# Solid Waste Management in Sri Lanka: Policy & Strategy

*CORDAID, 312/10085A*

**CORDAID Tsunami Reconstruction 4**

***Project Report***

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**Cover photo: Visit by National Policy Platform to composting facility Hambantota, 2007**
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| | |
|---|---|
| BATNEEC | Best Available Technologies Not Entailing Excessive Costs |
| BAT/BEP | Best Available Technologies / Best Environmental Practices |
| CBO | Community Based Organisation |
| CEA | Central Environment Authority |
| CFL | Compact Fluorescent Light |
| EDB | Export Development Board |
| EF | Energy Forum |
| HDPE | High-density polyethylene |
| HNPS | Hambanthota Nagara Pavithratha Sangamaya |
| HWMC | Hambantota Waste Management Centre |
| ISWM | Integrated Sustainable Waste Management |
| kg | Kilogram |
| km | Kilometre |
| LA | Local Authorities |
| LG | Local Government |
| LDPE | Low-density polyethylene |
| MC | Municipal Council |
| MENR | Ministry of Environment and Natural Resources |
| MoLG | Ministry of Local Government |
| MoST | Ministry of Science and Technology |
| MRF | Material Recovery Facility |
| NCPC | National Cleaner Production Centre |
| NERD | National Engineering Research and Development (centre) |
| NGO | Non Governmental Organisation |
| O&M | Operation and Maintenance |
| PET | Polyethylene terephthalate |
| PVC | Polyvinyl chloride |
| R&D | Research and Development |
| SLSI | Sri Lanka Standards Institution |
| S&T | Science and Technology |
| SWM | Solid waste management |
| UC | Urban Council |
| UDA | Urban Development Authority |
| UN | United Nations |
| VNG | Vereniging van Nederlandse Gemeenten (Association of Netherlands Municipalities) |

# FOREWORD

The project started as a response to the disaster that struck Sri Lanka on the 26th of December 2004. Based on request on the Central Environment Authority an assessment was made of the solid waste situation caused by the Tsunami in the coastal zones of Sri Lanka. The first assessment – partially supported by CORDAID – resulted amongst others in debris management guidelines issued by the Central Environment Authority end of January 2005.

In the course of 2005 it became clear that many organisations quite rightly at that time focused on immediate relief efforts, but much less attention was given to longer term reconstruction efforts. Waste management systems that were not very well functioning before the Tsunami had collapsed and in relief it was noticed as an important area so as to prevent outbreak of diseases and other human health related areas, but hardly ever as a reconstruction area. At the same time there was a widely voiced demand for show-how projects as there was very little practical experience as to how things could be improved.

This was the background to the current project. As much as possible show how projects and initiatives would be undertaken that would not only target local needs but also be essential building blocks of reconstruction efforts. As needs were so high, a relatively large number of projects were identified by local counterparts. Our aim was therefore to assist these counterparts with technically correct guidance that would make their interventions sustainable in all aspects, institutional, financial etc.

As the lack of knowledge and expertise about waste management was one of the striking factors, it was also deemed critical that efforts would be undertaken to share knowledge and disseminate whatever projects were implemented to a much wider audience. This is the background to this series of project reports.

The following areas were tackled and similar reports are available on each of these subjects: sanitation management; hospital liquid waste management; hospital solid waste management; solid waste management; wastewater management; faecal sludge management; debris management and composting.

By no means these are the last words that can be said about any of these subjects. In the case of health care waste management, final disposal remains a critical issue, in case of hospital waste water management, we believe we have made an appropriate design for a waste water treatment plant after a very elaborate consultative process with the client, but this still ahs to be built, in the case of debris management, the delay between project conception and the final approval proved too long, by then most of the debris in Kalmunai had disappeared and in Hambantota it was only those partially damaged buildings that were still standing that constituted debris, so it has become much more of a theoretical exercise than what we would have liked. Yet we do believe it is important to document what can be done with debris in case a next disaster strikes. Solid waste management is very diverse, form plastic recycling (two projects) to landfill improvement, solid waste management policy and strategy advocacy, setting up a national platform, feasibility studies for gasification of waste (and once it turned out to be not viable) stopping this initiative etc. Solutions for faecal sludge management are still a priority for organisations working with internally displaced persons in the Northern and Eastern Provinces of Sri Lanka (though from an environmental point of view we would suggest that it should be the entire country), we believe we have managed to significantly improve an existing design for a faecal sludge treatment system. Yet till today, the UN agency that wishes to implement this together with the municipal council of Kalmunai are still struggling to actually implement it. In case of Hambantota - as there is an existing site and additional VNG funds - the implementation of a different design is just beyond the current project period.

Valentin Post, December 2007

## ACKNOWLEDGEMENTS

WASTE would like to acknowledge the support of Chinthaka Jayarathne, Asoka Abeygunawardene and staff of Energy Forum.

Not only have they ably organised the tree platform meetings, they have also organised the solid waste management policy workshop on behalf of the Ministry of Environment and Natural Resources. When needed they organised translators (Sinhala – English – Tamil), but mostly - since formation of a platform is a process and one cannot at the start predict its outcome – they ably guided and steered the process.

The Central Environment Authority, particularly Jayavilal Fernando, as well as the Ministry of Environment and Natural Resources has been very supportive of the process, but also the Ministries of Local Government as well as Health.

Local authorities played a key part and gradually their presence in the national platform become stronger and now they are at the forefront of the developments. It will be interesting to see how this will evolve over time with developments in the umbrella organisation of the local authorities themselves. A late but fruitful addition to the national platform are the provincial authorities.

Fortunately the role of the private sector was recognised at an early stage. Private sector means the large scale formal sector (Holcim, Abans , Burns etc.), but also the quite often overlooked informal sector (mostly plastic collectors or recyclers). The platform gave due recognition to the important role that is being played by the informal sector in solid waste collection, reuse and recycling.

Finally the activities of many if the NGOs are also placed in limelight. Quite often they have taken a comprehensive view of the solid waste management, but if not working in tandem with local authorities sustainability of their activities will remain suspect. This is gradually being recognised and successful examples are coming to the fore.

Furthermore I would like to put on record the well appreciated efforts made by my colleagues Aat van der Wel, Verele de Vreede (general formatting) and Ivo Haenen in preparing the final documentation.

Valentin Post, December 2007

# CHAPTER 1 INTRODUCTION TO CORDAID SRI LANKA PROJECT AND THIS DOCUMENT

## 1.1 Background of the Project

After the Tsunami struck Sri Lanka in December 2004, waste management systems in the Tsunami affected areas virtually collapsed and waste was disposed of indiscriminately. Local authorities were faced with a post-tsunami situation which was beyond their resources. This led to unplanned coastal zone dumping practices, poor urban environment planning, substandard water management and sanitation practices and a general waste of resources.

The project "Rapid implementation of community based short and middle term measures to improve the functioning of solid waste management in Tsunami affected areas of Ampara and Hambantota districts" was approved by CORDAID on March 1st 2006.

As of such, the project team arranged interventions in the following thematic areas:

- Health care solid waste management (Report series 1);
- Faecal sludge management (Report series 2);
- Master Composting (Report series 3);
- Solid waste management: Policy and Strategy (Report series 4);
- Health care liquid waste management (Report series 5);
- Plastic recycling (Report series 6), and
- Debris management (Report series 7).

## 1.2 Objective of this document & intended audience

The project team felt a strong need to express and share the lessons learned from the project interventions. Therefore the purpose of this document is to provide thematic and practical knowledge on the improvement of solid waste management and sanitation systems, in reconstruction efforts. However, we also see that this document has value in 'ordinary' development initiatives that aim on improving these environmental management aspects.

WASTE has prepared a similar document for each of the project interventions described in the first paragraph of this Chapter. The documents can be obtained electronically from the website www.waste.nl.

## 1.3 ISWM Methodology for structure

In this document, the project team has opted to use the Integrated Sustainable Waste Management (ISWM) Methodology to provide a structure for presenting, and analysing information.[1] The ISWM Methodology is a tool that supports to describe and analyse any waste management system in a systematic way. The methodology describes three parts: waste system elements (generation, collection, transport, storage, treatment, disposal), waste system aspects (technical, institutional/political, legal, environmental/health, socio-cultural, and

[1] The ISWM Methodology has been developed by WASTE. The Manual 'Putting ISWM into Practice' can be obtained from the WASTE website at http://www.waste.nl/content/download/561/4346/file/ISWM%20ass%20eng%20screen.pdf

financial/economic). Additionally, the methodology identifies stakeholders that are relevant in the process.

## 1.4 Structure of this document

Chapter 2 provides a brief overview of general issues with solid waste management in a southern context, and underlines the need for solid waste management in post-disaster areas. Chapter 3 gives the project objectives, the results as proposed, and gives an overview of the activities of the project team. Chapter 4 is a case study of implementation of Integrated Waste Management in Hambantota, and includes a proposal with relevant components. Chapter 5 focuses on the formation of the ISWM National Policy Platform, and the formulation of National Policy for Solid Waste Management in Sri Lanka. The ISWM National Policy Platform has in the last 2 years come to a first set of strategies to implement the National Policy. These strategies are reflected in Chapter 6. Finally, Chapter 7 provides a set of conclusions and recommendations for follow-up.

# CHAPTER 2 SOLID WASTE MANAGEMENT IN POST-DISASTER AREAS

## 2.1 Solid Waste Management in the South

Solid waste management in any city has a close relationship to economic, social, health and many other aspects of urban life. Poor or inadequate management of solid waste from households or businesses, a situation typical of many cities in the South, can undermine efforts at economic development and spread disease and discomfort. The state of the urban environment, in general, and of waste management in particular, is a reliable indicator for the level of good governance in the area. Well planned and reliably executed waste management and recycling activities, in contrast, can be a source of pride to city residents and officials; can provide livelihoods to poor people; can enhance the availability of soil and water resources; and can serve as a model for good governance in other public services.

Good and adequate solid waste management does not, in ordinary circumstances, come about on its own. Most exemplary solid waste management systems have come into being as a result of deliberate intervention on the part of one or more stakeholders in waste management, that is, those who have an interest in seeing something happen. In assessing the situation with respect to the urban environment, as well as in planning, WASTE has developed the Integrated Sustainable Waste Management (ISWM) framework, which describes the various Stakeholders, Waste System Elements, and Waste Management Aspects (technical, environmental, financial etc.) in their interrelationship and interaction. Though a description of the ISWM methodology, as such, is not part of this report, some of the key issues listed hereunder (2.3) follow the ISWM methodology.

## 2.2 Solid Waste Management in Post-Tsunami Reconstruction

The project started as a response to the disaster that struck Sri Lanka on the 26$^{th}$ of December 2004. Based on a request to the Central Environment Authority an assessment was made of the solid waste situation caused by the Tsunami in the coastal zones of Sri Lanka. The first assessment – partially supported by CORDAID – resulted amongst others in debris management guidelines issued by the Central Environment Authority at the end of January 2005.

In the course of 2005 it became clear that many organisations at that time quite rightly focused on immediate relief efforts, but gave much less attention to longer term reconstruction efforts. Waste management systems - not very well functioning before the Tsunami - had collapsed. In relief efforts, waste management was seen as important to prevent outbreak of diseases, but few recognised its structural importance in reconstruction. And yet, at the same time there was a widely voiced demand for show-how projects as there was very little practical experience as to how things could be improved.

This is the background to the current project: as many as possible show-how projects and initiatives are undertaken that target local needs, and at the same time are essential building blocks in reconstruction. As needs were high, a relatively large number of projects were identified by local counterparts. Therefore the aim is to assist counterparts with technically correct guidance that makes their interventions sustainable, and at the same time bringing the

*entire* Sri-Lankan waste management system on a structurally higher level, even as compared to the pre-Tsunami situation.

## 2.3 Key Issues in Solid Waste Management in the South

This section provides a brief summary of key issues related to solid waste management in urban areas, in Low- and Middle-Income Countries. It is based on the ISWM aspects: health / environmental, technical, institutional, legal / policy, financial, and socio-cultural issues. The issues listed are not dealt with in-depth, but rather to act as a simple checklist.

### *2.3.1 Health and environmental issues*

Solid waste management has far reaching implications for people's health and for the environment in general. Unplanned and illegal waste dumping creates breeding grounds for various pathogens and other harmful organisms, and exposes people to chemical and mechanical hazards in case of hazardous waste.
By polluting ground, air, and (ground) water is spreads disease and enhances exposure to harmful chemicals beyond the immediately affected areas. Non-composted organic waste, by its anaerobic decomposition, contributes to greenhouse gas emissions. While assessing the health and environmental effects of deficient waste management a number of sources and instruments, some of them readily available, come to mind:

- Existing municipal plans and documents
- Epidemiological studies carried out in the area
- Health policy documents
- Reports of programmes by (activist) organisations in the area and
- Hospital and dispensary records showing abnormal occurrence of waste-related disease and environmental affections, like skin affections and respiratory disease
- Information from schools, that are often an excellent source of readily available information on the state of the urban environment.

### *2.3.2 Technical issues*

***Waste treatment and disposal***

Waste, in many (planned and unplanned) areas is frequently just dumped along the wayside, in drainage channels and other water courses. Yet, almost everywhere, there are thriving private neighbourhood initiatives to recycle materials that are immediately perceived as being 'valuable', usually metals, potential building materials, and various plastics in case there are plastic collection- or recycling facilities nearby. In most third world cities, those in Sri-Lanka included, the highest proportion of waste consists of potentially compostable, and thus valuable, organic waste. Illegal dumpsites, unmanaged and without the minimally required lining and fencing, and equally unmanaged company dumpsites contribute to environmental and social degradation. In many places, municipal authorities have set up large scale mechanised collection systems, using skip buckets or containers at selected transfer stations without, however, coming to grips with the neighbourhood-level waste management.

Keeping in mid the three R's (Reduction, Re-use, and Recycling) improved waste management should look at the technology and equipment used for efficient, effective, healthy and environmentally sound:

- Community and neighbourhood level recycling and composting activities, as much as possible reducing and re-using waste at the source. Composing at the source can contribute to improved urban agriculture.
- Transfer stations, waste separation facilities,
- Disposal sites and sanitary landfills, creating minimum health and environmental standards by securing and lining of landfills.
- Centralised composting facilities, contributing to 'closing the loop' with the adjoining rural areas, frequently depleted of nutrients by ever exploding cities.

***Collection***

Collection is not just a matter of municipal authorities collecting waste from transfer stations using expensive trucks, skip buckets, and containers, but rather looking at the entire transport chain from the household level upwards. How can private initiative, usually responsible for whatever transport taking place between the household level and the transfer station (or beyond) be made better regulated, recognised, safe, effective and efficient? How can employees be made to feel better protected, and part of a socially and economically valuable operation?

***Waste picking and recycling***

Recent studies reaffirm the crucial economic importance of the informal private sector for the entire waste management sector in virtually all developing urban environments, to the effect that the formal sector would be unable to exist / operate without the existence of the informal one. Therefore, recognising, where needed and requested regulating, and better embedding the informal sector into the entire waste management chain is crucially important. In doing so, one should think of:

- Junk shops around landfills / in residential districts,
- Itinerant waste buying
- Equipment repair shops
- Community recycling drives and centres
- Buying and selling recyclables
- Waste picking
- Scavenging, notably of cardboard
    - But also of social factors like:
- Public attitudes towards recycling and informal waste management sector,
- Undesirable phenomena like illegal dismantling of public infrastructure to recover metals

### *2.3.3 Institutional and organisational issues*

Summarized by the question: 'how has it been organised?' Closely related, of course, to the question: 'how has it been formalised?' that will be touched upon in 2.3.4 Apart from such obvious elements like the organigrams of 'formal' organisations in waste management, and job descriptions and analyses of skills and activities of various actors in the field, the type of *formal* contracts and licensing arrangements between the private sector and the government is important here.

### *2.3.4 Legal, political, and policy issues*

'Governance' can be described as the manner in which public and private actors in society interact, democratically and transparently, and the general state of the urban environment is widely regarded to be an excellent indicator of the state of 'governance' in a particular area. *Formally* it means the manner in which laws and regulations structure the waste management

sector. Also the manner in which the informal sector may be restricted in its activities, scavenging and waste picking are regulated, zoning restrictions for dumps, compost sites, and junk shops are being imposed and the manner the informal sector is, at least on paper, being formalised.

However, 'governance', ultimately, is an intensely *political* process hinging on power relationships between actors and sector in society, and waste management is no exception. Therefore the manner in which (local) politicians, and political candidates value the importance of waste management in their constituencies, and are prepared to throw in their lot with disadvantaged actors in the sector, is probably more important to the development and sustainability of community-based waste management than any *formal* licence or agreement.

### *2.3.5 Financial and economic issues*

The sustainability of public services, waste management included, is highly depending on the public's perception of the price-quality relationship, and on the government's ability to ensure a financially sustainable service delivery. In analysing financial-economic aspects of a waste management system, such issues come to mind as:

- The public's willingness to pay, closely related to the public's perception of the magnitude of the problem.
- Annual budgets, audits, reports, and minutes of the municipal council related to solid waste management.
- Municipal fee schedules;
- Subsidies, and the political basis for them;
- Permits, fines, and sanctions;
- Taxation policy and records;
- Recycling proceeds, and proceeds of sales of other productive results of waste management, like compost;
- What, if any, has happened within existing or past (donor) projects in the field of waste management, and why?
- And, on the cost-side of the equation, such aspects like:
    - Capital and operating cost, depreciation schedules;
    - Calculation of cost per household, per ton of waste, per type of waste, calc. of capacity-based cost for disposal (landfill fees).

### *2.3.6 Socio-cultural issues*

The manner in which people perceive their environment, and the manner in which 'waste' is perceived, is closely related to their cultural background. Rural dwellers, in a traditional cultural setting, often have time-tested and age old ways of handling their (mostly organic) waste in harmony with their sustainable environment. City dwellers in densely packed, fast growing, slums, dislodged from their cultural roots as they often are, struggle to cope with the new realities. Ignorance, or indifference about deeply rooted culture, traditions, and beliefs are often at the root of non-sustainability of certain processes, and need to be addressed. In doing so, important sources of information can be:

- Ethnically sensitive Community Based Organisations (CBO's) or Non Governmental Organisations (NGO's);
- Primary and secondary school teachers;
- Religious leaders;
- Folklorist and anthropologists living or working in the area.

# CHAPTER 3 SOLID WASTE MANAGEMENT IN SRI LANKA – PROJECT OBJECTIVES & OVERVIEW ACTIVITES

## 3.1 A need for solid waste management in Post-Tsunami reconstruction

The SPHERE guidelines quite clearly identify the need for solid waste management:

*If organic solid waste is not disposed of, major risks are incurred of fly and rat breeding (see Vector Control section) and surface water pollution. Uncollected and accumulating solid waste and the debris left after a natural disaster or conflict may also create a depressing and ugly environment, discouraging efforts to improve other aspects of environmental health. Solid waste often blocks drainage channels and leads to environmental health problems associated with stagnant and polluted surface water.*[2]

## 3.2 Project objectives related to solid waste management

The Logical Framework of this specific intervention (see Annex 1) formulates the following

Overall Objective:

- In target areas, safe management and disposal of medical and sanitation waste, focus on increased amount of waste due to Tsunami.

The overall result is:

- There is an improvement compared to the assessment data survey in the health, and environment status in project areas of Ampara and Hambantota districts by June 2007 directly benefiting 10,000 people and indirectly 20,000 people.

Objectives and results related to solid waste management are:

### *3.2.1 Objective 1*

**Table 1 Objective 1 and results**

| | |
|---|---|
| Objective 1 | On national scale increased information sharing through functional national platforms positioned to deal with new community based waste related projects In target areas, increased and sustainable safe management and disposal of medical and sanitation waste, focus on increased amount of waste due to Tsunami. |
| Result 1.1 | Establishment first network / platform for nation wide Tsunami related waste management information exchange. Established framework to technically assist waste related projects including documentation.st |
| Result 1.2 | Functional implementation platform in Hambantota district and Ampara district for community based waste management project implementation and information exchange |

### *3.2.2 Objective 4*

**Table 2 Objective 4 and results**

| | |
|---|---|
| Objective 4 | In target areas safe and appropriate management of Tsunami related environment projects. |
| Result 4.1 | Production of pellets in Hambantota from plastic waste generating sustainable local income (collection and conversion employing 20 people) whilst reducing the amount of indiscriminately disposed plastic waste by 50% preventing clogging of drainage channels and thus spread of waterborne diseases such as dengue. |
| Result 4.2 | Waste segregation at household level benefiting over 30,000 members WDF, about 10,000 members PP |

[2] Sphere Handbook 2004, Water, sanitation and hygiene promotion, Chapter 2

| | |
|---|---|
| Result 4.3 | Training of stakeholders (Scout Association of Sri Lanka, CARE, Solidarity etc.) in waste management, thereby benefiting reconstruction as previously unusable material will become available, and / or processed locally. |
| Result 4.4 | Training MSMEs waste collection and recycling with HDCC and ADCC, providing sustainable employment for 30 people |
| Result 4.5 | Demonstration of landfill improvement in Kalmunai with main stakeholders, local authorities and CBOs, infrastructure development through NGO GOAL. Landfill is overstretched putting about 2000 people at risk due to accumulation of Tsunami waste. |

## 3.3 Overview activities and outputs

**Table 3 Overview activities and outputs**

| Time | Activity/output | Carried out by |
|---|---|---|
| March 2006 | ♦ Start of project | |
| April 2006 | ♦ 1st Meeting National Platform ISWM | EF |
| April 2006 | ♦ ISWM workshops in Hambantota and Kalmunai | EF/WASTE |
| October 2006 | ♦ ISWM review meeting Kalmunai | EF/ CEA |
| November 2006 | ♦ 2nd Meeting National Platform ISWM | EF |
| January – April 2007 | ♦ Formation of the Society in Hambantota | EF |
| January 2007 | ♦ Development of Terms of Reference for National Policy Platform Sri Lanka | WASTE |
| May 2007 | ♦ 3th Meeting National Platform ISWM combined with workshop for National Policy formation | EF / MENR |
| June 2007 | ♦ Formulation of draft Policy Guidelines for solid waste management in Sri Lanka | MENR |
| November 2007 | ♦ 4th Meeting National Platform ISWM | EF / VNG |
| December 2007 | ♦ Review of strategies pertaining to solid waste policy | WASTE |
| December 2007 | ♦ End of project | |

# CHAPTER 4 SOLID WASTE MANAGEMENT IN SRI LANKA – STRENGTHENING INFRASTRUCTURE

## 4.1 Hambantota Waste Management Centre

The following narrative presents a good real-life example how, in post-Tsunami areas, sustainable measures are being taken that could act as a starting point for the development of a wider reaching Solid Waste Policy and Strategy in Sri Lanka.

The Hambantota Urban Council, in pre-Tsunami days, ran a compost site which was abandoned after the Tsunami due to logically shifting priorities. It became a barely managed dumping site which attracted elephants in the process.

The project "Rapid implementation of community based short and middle term measures to improve the functioning of solid waste management in Tsunami affected areas of Ampara and Hambantota districts" was approved for funding by CORDAID on March 1st 2006. The project is implemented by WASTE and Energy Forum (EF). As a part of the project EF has identified to rehabilitate the above described waste dumping site in Hambantota and turn it into the Hamabantota (Integrated Sustainable) Waste Management Centre. (HWMC)

In doing so EF facilitated the establishment of a society named 'Hambantota Nagara Pavithratha Sangamaya' (HNPS) consisting of members from the Urban Council, private sector and NGOs to oversee the solid waste management process in Hambantota area. Under the supervision the Society a self-sustainable Solid Waste Management Centre is now being established at the dumping site. The following narrative will briefly describe the various elements of the planned Integrated Waste Management Centre, and the challenges and constraints facing each of them.

**Phase 1** (rehabilitation of composting) of the project included construction of an electric fence to ward off elephants, renovation of buildings, getting electricity & water supply connections, installing a 3-Phase generator and essential ground level developments. Phase 1 of the project is now completed, though further (re)arrangements are necessary.

**Phase 2** of the HWMC features the following main components:

1. Compost site further arrangement & landscaping
2. Hazardous Waste storage
3. Temporary Storage
4. Waste Water Treatment plant
5. Engineered Landfill Facility
6. Office Building & Staff Welfare building
7. Rain Water Collection System
8. Treatment of Earlier Dump Materials
9. Garden and Vegetation area development
10. Cover for Waste Separation area
11. Compost Marketing and Plastic Collection Mechanism
12. Wood Gasifier and Generator
13. Machinery
14. Research and Development & Training Center

Energy Forum is planning to raise funds from different sources to implement phase 2 Accordingly EF now seeks financial support from VNG to complete the following components of phase 2: Hazardous waste storage, Temporary Storage, Waste water treatment plant, Landfill facility and Compost marketing and plastic collection mechanism.

## 4.2 Components HCWM

Each of the above elements of phase 2 is briefly described hereunder

### *4.2.1 Compost site, further arrangement and landscaping*

The existing site was not arranged in a systematic way. The buildings are situated in an ad-hoc manner and some modifications are required. The need for such modifications became apparent while operations were taking place.

The required modifications include:

- A compost processing building:
- Lifting the walls
- Wind protection screening
- A partition for storing raw materials
- Improving the drainage system, and change the location of machineries
- Rearrange the existing office building:
- Repair and rearrange water tanks
- Repair and rearrange the security post
- Install a drainage system for the entire site
- Landscaping

### *4.2.2 Hazardous waste storage*

There are currently no other technological options in the Sri Lanka context than keeping hazardous waste in a solid and secure place, away from people and well-protected from natural disasters and other accidents. The planned facility is a very strong cabin to withstand outside pressure and, most importantly, elephants attacks. Separate collection of alkaline batteries and tube lights is foreseen. Used alkaline batteries may have some market value in future.

Basic assumptions, based on batteries, tube lights and compact fluorescent lights (CFL) bulbs, expired medicines and one additional 'other hazardous waste' category.

| | |
|---|---|
| Batteries | |
| Amount of batteries collected per day | 5 kg |
| Volume per day | 2 l |
| Volume per year | 2*365 l = 730 l |
| Volume for 10 years | 7300 l |
| | |
| Tube lights and CFL bulbs | |
| Amount of tube lights and CFL bulbs /day | 5kg |
| Volume per day | 3 l |
| Volume per year | 3* 365 l= 1095 l |

| | |
|---|---|
| Volume for 10 years | 10950 l |
| | |
| Expired medicines | |
| Expired medicines per day | 2 kg |
| Volume per day | 2 l |
| Volume per year | 2*365 l = 730 l |
| Volume for 10 years | 7300 l |
| | |
| Total hazardous materials | |
| Total volume (25550 l) | 25.5 $m^3$ |
| Additional for other types of hazardous waste | 20 $m^3$ |
| Increase | 10 $m^3$ |
| Total volume for the storage | 55.5 $m^3$ |

### *4.2.3 Temporary storage*

Non biodegradable waste can be divided in to plastic, polythene, high-density polyethylene (HDPE), Low-density polyethylene (LDPE), polyethylene terephthalate (PET), paper, glass, metal, polyvinyl chloride (PVC), wood, non recyclables and hazardous waste. Materials from the compost processing zone will be further separated and classified into the above categories and further processed.

Further processing includes washing, removing labels, detailed categorization and size reduction.

There are hundreds of material types included in waste and each one is unique. Of the three R's included in waste management(Reduce, Reuse and Recycling) only the final two are relevant at the site itself. Careful inspection will find out reusable, recyclable materials

Hambantota is situated 225 km South of Colombo, where most industries can be found. Therefore the cost of transportation is vital. Size reduction techniques are being applied, such as shredding, pelletizing, pressing and packing.

Waste is contaminated with various materials such as dust, adhesives and food items. One product may contain different materials: for instance a plastic water bottle may contain plastic caps, a label and dust, which should be removed and washed.

***Process details***

Collected materials are separated into several groups. The plastic waste can be divided in to HDPE, LDPE, PVC, PET and some other materials.

The other separated materials will be further separated by visual inspection. Immediately reusable items can be identified and sold. Further separation such as separating glass into clear glass, brown glass and green glass will take place after washing and drying. Washing might be the difficult part because someone has to remove all the labels and other integrated parts like caps. So detergents are used to remove those materials if necessary. Water will be treated and reused by normal sedimentation and a small constructed wetland.

The washed materials are then send to the drying bed. It's a sun drying system; the materials will be sent to temporary storage. Crushing will take place next to reduce the volume of the materials so as to reduce transport cost.

Crushed materials will be sent to storage, ready to be transported to Colombo.

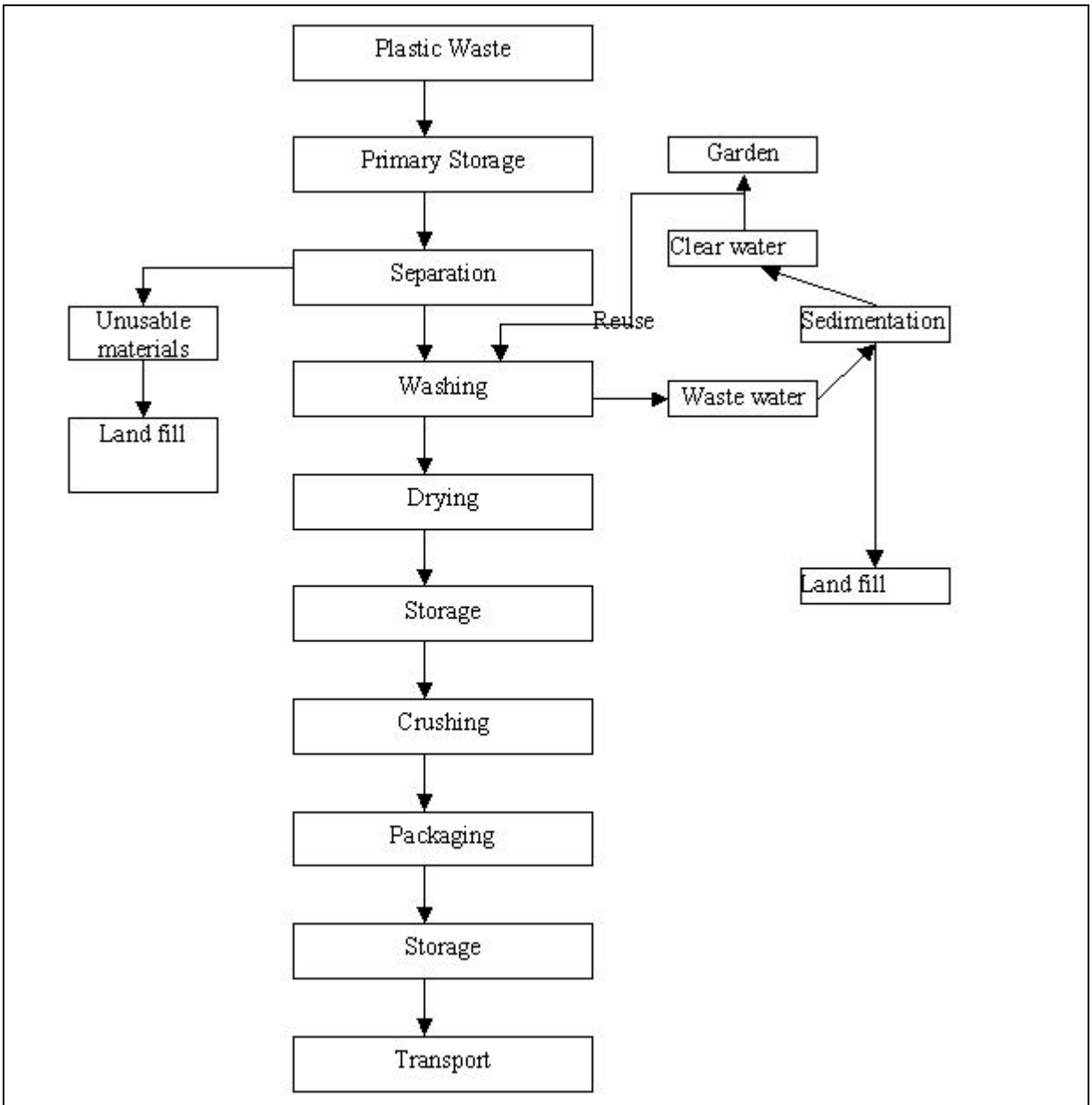



**Figure 1 Process-Flow diagram**

### *4.2.4 Waste water treatment plant*[3]

The site is designed with the following waste water streams in mind (and estimated inflow in $m^3$ /day) :

[3] This is the description of the plant as made initially be Energy Forum. The treatment plant that is finally designed is very different (see report 2 of the series Faecal sludge management).

| | |
|---|---|
| Leached effluent from compost piles | 3 $m^3$ |
| Leached effluent from landfill site | 5 $m^3$ |
| Washed effluent from plastic and polythene cleaning | 6 $m^3$ |
| General effluent from staff welfare building | 0.3 ($m^3$)*20 (staff) = 6 $m^3$ |
| | |
| Total current requirement | 20 $m^3$ |
| Contingency for future expansion | 5 $m^3$ |
| Total Plant designed capacity | 25 $m^3$ |

The exact characteristics of the wastewater is yet to be identified, and the following treatment options will depend on this identification:

- Bar screening
- Equalization tank
- Anaerobic reactor
- Constructed wetland
- Sand filter
- Activated carbon filter
- Disinfection
- Treated Water tank

### *4.2.5 Engineered landfill*[4]

The site is too small for a big engineered landfill, therefore the aim is to recover waste to the highest possible extend. For some non-hazardous, but also non-recyclable waste a small landfill is required.

An engineered trench landfill has been chosen, that will consisted of:

- 5@60x5x2m (l x w x d) trenches
- Bottom lining system
- Leach effluent collection system
- Leach effluent treatment system
- Filling materials

***Soil testing***

The following tests to be carried out before final selection of the site:

- Soil test – permeability test
- Bore hole test – to identify the water table

***Bottom liner system***

The liner should consist of :

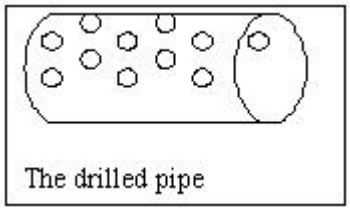
- Compressed Clay layer
- Clay and Benthonite layer
- Geo membrane liner

***Leach effluent collection system***

There will be a separate pipe line system for collection of leach effluent. Specially arranged 4 inch PVC drilled pipe lines will lay at the bottom of all trenches and will be connected to a

[4] The landfill design as prepared by the project team is different from the above, as the final design is tailored to suit the local conditions (see report 4a of the series landfill).

collection pond (see Figure 2). The pipe will be covered by sufficient layers of gravel (see Figure 3).



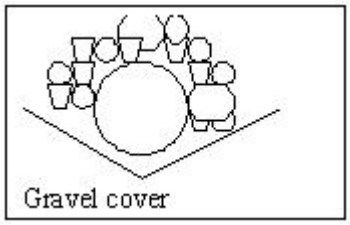




**Figure 2 Drilled pipe** **Figure 3 Gravel cover**

### *4.2.6 Office building and staff welfare building*

The existing office premises are not regarded suitable. There should be a modern closed and clean office not in the least to help change the behaviour and the attitude of workers and clients.

**Table 4 Overview of proposed office and staff welfare building**

| Office building | Staff welfare building |
|---|---|
| The office building includes:<br>♦ a good office room with necessary equipment<br>♦ a rest room<br>♦ a sales outlet<br>♦ a computer training room<br>♦ a small teaching room (for educational purposes)<br>♦ a small museum | This is an area where workers can change and relax. The existing facility does not provide any space for that. The staff welfare building includes:<br>♦ a changing room<br>♦ a bathing facility<br>♦ a canteen<br>♦ a sports room |

***Rain water collection system***

Although not, as such, part of the 'waste management' facility, Hambantota being in a very dry area, a rain water collection system is deemed necessary and will be briefly described hereunder.

| | |
|---|---|
| Daily consumption office and waste management facility | 5 $m^3$ |
| for 6 months | 5*180 = 900 $m^3$ |

For the to-be-developed vegetation area of about 5 acres it's also essential to have water storage.

The daily consumption of water for vegetation will be 20 $m^3$ , for a period of six months the storage capacity required will be 3600 $m^3$. Total capacity needed therefore will be 4500 $m^3$.

Assumptions:

| | |
|---|---|
| Heavy rain after every 6 months | |
| Minimum ø rainfall | 100 mm |
| Efficiency Factor | 0.6 (0.5 to 0.75, considering all losses including evaporation) |
| 1 acre = | 4050$m^2$ |

| | |
|---|---|
| Coefficient of effective runoff = | 0.3 (0.1 to 0.5) |
| Water harvested = | Catchment area x Design rainfall x Runoff coefficient x Efficiency factor |
| Water collection per acre catchment area therefore = | (100/1000)x4050x 0.3x0.6 = 72.9$m^3$ =72.900 litre |
| Area needed therefore = | 4500 / 72.9 = 61.7 acres |

### *4.2.7 Treatment of earlier dump materials*

The site was abandoned from 2003 until March, 2007 and it was used as an indiscriminate dump site. Dumped materials are visual even today. Huge amounts of plastic and polyethylene are littering the place giving a general impression of poor waste management. This waste should be collected and treated in a cost effective manner.

Technological options:
Most bio-degradable materials are already digested but are mixed with sands and have converted into a black sandy product. The available option is to turn it into small bricks and wait for it to fill the to-be-constructed landfill. The leached effluent from this rock can be used for agricultural purposes. Before that all plastic, polythene, metal and other materials will have to be removed.

Polythene, plastics, and other useful materials can be separated and washed by a cleaning agent and be recycled. Plastic, if UV-degraded, as well as non-recyclable leftovers will have to be dumped in the to-be-constructed landfill.

### *4.2.8 Garden and vegetation area development*

The site is located in a green area adjacent to the forest, therefore suitable landscaping will have to be developed. Landscaping is to create an agreeable atmosphere to stimulate source-separation, and to develop the site as a demonstration model for good waste management. The vegetated area will serve as a demonstration site for the use of compost and will generate income. For the development of organic agriculture another 5 acres of land is required.

### *4.2.9 Cover for waste separation area*

Currently the waste is separated by workers on a small slab made out of tar and gravel. The workers suffer from the strong sun and winds as Hambantota is in a dry zone in the coastal belt, reducing the efficiency and affecting the health of workers. For a safe and hazard free environment the waste separation area needs to be covered. The cover will consist of 6 separate compartments for tractor unloading. Each tractor will have a separate area to unload its waste and each compartment will be managed by a specially assigned worker.

Area requirement will be 3m*6m*6 = 108$m^2$

Additionally, a wind barrier is required to make the separation process more effective.

### *4.2.10 Compost marketing and plastic collection mechanism*

This is probably the most challenging part of the entire waste management process. Making good quality compost and developing a suitable market is the key to the operation's sustainability, as is collection and disposal of recyclables. A good recycling process has been

installed on the site and the required supply of recyclables needs to be assured. Promotion campaigns are essential to promote compost use as well as plastic recycling.

The following areas have being identified:

- Set up a collection centre in the middle of the town to collect plastic and sell compost, to promote recycling, reuse of materials, organic farming and use of compost;
- Promotion campaigns at different levels;
- Promotion in a tea plantation;
- Promotion with farmers of Nuwara Eliya;
- Promotion with paddy farmers;
- Promotion with the department of agriculture.

A collection- and sales-centre in Hambantota town will cater for 50% of the marketing and the collection of recyclables. The development of promotion material would then be the next major step to be taken.

#### *4.2.11 Wood gasifier and generator*

A diesel generator generates 3-phase electricity to run machinery, like a multi-chopper and a plastic crusher. The objective is to operate it in a sustainable manner, therefore renewable fuel sources like bio-mass need to be tapped. Wood gasification will be the most economical option because it reduces operation cost by 50%.

A 15kW gasifier coupled with a 15kW generator would be the best option depending on electricity requirements.

#### *4.2.12 Machinery*

Suitable machinery, using appropriate technology, is essential to deal with day to day activities. The site not being a big one, only light- and middle scale machinery is regarded viable from an Operation and Maintenance (O&M) and sustainability point of view. Finding and adapting suitable technology is a challenge because there hardly is current expertise in that field . Learning by doing will allow suitable machinery to be found and developed over time.

The following equipment is deemed necessary for future operations:

- A small tractor, for gardening and many other purposes using the following accessories:;
- A trailer to the tractor, for transport of goods, collection of plastics, transportation of compost
- A loader, to be coupled to the tractor, reducing labour requirements for the mixing of compost piles, the loading of the trailer to the landfill, and to cover the landfill by soil;
- A bowser to the tractor. The site is severely suffering from water shortage in the dry season and the bowser will transport water from the nearest lake;
- A small three-wheeler, to transport compost, and for dumping materials inside the plant
- A conveyor belt system, to transport separated materials to the multi-chopper and from the multi-chopper to the compost piling area.

#### *4.2.13 Research and Development (R&D) & Training Centre*

In any industry there should be innovative thinking, research, development and ongoing training, not only in the field of waste management.

In the current situation we foresee one person, who is an expert in the subject, to be required and to be supported by the other staff.

Responsibilities and duties:

- Developing suitable technical- economic solutions for waste management
- Conducting necessary research with universities
- Providing necessary guidance for the supporting staff.
- Inspection of the day to day activities and conducting the necessary audits
- Monitoring and evaluation of the waste management centre
- Conducting staff training
- Conducting public awareness programs

## 4.3 Policy comments to the above described small waste management site

### *4.3.1 Project objectives in policy formulation*

The objective of the LOGO South Country Framework is to contribute to the professionalism of service delivery of local governmental bodies with a focus on solid waste management:

***To facilitate local and regional Solid Waste Management Plans (SWIPS)***
To assist the local authorities in the coastal region of the Southern Province of Sri Lanka in creating their own integrated Solid Waste Management Implementation Plans (SWIP's) in such a way that clear and acceptable choices will be presented for all stakeholders. In the process of creating these plans technical solutions that are feasible and applicable to the Sri Lankan cultural and economic context will present themselves. By using a common outline for the plan the final SWIP of all the local authorities can be combined easily into a regional SWIP.

***To assist the setting up of a regional Material Recovery Facility (MRF)***
To assist the local authorities to select a suitable location for a regional MRF, including an engineered sanitary landfill site.

***Focus on development of a National Solid Waste Policy***
The project modified its focus to include national solid waste policy issues. WASTE has used some of its existing resources to assist the Government (ministry of Environment and Natural resources) , private sector – including informal sector -, CBOs, NGOs, to develop a national solid waste policy. The basics whereof are presented below.

***Situational description***
Analysis of data has revealed that per capita per day waste generation on the average is 0.85 kg in the Colombo Municipal Council, 0.75 kg in other Municipal Councils, 0.60 kg in Urban Councils and 0.40 kg in Pradeshiya Sabhas. The total Municipal Solid Waste generated in the country is assumed to be around 6,400 tonne per day and the daily waste collection by Local Authorities is estimated at 2700 tonne. According to the available data, solid waste composition in Sri Lanka consist of 62% biodegradable waste, 6.5% paper, 6% polythene and plastic, 6% wood, 2% glass etc. Therefore, the Sri Lankan municipal waste consists to a large extend of compostable material.

Solid waste management practices in the country lack a coordinated approach. Generally very little sorting of waste is done at the source of generation. Domestic, trade and institutional waste including hazardous biomedical/healthcare waste and industrial waste are disposed mixed with municipal waste. Garbage is thrown on the streets, footpaths, drains and in water bodies, treating them as receptacles of waste. Recyclable waste material is also not segregated at the source and is disposed of along with the domestic, trade and other waste. Construction and demolition waste also poses serious problem as this waste is deposited on the roadside or open spaces, obstructing traffic and causing nuisance.

There is apathy on the part of most citizens in the manner of handling waste and keeping the cities clean. Citizens expect the local authority to keep the city clean despite lack of proactive involvement on their part.

Since most waste has resource recovery potential, waste can no longer be considered 'useless'. Therefore, waste should be treated as a commodity that has an economic value.

In the light of the above, there is an urgent need for a national approach to handle the solid waste generated in the country. Environmental friendly disposal of waste with maximum opportunities for application of the 3R concept with special emphasis on prevention of waste generation has to be pursued.

The Law obliges every person in Sri Lanka to protect nature and conserve its riches. Further, the National Environment Policy builds upon the "polluter pays" principle and emphasizes the need to reduce consumption and recycle and reuse materials to the maximum extent possible. It further emphasizes that it is the common but differentiated responsibility of every institution and individuals to be involved in all aspects of solid waste management. Thus the overall goal of the National Policy on Solid Waste Management is to ensure integrated, economically feasible and environmentally sound solid waste management practices for the country.

The Policy is being developed to address the issues arising out of the current solid waste management practices.

### *4.3.2 Policy objectives*

1. To ensure environmental accountability and social responsibility of all waste generators, waste managers and service providers.

2. To actively involve individuals and all institutions in integrated and environmentally sound solid waste management practices.

3. To maximize resource recovery with a view to minimize the amount of waste for disposal.

4. To minimize adverse environmental impacts due to waste disposal to ensure health and well being of the people and on ecosystems.

### *4.3.3 Policy principles*

1. Solid waste management will be managed adhering to the waste management hierarchy where the emphasis is on reduction of waste generation , reuse, recycling and resource

recovery to the maximum extent possible, followed by appropriate treatment and finally the disposal of residual waste.

2. Adherence to National Environmental Standards developed under the provisions of the National Environmental Act will be ensured.

3. Application of Market based instruments including the "Polluter pays" approach will be recognized for effective waste management.

4. Resource maximization will be ensured by promoting sustainable production and consumption and enforcing producer responsibility approach throughout the Product Life Cycle.

5. Efficient law enforcement will be recognized as an essential means of effective Solid Waste Management.

6. Public-Private Partnerships will be encouraged to ensure efficient and cost effective collection, transportation, storage and treatment of solid waste and disposal of residues.

7. Appropriate resource mobilization strategies will be explored and sustainable financing mechanisms for solid waste management will be promoted.

8. Sustainability of participation of all stakeholder groups in the entire waste management process will be ensured.

### 4.4 Conclusions of this chapter, with respect to infrastructure strengthening; the relevance of the Hambantota case

One of the major difficulties faced by Local Authorities is the lack of infrastructure facilities for solid waste management (SWM); the provision of infrastructure facilities becomes an essential prerequisite for integrated SWM. The Hambantota case offers excellent practical examples for upscaling and integration into the wider infrastructure- and policy context, for the following reasons:

Hambantota, by historical necessity, is a *small* facility, yet covering virtually all aspects of solid waste management. Being small, and relatively low-cost, will make it suitable as a replication example for similar towns in Sri-Lanka, and the small size of its landfill will be an added incentive for development of a regional Material Recovery Facility (MRF) On the other hand, being fully integrated and covering the entire spectrum of solid waste management, it offers an excellent practical example for regional and national upscaling, as it already offers many or most of the above National policy objectives and –principles on a practically demonstrable scale. Finally, Hambantota offers *innovative* elements in the Sri-Lanka context, notably the foreseen use of wood-generated gas to power machinery, and the focus on awareness raising and training as an *integral* part of the facility. Also in the promotion of compost marketing, hitherto something of a 'blind-spot' in Sri-Lanka, Hambantota plays a leading role.

# CHAPTER 5 SOLID WASTE MANAGEMENT IN SRI LANKA – STRENGTHENING NATIONAL POLICY FRAMEWORK

## 5.1 Introduction to this Chapter

The rest of the Chapter basically follows the ISWM Methodology. First, the project team conducted an assessment of the current policy situation, second, the project team enabled a national multi-stakeholder process on developing an ISWM National Policy Platform.

## 5.2 Assessment

### *5.2.1 Institutional responsibilities*

Solid waste management is an obligatory function of all the Local Authorities (LA) in Sri Lanka, which are: Municipal Councils, Urban Councils, and Pradesiya Sabhas. The service of solid waste management is poorly performed by many Local Authorities, resulting in problems of health, sanitation and environmental degradation. The country's urban population has been steadily increasing over the past few years to its present level and the rate of urbanization at 2-2.5% far exceeds the annual population growth rate of 1.5%. Further, the urban population is expected to increase from the present 30% to 45% of the population in 2015. With the rapid pace of urbanization, the situation is becoming uncontrollable with time. Institutional weaknesses, lack of social responsibility and environmental accountability, inadequate financial resources, lack of technical competency, improper choice of technology and public apathy towards solid waste management has made this service far from satisfactory.

### *5.2.2 Waste composition and volume*

Analysis of data has revealed that per capita per day waste generation on the average is 0.85 kg in Colombo Municipal Council, 0.75 kg in other Municipal Councils, 0.60 kg in Urban Councils and 0.40 kg in Pradeshiya Sabhas. The total Municipal Solid Waste generated in the country is assumed to be around 6,400 tonne per day and the daily waste collection by Local Authorities is estimated at 2700 tonne. According to the available data, solid waste composition in Sri Lanka consist of 62% biodegradable waste, 6.5% of paper, 6% polythene and plastic, 6% of wood 2% glass etc. Therefore, it reveals that the average Sri Lankan municipal waste consists of a large proportion of compostable material.

### *5.2.3 System issues*

The solid waste management practices in the country lack proper approach. Generally very little sorting of waste is done at the source of generation. Domestic, trade and institutional waste including hazardous biomedical/healthcare waste and industrial waste are also disposed mixed with municipal wastes. Garbage is thrown on the streets, footpaths, drains and water bodies treating them as receptacles of waste. Recyclable waste material is also not segregated at the source and is disposed of along with the domestic, trade and other waste. Construction and demolition wastes also pose serious problems as this waste is deposited on the roadside or open spaces, obstructing traffic and causing nuisance.

There is a total apathy in the part of most citizens in the manner of handling their waste and in keeping the cities clean. Citizens expect the local authority to keep the city clean despite lack of proactive involvement on their part and social responsibility.

Since most waste that is found everywhere has resource recovery potential, waste cannot be considered useless. Therefore, waste should be treated at all times as a commodity that has an economic value.

## 5.3 Justification for a National Policy

The assessment identified an urgent need for a national approach to handle the solid waste generated in Sri Lanka. Environmental friendly disposal of waste with maximum opportunities for application of 3R concepts with special emphasis on prevention of waste generation has to be pursued, in order to exercise due care in disposing of all wastes. This is in order to avoid environmental degradation and negative impacts on the health of all life forms.

In view of the Constitutional obligations, every person in Sri Lanka is obliged to protect nature and conserve its riches. Further, the National Environment Policy builds upon "the polluter pays" principle and emphasizes the need to reduce consumption and recycle and reuse materials to the maximum extent possible. It further emphasizes that it is the common but differentiated responsibility of every institution and individual to be involved in all aspects of solid waste management. Thus the overall goal of the National Policy on Solid Waste Management is to ensure integrated, economically feasible and environmentally sound solid waste management practices for the country.

This policy is being developed to address the issues arising out of the current solid and healthcare and biomedical waste management practices.

## 5.4 Development of the ISWM National Policy Platform

This section will briefly describe the process of the development of the ISWM National Policy Platform. The project team, consisting of Energy Forum in Sri Lanka, and WASTE in the Netherlands, organised and coordinated a set of meetings in 2006 and 2007, which resulted in the development of a Terms of Reference for the National Policy Platform. Annex 2 of this document provides these draft Terms of Reference.

Additionally, in 2007, the National Policy Platform has formulated a first draft of a National Policy on Solid Waste Management. The public was invited to comment on the draft Policy. Following a review of the comments of the public the policy has now been forwarded to the Cabinet for final approval.

Under the project a means of communication was established: a web base information sharing platform. Energy Forum will continue to update and do the secretariat's work even after the closure of the CORDAID project. Thus the mechanism for continuous updating and secretariat work will be finalized at the next platform meeting scheduled to be held on 10th of Jan 2008. Information sharing platform will introduce a unique data base for publishing the related documents of the members. The working committee established by Energy Forum will take decisions on the publication and performance of the web page.

### *5.4.1 National Platform Meeting: April 2006*

**Objectives:**

- Introduce the project and main stakeholders to a wider audience
- Present ISWM as a tool to tackle Tsunami related waste comprehensively
- Learn from participants' ongoing waste projects
- Review the log frame
- Identify the possible need for a national platform vis-à-vis the existing mechanisms

**Conclusions April 2006**

- National platform evolve naturally
- Focus on information exchange
- Review platform development after 6-7 months
- Updated district activities is the main discussion point
- Not to be joined with existing task forces

### *5.4.2 National Platform Meeting: November 2006*

**Main conclusions of participants:**

- Very unique, sharing experiences between many different stakeholders
- No such Forum exist in Sri Lanka
- Strong recommendation to continue
- Now is the time to formalise
- Detailed Terms of Reference (ToR) to be circulated by e-mail to stakeholders for their comments and then amended /adopted for the next national platform meeting
- VNG is working with local authorities of Southern Province interested in supporting National Platform & co-hosting next meeting scheduled May / June 2007
- IRC looks into knowledge exchange function as part of their existing Memorandum of Understanding with WASTE
- Prescribed format of reporting is good
- Someone has to take the lead in shifting through information, requesting for it, ordering and updating it.
- Under current project, Energy Forum can do until end of project, exit strategy part of ToR

### *5.4.3 National Platform Meeting: May 2007*

The national platform meeting coincided with the National Policy Workshop on Integrated Sustainable Waste Management.

**Objectives:**

- To get the stakeholder comment for the draft national policy on Waste Management
- Situation Analysis on solid waste disposal - Issues, best practices and lessons learnt
- Further develop the Pilisaru program with the consent of the key stakeholders

**Main conclusions:**

- Draft policy now ready
- Role of informal sector recognised
- Policy is Sri Lanka's own

### *5.4.4 National Platform Meeting: November 2007*

**Objectives:**

- To present findings of case studies on solid waste management pilot projects implemented in Sri Lanka.
- Discussion on national waste management policy and strategy the stakeholder comment for the draft national policy on Waste Management.
- Needs assessment on institutional and legal reforms, transfer of technologies and capacity building, financing mechanisms and promotional campaigns
- Discussion on future of the National Platform on Waste Management and fine tune the Terms of Reference for the national platform.

**Main conclusions participants:**

- Enough experience in the country on solid waste management
- Refining and fine tuning these experiences remain essential
- Platform to be continued for experience sharing.

**Photo 1 Platform meeting, Mayor of Kuranagele**

### *5.4.5 Development of Terms of Reference*

Terms of Reference of national platform based on lessons learned from:

- WASTE
- AOO (solid waste discussion platform in The Netherlands)
- International Water and Sanitation Centre (IRC, learning alliances)
- Institute for Housing and Urban Development (IHS, facilitating local participatory initiatives)
- Particularly ToR of functional National Water and Sanitation Coordination Group in Sri Lanka (established in 2005)

## 5.5 Draft Policy Framework

### *5.5.1 Policy Objectives*

1. To ensure environmental accountability and social responsibility of all waste generators, waste managers and service providers.

2. To actively involve individuals and all institutions in integrated and environmentally sound solid waste management practices.

3. To maximize resource recovery with a view to minimize the amount of waste for disposal.

4. To minimize adverse environmental impacts due to waste disposal to ensure health and well being of the people and ecosystems.

### *5.5.2 Policy Principles*

1. Solid waste management will be managed adhering to the waste management hierarchy where the emphasis is on reduction of waste generation, reuse, recycling and resource recovery to the maximum extent possible, followed by appropriate treatment and finally by the disposal of residual waste.

2. Adherence to National Environmental Standards developed under the provisions of the National Environmental Act will be ensured.

3. Application of Market based instruments including "Polluter pays" approach will be recognized for effective waste management.

4. Resource maximization will be ensured by promoting sustainable production and consumption and enforcing producer responsibility approach throughout the Product Life Cycle.

5. Efficient law enforcement will be recognized as an essential means of effective Solid Waste Management.

6. Partnerships will be encouraged to ensure efficient and cost effective collection, transportation, storage and treatment of solid waste and disposal of residues.

7. Appropriate resource mobilization strategies will be explored and sustainable financing mechanisms for solid waste management will be promoted.

8. Sustainability of participation of all stakeholder groups in the entire waste management process will be ensured.

### *5.5.3 Statements*

At present the municipal solid waste as well as hazardous biomedical/healthcare waste is disposed together without adhering to accepted environmentally sound waste disposal practices. This has brought about tremendous negative environmental consequences as well as hazard to the health and well being of the people. In order to remedy the situation, type of wastes, the municipal solid wastes as well as the hazardous biomedical/healthcare wastes need to be addressed together under the present Policy.

One of the major difficulties faced by the Local Authorities is the lack of infrastructure facilities required for SWM. Therefore, the provision of infrastructure facilities becomes an essential prerequisite for integrated SWM.

***Waste Management Policies***

1. Solid waste will be managed in accordance with the 3R principle with special emphasis on waste preventive approaches.

2. Land filling will be limited to non-recyclable, non-compostable and inert material generated through waste treatment processes**.**

3. Development and implementation of sub sectoral policies in line with the National Policy shall be made mandatory.

4. Importation of all types of post-consumer wastes will be prohibited.

5. Institutional strengthening and capacity building needs of stakeholders with special emphasis on Local Authorities will be addressed to promote effective waste management.

6. Hazardous Biomedical/Health Care wastes will be managed so as to prevent environmental contamination and to minimize the risks to public and eco-systems.

7. Institutional mechanisms will be established to prevent hazardous biomedical/healthcare wastes entering into the municipal waste streams.

8. Public safety will be ensured through appropriate liability and compensation mechanisms.

9. Regular monitoring and evaluation system will be established to ensure system improvements.

10. Annual performance reporting and effective monitoring mechanisms will be set in place at LA level.

***Capacity Building and Research & Development***

1. Awareness, education, training and capacity building on integrated waste management will be promoted at all levels.

2. Research and Development will be encouraged and promoted at appropriate levels.

3. Best Available Technologies (BAT) and Best Environmental Practices (BEP) will be transferred to all sectors including the informal sector.

***Institutional arrangements***

1. Responsible public-private and community partnerships will be promoted at appropriate level for service provision while recognizing that SWM remains with local authorities as defined by the respective laws in the present context.

2. Social and corporate responsibility and accountability towards solid waste management will be ensured.

3. Institutional framework for sound wastes management will be strengthened through improved inter agency co-ordination and empowerment of civil society groups.

***Financial Mechanisms***

1. Sustainable financing mechanisms shall be made mandatory to ensure the sustainability of solid waste management programmes.

2. LAs shall ensure self-financing for waste management by effective revenue generation mechanisms.

3. Appropriate financial incentive schemes will be explored and established to promote waste management.

4. Carbon financing as provided by the Kyoto Protocol will be promoted as an incentive for promoting waste management practices in line with the existing Clean Development Mechanism Policy.

***Legal mechanisms***

1. Existing regulatory mechanisms will be strengthened through appropriate legal reforms.

2. Effective law enforcement will be ensured as means of maintaining the accountability of stakeholders.

3. Basel Convention commitments on trans-boundary movement of wastes will be honoured to fulfil Sri Lanka's obligations.

# CHAPTER 6 SOLID WASTE MANAGEMENT STRATEGIES

## 6.1 Introduction

There are 10 waste management policy statements. The National Policy Platform has formulated one or more strategies to implement the policy statements. Table 5 provides an overview of the policy statements.

**Table 5 Waste management policy statements**

| | Policy Statement |
|---|---|
| 1 | Solid waste will be managed in accordance with the 3R Principles with special emphasis on waste prevention approaches |
| 2 | Land filling will be limited to non-recyclable, non-compostable and inert material generated through waste treatment processes**.** |
| 3 | Development and implementation of sub sectoral policies in line with the National Policy shall be made mandatory. |
| 4 | Importation of all types of post-consumer wastes will be prohibited. |
| 5 | Institutional strengthening and capacity building needs of stakeholders with special emphasis on Local Authorities will be addressed to promote effective waste management. |
| 6 | Hazardous Biomedical/Health Care wastes will be managed so as to prevent environmental contamination and to minimize the risks to public and eco-systems. |
| 7 | Institutional mechanisms will be established to prevent hazardous biomedical/healthcare wastes entering into the municipal waste streams |
| 8 | Public safety will be ensured through appropriate liability and compensation mechanisms. |
| 9 | Regular monitoring and evaluation system will be established to ensure system improvements. |
| 10 | Annual performance reporting and effective monitoring mechanisms will be set in place at LA level. |

The strategies as formulated by the National Policy Platform pertaining to solid waste management are provided below. Complete strategies on all aspects of ISWM can be found in Annex 3.

## 6.2 Policy Statement 1

Solid waste will be managed in accordance with the 3R Principles with special emphasis on waste prevention approaches

### *6.2.1 Strategy 1: Promote segregation of waste at source at household industries and institutional levels Commercial*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1.Establish a unit or a committee at all the institutions | | | | |
| 2.Create awareness at all levels as appropriate | | | | |

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 3. Develop a efficient collection mechanism | | 20% of households, commercial 10% 0% of the institutes | 40% of households 90% of the institutes, commercial 40% 90% of the Industries segregate waste at the point of generation | 100% of households 100% of the institutes 100% of the Industries segregate at source, commercial 40% |
| 4. Establish a communication system with all stakeholders | Local Authorities CEA, MoLG, Industries Commercials | 40% of the Industries segregate waste at the point of generation. | | |

### *6.2.2 Strategy 2: Identify options for waste reduction for all identified key sectors*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Conduct waste audits<br>2. Identify waste reduction options<br>3. Develop guidelines<br>4. Monitor performance<br>5. Revise the plans accordingly<br>6. Implement in all sectors | NCPC<br>LAs, Chambers<br>CEA<br>Relevant Organizations<br>MENR and CEA<br>Relevant Ministries | Key sectors for waste reduction identified<br>Rubber related Industries<br>Eco friendly packaging policies established – reduce the use of shopping bag and lunch sheets<br><br>Pilot projects for key sectors – eg: fishery, agricultural post harvest implemented | Mass awareness implemented<br><br>Guidelines developed for environmentally friendly alternatives for packaging and disseminate information for implementation in all sectors<br>80% reduction/reuse/recycle/recovery of wastage in fisheries and agricultural sectors | Awareness continued<br><br>100% replacement of non degradable alternatives with degradable products<br><br>90% reduction of wastage in all sectors |

### *6.2.3 Strategy 3: Promote recycling and processing as a profitable business*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Identify and register the informal sector | LAs, Provincials and CEA<br>Las, Provincials<br>NERD, MoST<br>LAs, Provincials & relevant National Institutes<br>NPA<br>EDB | Waste collection networks established at local authority level<br><br>Informal sector that need assistance inn mainstreaming identified and registered | Informal waste collectors mainstreamed.<br><br>Recycling industries that need assistance in market development identified and assisted | Public private partnerships for recycling established as appropriate |
| 2.Establish a waste collection network | | | | |
| 3.Identify and assist the industries the industries that engage in recycling | | | | |
| 4. Establish public private partnership for recycling as appropriate | | | | |
| 5. Develop policies to promote government to procure locally recycled products | | | | |
| 6.Create opportunities to export the recycle products (1.7) | | | | |

### *6.2.4 Strategy 4: Promote Cleaner Production, waste audits ISO 14,000 and similar voluntary and mandatory measures*

Make mandatory to appoint a Qualified Environmental officer to investigate in industries with employees more than 200 or 'A category' industries.

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1.Develop policy and implement on pointing a officer in charge for industries | | | | At least 30% industries obtained ISO 14,000 |
| 2. Conduct waste audits | | 20% industries annually conduct waste audits | 50% industries conducting waste audits | |
| 3. Develop action plans | MENR | 50% of the industries will have an action plan in place to implement waste reduction practices | Generation of waste in industrial and service sectors will be reduced by 20% | |
| 4. Establish a mechanism for green labelling | CEA, | Green Labeling introduced | | |
| 5. Monitor and evaluate the performance | NCPC<br>Relevant institutions<br>SLSI | | | |

### *6.2.5 Strategy 5: Promote recycling industries utilizing locally available raw material, Mark a symbol for all recycled products*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Establish a sustainable mechanism to assist Industries | Mo S&T | Transfer of technology to improve the quality of recycled paper and plastic industries | 25% reduction in importation of recycled goods and raw material | 75% reduction in importation of recycled goods and raw material |
| 2. Develop systems for continuous flow of locally available supply of raw material | SLSI | | | |
| 3. Conduct a base line survey and situation analysis on imports and exports of materials | CEA | | | |
| 4. Impose restrictions of importation of recycling materials | NCPC<br>Customs, Dept Export Control<br>CEA & Customs | | | |

### *6.2.6 Strategy 6: Establish mandatory standard for recycled products.*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Standards and laws established for food grade products | | Standards and laws established for food grade products | Mandatory Standards in place for all recycled products | |
| 2. Introduce a symbol to identify recycled products and food grade plastics | SLSI, Consumer Affairs | | | |
| 3. Monitoring and prosecution | | | | |

### *6.2.7 Strategy 7: Promote market opportunities for local paper, glass and plastic recycling industries*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Introduce a proper collection mechanism | | A system for recognition and promotion of locally recycled products established<br><br>40% of government procurement of locally recycled products such as paper, plastic, glass<br><br>Standards and laws will be established for food grade products<br><br>Proper collection mechanism established | 60% government procurement of locally recycled products such as paper, plastic glass<br><br>Foreign/local markets available for recycling industries using locally recycled raw material and products | |

### *6.2.8 Strategy 8: Promote reuse practices for plastic, paper and other products*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 2. Create awareness at all levels to change attitudes to promote reuse practices | CEA,MENR, NGOs & CBOs | Change of mind set in general public for reuse | | |

## 6.3 Policy Statement 2

Land filling will be limited to non-recyclable, non compostable and inert material generated through the waste treatment process.

### *6.3.1 Strategy 1: Promote conversion of all short term biodegradable waste material into compost and promote community participation to ensure sustainable composting*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Create awareness of the processes | | In 20% of MCs 30% of UC and 50% of PS short term biodegradable waste collected are treated aerobically/an-aerobically | In 30% of MCs 40% of UCs and 90% of PSs short term biodegradable waste collected are treated aerobically/an-aerobically | In 50% of MC and 100% of UCs short term biodegradable waste collected are treated aerobically/an-aerobically |
| 2. Encourage people and carry out the activities | | | | |
| 3. Facilitate implementation and address the trouble shooting | | | | |
| 4. Establish infrastructure facilities | Min. Agriculture LAs, Provincials MENR, MoAgri, MoLG,CEA LAs, Provincials | | | |

### *6.3.2 Strategy 2: Actively promote private-public-NGO partnerships for composting*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1 Establish partnerships | | Public, private, NGO partnerships established at 30% LAs | Continuation of partnerships 40% ensured | 50% |
| Facilitate sustainability MENR | | | | |
| Promote household and commercial composting through appropriate incentive schemes. Promote the usage of compost barrels | MENR, LAs | Increasing the number of households having compost barrels and other material increased by 10 % | 30% | All households will have individual compost bins/systems or will have joined a community scheme or a central composting system |
| Develop a sustainable mechanism of manufacturing and promoting compost barrels at affordable cost | | Introduce incentive schemes | | |

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| Develop a incentive scheme | | 20% possibility Quality control standards established, Guidelines prepared | 30% | 50% |
| Develop a system to address the trouble shooting issues | MENR and Ministry of Finance MENR & Mo Finance | Labeling system established | | |

### *6.3.3 Strategy 3: Promote the usage of composting where ever possible*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1 Introduce a subsidy to promote utilization of composting | Mo Agriculture, Mo Finance,, Mo Plantation, Mo LG & PC | | | |
| 2. Develop a data base and maintain a register | DAO & Department of Agrarian Services | | | |
| 3. Establish and implement a quality control mechanism for composting | SLSI, Paddy & Tea Research Ins. SLSI | | | |
| 4. Introduce a labeling system | MENR | | | |
| 5. Establish a coordination mechanism to coordinate and promote organic farming island wide | | | | |

### *6.3.4 Strategy 4: Facilitate environmentally sound, economically feasible appropriate waste treatment technologies to treat all non-biodegradable waste*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Identify waste streams | | Appropriate waste treatment technologies identified to suit all MCs to minimize the amount of non-biodegradable waste entering the landfill | Appropriate waste treatment technologies determined and grouped to minimize the amount of non-biodegradable waste entering the landfill | |
| 2. Identify suitable technologies to suit each waste stream | | | | Triplicate best practices and lessons learnt |

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 3. Transfer technologies | CEA | | | |
| 4. Establish facilitation mechanism and evaluate monitoring | NCPC, NERD, CEA, Chambers MENR & CEA | | | |

### *6.3.5 Strategy 5: (Introduce BAT/BEP for landfill sites as appropriate for Sri Lankan conditions.), Carryout identified pilot projects*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Carryout identified pilot projects | | | | |
| 2. Prepare guidelines | | Designs and guidelines for Landfills and Transfer stations using Best Available Technologies Not Entailing Excessive Costs (BATNEEC) developed and used | | |
| 3. Design model Landfills, including Environmental protection centers | | BAT/ BEP practices introduced based on the lessons learnt | | |
| 4. Identify suitable sites | CEA | | | |
| 5. Implement | CEA, Universities NCPC<br><br>CEA, LAs, CEA | | | |

### *6.3.6 Strategy 6: Promote rehabilitation, decontamination of past dump sites for reuse.*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Select suitable dumpsites | | A methodology developed & implemented for a selected sites on priority basis | Implementation of pilot scale programs | Continued implementation |
| 2. Develop guidelines | CEA, LAs | | | |
| 3. Develop a implementation mechanism | CEA | | | |

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 4. Facilitation | MENR,CEA | | | |
| 5.Implement and monitoring | CEA | | | |

## 6.4 Policy Statement 3

Development and implementation of sectoral policies in line with the National Policy will be made mandatory

### *6.4.1 Strategy 1: Establish policies, strategies, action plans as appropriate for the Provincial and Local government levels, within the National Policy framework*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Develop policies, strategies and Action Plan with stakeholder participation | | Provincial level policies developed | Enforcement mechanism established and implemented | Review and ensure sustainability |
| 2. Develop implementation mechanism on pilot basis | MENR & Sectoral line Ministries | MENR | | |
| 3. Monitor and revalidate | CEA, MENR | | | |
| 4. Replicate | MENR, CEA Provincials, LAs, relevant Institutions | | | |

### *6.4.2 Strategy 2: Develop and implement SWM policies for all economic sectors such as fisheries, industries, healthcare, tourism, agriculture*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Waste audits in each sectors | | | | |
| 2. Develop policies under the leadership of particular sector with participation of all stakeholders | MENR, NCPC | Healthcare waste mgt policy Fisheries waste mgt Policy Industrial waste mgt policy Agricultural waste mgt policy developed | | |
| 3. Implement the policy | MENR | | Policy implementation initiated and continued | Policy implementation Review and ensure sustainability |
| 4. Monitor and revalidate | CEA, | | | |
| 5. Replicate | MENR | | | |

## 6.5 Policy Statement 4

Importation of all types of post consumer waste will be prohibited

### *6.5.1 Strategy 1: Fully enforce a ban on importation of post consumer waste to Sri Lanka*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Identify waste streams | | A ban on contaminated industrial waste enforced | | |
| 2. Develop policies and regulations | | | | |
| 3. Develop a implementation mechanism | CEA, MENR | | | |
| 4. Develop a liability and compensation | Mo Finance | | | |
| 5. Establish an enforcement mechanism | MENR, CEA | | | |
| 6. Build capacity in analyzing | MENR, MoST | | | |

## 6.6 Policy Statement 5

Institutional strengthening and capacity building needs of stakeholders with special emphasis on Local Authorities will be addressed to promote effective waste management

### *6.6.1 Strategy 1: Identify the needs of the stakeholder institutions through a need assessment on a regular basis*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

### *6.6.2 Strategy 2: Establish mandatory requirement for all LA's to develop Plans with time targets and their implementation*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

### *6.6.3 Strategy 3: Identify and facilitate the collaboration between private/NGO and public- participation for integrated SWM*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

## 6.7 Policy Statement 6

Hazardous biomedical healthcare waste will be managed so as to prevent environmental contamination and to minimize the risks to public and eco systems

### *6.7.1 Strategy 1: Make mandatory source segregation of Healthcare waste*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

### *6.7.2 Strategy 2: Establish and implement a regulatory mechanism and monitoring systems*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

### *6.7.3 Strategy 3: Establish mandatory requirement for treatment of waste to convert healthcare waste in to non infectious material before final disposal or discharging*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

### *6.7.4 Strategy 4: Establish final disposal option for Health Care Waste*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

### *6.7.5 Strategy 5: Promote voluntary EMS measures*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

## 6.8 Policy Statement 7

Institutional mechanisms will be established to prevent hazardous biomedical/healthcare waste entering the municipal waste stream

### *6.8.1 Strategy 1: Establish institutional mechanisms at all healthcare institutions to ensure that waste is treated and disposed by an authorized facility, with a monitoring mechanism*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

### *6.8.2 Strategy 2: Assign Public Health Inspectors to HCWM Units at all national and teaching hospitals*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| | | | | |
| | | | | |

## 6.9 Policy Statement 8

Public safety will be ensured through appropriate liability and compensation mechanisms

### *6.9.1 Strategy 1: Establish liability regimes to arrest deterioration of sanitary conditions and aesthetic value of public places*

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Identify problematic areas and legal requirements | | Appropriate regime will be established and identified | Laws and regulations will be formulated and implemented | Monitoring and evaluation mechanisms established and operational |
| 2. Develop liability and compensation | | | | |
| 3. Mechanism to address those areas | | | | |
| 4. Develop legislation and implementation mechanism | MENR, CEA, UDA, | | | |
| 5. Secure stakeholder commitment for implementation | LAs, Provincials MENR, CEA, Provincials, UDA MENR, CEA | | | |

## 6.10 Policy Statement 9

Regular monitoring and evaluation systems will be established to ensure system improvement

### *6.10.1 Strategy 1: Introduce a benchmarking program that will link to national information and reporting system*

| **Activities** | **Responsibility** | **Short Term – 0- 2 year** | **Medium Term – 3-5 years** | **Long Term– 6-10 years** |
|---|---|---|---|---|
| Identify appropriate benchmark at all levels | MENR, Chambers<br>MENR, CEA Chambers<br>MENR, CEA, Chambers & relevant Ministries | Information flow established<br>A monitoring and evaluation mechanism coupled with bench marks will be established at appropriate institutions at national, provincial and local authority level | Reporting system developed and implemented<br>System evaluated on MCs and UCs on pilot scale<br>Formulate final recommendations and policies | |
| Establish a Monitoring and evaluation system | | | | Extended evaluation system in all other institutions |
| Monitor performance ,and take corrective actions to achieve targets | | | | |
| Document and publish best practices and lessons learnt periodically | | | | |

### *6.10.2 Strategy 2: Establish and maintain register of public grievances at local authorities*

| **Activities** | **Responsibility** | **Short Term – 0- 2 year** | **Medium Term – 3-5 years** | **Long Term– 6-10 years** |
|---|---|---|---|---|
| 1. Establish a mechanism to receive grievances | | | Refine and finalize the system according to the findings | |
| 2. Develop a categorization | MENR, Mo LG | | | |
| 3. Maintain a register and prioritization | MENR, MoLG at all levels | Pilot scale registration system developed, implemented and evaluated on trial basis | Register of public grievances will be established and maintained at local authority level | |
| 4. Nominate a suitable officer in this subject | | | | |
| 5. Take appropriate actions and disseminate information where necessary | Suitable Institution<br><br>At all levels | | Analyze the grievances, take appropriate actions and publish/disseminate information regularly | |

## 6.11 Policy Statement 10

Annual performance reporting and effective monitoring mechanism will be set in place at local authority level

### *6.11.1 Strategy 1: Establish an annual performance reporting and evaluation system along with a rating system*

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| Identify appropriate areas to make awards at all levels | MENR, MoLG, CEA | A performance appraisal system developed | | |
| Establish a transparent evaluation criteria | MENR, MoLG, CEA | Publish best practices and lessons learnt on current practices | | |
| Awarding system at all levels | MENR, MoLG, CEA | | A reward system formulated and implemented for prioritized sectors | System evaluation for improvement in place |

## 6.12 Comments on the Strategies

As we were requested to provide comments on the strategies, these are provided below.

Generally we found it difficult to comment as the development of the strategies is part of the nationally evolving process and we should avoid trying to steer this process too much.

- Well appreciated effort to operationally the national solid waste policy
- Quite rightly not everything has been filled in yet.
- Generically some short term aspects are too detailed.
- It is important to assign responsibilities for specific actions and not to have a whole range of responsible stakeholders for activities.
- It is important to have some of the technical aspects done correctly: analyse waste streams on composition, audits and analysis.
- A statistically valid method for waste generation that can be applied is mass balances with its corresponding leaks and losses.
- For many of the recyclable materials some of the most globally vibrant markets are nearby (China and to a certain extent India). Instead of developing domestic markets one could rather develop export infrastructure.
- Though developing sanitary landfills is indeed required, if recycling and reduction are to be promoted one of the tools that could be applied, is to start levying increasing fees and restrictions on materials that could be land filled.
- For instance in the Netherlands, for specific materials quite successfully percentages of materials allowed to go for land filling (incinerations) were gradually decreased. These rolling targets provided monitoring guidance, but also motivation for producers
- Organic waste management is more than composting alone, to give an example in Peru, much of the organic waste is directly fed to pigs and gassification can be another.

# CHAPTER 7 CONCLUSIONS AND RECOMMENDATIONS

## 7.1 Conclusions

When the project was formulated in 2005, many organisations including Government agencies, complained vehemently bout the lack of coordination, duplication and generally waste of resources ion reconstruction efforts.

In the case of water and sanitation in reconstruction the coordination role has been taken up by the National water Supply and Drainage Board with active support of UNICEF.

Though several attempts were made by a.o. the Central Environment Authority to set up a similar coordinating initiative (supported amongst others by the United Nations Environment Programme), for one reason or the other these never got beyond the design stage.

In the project design the role of the national platform was not clearly defined as it was expected that it should be moulded to cater to the most pressing local needs. Needs turned out to be most pressing in firstly coordination of activities between national level, local level involving many different stakeholders.

The national platform is recognised as an excellent vehicle for exchanging information of solid waste management and thereby linking relief with reconstruction and national development on solid waste management.

Energy forum has committed to continue supporting the national platform for at least another three years.

Pre-Tsunami there was a solid waste strategies document and some supporting documents existed too (e.g. compost guidelines). What was lacking pre-Tsunami was a comprehensive policy for solid waste management.

This became very apparent in the aftermath of the Tsunami as one of the cited reasons for lack of coordination and duplication was the absence of a coherent national policy. So its absence was noted by government (local and national), but also by NGOs, CBOs and the like.

Thus the second pressing need that was clearly identified in the first two national platform meetings was the absence of national policy. Its development was and still is regarded most useful in reconstruction and rehabilitation post-Tsunami, but also in the case of other (natural) disasters.

Indeed we are very happy that the CORDAID project played a key role in not only recognising this, but also in supporting the formulation hereof. The project team took all care not to attempt to influence the policy formulation process as the policy should firmly be owned by local stakeholders and suitable to present conditions in Sri Lanka.

The project through the national platform gave a voice to those that are seldom if ever heard, the so-called informal sector. The livelihood of these often poor – and always stigmatised-people depends on solid waste collection, reuse and recycling and yet in many instances they

are not being regarded or seen as essential stakeholders and their expertise in solid waste management is often not recognised either.

Today the situation in Sri Lanka has changed to a certain extent, several of the local authorities now indeed recognise their presence. The next stage is that it is seen that working together is much more fruitful and efficient than competing or working in isolation of each other. At national level the potential and actual role of the informal sector is now also recognised and representatives are invited to attend policy and strategy meetings.

The recognition of the informal sector we consider a major achievement on the "soft side".

## 7.2 Recommendations

As the experiences in Hambantota have shown it is not always easy to work with informal sector entrepreneurs. Their typical hand-to-mouth existence and mode of operation makes it difficult to get into planning.

To a certain extent it depends on the individuals and also the chemistry between people and organisations. If the chemistry is not there, one should look for alternatives too. The project activities in Hambantota represent exactly that, a new way of managing solid waste at the disposal site. At this stage we consider it too early to tell whether the activities will be successful in the long run, but gradually the attitude in Sri Lanka seems to be shifting from simply dumping on mostly unauthorised dumps to more managed process, whereby waste is increasingly being segregated and recycled.

The people involved in segregation and recycling are often the informal sector and we consider it most fortunate that the project has made some inroads. This itself is a process and all efforts should be made to continue involving them as critical stakeholders. The exact nature of their involvement should be discussed with them in detail as every day that they are not working they do not have an income and thus either timings should be adjusted or they should be compensated or both.

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# ANNEX 1 LOGICAL FRAMEWORK

| **Intervention Logic** | | | **Risks & Assumptions** | |
|---|---|---|---|---|
| Overall Objectives | Rapid implementation of community based short- and middle-term measures to improve the functioning of solid waste management in Tsunami affected areas of Ampara and Hambantota Districts | | The political situation mainly in Ampara or possibly Sri Lanka as a whole does not detoriate further, primarily hampering implementation of activities at Kalmunai<br>No more natural disasters<br>Pre-identified project implementation team Energy Forum will not be reassigned.<br>There is no significant political resistance to ISWM approach and is associated hand-off of power to local stakeholders. | |
| **Objective 1** | On national scale increased information sharing through functional national platforms positioned to deal with new community based waste related projects In target areas, increased and sustainable safe management and disposal of medical and sanitation waste, focus on increased amount of waste due to Tsunami. | There is an increased amount of information and data available of Tsunami related waste management | | |
| Result | 1.1<br>Establishment first network / platform for nation wide Tsunami related waste management information exchange. Established framework to technically assist waste related projects including documentation. | **1.2**<br>Functional implementation platform in Hambantota district and Ampara district for community based waste management project implementation and information exchange | | |
| Objectively verifiable Indicators | Website<br>MoU between main project partners WASTE and Energy Forum<br>Workplans<br>Number of requests for information from within and outside target areas | MoUs on district level between project partners (HDCC, WDF, PP, Energy Forum - Hambantota) representing about 40,000 people and (ADCC, LA, CEA, Sewenaka, Energy Forum - Ampara) representing about 25,000 people.<br>Workplans<br>Number of requests for information from within and outside target areas | | |
| **Means of Verification** | Reports, workshop reports<br>Minutes of platform meetings | Reports, workshop reports<br>Logbooks | | |

| Intervention Logic | | | Risks & Assumptions | |
|---|---|---|---|---|
| | Electronic available information | Minutes of platform meetings<br>Strategy for dealing with new requests. | | |
| **Activities** | Formation platform<br>Joint workplan including training aspects<br>Monitoring and evaluation system<br>Final evaluation | 1.2.1. Formation platform in Hambantota<br>1.2.2. Implementation plan for MoUs Hambantota<br>1.2.3. Formation platform in Ampara<br>1.2.4. Implementation plan for MoUs Hambantota<br>1.2.5. Training of stakeholders on community based ISWM | | |

# ANNEX 2 TERMS OF REFERENCE ISWM NATIONAL POLICY PLATFORM

DRAFT

**Contents Terms of Reference**

1. Objectives
2. Key functions
3. Guiding principles
4. Members
5. Alliances
6. Secretariat function
7. Characteristics secretariat
8. Exit strategies
9. Financing

**Objectives**

1. Structural improvement waste management through process of consultation and information exchange
2. To identify in due course how this process - initiated as a response to the Tsunami - can be institutionalised.
3. Thus reporting on successes and failures, particularly the latter as the idea is NOT to find fault, but to avoid re-inventing the wheel

**Selected key functions**

Adequate attention & possibly funding is provided by the Government to cover waste management that exceeds local boundaries as well as for those in distress in transitional shelters sites of IDPs and Tsunami affected families (originating from Tsunami assisted project).

- To identify needs, issues and obstacles and direct attention for their resolution to Government authorities etc.
- To facilitate communication and exchange of information among all parties concerned with waste in Sri Lanka,
- To review systematically the key information and issues brought forward by local authorities that cannot be dealt with at District level and that need immediate attention by Government Authorities at Colombo level.
- To systematize lessons learnt and contribute to their wide dissemination (Guidelines, technological designs, communication messages, community empowerment).
- Finding key denominators, e.g. financing operation and maintenance

**Guiding principles**

- The right to a healthy and clean environment cannot be dissociated from human dignity;
- Everyone has the right to participate in decision-making processes that affect their right to a clean environment;
- Communities have the right to determine the nature of their solid waste services;
- Everyone should be given full, transparent and equal access to information.

**Members**

- Local government, Government Institutions, bilateral cooperation, development banks, United Nations agencies, international NGOs, local NGOs, consumer associations, private sector, universities
- Coordination meetings open to new members, even on a temporary basis to contribute to cross-fertilization between local & national level & between sector groups
- Updated membership lists will be widely distributed
- People participate only if benefits outweigh costs
- Alliances

**Secretariat's function**

- Organise, convene thematic workshops
- Platform meetings alongside thematic workshops
- Organise site visits to relevant projects
- Assist members in presenting key findings, success and failures of each project, **assist in identification of generic and locally specific lessons**.
- Develop maintain website
- Participate in meetings other organisations, present key findings on the website
- Facilitate exchange between platform members
- Working modalities for each event

**Key characteristics secretariat**

- Based in Sri Lanka
- Office facilities available
- Registered, type may differ
- Prior experience, expertise waste sector
- Extensive network organisations active or willing to be active in the sector.
- Proven experience in organising meetings, site visits etc.
- Affinity with web based publications and other modern communication tools.

**Exit strategy**

- Initiating project ends 31-12-2007.
- VNG supports 3rd current meet, others to be approached as process is in formative stage
- Without external support is forthcoming, National Platform results in documented approach to solid waste management, participating organisations contacts, informal solid waste network established
- Sustainability is suspect

**Financing**

# ANNEX 3 DRAFT STRATEGIES ON SOLID WASTE MANAGEMENT

**Policy Statement: 1. Solid waste will be managed in accordance with the 3R Principles with special emphasis on waste prevention approaches.**

**Strategy 1: Promote segregation of waste at source at household industries and institutional levels Commercial**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1.Establish a unit or a committee at all the institutions | | | | |
| 2.Create awareness at all levels as appropriate | | | | |
| 3. Develop a efficient collection mechanism | | 20% of households, commercial 10%<br>0% of the institutes | 40% of households<br>90% of the institutes, commercial 40%<br>90% of the Industries segregate waste at the point of generation | 100% of households<br>100% of the institutes<br>100% of the Industries segregate at source, commercial 40% |
| 4. Establish a communication system with all stakeholders | Local Authorities<br>CEA, MoLG, Industries<br>Commercials | 40% of the Industries segregate waste at the point of generation. | | |

**Strategy 2: Identify options for waste reduction for all identified key sectors**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Conduct waste audits<br>2. Identify waste reduction options<br>3. Develop guidelines<br>4. Monitor performance<br>5. Revise the plans accordingly | NCPC<br>LAs,<br>Chambers<br>CEA<br>Relevant Organizations<br>MENR and CEA<br>Relevant Ministries | Key sectors for waste reduction identified<br>Rubber related Industries<br>Eco friendly packaging policies | Mass awareness implemented<br><br>Guidelines developed for environmentally friendly alternatives for packaging and disseminate information for implementation in all sectors<br>80% reduction/reuse/recycle/recovery of wastage in fisheries and | Awareness continued<br><br>100% replacement of non degradable alternatives with degradable |

| | | | | |
|---|---|---|---|---|
| 6. Implement in all sectors | | established – reduce the use of shopping bag and lunch sheets<br><br>Pilot projects for key sectors – eg: fishery, agricultural post harvest implemented | agricultural sectors | products<br><br>90% reduction of wastage in all sectors |

**Strategy 3: Promote recycling and processing as a profitable business**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Identify and register the informal sector | LA, Provincials and CEA | Waste collection networks established at local authority level<br><br>Informal sector that need assistance inn mainstreaming identified and registered | Informal waste collectors mainstreamed.<br><br>Recycling industries that need assistance in market development identified and assisted | Public private partnerships for recycling established as appropriate |
| 2.Establish a waste collection network | LA, Provincials NERD, MoST | | | |
| 3.Identify and assist the industries the industries that engage in recycling | LA, Provincials & relevant National Institutes NPA EDB | | | |
| 4. Establish public private partnership for recycling as appropriate | | | | |
| 5. Develop policies to promote government to procure locally recycled products | | | | |
| 6.Create opportunities to export the recycle products | | | | |

**Strategy 4: Promote Cleaner Production, waste audits ISO 14,000 and similar voluntary and mandatory measures**

**Make mandatory to appoint a Qualified Environmental officer to investigate in industries with employees more than 200 or A category industries**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1.Develop policy and implement on pointing a officer in charge for industries | | | | At least 30% industries obtained ISO 14,000 |
| 2. Conduct waste audits | | 20% industries annually conduct waste audits | 50% industries conducting waste audits | |
| 3. Develop action plans | MENR | 50% of the industries will have an action | Generation of waste in industrial and | |

| | | | | |
|---|---|---|---|---|
| | | plan in place to implement waste reduction practices | service sectors will be reduced by 20% | |
| 4. Establish a mechanism for green labeling | CEA, | Green Labeling introduced | | |
| 5. Monitor and evaluate the performance | NCPC<br>Relevant institutions<br>SLSI | | | |

**Strategy 5: Promote recycling industries utilizing locally available raw material, Mark a symbol for all recycled products**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Establish a sustainable mechanism to assist Industries | Mo S&T | Transfer of technology to improve the quality of recycled paper and plastic industries | 25% reduction in importation of recycled goods and raw material | 75% reduction in importation of recycled goods and raw material |
| 2. Develop systems for continuous flow of locally available supply of raw material | SLSI | | | |
| 3. Conduct a base line survey and situation analysis on imports and exports of materials | CEA | | | |
| 4. Impose restrictions of importation of recycling materials | NCPC<br>Customs, Dept Export Control<br>CEA & Customs | | | |

**Strategy 6: Establish mandatory standard for recycled products.**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Standards and laws established for food grade products | | Standards and laws established for food grade products | Mandatory Standards in place for all recycled products | |
| 2. Introduce a symbol to identify recycled products and food grade | SLSI, Consumer Affairs | | | |

| | | | | |
|---|---|---|---|---|
| plastics | | | | |
| 3. Monitoring and prosecution | | | | |

**Strategy 7: Promote Market opportunities for local paper, glass and plastic recycling industries**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Introduce a proper collection mechanism | | A system for recognition and promotion of locally recycled products established<br><br>40% of government procurement of locally recycled products such as paper, plastic, glass<br><br>Standards and laws will be established for food grade products<br><br>Proper collection mechanism established | 60% government procurement of locally recycled products such as paper, plastic glass<br><br>Foreign/local markets available for recycling industries using locally recycled raw material and products | |

**Strategy 8: Promote reuse practices for plastic, paper and other products**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Create awareness at all levels to change attitudes to promote reuse practices | CEA,MENR ,NGOs & CBOs | Change of mind set in general public for reuse | | |

**Policy Statement: 2. Landfilling will be limited to non-recyclable, non compostable and inert material generated through the waste treatment process.**

**Strategy 1: Promote conversion of all short term biodegradable waste material into compost and promote community participation to ensure sustainable composting**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Create awareness of the processes | | In 20% of MCs 30% of UC and 50% of PS short term biodegradable waste collected are treated aerobically/an-aerobically | In 30% of MCs 40% of UCs and 90% of PSs short term biodegradable waste collected are treated aerobically/an-aerobically | In 50% of MC and 100% of UCs short term biodegradable waste collected are treated aerobically/an-aerobically |
| 2. Encourage people and carry out the activities | | | | |
| 3. Facilitate implementation and address the trouble shooting | | | | |
| 4. Establish infrastructure facilities | Mo Agriculture<br><br>LAs, Provincials<br><br>MENR, MoAgri, MoLG,CEA<br>LAs, Provincials | | | |

**Strategy 2: Actively promote private-public-NGO partnerships for composting**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1 Establish partnerships | | Public, private, NGO partnerships established at 30% LAs | Continuation of partnerships 40% ensured | 50% |
| . Facilitate sustainability MENR | | | | |
| Promote household and commercial composting through appropriate incentive schemes.<br>Promote the usage of compost barrels | MENR, LAs | Increasing the number of households having compost barrels and other material increased by 10 % | 30% | All households will have individual compost bins/systems or will have joined a community scheme or a central composting system |
| Develop a | | Introduce | | |

| | | | | |
|---|---|---|---|---|
| sustainable mechanism of manufacturing and promoting compost barrels at affordable cost | | incentive schemes | | |
| Develop a incentive scheme | | 20% possibility Quality control standards established, Guidelines prepared | 30% | 50% |
| Develop a system to address the trouble shooting issues | MENR and Ministry of Finance MENR & Mo Finance | Labeling system established | | |

**Strategy 3: Promote the usage of composting where ever possible**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1 Introduce a subsidy to promote utilization of composting | Mo Agriculture, Mo Finance,, Mo Plantation, Mo LG & PC | | | |
| 2. Develop a data base and maintain a register | DAO & Dept of Agrarian Services | | | |
| 3. Establish and implement a quality control mechanism for composting | SLSI, Paddy & Tea Research Ins. SLSI | | | |
| 4. Introduce a labeling system | MENR | | | |
| 5. Establish a coordination mechanism to coordinate and promote organic farming island wide | | | | |

**Strategy 4: Facilitate environmentally sound, economically feasible appropriate waste treatment technologies to treat all non-biodegradable waste**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Identify waste streams | | Appropriate waste treatment technologies identified to suit all MCs to minimize the | Appropriate waste treatment technologies determined and grouped to minimize the | |

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|---|---|---|---|---|
| | | amount of non-biodegradable waste entering the landfill | amount of non-biodegradable waste entering the landfill | |
| 2. Identify suitable technologies to suit each waste stream | | | | Triplicate best practices and lessons learnt |
| 3. Transfer technologies | CEA | | | |
| 4. Establish facilitation mechanism and evaluate monitoring | NCPC, NERD, CEA, Chambers MENR & CEA | | | |

**Strategy 5: (Introduce BAT/BEP for landfill sites as appropriate for Sri Lankan conditions.)**

**Carryout identified pilot projects**

| **Activities** | **Responsibility** | **Short Term – 0- 2 year** | **Medium Term – 3-5 years** | **Long Term– 6- 10 years** |
|---|---|---|---|---|
| 1. Carryout identified pilot projects | | | | |
| 2. Prepare guidelines | | Designs and guidelines for Landfills and Transfer stations using Best Available Technologies Not Entailing Excessive Costs (BATNEEC) developed and used | | |
| 3. Design model Landfills, including Environmental protection centers | | BAT/ BEP practices introduced based on the lessons learnt | | |
| 4. Identify suitable sites | CEA | | | |
| 5. Implement | CEA, Universities NCPC | | | |

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| | CEA, LAs,<br>CEA | | | |

**Strategy 6: Promote rehabilitation, decontamination of past dump sites for reuse.**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Select suitable dumpsites | | A methodology developed & implemented for a selected sites on priority basis | Implementation of pilot scale programs | Continued implementation |
| 2. Develop guidelines | CEA, LAs | | | |
| 3. Develop a implementation mechanism | CEA | | | |
| 4. Facilitation | MENR,CEA | | | |
| 5.Implement and monitoring | CEA | | | |

**Policy Statement: 3. Development and implementation of sectoral policies in line with the National Policy will be made mandatory**

**Strategy 1: Establish policies, strategies, action plans as appropriate for the Provincial and Local government levels, within the National Policy framework**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Develop policies, strategies and Action Plan with stakeholder participation | | Provincial level policies developed | Enforcement mechanism established and implemented | Review and ensure sustainability |
| 2. Develop implementation mechanism on pilot basis | MENR & Sectoral line Ministries | MENR | | |
| 3. Monitor and revalidate | CEA, MENR | | | |
| 4. Replicate | MENR, CEA Provincials, LAs, relevant Institutions | | | |

**Strategy 2: Develop and implement SWM policies for all economic sectors such as fisheries, industries, healthcare, tourism, agriculture**

| Activities | Responsibility | Short Term – | Medium Term – | Long Term– 6- 10 |
|---|---|---|---|---|

| | | 0- 2 year | 3-5 years | years |
|---|---|---|---|---|
| 1. Waste audits in each sectors | | | | |
| 2. Develop policies under the leadership of particular sector with participation of all stakeholders | MENR, NCPC | Healthcare waste mgt policy<br>Fisheries waste mgt Policy<br>Industrial waste mgt policy<br>Agricultural waste mgt policy developed | | |
| 3. Implement the policy | MENR | | Policy implementation initiated and continued | Policy implementation Review and ensure sustainability |
| 4. Monitor and revalidate | CEA, | | | |
| 5. Replicate | MENR | | | |

**Policy Statement: 4. Importation of all types of post consumer waste will be prohibited**

**Strategy 1: Fully enforce a ban on importation of post consumer waste to Sri Lanka**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Identify waste streams | | A ban on contaminated industrial waste enforced | | |
| 2. Develop policies and regulations | | | | |
| 3. Develop a implementation mechanism | CEA, MENR | | | |
| 4. Develop a liability and compensation | Mo Finance | | | |
| 5. Establish an enforcement mechanism | MENR, CEA | | | |
| 6. Build capacity in analyzing | MENR, MoST | | | |

**Policy Statement: 5. Institutional strengthening and capacity building needs of stakeholders with special emphasis on Local Authorities will be addressed to promote effective waste management**

**Strategy 1: Identify the needs of the stakeholder institutions through a need assessment on a regular basis**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Strategy 2: Establish mandatory requirement for all LA's to develop Plans with time targets and their implementation**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Strategy 3: Identify and facilitate the collaboration between private/NGO and public-participation for integrated SWM**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Policy Statement: 6. Hazardous biomedical healthcare waste will be managed so as to prevent environmental contamination and to minimize the risks to public and eco systems**

**Strategy 1: Make mandatory source segregation of Healthcare waste**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Strategy 2: Establish and implement a regulatory mechanism and monitoring systems**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Strategy 3: Establish mandatory requirement for treatment of waste to convert healthcare waste in to non infectious material before final disposal or discharging**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
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**Strategy 4: Establish final disposal for HCW**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Strategy 5: Promote voluntary EMS measures**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
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**Policy Statement: 7. Institutional mechanisms will be established to prevent hazardous biomedical/healthcare waste entering the municipal waste stream**

**Strategy 1:** Establish institutional mechanisms at all healthcare institutions to ensure that waste is treated and disposed by an authorized facility, with a monitoring mechanism

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Strategy 2: Assign Public Health Inspectors to HCWM Units at all national and teaching hospitals**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
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**Policy Statement: 8. Public safety will be ensured through appropriate liability and compensation mechanisms**

**Strategy 1: Establish liability regimes to arrest deterioration of sanitary conditions and aesthetic value of public places**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Identify problematic areas and legal requirements | | Appropriate regime will be established and identified | Laws and regulations will be formulated and implemented | Monitoring and evaluation mechanisms established and operational |
| 2. Develop liability and compensation | | | | |
| 3. Mechanism to address those areas | | | | |
| 4. Develop legislation and implementation mechanism | MENR, CEA, UDA, | | | |
| 5. Secure stakeholder commitment for | LAs, Provincials MENR, CEA, Provincials | | | |

| | | | | |
|---|---|---|---|---|
| implementation | UDA<br><br>MENR, CEA | | | |

**Policy Statement: 9 Regular monitoring and evaluation systems will be established to ensure system improvement**

**Strategy 1: Introduce a benchmarking program that will link to national information and reporting system.**

| **Activities** | **Responsibility** | **Short Term – 0-2 year** | **Medium Term – 3-5 years** | **Long Term– 6-10 years** |
|---|---|---|---|---|
| Identify appropriate benchmark at all levels | MENR, Chambers<br>MENR, CEA<br>Chambers<br>MENR, CEA, Chambers & relevant Ministries | Information flow established<br>A monitoring and evaluation mechanism coupled with bench marks will be established at appropriate institutions at national, provincial and local authority level | Reporting system developed and implemented<br>System evaluated on MCs and UCs on pilot scale<br>Formulate final recommendations and policies | |
| Establish a Monitoring and evaluation system | | | | Extended evaluation system in all other institutions |
| Monitor performance ,and take corrective actions to achieve targets | | | | |
| Document and publish best practices and lessons learnt periodically | | | | |

**Strategy 2: Establish and maintain register of public grievances at local authorities**

| **Activities** | **Responsibility** | **Short Term – 0-2 year** | **Medium Term – 3-5 years** | **Long Term– 6- 10 years** |
|---|---|---|---|---|
| 1. Establish a mechanism to receive grievances | | | Refine and finalize the system according to the findings | |
| 2. Develop a categorization | MENR, Mo LG | | | |
| 3. Maintain a register and prioritization | MENR, MoLG at all levels | Pilot scale registration system developed, implemented and evaluated on trial basis | Register of public grievances will be established and maintained at local authority level | |
| 4. Nominate a suitable officer in this subject | | | | |

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|---|---|---|---|---|
| 5. Take appropriate actions and disseminate information where necessary | Suitable Institution<br><br>At all levels | | Analyze the grievances, take appropriate actions and publish/disseminate information regularly | |

**Policy Statement: 10 Annual performance reporting and effective monitoring mechanism will be set in place at local authority level**

**Strategy 1: Establish an annual performance reporting and evaluation system along with a rating system**

| **Activities** | **Responsibility** | **Short Term – 0-2 year** | **Medium Term – 3-5 years** | **Long Term– 6-10 years** |
|---|---|---|---|---|
| Identify appropriate areas to make awards at all levels | MENR, MoLG, CEA | A performance appraisal system developed | | |
| Establish a transparent evaluation criteria | MENR, MoLG, CEA | Publish best practices and lessons learnt on current practices | | |
| Awarding system at all levels | MENR, MoLG, CEA | | A reward system formulated and implemented for prioritized sectors | System evaluation for improvement in place |

## Action plan for the strategies on Capacity Building, Research and Development

**Policy Statement 11: Awareness, education, training and capacity building on integrated waste management will be promoted at all levels.**

**Strategy 1: Active promotion of Awareness, education, training, competitions and capacity building programs at national, provincial and local authority and GN division level, for all target groups on ISWM**

| **Activities** | **Responsibility** | **Short term 1-2 years** | **Medium term 3-5 years** | **Long term 6-10 years** |
|---|---|---|---|---|
| **1.Create modules for awareness and communicating**<br>1.1) Organizing a committee at national level<br>- Selection of committee members from district level in collaboration with provincial council.<br>- Workshops or training for the committee | | | | |

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|---|---|---|---|---|
| members at national level.<br>- Establish a committee at district level.<br>- Workshops or training for committee members at district level.<br>- Workshops or training for local authorities/local committee members.<br>1.2) Preparing modules with the contribution of members from different level.<br>(a) Public<br>• Seminars at local GND level<br>-Situational analysis and preparations<br>-Preparing modules and contents for seminars.<br>-conducting seminars(two days)<br>• Street drama at local level for public<br>-Formulation of scripts for drama<br>- Selection of actors<br>-Conducting dramas<br>-Training and display.<br>(b) Students<br>• Seminars at school level in local<br>-Situational analysis and preparations<br>-Preparing modules and contents for seminars.<br>-Conducting seminars(two days)<br>• Competition in schools.<br>-Competitions at local level.<br>-Competitions at district level<br>-Competitions at national level.<br>(c) Government officers<br>• Workshops for officers at national Ministry level. Workshops for officers at provincial Ministry level.<br>• Workshops for local level officers | | | | |

| | | | | |
|---|---|---|---|---|
| • Competitions among local Authorities<br>-Competitions in provincial level<br>-Competitions at national level.<br>(d) Academics<br>• Workshops for university academics.<br>• One national workshop for vice chancellors.<br>• Three national workshops for faculty deans<br>• 15 university level workshops for academic and non academic staff and students.<br>(e) Media<br>• 5 national level workshops for media people.<br>(f) Industries<br>• Seminars for industrial people.<br>-National level three programs for heavy industries.<br>-Five district level programs.<br>Three local level programs for medium and small scale industries.<br>(g) Preschools<br>(h) Preparing hand bills and posters etc in national level and distribute at local level.<br>1.3 Implement and monitor systems established<br>1.4 Monitor and evaluate | | | | |
| | | First 2 months in first year | | |
| | | Second 2 months in first year<br>Fifth one month of first year<br>Seventh one | 9th one month of third year.<br>from 10th month to 11th month of third year<br>from 12th month of third year to | |

| | | | | |
|---|---|---|---|---|
| | | month of first year<br>From 8th to 9th months of first year.<br>From 9th month of first year to 3rd month of second year.<br>Fourth month of second year.<br>From fifth month to 7th month of second year.<br>From 8th month of second year<br>From fifth month of first year to eleventh month of first year.<br>12th month of first year to 5th month of second year<br>6th month of second year to 12th month of second year. | 12th month of 4th year.<br>8th month in third year | |

| **Activities** | **Responsibility** | **Short term 1-2 years** | **Medium term 3-5 years** | **Long term 6-10 years** |
|---|---|---|---|---|
| 2. Include the subject of ISWM in school/ university curricular and practical guides<br>2.1 Implement and monitor systems established<br>2.2 Monitor and evaluate | | | | |
| **3. Target awareness programs to be implemented in the areas of ISO, CP,Green Procurement for relevant stakeholders**<br>3.1 Implement and monitor systems established | | | | |

| | | | | |
|---|---|---|---|---|
| **4 Implement EMS initiatives in business (Corporate social responsibility activities to be EMS initiative)**<br>4.1 Implement and monitor | | | | |
| **5. Development of Communication strategies and action plans** | | | | |
| **6. Development of awareness strategy** | | | | |
| **7. Development of comprehensive training and education** | | | | |

**Policy Statement: 12 Research and Development will be encouraged and promoted at appropriate levels.**

**Strategy 1: Promote better collection, storage and transport, recycling, and treatment technologies to enable ISWM will be developed to suit country needs.**

| Activities | Responsibility | Short term 1-2 years | Medium term 3-5 years | Long term 6-10 years |
|---|---|---|---|---|
| 1.Establishment of an expert committee on Research<br>• Selection of experts<br>• Establish a committee<br>• Prepare a manual and guideline for data<br>• Establish a data bank<br>• Priority settings | | | | |
| 2. Need identification and priority setting established | | | | |
| 3. collection of existing data and dissemination | | | | |
| 4. A network developed for dissemination of research findings and information operational at national level and provincial level.<br>• Conduct seminar and workshops<br>• Prepare bills, guidelines, documentary, Training etc. | | | | |
| 5. Data banks established | | | | |

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|---|---|---|---|---|
| at national level and provincial level. | | | | |
| 6 A network for dissemination of research findings and information operational at district, local and GN level Monitoring and evaluation. | | | | |
| 7. Data banks established at district, local and GN level systematic improvements | | | | |
| 8. Exchange programs for scientists/ stakeholders established to obtain technical knowledge | | | | |
| 9. Exchange programs operational within country outside the country | | | | |
| 10. Monitoring and evaluation | | | | |

**Strategy 2: Introduce a grant scheme for individuals and organizations to develop solutions for waste reduction and recycling**

| **Activities** | **Responsibility** | **Short Term – 0- 2 year** | **Medium Term – 3-5 years** | **Long Term– 6- 10 years** |
|---|---|---|---|---|
| 1.The grant scheme in place & operated on pilot scale<br>• Formulation a scheme<br>• Selection of priority to conduct pilot program<br>• Disbursement of grant<br>• Promotion of new inventions<br>-Formulation of new criteria in scheme<br>-Call to interested parties<br>-Provide grant | | | | |
| 2.State assistance to promote new inventions on ISWM & operational at district and local level<br>• Research: Identify a research group<br>• Develop a program :<br>Developing a mechanism: Publicity, selection and grant | | | | |

**Strategy 3: Investigate opportunities to develop value added composting to facilitate commercial returns**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1.A research and development programme implemented for composting | | | | |
| 2 Develop a mechanism to promote Government assistance | | | | |
| 3 Recognition to promote new inventions on composting | | | | |
| 4 Popularization, | | | | |
| 5 Monitoring and evaluation | | | | |

**Strategy 4: Facilitate quality improvement for local paper, glass and plastic industry to be in line with the recycled products in developed countries**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1.Local and foreign technology transfer on quality improvement for existing industries Technology transfer through seminar workshops, and competitions<br>• Implemented with the collaboration of government<br>• Implement with the collaboration of private sector. | | | | |
| 2 Scheme for motivation of new inventions. | | | | |
| 3 Establishment of a grant scheme for new inventions for commercialization. | | | | |

**Strategy 5: Disseminate BAT and BEP on ISWM through National & Provincial local and GN level involvement**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1 Appropriate BAT/BEP Technologies will be identified | | | | |
| 2 Action plan for transfer | | | | |

| | | | | |
|---|---|---|---|---|
| developed | | | | |
| 3 Implementation of BAT/BEP for industries | | | | |
| 4 BAT/BEP for agricultural sector | | | | |
| 6 BAT/BEP for fisheries sector | | | | |
| 7 BAT/BEP for informal sector | | | | |
| 8 BAT/ BEP for other priority sectors | | | | |

**Strategy 6: Regulate Waste arising from importation failures**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1 Develop new guide lines and regulations for importation failures | | | | |
| 2 Develop standards for importers | | | | |
| 3 Establishment a system for educating customs officers | | | | |
| 4 Establishment a system for educating traders | | | | |
| 5. Establish regulations and system for reduction of importation failures Monitor, evaluation, improvement | | | | |

**Policy Statement 13: Best Available Technologies (BAT) and Best Environment Practices (BEP) will be transferred to all sectors including informal sector.**

**Strategy 1:**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
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## Action plan for the Strategies on Institutional Arrangements

**Policy Statement 14 : Responsible public-private and community partnership will be promoted at appropriate level for service provision while recognizing that the SWM retains with local authorities as defined by the respective laws in the present context.**

**Strategy 1: Establish an enabling environment at Provincial and Local Government Levels to promote responsible public-private and community partnerships**

| **Activities** | Short Term – 0- 2 year | **Medium Term – 3-5 years** | **Long Term– 6- 10 years** |
|---|---|---|---|
| 1.Policies at sub national levels established to enable PPP and community partnerships<br>Pilot scale implementation in selected local authorities provided the above is achieved | Submission of joint-Cabinet Paper to establish 'National Pilisaru Platform' – before end of January (MENR/MLGPC)<br><br>Development of the Sub national policy – within the 1st Quarter of 2008 -(PCs facilitated by NPP)<br><br>Issue circular instructions to PCs & Las – within February 2008- (MENR/MLGPC/Treasury)<br><br>National Awareness Building workshop for stakeholders on PPP Principles – MAY 2008- (MLGPC/MENR/Treasury)<br><br>Develop & issue guidelines on PPP to Las by PCs – before end of September 2008 – (PCs)<br><br>Identification of prospective originations for PPP – till end of March 2009 (PCs & Las)<br>Selection of prospective Las for Pilot Project – at least 5 projects per province - April, May 2009-<br><br>Implementation of PP- before end of the Year | | |
| 2. A mechanism established to register potential private sector service providers, CBO/NGO with accountability clauses for integrated SWM | | Identification of prospective CBO/NGO & private sector organizations – till 31st May 2010 – (PCs & LGs | |

| | | | |
|---|---|---|---|
| | | facilitated by NPP)<br><br>Registration – till end of 2010 | |
| 3. Monitoring and evaluation | | | By Provincial Waste Management Authorities, PCLGs |

**Strategy 2: Facilitate implementation of partnership arrangements**

| **Activities** | Short Term – 0- 2 year | **Medium Term – 3-5 years** | **Long Term– 6-10 years** |
|---|---|---|---|
| 1. BOO, BOT, Turn key and other relevant Model contractual agreements developed or followed if already developed<br>2. Review existing contracts for modification and Pilot scale implementation | | Situation analysis for stock taking of available initiatives- before end of June 2008- (PCs & Las**)**<br>Review the available agreements & introduce necessary changes & finalization – before end of December 2010 (PCS & Las)<br><br>Development of the Model agreements ratified by the NPP – before end of March 2011 –(MENR/PLGPC)<br>National level implementation | |

**Strategy 3:** Identify Land in each local authority level for treatment and/or disposal of SW and develop in urban/physical planning

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1. At least one suitable central treatment/disposal site for each province will be identified | Stocktaking – first six months 2008 (PCs & LGs)<br><br>Field verifications - & identification of land ownership – before end of the year 2008- PCs &LGs<br><br>Acquisition of lands & make availability – before end of 2010- (MENR/MLGPC/Land Ministry & PCs) | | Monitoring, Guidance & facilitation , Evaluation (PWMA/EA & CLGs) |
| 2. At least one suitable treatment/ disposal site for each district will be identified. | | Stocktaking –first six months 2010 (PCs & LGs)<br><br>Field verifications - & identification of land ownership – before end of the year 2010- PCs &LGs<br><br>Acquisition of lands & make availability – before end of 2011- (MENR/MLGPC/Land Ministry & PCs,ACLGs) | |
| 3. Facilitate to provide treatment/processing for each local authority level | | | Stocktaking –2013- LAs & ACLGs)<br><br>Field verifications - & identification of land ownership – 2013- Las & ACLGs facilitated by NSWMFC<br><br>Acquisition of lands & make availability MENR, |

MPC&LG, Land Ministry & PCs,ACLGs)

**Policy Statements 15: Social and corporate responsibility and accountability towards solid waste management will be ensured.**

**Strategy 1: Encourage all public and private enterprises to ensure corporate social responsibility towards waste management**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1. ISWM incorporated as a corporate social responsibility in corporate plans | Awareness creation – by June 2008 – (MENR/MLGPC\ Chamber of commerce & Industries)<br><br>Issue national circular highlighting the befits to cooperate sector –by December 2008-(Chamber of commerce & Industries)<br><br>Explore the possible amendments to incorporate waste management in private sector organizations-Before end of 2008-NPP) | | |
| 2. 'Green award schemes' at national level established and implemented | | Awareness creations on cleaner production principles-2010-NPP<br><br>Prepare National guidelines (Selection criteria)–End of December 2010-(NPP expertise group)<br>Establishment of National award fund-2011-(NPP)<br><br>Selection & awarding- | |

| | | | |
|---|---|---|---|
| 2. Affiliate to an international rewarding systems. | | Before December 2012 Develop linkages with International Environmental awarding agencies -2012-NPP | |

**Strategy 2: Introduce a new socially responsible culture at all levels to ensure effective ISWM**

| **Activities** | **Short Term – 0- 2 year** | **Medium Term – 3-5 years** | **Long Term– 6- 10 years** |
|---|---|---|---|
| 1. Indicators to determine social responsibility developed and tested | All National Ministries, Departments and statutory bodies resort to IWSM subject to a circular issued by M of public Administration facilitated by NPP-6 months-by June 2008<br>All provincial level organizations resort the IWSM-by end 2008<br><br>The private sector organization to resort the IWSM-September 2008-Chamber of commerce<br><br>Initiatives to mobilize public through CBO/NGO through effective media campaign-2 years-NPP/CLG | | |
| 2. Appropriate rewarding schemes to recognize socially responsible institutions, citizens and community groups established | | Awareness creation at National level on rewording scheme-By June 2010-NPP<br><br>Prepare National guidelines (Selection criteria)–End of December 2010-(NPP expertise group)<br><br>Establishment of National award fund-2011-(NPP)<br><br>Selection & | |

| | | | |
|---|---|---|---|
| | | awarding of awards annually at National, Provincial, local & community levels- Before December 2012 | |
| 3. Monitoring evaluation and dissemination of information Replication (up scaling) of good practices | | | Replication of the award scheme on annual basis |

**Strategy 3: Create an institutional mechanism or arrangement to sustain the social responsibility towards ISWM**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1. Establish institutional mechanism | Appoint \assign the responsibility for a specific positions to deal with ISWM in all institutions having more 25 employees-by end 2008-NPP<br><br>Organize community through NGOs & CBOs through IWSM-2008-2010-NPP | | |
| 2. Island wide implementation | | Ensure effective implementation through CLGs &ACLGs | |
| 3. Monitoring, evaluation for further improvement (by Chamber of Commerce) | | | Consolidation of the CSR by chamber of Commerce through introducing ammmentments to CEA Act |

**Policy Statement 16: Institutional frameworks for sound wastes management will be strengthened through improved inter agency co-ordination and empowerment of civil society groups.**

**Strategy: 1 Ensure horizontal integration in ISWM through an Apex body at national level to provide overall national coordination and policy guidance and program facilitation through resource mobilization**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1. An Apex body will be instituted with a specified TOR, Co- chaired by the Ministries in charge of the | Submission of joint-Cabinet Paper to establish 'National Pilisaru Platform' – | | |

| | | | |
|---|---|---|---|
| subject of Local Government and Provincial Councils and the subject of Environment to ensure sustainable waste management | before end of January (MENR/MLGPC)<br><br>Prepare the TOR defining the Ralls & responsibilities –before end of January | | |
| 2. Mechanism established to facilitate and monitor the system | | Evaluation by an independent panel appointed by both ministers(this should go to the TOR)- Hon.Ministers of MPC&LG & MENR | |
| 3. Monitoring and evaluation of activities | | | Periodical evaluation continues |

**Strategy 2: Ensure vertical integration**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|
| 1. Provincial level steering committee chaired by Chief Secretaries LA level operational committees established | Appointment of the committee with the concurrence the Board of Ministers – by June 2008 (Provincial Secretary to Ministry of Local Government)<br><br>Prepare the TOR defining the Ralls & responsibilities –before end of June 2008 | | |
| 2. Periodical CLG level progress level committees convened | | Convening bi-monthly progress review meetings with Heads of Las & ACLGs | |
| | | | Periodical evaluation continues |

**Strategy 3: Solicit assistance of Expert Senior Citizens/professionals for mobilizing community based solid waste management programs**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|
| 1.Expert senior citizens/professionals will be mobilized at local authority level | Identify prospective individuals at local authority level through open invitation –by June 2008- LA Councils<br><br>Registration of selected individuals | | |
| 2. Introduce incentive schemes for genuine implementers | | Development of criteria for rewarding Mobilize incentives in terms of provisions available in the Municipal ordinance –Council of LA | |
| 3. Monitoring and evaluation of activities | | | Periodical monitoring & evaluation by a group of councilors appointed by the Council/ Independent Panel |

# Action plan for the Strategies on Financial Mechanisms

**Policy Statement: 17 Sustainable financing mechanisms shall be made mandatory to ensure the sustainability of solid waste management programmes. (Capital)**

Strategy 1.: Establish a requirement for a comprehensive Business Plan for SWM projects to be eligible for funding.

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Identification and establishment of project eligibility criteria and sustainability criteria for projects on ISWM | MENR, MPCand LG | 2008 | | |
| 2 Develop project proposal format with guidelines, (including evaluation of alternative technologies etc.) | MENR, MPCand LG | 2008 | | |
| 3. Develop a hand book on possible technological alternatives, procurement private sector partnerships, types of available private -public partnerships | | | | |

| | | | | |
|---|---|---|---|---|
| 4 Develop project evaluation and monitoring criteria | Apex Committee | 2008 | | |
| 5.Appointment of an Project Evaluation and Monitoring Committee by the Apex Committee | Apex Committee | 2008 | | |
| 6. Develop the Monitoring Strategy and the institutional arrangement | **CEA** | 2008 | | |
| 7. Monitoring and Reporting to Apex Committee through CEA | CEA (Regional Office | 2008 | Continuation | Continuation |

**Strategy 2: Develop an appropriate mechanism to facilitate capital investments in ISWM**

| **Activities** | **Responsibility** | **Short Term – 0-2 year** | **Medium Term – 3-5 years** | **Long Term– 6-10 years** |
|---|---|---|---|---|
| 1. Establishment of the Environmental Fund | **MENR, M/Finance** | 1st Quarter 2008 | | |
| 2. Establish a procedure for provision of professional services in development of project proposals and their implementation | | | | = |
| 2.Develop performance criteria of project implementation and monitoring will be the basis of future funding from the Environment Fund | **Pilisary National Platform (Apex Committee)** | | 2010 | |
| 3. A mechanism established to monitor and evaluate the utilization of funds periodically and regularly | **Pilisary National Platform** | | 2010 | |
| | | | | |

**Strategy 3:** Encourage private sector within the LA to support on voluntary basis, with 'ISWM

| **Activities** | **Responsibility** | **Short Term – 0-2 year** | **Medium Term – 3-5 years** | **Long Term– 6-10 years** |
|---|---|---|---|---|
| Establish a partnership mechanism between the LA and the private sector chambers within the area; | | 2008 | | |
| Establish a regular coordinating mechanism and develop action plans for | | 2008 | | |
| Establish a monitoring and mediation mechanism (Asia Foundation) | | 2008 | | |
| Methodology to promote involvement of Jana Sabha | | 2008 | | |
| Develop and establish a mechanism to mainstream informal collectors ans recyclers | | **2008** | | |

Strategy 4: Establish mechanisms to make implementers accountable for project/ programme failures

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| | | | | |
| Strengthen Auditor General department for enforcement of the provisions available for maintenance of accountability in Local Authorities and Provincial Councils and other relevant agencies | | | 2010 | |

Strategy 5: Attract foreign funding for SWM

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| Strengthen the mechanism for finding viable donors | PC, MENR, MPCandLG | | | |
| Establish a Sub Group with a sustainable operation mechanism to develop project proposals and to seek possible donors | **National Pilisaru Platform (Apex Committee)** | | | |
| Establish proposal evaluation mechanism and a monitoring mechanism | **National Pilisaru Platform** | | | |
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**Policy Statement 18:**
**LAs shall ensure self-financing for waste management by effective revenue generation mechanisms**

**Strategy 1: Levied load based Service charges from generators of waste landfilled**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Develop/Amend building approval guidelines which requries SWM, based on which a service fee will be decided by the LA | **UDA** | Financial structure will be developed by the central government (based on act 6 of 1952- env provisions) | Implementation of the financial structure | |

| | | | | |
|---|---|---|---|---|
| 2Develop the financial structure for levying fees from existing establishment | M/PC and LG, MENR | | | |

**Strategy 2: Encourage voluntary initiatives from community and private sector for SWM**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|---|
| 1. Survey on potential experts and voluntary service providers | | | | **MENR** |
| 2. Establish a database and a networking mechanism with local authorities and experts. voluntary service providers | | | | **MENR, MPC and LG PCs** |
| 3. To provide soft loans for NGOs willing to assist local authorities in implementing community initiatives in SWM, and develop criteria for selection of potential partners | | | | **MENR, National Pilisaru Platform** |
| 4. Establish Welfare Funds within organizations to facilitate SWM | | | | **MENR, M/ Public Administration, M/Finance** |
| 5. Mobilize NGOs already involved in micro financing activities , for SWM | | | | |

**Strategy 3: Promote generation of revenue through recycling composting, and any other innovative programs**

| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. A Co-operative system established for local authority workers to collect, recycle and generate income from recycling | **M/PC and LG** | | | |
| 2. local authorities to provide necessary infrastructure facilities | **PC, LG** | | | |
| 3. Strengthen the SANASA recycling program | **Pilisaru National Platform** | | | |
| 4. Establish a mechanism to promote local recycling markets for paper, plastic etc | **Pilisaru National Platform** | | | |
| 5. Establishment of the mechanism for a continous | | | | |

| | | | | |
|---|---|---|---|---|
| supply chain for collection and transport of raw material for recycling | | | | |

**Policy Statement 19:**
**Appropriate financial incentive schemes will be explored and established to promote waste management**

**Strategy 1: 1 Implement annual performance awarding systems at appropriate levels**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| 1. Develop performance evaluation criteria for the Green Cities, Green Schools, Green Industries, with substantial financial awarded | Pilisaru National Platform | | | |
| 2. Establish the National Awarding Scheme | MENR, | | | |
| 3. Implement annual National Awards | | | | |

**Policy Statement 20:**
**Carbon financing as provided by Kyoto Protocol will be promoted as an incentive for promoting waste management practices in line with the existing Clean Development Mechanism Policy**

**Strategy 1: Facilitate Policy CDM in integrated solid waste management**

| Activities | Responsibility | Short Term – 0-2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|---|
| **1.** Develop the framework policy CDM for SWM projects to facilitate potential project identification and implementation | MENR, National Pilisaru Platform | | | |
| 2. Evaluate possibilities of utilizing the C Fund for implementation of SWM CDM projects | | | | |
| **3.** Develop national GHG emission baselines in SWM | | | | |
| 4. Develop criteria for selection of projects for Policy CDM | Local Authorities, private sector | | | |

| | | | | |
|---|---|---|---|---|
| Projects | | | | |
| **5.** identify potential project/sites to be implemented u | | | | |
| 6. Identify and develop technologies for cost effective methane recovery for CDM | Local Authorities, private sector | | | |
| 7. Implementation of projects on pilot scale | | | | |
| 8. Facilitate project implementation and a monitoring/evaluation mechanism | | | | |

**Strategy 2: Composting and anaerobic digestion with methane capture will be considered for carbon financing**

| **Activities** | **Responsibility** | **Short Term – 0- 2 year** | **Medium Term – 3-5 years** | **Long Term– 6- 10 years** |
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**Strategy 3: Generation of Energy from waste with high calorific value which cannot be further reused or recycled**

| **Activities** | **Responsibility** | **Short Term – 0- 2 year** | **Medium Term – 3-5 years** | **Long Term– 6- 10 years** |
|---|---|---|---|---|
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| Activities | Responsibility | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
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**Strategy 4: Promote methane capture from abandoned waste dumps**

# Action plan for the Strategies on Legal Mechanisms

**Policy Statement 21: The existing regulatory mechanism will be strengthened through appropriate legal reforms.**

**Strategy 1: Establish an enabling regulatory environment through review of existing legal instruments**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6-10 years |
|---|---|---|---|
| 1. NEA Provincial Council and Local Government laws, Police Ordinance and other relevant laws reviewed (6months) | Establishment of a Committee (by January 2008) | | |
| 2. Develop subsidiary laws such as regulations, rules, by-laws, orders, notifications under available provisions | Identification of relevant laws & relevant officials of enforcement<br>Develop amendments | | |
| 3. Introduce necessary Amendments to regulations (1 year) | Responsibility to all the above activities rest with a Committee appointed by the NPP | | |
| 4. Appropriate amendments/regulations established | | Obtain necessary approvals (Cabinet, LD, AG, Parliament)<br><br>Publish relevant new laws followed by awareness creation such as enforcement | |

| | | | |
|---|---|---|---|
| | | officers & general public including judiciary (relevant Ministries & Statutory Boards) | |
| 5. Ensure effective law enforcements | | | Inspection & initiating legal actions & publicity |

**Strategy 2: Review and update local government By-laws**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1. By-laws to be framed to address particularly for littering and dumping for Local Authorities. | Appoint a Committee<br>Maintain a database<br>Identification of issues & shortcomings such as ERR laws<br>Identification of relevant institutions<br>Preparation of general guidelines<br>Identification of specific guidelines & preparation of by-laws<br>Obtaining necessary approvals | | |
| 2. Strict implementation and dealing with non-compliance | | Enforcement & capacity building of the Enforcement officers<br>Awareness creation and publicity | |
| 3. Monitoring & Evaluation | | | Progress reviewing for improvement |

**Strategy 3: Introduce mandatory Extended Producer Responsibility provisions**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|

**Strategy 4: Issuance of license /permit etc to be streamlined incorporating incremental waste minimization**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1.Study the possibilities of introducing new laws<br>2. Make it an requirement to obtain necessary permits and building approvals | | | |
| 3. Convene forums | | | |
| 4. Identification of color codes and prepare guidines for color codes | | | |
| 5. Develop regulations under relevant laws | Implementation | Enforcement | Maintaining data and publicity |

**Policy Statement 22: Effective law enforcement will be ensured as means of maintaining the accountability of stakeholders.**

**Strategy 1: Establish an effective multi stakeholder enforcement network at national and provincial level and local authority level**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1.Appoint expert committee | | | |
| 2. Identification of responsibilities and relevant laws | | | |
| 3. Develop linkages among relevant agencies | | | |
| | | Progress review, identification of weaknesses | Develop incentive schemes |

**Strategy 2: Adopt the polluter pays principle**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1.Obtain data | | | |
| 2. Prioritize sectors | | | |
| 3. Identification of relevant laws and revise as necessary | | | |
| 4. Preparation of | | Implementation in | |

| | |
|---|---|
| methodology | pilot scale |

**Strategy 3: Introduce amendments to the relevant legislations in order to manage imported items turning waste (EPR)**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|
| 1. Obtaining existing data (cellular phones, computers) | | | |
| 2. Identification of existing laws and introduce amendments | | Pilot scale implementation | Ensure effective enforcement<br><br>Develop national level linkages for progress review |

**Policy Statement 23: Basel Convention commitments on trans-boundary movement of wastes will be honoured to fulfil Sri Lanka's obligations.**

**Strategy 1: Develop Regulations under the Import and Export Control act for the control of transboundary movement of hazardous waste in Sri Lanka**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|

**Strategy 2: Developed regulations under the NEA for internal management of hazardous waste**

| Activities | Short Term – 0- 2 year | Medium Term – 3-5 years | Long Term– 6- 10 years |
|---|---|---|---|