

## 5.3 Environmental Education Improvement

### a. Rationale

Recently in Sri Lanka, the amount of waste generated is rising caused by an increasing population and the waste composition is becoming complex due to the adoption of modern technology. SWM is a big burden that is beyond the capacity of LAs. Public cooperation is necessary to improve SWM. However, LAs do not understand how important public cooperation is nor know how to encourage people to cooperate because they do not have enough experience, proper materials or equipment to educate them.

Among the seven model towns, Chilaw, Matale, Nuwara Eliya and Badulla understood the importance of public cooperation and were very keen to educate their citizens. The Study Team evaluated that, in these towns, the need for and potential of environmental education were high. Hence, they decided to carry out environmental education improvement as a component of the pilot projects in those four towns. The environmental education improvement pilot project (EEIPP) mainly consists of the establishment of an environmental education centre (EEC) and implementation of an environmental education program

### b. Objectives

LAs, the executing bodies of SWM are responsible for the implementation of environmental education, which is necessary to encourage public cooperation. Environmental education should be continued until it shows obvious effects although this usually takes a long time. The objectives of the EEIPP were as follows:

- Capacity building of LAs, which is needed to carry out environmental education continuously.
- Verification of methods and materials which are understandable and effective for citizens.
- Preparation of a guideline for environmental education based on experience through the EEIPP to disseminate environmental education to other LAs.

The following education methods were promoted to LAs in the EEIPP:

- Education in the EEC
- On-site education

### c. Description

The following activities were conducted in the EEIPP to promote education in the EEC and on-site education.

- Establishment of the EEC

- Procurement of educational equipment
- Production of environmental education materials using the equipment
- Planning of an environmental education action plan
- Training of the counterparts through the production of educational materials and the execution of environmental education.

In order to increase the effectiveness of environmental education, it is necessary to include topics familiar to citizens and teach concrete actions which they can do at once. The following points were considered for the execution of the environmental education program.

- To produce educational materials with topics familiar to citizens and photographs of their area.
- To use audio-visual materials which make clear the important points and problems and are also easy to understand for anybody.
- To train LA counterparts so that they can manage the equipment provided to revise or reproduce the environmental education materials by themselves.

The EEIPP was one component of the pilot projects. The concepts of the EEIPP focused on the following points to support other components, such as the implementation of bell collection or waste minimization.

- LAs understand the necessity of public cooperation for improvement of SWM. The citizens, the generators of wastes, understand their responsibilities and participate in SWM in cooperation with LAs.
- LAs clearly inform the citizens of what actions they have to take to cooperate with LAs.

#### **c.1 Establishment of the Environmental Education Centre (EEC)**

The EEC was established in the four selected towns in order that citizens and school children learn about the environment especially related to problems caused by waste. The aim of the EEC is for it to be utilised by many people daily; therefore, places which are well-known, such as inside or in the neighbourhood of the municipal council building or public library, were selected for the centre. To cultivate a sense of ownership among LAs, the Study Team encouraged the counterparts, especially the DEO and PHI who are key persons for the EEIPP, to take a leadership role in deciding the design and function of the EEC.

#### **c.2 Procurement of Educational Equipment**

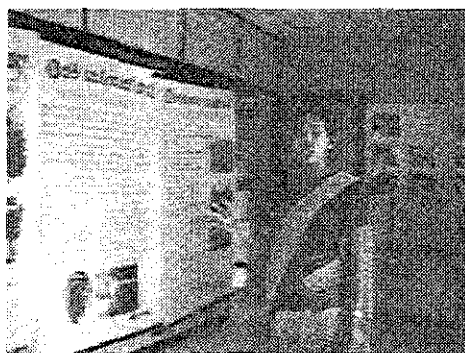
It is necessary for the EEC to be attractive and effective. The counterparts, mainly the DEO and PHI need to revise and/or produce educational materials in accordance with changes that occur in

the surroundings. They also need to include topics particular to their towns. For that reason, educational equipment was provided to MC and the Study Team trained the counterparts in equipment utilisation. The equipment provided is as follows:

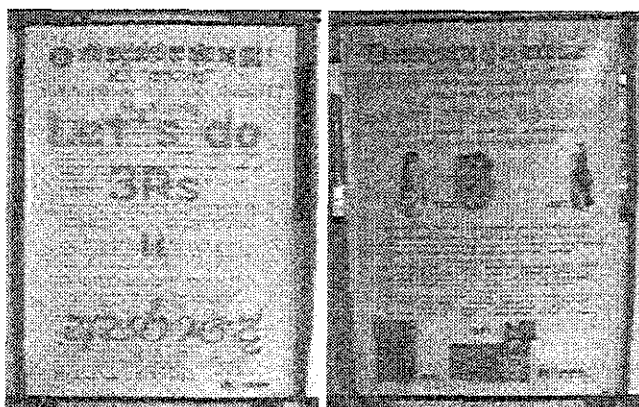
- Laptop PC 1
- Multimedia projector 1
- Screen 1
- Digital camera 1
- Printer(colour) 1

### c.3 Educational Materials

Movable educational banners and educational leaflets were produced by the counterparts with support from the Study Team. In order to ensure that the citizens take an interest in and easily understand the subject matter, many photographs were included in the educational materials. All photos were taken by the counterparts with a digital camera provided after the equipment training.



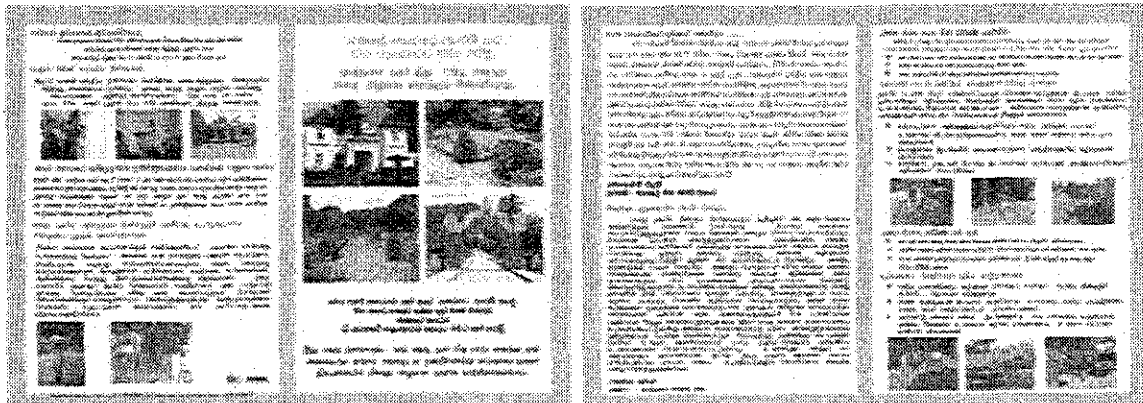
The educational banners were of a movable type so that they could be used for on-site education. Ten banners were provided for each town.



Educational banners: Explanation of the 3Rs (Left) and example actions to reduce waste (Right)  
To promote the 3Rs, the Study Team proposed "Aparade" in Sinhala ("Mottainai" in Japanese) as a slogan.

### c.4 Environmental Education Action Plan (EEAP)

The environmental education action plan (EEAP) was prepared to ensure that LAs utilise the EEC effectively and continue to educate people after the pilot project is completed. The meetings about the EEAP were held between the counterparts and the Study Team. Items to be covered in the environmental education program were selected and prioritised in the meetings. The main topics and target groups of each item were also decided. In addition, a yearly plan for 2004 with details such as responsible persons, equipment and material needed, and costs, was prepared to submit to the financial committee. It was important to prepare a realistic and sustainable plan for the counterparts. The Study Team encouraged all stakeholders, the Mayor, commissioner, PHI, DEO and CDO, to participate in the process, and to make decisions by themselves in order to arouse a sense of ownership. The EEAP in each town are shown in the ACTION PLAN report.



Topics such as the Mayor's message, the opening of the EEC, bell collection, and promoting the traditional recycling system were included in the educational leaflet.

**Educational Leaflet in Matale**

**d. Progress**

**d.1 Progress in Four Model Towns**

The environmental education improvement pilot project in Chilaw started in January 2003. In Badulla, Nuwara Eliya and Matale it started in May 2003. Before opening the EEC, procurement of equipment, training in equipment utilisation and educational materials production were done in preparation. The EEC in Badulla, Nuwara Eliya, and Matale opened on 21 August, 22 August, and 18 September 2003, respectively.

The Chilaw EEC was established first among the four towns. They did not have sufficient human resources to carry out the environmental education program. Therefore, much support from the Study Team was needed. In the other three towns which started the EEIPP later, the Study Team tried to develop their capacity by sharing the know-how Chilaw acquired through the EEIPP and giving minimum direct support.

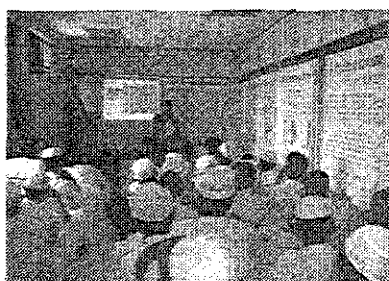
**d.2 Progress in Chilaw**

In Chilaw, training in equipment utilisation and educational material production was provided from January to the beginning of March 2003, while the counterparts prepared the environmental education plan with support from the The Study Team. The counterparts, especially the DEO, have been well trained. Since the EEC opened on 7 March 2003, they have been successfully operating the EEC and carrying out the environmental education program without much support from the The Study Team.

As of September 2003, the environmental education program in Chilaw is being continued effectively. UCC has focused on educating the community people who generate and discharge of waste. The DEO are utilising audio-visual equipment and materials properly to educate the people. Table 5-7 shows the progress of the environmental education program in Chilaw from March to September 2003.

Table 5-7 : Progress of the Environmental Education Program in Chilaw

Method		March after 7	April	May	June	July	August	Sep. (by 18)
Education in the EEC	Nos of activities	1	1	1	0	0	1	1
	Nos. of participants	41	41	17	0	0	10	18
	Nos of visitors	19	24	22	14	22	41	11
On-site education	Nos of activities	4	4	2	5	3	0	1
	Nos. of participants	176	107	51	268	111	0	34
Sramadana (cleaning campaign)	Nos of activities	0	2	0	0	3	2	5
	Nos. of participants	0	60	0	0	167	129	125
Total nos. of participants and visitors (persons)		236	232	90	282	300	180	188



Educational activity for school children in the EEC on 28 March 2003



Cleaning up campaign (Sramadana) on 25 April 2003. Many community people participated in the campaign to clean up road sides in their area.



Community activity as part of on-site education held on 28 May 2003.

The on-site education was going well, while the number of visitors to the EEC was quite fewer than expected. One main reason for the few visitors might be lack of time for the DEO. The DEO belongs to the CEA and has many other responsibilities other than the UC work. She cannot attend to the EEC full-time or spend much time to prepare attractive displays and activities for the EEC. The EEC is not so familiar to the citizens yet. To improve the situation, UCC assigned a permanent staff to the EEC as the DEO's assistant. The DEO has started training her assistant.

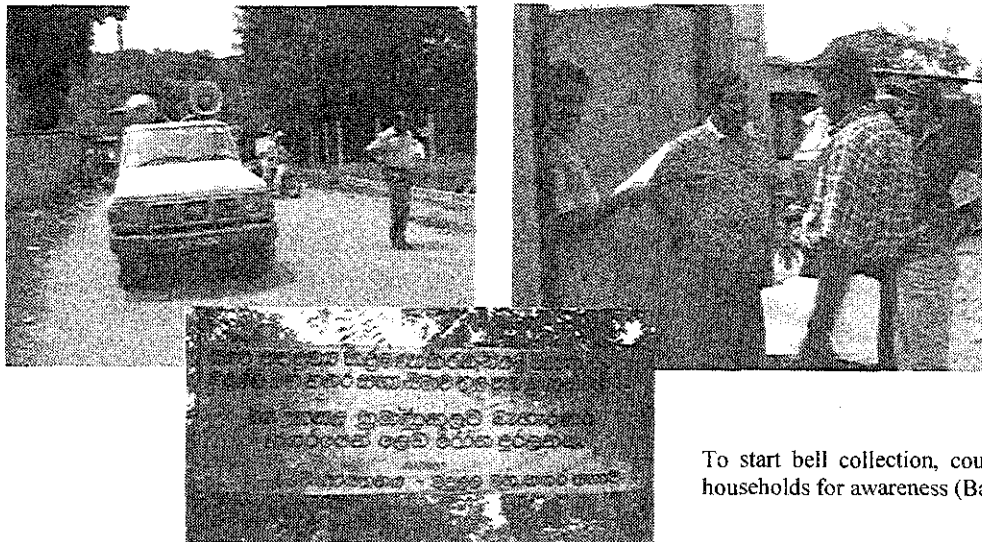
#### e. Effects of the Pilot Project

The main objective of the EEIPP is capacity building. The effects of the pilot project in regards to that are evaluated as follows.

- The organisation of UCC was fragile and their human resources limited. UCC was under the poorest conditions among the four towns for the EEIPP. However, now they are carrying out the environmental education program by themselves, without asking for much support from the Study Team as they did before. This shows that the EEIPP can be successful in many other LAs.

- In the other three towns, the Study Team considered giving them minimum technical support. The Study Team proposed only a basic idea to them or introduced the other town's case. This process encouraged active discussions among them to come up with their own ideas. The pilot projects in all three towns are going well without further support from the Study Team. If a guideline is available, many other LAs will also be able to start environmental education following the guideline without any special support.
- Each town is becoming active in promoting environmental education. They have developed original activities suitable to their areas. For example, Badulla MC started to promote jeeva kotu<sup>5</sup> and Nuwara Eliya MC held an educational activity for vegetable sellers. Since the counterparts were given educational equipment and trained in its use, they have been willing to do environmental education activities. Before starting the EEIPP, they did not know what to do for SWM, but now they are very busy carrying out and improving their environmental educational programs. The equipment provided is being utilised effectively. This is remarkable progress in capacity development.
- The Environmental Education Action Plans were prepared by the counterparts. They held discussions based on a draft idea suggested by the Study Team and modified it to suit the present condition in their towns. They also estimated a budget for the next year to submit to the financial committee. In Matale, a new budget including environmental education was established. This is a significant step towards a sustainable environmental education program.

The following pictures show the public education activity by Badulla MC for cooperation to the bell collection



To start bell collection, counterparts visited households for awareness (Badulla)

<sup>5</sup> Traditional method of home composting in Sri Lanka

## 5.4 School Recycling

### a. Rationale

Frustrated with the present waste situation in urban areas, an increasing number of people in Sri Lanka have been paying attention to recycling in recent years. In fact, several recycling projects which introduce source separation are carried out by NGOs and CBOs, but unfortunately those projects are embedded with a few defects. Those recycling projects are not financially sustainable, import a western style recycling system which does not suit the Sri Lankan situation, and discourage the existing recycling activities traditionally rooted in Sri Lankan society. However, this fact does not deny the importance of efforts towards resource recovery through recycling activities. What is needed is to introduce young children to the rather new concept and benefits of recycling and provide them with valuable hands-on experience.

As one of the pilot projects, school recycling was started in selected schools in the Gampaha Municipal Area with cooperation and collaboration among schools, GMC and the The Study Team. Gampaha, located near Colombo, was chosen because it has both more recyclable materials and better access to recycling markets through middlemen. An interesting feature of the project lies in the fact that although its main purpose is to educate the young generation on recycling, the financial sustainability has been considered at the maximum degree by involving local private recyclers. This is the first project of its kind in Sri Lanka.

### b. Objective

The objective of the project is to impart hands-on experience that introduces students to the new concept and benefits of resource recovery through recycling activities and encourages them to make recycling a part of their lifestyle, with special consideration to the financial sustainability of the project.

### c. Descriptions

Number of participating schools: Six schools located within GMA

Project period: After January 2003 (Collection of recyclables started after March 2003)

The Study provided the funds for building storages as in-school collection centres in each of the six schools. Students collect recyclables such as glass bottles and paper at home and bring them to school on one or more designated days monthly. Schools sell them to the local recyclers. The income generated can be used to buy necessary goods for schools.

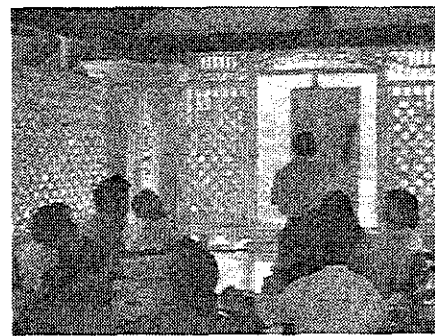
### **c.1 Steps to Get Started**

In order to get started, the following steps were taken by the The Study Team, GMC and participating schools.

### **c.2 Planning the project with GMC and selecting the schools**

Our survey<sup>6</sup> result reveals that GMA has both comparatively more recyclable wastes and good access to recycling markets through middlemen. Moreover, quite a lot of schools in GMA actively implement the environmental education program with support from an environmental officer in GMC. Therefore, we, both GMC and the The Study Team, decided to start long-term school recycling projects, which are the first of their kind in Sri Lanka, at six selected schools.

- Bandaranayaka National School
- Yashodaradevi Balika Maha Vidyalaya
- Keppetiola Maha Vidyalaya
- Gothami Kanitu Vidyalaya
- Sri Bodhi Kanitu Vidyalaya
- Chandrajothi Maha Vidyalaya



**Meeting to decide participating schools**  
Mayor, commissioner, environmental officer and other municipal officers participated the meeting and select six participating schools based of several criteria such as the size of school, location and etc.

### **c.3 Identifying the middlemen in GMA and selecting the recyclables to be collected by students**

Three middlemen were selected based on the middlemen survey<sup>7</sup>. The study team members and the environmental officer in GMC visited these middlemen and interviewed them about the materials which have adequate market values. This information was shared among the participating schools.

### **c.4 Appointing the teachers in-charge at each school**

Two to five teachers were chosen to be in-charge by the principals at each school. The distinctiveness of this project and system of collection were well explained to the appointed teachers.

### **c.5 Setting up a system for collecting recyclables**

The collection day and frequency suitable to each school were decided on by the teachers

<sup>6</sup> The survey in Gampaha Municipal Area under *The Study on Improvement of Solid Waste Management in Secondary Cities in Sri Lanka* was carried out in August and September in 2002.

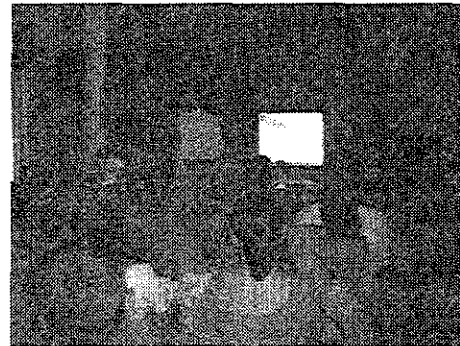
<sup>7</sup> One of the survey carried out in Gampaha Municipal Area under *The Study on Improvement of Solid Waste Management in Secondary Cities in Sri Lanka* in August and September in 2002.



in-charge. Some schools designated the day after the biggest assemblies as a collection day since it is easy to remind students of the collection day at the assembly.

#### **c.6 Awareness program for all teachers at each school**

The teachers in-charge organized an awareness program for all teachers at respective schools and invited the environmental officer and the The Study Team members to carry out the awareness raising program. It is worth mentioning that the frequent participation of the Mayor of GMC at these meetings ensures teachers' appreciation and reliability towards the very new school recycling projects.



[Awareness programs for all the teachers at each school]

Not only members of the study team, but also Mayor and an environmental officer from GMC participated and explained about the important features of the school recycling project.

#### **c.7 Awareness program for students**

The teachers in-charge organized an awareness program for students as well, and invited the environmental officer and the The Study Team members. The Mayor of GMC even participated in some of these awareness programs, too.



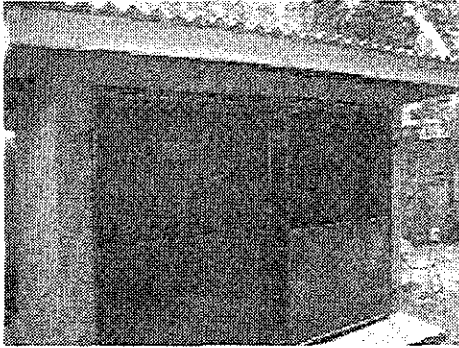
Awareness programs to students



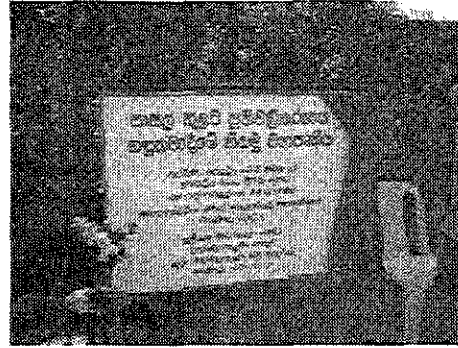
Listening with enthusiasm.

#### **c.8 Building of storerooms by the study team**

A storeroom, a symbol of practical environmental education, 10m<sup>2</sup> in size, was built at each school. In the case of Gampaha, the storeroom was built using funds from the JICA study. However, if a school has unused building space, it can use that space as a storeroom, or can request some funds for organizations like Lions Clubs or other NGOs



Storage



Sign board

### c.9 Inauguration ceremony at each school and start of the collection of recyclables

The inauguration ceremony at each school started with the attendance of the Mayor and the environmental officer of GMC and the team leader and members of the study team<sup>8</sup>. On the same day, each school started the collection of recyclables.



Inauguration ceremony



Separation of recyclables by students

### c.10 Establishing a monitoring system

Monitoring was carried out by the environmental officer stationed at GMC each month.

### d. Uniqueness of the Project

The uniqueness of this school recycling project lies in its attempt to harmonize with the present traditional recycling system. Though not recognized widely, the traditional recycling practice still functions well in Sri Lanka in the form of active material recovery by private collectors called Bottal Pattara Karaya. This practice is still very active even in fairly urbanized areas like GMA.



Non-standardized bottles are collected.

<sup>8</sup> In the ceremony at Yasodaradevi B.M.V., the middlemen were also invited.

It is well known that these private collectors usually buy only very profitable recyclables from households and do not collect, for example, non-standardized bottles, broken bottles or paper. However, the local recyclers and middlemen are willing to buy these materials if they amount to a certain volume. This school recycling project especially encourages students to bring these non-standardized recyclables which otherwise would become waste. Along with an explanation of the importance of recycling activities, the study team highlights the important role played by the traditional recyclers / private collectors in the awareness program to students.

**e. Assessment**

The environmental officer stationed in GMC and members of the The Study Team jointly visited the schools and monitored the progress of the school recycling project, usually monthly. Based on the observation from these visits, the The Study Team organized the progress review workshop for the teachers-in-charge at the six participating schools on 20 June 2003. These observations, together with the discussion at the workshop, reveal the following facts, problems and measures for further improvement.

- Five of the six schools have sold recyclables twice already and one of them sold them once. Gains from selling recyclables at each school range from Rs.400 to Rs.1,200.
- The commitment of the other teachers at the schools is unsatisfactory and additional awareness programs for all teachers at schools are necessary in the future.
- The collection of recyclables at each school is liable to become irregular. In order to make recycling a part of their lifestyle, regular collection is crucial. Therefore, setting the last week of each month as a collection week is recommended in order to make the collection more regular.
- Since it is not financially feasible for middlemen to collect recyclables school by school, the establishment of a same-day collection system was recommended at the workshop and has already started.
- The insides of storerooms are not neat and clean enough at most of the schools. Separating recyclables properly and keeping them neat by students themselves, not by labourers at schools, is the first step for recycling. In order to make them understand the importance of this, big cleaning activities were organized at most of the schools.

Although some schools have faced several difficulties in carrying on the project, the substantial amount of gains from selling recyclables tend to encourage each school to continue the project. Moreover, the educational meaning of this recycling project is increasing in the present context of rapid urbanization and commercialization, and it is highly plausible that similar projects will be effectively implemented in other areas. A leaflet introducing this project was made for publicity, too.

## 5.5 Strengthening of Managerial Capacity

### a. Rationale

Almost all LAs suffer from the following institutional and organisational issues:

- A shortage of senior staff dedicated to SWM works. Normally, a PHI deals with SWM, but the inter-disciplinary nature of SWM makes it difficult for one person to handle SWM alone.
- A lack of short, medium and long term SWM development plans. Goals, objectives and associated measures for improving SWM are not discussed, approved and implemented, resulting in a system where most staff focus on addressing day to day issues and activities are uncoordinated, often leading to confusion and poor motivation.
- Poor labourer performance and high absenteeism
- Poor public-LA relations, characterised by a lack of clear instructions to the public detailing citizens' responsibilities, waste discharge rules, fines, etc.; weak enforcement of bylaws; and political intervention.

For these reasons, it was decided to implement a number of pilot projects under the broad heading of "managerial improvement" that would go some way to addressing some of these issues, either directly or by way of training, whilst at the same time developing the capacity of LA SWM staff.

### b. Objectives

Key managerial improvement objectives were:

- To develop the capacity of LA staff, particularly those involved in SWM, through training and pilot project implementation.
- To develop a SWM Action Plan for each LA the next 10 years.

### c. Description

The managerial improvement project comprised a number of different components, as summarised below, and described in more detail in the following sub-sections.

Table 5-8: Managerial Improvement Project Components

Item	Neg-ombo	Gampaha	Chilaw	Kandy	Matale	Nuwara Eliya	Badulla
Assistance in preparation of SWM by-laws	Yes	Yes	Yes (own by-laws)	Yes	Yes (also own by-laws)	Yes	Yes
Assistance in implementing SWM management tools	Yes	Yes	Yes	No	Yes	Yes	Yes
PHI/supervisor training	Yes (3)	Yes (3)	Yes (3)	Yes (2)	Yes (3)	Yes (3)	Yes (4)
Provision of transport facilities for SWM supervision/public promotion	Yes (6)	No	Yes (2)	No	Yes (4)	Yes (5)	Yes (5)
Preparation of 10year SWM Action Plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Numbers in brackets indicate the number of training sessions conducted in the case of PHI/supervisor training and the number of motorcycles provided in the case of transport facilities provision.

### c.1 Assistance in Preparation of SWM By-laws

Each LA received Sinhala copies of the draft model SWM by-laws, prepared by the Sri Lankan Institute of Local Government in cooperation with the Study team, in May-June 2003 (described in more detail later in this report).

Generally, most LAs followed a similar process in discussing and approving of these by-laws as summarised in the following table, except for Chilaw and Matale, as described further below.

Table 5-9: By-law Adoption Process

Item	Negombo	Gampaha	Chilaw	Kandy	Matale	Nuwara Eliya	Badulla
Relevant by-laws	Model	Model	Own <sup>2</sup>	Model	Model <sup>3</sup>	Model	Model
Circulated to LA staff and Council members	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Discussion by Health or Environment Committee	Yes	Planned	Yes	Yes	Planned	Yes	Planned
Discussion at Council meeting	Planned	Planned	Yes	Yes	Planned	Planned	Planned
Approved by Council	Not yet	Not yet	Yes	Yes	Not yet	Not yet	Not yet
Correspondence with SLJLG	Yes	No	Sent copy of own by-laws	No	No	No	No

**Notes:**

1. Approval by Council is generally on an "in principle" basis as the model by-laws are still in the draft stage.
2. Chilaw Urban Council have prepared their own SWM bylaws which were approved by their Council and submitted to the NW Provincial Council for their approval in Jan/Feb 2003. They have also reviewed the model by-laws but decided they would like to continue the process of ratifying their own by-laws. However, if it takes too long to get the Provincial Council approval, they may adopt the model SWM by-laws instead. Comparison of each set of by-laws shows some common elements and some items unique to each.
3. Matale prepared their own by-laws in 2002, which were approved by the Council and are currently being translated into English and Tamil. These contain relatively basic provisions covering SWM. They have since reviewed the model by-laws and have decided to adopt the model by-laws as a separate chapter on SWM in their own by-laws. They will then proceed to ratify these by-laws either by approval of the model SWM by-laws by Council, following by gazetting, or submission of their by-laws to the Provincial Council in three languages for approval.

### c.2 Assistance in Implementing SWM Management Tools

Three tools were introduced to LAs for improved SWM management comprising:

- **Monthly Report:** The monthly report is made up of two parts – a report form for each month and a summary report for each year. All relevant SWM information should be recorded in this report on a daily or monthly basis, as appropriate, including resources (staff, vehicles, equipment), inputs (manpower, equipment, etc.), outputs (number of trips and corresponding tonnages to collection and disposal, street sweeping and drain cleaning performance (km), number of education/awareness programmes conducted, etc.), problems and enforcement measures taken, costs and productivity. The purpose of the monthly report is to provide a management tool for monitoring SWM performance, assessing progress against targets and identify required actions to address issues that arise. Draft monthly reports were given to each LA by the Study team based on a "master" form, adapted as necessary to fit the requirements of different LAs. Each LA was then instructed in how to use this report, with periodic checks being made to assess progress and problems in its use.

- **Control Board:** The control board is basically a large white board (up to 5' x 7' in size) which features a large scale digitized map of the municipal or urban area on it. Each LA should record relevant SWM information on this board such as collection zones; garbage collection vehicle routes and frequencies; locations of public garbage bins, stationary trailers, litter bins, large waste generators, public noticeboards, problem areas, etc. The board should be updated on an approximately weekly basis using whiteboard markers. The purpose of the control board is to provide another simple management tool that visually displays the current status of SWM within the LA. The control board format was designed with input from each LA, printed commercially and then mounted on the wall in an appropriate room (e.g. PHI or supervisor's office). Discussions were then held on how to use the board between SWM staff and the study team.
- **SWM Manual:** The SWM Manual is an Operations tool that explains how to use the monthly report (main focus) and control board, including some suggestions on how to collect the necessary data. This has been provided to each LA in October and can be adapted and expanded on to suit their particular circumstances.

Progress made by each LA in implementing these management tools is summarized below.

Table 5-10 : Implementation Status of SWM Management Tools (at 30 Sep)

Item	Monthly report	Control board
Negombo	In partial use since Aug 2003 with mainly inputs recorded (manpower, vehicles)	In use since Sep 2003
Gampaha	In partial use since Sep 2003, as for Negombo	Not in use
Chilaw	In partial use since May 2003 as for Negombo; 4 months of partial records	In use since Sep 2003
Matale	In use since October 2003	In use since October 2003
Nuwara Eliya	In use since July 2003	Installed on 23 September
Badulla	Not yet started.	To be installed in early Oct. in the Environmental Education Centre

**Note:** Kandy was excluded from this component of the managerial improvement project.

#### d. PHI/Supervisor Training

PHI/Supervisor training was conducted for LA PHIs and supervisors, as summarised below.

Table 5-11 : PHI/Supervisor Training Summary and Attendance

Item	Number of Attendees						
	Negombo	Gampaha	Chilaw	Kandy	Matale	Nuwara Eliya	Badulla
1. Introduction to SWM	16	9	9	31	11	14	14
2. SWM – Challenges for Change	16	9	9	31	11	14	14
3. HR Training – PHI/Supervisor's job	15	8	5	39	14	15	12
4. HR Training – Public Relations	15	Not done	7	Not done	9	15	10
5. HR Training – Public Meetings, Presentations, Education/Awareness	14	Not done	7	Not done	9	15	9
6. Health and Safety Aspects of SWM	13	Not done	Not done	Not done	Not done	9	Not done
7. Laws, rules and regulations related to SWM	13	4	6	34	Not done	15	7
8. Introduction to composting	Not done	4	Not done	Not done	Not done	15	5
9. Final disposal by landfilling	Not done	Not done	Not done	34	Not done	15	5

##### Module components:

- 1. Introduction to SWM:** Why SWM? (main objectives); current SWM sanitation conditions in Sri Lanka (discharge and storage); health and environmental risks associated with SWM; final disposal in Sri Lanka; SWM planning data (waste generation, composition, waste stream, converting loads to tonnes).
- 2. SWM – Challenges for Change:** SWM - a changing field; reducing waste scattering (discharge rule, litter bins, etc.); improving garbage collection efficiency; reducing SWM costs (particular focus on explaining the background, rationale, objectives and ideal outcomes of many of the other pilot projects being implemented).
- 3. HR (Human Resources) Training – PHI/Supervisors Job:** PHI/supervisor as part of an organisation, part of a team and with an individual job/role; important PHI/supervisor skills.
- 4. HR Training – Public Relations:** Current situation, improving public relations (getting support of Council members, informing and educating the public, establishing effective communication channels, following up and resolving complaints, reminders and feedback).
- 5. HR Training – Public meetings and education/awareness:** Effective community meetings/presentations, public education/awareness (how people learn, behaviour change and attitudes, educational event/programme planning).
- 6. Health and Safety Aspects of SWM:** Overview of SWM work hazards and their management.
- 7. Laws, Rules and Regulations related to SWM:** Review of existing laws, rules and regulations relevant to SWM; overview of draft model bylaws, focusing on SWM related aspects.
- 8. Introduction to Composting:** Composting basics, home composting, larger scale composting, assessment.
- 9. Final Disposal by Landfilling:** introduction, leachate and landfill gas, controlled tipping, sanitary landfilling, closure and aftercare, monitoring committee, landfill development process.

Although advertised as PHI/supervisor training, other people also attended some training sessions according to the topics being discussed, following requests from the LA, including collection vehicle drivers (Nuwara Eliya), Health department administration and clerical staff (Chilaw, Nuwara Eliya), Health Educators (Kandy), CDOs (Nuwara Eliya, Badulla), DEOs (Matale), MOHs (Kandy, Matale, Negombo) and Council members (Negombo, Gampaha).

The range of topics covered was developed in consultation with LA PHIs/supervisors, asking them what they actually wanted to learn about. Each training session involved some input on these topics in the form of a powerpoint presentation, combined with group activities at relevant

points. The powerpoint presentations were developed based on the actual SWM situation in Sri Lanka, with handouts being given to all participants in English, Sinhala or Tamil, as appropriate. The group activities were based on real life situations relevant to participants' jobs as much as possible (e.g. converting vehicle trip data to tonnes, designing a stationary trailer collection system, developing a garden waste collection policy, dealing with a labourer who refuses to follow orders or a driver who comes to work drunk, investigating why some drains are not being cleaned properly, investigating the cause of human excrement being mixed with garbage, how to stop people in a low income area discharging their garbage into the sea or shopkeepers throwing their garbage into drains, etc.). Certificates were given to all participants, together with a record of the training sessions attended by each person.

#### d.1 Provision of Transport Facilities

Five LAs were provided with a number of small motorcycles by JICA to make it easier for them to supervise SWM works and to do public education/awareness programmes.

#### d.2 Preparation of 10 Year SWM Action Plan

A 10 year SWM action plan was developed for each LA using a similar process:

Table 5-12: Process Followed in Formulation of SWM Action Plan

No	Item	Negombo	Gampaha	Chilaw	Kandy	Matale	Nuwara Eliya	Badulla
1	Preparation of a rough draft SWM Plan in English and Sinhala	By Study team	By Study team	By Study team	By Study team	By Study team	By Study team	By Commissioner
2	Internal discussions amongst relevant staff	Yes	Yes	Yes	As part of item 4	Yes	Yes	Not yet
3a	Study team/LA Action plan revision meetings	Yes (4)	Yes (2)	Yes (3)	Yes (2) with MOH	Yes (2)	Yes (1)	Yes (1)
3b	Special meetings to prepare related environmental education plan	No, informal discussion	Yes	Yes	No, informal discussion	Yes	Yes	Yes
4	Stakeholders interim workshop seeking their input into Action plan	Yes	No	No	Yes, after item 1	No	No	No
5	Compilation of input from meetings, workshops, etc. to produce revised draft in English and Sinhala	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	Study team/LA discussion on revised draft to produce final draft in English and Sinhala	Yes	Not required	Yes	Not required	Yes	Not required	Not required
7	Discussion of Action Plan at LA committee level	Not required	Planned	Not required	Planned	Planned	Planned	Planned
8	Discussion of Action plan by Council members	Planned	Planned	Planned	Planned	Planned	Planned	Planned
9	Workshop, featuring presentation of final draft Action plan to stakeholders	Yes	Planned	Yes	Planned	Planned	Planned	Planned

Note: Status as of 30 September.



## **e. Assessment**

### **e.1 By-laws**

The model by-laws have been widely welcomed by LA staff and Council members, being considered timely and giving LA much more power to enforce improved SWM. While most LAs have distributed the model by-laws relatively widely to LA staff and Council members, very few, if any, have proposed any changes or additions to the model by-laws. Instead, most Councils have, or in the process of adopting them, without any changes.

### **e.2 SWM Management Tools**

Progress has been slow in implementing these tools. One cause of this has been a shortage of human resources, resulting in priority being given to other JICA pilot projects, such as the bell collection, environmental education and landfill improvements, with attention generally only being given to these tools after these other works have largely been implemented.

Another possible reason is that poor SWM performance has largely been hidden from view to date, as although reasonable records are kept of certain SWM aspects by LAs, these are seldom if ever compiled or combined to present the whole picture and this is seldom if ever reviewed by senior management. Hence, these tools may be seen as a threat by some LA staff, particularly the monthly report.

## **f. Monthly Report**

Most LAs have been slow to start using the monthly report. One problem has been collecting the necessary information. Staff attendance and equipment use data are relatively easy for them to collect, whilst collection trip data can usually be supplied by the supervisors and/or vehicle drivers. Some of this information must be cross-checked for accuracy, particularly labourer attendance, due to records being falsified in some LAs, and collection trip records, which may sometimes be inflated. Negombo has started to record vehicle trips data at the disposal site to make a cross-check of trips data possible.

Another problem has been a lack of sufficient, capable and available staff to fill in the monthly report, as this requires some administrative and mathematical ability. However, in most cases, following assistance from the Study team, the LA has been able to fill in at least 1/3 of the monthly report.

The monthly report is considered to be a potentially very powerful management tool, but it may take some time, possibly as long as 1-2 years for it to be implemented.

### **f.1 Control Board**

Starting use of the control board has been even slower, with little progress being made to date, except for Negombo where it seems to be fully operational. Again, this is considered to be a

potentially very useful and powerful management tool.

## **f.2 SWM Manual**

This was handed over to LAs in October, summarising relevant local information and including feedback from discussions with SWM staff in all LAs, particularly from the supervisor training, monthly report and control board discussions.

## **f.3 PHI/Supervisor Training**

Most of the participants were very appreciative of the PHI/supervisor training, commenting that the programme was very good - they had gained new ideas, knowledge and a better understanding of SWM. In particular, they enjoyed the group activities that focused on real life situations they have to deal with in their jobs, as well as the opportunity to meet together and discuss issues relevant to their work.

For many of the supervisors, it was the first time they had received any such training in their jobs and they supported such training being continued, even if just once per year. Hence, there is clearly a need for more training programmes of this nature for all relevant staff, especially supervisors.

However, a common problem was finding a good time to conduct such training sessions, as most supervisors are busy during the day. In addition, many supervisors are not used to sitting down for long periods. Hence, ideally, such training should be divided into modules of 1.5-2.0 hours and conducted locally so that it can fit in with SWM staffs' work programmes and attention span. Alternatively, future training courses could be conducted off-site for 1-2 days for three or more local authorities at one time, with some PHIs, supervisors and other relevant officers from each LA attending each course, with the course then being repeated one or more times, so that over a period of time, all relevant staff attend. This option has the additional benefit of allowing staff from different local authorities to learn from each others' experience.

## **f.4 Provision of Transport Facilities**

The JICA motorcycles are in widespread use and are proving very useful to LAs. Previously, many supervisors had to rely on their own means of transport (e.g. bicycle) for doing any field work, which was a disincentive to do such work. Now, it is much easier to undertake field work, particularly monitoring labourers' work performance and checking the cleanliness of the city. In Chilaw, the PHI was using his motorcycle very effectively for these purposes. However, in Negombo, some of the supervisors are believed to be using their motorcycles to do their own business. Hence, it is important that a proper management system be established for the allocation and use of these motorcycles, including filling out daily running chart records on fuel

consumption and distance travelled. Negombo have decided to only issue fuel to supervisors if they are found at work in their areas.

Overall, the provision of motorcycles is considered a cost effective means of improving SWM supervision, provided a satisfactory motorcycle management system is also put in place.

#### **f.5 SWM Action Plan**

SWM Action plans were prepared for each LA through a relatively extensive consultation process. The purpose of the draft Action plans prepared by the Study team were mainly to serve as a starting point for discussion. These were revised through a relatively extensive consultation process involving internal and external meetings and workshops to produce final Action plans, that were often significantly different from this first draft and specific to local conditions.

Holding interim workshops for relevant stakeholders is a good means of providing an opportunity for the community and other relevant parties to have some input into the Action plan. However, often many of the ideas put forward show a lack of understanding of the real situation in LAs, particularly in relation to resource and funding constraints. Hence, it is very important in such cases, that these ideas be worked through, with relevant, practical and affordable items included in the Action plan, while others are deleted.

Often, preparation of the Action plan relied heavily on the involvement of 1-2 key people (e.g. Kandy MOH, Matale MOH and SPHI). This has the disadvantage that the Action plan may only be properly understood by these key people within the LA and the LA not having a sense of ownership of it as a whole. Where necessary, efforts were made to try and involve as many LA staff and Council members in the planning process as possible to mitigate against these factors.

The current Court case whereby various local authorities, including Kandy, Negombo, Matale, Nuwara Eliya and Badulla are being prosecuted by the Public Interest Law Foundation for failure to implement the NSSWM, has put some pressure on LAs to prepare SWM Action plans. Hence, the assistance of the Study team to prepare such plans has been warmly welcomed.

However, the danger exists that many LA personnel will think the hard work is over, when the Action plan is completed and approved. However, in reality, the hard work has not yet started, as the real challenge will be in implementing the plan.

Another danger is that there is currently no mechanism to force LAs to implement the Action Plan, while many LAs lack funds to implement it in a comprehensive way, particularly the final disposal issue. It is vital that such a mechanism be created, possibly by significantly strengthening the enforcement capability of the CEA, and increasing the availability of funds for SWM works.

## 5.6 Other Technical System Improvements

### a. Rationale

Observations of present SWM conditions suggest that establishment of a proper garbage discharge and storage system is vital, while the efficiency of collection and transportation must also be increased, as previously described. Problem areas not targeted directly by the bell collection including littering in busy streets, public places and during special occasions; discharge, storage and collection from areas where many people gather (e.g. markets, bus stations, etc.), waste transfer and the collection of hazardous healthcare waste. Hence, a number of different technical measures were introduced to tackle these problems.

### b. Objectives

The main objectives of this pilot project are:

- To improve the current garbage discharge and storage system in areas where many people gather.
- To increase public awareness and cooperation.
- To reduce the amount of waste scattering and garbage piles in local towns.
- To improve garbage collection and transportation efficiency, through reducing double handling and making garbage loading much easier
- To improve hazardous healthcare waste collection and transportation, so as to minimize the associated health and safety risks.

### c. Description

This project involved the following:

- Introduction of stationary trailer collection for markets, bus stations, etc.
- Installation of a waste transfer station (Gampaha only).
- Installation of fixed litter bins in parks, public places, etc.
- Use of movable litter bins for special events, festivals, Sunday fair, etc.
- Provision of plastic litter bins for schools.
- Provision of a modified three wheeler for the collection and transportation of hazardous healthcare waste (Nuwara Eliya only).
- Associated public education/awareness.

The equipment provided by JICA to each study town is summarized below.

Table 5-13: Other Collection Improvement Equipment Provided by JICA

Item	Negombo	Gampaha	Chilaw	Matale	Nuwara Eliya	Badulla
<b>Items provided by JICA:</b>						
Stationary trailers	3	2	3	2	N/a	3
Waste transfer station	N/a	1	N/a	N/a	N/a	0
Waste transfer platforms	1	N/a	2	1	N/a	3
Modified Handcarts (HCs)	10	N/a	5	6	N/a	6
Modified Three Wheeler	N/a	N/a	N/a	N/a	1	N/a
Fixed 60-100L litter bins	20	N/a	20	20 <sup>1</sup>	N/a	20
Movable 100L litter bins	20	N/a	20	20	N/a	20
50L plastic litter bins	N/a	N/a	50	40	N/a	50
<b>Items Not in Use (a 10 Oct):</b>						
Waste transfer platforms	1	N/a	2	0	N/a	Soon
Modified Handcarts	10	N/a	Some	Soon	N/a	Soon
Fixed litter bins	0	N/a	19	20	N/a	Soon
Movable 100L litter bins	0	N/a	15	20	N/a	20
50L plastic litter bins	N/a	N/a	9 (schools)	Soon	N/a	Soon
<b>Comments:</b>						
HCs modified to old style	Planned	N/a	Some (planned)	N/a	N/a	Too early to say

**Note:** Fixed litter bin design comprises a 100L half barrel litter bin within a fixed frame set in the ground that can be rotated to empty, except in the case of Matale, where their design is based on a 60-80L hanging litter basket that can be hung from lampposts or fence railings, while the bottom can be opened for emptying.

Introduction involved the following steps:

**Initial Meetings and Consultation:**

- Initial meeting of the Study Team with senior LA SWM staff (e.g. Commissioner, MOH, PHIs) to discuss the proposed pilot project and plan what has to be done, by who and by when.
- Initial meeting with SWM supervisors, drivers and labourers to inform them about the proposed pilot project and to seek their ideas and comments, particularly for the modified handcarts, stationary trailer system and litter bins.
- Meeting with Council members to inform them about the proposed pilot project and ask for their support in implementation.

**Preparation:**

- Design and construction of modified handcarts, stationary trailers, transfer station and litter bins, through discussions between LA staff and the Study team. This included choosing the colours for this equipment, selecting words to be displayed on them (if any) and painting or sticking these words on.
- Selection of stationary trailer locations and undertaking the necessary site works (e.g. excavation, filling, ramp/platform construction).
- Selection of litter bin locations and installation of fixed litter bins. Some LAs handed these bins over to residents or shop keepers, who had to sign for them and were made responsible for looking after them.

- Selection of locations/events for which movable litter bins may be used, with some bins being distributed to relevant places
- Allocation and distribution of an appropriate number of litter bins to selected schools
- Labourer training in use of the stationary trailers, modified handcarts and litter bins.
- Introduction, operation and monitoring.

#### **d. Assessment**

##### **d.1 General**

Most LAs had a lot of input into the design and use of this equipment.

Some LAs were very keen on choosing or painting all items in the same colour, giving a strong visual identity to SWM equipment. Chilaw took care to avoid the use of any colours associated with political parties, choosing gamudawa orange instead.

##### **d.2 Stationary Trailers**

Full use is being made of the stationary trailers by all LAs, with very few, if any, complaints from people living or working near where they are parked. Negombo in particular seems to like the stationary trailer system and is planning to buy five new stationary trailers, as there are many other locations within the city where this system can be used.

The first batch of trailers (Jan-Mar 2003) were constructed with a trapezoidal top section with side opening doors. Both Negombo and Gampaha labourers complained that these trailers were too small, difficult to load from the sides, particularly when over half full, and it was no longer possible for labourers to compact the waste by trampling on it, due to the presence of the roof. Site inspections found that the manufacturer had made the trailers 5.0m<sup>3</sup> in capacity, rather than the specified design size of 6.0m<sup>3</sup>. This and other feedback was taken into account in the design of the second batch of stationary trailers (May-Sep 03). The trailer capacity was increased and top loading doors were included on some trailers. The Gampaha trailers were also modified to increase their capacity to increase the transportation efficiency, given the long travel distance to the landfill (15km).

##### **d.3 Waste Transfer Station**

Following some initial teething problems, this has been used since July-August 2003, without any problems. However, the ground surface is unpaved and does get very muddy during and after heavy rain.

##### **d.4 Waste Transfer Platforms**

None of these are being used, as they are not required for loading the stationary trailers.

#### **d.5 Modified Handcarts**

Both Chilaw and Negombo labourers complained about the modified handcarts saying that they are too small (40-50L buckets x 6 = 240-300L compared with 420L for a conventional handcart), while the buckets are difficult to empty into a stationary trailer, especially when the trailer is over half full. These comments showed a lack of understanding of the intention of the modified handcarts. They were not actually intended for primary garbage collection but rather for street sweepings (mainly dirt and litter) or possibly drain cleanings, the basic idea being to replace primary handcart collection with direct vehicle collection and introducing a designated street sweeping service, using the modified handcarts. These points were explained to LAs but they were given the choice of trying to use the handcarts as intended or modifying them to the conventional style.

Chilaw is not using the modified handcarts on a daily basis but only on special occasions (e.g. Church feasts, Grand Exhibition (28-31 Aug)). For such events, UCC sends labourers with these handcarts to clean the relevant areas.

Matale should start using its modified handcarts shortly, once “MMC” has been spray painted on to the plastic buckets to be used inside the handcarts.

Badulla should also start to use the modified handcarts shortly, once construction of the stationary trailers is completed (mid-October).

#### **d.6 Three Wheeler for Healthcare Waste**

The three wheeler has not been used as of 25th September because the medical waste disposal pit at the landfill site has not been completed yet. In addition, the on-going hospital strike is making it difficult to get cooperation from the Base hospital.

#### **d.7 Litter Bins**

Most LAs chose to write their name, possibly a number and a simple message (“e.g. Keep our city clean”) or litter symbol on the litter bins and to add holes to the bottom for security, publicity and drainage reasons.

All fixed litter bins have been installed and are being used as intended.

Some movable litter bins are being used in a similar mode as for the fixed litter bins, although they can easily be moved to other locations, as required. These are relatively difficult to empty by one person when full, due to the weight (40kg) and large diameter of the bin.

Many shop owners have not been keen for either fixed or movable litter bins to be located near their premises, afraid of the negative impact this may have on their businesses.

Schools have been grateful and keen to use such bins.

## 5.7 National Level Pilot Projects

### 5.7.1 Formulation of Model By-laws

#### a. Rationale

The National Strategy for SWM, formulated by the Ministry of Environment and Natural Resources in 2000, proposed a wide range of policies for improving SWM in Sri Lanka. However, three years later, these policies have largely still to be implemented. This study also found that public-LA relations are generally poor, characterised by a lack of clear instructions to the public detailing LA and citizens' responsibilities, waste discharge rules, fines, etc. In order to address these issues, it is vital that LA by-laws related to SWM should be updated to comply with the thinking of the National Strategy. However, most LAs do not have the capacity to do this. In addition, any new by-laws developed by LAs must go through a long, involved approval process taking years before they can be gazetted and enacted.

This pilot project is based on an alternative approach to address these problems, involving the preparation of "model by-laws" at a national level, based on the policies in the NSSWM. These model by-laws can then be adopted and enacted by LAs relatively quickly.

#### b. Objectives

The main objectives of this project are to formulate model by-laws, consistent with the policies in the NSSWM, through a consultative approach, involving a wide range of stakeholders.

#### c. Description

The model by-laws were prepared by the Ministry of Home Affairs, Provincial Councils and Local Government and the Sri Lankan Institute of Local Governance, with assistance from the Study team.

The process followed in preparing these by-laws is outlined below.

Table 5-14 : Process Followed for Preparation of Model By-laws

Date	No of Participants	Description
10 Feb	32	First workshop
24 Feb	13	Second workshop
10 April	50	Third workshop
1 June	N/a	Completion of draft Sinhala by-laws.
25 June	N/a	Distribution of draft Sinhala by-laws to local authorities and Provincial Councils for review and comment.
31 Jul	N/a	Completion of translation of draft Sinhala by-laws into English
31 Jul – 13 Aug	N/a	Revision of English translation of by-laws by Study Team
5 Sep, 19 Sep, 2 Oct, 6 Oct	7	Revision of English translation of SWM by-laws by the Study team (2), MOHAPCLG and SLILG Officers and those who drafted the by-laws (5). Some amendments to both the English and Sinhala versions were made.



24 Sep	N/a	Completion of translation of draft by-laws into Tamil
End of Oct		Review of draft by-laws by legal draughtsmen
Mid-Nov	N/a	Enactment of model by-laws
End of Nov	N/a	Distribution of approved model by-laws to LAs for adoption

**Note:** N/a = not applicable.

The draft by-laws cover four distinct areas, as summarised below:

Table 5-15 : Outline of By-laws

No	By-laws Title	Description (focusing on items relevant to SWM)
1	By-laws relating to Solid Waste Management	<p>Covers residential premises; shops and offices; hotels, vegetable and fruit stores; meat, fish or egg stalls; pavement hawking; factories, excavation, construction and demolition; hospitals; other premises, streets and public places, permits and other.</p> <p>Enforces separation of garbage at source, generally into three categories: food/bio-degradable, reusable/recyclable and hazardous wastes, specifying the conditions where fees may be charged for garbage collection.</p> <p>Specifies the responsibilities of both LAs and the public in relation to SWM.</p> <p>Prohibits open dumping, littering and open burning, while controls are set on on-site disposal, burning and composting and the management of garden wastes, tree cuttings and excreta from animals under a persons' care in public places.</p> <p>Specifies fines and enforcement procedures (250Rs spot fine (penalty), 1,000Rs fine on conviction for first offence, 2,000Rs on conviction for subsequent offence, 250Rs/d for continuing violation).</p>
2	By-laws relating to the Regulation and Control of the Construction and Operation of Public Toilets, Drains, Bathing Places and Bathing Wells and Wastewater Discharges	<p>Specifies conditions for the construction and operation of public toilets, drains, bathing places and wells.</p> <p>Regulates and controls wastewater discharges.</p> <p>Prohibits residents or owners or adjoining land or people travelling along a public road from throwing waste into drains.</p>
3	By-laws relating to Decorations and Use of Advertisements in Public Places - their Regulation, Supervision, Control and Recovery of Fees	<p>Requires LA to establish and maintain advertisement exhibition places within MC area.</p> <p>Permit required for display of advertisement/decorations at any public place, subject to a fee, with the use of non-decaying materials being charged at higher rates than decaying materials.</p> <p>Any surplus and waste materials used for installation of decoration or advertisements must be immediately removed.</p> <p>All decorations, advertisements and associated materials must be removed within 48h of permit expiry.</p> <p>No permit required for decoration/advertisements on private land/building. Associated surplus/waste materials shall not be put in places reserved by LA for disposal, except with LA permission and following payment of a fee.</p> <p>Ban on using polythene, polythene containing or any other non-decaying substance in decorations/advertisements for LA functions, including functions of other organisations provided with LA assistance.</p> <p>Violation an offence, liable on conviction to a fine of up to 1,000Rs for a first offence, 2,000Rs for a subsequent offence and for continued contravention, an additional fine of up to 250Rs/d following conviction or serving of written notice by LA.</p>

4	By-laws relating to control, regulation, supervision and recovery of fees from funeral service supply centres within the Municipal Area	<p>Such businesses declared an offensive trade and must apply for an annual licence and pay an associated fee.</p> <p>Sets out rules for preparation and transport of corpses and for displaying corpses being kept for people to pay their last respects.</p> <p>Any body parts, blood or other liquids or dirty washwater resulting from corpse preparation must be stored in closed, impermeable containers.</p> <p>Parts removed from corpses must be buried in a pit at least 4ft deep either on-site, or if sufficient space is not available, at the LA cemetery, following the payment of a fee.</p> <p>No polythene or other non-decaying substance to be used to cover a corpse or part of a corpse in a coffin, unless injury or other reasons make this unpractical.</p> <p>Any flower waste to be removed in an approved manner, including the payment of a fee in some cases. Throwing flower, plant or associated waste to roads, drains or any other public place is an offence.</p> <p>Violation is an offence; liable to fine on conviction of up to 1,000Rs for a first offence, 2,000Rs for a subsequent offence, and for continued contravention, an additional fine of up to 250Rs/d following conviction or serving of written notice by LA.</p>
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#### d. Assessment

MOHAPCLG and SLILG staff have taken the main leadership and management role in this project, with the Study team playing a supporting role, as required. They undertook an extensive consultation process involving identifying areas to be included in the model by-laws and then developing the content of the by-laws, as outlined above. The resulting by-laws reflect the real situation in local towns, the thinking of the National Strategy on SWM and the aspirations of those involved in preparing them.

It is important to appreciate that present experience suggests that the by-laws may be in effect for 10 or 20 years or even longer before being updated again. Hence, they contain a mixture of provisions, some of which can easily be enforced now, while others represent a big leap forward from the current situation. In particular, the SWM by-laws enforce source separation of garbage into three categories. This is an ambitious goal, when you consider the present situation where most people do not follow any proper discharge system. However, public opinion surveys conducted during this study indicate strong support for a source separation garbage collection system amongst the residential, business and institutional sectors, while sorting at source is promoted in the NSSWM. Hence, it is considered appropriate to include this measure, aiming for implementation and enforcement in the medium to long term.

Once the by-laws are enacted and adopted by LAs, they must be vigorously enforced. Otherwise, nothing will change. The proposed fines represent a significant deterrent to offending, but it is important for these to be updated in line with inflation so that this remains true.

## 5.7.2 Production of the Educational Picture Book for Children

### a. Rationale

In recent years, the importance of environmental education is being well recognized in accordance with citizens' increasing attention towards various environmental problems. There were, however, no appropriate educational materials focused on waste problems, which is the most urgent issue even among various environmental problems in Sri Lanka. Therefore, environmental educational programs regarding waste issues have failed to be effective. In response to the eagerness to improve the educational programs on waste issues on the part of the Ministry of Environment, 100,000 copies of an educational picture book for children focused on waste issues were produced jointly by MOENR and the study team. The picture books will be distributed to all the schools in Sri Lanka.

### b. Objective

The objective of the project is to produce an educational picture book for children and contribute to improving and expanding environmental education on waste issues.

### c. Descriptions

#### c.1 Production of the picture book

The concepts of the picture book and its contents were decided through a series of discussions with counterpart personnel in MOENR. Based on the discussed concepts, Ms. Sybil Wettasinghe, a prominent artist for children's books who is very popular not only in Sri Lanka but also in the world, drew pictures for the book. The very unique feature of this book is that it does not contain any words, but only pictures with comprehensive messages. Therefore, any child regardless of his or her native language can easily grasp the important concept of each picture. The guideline for teachers was separately prepared in three languages.



[Some pages from the picture book]

Not only the concepts which are usually well understood such as the health aspect, but also rather new concepts, for example, reduction of polythene bags and cooperation to municipal cleansing works, are also introduced.

#### c.2 Trainers' Training Workshop for the picture book

Date: 2003 August 5<sup>th</sup>, 6<sup>th</sup>

Participants: Divisional Environmental Officers of CEA

Teachers in charge of environmental education in each district

Directors of Zonal Education Office

Approximately 500 of the above people participated in total over two days.

**Purpose:** To introduce the rather new concepts to the participants and to train them in how to use this unique picture book.

Commenced by the speech of the Secretary of MOENR, the workshop was carried out successfully, welcoming almost 500 participants including more than 350 Divisional Environmental Officers and officials in education fields. The main purpose of the workshop was to introduce the rather new concepts to the participants, especially to the DEOs, and teach them how to use the book comprehensively. When these books are distributed to each school through DEOs stationed nationwide, the DEOs will explain the unique features and effective usage of the book to school teachers.

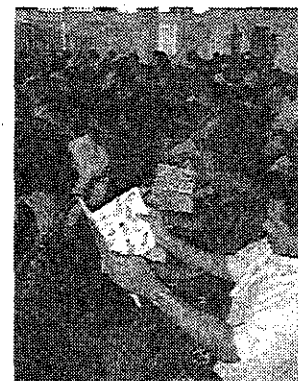
In addition, MOENR is now preparing a recommendation to the National Institute of Education on the use of this picture book as an official sub-textbook for environmental education. In fact, several educational activities based on this picture book were introduced by a project officer in NIE at the workshop. It is highly plausible that more and more teachers will actively utilize this picture book all over Sri Lanka.



Several speeches were given by high-ranking officials such as the secretary of MOENR, the directors of both NIE and CEA, the resident representative of the JICA Sri Lanka office and so on



At the technical session, officers from MOENR and the The Study Team explained about the unique feature of the books and how to use it effectively.



Participants turned the pages with an explanation by the speakers.

#### **d. Assessment**

Although printing of the picture books completed in April, they were distributed in September. It implies that the distribution method has to be carefully considered because it is a quite difficult task for the executing organisation.

It takes sometime more before its effects can be fully evaluated, however many people have expressed their appreciation to the picture book after being delivered. There can be a problem that the number of picture books printed was not sufficient. In addition, MOENR seriously considers to produce cards and calendars by using the pictures on the picture book.

### 5.7.3 Trial Lectures in PHI Training Course

#### a. Rationale

PHIs are currently trained via a 18 month diploma course at four different institutes around Sri Lanka (Kaluthara, Kadugannawa, Kurunegala and Batticaloa). In this course, SWM is covered as a single unit under the Environmental Sanitation module, involving 16.5 hours theory and 2.5 days of practical activities (e.g. field trips to local authorities, composting facilities and landfills to see the real SWM situation). In addition, all students have to prepare an assignment on any aspect of SWM before their final exams.

The time allocated to SWM training is very short, especially when in most local authorities, it is PHIs who deal with SWM, often spending quite a lot of their time on this aspect of their work. Hence, it is very important that they should have a good understanding of SWM – both in theory and more importantly in practice. For these reasons, the Study Team held some trial lectures for PHI trainees using draft material for the SWM guideline for local government being prepared as part of this study, to determine the suitability of this material, which aspects need to be revised, and the necessity for establishing a new training course for SWM Inspectors.

#### b. Description

Trial lectures were conducted for PHI trainees on three occasions during July-August 2003, with participants coming from Kaluthara, Kadugannawa and Kurunegala training institutes to attend these lectures (refer Table 5-16 below). The lecture material was based on the actual SWM situation in Sri Lanka as much as possible and covered a broad range of topics, including possible SWM improvement measures for each topic. Each lecture involved some input on these topics in the form of a powerpoint presentation, followed by questions. Handouts were given to all participants in English, Sinhala or Tamil, as appropriate.

Table 5-16 : PHI Trial Lectures Summary

Location	Date and Time	No of Participants	Lecture Topics
Kaluthara PHI Training Institute	25 July (9:30-12:30)	80	Landfilling
	4 August (9:30-12:30)	113	SWM Garbage Discharge and Collection Waste Minimisation in Sri Lanka Public Relations
Kadugannawa PHI Training Institute (PHI trainees from Kurunegala also attended)	6 August (10:00-13:00)	90	Landfilling
	6 August (14:00-17:00)	90	SWM Garbage Discharge and Collection Waste Minimisation in Sri Lanka Public Relations

### **c. Assessment**

The lecture material was based on the actual SWM situation in Sri Lanka as much as possible and covered a broad range of topics, including possible SWM improvement measures for each topic. The trial lectures were well received, the PHI trainees commenting they had gained new ideas, knowledge and a better understanding of SWM. They showed a strong general interest in recycling, but knew less about processing/treatment (composting, biogas, incineration, etc.) and final disposal. Some of the SWM issues discussed (e.g. labourer management, public relations) helped them to appreciate that good SWM service delivery is no easy task.

## **5.7.4 Seminar for Interested NGOs on the Findings through the Study**

### **a. Rational**

Quite a number of environmental NGOs in Sri Lanka are involved in the improvement of solid waste management. Their role in SWM have become very important because the SWM works has become too large for LAs to execute by themselves due to the increase of waste amount and the change of waste quality. However, they are many cases of failure in their activities because they do not have a scientific understanding of present solid waste management. Therefore, the Study Team explained to them the scientific findings obtained through the Study and discuss the role of NGOs and their expected policies.

### **b. Objectives**

- To strengthen NGOs capacity by disseminating the correct knowledge and information of SWM condition in Sri Lanka.
- To adjust NGOs to the correct direction through the discussion of their roles in SWM works.

### **c. Description**

The Study Team entrusted National Forum of People's Organisations (NFPO) organising NGOs interested in SWM in Sri Lanka for the arrangement of a seminar as follows.

- Date and time: from 10 am until 2 pm, on 8<sup>th</sup> Aug. 2003-10-01
- Venue: CETRAC, Colombo
- No. of participants: 40
- Agenda:

- ① *Outline of the Study*
- ② *Present Solid Waste Management Condition in Local Town*
- ③ *Main Findings through the Study*
- ④ *General Improvement Strategy to be taken by Local Authorities*
- ⑤ *Necessary Actions to be taken by Central Government*

⑥ *Sharing Experiences of Improvement Measures*

⑦ *Role of NGOs in Solid Waste Management*

**d. Assessment**

There were fewer participants than we expected. NFPO mentioned that there were few NGOs which continued the work in SWM due to their high dependency on donors. This is one of causes why most NGOs have little knowledge on SWM. It implied that the effort of networking NGOs and giving technical assistance to them are important means.

One NGO expressed the opinion against the improvement of waste collection efficiency because it decreases the job opportunities. It is true that public cooperation and job creation don't harmonise. Therefore, in order to harmonize both policies, it is necessary to formulate the action plan from broad aspects.

**5.7.5 Seminar on SWM for Decision Making Level Staff in Local Authorities**

**a. Rationale**

The status of SWM works is too low in LAs although SWM works generally occupy about 20% of total LAs budget and 30% of total LAs' employees. This is due to the lack of understanding the importance of SWM as local governance by high ranking officers and politicians in LAs. They are key persons in local governance due to the dominance of the top-down system in local governments. It is, therefore, necessary to ensure they have correct knowledge and understanding of solid waste management in order for the materialization of short-term improvement.

**b. Objective**

To let high ranking officers and politicians in LAs to understand the importance of SWM work as local governance by the seminar.

**c. Description**

The Study Team conducted the following seminar with the strong cooperation by Sri Lankan Institute of Local Governance (SLILG).

Name of provinces	Place	Venue	Date	Participants
North-central province	Anuradhapura	Auditorium, Ceylon Bank	1 <sup>st</sup> Aug	43
North-west province	Kurunegala	Blue sky hotel	8 Sep.	60
Central province	Kandy	Training institute, PC	22 Sep	60
Uva province	Badulla	Riverside hotel	23 Sep.	40
South province	Galle	Sri Gamunu Hotel	16 Sep.	81
Western province	Colombo	CETRAC	5 Sep.	73

## Presentation

- Only good governance can overcome waste problems. Akira Doi, Study team
- Public and private partnership Fernandopure, SLILG
- Environmental law of CEA Disanayaka, Former Chairman

### d. Assessment

The seminar was very much welcomed by many participants. They expressed their strong impression by the presentations especially solid waste management because they have lack of information on it. We have found that local people are suffering from lack of information for them on SWM although there are often seminar on SWM held in Colombo.

## 5.7.6 Seminar for University Students and Staff on the Social Issues

### a. Rational

Most of the SWM experts in Sri Lanka are engineers because only the agriculture department or the mechanical engineering department in universities deals with this new subject. This situation has led to technology-oriented projects and has caused the failure of many SWM projects. To rectify this situation, various approaches from broad aspects are required. Therefore, the Study Team held a seminar for university students and staff on waste focusing on necessary socio-economic considerations in SWM in the universities by explaining various cases in Japan.

### b. Objective

Lectures focusing the social aspect on SWM are given to university students, university teachers and the society for raising their awareness on the subject and to understand its need.

### c. Description

Date: 22<sup>nd</sup> Oct. 2003/10/01

Venue: Colombo University

Agenda:

- Social capitals related to SWM in Sri Lanka Misa Oishi
- Economics of 3 Rs Sean Finnigan
- Social acceptability of SWM facilities Akira Doi

### d. Assessment

Since the beginning of the Study, the Study team had been trying to make the counterparts understand the importance of the above agendas in SWM but most of them could not grasp this



well. The Study team realized that this was a main issue that had to be rectified in order to improve the SWM works.

However, most of the participants of this seminar were sociologists and could understand the items presented very quickly. It was found at the seminar that there are many people in Sri Lanka who can understand the important social issues in SWM and they should be involved in SWM administration.