SUMMARY REPORT

Hands-on training for sustainable transport indicators

24-25 January 2017

Putrajaya, Malaysia

The project context

The GIZ Programme on Cities, Environment and Transport (CET) in ASEAN seeks to reduce emissions from transport and industry by providing co-benefits for local and global environmental protection. The CET Project 'Energy Efficiency and Climate Change Mitigation in the Land Transport Sector in the ASEAN region' (Transport and Climate Change (TCC)) aims in turn to develop strategies and action plans for more sustainable transport.

The project is funded by the German Federal Ministry for Economic Cooperation and Development and implemented by GIZ in cooperation with the ASEAN secretariat.

As presented to the ASEAN Land Transport Working group, TCC's regional activities are in the area of fuel efficiency, green freight and logistics, as well as data, indicators, and MRV. At the national level the project supports relevant transport and environment government bodies in Indonesia, Malaysia, the Philippines, Thailand, and Vietnam for the development of national action plans on sustainable transport. TCC also offers capacity building through different training courses.

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Abbreviations

ADB	Asian Development Bank
AMS	ASEAN Member States
ASEAN	Association of Southeast Asian Nations
ASIF	Framework used for transport sector monitoring (total transport Activity (A), vehicle kilometres/passenger kilometres per mode (S), modal Intensity (I), emissions per unit of energy(F))
BMZ	*Deutsches Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (*German Federal Ministry for Economic Cooperation and Development)
DSM	Demand Side Management
EPU	Economic Planning Unit
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (German International Cooperation Agency)
KLTSP	Kuala Lumpur Transport Strategic Plan
MRV	Measurement, Reporting and Verification
MOT	Ministry of Transport
NDC	Nationally Determined Contribution
PKT	Person Kilometre Travelled
SDGs	Sustainable Development Goals
TCC	Transport and Climate Change project
TEEMP	Transport Emissions Evaluation Models for Projects
TKT	Ton Kilometre Travelled
UNDP	United Nations Development Programme

1 Day 1: Introduction and Presentation of Tools

1.1 Welcome Remarks and Opening

YBrs. Dr. Mohd Shaharin bin Umar, the director of the Energy Section, EPU, Prime Minister´s Department, welcomed the participants and expressed his delight and interest about the training. He shared the background of the training which was jointly organised by UNDP, EPU, and GIZ. The preliminary DSM study started in June 2016 and will be completed in May 2017, while the more comprehensive study will commence in the third quarter of 2017, to assess the escalating total energy demand in Malaysia.

He shared that, based on preliminary findings; data gathering for transport energy use is difficult and challenging due to the diverse characters of the transport sector. At the same time, the study made clear that the energy consumption in Malaysia is rapidly increasing with road transportation as the main consumer of energy.

In order to reduce the CO_2 emission intensity by 45% until 2050, as committed in the NDC, reducing the energy use in transport sector will be of utmost importance in the coming years. The substantial annual increase of energy use in the transportation sector has to be addressed with proper plans and strategies under the 11th Malaysian Plan to achieve the national CO_2 emission intensity reduction target.

He closed his speech by wishing a successful training to all participants.

1.2 Training Proceedings

1.2.1 DSM Preliminary Study by Professor Dr Nasrudin Abd. Rahim of EPU – Interim Report Transport Energy Use

Professor Dr Nasrudin Abd. Rahim presented the preliminary findings of their study on Demand Side Management and transport energy for Malaysia. The preliminary DSM study was financed by UNDP in collaboration with EPU, to pave the way for preparation of the DSM master plan by EPU where issues on policy framework, regulatory, and sustainable financing will be also explored.

The preliminary study investigates final energy consumption by sectors, to study the increase of energy use between 1993 and 2014. For the transport sector, the study covers all types of transport modes classified under the MOT's Annual Transport Statistics[1]. They used different types of indicators to measure transport activities (i.e. PKT, TKT), and disaggregated the data into the different modes of transportation. Although they manage to estimate the energy use and related emissions, there are inaccuracies due to missing data and differences in numbers reported by MOT compared to other reports. He suggested that MOT's reported Annual Transport Statistics could be improved through training and capacity building and inter-sectoral cooperation.

Professor Dr Nasrudin Abd. Rahim's presentation can be found here.

[1] http://www.mot.gov.my/en/resources/yearly-statistic

1.2.2 Quantifying Transport CO_2 Emissions and Understanding Data and Indicators & Best Practices from Other Countries

GIZ consultant, Mr. Sudhir Gota, presented on "Sustainable Transport Indicators on Energy Efficiency and GHG Emissions". He began his presentation emphasising that since quantifying emissions is not a new concept, many solutions have already been developed to facilitate the task of measuring and quantification. He showed the World Bank´s first approaches of quantifying fuel savings from 1966 and Malaysia's first project quoting fuel savings already in 1983.

Indicator development is not an expensive task either, in cases where data is already available, as Mr. Gota described. Enough tools are available, of which some are entirely free of charge. The important task is to understand the methodology behind indicators and to develop a strategy of how to use these tools. Every methodology has its flaws; the main objective is to be aware of these flaws and gaps in the methodology, knowing how to advance nevertheless. He clarified this point by showing the results of a study which once came to the conclusion that India, Italy, and Japan have the most energy efficient transport sectors in the world. Since this is obviously far from the truth, there must have been confusion about the indicators used in this particular study.

There are two main basic frameworks for quantifying CO_2 emissions on a national level: Top down (which is based on fuel sales data) and bottom approach (which uses disaggregated data from each transport mode). In theory, both approaches have similar results, though this is rarely the case in practice. However, they complement each other and can be used for validation. The tools which are available for the bottom-up approach may use different layout and user interface, but they all do the same thing: Following the "ASIF" framework. The A stands for "total transport Activity", S represents "vehicle kilometres or passenger kilometres per mode", I is the "modal Intensity", and F stands for "emissions per unit of energy".

Mr Gota's presentation can be found here.

1.2.3 Sustainable Transport Indicators on Energy Efficiency and GHG Emissions

Advisor for TCC, Ms Julia Nagel introduced GIZ in general and the project "Energy Efficiency and Climate Change Mitigation in the Land Transport Sector in the ASEAN Region" or in short TCC project, and its role in supporting the AMS.

She stated that a major activity of the TCC project is to support the national and regional implementation of the KLTSP, which is ASEAN's latest regional strategy for transport activities. For the first time, it also features a chapter on sustainable transport, which reflects the desire to address climate change mitigation activities also on a regional level. Currently, there exists no harmonised approach regarding data collection and indicator development, this gap has been recognised and mapped in the KLTSP under goal 2.3: "develop monitoring framework and harmonised approach for indictors on energy and GHG emissions in the transport sector".

Ms Nagel further highlighted how Malaysia would benefit from harmonised regional approaches by using a guideline document to help with the data compilation. As one of the

main beneficiaries being a TCC partner country, Malaysia could receive further assistance in form of trainings and workshops. TCC can moreover provide expert knowledge to review existing plans or analyses.

TCC has organised two regional workshops in the past to proceed in the development of sustainable transport indicator guidelines on the regional level where Malaysia also participated to ensure the fit to the Malaysian context. In March 2017, a third regional workshop will be carried out to concretise the content and required information on data and indicator collection.

Ms Nagel's presentation can be found here.

1.2.4 Training Concept of the MRV for the Transport Sector

TCC Project Manager, Mr Papondhanai Nanthachatchavankul, gave an overview on the rationale of the TCC training activities. He explained that training is a core activity of GIZ technical cooperation as well as one element of the sustainable transport goals (ST 3.1.12) of the Kuala Lumpur Transport Strategic Plan (KLTSP). The outputs of the training will greatly benefit Malaysia by improving the capacity of relevant stakeholders regarding transport GHG emissions inventory as well as quantification of emission reductions for the transport sector. Moreover, it will be a platform to connect Malaysia with experts from other ASEAN member countries in order to exchange experiences and best practices.

Mr Nanthachatchavankul introduced the "Train X Methodology" concept, which will be applied for developing the regional training course on "Data, Indicators, and MRV for the Transport Sector" In addition, pilot MRV courses in Thailand have been presented to the participants. Other TCC work related to MRV for the transport sector was highlighted: Such as the MRV report, "Monitoring Transport GHG Emissions in Thailand", and technical work by the MRV working group in Thailand. Towards the end, there were many questions regarding the process of how TCC will develop the regional training course. To answer these, Mr Nanthachatchavankul pointed out that TCC will organise a regional training need analysis during March or April 2017 to properly collect all training requirements requested by all AMS.

Mr Nanthachatchavankul's presentation can be found here.

1.3 Tools Demonstration by Sudhir Gota

Sudhir Gota started the hands-on training by presenting a number of different tools, explaining the main differences and main uses for each of the tools. Based on this presentation, first questions were clarified before deciding on the tools which were going to be applied in the calculation-training on the second day of the workshop.

Mr Gota showcased the collectively called "Transport Emissions Evaluation Models for Projects" (TEEMP) models, which where jointly developed by Clean Air Asia, together with the Institute for Transportation and development policy, the Asian Development Bank (ADB), Cambridge Systematics and the United Nations Environment Programme "Global Environment Facility" (GEF). The Excel-based free-of-charge spreadsheet models were initially developed for evaluating the emissions impacts of ADB's transport project and have been modified and extended for GEF projects.

The following models were discussed and explained to the participants and are available for download:

- Railways.
- Bikeways
- Walkability Improvement
- BRT
- Metro
- TEEMP City

Mr Gota's presentation can be reviewed in here.

2 Day 2: Practicing CO_2 Emission Calculation with Tools

Mr. Gota started the training on day 2 with a few calculation exercises on top-bottom and ASIF formulas. Through working with the calculations the participants got exposed to the approaches as well as learned that the top-down approach provides accurate results but does not provide disaggregated data. In contrast, the bottom-up approach disaggregates data for better analysis and interpretations.

The discussion focused on data availability. It is understood that some government agencies already started collecting the data i.e. data about vehicle km travelled is gathered by MIROS, but is not shared to other government ministries/agencies. Mr Gota recommended transparency in data sharing, as it always reduces assumptions and provides more accurate analysis. He further highlighted that some of the data is already available but not utilised, i.e. an OD survey was done as a feasibility study prior to construction/expansion works for the road, inspection and maintenance centre, but has never been used in emissions calculations.

He went on to explaining the difference between VKT, PKT, and related emissions, depending on travel modes, that can be disaggregated for calculation purposes.

The participants were then guided to use a number of different models by working with mock cases. For every model, Mr Gota first gave a detailed step-by-step explanation and then the participants had time to explore and change certain data to observe the different effects on the results.

3 Closing Remarks

Ms Jeyashri Kisna, national coordinator for TCC in Malaysia closed the training by thanking EPU and UNDP for the opportunity to co-organise the training with the TCC project. She added that it was a privilege for the project to conduct the "Hands-on Training for Sustainable Transport Indicators", the very first capacity building training for government ministries/agencies related to sustainable transport in Malaysia. She went on thanking Mr. Gota for his valuable lessons and experiences shared during the two days.

It is noted that Malaysia already sharing their transportation database transparently, what is lacking are only a few additional indicators related to sustainable transportation. As discussed and observed in course of the two-days, one could easily move forward by establishing stronger inter-sectoral cooperation as well as capacity-building within.

The TCC project is looking forward to continue to support Malaysia in their next steps on training needs analysis, and further in developing a monitoring framework and harmonised approaches for indictors on energy and GHG emissions in the transport sector and training across the ASEAN.

4 ANNEXES

Annex 1

Workshop Agenda

PRELIMINARY STUDY ON DEMAND SIDE MANAGEMENT

HANDS-ON TRAINING FOR SUSTAINABLE TRANSPORT INDICATORS

Organised by:

ECONOMIC PLANNING UNIT
PRIME MINISTER'S DEPARTMENT
MALAYSIA

24 -25 JANUARY 2017
MARRIOTT HOTEL, PUTRAJAYA

in collaboration with:

ASEAN – German Technical Cooperation
Transport and Climate Change

INTRODUCTION

Under the 11th Malaysia Plan, The Economic Planning Unit (EPU), an agency under the Prime Minister's Department of Malaysia is conducting the Demand Side Management (DSM) Preliminary Study with the aim to formulate the DSM Master plan for Malaysia. The preliminary study which covers electrical and thermal energy as well as transport energy use has commenced in June 2016 and expected to be completed by May 2017.

This training is focussed on the transport energy use and one of the key activities in the study. The stakeholders in this area from related ministries and agencies are invited to learn on transport data crunching as well as understanding models and tools on transport emissions for different types of transportation mode.

SCOPE OF TRAINING

1. Providing hands-on application training for:

    a) Better understanding on data requirements and key indicators for Monitoring, Reporting and Verification (MRV);
    b) Understanding the parameters used for data collection such as vehicle travel kilometre, mode shares, load factors and share of empty trips for logistics in the freight sector; and
    c) Identifying the most suitable model / tool to be used for data analysis purpose.

2. Sharing of best practice from other countries.

3. Identify the way forward for Malaysia on MRV for transport energy use and related CO_2 emissions.

AGENDA

DAY 1: 24 January 2017

TIME	ACTIVITY
8.30 a.m.	Registration of participants & light refreshment
9.00 a.m	**Welcome remarks & opening** - by YBrs. Dr. Mohd Shaharin bin Umar Director of Energy Section Economic Planning Unit, Prime Minister's Department
9.15 a.m.	**DSM Knowledge Sharing Presentation** - by YBrs. Prof. Dr. Nasrudin Abd Rahim - Q & A session
10.15 a.m.	Coffee Break
10.30 a.m.	**Quantifying Transport CO_2 Emissions and Understanding Data and Indicators & Best Practices from Other Countries** - Speaker: Mr. Sudhir Gota from GIZ - Q & A session
12.30 p.m.	Lunch
2.15 p.m.	**Sustainable Transport Indicators for ASEAN** - Speaker: Ms. Julia Nagel from GIZ - Q & A session

2.45 p.m.	**MRV Transport GHG Emissions in Thailand** - Speaker: Mr. Papondhanai Nanthachatchavankul from GIZ - Q & A session

TIME	ACTIVITY
3.15 p.m.	Coffee break
3.30 p.m.	**Tools Demonstration I** - Speaker: Mr. Sudhir Gota from GIZ - Q & A session
4.30 p.m.	**Tools Demonstration II** - Speaker: Mr. Sudhir Gota from GIZ - Q & A session
5.30 p.m	**End of training (Day 1)**

Day 2 – 25 January 2017 (Wednesday)

TIME	ACTIVITY
8.30 a.m.	Registration of participants & light refreshment
9.00 a.m	**Hands-On Training with Suggested Tools** - by Mr. Sudhir Gota from GIZ
10.30 a.m.	Coffee Break
10.45 a.m.	**Hands-On Training with Suggested Tools** - by Mr. Sudhir Gota from GIZ
12.30 p.m.	Lunch
2.15 p.m.	**Hands-On Training with Suggested Tools** - by Dr. Sudhir Gota from GIZ
3.15 p.m.	Coffee break
3.30 p.m.	**Hands-On Training with Suggested Tools** - Speaker: Mr. Sudhir Gota from GIZ
4.30 p.m	**Closing & Wrap up** End of training (Day 2)

EXPERT SPEAKERS

1. Prof. Dr. Nasrudin bin Abd Rahim

Nasrudin Abd Rahim was born in Johor, Malaysia, in 1960. He received the B.Sc. (Hons.) and M.Sc. degrees from the University of Strathclyde, Glasgow, U.K., and the Ph.D. degree from Heriot–Watt University, Edinburgh, U.K., in 1995. He is currently a Professor in the Department of Electrical Engineering, University of Malaya, Kuala Lumpur, Malaysia, and the Director and founder of the Center of Research for Power Energy Dedicated Advanced Centre (UMPEDAC). Prof Nasrudin was appointed as Adjunct Professor at King Abdulaziz University (Saudi Arabia) since 2012 till due date. Currently he is the Chairman of Technical Committee on Performance of Household and Similar Electrical Appliances, SIRIM Berhad. In 2014-2015, Prof Nasrudin served as the project leader of the Transportation Sector in the Mega Science Framework Study for Sustained National Development, as well as co-chair for the Energy Usage and Energy Efficiency in Transportation under the Academy of Sciences Malaysia.

2. Mr. Sudhir Gota

Sudhir Gota specializes on environmental issues related to transport sector. He has fifteen years of experience in

research and developing and managing projects related to transportation and environment. He is an adviser to many global organizations such as Smart Freight Center, SLoCaT, Urban Emissions Info and Clean Air Asia. He has been instrumental in bringing “green freight” and “transport data” into agenda in Asia through research and advocacy. He was awarded **Lee Schipper Scholarship** for the year 2013. He is currently working with the SLoCaT team on developing a set of knowledge products that are designed to add value to existing UNFCCC reporting protocols by emphasizing transport-specific elements such as emission targets, global transport emission trends and mitigation possibilities. He has been supporting GIZ in ASEAN from last 4 years.

3. Ms. Julia Nagel

Julia Nagel is working as an advisor for Transport and Climate Change (TCC) project. She focuses on sustainable transport indicators two-wheelers and is further leading the monitoring and communication of project activities. Previously, she was working for two other GIZ projects on clean air for smaller cities and transport Nationally Appropriate Mitigation Actions (NAMAs), based in Bangkok and Germany. Julia holds a Diploma in Geography and Transport Planning and studied in Germany and Chile.

4. Mr. Papondhanai Nanthachatchavankul

Papondhanai Nanthachatchavankul is a Project Manager of the Transport and Climate Change (TCC) Project. He is responsible for the regional training activity and support the Project Director on specific topics; fuel efficiency policy and MRV for the transport sector. Previously, he

was employed as a Regional Coordinator of the TCC project responsible for Thailand and Vietnam activities.