European Commission

SUNYA – Towards Zero Waste in South Asia

Implementation of 3R Principles of Solid Waste Management in Institutions: Case Study of Matale, Sri Lanka

City Profile

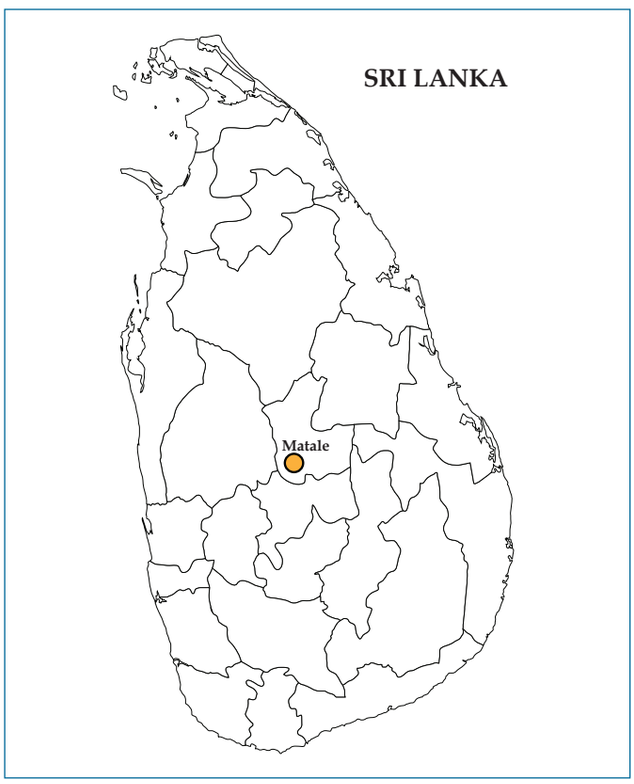
Matale is the largest city and the administrative capital of Matale District in the Central Province of Sri Lanka. The city is located at the heart of the island and lies at an elevation of 300m. It is 142 kilometres (88 mi) from Colombo and near Kandy. Agriculture is the primary economic activity in the region.

- Area: 8.6 sq. kms
- Total Number of Wards: 13
- Population: Approximately 46,000
- Floating Population: 23,000
- Number of Households: 8200
- Total Number of Markets (Commercial properties/ settlements): 06
- Total Number of Industries (paper, textile or other large, medium & small industries): 127
- Total Number of Institutions (Schools, Colleges, Offices etc.): 82

Rationale for Selection of this Pilot Project

Matale produces about 28 tonnes of municipal solid waste per day, out of which 7-9 tonnes of organic waste and about 2 tonnes of dry or recyclable waste is sent to the processing plant operated by "Sevanatha". The remaining 18 tonnes of waste is sent to the dump site.

Waste is collected by the municipality as well as by Sevanatha – an NGO which collaborates with the municipality. Before the project, there was no source segregation in most of the areas in the city. Only in 3 wards where Sevanatha collected waste, the waste was segregated at source. The organic waste was sent to composting yards operated and maintained by Sevanatha. Recyclable materials were separated by waste collectors of the council and sold to supplement their income.



Location of Matale in Sri Lanka

At present the landfill used by the city is full, though waste is still being dumped there. The landfill is located in a valley with a river flowing adjacent to it, with a strong chance of waste slippage resulting in pollution of the river and other downstream impacts. The municipality is looking for other areas for landfilling which are hard to find due to land scarcity. A regional approach for waste management has also been explored by the municipality, but with no avail. Several initiatives taken by the council for efficient waste

management have failed due to lack of community awareness, engagement and participation and lack of basic infrastructure. Hence, it is imperative for the city to focus on reducing, reusing and recycling waste.

Under the "SUNYA - Towards Zero Waste in South Asia" project, the city focused on implementation of the 3Rs in 10 schools and 20 government institutions in the city. The city undertook an intensive campaign to encourage these institutions to segregate their waste and follow the 3R principle of waste management. The city has 22 schools (17 government schools and 5 private schools) and it was recognized that students could play a very effective role in promoting sustainable waste management. Armed with practical knowledge on solid waste management, segregation and 3R, they could become change agents in their families, neighbourhoods, and in their schools of course. Government institutions have a responsibility towards sustainable waste management and could act as good examples for the community in general while showcasing the benefits to all who come to the institutions. Involving government representatives and school students also promotes the idea that waste management is everyone's responsibility.

Objective

The pilot project was aimed at reduction of waste going to the landfill to reduce pressure on it. Reuse and recycling of waste will promote resource conservatin, while also generating income. The main objectives of this pilot project were:

- To initiate segregation and adoption of 3R principles in schools and government institutions to ultimately move towards zero waste
- To sensitize students and enable them to act as change agents for their schools, families and communities
- To promote innovative ways of waste recycling and reuse
- To create live examples of functional institutions which follow segregation and 3R principles for waste reduction

Approach

The project involved introduction and implementation of segregation and 3R principles of waste management in schools and government institutions through a widespread campaign and one to one meetings and discussions. The wide spread campaign focused on awareness generation of school management and government officials regarding segregation of waste into dry and wet sections, while at the same time reducing waste generation, reusing waste and recycling it. The campaign consisted of various approaches to improve awareness and conceptual clarity regarding waste

Stakeholder consultation meeting

segregation and management. The campaign was also supported by infrastructural arrangements such as distribution of storage bins and composting bins.

Methodology

The Matale Municipal Council (MMC) is the nodal agency which spearheaded the implementation of the pilot project.

Two types of bins were distributed to all the schools and government offices to store wet and dry waste separately. Barrels for composting of the segregated wet waste were provided by the Municipal Council at subsidized rates. The wet waste collected was composted in these barrels or in compost pits. The Municipal Council also provided training on using the barrels for composting. The barrels of 100 liter capacity were divided into two sections with a grill separating the two sections and having holes on the body. Organic raw waste was put into the top section and allowed to degrade for at least 45- 60 days. Once, the

Information, Education, Communication initiative

compost was prepared, it was removed from the bottom section.

Capacity building programmes on segregation, recycling and waste reduction were organized involving students, teachers, sanitary workers and Community Development Assistance (CDA) members by resource personnel from the Solid Waste Management Training Center of Balangoda Urban Council, Kandy Municipal Council, Environment Department, Govt. of Sri Lanka. Public events, pamphlets, posters, hoardings were used for these campaigns. Community Development Assistance (CDA) supervisors in each ward were responsible for one on one communication with households of their respective wards. They were working as a monitoring and advocacy group of the municipal council.

Each of the schools and government institutions identified a nodal officer to implement the pilot initiative in their organization. The Nodal officer was responsible for mobilizing the students and/or other employees to practise source segregation, for conducting awareness generation programmes, for demonstratiing barrel composting or recycling of waste, and for overall monitoring of the intiative.

Continuous awareness generation programs were undertaken by most of the schools and government institutions. In some of the schools, information on 3R principles and source segregation was shared during the assembly, while in others a special class was organized once a week on these issues. In some government institutions, lectures were given by the project Nodal Officer. Information Education Communication (IEC) materials such as posters, hoarding, banner, wall painting etc. were also put up inside schools and government institutions.

Most of the schools and government institutions banned the use of plastic inside the premises to reduce plastic waste. Students and employees were encouraged to use reusable lunch boxes instead of carrying lunch in packets or disposable plastic bags, as is the common practice. In some schools, several waste paper, cardboard, colour paper and other discarded material were reused by the students to create art work.

Two separate bins for collecting wet and dry waste were placed in specific areas of the schools and institutions. The students and staff were trained to identify and dispose wet and dry waste separately. The organic waste was composted in the composting barrels by students in the schools and employees in government institutions. The compost was used for gardening or green patch development. Sometimes, the compost was sold out to the farmers from nearby city area. Recyclable materials, mainly paper, card board, plastic, metals etc. were stored separately and sold to scrap dealers. In some cases, the money earned from the recyclable materials was used for awards and recognitions for good practices.

Results/Outcomes

- The quanitity of waste generated from the schools and government institutions has reduced significantly.
- Some schools, such as Sujata School, have become zero waste schools and no longer need waste collection services from the Municpal Council.
- Littering has reduced significantly since children are serving as ambassadors of waste management, insisting on segregation of waste at home and proper disposal. The amount of waste going to the composting plant supported by UNESCAP and run by Sevanatha has increased from 2 tons to 6-7 tons per day as observed by the Community Development Assistance workers and the Integrated Resource Recovery Centre (IRRC) officials of the composting plant. This waste was hitherto dumped in different locations in the city.
- Sevanatha has introduced waste segregation in all wards of the city and at present 10 tonnes of waste is being processed in their plant.
- Students have gained confidence regarding waste management and serve as flag bearers for replication of the model in other schools and communities.

Success Factors

A critical factor contributing to the success of the pilot intervention was the ownership of the project by the schools and institutions. This ownership was a result of the liberty provided by the MMC to follow their own process of segregation and awareness generation that was suitable and feasible for them. The municipal

Compost ready for marketing

council not only set the goal for all the focus areas but also guided and technically suppored the concerned authorities on possible solutions.

Some of the institutions also provided awards and recognition to individuals who performed well in segregation or reduction and reuse of waste. This created a healthy competition among the students and the institutional staff. This interest resulted in reducing the amount of waste going to the landfill. It is seen that these schools/institutions are showing a sustained commitment to undertake these activities on a regular basis.

Lessons Learnt

The pilot project implementation showed that micro level planning is required for the success of such initiatives; this was possible in a smaller target area with a focused target group. The appointment of a nodal officer in the municipal level to coordinate the project implementation contributed to the success of the project.

Involving students was easy, but sustaining their interest in the work is difficult and sometimes needs innovative measures for recognition of their work.

Providing a free hand to the stakeholders to adopt suitable policies for waste reduction and management helped in securing greater participation from schools and institutions.

Sustainability and Replication

The project was conducted through an extensive campaign in the city which involved the schools and government institutions. The wholehearted involvement of the school management, the students and the government officials in the campaign will contribute to the sustainability of the project beyond the life of the pilot project. The schools and institutions have adopted the system of waste segregation, recycling and reuse as part of their regular waste disposal practices and have established relevant systems. While these systems are not heavily dependent on financial support, they however require considerable behavioral change which is achieved through a sustained IEC campaign.

Different actions promoted through the campaign have led to increased visibility of the project as well as increased its acceptability among the public.

The success of the pilot project in 10 schools and 20 institutions has encouraged Matale Council to implement segregation and 3R principles in all the 22 schools and in all government institutions in the city.

Project Partners

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About SUNYA

SUNYA - Towards Zero Waste in South Asia is a project supported by the European Commission conducted in the South Asian countries of India, Nepal, Bhutan, Bangladesh and Sri Lanka. The seven cities of Shimla, Coimbatore, Hetauda, Tansen, Phuentsholing, North Dhaka and Matale partnered in the project, which was led by Municipal Association of Nepal and technically supported by ICLEI South Asia, VVSG (Association of Flemish Cities and Municipalities, Belgium) and ARGE (Association of Waste Prevention, Austria). The project focused on introduction of principles of 3R for municipal solid waste management, promoting reduction, reuse and recycling of waste through community mobilization and involvement, and scalable pilot demonstrations of reduction of waste generation and sustainable management. For more information, please visit: http://www.sunyaproject.org/

This document has been produced with the financial assistance of the European Commission. The contents of this document are the sole responsibility of the SUNYA – Towards Zero Waste in South Asia and can under no circumstances be regarded as reflecting the position of the European Commission.

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