

## Workshop Report

# National Seminar on Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka

Waters Edge (Nelum Hall), Battaramulla, Sri Lanka  
24<sup>th</sup> March 2021



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## 1 Introduction: Need and Objectives of the Workshop

The Municipal Solid Waste (MSW) management sector in Sri Lanka is steadily improving during the last few decades due to the active involvement of Central Government, Provincial Councils, non-government organizations, and community-based initiatives. However, despite the substantial improvement of implementation of source segregated waste collection, organic waste resources recovery by composting and establishment of inorganic waste recovery for recycling by Local Authorities (LAs), private recyclers, and the informal sector, a substantial amount of uncollected and collected waste is still dumped in open dumpsites. It has been reported that 339 open MSW dumpsites scattered all around the cities and urban areas of the country (Dharmasiri, 2019). Consequently, the Ministry of Environment (MoE) took leadership to introduce the concept of open dumpsite rehabilitation and safe closure which was technically and financially supported by IGES Centre Collaborating with UNEP on Environmental Technologies (CCET), United Nations Environmental Program and Ministry of Environment, Japan (MOEJ).

As the first step, MoE and IGES-CCET collaboratively initiated a project to develop a comprehensive practical guideline for safe closure and rehabilitation of MSW dumpsites in Sri Lanka which can be endorsed by Local Authorities and other stakeholders to be used in future final disposal management. Moreover, the need of moving away from open dumpsite has already been highlighted in the recent Waste Management Policy of Sri Lanka (Waste Management Policy, 2019). Consequently, a series of stakeholder meetings and discussions were held to decide the content and structure of the guideline and finally, all stakeholders agreed to develop a comprehensive, yet simple guideline that can be referred to and understand by policymakers, waste management administrators and mid-and low-level officers on Local Authorities and other stakeholder institutions. After a series of consultative workshops, meetings and report reviewing processes, the “Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka” was developed and published by MoE in February 2021 in the English language. Moreover, the same manual is being translated to the official languages of Sri Lanka: Sinhala and Tamil will help for a better understanding of target users.

The concept of dumpsite rehabilitation and safe closure is new to many actors in the MSW sector; thus, MoE and IGES-CCET intended to conduct workshop to introduce the guideline document and also to educate target uses (persons who are responsible for decision making, operation, and management of final disposal sites) on the need, practice, and technical aspects of the dumpsite safe closure and rehabilitation. Though there was a huge demand from the target uses to learn the concept by participating in an interactive training workshop, the prevailing Covid-19 pandemic control regulations in Sri Lanka restrict the large gathering and extended stays.

Therefore, at first, a one-day seminar was organized by MoE in Colombo inviting key actors from main institutions and representatives from all 09 provinces of Sri Lanka. The seminar targeted a mix audience; however, the majority were administrators, engineers, technical officers, public health inspectors, and environmental officers from Provincial/Local Authorities. In addition, participants from key stakeholder institutions such as the Ministry of Environment, National Solid Waste Support Center and Waste Management Authority - Western Province also attended the seminar.

This report summarized the structure, delivery, and outcome of the “National Seminar on Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka” which was held at Waters Edge (Nelum Hall), Battaramulla, Sri Lanka on 24<sup>th</sup> March 2021.

## 1.1 1.1 Aim and objectives

The overall aim of the workshop was to officially endorse and launch the “**Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka**”. In addition, the seminar set the following objectives;

- I. Make aware senior and filed level government officials on the “Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka”.
- II. Make aware regulatory authorities, management authorities and practitioners on the importance of dumpsite rehabilitation.
- III. Educate the participants on the risk of dumpsites and technical aspects of dumpsite rehabilitation and safe closure.
- IV. Initiate a dialog among stakeholders on practical use of guidelines with a special focus on challenges and opportunities.
- V. Conduct discussion on the future course of actions, especially training of trainers and stakeholders on practical use of guidelines.
- VI. Demonstrate the process and outcome of recently rehabilitated Meethotummulla open dumpsite by technical presentations and field visit the rehabilitated dumpsite.

## 1.2 1.2 Overview of the workshop

- 1) The workshop was organized in three sessions: opening session to officially launch the “Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka”, technical session to educate the audience on the need and technical aspects of the dumpsite rehabilitation and safe closure, and field visit to Meethotumulla dumpsite to gain practical knowledge on the rehabilitation process.
- 2) Altogether there were five keynote addresses in opening session representing MoE, UNEP, IGES-CCET, and Central Environmental Authority (CEA) of Sri Lanka.

- 3) The technical sessions were delivered by seven professionals from the University of Peradeniya, University of Moratuwa and Sabaragamuwa University, a foreign consultant, from the WEST WASTE MAP project of WMA-WP, an engineer from National Building Research Organization (NBRO), and a town planner from Urban Development Authority (UDA).
- 4) 56 participants attended the seminar representing MoE, CEA, National Solid Waste Management Support Center (NSWMSC), Waste Management Authority-Western Province (WMA-WP), Provincial Councils (PC), Local Authorities (LAs), Environmental NGOs, Public Health Inspectors Training Institute, Sri Lanka Land Development Corporation (SLLDC), Department of Agriculture, Sri Lanka Climate Change Secretariat, and Ministry of Local Government and Provincial Councils.
- 5) At the end of the technical session, an open-ended discussion which was chaired by high-ranking officers from NSWMSC, WMA-WP, Provincial Councils, MoE, and Universities. There was a lively and constructive discussion on the guidelines, common MSW issues, and future course of action based on the guidelines.
- 6) 38 participants attended the field visit to Meethotumulla rehabilitated dumpsite visit and practical demonstration and discussion session on site.
- 7) In addition to the physical gathering at the venue, a synchronized online broadcast was conducted to facilitate the participation from foreign resource persons, government officers from distant PCs, universities, and NGOs. There were totally of 13 participants connected via online broadcast.

## 2 Session highlights

### 2.1 Opening Session

#### 2.1.1 Welcome and Keynote Speech

The welcome and keynote speech was delivered by the chief guest Mr. M.G.W.M.W.T.B. Dissanayake, Additional Secretary (Environment Policy & Planning) who represents the Ministry of Environment.



Mr. Dissanayake stated the importance of guideline for proper management of solid waste dumpsites, timeliness of the implementation. Further, he endorses and highlighted the national MSW strategy and technical plan in the guideline book which helps to shift from open dumping to sanitary landfills that will reduce the adverse impact of waste on the environment.

He also thanked the IGES Centre Collaborating with UNEP on Environmental Technologies (CCET), United Nations Environmental Program and Ministry of Environment, Japan (MOEJ) for their technical and the financial support as well as all the technical experts and administrative officers from MoE for their fabulous support in completing this task. He invited all stakeholders to use the guideline manual in their future MSW activity planning and encourage MoE and other stakeholders to conduct more awareness and training programs on dumpsite rehabilitation and safe closure.



### 2.1.2 Keynote address by Mr. Kazunobu Onogawa (IGES)

The second keynote address was delivered by Mr. Kazunobu Onogawa, Director (IGES- CCET). The synchronized keynote was delivered via online broadcast.



Mr. Onogawa briefed the objectives of this project initiatives and the importance of dumpsite rehabilitation and safe closure in Global and Local context. He further elaborated that insufficient operations of waste control beginning from generation, collection, transportation in the direction of the very last disposal at landfill sites while not having a longtime method for segregation and recycle as resources. Uncollected wastes get scattered across the environment and get into drains and rivers and ultimately finally ends up at oceans contaminating the marine surroundings and giving disastrous influences on marine primarily based totally live.

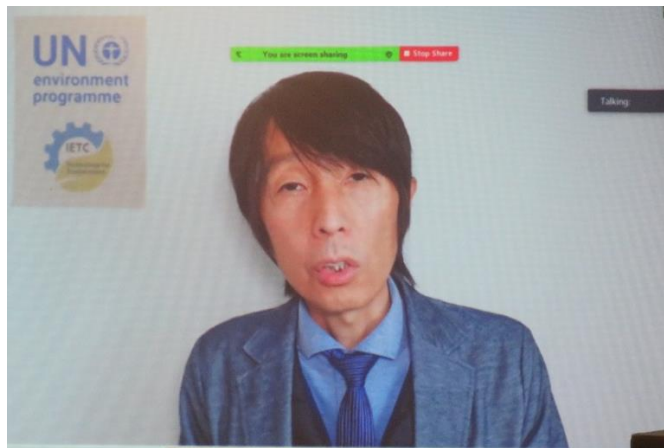
IGES Centre Collaborating with UNEP on Environmental Technologies (CCET), in coordination with the Ministry of Environment, Sri Lanka has developed “Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka” to address the issue of waste dumps by providing the necessary technical guidance to local authorities, government and other relevant stakeholders for safe closure and rehabilitation of the waste dumps.

Thanks to the strong commitment of the Ministry of Environment and kind cooperation and inputs of relevant ministries and institutions, Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka are successfully developed.

Further Mr. Onogawa thanked all the collaborators who contributed to the guideline development process by sharing their expert views, writing the guideline, reviewing the guidelines, and taking every step to the success this project.

### 2.1.3 Keynote address by Dr. Shunichi Honda UNEP-IETC

The third keynote address was delivered by Dr. Shunichi Honda, Programme Officer, UNEP-IETC. The keynote was delivered via online broadcast.



Dr. Honda stated that it was a great opportunity for UNEP to work collaboratively with the Ministry of Environment of Sri Lanka on Dumpsite Rehabilitation. He explained that guideline contains technical information for professionals to use in dumpsite rehabilitation. Further, he elaborated that on the SDG state, people are moving for circular economies and this seminar will help to move forward in successful waste management system. Any landfill site it closed when its capacity is filled. But it is not simple because leachate, odors, gaseous emissions, etc., make much impact on the surrounding environment and human health. Therefore, it needs better environmental management and monitoring system. All technical information could be found in the developed guideline. Further, we emphasized that we need a fundamental program for waste management created by our society. Minimum production and minimum resource consumption are the keys to minimize waste generation which helps the community to rely on a circular economy. It is important to minimize environmental pollution which is nature's capital.

Dr. Honda highlighted the need of uplifting the living environment around the dumpsite both in terms of human wellbeing and also for environmental protection. He further elaborated on the fate and destiny of children living around dumpsites, and how the prevailing unhygienic and unpleasant conditions around dumpsites affect the children and future generations physically and psychologically. Dr. Honda emphasized that dumpsite rehabilitation and safe closure will not only protect the environment but also protect humanity at large. His encouraging and humane speech was well perceived by the audience.



#### 2.1.4 Keynote address by Mr. S. M. Werahera, Director (EPC & CM)- Ministry of Environment



Mr. Werahera briefly overview the National Policy on Waste Management (2019). He explained the core principle of the national policy is Circular Economy where all stakeholders in waste sector should align with resource circular economy where waste dumping is having least priority. He elaborated the overall vision, mission, and objectives of the national policy with particular emphasis on solid waste management. In conclusion, he emphasizes that collaboration and partnerships bearing responsibility and accountability are the need of the day with mutual understanding to reach the common goal.

#### 2.1.5 Keynote address by Ms. Sarojini Jayasekara, Director-Waste Management, CEA



Ms. Jayasekara delivered a brief talk on Regulatory Framework of Waste Management in Sri Lanka with a particular emphasis on national regulatory framework set forth by Constitution, National Environmental Act (1980), and all relevant acts and circulars. She emphasized the role

and responsibility of each stakeholder in order to preserve and conserve nature and environment and the governing and monitoring mechanisms for environmental conservation. She highlighted the latest initiative by H. E. the President to uplift the MSW sector by appointing a presidential committee comprising of experts and stakeholders in the waste management sector.

#### 2.1.6 Official launching of guidelines

Mr. S. M. Werahera, Director (EPC & CM)- Ministry of Environment officially handed over the printed guideline document to Mr. M.G.W.M.W.T.B. Dissanayake, Additional Secretary (Environment Policy & Planning), Ministry of Environment which was a symbolic launching of the “Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka”. Thereafter, the guideline document was formulaically handed over to representatives of Government organizations, expert reviewers, and participants.



## 2.2 Technical Session

### 2.2.1 Need for dump site rehabilitation: Global and local perspectives by Dr. Rajeev Kumar Singh, Researcher, (CCET-IGES)



#### Need for dump site rehabilitation: Global and local perspectives

Rajeev Kumar Singh, Ph.D.  
Researcher

IGES Centre Collaborating with UNEP on Environmental Technologies (CCET)  
Japan



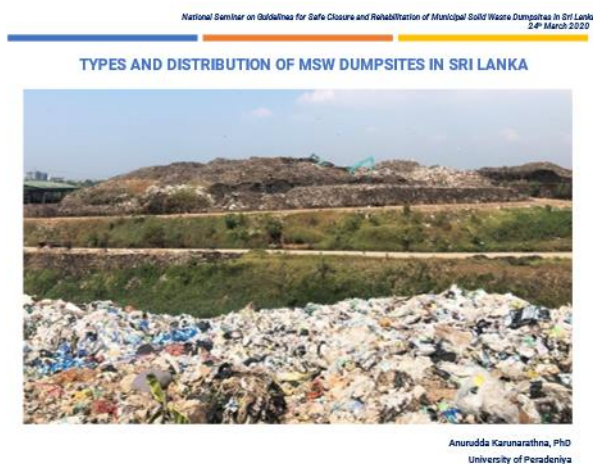
Dr. Rajeev Kumar Singh, Researcher, (CCET-IGES) started the technical session with a general introduction to global issues of open MSW disposal. He explained the health, environmental, and climate change impacts of open MSW disposal in Sri Lanka as well as other developing countries. Also, Dr. Rajeev Kumar Singh explained the disasters associated with dumpsites collapsed and fire that eventually ended up with losing human lives and public properties. Then, he summarized the waste management statistics of Sri Lanka and emphasized that Greenhouse Gas Emission from open dumpsites is one of the key sources of GHG in Sri Lanka. Further, he explained how waste management, especially final disposal site management relates to 17 SDGs and the active the stakeholders, actors and country should take to prevent all issues associated with open dumpsites. Finally, he introduced the concept behind the guideline and encourage participants to read, understand and act based on the guideline.

### 2.2.2 Types, distribution, and history of MSW dumpsites in Sri Lanka by Dr. Anurudda Karunarathna, University of Peradeniya

Dr. Karunarathna first showed the basic waste management statistics, infrastructure and MSW management system in Sri Lanka. Then, he further elaborated the number, distribution and locations of MSW open dumpsites in Sri Lanka highlighting the health, environmental and socio-economic issues associated with dumpsites. He also explained the differences among different final disposal facilities such as open dumpsites, semi-engineered landfills, and sanitary landfills with examples from Sri Lanka and other countries of the world. The presentation also gave an



overview of different components of landfill facilities and how they are engineered to prevent environmental pollution and public health.



### 2.2.3 Dumpsite Pollution Risk Assessment by Prof. Sunethra Gunatilake, Sabaragamuwa University



Prof. Gunatilake first briefed the overall environmental pollution issues caused by open disposal of MSW. Further, she elaborated on the risk of different pollutant types, their occurrence, fate and risk to human health and environment. Her presentation elaborated the chemical, physical and biological hazardous of presence in leachate, gaseous emissions and contaminants. Further Prof. Gunatilake explained with examples of different dumpsite settings, both the favorable sites for pollution control and unfavorable sites that are difficult to control pollutant migration to groundwater. She also introduced the risk assessment procedure emphasizing the need for systematic assessment of risk with a scientific approach. She concluded her presentation with an explanation that of ongoing university research that can help Local Authorities in risk assessment studies.

## 2.2.4 Dumpsite stability and risk of failure: Sri Lankan case studies by Prof. Udeni Nawagamuwa, University of Moratuwa



Prof. Nawagamuwa presented the methodology of dumpsite stability assessment with a particular emphasis on geotechnical aspects. His presentation was based on the stability analysis of the Meethotumulla dumpsite after the collapse in April 2017. The presentation consisted of technical aspects of slope stability assessment, experimental approaches and the need for a research, and development in order to improve our understanding of dumpsite behavior on unstable ground conditions. He further explained the experiences gained through pilot study conducted at Meethotumulla and continuation of research works to examine the stability of major dumpsites in Sri Lanka.

## 2.2.5 Planning, decision-making approaches, closure levels and maintenance of rehabilitated or closed facilities by Dr. Anurudda Karunaratna, University of Peradeniya



Dr . Karunarathna then presented the approach presented in the guideline document that can be executed by designers and planners in order to make decisions based on risk assessment. His presentation showed the classification of dumpsites based on risk levels and how authorities can decide the level of rehabilitation or safe closure based on level of risk poses by each dumpsite. Further, he explained the different levels of containments that one should decide based on pollution risk and other resources for upgrading. He also showed several examples of rehabilitated sites in Sri Lanka and site-specific techniques adapted in each site. His presentation also included explanations on axillary facilities and processors such as buffer zones, permeable reactive barriers and landfill mining. Finally, he emphasized the need for appropriate operational and maintenance plan that ensures the sustainability of rehabilitation objectives.

#### 2.2.6 Small and medium size dumpsite rehabilitation in Sri Lanka: Case studies by Dr. Naofumi Sato, JICA Consultant, WEST WASTE MAP project



Dr. Sato delivered a lecture on the initiative, process, outcome and lesson learned from several turn-key MSW dumpsite rehabilitation projects in Sri Lanka. First, he explained the history of Solid Waste Management projects supported by Japan International Cooperation Agency (JICA) in Sri Lanka since 2003. Then Dr. Sato explained the innovative local technique of developing an expansive clay bottom liner system at the MSW landfill site in Kataragama PS and Permeable Reactive Barrier at the MSC landfill site in Kurunegara MC which were outcomes of JICA funded project Pollution Control and Environmental Restoration Techniques for Solid Waste Landfills in Sri Lanka (2017-2019). Then he explained the first-ever dumpsite rehabilitation projects conducted in Sri Lanka: making gentle slope and turfing to avoid environmental issues at Gohagoda landfill site in Kandy Municipality and complete rehabilitation of Moon plain landfill site in Nuwara Eliya Municipal council. His presentation was based on practical applications of innovative technologies and standard practices that can be adapted by other Local Authorities.



## 2.2.7 Technical aspects of Meethotumulla dumpsite rehabilitation project by Mr. W. K. N. Chandrasena, Civil Engineer, NBRO



Engineer Chandrasena delivered a lecture on different techniques used in the rehabilitation of the Meethotumulla dumpsite to an urban park. He explained the challenges faced by designers and engineers in selecting appropriate technological interventions to make a stable physical setting, leachate collection and treatment system, gas collection and treatment system, and final covering system. He went on explain the engineering principles and construction process with actual photographs and designs.

## 2.2.8 Rehabilitation of Meethotumulla open dumpsite to an Urban Park by Planr Mr. Hasitha Lewke Bandara, Assistant Director & urban Planner, UDA



Mr. Bandara lectured on overall conceptualization, planning, design, construction and after-use plan of the Meethotumulla dumpsite. He explained that UDA was given the task of converting the collapsed dumpsite into a nuisance free urban landscape that can integrate well with Colombo city plan. He elaborated the design process and the future plan of converting the

rehabilitated dumpsite to an urban park that will be visited by many people in near future. His presentation gave a novel experience to audience on how urban planners persuade opportunities in Urban planning and make use of every resource for socio-economic wellbeing of the society.

After the 08 technical presentations, organizers invited participants to express their views and ask questions from participants and other key persons from stakeholder institutions.

### 2.3 Panel discussion

The panel discussion was co-chaired by

- i. Mr. Nimal Silva- Deputy Director, WMA-WP,
- ii. Mr. D. P. Indaka, Deputy Director, NSWMSC,
- iii. Mr. Dulip Somirathna, Commissioner of Local Government- Sabaragamuwa Province,
- iv. Mr. Senaka Palliyaguruge, Commissioner of Local Government- Southern Province,
- v. Mr. M.M. Wijenayake, Commissioner of Local Government- Uva Province, and
- vi. Mr. N. Manivannan, Commissioner of Local Government- Eastern Province.

In addition, all the presenters and key government officers actively involved in the panel discussion.



- a) Panelists appreciate the effort taken by UDA and other stakeholders on development of Meethotumulla open dump site to an urban park. They appreciated the initiative taken by MoE to conduct the dumpsite rehabilitation workshop and also extend the thank to

IGES, UNEP and CCET for the collaborative effort to make it successful. They highlighted the importance and requirement of practical solutions in waste management center of Sri Lanka.

Participants raised the following questions and comments.

- b) Karadiyana dumpsite needed to rehabilitate. How to handle existing waste in the dumpsite and if it has to be closed permanently or temporarily, where to dispose of the incoming waste is the major issue faced by the management authorities. Fund acquisition is also a key issue in decision making.
- c) Participants mentioned that the funding mechanism make a major role in decision making. Therefore, they requested to have a proper guidance in fund acquisition.
- d) Possibility of acquiring private investors on the dumpsite rehabilitation was suggested.
- e) Possibility to start a biogas project to reduce GHG emissions and their feasibility were questioned.
- f) A participant pointed out that political interventions in technical decision makes the situation worst and may be problematic for private investors. It is a major reason that private investors hinder the interest in public private partnership programs.
- g) A suggestion came out from participant that sanitary landfill is also a good management solution for residues. But it is important to introduce solutions for other waste categories as well.

In response;

- a) Panelists (Mr. Indaka- NSWMSC) suggested that if there is a proper plan for rehabilitation such as Meethotumulla waste park, NSWMSC could be able to fund for the dumpsite rehabilitation even outside the Colombo. It is essential to focus on the dumpsite at Eastern Province due to wild elephant invades.
- b) Further Mr. Indika- NSWMSC stated that Public private partnerships work successfully in business activities. Kawashima composting at Dambulla municipal council became a profitable venture with the introduction of value-added compost production by a private sector entrepreneur. Therefore, NSWMSC planned to introduce the same model to Galle and Kurunegala municipal councils as well.
- c) Panelists (Mr. Indaka- NSWMSC) advised that if participants/ administration willing to start biogas production using existing dumpsite, they need must thoroughly study biogas production and cost benefit prior to implementing it in the field.
- d) Panelists mentioned that the requirement of proper legal system to take actions against improper waste management practices. There should be sufficient time to adjust to the newly introduced practices and alternative plan to sustain the waste management

system. As an example, Sri Lankan Government request from all the provincial councils at Western province to close all the dumpsites and transfer waste into Waste to energy plant. If there is a technical issue in the waste to energy plant, waste has to be temporary store until the system works or transfer to nearest dumpsite or resource recovery facility. If there are no alternative solutions for such problems legal actions will not be successful.

- e) UDA insisted that they are in apposition to support in acquiring suitable lands for waste management. But the land acquiring party should ensure that the proper disposal of waste in the acquired land. UDA raise their interest in private investors in dumpsite rehabilitation. UDA mentioned that they are willing to direct qualified investors to proper dumpsite rehabilitation.
- f) Many participants and panelists emphasized the importance of provincial level training workshops on dumpsite rehabilitation. Panelists and participants, with the guidance of MoE agreed to support the organizing provincial level workshops.

### 2.3.1 Closing remarks and vote of thank by Ms. Sujeewa Fernando, MoE



Ms. Sujeewa Fernando briefed the outcome of the opening session, technical sessions, and panel discussion. Then she emphasized that the Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka will only be utilized if it reached intended audience. Therefore, she invited all stakeholders to disseminate the outcome of the seminar and take initiatives to organize seminar and training workshops where MoE will be able to facilitate with guideline documents, training modules and coordinating with resource persons.

Mr. Fernando on behalf of MoE, thanked IGES, UNEP and CCET for their generous support throughout the process. Also, he extended her thank to all the authors, reviewers, workshop participants, stakeholders and seminar participants for their support, encouragements, and enthusiasm.



## 2.4 Visit to the Meethotumulla Dumpsite Rehabilitation project site

The visit to the Meethotumulla site was organized to witness and learn the specific features of dumpsite rehabilitation process. Meethotumulla dumpsite was a site every citizen of Sri Lanka is aware of due to collapse of the site on 14<sup>th</sup> April 2017. Also, it was the country's largest open MSW dumpsite at the time. Therefore, many participants were enthusiastic about the rehabilitation process and they wanted to get firsthand experiences on the ongoing rehabilitation process. There were 38 participants attending the Meethotumulla site visit.

Dr Anurudda Karunaratna, Engineer Chandrasena and Planr Bandara explained the rehabilitation process executed from the beginning. Participants questioned about the engineering challenges and remedies the designers adapted. The site visit and discussion lasted for two hours.



## Annex 1: Agenda

### National Seminar on Guidelines for Safe Closure and Rehabilitation of Municipal Solid Waste Dumpsites in Sri Lanka Waters Edge (Nelum Hall), Battaramulla

|               |   |
|---------------|---|
| 08.30 – 8.50  | <b>Registration and Welcome Tea (on arrival)</b>  |
| 8.50 – 9.00   | <b>Lighting of the oil lamp</b>   |
|               | <b>Opening Session</b>  |
| 9.00 - 9.10   | Welcome and introduction to the workshop<br><b>Mr. M.G.W.M.W.T.B. Dissanayake</b> , Additional Secretary (Environment Policy & Planning), Ministry of Environment   |
| 9.10 - 9.20   | Address by <b>Mr. Kazunobu Onogawa</b> (IGES)   |
| 9.20 - 9.30   | Address by <b>Dr. Shunichi Honda</b> , Programme Officer, UNEP-IETC   |
| 9.30 - 9.40   | National Waste Management Policy<br><b>Mr. S. M. Werahera</b> , Director, (EPC & CM)- Ministry of Environment   |
| 9.40 - 9.50   | Regulatory framework of waste disposal site management<br><b>Ms. Sarojini Jayasekara</b> , Director-Waste Management, Central Environmental Authority   |
| 10.00 - 10.30 | <b>Tea Break</b>  |
| 10.30 - 13.30 | <b>Technical Session</b>  |
| 10.30 - 10.45 | Need for dump site rehabilitation: Global and local perspectives<br><b>Dr. Rajeev Kumar Singh</b> , Researcher, (CCET-IGES)   |
| 10.45 - 11.00 | Types, distribution, and history of MSW dumpsites in Sri Lanka<br><b>Dr. Anurudda Karunarathna</b> , Senior Lecturer, University of Peradeniya  |
| 11.00 - 11.20 | Dumpsite Pollution Risk Assessment<br><b>Prof. Sunethra Gunatilake</b> , Sabaragamuwa University  |
| 11.20 - 11.40 | Dumpsite stability and risk of failure: Sri Lankan case studies<br><b>Prof. Udeni Nawagamuwa</b> , University of Moratuwa   |
| 11.40 - 12.00 | Planning, decision-making approaches, closure levels and maintenance of rehabilitated or closed facilities<br><b>Dr. Anurudda Karunarathna</b> , Senior Lecturer, University of Peradeniya  |
| 12.00 - 12.20 | Small and medium size dumpsite rehabilitation in Sri Lanka: Case studies<br><b>Dr. Naofumi Sato</b> , JICA Consultant, WEST WASTE MAP project, WMA-WP   |
| 12.20 - 12.40 | Introduction to excursion visit: Technical aspects of Meethotumulla dumpsite rehabilitation project<br><b>Eng. W. K. N. Chandrasena</b> , Civil Engineer, NBRO  |
| 12.40 - 13.00 | Rehabilitation of Meethotumulla open dumpsite to an Urban Park<br><b>Planr Mr. Hasitha Lewke Bandara</b> , Assistant Director & urban Planner, UDA  |
| 13.00 - 14.00 | <b>Panel discussion:</b> Challenges and opportunities for upgrading MSW disposal facilities<br>Co-Chaired by<br><b>Mr. Nimal Silva</b> - Deputy Director, WMA-WP<br><b>Mr. D. P. Indaka</b> , Deputy Director, NSWMS, C<br><b>Mr. Dulip Somirathna</b> , Commissioner of Local Government- Sabaragamuwa Province,<br><b>Mr. Senaka Palliyaguruge</b> , Commissioner of Local Government- Southern Province,<br><b>Mr. M.M. Wijenayake</b> , Commissioner of Local Government- Uva Province,<br><b>Mr. N. Manivannan</b> , Commissioner of Local Government- Eastern Province. |
| 14.10 - 14.20 | Closing remarks and vote of thank<br><b>Ms. Sujeewa Fernando</b> , Assistant Director (EPC & CM)- Ministry of Environment   |
| 14.20 - 15.00 | <b>Lunch</b>  |
| 15.00 - 17.00 | <b>Meethotumulla Dumpsite Rehabilitation project site:</b><br>[Site History, Contingency management, Closure plan, technical aspects of rehabilitation and lesson learned]: Presented by Consultants/Designers/Engineers from UDA and NBRO  |



## Annex 2: List of Participants

| #  | Name of the Participant        | Position   | Institute   |
|----|--------------------------------|--|---|
| 1  | Mr. M.G.W.M.W.T.B. Dissanayake | Additional Secretary (Environment Policy & Planning) | Ministry of Environment                                     |
| 2  | Mr. S.M. Werahera              | Director, EPC & CM                                   | Ministry of Environment                                     |
| 3  | Ms. Sujeewa Fernando           | Assistant Director, EPC & CM                         | Ministry of Environment                                     |
| 4  | Ms. H.P.S. Jayasekara          | Resource Person/ Director (SWM)                      | Central Environmental Authority                             |
| 5  | Mr. Hasitha Lewke Bandara      | Resource Person/ Urban Planner                       | Urban Development Authority                                 |
| 6  | Mr. D.P. Indaka                | Resource Person/Deputy Director                      | National Solid Waste Management Support Center              |
| 7  | Dr. Udeni Nawagamuwa           | Resource Person/ Professor                           | University of Moratuwa                                      |
| 8  | Dr. Nafumi Sato                | Resource Person/ JICA consultant                     | JICA  |
| 9  | Prof. S. K. Gunatillake        | Resource Person/ Professor                           | Sabaragamuwa University of Sri Lanka                        |
| 10 | Mr. W.K.N. Chandrasena         | Resource Person/ Engineer                            | National Building Research Organization                     |
| 11 | Dr. Anurudda Karunaratna       | Resource Person/ Senior Lecturer                     | University of Peradeniya                                    |
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| 13 | Mr. Nirosh Gnanachellwam       | Assistant Lecturer/ Workshop Coordinator             | Thiruvahan, Manager Lane, Batticaloa                        |
| 14 | Mr. R.B.C.D. Jayasundara       | Workshop Assistant                                   | Balagolla, Meegaha Arawa, Nagala, Bibila                    |
| 15 | Mr.M.M. Wijenayake             | Commissioner   | Department of Local government-Uva Province, Badulla        |
| 16 | Ms. Malkanthi Wijewardhana     | Assistant Commissioner-Community development         | Department of Local Government- Western Province            |
| 17 | Mr. N. Manivannan              | Commissioner of Local Government                     | Department of Local Government, Eastern Province            |
| 18 | Eng. A.S. Gowripalan           | Provincial Engineer                                  | Department of Local Government, Eastern Province            |
| 19 | Mr. Senaka Palliyaguruge       | Commissioner of Local Government                     | Department of Local Government, District Secretariat, Galle |
| 20 | Mr. N.P. Koralage              | Planning Service                                     | Department of Local Government, District Secretariat, Galle |
| 21 | Ms. Hasula Wickremasinghe      | Program Assistant                                    | Climate Change Secretariat                                  |
| 22 | Ms. Nayana Samaraweera         | Consultant   | JICA, SWM Project   |
| 23 | Ms. Rasika Gamage              | Assistant Director                                   | National Solid Waste Management Support Center              |
| 24 | Mr. Indika Rajapaksha          | Environment Officer                                  | Centre for Environmental Justice                            |
| 25 | Ms. R. Shanmugapriya           | Assistant Director -Technical                        | Waste Management Authority -Western Province                |
| 26 | Ms. Dhammi Pindeniya           | Ecologist  | Sri Lanka Land Development Corporation                      |
| 27 | Mr. A.S.Y.P. Ranasinghe        | Assistant Director                                   | Research & Development Center, Makandura                    |

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| 28 | Ms. Durga Jayasinghe                 | Assistant Commissioner                  | ACLG office, Anuradapura                         |
| 29 | Mr.N.J. Asanka Nimal Jayasiri        | Assistant Commissioner                  | ACLG office, Anuradapura                         |
| 30 | Ms.B.R.L. Perera                     | Development Officer/ Workshop Assistant | Ministry of Environment                          |
| 31 | Mr.D.P. Chandrasekara                | Development Officer/ Workshop Assistant | Ministry of Environment                          |
| 32 | Ms.R.M.K.H. Rathnayake               | Development Officer/ Workshop Assistant | Ministry of Environment                          |
| 33 | Ms. Puwani Dadallage                 | Intern/ Workshop Assistant              | Ministry of Environment                          |
| 34 | Eng. Dineth Kulathilaka              | Engineer                                | Colombo Municipal Council                        |
| 35 | Ms.K.M.K. Priyashanthi               | Development officer                     | 2 nd floor,B Entrance, Provincial Office Complex |
| 36 | Mr.H.M.W.P. Herath                   | Development officer                     | 2 nd floor,B Entrance, Provincial Office Complex |
| 37 | Mr. S.M.U.B. Samasekara              | Engineer                                | Municipal Council Rathnapura                     |
| 38 | Mr. P. Saliya C.K. de Silva          | Public Health Inspector                 | School of Public Health Inspectors               |
| 39 | Mr. J.D.L.R.K. Wijewardhane          | Public Health Inspector                 | School of Public Health Inspectors               |
| 40 | Mr. S.I Bopitiya                     | Public Health Inspector                 | School of Public Health Inspectors               |
| 41 | Ms. Nilanka Madushani                | Zone Manager                            | Waste Management Authority (Western Province)    |
| 42 | Mr. M.k. Kasun Chathuranga           | Zone Manager                            | Waste Management Authority (Western Province)    |
| 43 | Ms. H. Niranja Jayasena              | District Manager                        | Waste Management Authority (Western Province)    |
| 44 | MS. L.T Samudrika                    | District Manager                        | Waste Management Authority (Western Province)    |
| 45 | Ms. Nadeeshani Madanayaka            | Regional Manager                        | Waste Management Authority (Western Province)    |
| 46 | Mr. O.P.M.S.S. Kumara                | Zone Manager                            | Waste Management Authority (Western Province)    |
| 47 | Ms. Shachindrika Rukshani Wijesinghe | Zone Manager                            | Waste Management Authority (Western Province)    |
| 48 | Ms. Kanishka Thathsarani Atapattu    | Zone Manager                            | Waste Management Authority (Western Province)    |
| 49 | Ms. D.M. Ganga Dulajalee Dematawa    | Zone Manager                            | Waste Management Authority (Western Province)    |
| 50 | Ms. K.P.K. Chandani                  | District Manager                        | Waste Management Authority (Western Province)    |
| 51 | Mr. R.M.N. Silva                     | Deputy Director -Technology             | Waste Management Authority (Western Province)    |
| 52 | Mr. S.L. Samarakoon                  | Assistant Director- Legal               | Waste Management Authority (Western Province)    |
| 53 | Mr. Dulip Somirathna                 | Commissioner of Local Government        | Sabaragamuwa                                     |
| 54 | Mr. Dhanuka Madusanka wijerathna     | Project Manager                         | Karadiyana Waste Management Project              |
| 55 | Mr.G.W.M.D. Herath                   | Assistant commissioner                  | Department of Local Government, Central Province |
| 56 | Eng. (Mr.) P.H.Y.W. Rupananda        | Engineer - City Beautification          | Colombo Municipal Coucil                         |

| #                                       | Name of the Participant               | Position             | Institute                              |
|---|---------------------------------------|----------------------|--|
| <b>Synchronized online participants</b> |                                       |                      |  |
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| 2                                       | Dr. Premakumara Dickella Gamaralalage | Deputy Director      | IGES-CCET                              |
| 3                                       | Dr. Rajeev Singh                      | Researcher           | IGES-CCET                              |
| 4                                       | Miwa Tatsuno                          | Researcher           | IGES-CCET                              |
| 5                                       | Ms. Thilini Rajapaksha                | Workshop Coordinator | University of Peradeniya               |
| 6                                       | Mr. S. Praneetharan                   | Commissioner         | Department of Local Government, Jaffna |
| 7                                       | Mr. Chathura Weliwitiya               | Chairman & CEO       | HELP O ECO GREEN, Talbot Town, Galle   |
| 8                                       | Ms. Nirmala Menikpura                 | Researcher           |  |
| 9                                       | Mr. Thiwanka                          | Program Coordinator  | Janathakshan Gurante Limited           |
| 10                                      | Ms. Nanththanah Satkunam              | Student              | University of Peradeniya               |
| 11                                      | Ms. Suventhini                        | Student              | University of Peradeniya               |
| 12                                      | Mr. RamodhJ                           | Assist Commissioner  | Department of Local Government, Jaffna |
| 13                                      | Dr. Pradeep Gajanayake                | Lecturer             | University of Sri Jayawardenapura      |