Training Report 2021

A Design of an MRV system for the Transport sector of the Kingdom of Cambodia

22-23 JULY 2021

Training on the application of GACMO Tool and ICAT SD methodology for Transport sector NDCs

Initiative for Climate Action Transparency - ICAT –

Deliverable2: Training on the application of GACMO Tool and ICAT SD methodology for Transport sector NDCs. Training report

Disclaimer

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1 Background

The Royal Government of Cambodia (RGC), as a Party to the United Nations Framework Convention on Climate Change (UNFCCC), ratified the Convention in 1996 and the Paris Climate Agreement in 2017.

Under the Paris Agreement, Parties agree to limit the rise in global temperature well below 2 degrees Celsius above pre-industrial levels and pursue efforts to limit the increase in temperature even further, to 1.5 degrees Celsius. In response to the Paris Agreement, Cambodia submitted her first Nationally Determined Contributions (NDCs) in 2015 and the updated NDC on 31 December 2020.

Article 13 of the Paris Agreement establishes an Enhanced Transparency Framework (ETF) for action and support to build mutual trust and confidence among the Parties and to promote the effective implementation of the Paris Agreement. The ETF also requires countries to track the progress made in implementing and achieving NDCs. Therefore, the Initiative for Climate Action Transparency (ICAT) has been supporting Cambodia for the development of Measurement, Reporting and Verification (MRV) system through the United Nations Environment Programme (UNEP) DTU Partnership (UDP).

The Department of Climate Change (DCC), the General Secretariat of the National Council for Sustainable Development (GSSD)/Ministry of Environment (MoE) is the implementing agency of the ICAT. Under this project, the ICAT supports Cambodia to 1) develop an MRV framework for the Transport sector and 2) develop capacity on use of transparency related tools (ICAT SD assessment tool and GACMO).

2 Objectives of the training

- To build capacity on the application of GACMO tool to assess GHG impacts of the Transport sector in Cambodia, specifically under the updated NDC;
- To build capacity on the application of ICAT SD Methodology to assess SD impacts of Transport sector; and
- Application of GACMO outputs and SD Impacts in designing MRV for the transport sector.

3 Stakeholder engagement

The training was presided over and an opening remarks by H.E. Dr. Vann Monyneath, Secretary General of the National Council for Sustainable Development (See opening remarks in annex VII). Both training sessions had active participation of stakeholders. Total number of participations was accounted to sixty-two. Stakeholders represented various institutions which are responsible to collect, store, process, report data required to assess GHG emissions of the country. Furthermore, it included potential stakeholders of the proposed transport sector MRV. Please see the Annex II for list of participants.

Followings are the institutions represented by participants

- Climate Change Technical Working Group
- Ministry of Public Works and Transport
- Phnom Penh Department of Public Works and Transport
- Ministry of Agriculture, Forestry and Fisheries
- Ministry of Women Affairs
  Ministry of Mine and Energy
- Ministry of Land Management. Urban Planning, and Construction
- Ministry of Industry, Science, Technology and Innovation
- Ministry of Rural Development
- Ministry of Education, Youth and Sports
- National Committee for Sub-national Democratic Development
- National Committee for Disaster Management
- Council for Development of Cambodia
- Cambodia Climate Change Alliance phase 3
- Academia

4 Discussion

4.1 Training on GACMO tool

GACMO tool was introduced on the first day of the training workshop. The first presentation outlined the structures, data requirements and marginal abatement cost curve of the GACMO tool. The second presentation introduced specific steps in applying the GACMO tool in the transport sector. The last presentation focused on the application of GACMO tool to assess NDC actions in the Cambodian context. The hands-on experience was delivered to trainees after the three presentations. The hands-on experience in applying the GACMO was one of the most important session during the first day of the training. The following discussion points were raised during the first day of the training workshop.

Following clarifications were requested by the trainees at the end of first presentation

- Efficiency of the GACMO model
  Is GACMO is a free tool?
- Can GACMO be applied to other sectors as well to calculate the GHG emission reductions
- Are default values available in the GACMO?
- What are the equations included in the GACMO?

Regarding the answers to these questions, the trainer did respond fully to all the questions, except the concern related to model efficiency, which is subjected to discussion with the founder of the GACMO.

Dr. Hak Mao, facilitator of the training, also raised a few discussion points after the second and third presentations. He pointed out that the discussion can focus on input data such as discount rate and assumptions made in GACMO analysis conducted to assess the GHG impacts of the transport sector NDCs of Cambodia. As such, a trainee from the Ministry of Public Works and Transport questioned the source of discount rate (12%) used for the GACMO analysis. Trainer explained the source of the data (An ADB report on Cambodia) and also both parties agreed that used value is reasonable for the country.

The same trainee also added that the model for GHG emission reduction calculation that is being presented is very simple (less variables) compared to model being used for the same purpose in other countries (more variables). The discussion also focused on how to calculate the discount rate. Responding to this question, the trainer mentioned that most of the developing countries apply lending rate as the discount rate. Furthermore, the discount rate for the transport sector could also be taken from existing literature review or desk research.

Acknowledging the limited activity data for the Transport sector, same trainee raised the questions on how to derive input data for running the GACMO. The trainer recommended to obtain as much as country specific data possible instead of default values since the result generated from country-specific data is more accurate than the default input data.

Dr. Hak Mao indicated the importance of understanding the GACMO model. He also emphasized the importance of the accurate activity data and mentioned the importance of establishing an MRV system in order to achieve the said objective.

Trainer also indicated the importance of data availability and stated that running the model is quite easy if required data are readily available.

Adding to above discussion, a trainee raised a question on adjusting the model to Cambodian context by reducing the number of parameters. Addressing the concerns, Trainer indicated the possibility of using the default factors given by the model itself.

Describing common factors of models use for GHG inventories, Dr. Hak Mao stated that inventory models are developed by experts aiming to produce highly accurate result. Therefore, models provide different options to insert activity data which will generate results with different accuracy level. Type of activity data can be identified as country specific data, region specific data or default values. For example, ASEAN region specific data can be used in the absence of data specific to Cambodia. In the case of Cambodia, without sufficient data in the country, data from the countries with the same economic and social condition could also be used. In response to the last attendee's question, he mentioned that we cannot adjust GACMO model to the context of Cambodia. We need to use a model that is internationally recognized.

An attendee requested to arrange a training on generating activity data required to run the GACMO model. Addressing the concern, Dr. Hak Mao indicated that Department of Climate Change with support from the UNEP-DTU partnership has organized many trainings on modelling work recently. And indicated that Department of Climate Change always encourages relevant stakeholders to participate in these trainings. Besides, Dr. Hak Mao suggested to have a next training focusing on the activity data and data sources used to conduct the GACMO analysis of the Transport sector MRV. Moreover, he stated that trainees may apply the knowledge they get from these trainings to manage data in their own institutions as well.

In summary, discussion was mostly centered around the limitation of required data and need of improving data management systems in each institution.

4.2 Training on SD methodology

SD tool was introduced to trainees on the last part of the first day and beginning of the second day of the training. Training was only focused on the qualitative assessment. First presentation gave an overview to the ICAT SD methodology. Second presentation was on the application of the ICAT SD methodology. The last presentation was used to provide hands-on experience in applying the ICAT SD methodology.

The following points were discussed during and after the presentations.

- The first discussion point was how to decide the significance of identified impacts. According to the trainer, the level of significance was determined by experts based on data collected through desk review. Significance of reduction of GHG was decided based on results generated through GACMO tool. It was also indicated the importance of considering stakeholder feedback.
- Possibility of conducting qualitative assessment on each impact was questioned by an attendee. In addition, process of deciding significance was also questioned. Availability of quantitative assessment on SD impact was confirmed and process was briefly described.

In summary, discussion was mainly focused on process of deciding the significance of identified SD impacts.

4.3 Selection of mitigation actions in NDC

As per the updated NDC of Cambodia, three NDCs were identified for the Transport sector. The draft report on the selection of appropriate projects/policies for the development of the MRV system for the transport sector in Cambodia had prioritized them considering the financial feasibility, political preference of implementation, effect on GHG reduction (GACMO) and SD impact. Based on the results, two NDC mitigation actions were prioritized, and they are: (1) Enhance maintenance and inspection of vehicles (Piloting maintenance and emission inspections of vehicles); and (2) Promote integrated public transport systems in main cities.

During the training workshop, three mitigation actions included in the NDC were presented. Please see Annex III for the questionnaire. Then participants were invited to provide weight for each indicator based on their knowledge on the respective mitigation action. Only 15 participants were provided their feedback. Following table gives the score given by highest number of attendees for each indicator with respect to each NDC. Please see Annex IV for more details.

Table 4.1 Prioritization of mitigation actions in NDC

Mitigation action in NDC	Financial feasibility	Political preference	Effect on GHG reduction	SD impacts	Total mark	Rank
Enhance maintenance and inspection of vehicle	4	4	4	4	16	1
Promote integrated public transport systems in main cities	4	4	4	3	15	2
Shift long distance freight movement from trucks to train	4[1]	4	4	3	15	2

[1] Same number of participants have selected 3-5 scores. As such middle value was considered for the analysis

4.4 Selection of mitigation projects

A draft report on the selection of appropriate projects/policies for the development of the MRV system for the transport sector in Cambodia had prioritized two mitigation actions namely 1) Shift passengers from private cars to 23 public buses by 2021 in Phnom Penh and 2) Introduce 14 vehicle inspection centers considering the likelihood of implementation and data availability.

During the training workshop, three identified mitigation projects were presented. Please see the Annex V for the questionnaire. Then participants were invited to provide weight for each indicator based on their knowledge on the respective project. Only 15 participants were provided their feedback. Following table gives the score given by highest number of attendees for each indicator with respect to each project. Please see Annex III for more details.

Table 4.2 Prioritization of mitigation actions in NDC

Selected projects	Likelihood of implementation	Data availability	Total mark	Rank
Introduce 14 vehicle inspection centers	4	4	8	-
Shift passengers from private cars to 23 public buses by 2021 in Phnom Penh.	4	4	8	-
Introduce electric buses	4	4	8	-

However, as all three-mitigation action received similar weight. Therefore, previously done ranking will be carry forward.

5 Follow -up actions

The capacity building workshop on applying the GACMO and SD methodology in the transport sector was conducted successfully with participation from various ministries and stakeholders. The training on GACMO tool was conducted many times already with support from the UNEP-DTU partnership. However, the training on the ICAT SD methodology is still relatively new to Cambodia and the future training on both quality and quantitative aspects of these tools are important and would attract more participants. The two-day training discussion was centered on the improvement in data management of each institution in Cambodia so that the results generated from the modelling are highly accurate. The follow-up actions to reach the objectives of the project include the development of the following deliverables:

(1) Deliverable 3: Report on MRV assessment of the existing national MRV system and report on designing an institutional governance structure for the Transport sector as a part of a unified national MRV System in the country for

(2) NDCs and providing recommendations on how best to remove the most significant visible barriers documented (other may only become visible after the pilot stage);

(3) Deliverable 4: Final report on the assessment of methodologies for the development of MRV system, including assessing of GHG emission impacts of policies and actions in the Transport sector. The report will also include selected methodology and workshop report (capacity building for selected methodology); and

(4) Deliverable 5: Report on designing the national MRV system, establishment of roles and responsibilities and providing recommendations on how to address barriers gaps issues to improve data collection and reporting for the transport sector emissions.

Annex I Workshop Agenda

Time	Topic	Speakers
Day1 Selected Modelling Tool -GACMO		
14:00	Registration	DCC
14:10	Objectives of the training	Dr. Hak Mao Project director
	Opening remarks	H.E. Dr. Vann Monyneath Secretary General of the GSSD
14:20	Overview of the GACMO model	Eng. H.M Buddika Hemshantha International consultant - ClimateSI
14:35	Application of GACMO model to assess the GHG impacts of Transport sector NDCs	Eng. Indika Dassanayake International consultant - ClimateSI
15:05	Hands on Experience on the application of GACMO model for a Transport Sector NDC	Eng. H.M Buddika Hemshantha Eng. Indika Dassanayake
16:50	Wrap up and closing	Dr. Hak Mao Project director

Time	Topic	Speakers
Day2 Selected Modelling Tool – ICAT SD Tool		
14:00	Registration	DCC
14:10	Opening remarks and Objectives of the training	Dr. Hak Mao Project director
14:20	Overview of the ICAT Sustainable Development Methodology	H.M Buddika Hemshantha International consultant - ClimateSI
14:40	Application of ICAT SD Methodology for Transport sector NDCs (Qualitative)	H.M Buddika Hemshantha International consultant - ClimateSI
15:20	Hands on experience on the application of ICAT SD Methodology for Transport sector NDCs (Qualitative)	H.M Buddika Hemshantha International consultant - ClimateSI
16:50	Wrap up and closing	Dr. Hak Mao Project director

Annex VI Evaluation

An evaluation form was distributed among the participants to understand the level of satisfaction on the training. Please see the Annex VI A. for the evaluation form and Annex VI B for the detail respond from the participants.

As per the survey results, most of participants were satisfied with the content of the training while almost all of them voted good, very good, and excellent to the usefulness of the training, the value of the presentations, the usefulness of the training materials, the clarity of the objectives, presentation techniques of the presenters, and the involvement of the participants.

Training was conducted in two days with three hours per each session. As per the results, 72.7% of the participants indicated that selected duration is appropriate and 27.3% said it was too short. According to the 68.2% of the participants, technicality of the training was intermediate while 18.2% of the participants mentioned that training was advanced for them. Furthermore, 13.6% of the participants indicated that training was introductory.

More than 70% of the participants preferred other online platform to conducting the training over the Zoom. 23% of them has suggested MS Teams as preferred option.

Overall participants have identified training was useful as it has provided a platform to learn about GACMO and ICAT SD methodology. However, most of participants prefer to having physical or face-face training. Additionally, it was requested to conduct trainings on activity data selection, making assumptions and detail use of GACMO for sub sectors.

Annex VII Welcome Remarks

Welcome Remarks

H.E. Vann Monyneath

Secretary General of the General Secretariat of the National Council for Sustainable Development (GSSD)

"Training on the application of GACMO Tool and ICAT SD methodology for Transport sector NDCs"

22-23 July 2021

- Excellencies, Ladies, and Gentlemen, Members of the Climate Change Technical Working Group (CCTWG)!
- Excellencies, Ladies, and Gentlemen from line-ministries and institutions other stakeholder! All participants!

1. I would like to welcome you all and thank for organizing this important training that will focus on **the application of GACMO Tool and ICAT SD methodology for Transport sector NDCs.**

2. Climate change is one of the most difficult development challenges that Cambodia is facing, in great part due to her high vulnerability to the impacts of climate change and her low adaptive capacity.

3. The Royal Government of Cambodia is committed to combating climate change and accelerating the transition to climate-resilient, low-carbon sustainable modes of development, being a Party to the UNFCCC since 1995, and has ratified all relevant subsequent protocol and agreements, such as Kyoto Protocol and the Paris Climate Agreement. The Cambodia Climate Change Strategic Plan (CCCSP) 2014-2023 was approved aiming to develop Cambodia a more climate resilience, low carbon, and knowledge based society. The National Policy on Green Growth and National Strategic Plan on Green Growth 2013-2030 was developed to uphold stable economic growth, while simultaneously preserving natural resources and ecosystems with sustainability by prioritizing the environment as a core domain in the country's development.

4. Under the Paris Agreement, Parties agree to limit the rise in global temperature well below 2 degrees Celsius above pre-industrial levels and pursue efforts to limit the increase in temperature even further, to 1.5 degrees Celsius. In response to the Paris Agreement, Cambodia submitted her first Nationally Determined Contributions (NDCs) in 2015 and the updated NDC by the end of 2020.

5. Article 13 of the Paris Agreement establishes an Enhanced Transparency Framework (ETF) for action and support to build mutual trust and confidence among the Parties and to promote the effective implementation of the Paris Agreement. ETF also requires countries to track the progress made in implementing and achieving NDCs. Therefore, the Initiative for Climate Action Transparency (ICAT) has been supporting Cambodia for the development of Measurement, Reporting and Verification (MRV) system

through the United Nations Environment Programme (UNEP) DTU Partnership (UDP). It is the second phase, while the first one focused on MRV in Renewable Energy.

6. The Department of Climate Change (DCC), the General Secretariat of the National Council for Sustainable Development (GSSD)/Ministry of Environment (MoE) is the implementing agency of ICAT. Under this project, ICAT supports Cambodia to 1) develop MRV framework for Transport sector and 2) develop capacity on use of transparency related tools (ICAT SD assessment tool and GACMO).

7. Objectives of the trainings

   •To build capacity on the application of GACMO tool to assess GHG impacts of Transport sector in Cambodia, specifically under the updated NDC;

   •To build capacity on the application of ICAT SD Methodology to assess SD impacts of Transport sector; and

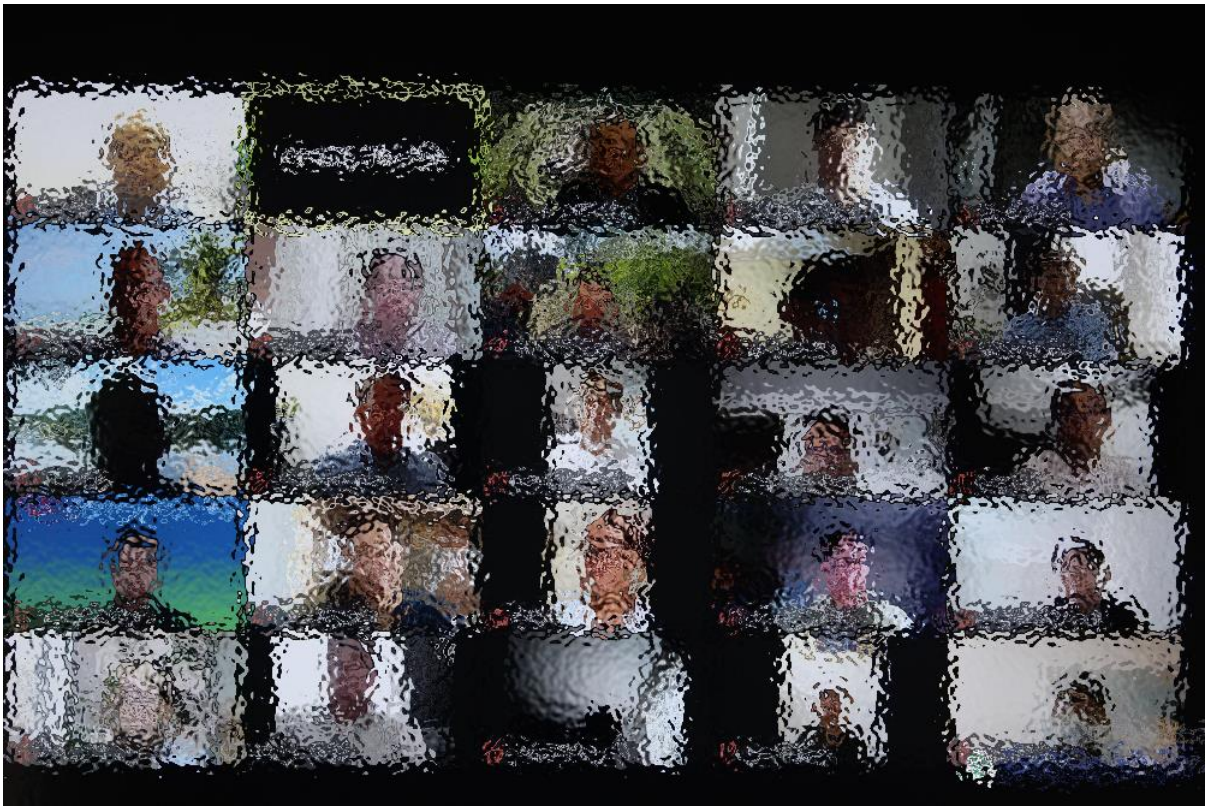
   •Application of GACMO outputs and SD Impacts in designing MRV for the transport sector.

8. I wish you all a very active participation and fruitful discussion.

Thank you!

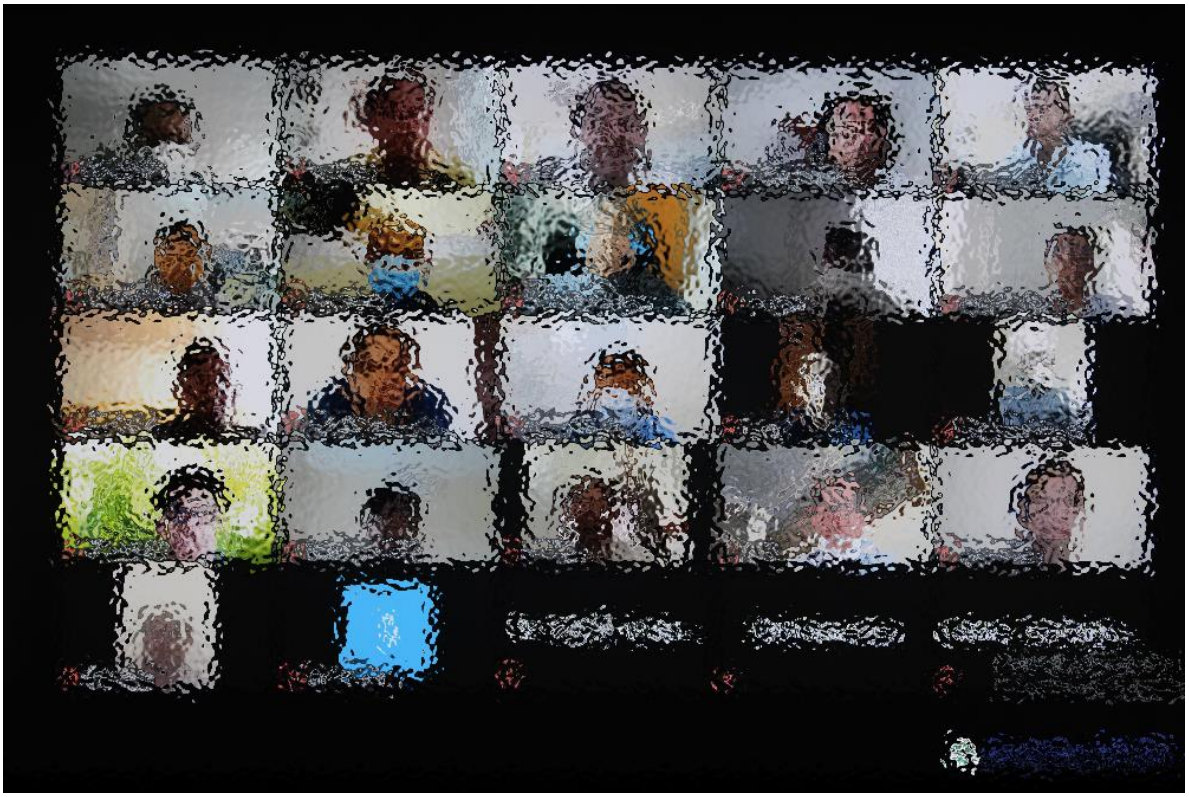
6 Captured moments

Opening remarks by H.E. Dr. Vann Monyneath, SG of the GSSD

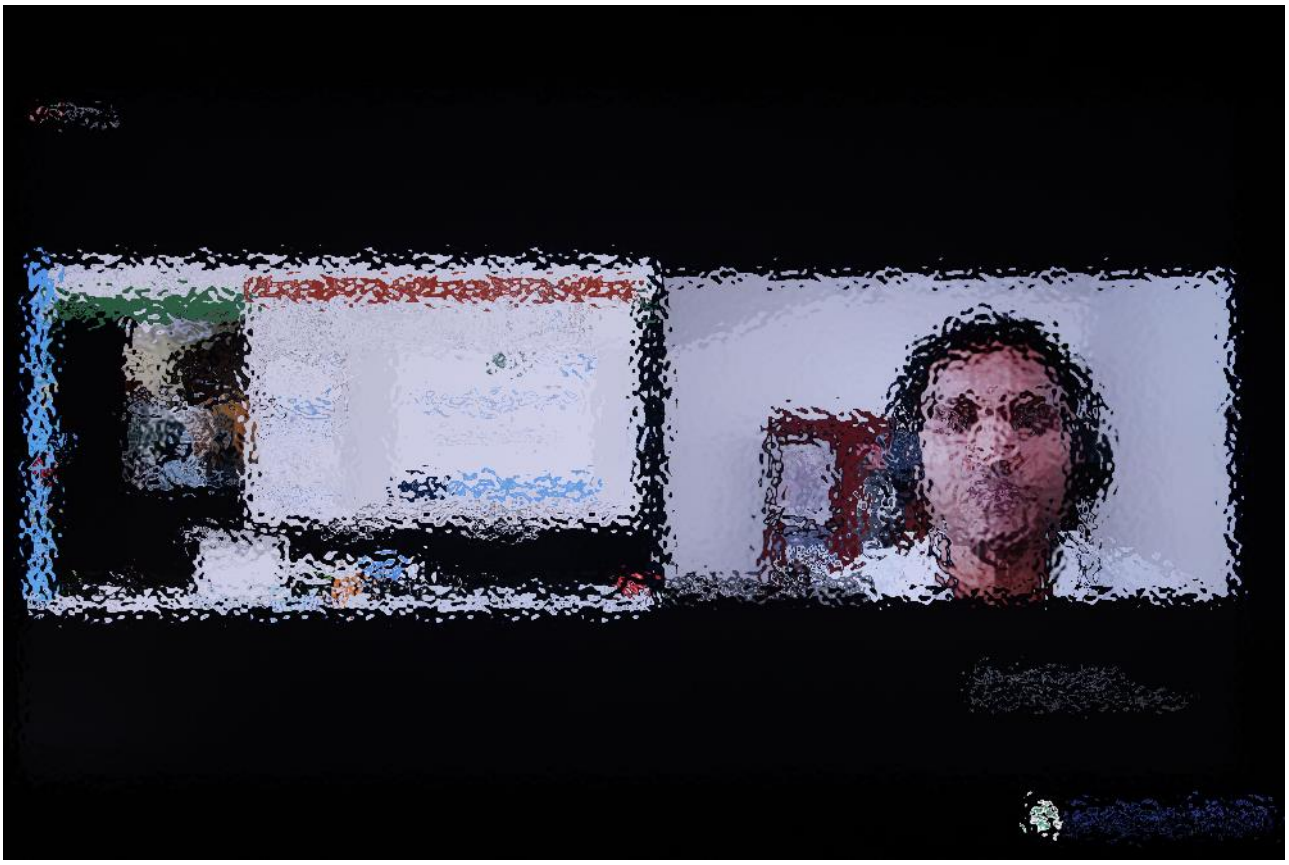


Group photo (1/3)

Group photo (2/3)



Group photo (3/3)



Trainer, H.M Buddika Hemshantha, CEO, Climate Smart Initiatives (Pvt) Ltd.