THE FACILITATOR'S GUIDE

Waste management involves a wide range of stakeholders from the political to the street level. Political decisions will heavily influence the performance of MSWM systems, and levels of awareness and participation of other stakeholder groups largely dictate the pace of progress at the street level.

Participation of key stakeholders during the strategic planning provides a major opportunity to link the strategic plan firmly to reality and mobilise stakeholder involvement. A structured series of participatory workshops provides a vehicle through which to develop consensus between stakeholders, inspire contributions and secure broad-based ownership.

The planning process needs to be effectively managed and balance the need for active contribution of key stakeholders with their limited time availability. This introduces a key role for `facilitators' to help structure, guide and manage the process, maximise contributions and work to secure consensus on key issues and strategic planning proposals.

This document is intended to `open up' key insights and experiences contained in the Planning Guide to facilitators of Strategic MSWM Plans, and provide guidance on how to structure and manage the strategic planning process. This text, however, presents only one of a multitude of ways available for structuring and managing the strategic planning process, and care should be taken to use the guidance provided so that it is appropriate for the local context.

Facilitators will play a critical role in ensuring that a plan is both comprehensive and well targeted, and will be implemented in practice. They are also envisaged to be key players in the dissemination and uptake of sustainable waste management principles and practices, and promotion of improved environmental, health and safety standards.

The role of the facilitator is to catalyse debates, contribute specialist knowledge and work to achieve consensus on key issues. Facilitators must develop a good understanding of local waste management issues, and use communication skills to navigate through wide-ranging and sometimes difficult debates.

This Facilitator's Guide is structured into 8 modules and five sub-modules introducing strategic planning for MSWM. It presents a short summary of key concepts and issues contained in each of the steps in the Planning Guide.

Module 0: Strategic Planning

Module 1: Mobilising the Planning Process

Module 2: Defining the Baseline

Module 3: Establishing the Planning Framework

Module 4: Identifying and Evaluating Options

- Module 4A – Institutional Framework
- Module 4B - Waste Collection and Recycling
- Module 4C - Waste Treatment and Disposal
- Module 4D - Financial Sustainability
- Module 4E - Public Awareness and Participation

Module 5: Developing the Strategy

Module 6: Preparing the Action Plan

Module 7: Implementing the Strategic Plan

MODULE 0 - STRATEGIC PLANNING

Why Plan?

Waste management has become a progressively more difficult issue in developing and transition countries over recent years. Service providers have struggled to keep pace with demographic growth and economic and social developments and its impacts on public health, safety and the environment.

As a result, waste management has risen to the top of the political agenda in many countries, with regional and local governments being placed under increasing pressure to provide more effective services with very limited municipal resources.

Many waste management service providers are caught in a downward development spiral, with low levels of investment and service performance affecting public satisfaction and cost recovery. Strategic planning offers an opportunity to turn things around and deliver sustainable improvements to local waste management practices.

Strategic planning is necessary to ensure that MSWM services keep pace with demand, are appropriate to needs, and are cost-effective. Planning is a process and not an event; the performance of a plan in meeting its objectives must be evaluated and taken forward as a major input into further planning cycles. The objective should be to ensure sustainable improvements to service coverage and standards.

Objective of a Strategic MSWM Plan

MSWM is an intensive activity and major employer, consuming 10-50% of a municipal operational budget (typically 10-20% in large cities). It is an essential municipal service, and one that must be paid for by the public through taxes and customer charges. Publicly collected funds will always be needed for MSWM services.

New MSWM systems and facilities take significant time and financial resources to implement, and must be carefully thought through to ensure that they are cost-effective and appropriate to needs. Management of waste costs money, and poorly targeted investments can seriously undermine the credibility and financial performance of a municipal government.

The aim should be to `do more for your money'; to make waste collection and street sweeping more efficient and cost-effective; to use the savings to extend the service to all the city; and to contribute to the costs of the first appropriate steps in developing an environmentally sound and affordable waste disposal system for the entire urban population.

There will also be a need to collect more money from the `customers' of the municipal waste service, ie households, businesses, industry and institutions. Improved service performance, customer satisfaction and cost recovery are essential to improving waste management practices.

The Planning Hierarchy

The Planning Hierarchy illustrated in *Figure F1* below illustrates the conceptual separation of different outputs necessary in development and implementation of improved waste management practices.

Figure F1: Planning Hierarchy

The hierarchy places Strategic Planning within its middle band. Strategic MSWM Planning can be defined as the process of determining needs and priorities, and necessary actions to be taken to develop waste management practices.

Strategic Planning itself can be further sub-divided into two steps – Strategy and Action Plan. With this split, the `Strategy' sets out the overall framework under which MSWM systems and standards are to be developed, and the `Action Plan' the specific options that are to be pursued to meet the requirements of the Strategy.

Once the Strategic Plan has been established further, more detailed design work will be required to establish the precise arrangements for its implementation. This is referred to as Operational Planning, and needs to be carried out to ensure that efforts to develop MSWM services are well targeted at the ground-level.

The typical scope of a Strategic MSWM Plan is set out in *Box F1*.

Box F1: Typical Scope of a Strategic MSWM Plan

Strategy	**Action Plan**

• Overall vision
• Goals and objectives (national/provincial/municipal)
• National policy framework
• Development planning framework
• Broad roles and responsibilities
• Waste streams to be covered
• Waste collection targets
• Promotion of waste recycling
• Waste treatment and disposal policy
• Public awareness requirements
• Policy on private sector participation
• Cost recovery and financial management policy
• Outline investment requirements
• Timetable for action planning
	• Pre-feasibility studies for technical options covering:
	  • Collection and recycling
	  • Treatment and disposal
	• Plans covering:
	  • Institutional/organisational development
	  • Service/facilities development
	  • Financial management and cost recovery
	  • Public awareness and participation
	• Investment Plan
	• Timetable for detailed feasibility study and implementation
	• Immediate Action Plan

A Strategic MSWM Plan should be prepared in two stages, the `Strategy' and `Action Plan'. These outputs have distinct roles, and their conceptual separation is useful in providing a decision-making milestone within the strategic planning process.

MODULE 1 – MOBILISING THE PLANNING PROCESS

Identifying Key Stakeholders

Political support and goodwill is crucial to the ultimate success of the Strategic MSWM Plan. Establishing the need for improving and developing MSWM services, and communicating this to political leaders and senior decision makers is a critical first step in the strategic planning process. Guidance on mobilising the planning process is provided in *Step 1* of the Planning Guide.

Waste management involves a wide range of stakeholders, each with their own professional backgrounds and priorities. It is important for the Strategic Planning initiative to be as inclusive as possible, involving all those likely to be involved in securing real improvements to waste management practices.

Establishing the Steering Committee

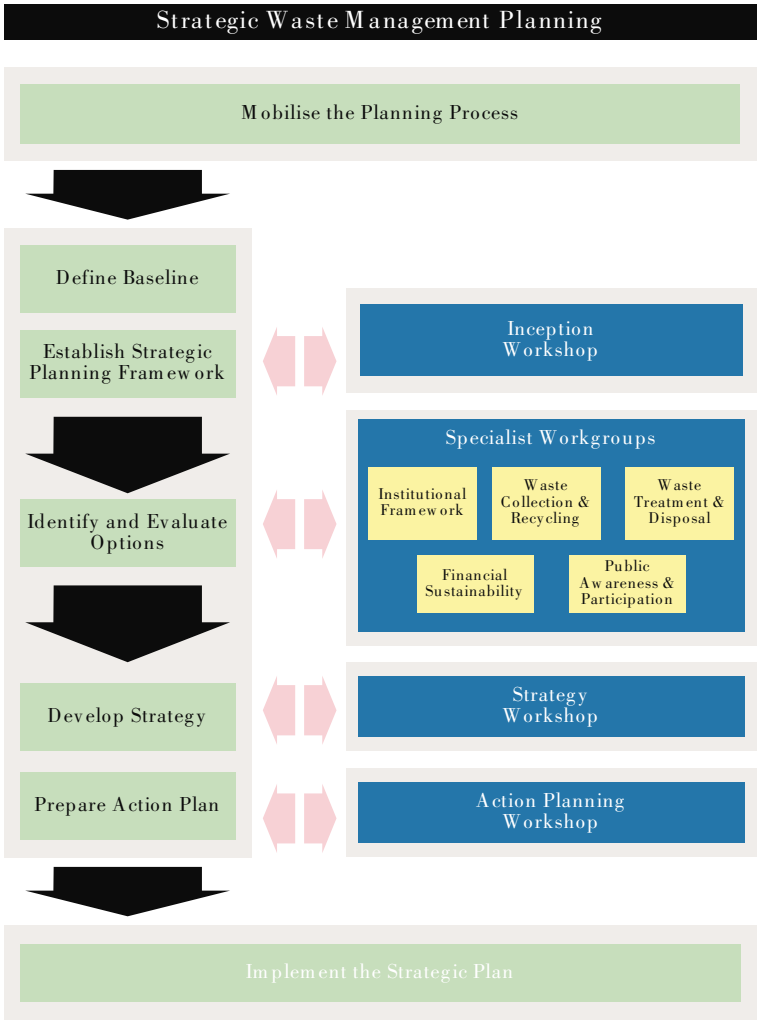
A Steering Committee should be assembled for the strategic planning process, comprising members who have the position, experience and authority to direct the overall initiative. The Committee should include the authorities and institutions involved in decision-making for MSWM, together with a selection of other key stakeholders. Members can include:

- A senior political figure as chair
- Representatives of participating municipalities
- Local government department officials
- Municipal waste managers
- Representatives of community organisations
- Women leaders in MSWM
- Private sector representatives
- Selected specialists

Structuring the Planning Process

Once the Steering Committee have been formed, it will be necessary to structure the overall initiative. *Figure F2* below shows how a workshop programme may be integrated into the strategic planning methodology adopted in the Planning Guide.

Figure F2: Participatory Planning Methodology



Participatory planning involves a series of debates, discussions and informed consultations. This is often best achieved through a structured Workshop programme, designed to ensure that key stakeholders drive the strategic planning process, have sufficient time to reach consensus and feel ownership of its outcomes.

Developing a Terms of Reference

Terms of Reference (ToR) need to be developed for the Strategic MSWM Plan. A Working Group established under the Steering Committee can be charged with preparing this document. The ToR should be an action-oriented document, clearly identifying the objectives, scope and requirements of the strategic planning process, and the responsibilities of stakeholders. Outline contents of a ToR are set out in *Box F2* below.

Box F2: Outline Terms of Reference for a Strategic MSWM Plan

Introduction

Region/area for activity. Define by location and major concerns (eg, improve collection service, upgrade disposal/phase out dumping, involve the private sector, etc)

Background information. Present data that summarises the current situation and need for the Strategic MSWM Plan, setting out areas of focus and, where possible, relevant historical and projected trends.

Objectives. Define principal objectives for the Strategic MSWM Plan in general terms. These will form the basis for the plan.

Responsibilities. Define the roles and responsibilities of the Steering Committee, Working Group, key stakeholders and facilitators/specialists required to assist the process.

Scope of Work/Tasks. This is usually seen as the core of the ToR, setting out the scope in enough detail to be clear, but not in so much detail as to be over-prescriptive and inflexible. A two-stage process of defining the strategy and preparing the action plan is recommended.

Work schedule. Proposed timetable for preparing the Strategic MSWM Plan, including the project management schedule and delivery targets.

Outputs. Including workshops and consultations to be held, key decision-making milestones and reporting requirements.

Resource Requirements. Indicate the budget available and professional skills required for preparation of the Strategic MSWM Plan.

Supporting information. Provide more detailed information where necessary.

Acquiring Funding and Resources

The strategic planning process can be funded from either internal or external sources. Where it is difficult to finance the initiative from internal government sources, funding from central government or external support agencies (ESAs) may be required.

ESAs active in promoting sustainable waste management include most bilateral donors, multilateral development banks and technical cooperation agencies such as WHO, UNEP, UNCHS, UNDP, ILO and others. The eligibility criteria and application process varies between ESAs, although they will typically request involvement in ToR definition and selection of project facilitators/consultants. Facilitators/consultants, however, need to be acceptable to all parties for success

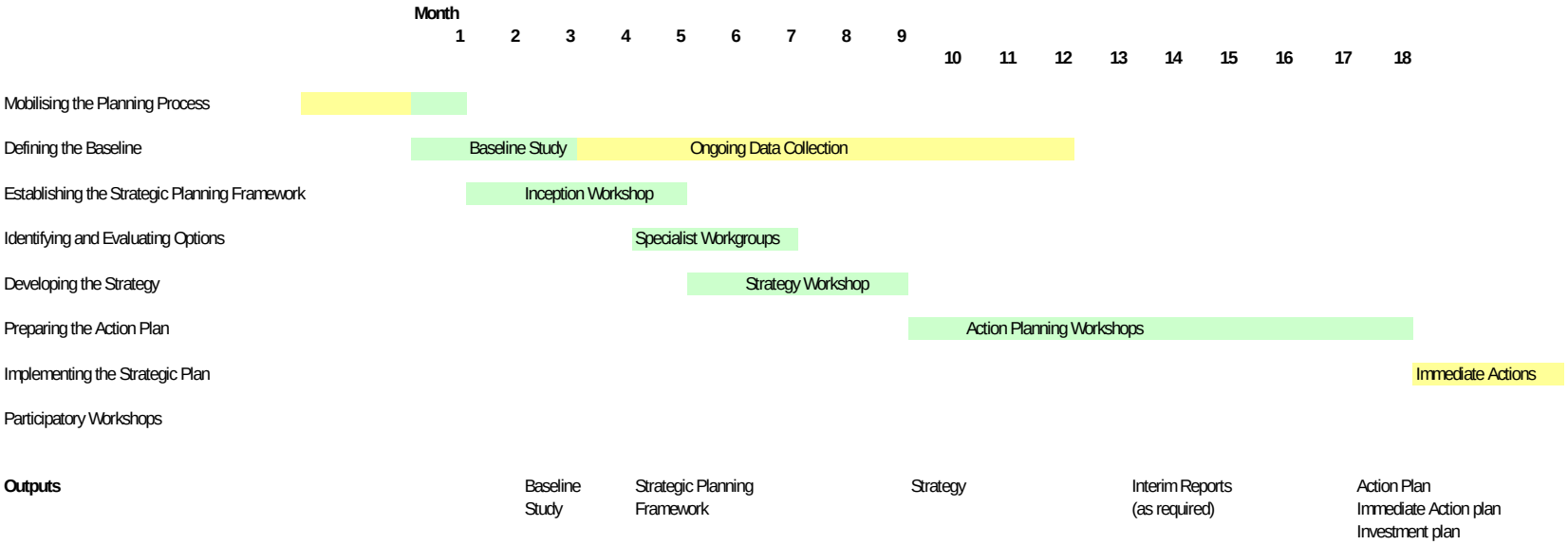
Preparing a Workplan

The final stage of the mobilisation process is to develop a Workplan based on the requirements of the ToR. A conceptual Workplan is provided in *Figure F3*.

The Workplan should set out the specific actions required along a timeline, and indicate the schedule for participatory workshops and other key decision making milestones. The Workplan may need to be adapted during the planning process to reflect emerging priorities and timescales.

The planning process is likely to take 1- 1.5 years to complete, typically 6-9 months to develop the Strategy and a further 6-9 months to prepare the Action Plan. It is important to ensure that there is sufficient time available to reach an agreed consensus on the strategy, and properly address these issues in the Action Plan.

Conceptual Workplan



Outputs	Baseline Study	Strategic Planning Framework	Strategy	Interim Reports (as required)	Action Plan Immediate Action plan Investment plan

MODULE 2 – DEFINING THE BASELINE

Role of the Baseline Study

A Baseline study should be carried out to identify waste quantities and composition, and understand existing waste management practices. This Baseline Study needs to address comprehensively the range of areas of importance to waste management services, including institutional, operational and financial aspects.

An outline of the contents of a Baseline Study is provided in *Box F3* below. Each of the contents points is briefly discussed in this Module.

Box F3: Outline Contents of a Baseline Study

Data and Information on

- Waste quantities and composition
- Existing MSWM Operations
- Institutional/financial framework
- Prediction of future waste quantities
- Analysis of shortfalls and constraints

Step 2 will need to be carried out in two stages. Early on in the planning process a **Baseline Study** or audit of MSWM in your City should be presented. Data gaps will need to be filled and more detailed information collected during remaining planning stages. This additional data and information should be used to supplement the Baseline Study and lay a firmer foundation for planning decisions.

Data Collection

Data and information will need to be collected in a broad range of areas: covering socio economic, housing, health, land use, environmental and political/institutional issues. Guidance on collection of general data and information is provided in *Step 2* of the Planning Guide, and selected tools are provided in the Annexes.

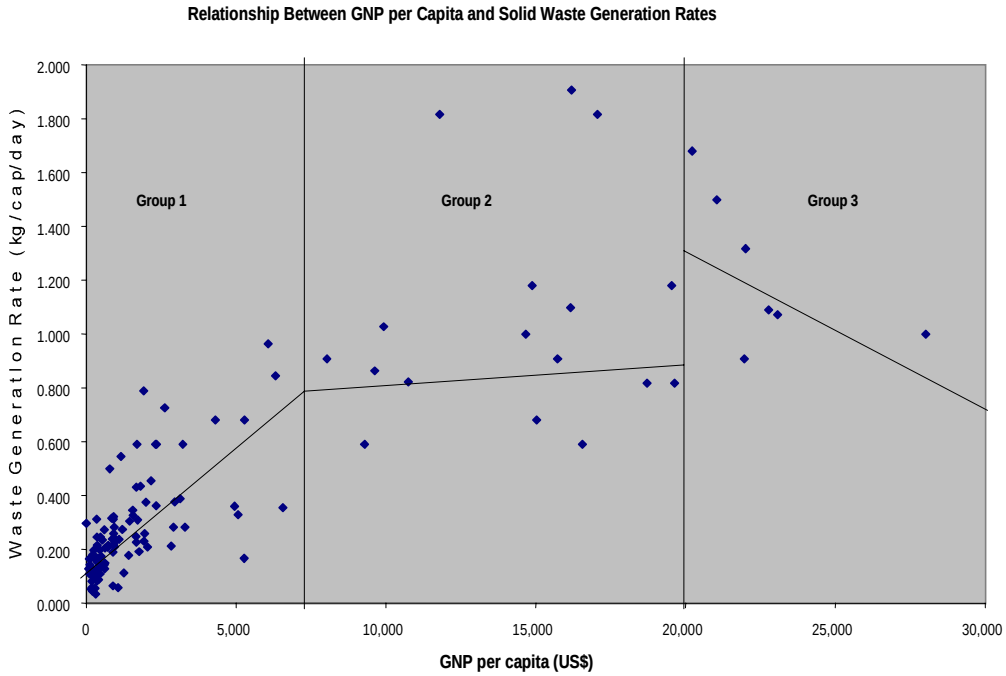
Good data are essential to understanding existing waste management practices. Data are, however, notoriously difficult to collect and existing data often unreliable. Existing data therefore needs to be complemented with targeted surveys designed to bridge the data gap and lay a firm foundation for understanding shortfalls and constraints.

Waste Quantities and Composition

The main objective of data on waste quantities and composition is to determine the demand for collection, transfer and treatment/disposal facilities. Data on waste composition can also be helpful in establishing the current status of recycling in the MSWM system and the feasibility (or otherwise) of resource recovery and waste treatment schemes.

Quantities of waste being generated in many developing and transition countries are growing at an alarming rate. *Figure F4* below illustrates a generalised pattern for growth in waste quantities as countries develop economically.

Figure F4: Pattern for Growth in Waste Quantities



Source: Medina, Martin. 1997. "The Effect of Income on Municipal Solid Waste Generation Rates for Countries of Varying Levels of Economic Development: A Model." Journal of Solid Waste Technology and Management. Vol. 23. No.3: 149-154.

Quantities of waste vary through the handling chain depending on the level of informal materials recovery. The generation rate of MSW should therefore be measured at varying points in the chain through representative surveys of households and at transfer, treatment and disposal sites. Detailed guidance and supporting tools for measuring waste quantities and composition are provided in *Step 2* of the Planning Guide.

Waste quantities and composition are best defined through weighing household samples and vehicle loads; expressing data as either kg/person/day at the household level, or tonnes/day at facilities. Where there are no weighbridges, visual observations of vehicle loads (expressed in m^3) coupled with surveys of

waste density at different points in the handling chain (in kg/m^3) can allow a rapid assessment of overall quantities.

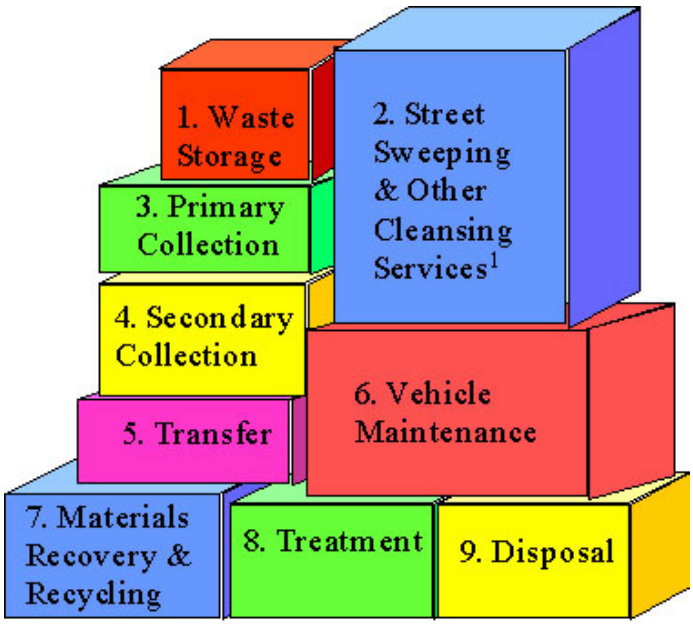
Municipal solid waste can be defined as `waste from households and waste from business, industry and institutions which is similar in nature and composition to household waste'. Wastes from Industrial/Commercial and Institutional (ICI) sources, are, however, also likely to need to be managed as part of the municipal service.

As the SWM service must cope with all situations, it is important to measure daily and seasonal variations as well as average quantities and composition. As data becomes available it can be used to refine understanding of the baseline situation, and can be fed into evaluation of options during *Step 4*.

Understanding Existing Operations

Waste management operations can be sub-divided into a number of operating sub-systems (see *Figure F5*). Each of these sub-systems will be influenced by management performance (planning, finance, administration etc), but are distinct technical aspects of the MSWM service.

Figure F5: Operating sub-Systems for MSWM[1]



[1] Other cleansing services can include drain cleaning, gully emptying, beach and shore cleaning, construction and demolition waste removal, waste backlog removal and clean-up after natural disasters, and related services such as litter prevention, grass cutting or maintenance of public toilets. In some countries nightsoil removal, septic tank and cesspit emptying may also be included.

An audit of practices in each of these `building blocks' should be carried out. Contracting an independent specialist (or team of specialists), to work in close co-operation with the service operators in evaluating the existing system, can help ensure that the audit is comprehensive and objective.

Understanding of the baseline situation as the develop during the planning process, and surveys and observations will need to be carried out at various stages to understand seasonal variations in demand for and performance of the MSWM system. This work will form a major foundation of the Strategic MSWM Plan, and will need to be conducted in close co-operation with the MSWM department.

Operations need to be understood from the bottom up. The service operator is the best source of information on the existing system. Contracting specialists to work closely with the service operator and spend time in communities, on collection rounds and at waste management facilities can help build understanding of constraints and opportunities, weaknesses and strengths in the system.

Predicting Future Capacity Requirements

Data on waste quantities are often unreliable, and quantities of waste being generated always variable. Nevertheless a plan must be based on as accurate a projection of future waste quantities as possible. This involves understanding and interpreting future demographics, socio-economic development trends and future levels of service coverage.

An example of how future waste quantities can be determined is provided in *Box F4* below. Care must, however, be taken to use variables which are appropriate to the particular location, and adequately to take into account the effect that increasing waste arisings may have on levels of materials recovery and recycling.

A simple and transparent methodology should be used to predict future waste quantities and capacity requirements.

Box F4: Calculation of Future Waste Quantities (an example case)

1998	
Population	500,000
Service Coverage	70%
Generation Rate of Household Waste	600g/capita/day
Commercial and Institutional Waste	50 tonnes/day
Total Amount = (500,000 x 0.7 x 600 / $10^{6)}$ + 50 =	260 tonnes/day
2003	
Population (4% per year increase) 500,000 x 1.04^5 = 608,000	608,000
Service Coverage	80%
Generation Rate of Household Waste (2% per year increase) 600 x 1.02^5 =	662g/capita/day
Commercial and Institutional Waste (8% per year increase *) 50 x 1.08^5 =	73 tonnes/day
Total Amount = 608,000 x 0.8 x 662 / 10^6 + 73 = 395 tonnes/day	

* Annual increase rate of commercial and industrial waste is usually greater than that of domestic waste. In this example, annual increase rate of domestic waste is 6% (2% + 4%). Therefore, 8% per year increase is adopted for the commercial and institutional wastes.

Key Note: Locally collected data and analysis of trends is essential. The variables used in this case should not be taken as standard for Cities in developing and transition countries

Understanding Shortfalls and Constraints

It is important to define the shortfalls and constraints in the current system, ie where is it under performing in terms of service, provision of adequate infrastructure and equipment, planning, environmental protection, health safety and cost.

An initial understanding of shortfalls and constraints inherent in the MSWM system can be gained from baseline survey work. All areas of importance should be addressed, including each operating sub-system, and the institutional and financial framework. Some key aspects to cover are set out in *Box F5* below.

Box F5: Areas Requiring Attention during Shortfalls and Constraints Analysis

- Levels of ambition and professionalism
- Available resources (adequacy of current budget, trained staffing etc)
- Administrative system (division of roles and degree of accountability)
- Staff (professionalism, payment, discipline, accountability, adequacy and training)
- Adequacy of existing legislation
- Adequacy of existing infrastructure
- Development planning constraints
- Equipment (preventative maintenance, repairs, replacement and procurement, stores sufficiency)
- Social issues (level of service provided to low income communities, prevalence of waste pickers) etc
- Public awareness and participation (recognised value and need of service, co-operation and buy in, political will, disputes etc)

The checklist of dos and don'ts available in the *Overview for Decision Makers* can be used as a tool to help structure analysis of shortfalls and constraints.

Preparing the Baseline Study

A report on the Baseline Study should be prepared at an early stage in the planning process to feed into early decision-making on key issues and strategic priorities. The objective should be present an initial understanding of existing MSWM practices and shortfalls and constraints and, where possible, provide this study as a briefing document (or summary) at the Inception Workshop (see Module 3).

The Baseline Study should contain data and information on all aspects of importance to MSWM. A summary of the report should be prepared and be used as a briefing document for the Inception Workshop.

Data and information gaps will need to filled through specially designed surveys. Where these surveys require lengthy periods of time to complete (eg, data on seasonal waste arisings or willingness to pay) they may be appended to the Baseline Study report at a later stage of the process.

MODULE 3 – ESTABLISHING THE STRATEGIC PLANNING FRAMEWORK

Understanding the Existing Strategic Planning Framework

The main objective of the Baseline Study is to provide an early audit of the existing MSWM system. Although this work should provide a good understanding of the technical issues being faced, it will not fully reflect the political, institutional and management dynamics influencing waste management operations.

These issues will need to be fully understood and catered for in the Strategic MSWM Plan if it is to be politically viable. An Inception Workshop involving all key stakeholders provides a valuable opportunity for open discussion and debate of all aspects of waste management, define key issues and establish the strategic planning framework.

The key at this stage is to open up active debates on the shortfalls and constraints in the MSWM system, and to ensure that all participants have the opportunity to speak-up on issues that are of particular concern to them. Holding key issues discussions in a range of `break out' workgroups (covering Steps 4A-4E) will boost the chances of active contributions being made by all key stakeholders.

Workgroup leaders should be given the responsibility of ensuring that all members have their say. Rapporteurs can be assigned the role of presenting findings of each Workgroup to all participants. A briefing meeting in advance of the Workshop can provide a valuable opportunity for discussing objectives and structure, as well as their key responsibilities. Workgroup leaders and rapporteurs can be retained through later planning stages to ensure consistency and direction.

The Inception Workshop represents the first opportunity for all stakeholders to get together to be introduced to the objectives of the Strategic Plan, discuss key issues and agree the strategic planning framework. This Workshop is therefore critical to the success of the overall initiative, as it is in this forum that initial interest and involvement can be secured.

Defining the Strategic Vision

The Strategic Planning Framework acts as the umbrella under which waste management shall operate, defining, for example, the overall strategic vision and responsibilities of Government departments, service providers and waste generators.

MSWM is a major practical undertaking. Those involved in providing services will, necessarily, need to concentrate their energies on practical day-to-day management issues. A major role of Strategic Planning is to provide an

opportunity for these and other key stakeholders to take a step back from day-to-day problems and focus on defining their vision for the future.

A strategic plan needs to set out a `vision' of what it intends to achieve. Once the vision has been defined and agreed between all key stakeholders, it will act as a platform from which to develop a shared understanding of the objectives of the Strategic MSWM Plan.

Status of the Strategic MSWM Plan

For it to be effective the Strategic MSWM Plan will need to have official status and be fully integrated with other local Development Plans and Strategies either in place or being developed.

Many countries have, or are in the process of developing, national policies and sector strategies on waste management. These policies may establish the institutional/legal framework, needs and priorities, planning goals and sectoral targets, cost recovery norms and the framework for regional/local Strategic MSWM Plans.

Many governments are also actively decentralising powers to local government, and developing policies and legislation to establish the broader political, institutional and financial `climate' within which municipalities operate. This often influences the range of options that municipalities can pursue in a range of areas including collection of charges, municipal finance and private sector participation.

Close liaison between local strategic planning initiatives, and with national and regional authorities, provides an opportunity for national policies and regional/local planning to be fully integrated.

Defining the Scope of the Plan

The boundaries of the plan need to clearly defined. This will involve making decisions on the planning area, period and types of waste to be covered by the plan

The planning area is usually defined as the geographical boundary of those municipalities participating in the initiative. The planning area needs to be broad enough to capture both the major centres of waste generation and the area of search for disposal sites.

The Strategy is usually defined as covering 15-20 years in order to cover issues in the long-term. A time horizon of 5 years can be established for the Action Plan, with an Immediate Action Plan detailing requirements over the first 1-2 years.

Planners will also have to decide which types of waste to include in their Plan. For example, shall the plan include non-hazardous industrial waste or only commercial waste? What will be the link to sewage sludge disposal etc.

Defining Key Issues

The Baseline Study should have presented an audit of existing MSWM practices and an initial analysis of shortfalls and constraints. The full extent and true nature of key issues can, however, be best understood through coordinated discussion and debate between stakeholders.

The diversity of MSWM as a subject means that stakeholders are likely to have a wide range of perspectives on key issues. Open discussion and debate of these key issues will be the most effective way of ensuring that each of these perspectives is properly represented.

Setting Objectives and Targets

Once the vision, status and scope have been defined, key objectives and targets for the Strategic MSWM Plan can be established.

- Objectives should be defined to cover the main goals of the Strategic Plan, and cover all of the key issues requiring attention.
- Targets usually relate to the performance and coverage of MSWM services and, as long as they are realistic, can be an effective tool for driving forward improvements. In some cases, MSWM targets have been established within National Policies or Sector Strategies.

Setting clear objectives and targets at an early stage will provide focus to the remainder of the planning process. The aim should be to establish and agree these broad principles at the Inception Workshop. The appropriateness of targets should be further reviewed during preparation of the Action plan.

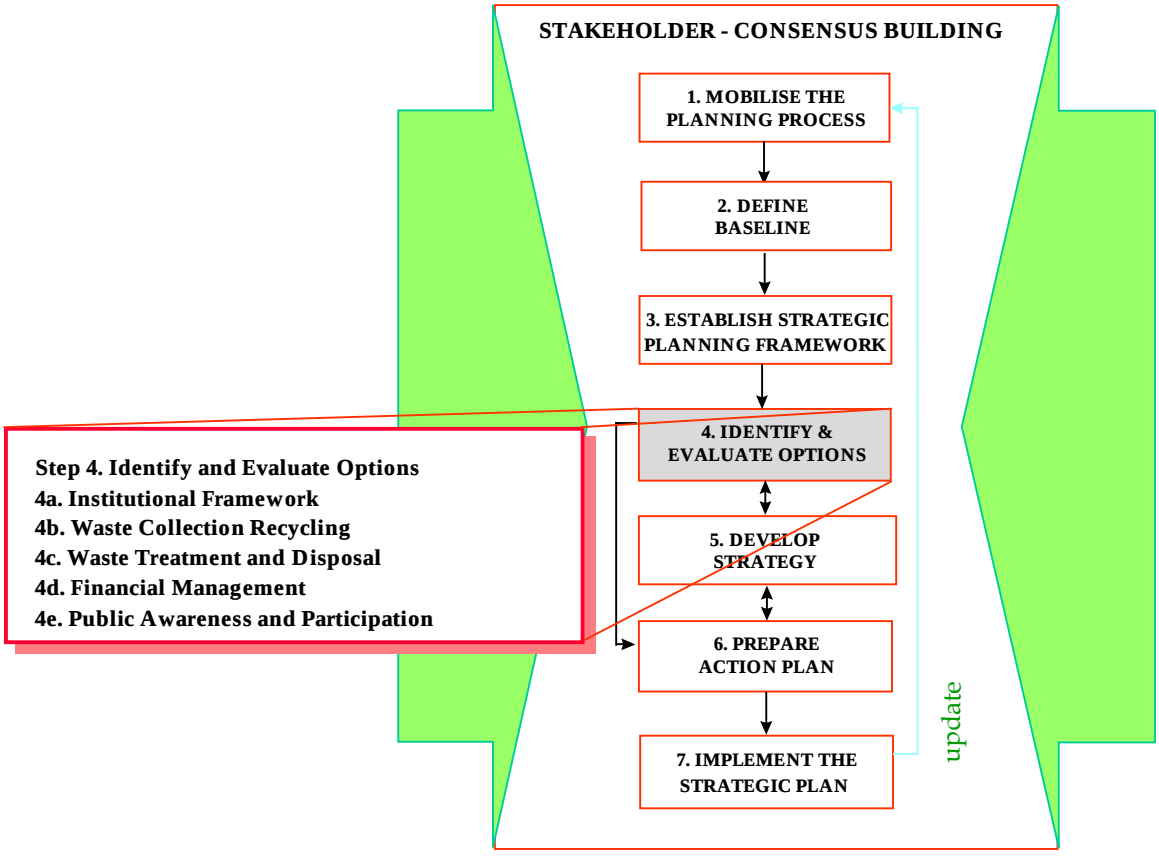
Separating Content from Process

So far in the Facilitator's guide, we have combined information and guidance on:

(i) the *content* of each step (the "*what to do and how to do it*"), with
(ii) the *process* of the MSWM strategic plan development (the "*how to plan*").

In *Step 4*, the volume of material becomes so large that we have had to split it into smaller, thematic blocks. To do this, we separate the *content* of the Strategic MSWM Plan from that of the *process* of preparing it. Guidance on content is subdivided into 5 key areas as shown in *Figure F6*.

Figure F6: Content of Step 4



Sub-dividing the Content

The purpose of *Step 4* is to identify and evaluate the practical *options* (or alternative solutions) available for addressing each of the component parts of the overall MSWM system. Work needs to be carried out in each of the five sub-steps, and effectively combined to form the Strategy and Action Plan.

The separation of *Step 4* into five sub-steps is simply a method to make it easier for us to understand, analyse and make strategic planning decisions concerning the overall MSWM system. It is vital that sight is not lost of the integrated nature of the system, where **all components are linked to each other and influence each other**.

Progressing to the Strategic MSWM Plan

So far in the preparation of the Strategic MSWM Plan **this will have been done**:

- Stakeholders have been mobilised for the strategic planning process and the work has been organised: *Step 1* Mobilising the Planning Process
- The Baseline Study has been prepared through the collection and analysis of available data, and an initial analysis has been made of shortfalls and constraints: *Step 2* Defining the Baseline
- The framework for the MSWM plan has been established: *Step 3*: Establishing the Strategic Planning Framework

Now we need to:

- Identify and systematically assess the range of institutional, technical, financial and promotional options available for each of the building blocks of an integrated MSWM system

  Collect further data an information to supplement the initial Baseline Study

- Debate and agree the range of options as part of *Step 5*: Developing the Strategy
- Fully evaluate and finally select preferred options as part of *Step 6*: Preparing the Action Plan

The content of *Step 4* is summarised in *Box F6* below:

Box F6: Content of Steps 4A – 4E

Step 4A **Institutional Framework**	Effective organisation and management are required to sustain a proper solid waste management system. When planning improvements, attention needs to be placed on ensuring that institutional responsibilities are clearly defined and that institutions are both sufficiently resourced and accountable for their performance.

Step 4A in structured as follows:

- Introduction
- Legal and regulatory framework
- Inter and intra-municipal cooperation
- Options for developing institutions
- Strengthening management; and
- Opportunities for private-sector participation

Step 4B **Waste Collection and Recycling**	This chapter examines the waste collection and associated systems, as well as constraints and opportunities for increasing levels of recycling.

Step 4B is structured as follows:

- Profile of waste collection and recycling
- Common problems and constraints
- Summary of key issues: waste collection
- Building on the existing recycling system
- Primary collection and waste storage
- Secondary collection
- Selection of vehicles
- Vehicle maintenance
- Street sweeping and other cleansing services
- Micro-enterprise and community involvement

Step 4C
Waste Treatment and Disposal

Step 4c examines the remaining two operating sub-systems, treatment and disposal. The sub-step focuses on a range of issues which need to be taken into account when selecting options in this area.

Step 4C is structured as follows:

- Problems of uncontrolled dumping
- The waste management hierarchy
- The landfill stepladder
- Features of a sanitary landfill
- Making initial improvements
- Planning new landfills
- Selecting a landfill site
- Environmental Impact Assessment
- Waste treatment technologies
- Summary: key strategic issues
- Summary: minimising costs

Step 4D
Financial Sustainability

Effective financial management is critical to sustainable development of waste management services. This sub-Step presents a range of concepts and methods useful in improving financial sustainability.

Step 4D is structured as follows:

- Financial policy framework
- Economic analysis of technical options
- Financial assessment of the Strategic plan

Step 4E
Public Awareness and Participation

Step 4E outlines a range of ideas and options for improving levels of public awareness of waste-related issues and participation in improving MSWM practices.

Step 4E is structured as follows:

- Role of awareness and participation
- Public awareness and education (PA&E)
- Tools for use in PA&E
- Indicators for success of PA&E campaigns
- Case studies

MODULE 4A – INSTITUTIONAL FRAMEWORK

Nature of the Institutional Framework

Step 4A provides guidance on how to strengthen the institutional framework for MSWM. There is a rich diversity in institutional systems across the world, and no standard template around which to develop MSWM institutions. There is, however, a wide range of examples and experiences that can be used to guide development of the institutional framework for MSWM in your local area.

Many previous planning efforts for MSWM have emphasised technology at the expense of institutional and management systems. An acceptable level of service for waste management depends critically on effective management, operating within an enabling institutional framework, and capable of generating the financial resources required for operation, maintenance and investment.

Re-definition of institutional relationships requires careful thought, clear justification, much stakeholder consultation and strong political backing (often underpinned by legislation).

Essential Functions of MSWM

MSWM is essential to public health and environmental protection. Certain goals of MSWM, such as the provision of a waste collection service to everyone, and the improvement of waste disposal practices, have the character of `common goods'. As a common good, MSWM is an essential service that everyone has a right to, and provision of the service is an essential responsibility of a municipal council (or equivalent), as the body representing the interests of the public.

Effective organisation and management is required to sustain an effective MSWM system. When planning improvements in the MSWM system, attention needs to be placed on ensuring that institutional roles and responsibilities are clearly defined, and that institutions and other organisations involved in MWM are both sufficiently resourced and accountable for their performance. Ensuring single source accountability and improving the operational autonomy of MSWM departments, but retaining checks and balances, can significantly enhance performance.

Essential MSWM functions can be generalised into six areas:

Policy – national/regional government direction, legislation may be used to implement aspects of policy;
Planning - the process of determining needs and priorities, and necessary actions to be taken to develop waste management practices;
Regulator – responsibility for monitoring performance (typically focused on pollution control at waste treatment and disposal sites) ;

Revenue – responsibility for collection of taxes and charges;
Client – responsibility for ensuring service is provided;
Operator – responsibility for providing services.

Of these functions, policy relates to national, regional and municipal level of government (with policy at the municipal level often consisting of a statement of aims), planning and regulator functions relate to the regional/municipal level, and revenue, client and operator functions to the municipal level of government. Guidance on the policy and planning functions is the subject of this Guide. *Step 4A* provides guidance on the client, regulator and operator functions, and *Step 4D* deals with issues surrounding revenue generation.

Separating the Function of Client from that of the Operator

The relative inflexibility of government in its day-to-day management has led to the widespread introduction of the private sector and community organisations as the operator of MSWM services. The separation of the **Client** from the **Operator** of MSWM services creates a climate for improving performance of MSWM services and increasing levels of private sector and community participation.

Separation of the `Client' function from the 'Operator' function lays a foundation for effective private sector and community participation. Private sector participation is **not**, however, a magical solution. Success will be largely down to the way in which service performance is monitored and controlled by the municipal authority, and the degree of competition, accountability and transparency ensured during the contracting process.

Separation of the `Client' from the 'Operator' lays a foundation for improving MSWM services. A key objective is to strengthen the client skills of the MSWM department, increasing its capacity to ensure effective services are provided regardless of whether they are operated internally or by the private sector.

Organising Services

A successful and sustainable operation for waste collection and street sweeping requires close liaison and cooperation between the responsible management, the supervisors and the local community. This is particularly the case if community based organisations (CBOs) are to be involved in some parts of the service (see *Module 4B*). For this reason, waste collection is often best organised at the lowest institutional level, probably districts and zones within a city or municipality.

There are some, although limited, economies of scale in secondary collection, particularly where larger and/or more sophisticated vehicles are used. This suggests that, in urban areas, semi-autonomous secondary collection operations

should serve at least a minimum population, possibly of the order of 50,000-100,000 people.

Larger economies of scale are required for waste treatment and disposal, and considerable difficulties can be expected in locating suitable sites within or close to the urban area (see *Step 4C*). For these reasons waste treatment and disposal is best organised at the regional or inter-municipal level. Inter-municipal co-operation can help foster partnership on selection of sites, and sharing of treatment and disposal costs.

Waste collection is usually best organised at the lowest appropriate level of municipal administration, but waste treatment and disposal is best organised on a unified across, and between, municipalities. However, it is important to ensure that waste collection and disposal services are also properly integrated, and that there are agreed contractual and payment relationships between collection and disposal organisations.

Strengthening Institutions

A major weakness in the current organisation and management of MSWM services in many countries is the fragmentation of management at a relatively low level.

Existing SWM organisations very rarely have the authority or the autonomy to undertake all six of the organisational functions necessary for an effective and sustainable organisation. For example, dedicated units for planning and monitoring services often do not exist, commercial functions often under-developed and separate accounts for MSWM uncommon.

The basic requirement for strengthening institutions is that each needs to be *autonomous* in terms of the basic organisational functions required for sustainability (ie free from undue external interference), but be part of an integrated system with proper checks and balances.

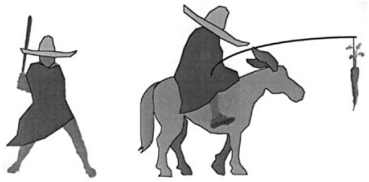
The capacity of an organisation will be heavily dependent on internal management and the quality of staff. Professional skills need to be continually improved in all aspects of MSWM, and properly reflected in pay scales and promotional opportunities. It is important to provide sufficient career development opportunities to ensure that high quality staff can be hired and retained.

MSWM organisations need to have the skills and resources to enable them to function properly. This will rely on sustained commitment to capacity building and institutional strengthening.

Role of Waste Generators

A Strategic MSWM Plan must also establish the roles and responsibilities of waste generators to ensure they are clear of what is expected of them. Waste is generated from many sources; typical roles and responsibilities of these generators are set out in *Step 4A* of the Planning Guide.

In defining responsibilities, it is important to show a balance between incentives and controls (or carrots and sticks). By incentives we mean providing systems that naturally reward compliance, and by controls a set of formal obligations defined either by policy or legislation.



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Private-Sector Participation

Private sector participation (PSP) in service delivery is one of a range of options for improving the cost-effectiveness of services. Where the private sector can perform services to the same or improved standard at a reduced unit cost, then contracting-out represents a major opportunity for improving overall performance of services.

Private-sector operators are motivated by **the opportunity for profit.** **Competition** leads to **efficiency,** and **accountability** comes through **transparency** of the contracting process, and effective **monitoring** of operations.

In order to ensure efficiency gains when contracting-out services, it is essential for municipal authorities to develop their expertise as `clients'. The necessary functions of a client organisation are set out in *Box F7*.

Box F7: Necessary Functions of a Client Organisation

Operations Specifying contracts Competitive tendering Contract negotiations	**Financial** Budgeting Management accounting
Planning Planning future service contracts Financial planning	**Commercial** Collection of customer charges (in some cases) Payment of contractors
Monitoring Monitoring performance of contractors Measurement of progress in meeting targets	**Administrative Support** Salaries Office administration

A Guidance Pack for Private Sector Participation in Solid Waste Management has been produced as part of the inter-donor Collaborative Working Group. Further discussion is also provided in *Step 4A* of the Planning Guide.

Doing More for Your Money

Street sweeping, waste collection and transport are the most publicly visible aspect of MSWM. The large majority of incidences of public/community complaints about waste management arise as a result of deficiencies in collection and associated services. Waste collection and street cleaning, therefore, receives high political priority.

Recycling plays a critical role in reducing waste quantities, returning resources back to use, and minimising the financial and environmental burden of MSWM. Recycling will become even more critical as quantities of waste, and in particular consumer packaging, increase. Many high-income countries are having to put in place upstream policies on waste reduction in manufacturing and packaging to reduce the initial volume of the waste stream (eg, the EU Packaging Directive etc), although this is often as a response to the continued erosion of the recycling sector in these countries.

The high public visibility and high costs of waste collection and associated services means that it is an important area for the municipality to improve its performance. The realisation of improvements can go a long way to improving the image of the municipality, and the public health and environmental conditions for residents.

Immediate improvements must be made, because the public will want to see tangible improvements in a short period of time if they are to continue to contribute their energies to improving MSWM.

A major challenge is to continually search for ways of doing more for your money, to make savings that can be transferred into improving service performance and coverage.

Every tonne extracted from the waste stream means that there is a tonne less that needs to be managed by the MSWM system. The most effective waste management systems are those that effectively combine high service standards with high rates of materials recovery and recycling.

Rationalising Operations

Rationalising operations can generate significant efficiency gains. Developing new systems, effective management structures, improving workforce

productivity and rationalising collection routes each represent an opportunity to do more for your money.

The operating sub-systems within the MSWM service are illustrated by the building blocks presented in *Module 2*, the first seven of which are associated with waste collection and recycling.

Primary collection refers to the removal of waste from the household to a community collection point. Secondary collection refers to the removal of waste from that point to a transfer, treatment or disposal site. Although in some systems, or areas within systems, there is no distinction between primary and collection services, the definition is useful in helping to understand the waste collection process.

Most of the efficiency loss in a waste collection service occurs as waste is transferred from one part of the waste collection system to another. A key is to try and improve the efficiency of linkages between the different components of your waste collection system. Discussion of key areas for potential efficiency gains is provided in *Step 4B* of the Planning Guide.

The aim should be to try to eliminate the need for human contact with waste once it has been put out for collection. Multiple manual handling of waste results in low operational performance and exposes waste collection workers to potential health risks.

Building on the Existing Recycling System

In many countries an informal (or semi-formal) materials recovery and recycling system operates alongside the waste collection service, driven by the market demand for materials extracted from the waste stream, and managed by an inter-connected chain of suppliers, dealers and re-processors.

The nature of the recycling system should ensure that it continues to survive as a waste management system develops, at least up to the point where recovery of a particular material is no longer economically viable.

In devising a Strategic MSWM Plan, care needs to be taken to ensure that the growth of the existing recycling system is not hindered. The aim should be to play a supporting role, devising ways of working with the informal sector so that it is able to achieve higher rates of recycling and receive a fair share of the `value added' economic benefits, while at the same time improving occupational health and safety conditions of waste pickers and recyclers.

Where there is a thriving informal materials recovery sector, efforts to increase levels of recycling by top-down intervention are unlikely to be effective. Under these circumstances interventions are often most effective where they are targeted at assisting micro-enterprise involvement in recycling at the community level.

Targeting Investment

Investments provide an excellent opportunity to kick-start improvements to service performance. They will be most effective when they are well-targeted and form a part of an overall programme of performance improvement under the framework of a Strategic MSWM Plan.

Vehicles and equipment should be selected to suit the local conditions, ensuring that they are suited to the local roads, are compatible with existing systems and have a good operational track record. In planning investments in collection vehicles it is essential to ensure that there is sufficient operation and maintenance budget available to allow their productive use.

Most MSWM systems utilise a range of vehicles, geared towards different service requirements. Most also use different ratios of labour and mechanisation in providing the service. The key is to ensure that whatever the balance, the productivity of the workforce and of the collection vehicles is maximised.

Involving the Community

Securing active participation at the community level is a powerful method of doing more for your money. Often the effectiveness of waste collection services is hindered by a lack of community participation in service, and major improvements made possible where service operators work closely with the community to determine the best possible arrangements for waste collection.

Community participation acts as a major driving force of change. Typically standards rise as the public become more aware and active in improving their living environment, and continue to demand more effective municipal services. Once these new standards have become well established, further opportunities for improving waste management practices are likely to open up.

The public are the major customers of the MSWM service. In implementing new waste collection methods, the community to be served should first be consulted about the to the type of system planned to be introduced. This can be carried out using a `willingness to pay survey' designed to reflect the preferences of the community in terms of service type, level and cost. Willingness to pay surveys are further discussed in *Module 4D*.

Many of the most effective primary collection systems have been developed by communities themselves with limited or no involvement from municipal authorities. In these cases it is often beneficial for the linkage between the community-organised primary collection system and municipality-organised secondary collection system to be clearly set out in a memorandum of understanding.

Transfer Stations

Transfer stations can greatly increase the efficiency of services in certain circumstances. Transfer stations allow loading of waste onto larger haulage vehicles, and collection vehicles to return to their rounds. A well-located and designed transfer station will allow service coverage areas to be increased and reduce traffic congestion along haulage routes. Transfer stations typically improve efficiency where round trip travel times from collection zones to the disposal site exceed 2 hours.

When designing transfer stations, care should be taken to ensure that there is a good vehicle flow through the site, and that the complexity of the transfer system adopted is minimised. The most effective low-cost transfer stations are often those that simply consist of a flat concreted area and use a mechanical loader to lift waste from the ground onto haulage vehicles.

Collection of Hazardous and Infectious Waste

Effective systems for segregation, handling and collection of infectious wastes are essential. Hospitals and clinics should be required to design their internal systems and make waste available for collection by special collection rounds. Collection of these wastes should be managed in a professional manner to ensure no risk to the health and safety of collection workers.

The most effective method of controlling hazardous wastes is to minimise their generation in the first place. Waste is progressively becoming viewed as a symptom of process inefficiency and cause of poor financial performance. Where hazardous wastes are generated they should be handled and managed professionally so that health, safety and environmental risks are minimised.

Special arrangements need to be made for management of hazardous and infectious wastes. The significant health and safety risks means that separate, and professionally managed, waste management systems are required for these wastes.

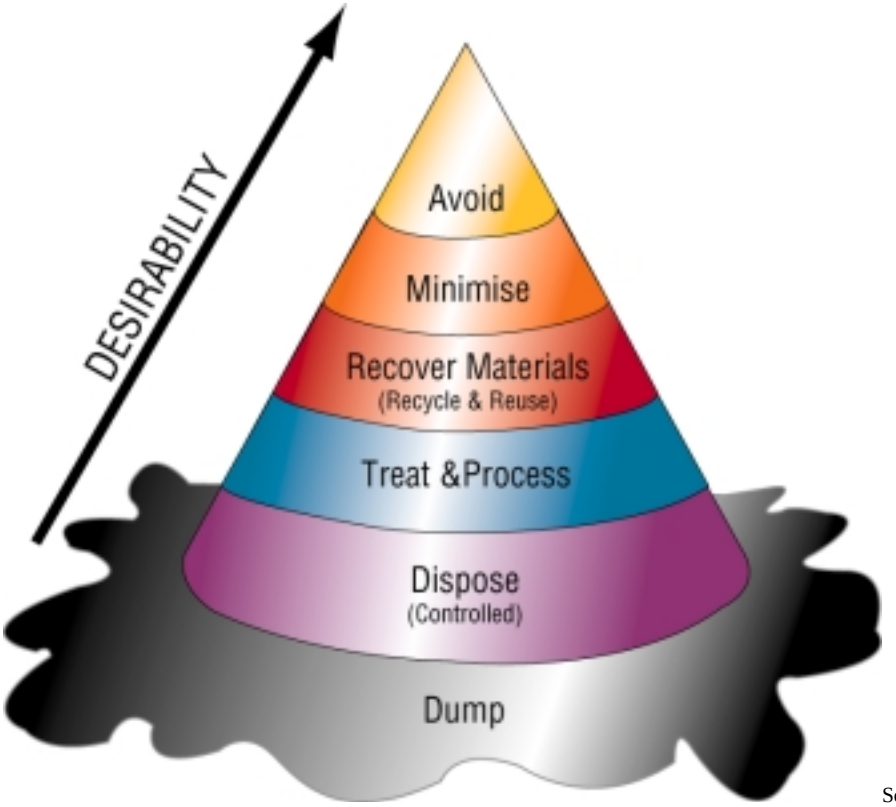
The Waste Management Hierarchy

At present uncontrolled dumping of waste is the norm in the majority of countries in the world. Uncontrolled dumping can lead to significant environmental, health and safety impacts, and lead to severe political and practical implications.

Development pressures will make it increasingly difficult to locate waste treatment and disposal sites. Alternatives to dumping of MSW will therefore need to be found and implemented. The waste management hierarchy (shown in *Figure F7*) sets out the range of options available for dealing with municipal waste.

Phasing out dumping and replacement with controlled landfill is a priority. This approach should be complemented by a long-term aim of moving waste management practices further up the hierarchy.

Figure F7: The Waste Management Hierarchy



Source: © ERM

Waste Treatment or Disposal?

Waste treatment is often seen as the `magic solution' to the growing political problem of waste. Although some of the mainstream technologies (such as incineration and composting) have been successfully tested in high-income countries, many others have only been tested on a pilot scale.

The application of all waste treatment technologies in a developing country context has been fraught with problems. Problems have often arisen because of over-optimistic assessments of technical, institutional and financial feasibility. Often overestimating the calorific value of the waste (for incineration), market demand (for composting), technical skills and available operation/maintenance budgets has been a major cause of failure of investments in waste treatment technology.

A potential response to the inherent risks of investing in major waste treatment facilities is to develop integrated waste management facilities, comprising sanitary landfill, medium-scale composting, facilities to assist the informal recycling sector to add value to the materials they reclaim,

Planners need to be realistic about the viability and practicality of MSW treatment technologies, and cautious about committing themselves to big investments. Focusing on small, technically and financially sustainable waste treatment schemes (potentially combined with sanitary landfill in an integrated waste management facility) provides important operational experience, and an opportunity to adapt systems to local conditions before committing excessive and scarce funds.

What is Sanitary Landfill?

Waste disposal by landfill is an essential part of any waste management system. Even in countries that have successfully put in place measures further up the waste management hierarchy, there is always a significant fraction of the waste-stream that cannot be treated, and waste treatment process residues that require disposal to landfill.

Sanitary landfill is the major technology employed for treatment/disposal of waste throughout the world. It involves placing waste in layers (or cells) which are compacted and covered to reduce smell, vermin and wind blown litter. Sanitary Landfills are often constructed in old quarries, earth borrows and shallow valleys, but land-raise (disposal of waste on flat land) is also commonly used. All slopes within the constructed landfill must be very shallow to minimise risk of landslide, and special management measures employed to reduce accidents from gas explosion fire and human contact with waste.

Inter-municipal cooperation and shared use of landfill sites are an excellent method of allowing higher environmental standards to be achieved and

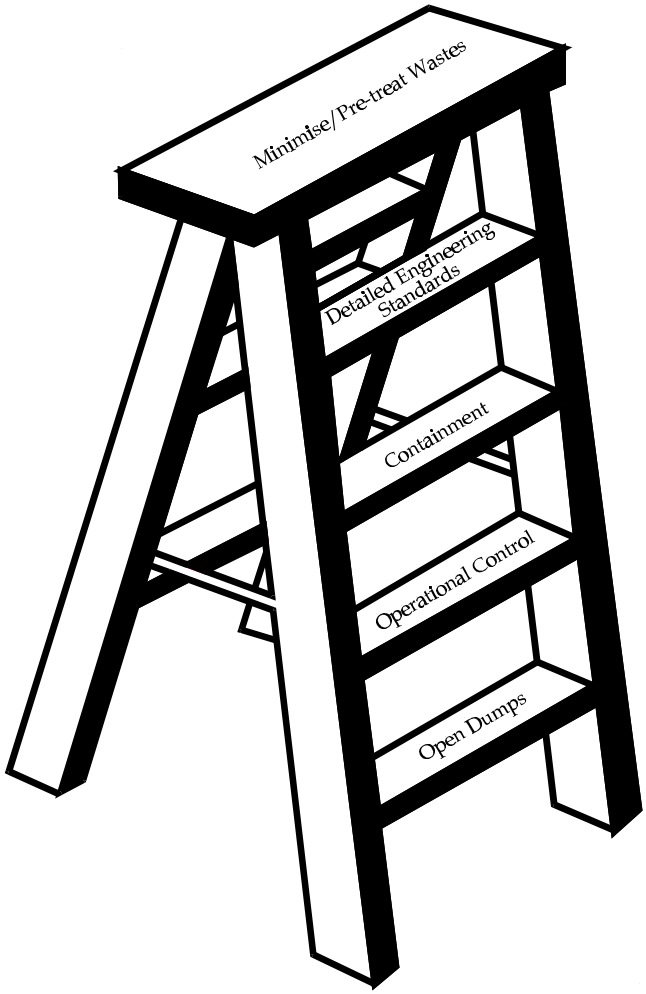
improving overall financial viability of the disposal system. Significant `economies of scale' can be gained from shared use of sanitary landfills, and inter-municipal cooperation is often essential for practical reasons.

With careful planning, design, construction and operation, landfill can be a safe, cost-effective and environmentally acceptable means of MSW final disposal. The challenge is to put in sanitary landfills that provide an acceptable degree of environmental, health and safety protection, at an affordable cost. Care should be taken to ensure that standards are set at levels that are affordable in practice. A badly operated sanitary landfill soon becomes an uncontrolled dump.

A Step-by-Step Approach

Waste disposal standards in high-income countries have increased gradually, over a period of about 20 years. Even today, many high-income countries are still trying to put in place a new generation of sanitary landfill sites. The historical development of standards is illustrated in the landfill stepladder shown in ***Figure F8***.

Figure F8: Landfill Stepladder



Probably the most critical problem faced by planners in their attempts to introduce better MSW landfilling practices, is the additional cost burden of developing and operating sanitary landfills. Current disposal costs by dumping are typically very low, and to many people (at least those who do not live near dump sites), final MSW disposal is `out of sight and out of mind', and therefore does not rank highly on their list of priorities as an issue requiring immediate attention.

Municipalities face severe constraints on the availability of land and, often, localised public opposition to waste disposal sites. Although MSWM departments often consider improving landfill standards an important priority, many are faced with a lack of adequate operational budget to implement such improvements. By concentrating on raising standards in a step-wise manner up the ladder, time is allowed for skills development, and for operational budgets to be afforded.

Significant improvements can be made to the standard of waste disposal with very limited finances. Key areas for initial attention include obtaining necessary budgets and approvals, rationalising operations, carrying out basic civil engineering works and establishing an effective management system.

Selecting Future Landfill Sites

There will always be a need to find new places to dispose of waste. As highlighted earlier, even in countries that have focused on developing waste treatment systems, there will always be a need for new landfill capacity. At the Strategy stage it is important to gain broad consensus on this need, and to define measures needed to ensure progressive development of standards (see *Box F8*).

Finding and obtaining consensus on appropriate landfill sites can take lengthy periods of time, and is often extremely challenging politically. It is important to ensure that the methodology for selecting the site is rigorous and transparent, otherwise these decisions may be `unravelled' later and cause significant delay in the introduction of improved environmental practices.

Box F8: The Landfill Paradox

The development of new landfill sites is almost universally a difficult task, both practically and politically. Given the widespread poor standard of waste disposal, it is not surprising that communities neighbouring proposed landfill sites tend to voice strong objections, and typically show very little faith that what is being proposed will be anything other than an uncontrolled dump-site.

Planners face a difficult problem in attempting to improve and develop their waste disposal systems. Whereas new sanitary landfill sites offer the promise of higher standards and less political problems, there is in fact often very little capacity to actually deliver on the promise of a sanitary landfill.

This can often result in well-engineered sites falling into disrepair as a result of a lack of operational budget and expertise, having poor environmental performance, and provoking local communities into taking direct action against the site. There are several examples of access to a waste disposal site being blocked as a result of direct action by a community.

The conclusion from these experiences is that, wherever possible, it is better to establish good operations at existing sites before constructing new facilities. This allows operation expertise to develop, decision makers to get used to providing budgets, and confidence to develop that good standards of landfilling can be achieved at modest cost. Demonstrating that proper management of landfill sites can be established also significantly boots the credibility of the municipality and helps to de-politicise the process of selecting further sites.

Care should be taken to ensure that all potential sites have been identified (including existing sites), and for the short list and final selection to be based on an agreed and widely communicated set of criteria.

More involved studies of the short-listed sites are required before the final selection of preferred landfill sites. Detailed technical, economic and environmental evaluation, in tandem with a structured programme of consultation with key stakeholder groups, can ensure that the best, and most acceptable, site is selected for development.

Where all potential landfill sites have not been fully identified and short-cuts are attempted in the evaluation, the result is often political U-turn at a late stage in the decision making process. This can lead to crises in lack of available waste disposal capacity, a proliferation of uncontrolled waste dumping, and no progress towards implementing sanitary landfills.

Waste Picking

Disposal sites are very commonly also used for recovery of materials by waste pickers. Many site managers wish to prevent these activities from taking place, but face almost insurmountable difficulties in actually achieving this goal due to local social and economic considerations.

In many cases where efforts have been made to exclude waste pickers from a waste disposal site, they have failed for the simple reason that exclusion was not

enforceable. It is often more appropriate to continue to allow waste pickers onto a site, even if it is in only into a designated area, but make efforts to improve health and safety conditions regardless, and modify operational practices around the waste picking as far as appropriate.

Waste picking is more a symptom of local socio-economic conditions than a problem of its own making. Waste pickers should not be `blamed' for needing to earn a living in this way, or be marginalized further from mainstream society. It is important to develop ways of integrating materials recovery into landfill operations, and to work towards improving health and safety conditions at the landfill site for the benefit of both site staff and waste pickers.

Disposal of Hazardous and Infectious Wastes

Hazardous waste management issues are often dealt with under separate planning exercises. However, it may be appropriate for these wastes to be included in a Strategic MSWM Plan, as they can, and often do, enter the municipal waste stream.

There is a great deal of debate on the appropriate treatment and disposal methods for hazardous and infectious wastes. All these wastes, however, require special management methods.

The key in hazardous and infectious waste management planning is, again, to balance practical feasibility and costs to ensure the most effective solution. For example, co-disposal of health care wastes in sanitary landfills under special management arrangements can represent a practical and effective short-term option.

MODULE 4D – FINANCIAL SUSTAINABILITY

Integrating Economic and Financial Considerations

Economic and financial issues must be addressed at all stages of the strategic planning. Focus will need to be placed on strengthening the financial policy framework (during *Step 5*) and, during action planning (*Step 6*), economic evaluation of technical options and alternative strategies and financial assessment of the preferred Strategic MSWM Plan.

Much of the work in *Step 4D* is of an analytical nature and will, therefore need to be carried out by qualified economists and financial analysts. However, issues relating to the financial policy of the municipality are best addressed at the Strategy stage through participatory workshops involving key stakeholders.

Understanding the Existing Financial Framework

Municipalities typically operate in a climate of extreme financial constraints, often significantly impacting on the quality and coverage of MSWM services.

Existing levels of cost recovery from users of the MSWM service are extremely low in most countries, making municipalities heavily reliant on budget transfers from central funds. As such funds are increasingly in short supply and unreliable, municipalities are facing a situation where they must improve levels of cost recovery and improve financial performance of MSWM services.

A range of methods are being used throughout the world to collect revenues for the MSWM service. Householders commonly pay for MSWM as part of a general utility service bill, and commercial and industrial customers typically pay a direct service charge. In many cases, however, there is no direct linkage between these charges and the actual operational costs of the waste department in the municipality, presenting constraints on the ability of the MSWM department to improve and expand services.

The MSWM department often has to fight two battles: On the one hand to secure its revenue from the customer base, and on the other hand to secure a budget from the city treasury. This can lead to a lack of direct contact with the customer base and a tendency towards crisis management.

Actual revenues from customers are often so low that they fail to cover even basic operation and maintenance costs, and provide no internal revenue to cover essential investments in vehicles, equipment and infrastructure.

Strengthening the Financial Policy Framework

The rising demand for services, and political/financial decentralisation taking place in many countries, is placing pressures on municipalities to improve their financial performance and increase the proportion of revenues collected from the users (or customers) of the MSWM service.

Policy and strategy measures required to strengthen the financial sustainability of MSWM services will need to be developed in tandem with other institutional, technical and promotional aspects during Strategy development (*Step 5*). This work should include:

- Identifying the policy and institutional changes, revenue sources and cost recovery options required for sustaining the long term costs of operations, as well as meeting the short term needs for investment;
- Identifying measures required to strengthen the financial performance and accountability of the MSWM department;
- Looking more closely at people's demands for waste services, ie, what level of service different consumers can afford and are willing to pay for.

An inter-linked set of financial polices are required to deliver sustained improvements to financial performance. These policies should contain measures to improve financial planning, management, accountability and cost recovery for MSWM services.

The issue of matching services to demand leads naturally to the question of peoples' willingness to pay for solid waste services. This can be understood through surveys designed to provide insights into the existing level of customer satisfaction, future preferences, and willingness to pay for certain MSWM service improvements.

Willingness to pay surveys can be useful in estimating the degree of customer satisfaction, demand for services and current level of public awareness and participation. They can also provide useful information on customer habits and preferences to feed for the design of future MSWM services. Guidance on this aspect is provided in *Step 4D* and an example survey is provided in the Annexes.

Economic and Financial Analysis

During action planning (*Step 6*) options being put forward need to be subjected to economic and financial analysis.

In economic analysis, the aim is to evaluate which technical options or alternative strategies are likely to meet the desired objectives at the least cost (or maximum net benefit) to the customers of the MSWM service (ie society). Detailed guidance on undertaking cost benefit and cost effectiveness analysis is provided in *Step 4D*.

Economic analysis is a tool to compare alternative options for developing the MSWM system. It identifies those options with the greatest net benefit to society (cost-benefit analysis), and those options that meet the given policy objectives at least cost to society (cost-effectiveness analysis). The with-project compared to the without-project scenario is also assessed in this analysis.

Once the economic analysis has identified the waste management option that is most preferable to society, a detailed financial analysis of this option should be carried out.

The financial analysis generally has three aims:

- to demonstrate the financial viability of the strategy;
- to prepare a financing plan to cover investment expenditures during the implementation phase; and
- to ensure that financial resources are available to meet all future financial requirements and obligations.

Again, the Planning Guide provides the user with a detailed step by step approach as to how to undertake a financial analysis for a waste management investment project, and the Annex to *Step 4D* also contains a worked example of a financial evaluation of a project.

Financial analysis should establish the financial viability of the preferred option for the Strategic MSWM plan, and how the required investment and recurrent costs are to be afforded by the municipality.

MODULE 4E – PUBLIC AWARENESS AND PARTICIPATION

Public Profile of MSWM

The public are the major customers of the MSWM service. Only a small proportion of these customers, however, are typically aware of what happens to their waste, or the full extent of services being provided by the municipality.

Awareness of the potential health, safety and environmental impacts associated with waste is increasing steadily in many countrie alongside awareness of the benefits of recycling and resource conservation.

- **Stakeholder Participation** is a process whereby stakeholders - those with rights, responsibilities and interests – play an active role in decision-making and in the consequent activities which affect them.
- **Public Consultation:** A forum for the public to voice opinions during the planning process (eg, in landfill siting) and for planners to inform the public on aspects of the Strategic MSWM Plan that may affect them.
- **Public Awareness and Education Programme** is a programme designed to raise public awareness and understanding of the relevant issues, comprising a set of targeted campaigns.
- **Public Awareness Campaigns** are campaigns designed to raise public awareness and knowledge, targeting specific groups and issues of importance to sustainable waste management.

With increased awareness comes a new demand for improved MSWM services. Where services are improved, and the public are satisfied with ongoing performance, the result is likely to be a steady increase in willingness to pay for MSWM services as a whole.

Awareness and Participation

MSWM is not only a technical, financial or organisational issue only but affects, and therefore should somehow involve, the whole community and other public or private stakeholders. These stakeholders must be asked their opinions, inputs and concerns at several key points during the planning and implementation process, to build the levels of awareness required for improved MSWM practices.

The pace of development of waste management services will be heavily dependent on the level of public awareness of waste-related issues and participation in making improvements happen at the ground level.

Major areas for stakeholder participation and public consultation during the strategic planning include:

- Strategic planning process
- Participation in the development and implementation of primary and secondary collection systems
- Community willingness to participate in the proper use of collection systems
- Community participation in reducing overall quantities of waste
- Determining willingness to pay by the service users
- Landfill site selection (as part of environmental impact assessment)
- Resettlement and compensation

Developing a Public Awareness & Education Programme

Public awareness and education (PA&E) campaigns are tools used to increase public support and participation for a particular course of action. The core idea behind PA&E is that popular support for any issue can be greatly increased if the public is fully informed of the reasons behind the action, and the intended benefits. This is particularly true for issues where non-cooperation from the public will lead to negative effects on themselves.

The main objectives of a PA&E campaign are to provide information, gain public support, build the profile of SWM and reduce quantities of waste. There are a wide range of media available around which to develop a campaign. The impact will be dependent on how well the campaign is targeted and the promotional messages adopted.

PA&E costs money - how much exactly depends on the combination of tools chosen for campaigning. PA&E options can be divided into low, medium and high cost categories, and an appropriate mix selected depending on the budget available, and likely major areas of impact. It is important, however, to not see PA&E activities purely as a cost, since a well-devised programme is likely to result in substantial savings in the medium term.

PA&E is a powerful tool to help you kick-start improvements to MSWM services. Combining high profile `mass media' campaigns with well-targeted local initiatives can significantly increase the profile of waste in the community, and act as a useful starting point for making sustainable improvements.

Sustaining Public Participation

The support and participation of the public will be essential to securing real improvements at the street level. In many countries, the public will need to become more involved in ensuring their areas are kept clean.

Full public support will only be received if a sustained improvement to the quality of services is demonstrated. For example, if secondary collection vehicles are continually unreliable, and piles of waste are left standing in streets, community participation in primary collection will deteriorate rapidly and services will fall back to their previous state.

Sustaining improvements to services is essential to maximising public satisfaction, participation and willingness to pay. As the major customers of the MSWM service, the MSWM department should ensure that they are responsive to public needs, and work to build relationships of trust and mutual cooperation with local communities.

.MODULE 5 – DEVELOPING THE STRATEGY

Nature of the Strategy

The purpose of the Strategy is to establish, in a participatory manner, the strategic response required to address key issues in the local context. In methodological terms *Step 5* follows *Step 3* in the planning *process*, and uses the strategic-level *content* of *Step 4* as supporting information and guidance.

It is often difficult to secure agreement on the specific options to be pursued in a Strategic MSWM Plan at an early stage of the planning process. However, it is possible and essential to agree issues in a broader context.

For example, even though a Strategy may not indicate the location of future waste disposal sites it may contain statements on improving waste disposal standards, selecting sites etc, leaving the evaluation of sites to be carried out in the action planning process.

Many MSWM plans have not been effective due to a tendency to `jump to' detailed technical issues before securing agreement on broad strategic aims.
The Strategy should focus on `high level' issues, leaving the consideration of some of the more detailed issues to action planning (*Step 6*).

Specialist Workgroups

Specialist Workgroups should be held to provide an opportunity for further, more detailed, discussion of key issues and strategic responses. Remember that the key is to focus on the big picture and not issues of detail at this point.

Prior to these workgroups the issues to be covered in specialist presentations, and the range of options available for addressing key issues, should be discussed and agreed by the Working Group and any facilitators and consultants providing support.

In order to maintain continuity it is recommended that the groups established at the Inception Workshop be retained throughout the initiative. Where senior figures are not able to attend, their deputies or other nominated representatives should take their place, and be given the responsibility of communicating back findings.

It is helpful for specialist presentations to be made on key issues at each of the Workgroups. These presentations should elaborate on the issues raised at the Inception Workshop, pointing out the range of options that could be pursued, and any options that, from experience, may be discounted.

The output from the Specialist Workgroups should be a list of draft Strategy proposals to be taken forward for further consideration.

Specialist Workgroups provide an opportunity for more detailed discussion of key issues and strategic responses. The Workgroups created at the Inception Workshop can be retained, and members assigned the responsibility to develop a set of strategy proposals.

Preparing the Draft Strategy

As strategy proposals from each Workgroup will have been developed in isolation, there is a need to ensure proposals are effectively merged into a draft Strategy document. The Steering Committee should decide who is to draft the written output, however, it may be quite a good idea that the facilitator(s) is given the task as he/she would have been continuously involved in the strategic planning process.

The strategy proposals do not need to be expansively described, and can simply consist of a range of well-crafted paragraphs indicating the need and focus of each measure. It is essential for the content of the Strategy to accurately reflect Workgroup findings. Facilitators should use their expertise to combine draft Strategy proposals in such a way as to maximise the coherence of the draft Strategy.

The draft Strategy document should state its vision, status and objectives, as well as the specific proposals put forward by the Specialist Workgroups. The report should be discussed and agreed with the Steering Group and Workgroup leaders, and then tabled for discussion at a Strategy Workshop.

Finalising the Strategy

A Strategy Workshop should be held to provide an opportunity for full discussion of the draft Strategy amongst the wider consultative group. The Workshop can be structured round a similar format to the Inception Workshop, with the aim being to maximise the time for discussion, debate and refinement of strategy proposals.

The output from the Strategy Workshop should be a set of requirements and revisions to the draft Strategy. As the final Workshop, it is essential that all issues raised by participants are adequately debated. Time constraints may, however, lead to further meetings being necessary on issues where final Strategy proposals have not yet been agreed.

The Strategy Workshop should establish a firm foundation for finalising the draft Strategy document and obtaining necessary political approval. The document should be finalised under the direction of the Steering Committee and in conjunction with Workgroup leaders, before submission to political leaders.

Detailed Evaluation of Options

Finalisation of the Strategy represents a major decision making milestone for the Strategic MSWM Plan. Key stakeholders will have defined and agreed the main strategic issues affecting MSWM, and political leaders will have `bought in' to the measures outline in the Strategy document.

The purpose of the Action Plan is to map out the structured path towards delivering the Strategy. It is a process that will involve further meetings and consultations with relevant Departments and other stakeholders, and extensive supporting analysis. Further data is likely to need to be collected during this step to ensure that decisions can be made on the basis of sound information.

Step 6 can take anything from six months upwards to complete, depending on the level and complexity of the issues involved, and the ability to secure agreement on options to be pursued.

The major task in *Step 6* will be to fully evaluate the range of options available to meet the requirements of the Strategy. Once political approval on the Strategy has been received, this more detailed work can proceed secure in the fact that it has broad-based support.

Some major areas requiring detailed evaluation of options during action planning are set out in *Box F9* below.

Box F9: Aspects Requiring Detailed Evaluation During Action Planning

Institutional Options (*Step 4A*) Institutional framework Improving organisation and management Involving the private sector	**Waste Collection and Recycling Options** (*Step 4B*) Improving service performance Extending service coverage Supporting recycling Collecting infectious and hazardous wastes
Waste Treatment and Disposal Options (*Step 4C*) Waste treatment and disposal technologies Improving existing sites Future sites Strategic, technical, environmental and aspects	**Cost Recovery and Financial Management** (*Step 4D*) Improving financial planning Assessing affordability and willingness to pay Investment needs Improving cost recovery Improving accounting
Public Awareness and Participation (*Step 4E*) Promoting public awareness Encouraging community participation	

A range of guidance is available in the Planning Guide on evaluation of options in these and many other areas. Supporting tools are also provided in the Annexes.

Finalising the Strategic MSWM Plan

Further consultations and participatory workshops will need to be held during the Action Planning stage to ensure continued consensus and ownership of the Strategic MSWM Plan.

During detailed evaluation of options emphasis is likely to have been placed on *consultation* rather than *participation*. In order to finalise the Strategic MSWM Plan, key stakeholders will need to be brought together again to discuss and agree Action Planning proposals, and finalise the Strategic MSWM Plan.

Some difficult decisions will need to be made at the close of the strategic planning process. A Strategic MSWM Plan can have major political, institutional, technical and financial implications, all of which must have been addressed clearly and effectively if the plan is to be agreed, adopted and implemented.

Preparing the Immediate Action Plan

Immediate actions demonstrate a commitment on the part of the municipality to improving MSWM services. An Immediate Action Plan, containing measures that are simple and cost-effective to put in place, will act to mobilise implementation of the Strategic MSWM plan, and raise the profile of the issue within the municipality.

An example of some possible areas of focus for an Immediate Action Plan are set out in *Box F10* below.

Box F10: Potential Areas of Focus for the Immediate Action Plan

<table>
<tr><td>Institutional Framework (Step 4A)
Establishing clear roles, responsibilities and accountability
Making targeted management improvements
Involving the private sector in selected areas and for selected services</td><td>Waste Collection and Recycling (Step 4B)
Conducting trials of new waste collection systems and management arrangements in a range of different areas
Providing targeted support to micro-enterprise development in recycling</td></tr>
<tr><td>Waste Treatment and Disposal (Step 4C)
Improving management of existing waste disposal sites
Implementing low-cost site improvement works</td><td>Financial Sustainability (Step 4D)
Implementing new management accounting methods
Commencing implementation of the cost recovery plan</td></tr>
<tr><td colspan="2">Public Awareness and Participation (Step 4E)
Implementing a high-profile public awareness campaign
Conducting localised awareness raising campaigns</td></tr>
</table>

Preparing Investment Projects

It is likely that investment will be required to kick-start improvements to service performance. These investments must be well targeted and financially sustainable to the municipality.

An Investment Plan should be developed setting out all the areas where funds are being sought. Potential investors can then be sought using the Strategic MSWM Plan and Investment Plan to demonstrate the benefits and appropriateness of the planned investment. Where funds are being sought from External Support Agencies, care should be taken to ensure that the Investment Plan complies with the particular agencies' application procedures and requirements

Investment plans should detail the specific equipment, vehicles and infrastructure required. A schedule of costs should be prepared, and backed up by a financial assessment setting out the detailed investment schedule, operation and maintenance costs to be sustained, and how the investment is to be repaid over time.

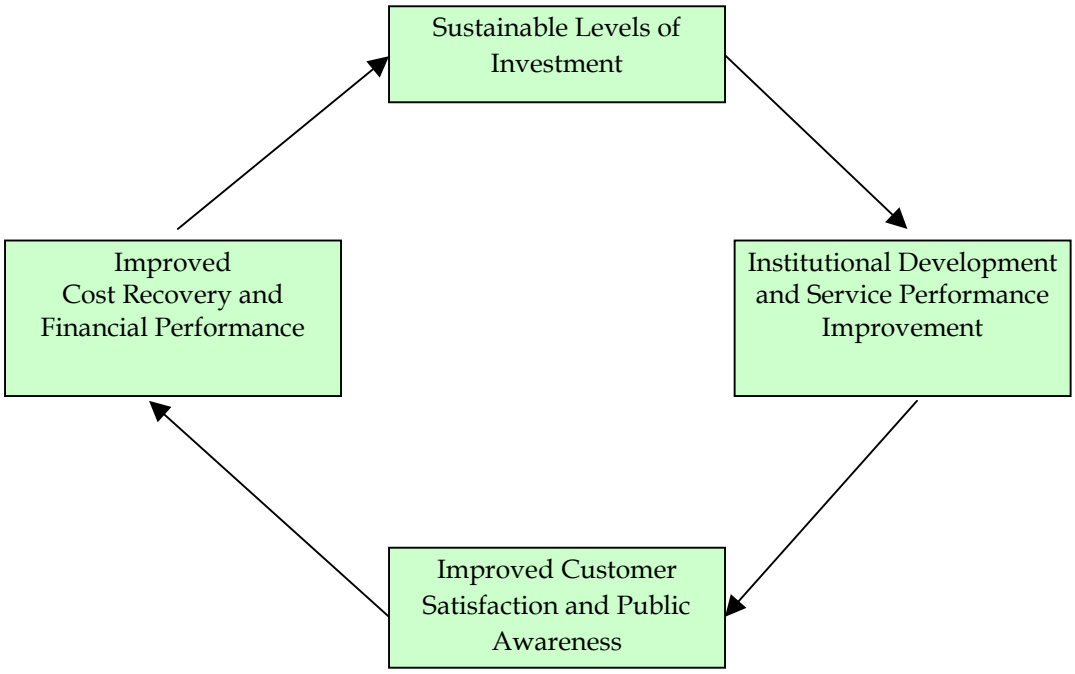
MODULE 7 – IMPLEMENTING THE STRATEGIC PLAN

Moving from Planning to Implementation

The purpose of strategic planning is to produce a practical plan which is going to *make a difference* in practice when it is implemented. Accordingly it is vital to ensure that implementation is actively pursued.

Major activities during implementation are likely to include obtaining necessary approval and budgets, institutional strengthening, conducting detailed feasibility studies, developing infrastructure, procuring equipment and services and raising levels of public awareness and community participation. An idealised development cycle for improving MSWM services is illustrated in *Figure F9*.

Figure F9: Idealised Development Cycle for MSWM



It is essential that there should be one or more champions to guide the strategic plan through both the approval process and the initial years of implementation. In practice, he/she is likely to have been involved throughout the planning process and may well be a key member of the Steering Group.

The true strength of a Strategic MSWM Plan will be demonstrated by its impact in improving MSWM services at the ground level. Although the Strategic MSWM Plan provides a framework for action, investment, service improvement, public participation and sound financial management will be the major drivers of change.

Revising and Updating the Strategic Plan

The Action Plan and Immediate Action Plan will include a number of milestones and review points. It is important that progress should be reviewed by the key stakeholders at regular intervals, and that necessary amendments and adjustments are made as appropriate.

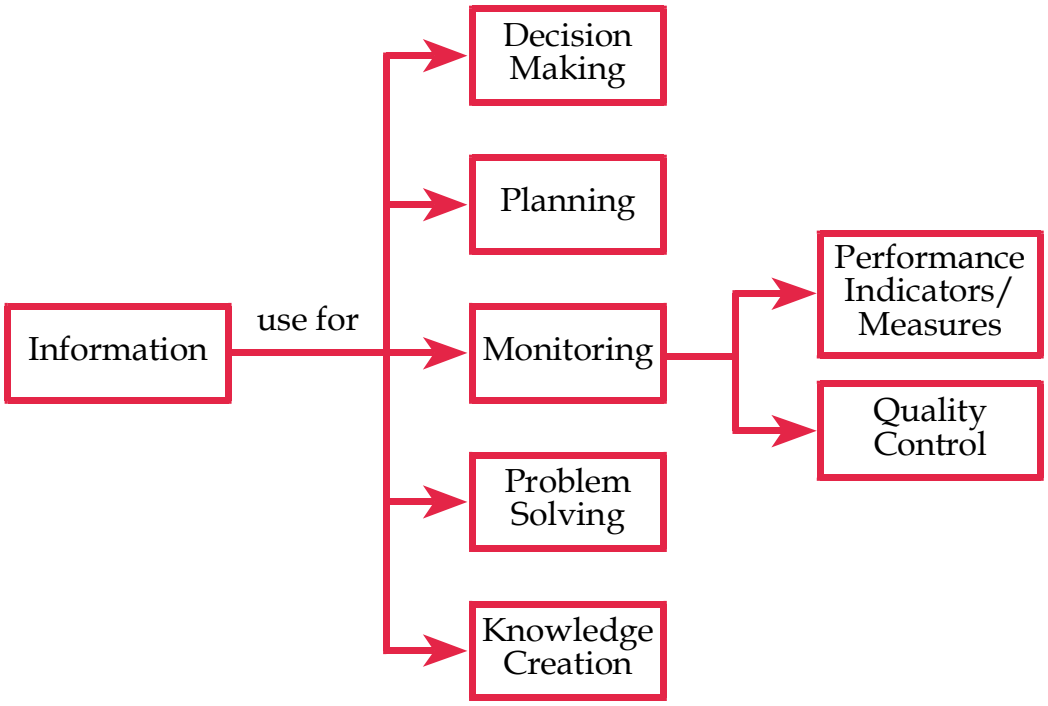
Periodic reviews should evaluate whether key milestones are being met. The Immediate Action Plan will, however, need to be a living document, flexible enough to adapt to changing circumstances and conditions.

Implementation of the Strategic MSWM Plan must be regularly reviewed. The Action Plan should be updated periodically to reflect tasks completed and new priority actions.

Monitoring Performance

Data and information on waste quantities and service performance must be collected on a regular basis to allow implementation of the Strategic MSWM Plan to be monitored. Information should be integrated to become part of the MSWM Departments' management information system. In practice this means that a reporting system on the performance of the SWM services is set up that supplies selected managers with regular (weekly, monthly etc) information on the quality and cost of service provision. *Figure F10* below highlights some potential areas of focus for a management information system.

Figure F10: Management Information Systems



Performance measures and indicators should be devised to help monitor service performance, and provide signals for further action. Well-targeted measurements of service coverage, effectiveness and efficiency are powerful tools to help you improve management and operations.

Performance monitoring is a process by which the efficiency of a service can be monitored and compared with similar services offered elsewhere or at an earlier time. Performance review needs to be an integral part of any MSWM department's management procedures.