited by the top down and donor driven approach. The populations were provided with information on a project type which was relatively new and they could not fully absorb the information in the relatively short time. Weak policy, lack of adequate legislation and institutional capacity did not provide a meaningful basis for public environmental education and awareness. Public participation *in good faith* was difficult as in many countries the then existing SWM performance was poor based on limited coverage and collection service, poor air quality from existing dumps and presence of unsightly garbage around the country. At the preparation and appraisal stages the populations were too taken up with the current issues of pollution and siting of LFs and did not give adequate consideration to the economic opportunities in SWM. The WB learned from this experience and the METAP is instructive in the sequencing of the SWMP activities. METAP is basically a technical assistance project which is addressing the *soft* components ahead of the designing of the infrastructure components. This will build up the legal and institutional capacity and the education and awareness necessary for meaningful public participation. It also examines ways of involving/contracting the private sector to provide waste management services. In the OECS SWMP more could have been done in demonstrating the feasibility of private waste management operators and a regime of incentives that government would have considered. Admittedly, the OECS SWMP included a component to examine feasibility of recycling industries but there was inadequate follow through and a lack of effective monitoring and evaluation.

In the Mediterranean, it was demonstrated that in cases of inviting the private sector to participate in waste collection and transportation that attention has to be paid to cost recovery by the private sector entity. It is important to provide appropriate contract periods and identify possible funding sources for the private sector. More attention is required in this area by Caribbean countries. In Barbados the SWME is still responsible for the majority of

household waste collection. In Grenada and St Vincent and the Grenadines, the private sector has been engaged but closer monitoring is required for greater performance efficiency.

7.1 An Assessment

An assessment of the public participation in the OECS SWMP does not demonstrate more than a basic satisfactory performance. While there was an attempt to *inform*, there was no deliberate strategy to *consult, involve, collaborate and empower* the stakeholders. In some instances the approach was very confrontational. No specific M&E indicators were established and there was no formal follow-up. In applying the UNEP best practices, an assessment of the public participation in the project planning and implementation was just satisfactory. Information could have been more wide spread into rural communities other than where the facilities were to be located. Adequate feed back was not given on the inputs from the public that influenced decision making and specific feedback and follow through on implementation of decisions was not provided. The UNEP best practices indicate that the most effective public information methods include: informal small group meetings; public review of the Initial Assessment Decision Document; workshops; and model demonstration projects. The instruments that form the best practice were not generally used in the OECS SWMP. The use of *ballots, surveys, focus groups or web sites* was not employed. Reliance was on review meetings, radio call in programmes, video presentation and fact sheets. The execution of public meetings held in the six OECS countries was a fairly good attempt but the lack of preparation of the stakeholders and their general lack of familiarity with SWMPs, limited the achievement of the meetings. There was need for more focus on waste as a resource and enabling environment for the participation of the private sector in SWM activities.

7.2 Guidelines for Participation

Further study will be required to fully determine procedures and guidelines for mainstreaming public consultation and participation in SWMPs in specific countries as such an exercise is outside the scope of this paper. However, based on the review of performances in the Caribbean this paper highlights some major areas for consideration in further work on such Procedures and Guidelines. Some recommendations include:

7.2.1 Mainstreaming and Up-streaming of Public Participation

Caribbean governments and other developing countries are committed to adopting appropriate Governance Strategies and Policies to guide Public Sector Investment Programmes. This should allow for transparency and involvement and empowerment of people, development of EIA and SIA guidelines and of the public participation process This will require that:

- A participatory approach is adopted in which all stakeholders have the opportunity to participate in decision making;
- There is two-way communication in which information and ideas are exchanged between government and the community of stakeholders at the national and local levels;
- Public awareness programmes communicate SWM issues and initiatives; and
- Communication with target audience using tools appropriate to that audience.

7.2.2 SWM Policy

It is also critical that a national policy on SWM be developed to reflect comprehensive SWM according to local priorities and institutional clarifying roles. An integrated SWM strategy would provide direction and support to the policy and a waste management plan could give meaning to the implementation of the policy and strategy. A generally new approach to planning should be based on an agreed inventory of SWM sites and on public participation and information dissemination. Consequently attention should be paid to:

(i) Appropriate policy, legislative, regulatory and Institutional framework;
(ii) Basic human rights;
(iii) The extent of dependence on Central Government; and
(iv) Physical development planning and screening of SWM sites

It is prudent that SWM policy should therefore address:

1. Legal and Institutional Framework
2. Finance and cost recovery
3. Private sector Participation
4. Public Awareness and Community Participation
5. Physical Planning; and
6. The 4 Rs

It should therefore establish and communicate the national SWM agenda, identify the SWM roles and responsibilities of national entities including the private sector and the non-government sector; and form the basis for determining new legislation. Implementation of SWM policies requires actions of a wide range of stakeholders whose accountabilities fall beyond the line responsibility of a single government institution. It is advisable that the policy, legal framework and institutional capacity be completed along with public education and awareness building before meaningful public consultation can take place. These activities in themselves may be shaped by public opinion but the public is in a better position to communicate and participate when the *softer* components (policy, legislation, institutional strengthening etc.) are understood prior to the design of infrastructure facilities.

7.2.3 Private Sector Participation

In the Caribbean there is a need to harmonise procurement procedures to reduce conflict between the national guidelines and those specified by the development agencies. Private sector participation requires adjustment of various regulations and a competent regulatory institution. An enabling framework that is required for successful private sector participation should include:

- An appropriate M&E system that is critical for the management of SWM systems;
- An aggressive policy of the 4 Rs; and
- Establishment of private public sector partnerships in SWM activities that should be guided by a system of incentives and disincentives, laws, rules, regulations and agreements.

It is prudent to have clear private sector guidelines for: policy, legal and institutional issues, finance and cost recovery, private sector and community participation. These would serve as aids to efficient project implementation.

7.2.4 SIA

As part of the SIA process governments should ensure that attention is paid to the impact on SWM staff and specific minority groups. Special arrangements should be made for the transportation of the physically challenged and the vision or hearing impaired who are somewhat left out of the town meetings. Social analysts should be part of project teams and should be responsible for designing, implementing and monitoring and assessing the level of public participation. Attempts should be made at measurement of outcomes with the objective of reducing social and environmental risks. National workshops should be convened to agree on the Procedures and Guidelines and a Public Participation Plan should be developed

7.2.5 Public Participation Plan

The following areas should be considered as part of the Public Participation Plan:

(i) The target group should be clearly identified from a stakeholders' assessment.
(ii) The most appropriate techniques should be employed to disseminate information on the project. These include the media, surveys, brochures and pamphlets, public displays, workshops for review of initial assessment documents, model demonstrations, community advocates, advisory committees, etc.
(iii) Special attention should be paid to the planning and execution of *town meetings.* See best practices at page 17.
(iv) The monitoring indicators should be agreed and the monitoring and assessment of outcomes should be based on these indicators which may include: number of attendees; number of questions and number of persons asking questions; value of the questions and ideas; adequacy of feedback at the meetings; level of information sharing; level of two way communication; Level of consensus; and conflict resolution.
(v) Specific efforts should be made to address poverty reduction through SWMP interventions.
(vi) The Social Analyst may make a qualitative assessment of the participation exercise but may want to attempt a quantitative assessment based on assigning raw scores and weights to the indicators. It may be claimed that even the weights may be subjective.
(vii) An inventory of the issues to be addressed should be developed. The follow-up by the Project Promoters should be monitored by the social analyst who should keep track of the design changes required to address the issues. This will determine the extent of *collaboration* and *empowerment* achieved.
(viii) The analyst may summarise the performance based on the extent to which there was active listening by the project promoters based on an assessment at the meeting.
(ix) The analyst should make a report on the process which should be available for reference during project implementation to assist in the audit of the participation process.
(x) Focus/target/community group discussions are key to public participation

7.3 Final Word

An appropriate Public Participation Plan should assist in reducing social risk and overall project risk. There are lessons that un-resolved issues may result in public protest and threaten development projects. SWMPs are complex projects which must be discussed in national fora in order to formulate, prepare and implement efficient and efficacious SWMPs. The lessons of experience must be learned and appropriate tools used to determine the best design for future SWM projects.

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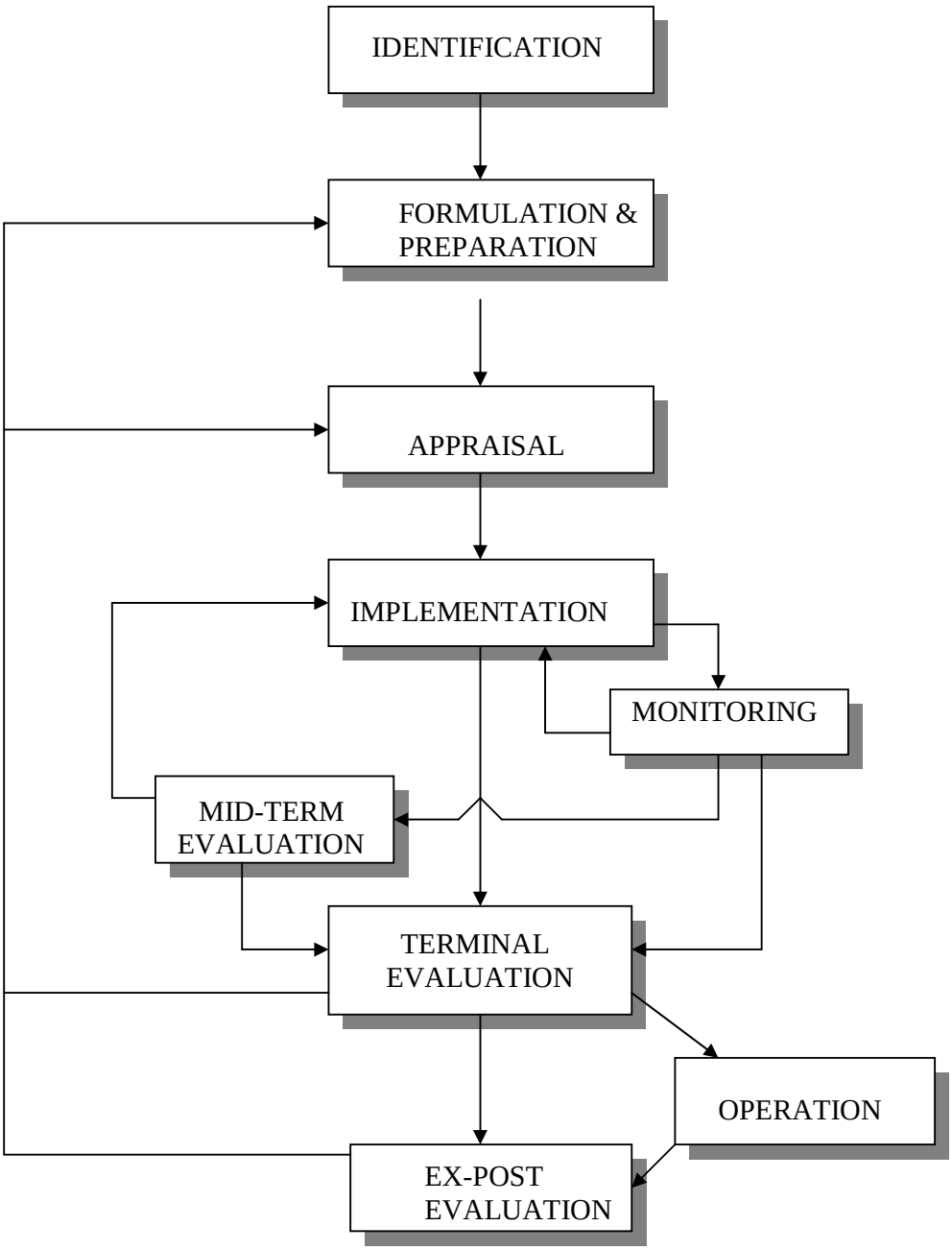
APPENDIX 1.

THE PROJECT CYCLE



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APPENDIX 2.

TYPICAL WORK BREAK-DOWN STRUCTURE FOR SWM PROJECTS

LEVEL 1: ESTABLISHMENT OF A SOLID WASTE MANAGEMENT PROJECT

LEVEL 2:
000 Pre-investment activities
100 LF construction and equipping
200. Institutional strengthening
300 Design M&E system
400 Public education and awareness programme
500 Closure of existing sites and start up operations of new site
600 Project termination

LEVEL 3
000 Pre-investment activities
010 Establish Project Management unit
020 Acquire land
030 Prepare implementation plan
040 Secure financing arrangements

100 Landfill construction and equipping
110 Survey and design LF and prepare construction documents
120 Clear and prepare land
130 Remove and stock pile soil
140 Construct access road and install utilities along road
150 Procure equipment, vehicles and materials
160 Install LF base an internal roads
170 Install environmental protection facilities
    a. Liner
    b. Leach collection system
    c. Methane gas control and monitoring
    d. Drainage system
180 Construction of support facilities
- Service buildings
- Administrative offices
- Weigh bridge
- Install on-site utilities

190 Construct fencing and litter control and signage.

200 Institutional strengthening
210 Establish the SWME or regulatory framework and contracts
220 Hire management and staff or evaluate bids from private sector
221 Prepare and deliver training programmes

300 Design M&E system
310 Design and document M&E system

400 Public education and awareness programme

410 Prepare public education and awareness programme
420 Deliver training programmes
430 Evaluate training programmes

500 Closure of existing site and start-up operations of new site

510 Design closure plan for existing LF
520 Install vents and monitoring wells
530 Apply cover and cap
540 Erect fencing and signage and plant vegetation
550 Deliver operations manual for new site

600 Project termination

610 Perform mid-term evaluation
620 Perform end of project evaluation
630 Produce Project completion Report
640 Close out and hand over project