Climate Technology Centre Network (CTCN) Technical Assistance
for the Development of Climate Smart City in Kurunegala, Sri Lanka

Capacity Building Workshop Report

"Report on the capacity building workshop process and result"

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CTCN
CLIMATE TECHNOLOGY CENTRE & NETWORK

eco ne-t-work

The Climate Technology Centre Network (CTCN) provided Technical Assistance (TA) to the Kurunegala Municipal Council (KMC) and the Ministry of Environment in Sri Lanka through the pro bono support of the Econetwork and the Green Technology Center (GTC) in the Republic of Korea.

Summary

Kurunegala City, located in the North-Western Province of Sri Lanka, is one of the most intensively developing economic and administrative capitals. The population growth rate of Kurunegala city is approximately 0.438%, which is relatively high. Considering the residential area. Kurunegala is one of the central cities in Sri Lanka and is connected to main cities such as Colombo, Kandy, Dambulla, Negombo, Anuradhapura, and Kegalle. The geographical characteristic of the city and the condition of the roads cause severe traffic congestion, and the growing population increases energy consumption and the generation of waste. In order to cope with these developing issues, Kurunegala city requested Technical Assistance (TA) from CTCN, which is to develop a roadmap to convert Kurunegala city to a climate-smart city by mitigating greenhouse gases in the energy, transport, and waste sectors.

Two stakeholder consultation workshops were already held and the third and final workshop was held to present the prepared Greenhouse Gas Inventory (GHGI), provide a brief on the GHG emission calculation to the relevant departments, conduct SWOT analysis on the selected mitigation technologies, and convey the future activities of this project, and gather valuable comments from the stakeholders of this project. Thirty-three (33) officers participated in the stakeholder meeting representing both government and private sector institutes. The meeting was held on the 29th of January, 2021 at Hotel Blue Sky, Negombo Road, Kurunegala

The primary outcomes were the finalization of the GHG Inventory, SWOT analysis on the selected 10 technologies, the road map for the implementation of the selected technologies, waste management program for KOICA support, and the capacity building and brief training for the GHG inventory preparation. This report provides the key discussions, highlights, contributions, and recommendations received from the 3rd Stakeholder Consultation meeting.

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1. Introduction

1.1 Background of the project

Kurunegala City located in the North-Western Province of Sri Lanka is one of the most intensively developing economic and administrative capitals. The growing rate of the population of Kurunegala city is approximately 0.4% and the rate is relatively high considering the residential area. Several highways pass through the center of the city and it is connected to the main cities of Colombo, Kandy, Dambulla, Negombo, Anuradhapura, and Kegalle.

The geographical characteristic of the city and the condition of the roads cause severe traffic congestion and the growing population leads to an increase in energy consumption and the generation of waste.

To cope with these developing issues, Kurunegala Municipal Council (KMC) together with the Climate Change Secretariat wrote a proposal to the CTCN requesting technical assistance (TA). As a result, Technical Assistance was provided in 2 phases,

Phase i: Adaptation recommendations for Water scarcity and Heat stress

Phase ii: Develop a roadmap to convert Kurunegala city to a climate-smart city with mitigating greenhouse gases in the energy, transport, and waste sectors

Phase ii of the Technical Assistance has the aim to:

I. Analyze current state and baseline GHG emissions of Kurunegala city in energy, transport, and waste sectors, and formulating a GHG inventory for the Kurunegala City.
II. Identify a list of low carbon emission technologies for 3 sectors,
III. Develop the roadmap including low emission technologies for each sector, and
IV. Build the capacity of city planners and policymakers in order to guide them on how to transform Kurunegala city into a low carbon emissions city.

By developing a roadmap, the Technical Assistance will contribute to reduce greenhouse gas emissions and support the transition to a low emission municipality.

Eco network, which was selected as an implementer of the project, is a Korean environmental consulting company specialized in designing greenhouse gas (hereinafter, GHG) reduction projects and conducting a feasibility study of the GHG reduction project. National Cleaner Production Centre (NCPC), Sri Lanka was selected as the local consultancy team to assist the project implementer in gathering data and overcoming language barriers.

1.2 Background of the stakeholder meeting

Three stakeholder workshops were scheduled to be held under this project. The third workshop was conducted with the participation of relevant government and private agencies as stakeholders.

The overall objective of the 3rd Workshop was to notify the stakeholders about the progress of the project, discuss and analyze the mitigation technologies, capacity building on GHG emission levels, and discuss the next step for the CTCN TA. Specific objectives were as follows:

- The finalization of the GHG Inventory
- SWOT analysis on the selected technologies
- The road map for the implementation of the selected technologies
- Development of the Proposed Waste management Concept Document for KOICA support
- Capacity building for the GHG inventory preparation

The meeting was organized by the Kurunegala Municipal Council (KMC) together with the National Cleaner Production Centre (NCPC), Sri Lanka, and Climate Change Secretariat (CCS). The relevant stakeholders and government institution representatives were selected by NCPC Sri Lanka and KMC and invitation procedures were carried out by the KMC.

2. Proceedings of the Workshop

2.1 Opening remarks & Welcome note

Figure 1 Welcome Note delivered by Mr. Pradeep Thilakaratne

The meeting commenced with the welcome note delivered by Mr. Pradeep Thilakaratne, commissioner of KMC. He commenced the meeting by thanking all the stakeholders who were present at the meeting. He emphasized the importance of the project to the development of the city of Kurunegala and requested all the relevant stakeholders to offer their fullest support to complete this project successfully.

2.2 Background to the project

Introduction to the project and background information was presented by Ms. Kumudini Vidyalankara, Director, Climate Change Secretariat (CCS) of the Ministry of Environment.

She thanked the Climate Technology Centre and Network (CTCN) and Eco network for their support for the project.

The presentation began with defining what a climate-smart city is and giving the reason why Kurunegala was chosen for this project., Thereafter, the presentation focused on the discussion

points of the meeting. The finalization of the GHG Inventory, briefing on the selected technologies, the road map for the implementation of the selected technologies, the selected technology for the waste sector, and the capacity building for the GHG inventory preparation were the discussion points for the day. Ms. Vidyalankara also emphasized the importance of transforming Kurunegala City into a low carbon emission city and encouraged the policymakers to include the recommendations provided in the Adaptation programme held last year as well as the recent mitigation programme in their development programmes in order to build a Climate Smart City for the populace of Kurunegala.

2.3 Local Consultants Note

Figure 2 Local Consultant's Note delivered by Eng. Samantha Kumarasena

The next presentation was done by Eng. Samantha Kumarasena, the Chief Executive Officer of the NCPC Sri Lanka. The presentation began with the key concerns of the project. Following that, the current status of the project and the completed tasks were listed out. The completed tasks include

- Screening of the technologies
- 1st stakeholder meeting
- Gathering of documents such as feedback form, participants list, etc.
- AHP survey and the results
- Experts' evaluation
- Baseline report

- Feasibility report
- Expert evaluation
- The baseline GHGI
- 2nd stakeholder meeting
- Gender survey and the results.

The presentation ended with an explanation of the activities that have to be completed within the project period.

2.4 Implementer's Note

The Eco network Company Director Mr. Choi Yoon Ho joined the meeting virtually through zoom. Mr. Choi delivered his message through a video to the participants present at the meeting. Mr. Choi thanked the stakeholders present at the meeting and moved on to mention the outputs of the project. Thereafter, he mentioned what currently Eco-Network is working on with regard to the project. Next, he briefly mentioned the way forward and future opportunities of this project. He concluded his speech by wishing the project a success.

2.5 GHG Inventory

Figure 3 Eng. Ruwan Wijemanne presenting the GHG Inventory

A presentation on the baseline GHG inventory in relation to Energy and Transport sectors was delivered by Eng. Ruwan Wijemanne, Senior Energy Expert of NCPC Sri Lanka. The presentation commenced with the comparison of global GHG emission and the GHG emission of the country.

Thereafter, a summary of the methodologies followed to prepare the GHG Inventory was given. Data sources for each of the data used to prepare the GHG inventory were mentioned and the approach and proxies used were also explained. Fuel consumption and energy consumption for the years 2017, 2018, and 2019 were presented. Finally, the presentation came to an end with GHG $t_{CO2\ eq}$ per capita shown for the city of Kurunegala.

Figure 4 Ms. Nisansala presenting the GHG Inventory prepared for the waste sector

Ms. Nisansala Ranundeniya, Senior RECP Expert of NCPC Sri Lanka, presented the GHG inventory covering the Waste sector. The presentation began with the comparison of the waste disposed of in the years 2017, 2018, and 2019 in Kurunegala. Data collection and the GHG emission of Solid waste disposal, composting, open burning, and wastewater treatment were presented. The comparison of waste disposed throughout the years showed a rise in the number of composted waste for the year 2019. Next, the GHG emission of the different methods of treatment of waste was presented. Finally, the per Capita GHG emission for the years 2017, 2018, and 2019 were shown and a comparison was done. The emission levels were seen to be the highest in the year 2017, and in the coming year, they indicated a decline. However, 2019 was noticed to have a slight rise in GHG emission levels. She pointed out the reason for the difference in GHG emission

after the implementation of a screw-type composting machine. After implementing the composting machine, the GHG emission had been reduced by a certain amount which is a positive impact.

The conclusion of the presentation was delivered by Eng. Ruwan Wijemanne, Senior Energy Expert of NCPC Sri Lanka. He stated how the GHG Inventory preparation for the project only focused on energy, transport, and waste as the main sectors where many other sectors also contribute to GHG emissions. He also mentioned how Industrial Process and Product Use (IPPU), Agriculture, and Land Use also have an impact on GHG emission. Adding to it, he said developing the Forestry sector will impact the GHG levels by its ability to absorb GHG levels (carbon sequestration) in the atmosphere. Therefore, future projects encouraging forest plantations, urban forestry, and tree planting campaigns should be considered as other means of reducing the emission of GHG. He concluded the session by mentioning the GHG Inventory process to the present stakeholders and the role of each line agency, KMC, and its Project Management Unit has on the establishment and management of the GHG Inventory.

2.6 Capacity Building

Figure 5 Capacity Building session for the energy and transport sectors

The energy and transport sector-related stakeholders' capacity building was headed by Eng. Samantha Kumarasena and Eng. Ruwan Wijemanne. The presentation was conducted by Eng.

Ruwan Wijemanne, Senior Energy Expert of NCPC Sri Lanka. The presenter commenced his presentation by providing a brief introduction to Greenhouse Gases. Thereafter, the formula for the GHG emission calculation was presented and explained to the stakeholders including the variables in the formula. Next, the scope of the energy and the transport sectors were explained. Further, he went on to mention how and from where the data was collected to prepare the GHG Inventory. This was done to ensure the reliability of the Inventory prepared. He also mentioned the IPCC Guidelines 2006 version which was followed to prepare the GHG Inventory. Later, the emission factor for each of the types of fuel was displayed to show how each fuel influences the emission levels of GHG. A table with the Global Warming Potential (GWP) was shown as well. Then, an excel sheet prepared by the project Implementer, Eco-Network Korea, was shown. The sheet included all the necessary calculations to calculate the value of GHG emission. The activity data can be added to the sheet and the GHG emission level can be automatically calculated. Finally, the stakeholders were given a sample calculation to be done by themselves in order to get a better understanding of how the GHG emission was calculated.

Figure 6 Capacity Building session for the Waste sector

The waste sector-related stakeholders' capacity building was headed by Ms. Nisansala Ranundeniya and Ms. Harshini Rananjali. The presentation was done by Ms. Harshini Rananjali and she gave a brief introduction on what Greenhouse gasses are made out of and about the gasses

classified as Greenhouse gasses. She then explained how the boundaries have to be demarcated and defined and how they can be aligned depending on the purpose of the inventory. Further, she explained how the cities identify and categorize emission sources within their selected boundary and thereafter she mainly discussed the waste and wastewater emission sources covered within the project boundary. She explained the types of activity data that must be collected for Kurunegala. Data collection templates that were prepared to target each institute (KMC, National Water Supply, and Drainage Board, and Hospitals) were presented and explained. The standards applied and the methodologies and formulas used for the quantification were demonstrated and finally, a case study was given to each participant to familiarize the approach. Each stakeholder was personally approached and calculations regarding their relevant department were discussed and explained for a better understanding.

2.7 Prioritized Climate Technologies

The presentation on the prioritized climate technologies was conducted by Eng. Ruwan Wijemanne, Senior Energy Expert of NCPC Sri Lanka. He gave a brief introduction to each of the technologies. Comments and suggestions were taken from the stakeholders for each technology based on the criteria covered in the SWOT analysis, and their feedback was recorded. Given below is the summary of the SWOT-based discussion on the 10 prioritized climate technologies.

Mitigation Technology: **Rooftop Photovoltaic generation system**

Strengths	**Weakness**
• Industries and residences can make use of unused space in roofs to install solar panels. • Electricity units are harvested through the panels and will be fed to the grid. This will be compensated by the relevant institution to the consumer.	• The set-up of the current electricity grid is not technically viable to control the intake from the solar panels. • Currently, the solar panels connected to the grid will not be used if there is a power cut. • The initial cost to install the solar panel is high as it requires many other additional instruments for its operation. • Service providers for maintenance are not available in most outstation locations and there is a delay in repairs.
Opportunities	**Threats**

• There is a high number of policies that support the installation of solar panels. • With the development of technology rising, the price of solar panels is falling and can be bought for less cost. • Loan schemes are given to the population (Soorya Bala Sangramaya). The government also promotes these types of loan schemes.) • The geological position of the country is such that the country has sunshine throughout the year. This helps to harvest energy throughout the year. • The country has a high number of service providers (more than 300). With many service providers, the competition between them paves the way to better service to the consumers and for a lesser cost.	• Currently, the solar panels' harvested energy has no mode of storage. Therefore, it has to be used instantly. • Institutions are opposing large-scale solar panel projects which act as a barrier to the number of solar panel users in the country. • The solar panels have no proper mode of recycling as of now. Therefore their disposal poses a problem to the consumers. • There is a backfiring effect with the use of solar. Since the bill is low, there is a tendency to consume more electricity,

Mitigation Technology: **Green building**

Strengths	**Weakness**
• Current buildings in the city can be converted into green buildings with the help of service providers around the country. Many buildings have received certification with the help of service providers of that kind. • Green building efficiently uses its resources. Therefore energy, waste, water will be used efficiently and waste will be reduced as well. • Green building certification helps the buildings have a higher standard and respect among the society and it will be easy to advertise and market it among competitors.	• The initial cost towards the conversion of a building to a green building is high. Hence many do not consider converting to a green building.
Opportunities	**Threats**

• Government policies and the support given by UDA promote the new buildings built to receive green certification for additional benefits. • The current trend in new building construction is to ensure they receive green certification. This ensures other competitors also obtain green building certification to keep up with their competition. • The upcoming gazette will mandate building covering more than 7000 sqft should adapt GB concepts – government policy • Rainwater harvesting is possible as the use of water efficiency is rated high in green buildings. • The country intends to strengthen a policy to make all private sector buildings compulsory to attain green building certification in the upcoming years according to UDA	• There are no loan schemes awarded to support this kind of initiative. With a high initial cost, without friendly loan schemes, many buildings do not try to get green building certification. • With the green building concept trend on the rise, the material (environmentally friendly material) cost is also rising due to the high demand. • Due to the complexity of the green building, there are not many experts or architects in the field to modify the building plan to adhere to the green building requirements. • The methods used to gather rainwater in the building are questionable and the quality is not completely reliable.

Mitigation Technology: **Rainwater recycling**

Strengths	**Weakness**
• Rainwater stored can be used for other purposes such as bathing, washing, planting, and farming, etc. • The steps to implement a setup to harvest rainwater requires less technical knowledge. Hence there will be no high cost spent on experienced personnel to install this kind of setup. • There is no need for advanced instruments for rainwater harvesting.	• The maintenance of this setup will be high and long term which demotivates many to install such a system. • The system takes up a huge space for it. Residents with a limited amount of space will not consider this as there are other means to get water to their residence without using a large amount of space.

This eliminates the possibility of a high initial cost. • The water saved during rain can be harvested during drought to address their necessary needs.	
Opportunities	**Threats**
• The water harvested through this method will be viable for drinking purposes. • A newly planned building that is to be built with a rainwater harvesting system will be given priority whilst getting the CoC for the building as it also plays a role in the issuing of CoC for the building.	• Water received from the pipe is cheaper than this method and has wide support from the Water supply board as well. • The water harvested if not stored properly, will acts as a breeding place for mosquitos as the problem of mosquitos is of high concern in the country. This would lead to the spread of many diseases in the neighborhood. • The city of Kurunegala falls under the average rainfall districts in Sri Lanka where the mean rainfall of Sri Lanka is between 900 and 5000 mm and Kurunegala has an average of 2000 mm. Therefore, it may not be possible to harvest the expected quantity of water by implementing this system.

Mitigation Technology: **Light replacement for LED light**

Strengths	**Weakness**
• LED compared to other light fixtures has a better cost to energy ratio. This provides financial benefits to the consumer whilst consuming a low amount of energy. • The lifetime of LED light fixtures is comparably higher than any other light fixtures. • The installation of LED is also simple as it does not require any additional wires to be changed and installed. • A single unit of an LED bulb can have various colors. This is useful in	• The other light fixtures are cheaper when compared to LEDs. Many consumers do not want to spend a large sum if their requirements can be met through a cheaper solution. • Certain buildings have certain lumen requirements to be met and LED comparatively have a lesser Lumen rating than CFL. CFLs are brighter than LEDs. • There is no planned market promotion for this technology

scenarios in which other colors are required.	
Opportunities	**Threats**
• With the rise of social media, new technology developments travel fast. This helps to promote LED bulbs among the residents and helps to increase usage. • Compared to other light fixtures, LED does not include mercury in them. Mercury is very harmful to the environment and human life. LEDs operate without the help of Mercury which deems it to be safer than other types of bulbs • Many schemes are ongoing to help out the low energy usage (less than 60 units) residences to help them to cut down their energy cost even more by the installation of LED bulbs and in turn, cut down on generation cost	• With the current set of policies not having any policies against inefficient lighting, many will go ahead with less efficient lighting fixtures as they are cheaper than LED.

Mitigation Technology: **Eco-Friendly transport – hybrid/electric**

Strengths	**Weakness**
• Hybrid and Electric vehicles use electricity as a mode of energy for their operation. This in turn reduces the amount of fuel used by the vehicle, which in return reduces the cost of energy for the vehicle. • All vehicles emit GHG to the atmosphere, other than electric vehicles. This acts as an eco-friendly mode of transport which also increases the quality of lifestyle of the user.	• The technology still being new and without proper competition in the market of electric vehicles, the cost for an electric or hybrid is higher than the other diesel/petrol run vehicles. • Charging the battery being a necessity for the operation of the vehicle, the user might have to face a large electricity bill because of the consumption of electricity for the vehicle to charge its battery.
Opportunities	**Threats**
	• The main part of the vehicle is the battery. The battery found in these types

	of vehicles are very high in cost, and the replacement of these is also high. Repairing also costs a large amount and battery recycling is also not properly implemented. • A person looking to purchase a vehicle will always read the 2nd hand market value of the selected vehicle. If the secondary market value is not up to an average, many would not desire to purchase such a vehicle. Electric/hybrid vehicles also have a less than average 2nd hand market value. Therefore, many do not desire to purchase such vehicles. • All vehicles have a set percentage of tax to be paid. With electric/ hybrid vehicles having a large percentage of tax, makes it not worth it to many. • Electric vehicles require to be charged often. When traveling they require to be charged after a certain period. Therefore charging ports are required around the country. Less number of charging ports in the country does not encourage buyers to buy electric vehicles.

Mitigation Technology: **Park and Ride System**

Strengths	**Weakness**
• Bare lands or lands which are not utilized are utilized by a user through this system as they will act as the parking area for the users of the park and ride system. • The traffic in the city will be very annoying to the working crowd and they will want a mode of transport which consumes less time for traveling. This system reduces the number of vehicles and therefore, reduces the traffic as well.	• Parking areas will be needed throughout the city so that the users of this system will be benefited greatly. But the city has less area which can be allocated as for parking. • The majority of the users will want comfort while traveling and with less number of units of busses and trains would discourage the users to use this and to continue using their private mode of transport.

• Greater Kurunegala – multi-mode hub at Gettuwana is a proposed project that connects railway, bus terminal, and upcoming highway with park and ride facility. • The system has many investors ready to invest so the system is in place.	
Opportunities	**Threats**
• With the fewer number of vehicles on the road, emissions from the vehicles would reduce. This would create a clean environment. • If other urban areas also implement this type of system it would mean that the country may soon adopt this mode of transportation and would reduce the overall traffic. • Implementing this type of system has financial benefits as the payback time is less. • The passengers would have to only pay a small amount of money for traveling and it will be a financial benefit for the users.	• Land acquisition in urban areas would be a challenge as the land value will be high and bare land is rare. • The park and ride bus will not be connecting to other cities as it is only within a limited area. Therefore, not everyone will be encouraged to use this system. • Lack of policies and lack of communication within institutions acts as a stumbling block for this system to develop further.

Mitigation Technology: **Waste to energy**

As per records obtained by the KMC, around 38 tons of solid waste was open dumped per day at the Sundarapola site. This quantity was estimated using the records of the.number of trucks that brought solid waste into the site. However, the accuracry was tested after being weighed by the weighing bridge installed with Screw type compost plant whereby this quantity was reduced to 8 tons/day. At present, KMC composts all of their separated organic wastes and organic wastes received from Kurunegala and Attanagalla Pradeshiya Sabhas. Around 5% of waste is coming as mixed wastes and only that waste is openly dumped now. Further, KMC wants to remove the existing open dump and they are planning to dispose of the wastes into a coconut plantation. Since KMC has an issue with clinical wastes and mixed wastes, they are planning to establish an incinerator.

Strengths	**Weakness**

The KMC already owns the land for waste management. This land has ample space for the plant.	• The project has a high investment cost. With high initial cost, many would not want to implement this type of technology where a cheaper inefficient mode of waste management will be preferred. • The required amount of organic waste is not available from KMC alone. Initially, KMC estimated 38 tons/day is disposed at the open dump. But, with measurements, KMC generates around 8 tons' organic wastes/day.
Opportunities	**Threats**
• With a high amount of waste is required for this technology, nearby cities would help by providing their waste collected to meet the daily needs of the technology.	• Sundarapola is located in a residential area and a negative response could arise from the community.

Mitigation Technology: **IoT based waste recycling system**

The IoT-based system could be developed for all waste types as KMC requires optimizing the waste collection as well.

Strengths	**Weakness**
• A waste separation system is in place within the KMC boundary. • There are local resources readily available for the development of software applications required to establish the IoT system. • Establishment of a separate department at KMC for Waste management with qualified technical staff.	• KMC has done several awareness programmes on segregation to those in the City. Therfore, domestic waste is collected segregated. However, those arriving from other areas do not have the awawreness on segregation and for placing the separated waste into the correct bin.
Opportunities	**Threats**
• The concept of waste utilization will be promoted through this technology.	• The general populace from Kurunegala Pradeshiya Sabha and other outsiders

• The upcoming generation will be taught to separate the types of waste found and to efficiently recycle them. • With efficient recycling through the IoT system, a market system could be developed as monetary incentives • A simple app can be introduced which can be easily handled by householders • The waste collection route will be optimized reducing fuel use and thereby reduce GHG emissions.	might not have proper knowledge of the waste segregation system of KMC and do not spend time sorting the waste into food, plastic, paper and other wastes. Without sorting, this technology will not be successful. • Informal recyclable waste collectors might impose a risk on the IoT system due to a lack of information about their waste collection quantities.

Mitigation Technology: **Organic waste composting**

Strengths	**Weakness**
• The current waste generating capacity is met by the demand. • Bulk buyers of the waste are found • Sales outlets are available in the municipal council • The waste management department at KMC has been established • Price is less than 10 Rs/kg • Restrictions for chemical fertilizer by the government increases the demand for compost • Availability of knowledgeable workforce to promote awareness • The adequate land area owned by the KMC is available for the composting programme	• Lack of demand analysis • No marketing is done • Not enough stocks to purchase ~~from~~ in small amounts • CRI recommendation – standardization of compositions (enriching) is required • Odour is generated during organic waste transportation.
Opportunities	**Threats**
	• Social acceptance related problems

• Demand for organic fertilizer due to health concerns in using chemical fertilizer • Can use for crop cultivation • Ability to obtain Sri Lanka Standards certification to increase the quality of compost easily • Kurunegala has many coconut plantations. These can be promoted to purchase Coconut Research Institute certified compost from the KMC. • Sales outlet in MC • Media usability	• Household organic waste is stored in a bin covered with a polythene bag before handing it over to the KMC. • Organic matter separation is not done properly by people

2.8 Mitigation Technology Implemented

Figure 7 Presentation delivered by Ms. Hasula Wickramasinghe

The presentation was delivered by Ms. Hasula Wickramasinghe, Programme Assistant of the Climate Change Secretariat (CCS) of the Ministry of Environment. She began her presentation by stating the importance of the GHG Inventory to this project. She then notified of the intention of preparing a project concept note to be submitted to KOICA based on waste management which

would include IoT, incineration, efficient composting and leachate management. She then moved on to discuss the current status of the waste management infrastructure in the city of Kurunegala and pointed out the issues of the waste management infrastructure. The stakeholders provided their inputs on the current situation of the waste segregation status, waste transportation, the issues occurring at the Sundarapola dumpsite in respect of the landfill, leachate disposal issues, insufficient capacity of the drying beds for gully residue etc.

She then concluded by proposing actions as to how the issues faced in the waste sector can be sorted out with the possibility of financial assistance from KOICA.

2.9 Way Forward

The presentation on the future path of this project was done by Eng. Samantha Kumarasena, Chief Executive Officer of NCPC Sri Lanka. He stressed the fact of how important the implementation of the technologies is to face the growing emission of Greenhouse Gasses. He also mentioned proper maintaining of the GHG Inventory also plays a vital role. To ensure the GHG Inventory is maintained properly, capacity building must be undertaken by the responsible personnel. He mentioned the importance of planting trees as it helps to absorb the GHG emission in the atmosphere. He also highlighted the importance of encouraging urban forest parks in cities to increase carbon sequestration. He pointed out all the technologies that are planned to be implemented are means to reduce GHG emission but they do not absorb the GHG found in the atmosphere and he concluded his presentation.

2.10 Closing Remarks

Figure 8 Closing remarks delivered by Dr. Priyantha Muthunayake

The vote of thanks was given by Dr. Priyantha Muthunayake (Chief Medical Officer of Health)-Project Coordinator, Kurunegala Municipal Council. He thanked the stakeholders who participated in the meeting and tabled their valuable ideas for the success of this project. He requested continuous support from all participants for making sensible climate-smart implementations in Kurunegala city.

4. Conclusion

The purpose of this stakeholder meeting was to finalize the GHG Inventory, brief the selected 10 technologies, discuss the road map for the implementation of the selected technologies, the selected technology for the waste sector, and the capacity building for the GHG inventory preparation.

The meeting was considered successful with active participation by stakeholders on the SWOT analysis. Further, the stakeholders were also given an idea of how the GHG Inventory calculations are done and their interpretation. Stakeholders expressed their continuous support for this project

with their enthusiasm for the sustainable development of the city since Kurunegala city is the home town for most of the participants.

During the commencement of the meeting, a video shared by the Eco network on Gender Mainstreaming and Solid waste management were shown to the stakeholders present in the meeting. The concept mainly focused on how to achieve gender balance and the policy actions relevant to it. A video prepared by the Eco network regarding the waste sector was played to the stakeholders.

Annexures

Annexure 01: Agenda of the program

AGENDA

3rd Stakeholder Consultation Workshop on

Technical assistance for Climate-Smart City - Kurunegala

Date: January 29, 2021
Time: 9.00 AM – 3.15 PM
Venue: Hotel Blue Sky, Negombo Road, Kurunegala

Time	Description
08.30 – 09.00 AM	Registration
09.00 – 09.15 AM	**Welcome Note** **Mr. Pradeep Tilakaratne** Commissioner, Kurunegala Municipal Council
09.15 – 9.30 AM	**Background to the project** **Ms. Nilanthi Kumudini Vidyalankara** Director Climate Change Secretariat, Ministry of Environment
09.30 – 09.45 AM	**Project Implementer's Note** **Mr. Choi Yoon Ho** Eco-Network
09.45 – 10.15 AM	**Project Progress** **Eng. Samantha Kumarasena** CEO, National Cleaner Production Centre National Cleaner Production Centre
10.15 – 10.30 AM	**Tea Break**
10.30 AM– 12.30 PM	**GHG Inventory of Kurunegala City and Capacity building for GHG Inventory Preparation** **Project Officer** National Cleaner Production Centre
12.30 – 1.15 PM	Lunch
1.15 – 2.15 PM	**Capacity Building on Prioritised Technologies** **Project Officer**

	National Cleaner Production Centre
2.15 – 2.30 PM	**Proposed Waste management programme for KMC** **Ms. Hasula Wickramasinghe** Programme Assistant, Climate Change Secretariat, Ministry of Environment
2.30 – 3.00 PM	**Way Forward** **Eng. Samantha Kumarasena** CEO, National Cleaner Production Centre
3.00 – 3.15 PM	**Vote of Thanks** **Dr. Priyantha Muthunayake** Project Coordinator Kurunegala Municipal Council
03.15 PM	End of the Session with Lunch

* * *

Annexure 02: List of participants

No.	Name	Institute	Designation	Email	Gender	Telephone
1	Pradeep Tilakaratne	Kurunegala Municipal Council	Commissioner		Male	
2	Dr. Priyantha Muthunayake	Kurunegala Municipal Council	Project Coordinator		Male	
3	R. M. T. K. Jayathissa	Kurunegala Municipal Council	Project Engineer	jayathisatharindu@gmail.com	Male	0718956944
4	D. M. I. Ubesekara	Kurungela Municipal Council	PHI	indikaubesekara@gmail.com	Male	0718056200
5	H. M. M. S. Herath	Kurunegala Municipal Council	Development Officer	monmcko@gmail.com	Male	0712707177
6	W. Gayan Chathuranga	Kurunegala Municipal Council	Health Supervisor	wgckumara999@gmail.com	Male	0715786999
7	T. M. Dayawathie	Kurunegala Municipal Council	CC (K. M. C)		Male	0718431860
8	R. D. D. Rajapaksha	Kurunegala Municipal Council	Public Health Inspector	rajapakshelive@gmail.com	Male	0714461778
9	Kumudini Vidyalankara	Ministry of Environment	Director (CCS)	kumuduniimex@gmail.com	Female	071 6905865
10	Chamani Kumurasinghe	Ministry of Environment	Assistant Director (CCS)	chamanikum@yahoo.com	Female	0714221425
11	Hasula Wickremasinghe	Ministry of Environment	Programme Assistant (CCS)	hasulaw@yahoo.com	Female	071 8293685
12	B. M. N. P. Bandaranayake	Road Development Authority	Technical Officer	bandaranayakebmnp@gmail.com	Female	0714919622
13	E. M. A. Edirinayake	Ceypetco District Head		emaedirinayake@gmail.com	Male	0716146536
14	I. M. Ananda Premalal	Department of Land Planning and	Landuse planning officer	kuruluppd@gmail.com	Male	0372223597

		Policy Planning				
15	C. N. S. Kehelwatte	Plantation Company – Kurunegala Plantations Ltd	Estate monitory and coordination officer	nalakasri@yahoo.com	Male	0705957555
16	D. M. B. T. B. Dissanayake	Greater Kurunegala – Water Supply	Engineer	thislina2008@gmail.com	Male	0714461807
17	R. M. I. W. Rathnayake	Ceylon Electricity Board	Electrical Engineer	indunilwathula.rathnayake@gmail.com	Female	0716862791
18	T. A. U. K. Weerasekare	Department of Agriculture	Deputy Directory	pdoanwp@gmail.com	Male	0718041735
19	Jayantha Thilakarathne	Rang Forest Office Kurunegala	Forest Extension Officer	rfokar@gmail.com	Male	0372233508
20	M. M. P. K. Amarasekare	Water Supply and Drainage Board	Civil Engineer	mmpkamarasooriye@gmail.com	Male	0773887772
21	A. M. S. Liyanage	OIC District Head	Sub Inspector		Male	0770426048
22	Dr. Indika Wickramasinghe	Office of the provincial Director of Health Services	DPDHS	iprageeth75@gmail.com	Male	0777513487
23	Dr. S. Rajkumar	Office of the district director of Health Services			Male	0773500770
24	Geethike Sewwandi	Central Environment Authority	Director CEA	kurunegala@cea.lk	Female	0714473795
25	R. M. A. Rethage	Provincial Environment Authority	Development Officer		Male	0713513939
26	E. M. P. K. Ekanayake	Urban Department Authority	Town Planner	ekanayake@gmail.com	Male	0773091126

27	P. M. Lalini Bandara	Road Passenger Transport Authority	Transport Manager		Female	077995528
29	B. M. G. Munasinghe	Department of Archeology			Male	0718215089
30	Samantha Kumarasena	NCPC	CEO	samanthakumarasena@gmail.com	Male	077 3572272
31	Ruwan Wijemanne	NCPC	Senior Energy Engineer	wijemanner@gmail.com	Male	076 3162449
32	M.M. Munsif	NCPC	RECP Engineer	munsif.ncpc@gmail.com	Male	076 3162446
33	R.H. Nisansala Ranundeniya	NCPC	Snr RECP Expert	nsranundeniya@gmail.com	Female	076 3162447
34	Harshini Rananjali	NCPC	RECP Technologist	harshinincpc@gmail.com	Female	076 3162445
35	J. H. Nithiananthan	NCPC	RECP Engineer	jonancpc@gmail.com	Male	0740239337

Annexure 03: List of Presentations given at the meeting

- Introduction presentation by Ms. Kumudini Vidyalankara
- CTCN project progress by Eng. Samantha Kumarasena
- GHG Inventory – Eng. Ruwan wijemanne, Ms. Nisansala Ranundeniya
- GHG Inventory – Energy and Transport Eng. Ruwan wijemanne
- GHG Inventory – Waste: Ms. Nisansala Ranundeniya
- Prioritized Climate Technologies - Eng. Ruwan Wijemanne, Ms. Nisansala Ranundeniya
- Proposed Waste Management Programme by Ms. Hasula Wickramasinghe

Annexure 04: Feedback form

Technical Assistance for Climate-Smart City – Kurunegala

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Third Stakeholder Meeting (Kurunegala Climate-Smart City Project)

Mitigation Technology:

Strengths	**Weakness**
Opportunities	**Threats**