JICA's Role in the Environmental Sector in Sri Lanka

Introduction

JICA's focus on environmental issues has become more intense recently, in parallel with the increasing challenges to the environment brought about by climate change. Over the last few decades, JICA has intervened on various occasions to support the Government of Sri Lanka’s initiatives to safeguard the environment. A strong advocate of sustainable development JICA sees solid waste management and sewerage as a very important component of environmental protection.

JICA, under its development cooperation scheme is currently implementing multiple programs for solid waste management in Sri Lanka. These include working on ways to improve waste landfill sites, waste recycling and composting, monitoring water quality of major water bodies, data collection on solid waste management for improving and developing current techniques, raising awareness of issues and the compilation of a Strategic Master Plan for the Sewerage Sector.

Focus on the Environmental Sector

The multiple projects under solid waste management that are being implemented commenced first with a JICA funded Development Study on Solid Waste Management, in 2003. This study made recommendations that led to the establishment of The National Solid Waste Management Support Center (NSWMSC). Following this, a four year Technical Cooperation Project commenced in 2007 with the aim of improving solid waste management. Crucial to solving these problems was the need to strengthen solid waste management system at every local authority. The project entailed the inclusion of JICA experts as advisors, provision of equipment, and training of counterparts in every local authority.

The second notable intervention is the provision of a sustainable solution for the sewerage problem of Kandy, Sri Lanka’s second largest city and a World Heritage site. This commenced in 2010 and has been identified as a priority project. JICA supported the formulation of the Kandy City Waste Water Management Project (KCWMP) by conducting feasibility studies and detail designs. Currently, the National Water Supply
and Drainage Board is implementing the project in collaboration with Kandy Municipal Council. JICA volunteers complement and add value to the projects working alongside institutions engaged in environment protection and waste management at grassroots level.

JICA is also supporting the preparation of a strategic Master Plan for the sewerage sector under the JICA Technical Corporation Scheme. This will reinforce and contribute immensely to the Sri Lanka Government’s efforts to achieve 100 percent sewerage management coverage by 2025.

Improving Waste Landfills

A five-year intervention to manage landfills in Sri Lanka commenced in April 2011 with a project titled “Development of Pollution Control and Environment Restoration Technologies of Waste Landfill Sites, Taking into Account Geographical Characteristics of Sri Lanka.” The Project comes under JICA’s Science and Technology Research Partnership for Sustainable Development (SATREPS). The aim of the program is to develop new sustainable engineering techniques based on site-specific, low cost, minimum maintenance pollution controls, which will reduce environmental impact.

In order to develop new sustainable engineering techniques based on site-specific, low-cost, low maintenance, and low environmental impact pollution controls, Japan and Government of Sri Lanka are trying to pursue remediation at final waste disposal landfill sites. Thus, the Project aims to determine the negative impact on the environment of existing waste landfills by utilizing cost effective, minimum maintenance techniques. To achieve this, the Project monitors the landfill gas and water quality of two landfills in different climate zones; one in the Central Province in the wet zone, and the other in the dry zone in the Southern Province.

Environment Engineering Laboratory at the University of Peradeniya
All necessary equipment to the value of Rs. 158 million including a fully equipped Environment Engineering Laboratory was made available to the Project at the University of Peradeniya. The project is implemented in collaboration with Saitama University and Waseda University in Japan in partnership with the University of Peradeniya, the University of Ruhuna and the Institute of Fundamental Studies in Sri Lanka.

Field Scale Unit @ Udhapalatha

Organic Fertilizer Project at Kandasale, Kandy

Producing organic fertilizer by recycling garbage and the related primary verification survey come under JICA’s assistance for utilizing and disseminating Japanese Private-Sector technologies globally. The participation of a number of Local Government institutions, NGOs, universities and small and medium enterprises (SMEs) in the Japanese development assistance sector is a visible new direction, and has been increasing during the last couple of years. This is especially so for SMEs that have been actively engaged in international business development and this has prompted the Japanese government to revise its framework for supporting such SMEs.

The compost plant under construction
Good quality organic fertilizer will be produced under this survey at a screw type composting plant that is being constructed at Kundasale, Kandy. JICA expects that this scheme will contribute towards reducing the large volume of garbage at dumping sites in and around these regions. At the completion of this one-year survey, a business model utilizing technologies adopted by the Kawashima Company Ltd. of Japan will be established. This venture,

*Similar type of compost plant in Japan*
thereafter, may be replicated in other areas in Sri Lanka in order to address the critical issue of garbage disposal.

The Project for Monitoring the Water Quality of Major Water Bodies

This Technical Cooperation project by JICA is implemented with the Central Environmental Authority (CEA) in Sri Lanka to address issues impacting on most water bodies in Sri Lanka. Pollution is due to direct contamination of water from industrialization, urbanization and agricultural activities. Releasing of industrial effluents, domestic waste, sewage, dumping of solid wastes into water, and excessive use of agro-chemicals and chemical fertilizers are the main causes for an increase in the level of pollution.

The Project’s purpose is to build and strengthen the capacity of the CEA and its regional branch offices in the Kelani river basin, on water quality management. This one-year project commenced in 2014, and its aims are to:

i. Introduce water body categorization in line with the ambient water quality standard in Sri Lanka;
ii. Strengthen water quality analysis capacity of laboratory staff;
iii. Ensure the Enforcement capacity of CEA is raised on water quality monitoring. This includes strengthening inspection; creating a pollution sources inventory (PSI), and the promotion of acquiring Environmental Protection Licenses (EPL);
iv. Develop an Information management system for the water quality monitoring data including inspection, EPL data, and PSI data, on inland surface water bodies and to ensure efficient usage of the data.
Data Collection Survey on Solid Waste Management in Sri Lanka

A five member JICA mission conducted a data collection survey on Solid Waste Management in Sri Lanka, from August 2015 to February 2016, at the request of the CEA.

The survey examined and assessed the:
I. Project results, such as current status of the technical support to local authorities by the National Solid Waste Management Support Centre (NSWMSC) and the utilization of guides for planning, management and pollution control supported under the Japanese government and the Sri Lankan government.

II. Dissemination of project output of the technical support conducted by the Japanese government based on the collection of information in terms of the current status of Solid Waste Management (SWM) at local authorities, management of organizations, operations and maintenance, finance, and the SWM system including generation, collection, transportation, intermediate-treatment, recycling and final disposal.

III. Priority issues and support needs leading to their identification. Once these needs were identified, the survey examined the possibility of providing support. If support was possible, the survey looked into specific support measures.

![Moonplane Landfill Site @ Nuwara Eliya](image1)

![Burning at the Landfill Site](image2)

**JICA Volunteers’ role in solid waste management activities**

Japanese volunteers attached to local authorities through the NSWMSC, and the CEA have been actively supporting solid waste management and have complemented programs conducted by relevant host institutions at grassroots level. Some of the activities conducted by volunteers included creating community awareness on the need for source separation, and conducting environmental education programs at school, household and institutional level, adding value to other numerous related programs.

One of the main programs supported by JICA volunteers assigned to the CEA is
the Parisara Niyamu Program. The objectives of this program were to create awareness amongst school children about environmental issues, and motivate them to become citizens who would protect the environment. JICA volunteers supported this program by developing practical teaching materials and tools to effectively and clearly communicate to change the attitudes of the people, and motivate them towards environmentally friendly behavior. The program is implemented in several public schools in the country.
Volunteers have also conducted several outdoor activities that have helped to achieve this goal. In numerous instances, JICA volunteers have worked as resource persons, and made presentations at workshops and awareness programs aimed at developing the knowledge and skills of schoolteachers engaged in environmental education.

JICA volunteers together with CEA officials supported very successful programs aimed at communicating the importance of proper waste disposal amongst the general public visiting Kandy during the famed Perahera season. These programs were conducted with the participation of school children belonging to Parisara Niyamu Groups.

“Catching them young” ; Former JICA volunteer, Ms Kawabe working with school children

As a part of their activities in 2013, JICA volunteers organized a competition amongst school children to promote habits that help prevent environmental pollution. The idea of this competition originated from the activities conducted by the Japanese volunteer, Ms Reiko Takayama. She worked at the Bandarawela Municipal Council. Ms Takayama whilst carrying out environment related awareness programs for school children composed a song “kunu danna epa” (“Do not litter”), with Sinhala lyrics sung to a local tune. This soon became popular amongst school children in Bandarawela. The children who sang this song not only had much fun singing it, but also spread
a message on the importance of keeping the environment clean. These habits learned while young are most likely to stay with them and become lifelong habits.

Creative and effective communication is one of the strengths of JICA volunteers. The JICA volunteers working with the CEA and several local authorities through the NSWMSC in the field of environmental education organized a singing competition that challenged school children from 20 schools to compose their own songs with environmentally friendly messages. The uniqueness of this competition was that it was not only limited to music, but also was also open to expressive actions that projected a strong message on the importance of waste separation. “Waste can be our friend, and it could be used for our benefit” was one such message that resonated well with communities.

The importance of action over mere theory is a message the volunteers carry everywhere they go. Their work conveys strongly that individual and collective action carried out by people can make our environment a better place to live in, but only if such action becomes a part of our lives. In the long term, these programs would have an impact on future generations, who, judging from current trends, would have to grapple with more complex environmental issues. The need to conserve the country’s rich bio diversity and its fast depleting forest cover is a challenge to both current and future generations. JICA volunteers in the field of environmental education are working hard, and are playing a small but important role in helping Sri Lanka face this challenge.
**Organic Composting by the Takakura Method**

JICA introduced the Takakura method of composting to address many solid waste management issues facing NSWMSC in Sri Lanka, by inviting its inventor Mr Takakura, to conduct a seminar on the subject in March 2014.

The Takakura composting method is an organic waste composting method that is fast, easy and cheap. It produces compost in two weeks using local microorganisms as accelerators. In addition to compost production, the project brings extra benefits such as the reduction in waste generation by facilitating the segregation of other dry waste, and improvement in sanitary conditions in households and communities.

After the introduction JICA volunteers have conducted various activities in partnership with the NSWMSC, Waste Management Authority of the Western Province, and seven local authorities, to popularize the use of the Takakura method of composting amongst households. These activities were carried out under a project named “Takakura Composting Network” (TCN). The pilot program included ten households selected from each local authority. The relevant activities included conducting seminars at local authorities; organizing workshops for the selected households; distribution of Takakura compost starter kits to households; and monitoring progress at household level.

The Takakura composting method has been successful not only in Japan, but also in Surabaya City in Indonesia, where generation of waste was reduced by 30% through the use of this new technology. It is clear that this technology would be of great help to residents in apartment complexes, as well as to those who do not have garden space to dispose bio-degradable waste. JICA hopes that the technology presented would enable the reduction of waste generation in Sri Lanka in an effective and efficient manner.

Currently there are 7 JICA volunteers supporting solid waste management activities under NSWMSC. Six of these volunteers are assigned to local authorities where they work at grassroots level. In addition to these volunteers, two other JICA volunteers are currently assigned to the CEA. So far, 25 JICA volunteers have worked in support of the environment sector in Sri Lanka.
Kandy City Waste Water Management Project

Kandy the second largest city and a UNESCO declared world heritage site in Sri Lanka suffers from the absence of a modern sewerage system. Densely populated areas in Kandy, particularly low-income communities have limited access to proper sanitation facilities and the existing facilities have neither been renovated adequately nor maintained. The lack of a proper sewerage management system is the main cause of pollution of the Kandy Lake, Meda Ela Stream, and the Mahaweli River. A growing number of communities are vulnerable to health, sanitation and living environment hazards. The city’s importance as a culturally and historically important city is also being affected by the environment degradation.

At present pipe sewerage coverage in Sri Lanka is 2.0% of the population. According to the plans, this coverage will be expanded up to 3.4% by 2020. Putting in place a sustainable solution for the sewerage problem in Kandy had been identified as a priority project. JICA has supported the formulation of the Kandy City Waste Water Management Project (KCWMP) by conducting feasibility studies and detail designs.

The KCWMP target area is Kandy Central that has a high population density. The project covers 26 Grama Niladhari Divisions (GND) fully or partially. It comprises of 23 MC wards spreading over 733 ha or 12.4% of the area coming within the area of authority of Kandy Divisional Secretariat, totalling 5,900 ha.

The project scope includes the construction of a Wastewater Treatment Plant (14,000 m3/day capacity); the main pump house and supply of operation and maintenance equipment; establishment of a sewerage collection system, and providing connections and facilities for the densely populated low-income areas.

A new centralized sewerage system with connections for houses will be a new experience for the people in Kandy. However, they could experience some inconvenience due to the complex nature of implementing the project. To address this a Public Relations Campaign is in place. JICA has also dispatched a volunteer Ms. Mao Yamashita to work with the Project. “People need to understand what is involved in a project of this nature and I hold many meetings to explain the project to communities,” says Ms. Yamashita.

The National Water Supply and Drainage Board is implementing the project in collaboration with Kandy Municipal Council. After completion of the project, the
operation and maintenance of scheme will be handed over to the Kandy Municipal Council.

The Project for the Strategic Master Plan under Sewerage Sector

JICA is supporting the preparation of a strategic Master Plan for the sewerage sector under the JICA Technical Corporation Scheme and this will contribute immensely to
Government efforts to achieve 100 percent sewerage management coverage by 2025.

The project goals are to:

- Compile a National Sewerage Master Plan for Sri Lanka under the Sewerage Sector,
- Prepare a City Sewerage Master Plans for prioritized cities,
- Conduct Feasibility Studies for the selected cities,
- Capacity development in the sewerage sector.

The Japanese experts will implement the project in collaboration with the National Water Supply and Drainage Board.

**Waste Water Treatment Plant using Ozone Oxidation Method for Milco Digana Factory**

This is another verification survey assisted by JICA for the dissemination of Japanese technologies. The Japanese Small and Medium enterprise (SME), Huens Co. Ltd. is implementing this project in collaboration with Milco (Pvt.) Ltd. The verification survey intervention will improve the waste water management capacity of the Milco Factory at Digana by adopting the Ozone Oxidation method using Swirling Jet technology. This is a patent technology with special features such as small amount of sludge, energy savings, and lower construction and running costs but with higher efficiency. After the implementing verification survey, Huens Co. Ltd. will examine the possibility of adopting this technology for wider use in Sri Lanka.
Current situation of Milco factory