First National Workshop for the Development of National Strategies

For Reduction of the Short Lived Climate Pollutants (SLCPs) from Municipal Solid Waste (MSW) in the Philippines

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November 23, 2017, Quezon City, Philippines

This report is prepared and submitted by IGES to CCAC-MSWI

CONTENTS

ABBREVIATION

ADB:	Asian Development Bank
CCAC:	Climate and Clean Air Coalition
CCENRO:	Cebu City Environment and Natural Resources Office
CCET:	IGES Centre collaborating with United Nations Environmental Program on Environmental Technologies
CO_2 :	Carbon dioxide
DENR:	Department of Environment and Natural Resource
DOST:	Department of Science and technology
EMB:	Environmental Management Bureau
ESAP:	Environmental Sustainability Action Plan
IGES:	Institute for Global Environmental Strategies
LGU:	Local governmental Units
MLGU:	Municipal Local Government Units
MRF:	Material recover facilities
MSWM:	Municipal Solid Waste Management
MSWI:	Municipal Solid Waste initiative
NSWMC:	National Solid Waste Management Commission
SLCP:	Short-Lived Climate Pollutants
SNAP:	Strategic National Action Plan
SWAPP:	Solid Waste Management Association of the Philippines
SWMD:	Solid Waste Management Department
W2E:	Waste to energy
WACS:	Waste Analysis and Characterization Studies

SUMMARY

Carbon dioxide (CO_2), a primary driver of climate change, is responsible for more than half of the total current warming impact of human-caused emissions. Emitted CO_2 remains in the atmosphere for hundreds of years, absorbing heat that contributes to a warming effect even after initial CO_2 concentrations start falling. Taking this into consideration, mitigation efforts solely focused on CO_2 will not be an effective measure for slowing climate change in the near term, and need to be complemented by other fast-action climate mitigation measures that provide more sizable short-term climate benefits. It is therefore crucial that such mitigation strategies will focus on the reduction of Short-lived Climate Pollutants (SLCPs), including Methane (CH4), Tropospheric Ozone (OZ3) Hydrofluorocarbons (HFCs), Black Carbon (BC), which are responsible for as much as half of global warming not caused by CO_2 and possess atmospheric lifetimes of less than 20 years[1].

The Climate and Clean Air Coalition (CCAC) is a voluntary partnership of governments, intergovernmental organizations, businesses, scientific institutions and civil society organisations committed to improving air quality and protecting the climate through actions to reduce SLCPs. In 2012, the governments of Bangladesh, Canada, Ghana, Mexico, Sweden and the United States, along with the United Nations Environment Programme (UNEP), came together to initiate efforts to treat short-lived climate pollutants as an urgent and collective challenge. Today, the Coalition brings together over 120 state and non-state partners and hundreds of experienced and influential stakeholders from around the world to leverage high-level engagement and catalyse concrete actions in both the public and private sector. The coalition also takes action through its 11 initiatives, including the Municipal Solid Waste Initiative (MSWI), which aimed at reducing SLCPs from the Municipal Solid Waste Management (MSWM)[2].

Similar to other developing countries, Philippines face a tremendous challenge in addressing SLCP emissions from the MSWM. These challenges include improper waste handling (i.e., separation, collection and treatment), open burning of bio-waste and increasing amounts of waste being inadequately disposed in open dumpsites. In order to address these issues, the Department of Environment and Natural Resources (DENR) has been involved with the Institute for Global Environmental Strategies (IGES), one of the implementing partners of the CCAC-MSWI, to develop policy measures, strategies and implementation plans at both national and Local Government Units (LGUs) to mitigate SLCPs from MSWM since 2015. As a part of this collaboration, IGES with the assistance of CCAC-MSWI has been supporting the Government of Philippines in developing a National Action Plan for the Integration SLCP Reduction into Philippine National Government Solid Waste Management Framework.

This report documents the proceedings of the First National Workshop, which was organised on 23 November 2017, Quezon City, Philippine for the development of National Strategy for Reduction of the SLCPs from MSWM in the Philippines. More than 50 participants attended the workshop, including key speakers from DENR, IGES, Clean Air Asia, Asian Development Bank (ADB), and the Solid Waste Management Association of the Philippines (SWAPP). One-day workshop included both presentations and panel discussions that are focused on understanding drivers of SLCP emissions generated by the municipal solid waste sector, impacts and effects of SLCPs, national-level

[1] http://www.eesi.org/files/FactSheet_SLCP_020113.pdf
[2] http://www.ccacoalition.org/en/initiatives

options for addressing SLCPs , and potential strategies for mitigating SLCPs in the municipal waste sector in view of policy, technology and finance issues . Over the course of day, DENR highlighted current waste management policies, future strategies and plans on waste management. In addition, five-selected pilot LGUs provided information on their current waste management systems with consideration of policy, technology and finance issues, as well as their prospective plans. In addition, the Mayor of Virac Municipality actively contributed to workshop discussion, emphasising its importance for influencing behaviour change regarding the environment. The conclusion of the workshop featured a ceremonial signing of the commitment made between DENR, IGES and five pilot LGUs to continue collaboration under the CCAC project.

OBJECTIVES

The main objectives of the workshop are:

- To foster awareness about the climate and waste nexus, and assess the extent and effectiveness of the country's current MSWM systems with regard to SLCPs emissions, with a view towards identifying gaps, constraints and areas for improvement to meet the desired level of performance.
- To review current national policies, future strategies and plans to mitigate SLCPs from MSWM.
- To identify a draft idea on national level waste management strategies to reduce SLCPs from MSW, with a focus on (i) Policy interventions, (ii) Technology applications, and (iii) Finance.

OUTCOMES

The workshop outcomes were as follows:

- Enhanced awareness about CCAC-MSWI and SLCP reduction through MSWM among all concerned stakeholders
- Understanding of current waste management policies and future waste management strategies in the Philippines
- Commitment from pilot cities and DENR on reduction of SLCPs from MSWM
- Recognition of the role of policies, technologies, and finance in promoting proper waste management
- Proposals on future national level waste management strategies to reduce SLCPs from MSW

FOLLOW-UP ACTIVITIES

As a follow-up, the participants agreed to organise two cluster regional workshops targeting the five pilot local government units and nearby cities over the course of April-July 2018. In addition, a series of focus group meetings will be organised with selected stakeholders including relevant Ministers, private sector, academic and civil society organisations.

OPENING SESSION

Mr. Albert A. Magalang, Chief of Climate Change Division of the Department of Environmental and Natural Resources (DENR)

Mr Albert welcomed the participants and all speakers. He also underlined the objectives of the workshop and emphasised that focus of the workshop was to raise awareness about CCAC-MSWI and SLCPs reduction through MSWM. Then, he highlighted that the Philippines remains an active member of CCAC and DENR is strongly supported of the implementation of the initiative activities at the LGUs. Mr. Albert also underlined the importance of reducing SLCP emissions from MSWM and the need of better understand the climate-waste nexus. He further indicated that the reduction of SLCPs helps towards in achieving the Philippines's national greenhouse gas (GHG) targets under the Paris Agreement while also contributing to achieving targets set out by the Sustainable Development Goals (SDGs). Therefore, all national-level stakeholders are encouraged to cooperate in addressing SLCP emissions and work towards the improvement of human and environmental health.

Dr. Dickella Gamaralalage Jagath Premakumara, Senior Researcher and Program Manager of CCET/IGES,

Dr. Premakumara gave a brief introduction about the CCAC-MSWI and IGES activities focused on reducing SLCPs. For this, he discussed CCAC project activities, which are planned to implement in collaboration with the Philippines Government to address SLCPs associated with MSWM. Indicating that SLCPs represent powerful climate pollutants, including black carbon, methane, tropospheric ozone, and hydrofluorocarbons, among others, he highlighted the critical importance of raising awareness about the need for reducing SLCPs. Black carbon and methane are the main SLCPs generated by the MSWM sector and are many times more potent than CO_2 in terms of their global warming potential. As such, mitigating SLCPs remains crucial step for improving outcomes related to climate and health, as well as for ensuring a balanced ecosystem. As waste comprises one of the priority areas of CCAC work, IGES provides technical support to national and local governments towards the development of national and city waste management policies and implementation plans, as well as the

implementation of pilot projects and related activities. In addition, IGES will also assist in the formulation of on-line training modules for capacity building of LGUs in the Philippines.

KEY NOTE SESSION

Ms. Marissa Mercado, Solid Waste Management Division of DENR,

Ms. Marissa presented an overview of current national waste management policies, future strategies, and plans in the Philippines. She highlighted the mandatory requirements for solid waste management led by LGUs. Under the RA 9003 (national regulation of Republic Act 9003), it is mandatory for each LGUs to prepare its own 10-year solid waste management plan consistent with the National Solid Waste Management Framework. The Philippine Development Plan, 2011-2016, prescribes that it is mandatory for the LGU to maintain a minimum of 50% waste diversion, with the national diversion target for 2017 set at 52% of total waste. She also underlined the mandatory requirement for each LGUs to establish the material recovery facilities (MRF) in their respective areas. Finally, she emphasised the mandatory closure and rehabilitation of all open and controlled dumpsites and the establishment of sanitary landfills by LGUs under the RA 9003.

Mr. Alan Silayan, Clean Air Asia,

Mr. Alan delivered his presentation on SLCPs and an overview of CCAC. He briefly explained about the CCAC and four key objectives of the CCAC, including (i) Raising awareness on SLCP impacts and mitigation strategies ii) Enhancing and developing new and regional action including identifying and overcoming barriers iii) Improving scientific understanding of SLCPs and iv) Mitigation strategies. He highlighted that SLCPs comprise dangerous air pollutants that make negative impacts to climate, health, agriculture, and ecosystems. He also emphasised

the benefits of reducing SLCPs, which include slowing the rate of global warming by up to 0.6° C and reduce the rise of sea level by 20% in 2050. In addition, on the health front, the avoidance of 2.4 million pre-mature deaths from outdoor air pollution (heart, pulmonary and respiratory problems) and the avoidance of 50 million tons of crop loss a year can be achieved by the reduction of large-scale SLCPs. He also highlighted that the CCAC-SNAP is an initiative working to create national action plans to reduce SLCPs. Finally, he concluded his presentation explaining that a lack of awareness and knowledge on SLCP emissions, its sources, potential actions for mitigation, institutional, technical and financial capacity and effective coordination, are some of the key factors hindering in getting SLCP reduction action at LGUs in the Philippines.

Dr. Rajeev Kumar Singh, CCET/IGES,

Dr. Rajeev delivered his presentation focusing on the generation and calculation of SLCP emissions from MSWM. He highlighted that approximately 1.3 billion tons of MSWM is generated at worldwide. However, about 2 million people (specially the urban poor) do not have access to solid waste collection services. There is also a well-established evidence showing that a large percentage of waste still remains improperly managed, which ultimately is disposed or burned openly, resulting in a significant amount of SLCP emissions. He also highlighted that the main SLCPs emitted from the waste sector are black carbon and methane, emitted throughout the waste management process from waste collection until the final disposal. Dr. Singh underlined that landfills are the third largest source of anthropogenic methane, comprising about 11% of the total global methane emissions. He also emphasised that proper waste management can assist in reducing approximately 10-20% of global GHG emissions. In this context, it is important that cities to undertake a rapid assessment of SLCP emissions with a view towards identifying viable alternative solutions for climate-smart waste management. This involves ensuring that waste is properly segregated, collected and treated as resources with only residual waste directed to sanitary landfills. In closing his presentation, Dr. Singh introduced the solid waste emission estimation tools that developed by CCAC-MSWI, including EQT and SWEET, which are designed to support cities in calculating SLCP emissions and

preparing implementation plans accordingly. Dr. Singh thereafter shared a video about SLCPs produced by the CCAC, which communicated that SLCP mitigation efforts in the MSWM can only be achieved through effective collaboration and planning, including through the preparation of city-level action plans.

PANEL DISCUSSION 1: POLICY INTERVENTION

Ms. Liz Silva, Climate Division of DENR,

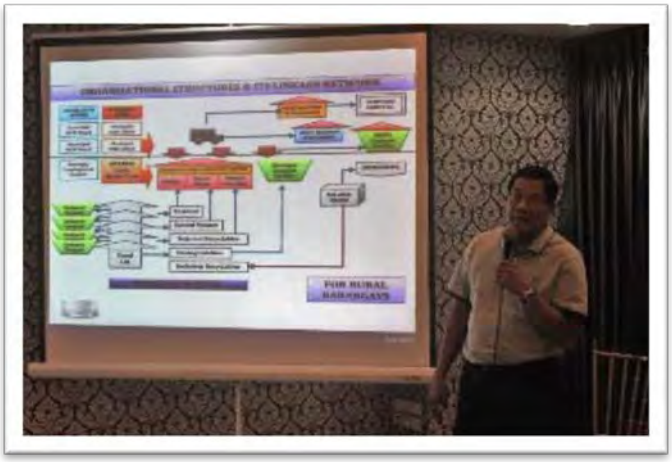
Ms. Liz introduced the panel discussions. She explained the roles and responsibilities of panel members, defining the required time allocation for each chair, as well as presentations and discussions. Ms. Liz then invited Ms. Nida C. Cabrera of Cebu City Environmental and Natural Resource Office (CCENRO), Cebu City to serve as the chair of the next session and introduced Mr. Rumbines from the Municipality of Virac and Mr. Ferdinand Bautista from the Municipality of Maragusan as the two presenters for the subsequent policy intervention session.

Ms. Nida C Cabrera, CCENRO of Cebu City,

Ms. Cabrera chaired the session by introducing the discussion topic, sharing the experience of Cebu City as one of the pilot cities of CCAC-MSWI wherein Cebu City was able to develop a Waste Management Action Plan for 2011-2016. The action plan focused on efforts to promote waste diversion, raising awareness about waste-related emissions, as well as identifying necessary means of technical and financial support for the communities concerned. She also highlighted several policies, which were developed based on the action plan, listed as follows:

a. Policy of waste segregation
b. Environmental Sustainability Action Plan (ESAP): a policy mandate requiring the private sector to prepare sustainability action plans with consideration of the environment
c. LGU reporting requirements: directing barangays to submit information on their waste management activities, particularly with regard to waste collection

Mr. Rumbines of Municipality of Virac, Catanduanes,



Mr. Rumbines delivered a presentation on the MSWM of Virac Municipality including policy interventions. He discussed the mandatory establishment of Material Recover Facilities (MRF), where collected waste materials are pre-treated and recycled. Separated organic waste is thereafter composted in its composting centre. He highlighted that the attitude and mind-set of the people about waste management needs to be changed for effective implementation of the waste management plans.

Mr. Ferdinand Bautista of Maragusan, Compostella Valley,

Mr. Ferdinand presented information on the MSWM, highlighting existing policies and associated challenges faced by the municipality of Maragusan. He indicated that the MSWM system requires citizens to segregate waste at source, as well as to use recycling bins for each type of waste. In addition, both institutional and residential sectors are encouraged to operate a backyard composting. The commercial sector is also advised to bring compostable waste directly to the main MRFs in Barangay by themselves. In Maragusan, source separated recyclables are directed to local junkshops. In addition, a residual waste is usually brought to the city's final disposal site, which is referred to as Ecological Solid Waste Management (ESWM) Park. He also explained that the final disposal site is subdivided

into sections designated for special waste, glass, and plastics. Mr. Bautista indicated that ESWM Park is also available a pulverizing machine, a shredder, a glass crusher, and a composting facility.

Discussions

A summary of the discussion is summarised as follows:

- Ms. Grace Sapuay of Solid Waste Association of the Philippines (SWAPP) commented on the Multa-Kulong (penalty – imprisonment system) of Virac. She suggested moving beyond just a focus on imprisonment, emphasising the importance of behaviour change, particularly, that perpetrators understand not to violate environmental laws again. She added that the best way to penalise the violator is to mandate community service for at least 15 days. Ms. Sapuay also asked the representative of Maragusan to further clarify if the plastic minimisation program included all plastic types or just plastic shopping bags.

- Municipality of Virac explained that the city provides violators the opportunity to choose a type of penalty in line with the regulatory mandate of RA 9003. This can either be fines, community service (15 days), or jail. Responding to Ms. Sapuay, Municipality of Maragusan stated that the city's plastic minimisation programme is only limited to reduction of plastic shopping bags and not all types of plastics at present.
- Mr. Laynes, Mayor of Virac Municipality, also added that in terms of penalties, his municipality follows the requirements set down by Republic Act 9003. He added that without specifying a maximum punishment, perpetrators might continue to violate environmental laws. He further added that illegal disposal is largely carried out by the informal settlers, especially those living along the canals and other water bodies. Further, he highlighted that the Municipality, DENR, Department of Internal and Local Government (DILG), and Social Welfare should be allocated necessary funds to build semi-permanent houses for informal settlers and

relocate those families who have indicated their willingness to do so.

- A representative from the Department of Agriculture made an inquiry to both municipalities about the role of the agricultural departments in municipal councils, considering that composting represents a viable option for waste diversion and the mitigation of SLCPs in the city-level strategies.
- The Municipality of Virac stated that SLCPs remain a new subject area of concern, however the municipality did not have any specific knowledge about the subject, which is the reason why they are pleased to attend the workshop and serve as a model city through ongoing collaboration with DENR. Mr. Laynes stated that about 90% of their 50 schools and campuses in the municipality support the Gulayan sa Paaralan programme of the city, which advocates composting for the production of organic fertiliser. In addition, the municipality promotes the collection of animal waste, mixing it in making the organic fertiliser. The Municipality of Maragusan stated that only residual waste is currently taken to ESWM Park. Their waste diversion rate of the city is about 85% due to most of biodegradable waste is not disposed in their final disposal facility and diverted to a composting plant. While the municipality is a farming community, it generates more agricultural waste. Thus, municipality encourages farmers to manage their agricultural waste independently for the generation of fertiliser and soil conditioner. The Department of Agriculture representative responded by underlining the need of strict rules on producing organic compost for fertiliser that can be used by the farming sector within the respective municipalities.
- Mr. Eugene of Taguig asked Ms. Cabrera about the management of construction waste in Cebu City. Ms. Cabrera answered that they have a waste separation policy, which also includes management of mining and construction waste separately.

PANEL DISCUSSION 2: TECHNOLOGY APPLICATION AND INNOVATION

Engr. Eligio T. Ildefonso, Executive Director of Solid Waste Management Department (SWMD), DENR, Ms. Grace Sapuay, President of SWAPP, and Mr. Arthur Batomalaque, Municipality of San Carlos, Negros Occidental, chaired this session.

Ms. Sapuay of the Solid Waste Management Association of the Philippines (SWAPP)

Ms. Sapuay delivered a presentation on the topic of solid waste management, current practices and technology application in the Philippines. She highlighted some of the technologies applied by the cities in waste management including waste collection, transportation, recycling, treatment and disposal. According to her, the use of waste storage bins, the operation of MRFs, and the use of bioreactors or windrow composting remain most popular technologies that used by the cities at present. She also underlined that plastic electric densifiers, plastic shredders, sanitary landfills and waste to energy (W2E) facilities comprise some the advanced waste management technologies that are getting popular among the Philippine cities. Regarding the MRF and transfer station, she emphasised that the waste should be segregated at source at least into two types - bio and non-bio before bringing it to those facilities. She also highlighted that proper maintenance is required for smooth operation of infrastructures and facilities.

Mr. Batomalaque of San Carlos City, Negros Occidental,

Mr. Batomalaque delivered a presentation on MSWM practices in San Carlos as well as current technologies utilised by the city. He explained how the city has achieved some success in improving the waste management system adopting a systematic approach during last four years aimed at changing citizen's behaviour regarding waste management. Because of these continuous efforts, municipal waste is currently properly segregated, collected, recycled, with residuals are disposed in a sanitary landfill site. The city has successfully closed the practice of open dumping and open burning and replaced them with a new sanitary landfill. In addition, the city established its first large scale solar power plant. Further, a construction is now ongoing for the development of a biomass power facility aimed at replacing the traditional practice of burning sugar cane by-products after harvest. Mr. Batomalague also shared information that he obtained a training in Germany on Mechanical Biological Treatment (MBT), where involves treating waste end products onsite in order to reduce the fraction of waste being taken to the sanitary landfills. Accordingly, German

MRFs divide waste into two streams, with biodegradables, shredded and composted, and non-biodegradable waste, manually segregated with recyclables separated accordingly.

Discussions

The key points that discussed at the session is summarised as follows:

- The representative from the Department of Agriculture asked from San Carlos to explain more on the way the city treats its hazardous waste now. San Carlos replied that hazardous waste is transported and storage in special area of the sanitary landfill. Mr. Ildefonso clarified that hazardous waste can be disposed at the sanitary landfill as long as it is confined in a special separate cell based on the RA 9003.
- Mr. Kumara questioned about the difference between the technologies utilised by San Carlos versus those used in Germany, and how waste is monitored as some LGUs dispose residual waste in the San Carlos' sanitary landfill. San Carlos replied that Germany is recognised, as a world leader in the application of advanced technology whereas the technology being used in San Carlos is simple mechanical technology. He also highlighted that the city maintains a strict agreement with other cities to direct only residual waste into the landfill. Waste that is deemed unacceptable will be returned to the respective LGU resulting in an associated fine.
- Mr. Kumara inquired from the panel about what factors are needed to consider in selecting appropriate technologies for MSWM. The representatives replied that the technology selection depends on local conditions, as certain types of technology is successfully applied in one city might not be suitable in another due to different factors like geography, weather, level of commitment etc. Ms. Sapuay highlighted that National Solid Waste Management Commission (NSWMC) has already developed guidelines on Waste to Energy (WtE)) and with emissions standards clearly specified under the Clean Air Act,, many suppliers are looking to promote WtE technologies in the country.
- Ms. Cabrera requested Ms. Sapuay to explain the recommendations associated with emissions monitoring, especially in larger cities. She also asked whether technical experts could assist the cities in the procurement of new technologies. According to Ms. Sapuay, the certification for new technologies is issued by the Department of Science and Technology (DOST) which will also provide some guidelines for appropriate selection of technologies as well as emissions monitoring. With regard to the process of technology selection, Mr. Ildefonso indicated that he is looking forward to the Environmental Management Bureau (EMB) - the responsible government agency tasked with monitoring emissions—to issue guidance on selected technologies. Further, all technologies should address SLCP emissions as well as standard pollutants and GHGs in the future.

PANEL DISCUSSION 3: FINANCING

Mr. Virender Kumar Duggal, Asian Development Bank (ADB), Manila chaired this session with Ms. Elvie Balucanag of the Province of Cotabato and Mr. Luis Sagadraca of Municipality of Solano, Nueva Viscaya. Mr. Duggal first

shared several financing mechanisms that available within ADB for infrastructure projects and explained about a guidebook of the ADB's financing mechanism. He underlined that ADB is a development finance institution that provides monetary assistance, adding that there is standard process in which to apply for funding.

Ms. Elvie Balucanag, from the Province of Cotabato,

Ms. Elvie delivered a presentation on waste management in the province of Cotabato and shared information on financial mechanisms and related strategies in the Province to address proper waste management in the region. She also provided background about the MSWM program of South Cotabato and its implementation. The Province is providing technical and financial assistance to its LGUs for the formulation of 10-year SWM Plans. It also conducts orientation courses on RA 9003, the implementation of Waste Analysis and Characterisation Studies (WACS) as well staff training. She also shared details about the Information and Education Campaign (IEC), as well as incentive strategies and related enforcement of policies and ordinances. Ms. Balucanag further outlined the Province's overall financing mechanism for waste management. Financing for the collection of the waste is primarily

the responsibility of the LGU. With regard to the landfill, both technical and financial assistance are provided by the Province particularly for construction of cluster sanitary landfills involving a number of LGUs that are located nearby.

Mr. Luis Sagadraca of the Municipality of Solano, Nueva Viscaya,

Mr. Luis presented the waste management in the municipality of Solano and the current financing mechanism and its limitations. He highlighted that the plans and programs of the municipality are aligned with the updated 10 year Solid Waste Management Plan. The Municipality also continuously allocates budget for the operation and maintenance of its sanitary landfill, and the acquisition of additional equipment (dump trucks, contractors, and other equipment). The municipality is also conducting many other activities such as providing training to its staff, construction of the sanitary landfill and composting centre, as well as the development of MRFs in 10 barangays for effective waste management according to the RA 9003. He also highlighted that the LGU cannot provide all the necessary funding requirements for the operation and maintenance of the sanitary landfill and the acquisition of equipment, which is a drawback of current financing mechanism.

Discussions

A summary of discussion points is listed as follows:

- ADB requested all the participants to identify the key barriers to effective implementation of MSWM. Some of the key points identified by the participants are lack of awareness, lack of commitment and poor performance, absence of financing mechanisms for construction of engineered sanitary landfills, no consideration of long-term sustainability of the plans, lack of political will, technical capacities, and a shortage of new ideas and innovations.
- In addition, the LGUs presented their insights on how to address these challenges. According to South Cotabato, LGUs should develop its 10-year solid waste management plan in consultation with key stakeholders including citizens and identify the areas where improvement is required (i.e., technical and financial). It also highlighted the importance of proper awareness raising activities highlighting how different waste management technologies can contribute to protecting the environment. The municipality of Solano explained that engineered sanitary landfill can improve SWM in the city, but it is required to have a proper

research on how to improve the overall sustainability of the 10-year waste management plans and its priorities related to innovation in waste management. In addition, waste prevention should be more clearly emphasised in the plans and more focus needed to be given at the implementation stages.

- Mr. Kumara inquired about whether South Cotabato's budget for clustered sanitary landfill is fully funded by the provincial government or if the LGU is required to payback, if so, what is the portion of LGUs contribution. South Cotabato responded that the province provides a total cost but LGUs should pay the tipping fees for the use of the landfill and revenue analysis has been prepared for fully recovered the cost. In this situation, Virac Municipality questioned that how much is charged by the LGUs from the respective households and business establishments. The reply from South Cotabato was that the charge is decided by the LGUs in consultation with its citizens.
- ADB emphasised that there is no specific, "one size fits all" solution for changing behaviours. In addition, it is important to note that finance is not the only barrier: how to implement the technology resulting from the finance is also a key consideration.

CEREMONIAL SIGNING AND CLOSING REMARKS

At the end of the workshop, the five selected pilot cities, DENR and IGES signed a commitment for carrying out a future study to measure the SLCP emissions from MSWM and develop implementation plans for the reduction of SLCPs from MSWM. These findings will be also utilised for the development of the National Framework for SLCP mitigation from the MSW sector in the Philippines. Mr. E.T. Ildefonso, from DENR, delivered closing remarks, communicating a promise to work together towards making the CCAC project successful in the Philippines. He offered his appreciation to IGES for organizing the workshop and commended all attendees for their active participation in the event.

APPENDIX

Program

- **Date:** 23 November 2017
- **Time:** 8:00 – 15:40
- **Venue:** Torre Venezia Suites, Quezon City, Philippines

(A) Opening Session

Time	Title of the Presentation	Presenter
08:00 – 08:30	Registration	Solid Waste Management Division and Climate Change Division
08:30 – 08:40	Opening Remarks	
	• Welcome Remarks	**Mr. Albert A. Magalang,** Chief of Climate Change Division, DENR
08:50 – 09:15	Remarks by CCAC/IGES	Dr. Dickella Gamaralalage Jagath Premakumara, CCET/IGES
09:15 – 09:30	Introduction to the Workshop	**Mr. Albert A. Magalang,** Chief of Climate Change Division, DENR

(B) Session 1

09:30 – 10:00	Current Waste Management in Philippines • National Overview of current waste management policies, future strategies and future plans	**Ms. Marissa Mercado,** Solid Waste Management Division of DENR
10:00 – 10:30	Introduction of SLCP, Climate and SLCP nexus and SLCPs Emission from MSW • Introduction of SLCP and SNAP	**Mr. Alan Silayan,** Clean Air Asia
10:30 – 11:00	• SLCP emissions from Municipal Solid Waste (MSW)	Dr. Rajeev Kumar Singh, CCET/IGES
11:00 -12:00	*Panel Discussion 1: Policy Interventions* • Presentations and discussion with Pilot Cities (5 min introduction by chair, 15 min each for presentation; 25 min discussion)	Chair : **Ms. Nida C. Cabrera**, OIC, CCENRO, Cebu City • Municipality of Virac, Catanduanes • Municipality of Maragusan, Compostela Valley

12:00 – 13:00	*Lunch*	

(C) Session 2

13:00 – 14:00	*Panel Discussion 2: Technology Application and Innovation* • Presentations and discussion by Pilot Cities (5 min introduction by chair, 15 min each for presentation; 25 min discussion)	Chair: **Mr. Eligio T.Ildefonso,** OIC-Executive Director Secretariat NSWMC and Chief of Solid Waste Management Division, DENR • Ms. Grace Sapuay (Solid Waste Management Association of the Philippines (SWAPP)) • San Carlos City, Negros Occicental
14:00 – 15:00	*Panel Discussion 3: Financing* • Presentations and discussion by Pilot Cities (5 min introduction by chair, 15 min each for presentation; 25 min discussion)	Chair : **Mr. Virender Kumar Duggal**, ADB, Manila • Province of South Cotabato • Municipality of Solano, Nueva Viscaya
15:00 – 15:30	Ceremonial Signing	
15:30 – 15:40	Closing Remarks	**Mr. Eligio T.Ildefonso,** OIC- Executive Director Secretariat NSWMC and Chief of Solid Waste Management Division, DENR

Collaborative Effort in Development of National Strategy for Reduction of Short-Lived Climate Pollutants from Municipal Solid waste in the Philippines

Under the Project initiated by the Environmental Management Bureau of the Department of Environment and Natural Resources in collaboration with the United Nations Environment under the Climate and Clean Air Coalition (CCAC) to Reduce Short-Lived Climate Pollutants (SLCPs) and the Institute for Global Environmental Strategies (IGES) aims in developing a National Strategy for the reduction of SLCPs from Municipal Solid Waste (MSW) in the Philippines. The project hopes to address methane, black carbon and other air pollutants emissions across the municipal solid waste sector by working with cities and national government.

Municipality of Maragusan
Compostela Valley Province

Municipality of Solano
Province of Nueva Vizcaya

Municipality of Virac
Province of Catanduanes

City of San Carlos
Province of Negros Occidental

Province of South Cotabato

Institute for Global Environment Strategies
(IGES)

Department of Environment and Natural Resources / Environmental Management Bureau
(DENR-EMB)