Information Matters, Philippines:

Capacity Building for Enhanced Reporting and Facilitation of International Mutual Learning through Peer-to-Peer Exchange

Biennial Update Report (BUR) 101: Training-Workshop

Linden Suites, Ortigas, March 22-24, 2016

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Acronyms

AC	Air-conditioning
AD	Activity Data
ASEAN	Association of Southeast Asian Nations
AWIT-FE	Agriculture, Water, Industry, Transport - Forestry, Energy
BAS	Bureau of Agricultural Statistics
BAU	Business as Usual
BMB	Biodiversity Management Bureau
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
BOC	Bureau of Customs
BOT	Build-Operate-Transfer
BUR	Biennial Update Report
CBD	Convention on Biological Diversity
CC	Climate Change
CCAM	Climate Change Adaptation and Mitigation
CCC	Climate Change Commission
CEMAP	Cement Manufacturers' Association of the Philippines
CFC	Chlorofluorocarbon
CGE	Consultative Group of Experts
CMSCC	Council of Ministries for Sustainability and Climate Change
COP	Conference of Parties
CSO	Civil Society Organization
DBM	Department of Budget Management
DENR	Department of Environment and Natural Resources
DMR	Department of Mineral Resources - Ghana
DOE	Department of Energy
DOF	Department of Finance
DOLE	Department of Labor and Employment
DOST	Department of Science and Technology
DOTC	Department of Transportation and Communication
DPWH	Department of Public Works and Highways
DSA	Data Supply Agreement
DTI	Department of Trade and Industry
DU	Distribution Utility
EF	Emission Factor
EM (Egypt)	Energy Management- Egypt
EPA (Ghana)	Environmental Protection Agency - Ghana
EPIMB	Electric Power Industry Management Bureau
EPPB	Energy Policy and Planning Bureau
ERC	Energy Regulatory Commission
ERDB	Ecosystems Research and Development Bureau
FASPO	Foreign-Assisted Special Projects Office
FMB	Forestry Management Bureau
FOREX	Foreign Currency Exchange

FPPKMD-KISS	Forest Policy, Planning and Knowledge Management Division-Knowledge and Information Systems Section
FRA	Forestry Resource Assessment
FRCD-EFS	Forest Resources Conservation Division- Environmental Forestry Section
FREL	Forest Reference Emission Level
FRMD-FRUAS	Forest Resources Management Division-Forest Resource-Use and Assessment Section
FSV	Facilitative Sharing of Views
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gasses
GHGI	Greenhouse Gas Inventory
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNP	Gross National Product
GREET	Greenhouse gases, Regulated Emissions, and Energy use in Transportation
GWP	Global Warming Potential
HCFC	Hydro chlorofluorocarbon
HFC	Hydro fluorocarbon
IAEA	International Atomic Energy Agency
ICA	International Consultation and Analysis
ICCT	International Council on Clean Transportation
IKI	International Climate Initiative
IM	Information Matters
INDC	Intended Nationally Determined Contribution
INGO	International National Government Organization
IP	Indigenous People
IPCC	International Panel for Climate Change
IPPU	Industrial Processes and other product use
ITDP	Institute for Transportation and Development Policy
LEAP	Long range Energy Alternatives Planning System
LECB	Low Emission Capacity Building
LEDS	Low Emission Development Strategies
LGU	Local Government Unit
LLDA	Laguna Lake Development Authority
LTFRB	Land Transportation Franchising and Regulatory Board
LTO	Land Transportation Office
LULUCF	Land use, land-use change and forestry
M&E	Monitoring and Evaluation
MA	Mitigation Action
MIS	Management Information System
MMDA	Metropolitan Manila Development Authority
MNRE	Ministry of New and Renewable Energy
MONRE	Ministry of Natural Resources and Environment of Vietnam
MRV	Monitoring, Verification, Reporting
NAI	Non-Annex I
NAMA	Nationally Appropriate Mitigation Action
NAMRIA	National Mapping and Resource Information Authority

NC	National Communication
NCCAP	National Climate Change Action Plan
NCI	National Convergence Initiative
NDC	Nationally Determined Contributions
NEA	National Electrification Administration
NEDA	National Economic Development Authority
NFI	National Forestry Inventory
NFMP	National Forest Management Project
NGA	National Government Agency
NGCP	National Grid Corporations of the Philippines
NGHG	National Greenhouse Gasses
NGO	Non-Government Organizations
NGP	National Greening Program
NICCDIES	National Integrated Climate Change Database and Information Exchange System
NPC	National Power Corporation
NREB	National Renewable Energy Board
NREP	National Renewable Energy Plan
NSWMC	National Solid Waste Management Commission
OIMB	Oil Industry Management Bureau
OUFO	Office of Undersecretary for Field Operations
OUPFAP	Office of Undersecretary for Policy and Planning & Foreign Assisted Programs
OUSB	Office of Undersecretary for Staff Bureaus
PAT	Perform, Achieve, Trade
PDF	Probability Density Function
PEMC	Philippine Electricity Market Corporation
PEP	Philippine Energy Plan
PNOC	Philippine National Oil Company
PPP	Private Public Partnership
PSA	Philippine Statistical Authority
RAC	Refrigeration and Air Conditioning
RE	Renewable Energy
REDD	Reducing Emissions from Deforestation and Forest Degradation
REMB	Renewable Energy Management Bureau
RSO	Research and System Observation
SMR	Self-Monitoring Report
SVPCF	Special Vehicle Pollution Control Fund
SWMB	Solid Waste Management Board
TRANSCO	National Transmission Corporation
TTE	Team of Technical Experts
TWG	Technical Working Group
UNDP	United Nations Development Programme
UNFCCC	Unite Nations Framework Convention for Climate Change
USAID	United States Agency for International Development
WRI	World Resources Institute
WTO	World Trade Organization

EXECUTIVE SUMMARY

The GIZ on behalf of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has initiated the "Information Matters: Capacity Building for Enhanced Reporting and Facilitation of International Mutual Learning through Peer-to-Peer Exchange" Project. The IM phase 1 aims to strengthen through the Climate Change Commission (CCC) in-country capacities for enhanced reporting (Biennial Update Report and National Communication) of climate relevant information to UNFCCC in four pilot countries (Chile, Dominican Republic, Ghana, Philippines) and in the second phase in four additional countries: Columbia, Egypt, Georgia and Vietnam as well as an ad-hoc facility.

Thus, a training-workshop on Biennial Update Report (BUR) was conducted on February 22-24, 2016. The activity aimed to provide the relevant government agencies and other stakeholders a bird's eye view on how to prepare a BUR and be familiarized with the contents of a BUR document by walking through the chapter-by-chapter guidance on the UNFCCC guidelines. Key topics discussed were the following; a) analysis of mitigation actions and their effects and how to report them, b) uncertainty/sensitivity analysis of sectoral GHGI results and c) filling up of data gaps (activity data) related to GHG Inventories, d) tracking and reporting in climate support needs and climate support received and e) International Consultation and Analysis...

Representatives from national government agencies in charge of the Waste, Industry, Energy, Transport, Agriculture, and Forestry sectors and Philippine Statistics Authority attended the training-workshop, joined by officials and staff from the Climate Change Commission and GIZ. Technical expertise was provided by *Mr. Gonçalo Cavalheiro from CAOS and Mr. Juan José Rincón Cristóbal from Aether España.*

Below is a summary of key points raised during the plenary discussion:

1. *Institutional Arrangement.* Establishing the structure and clarifying roles of each institution that will be involved in the BUR is essential prior to taking any related step. Accordingly, the approval of the Executive Order (EO) 174 has set the pace through assigning the roles of CCC and government agencies in the GHG inventory. While the EO is specific to GHGI, this policy can be a reference in setting other institutional arrangements in the context of BUR.

2. *Submission of NC and BUR.* While there are components of BUR already outlined in the NC, doing both reports regardless of repetition of information is necessary to provide the entire picture of country's situation/circumstances. In this regard, when the two reports are submitted simultaneously, two options are possible: a) each report as a standalone report, with the full set of information required by the guidelines, or b) include cross references to relevant information included in the other report in order to avoid actual repetition of information in the two publications.

3. *Financial and Human Resource Requirements for BUR preparation.* Financial resources may be pooled from several sources: the GEF, national resources and other multilateral and bilateral partnerships.

   While specific (including international) expertise (such as consultants) may be required in order to compile a BUR, given the regular frequency of the submission of such reports, it is good practice that national structured teams are established in order to strengthen national capacity in MRV. The use of national teams and the use of national teams and the buy-in of the agencies will contribute significantly to the sustainability of BUR process in the country.

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BMUB International Climate Initiative (IKI)

Since 2008, the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has been financing climate and biodiversity projects in developing and newly industrializing countries, as well as in countries in transition. Based on a decision taken by the German parliament (Bundestag), a sum of at least 120 million Euros is available for use by the initiative annually. For the first few years the IKI was financed through the auctioning of emission allowances, but it is now funded from BMUB budget. The Initiative places clear emphasis on climate change mitigation, adaptation to the impacts of climate change and the protection of biological diversity. These efforts provide various co-benefits, particularly the improvement of living conditions in partner countries.

The IKI focuses on four areas: mitigating greenhouse gas emissions, adapting to the impacts of climate change, conserving natural carbon sink with a focus on reducing emissions from deforestation and forest degradation (REDD+), as well as conserving biological diversity.

New projects are primarily selected through a two-stage procedure that takes place once a year. Priority is given to activities that support the creation of international climate protection architecture, transparency, and innovative and transferable solutions that have impacts beyond the individual project. The IKI cooperates closely with partner countries and supports consensus building for a comprehensive international climate agreement and the implementation of the Convention on Biological Diversity.

(BMUB IKI Homepage: www.international-climate-initiative.com)

Methodology and Approach

The facilitator used a combination of plenary presentation for discussion of concepts, key elements, and mechanisms and breakout sessions for application of acquired knowledge and skills. The outputs from the break-out sessions were then presented back in the plenary so resource persons and other participants would be able to raise comments and/or clarifications.

The entire training-workshop lasted for three days and at the end of the training-workshop, post-training evaluation and post-training quiz were administered to test the training-workshops' efficiency, effectiveness, relevance to participating agencies as well as the level of the attainment of workshop objectives and to gauge how participants appreciated the shared knowledge and expertise, respectively

Participants and Resource Persons

Representatives from national government agencies in charge of the Waste, Industry, Energy, Transport, Agriculture, and Forestry sectors and Philippine Statistics Authority attended the training-workshop, joined by officials and staff from the Climate Change Commission and GIZ participated in the

workshop. Technical expertise was provided by *Mr. Gonçalo Cavalheiro from CAOS and Mr. Juan José Rincón Cristóbal from Aether España.*

Preliminaries

Dr. Bernd Markus-Liss welcomed the participants and mentioned that the workshop is the 5th of a series under Information Matters project. Most endeavors of Information Matters project are focused on knowledge sharing on fulfilling country's obligation in reporting to UNFCCC. Thus, the Biennial Update Report (BUR) Training-Workshop aims to give a real outline on what is BUR and how can this be shaped into a report. Dr. Liss emphasized that mitigation has co-benefits towards climate resiliency and it is important to cover mitigation actions in the reporting and reflect how objectives are achieved.

This undertaking is embedded in the climate program, wherein adaptation and mitigation are supported based on the international framework like Sendai, Paris Agreement, and overall implementation of sustainable agenda towards 2030. To date, BMUB has given the country an opportunity to become part of the proposal development to be submitted and hoping to get more support for the Philippines climate change adaptation and mitigation (CCAM).

Commissioner Emmanuel De Guzman mentioned that under the UNFCCC, countries are encouraged to share information which is *a key element of transparency, compliance and reporting.* And while accounting of country's capacities is a major challenge, elaborating mitigation actions, setting up an MRV system, identifying technical and financial needs are crucial in enhancing capacities for reporting. Thus, as part of CCC's initiatives, the Commission has already developed the NCCAP and information system structures and protocol.

BUR is a conduct of systematic survey of capacity needs, financial and technical requirements pursuant to the UNFCCC. To that end, Commissioner De Guzman hoped that the workshop assesses the capacity of the country for the preparation of BUR. He then thanked the German Government for the invaluable support to Philippine government on its climate change related initiatives and efforts.

Information Matters: Overview and Achievements from the past two years

Ms. Kirsten Orschulok*, GIZ Information Matters Project*

Ms. Kirsten Orschulok, GIZ IM Project Coordinator presented an overview of the project and updates. Under the support of German Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), IM Phase 1 aims to strengthen in-country capacities for enhanced reporting (BURs and NCs) of climate relevant information to UNFCCC in four pilot countries (Chile, Dominican Republic, Ghana, Philippines) and in the second phase in four additional countries:

Columbia, Egypt, Georgia and Viet Nam (until 11/2017) as well as an ad-hoc facility. Project activities include the following:

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Figure 1. Project Framework
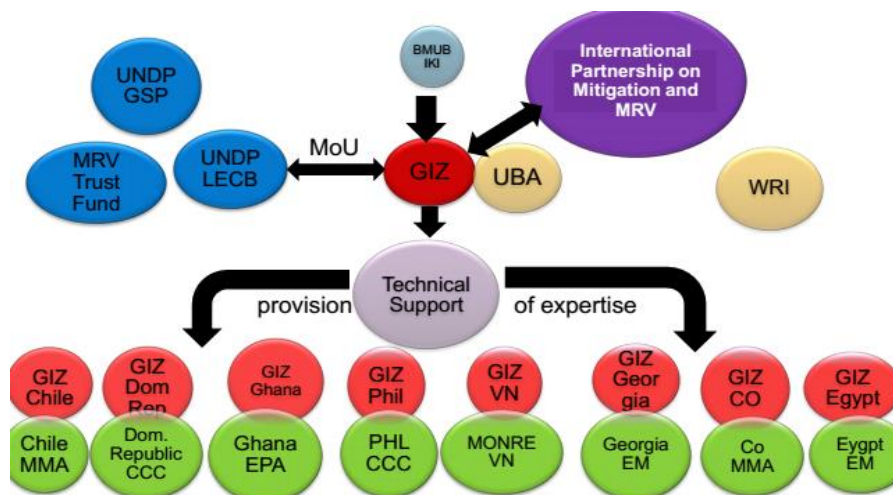
a. Identification of specific needs and priorities of the MRV systems and GHG monitoring in the partner countries;

b. Provision of tailored-made capacity-building trainings and backstopping as well as concepts for institutionalization; and

c. Support the process through peer-to-peer exchange and generation of knowledge products

The series of capacity building activities that led to peer-to-peer exchange between the IM countries was completed in December 2015. Below are key achievements from the project.

- Publication of the GIZ BUR Template 2014 (used e.g. by Namibia)

- Two countries submitted their BUR: Chile in Dec 2014 and Ghana in June 2015

- Two countries established a sustainable MRV system: Dominican Republic and the Philippines.

- Two Side Events at the SB in Bonn (2014 and 2015) to show the world the progress of

the country's work regarding MRV and BUR, hosted by Ghana and Dominican Republic

- Peer-to-Peer Exchange between the IM countries in September 2015 in Dessau, Germany.

The discussion in the peer-to-peer exchange evolved around guidance on reporting and how the BUR and National Communication process can be streamlined to become more cost-effective in terms of translation of work for the normal people, awareness raising, and ensuring regular data provision.

The graph shows the overall project timeline, while below are key challenges in three other participating countries.

a. Chile: Although the country has submitted the BUR, the concern is the political buy-in of the government

b. Dominican Republic. Does not have that much technical expertise on BUR preparation.

c. Ghana. Not so much sustainability in terms of institutional arrangement compared to the Philippines that has set up a robust institutional arrangement.

Figure 2. IMA Phase 1-2 Timeline
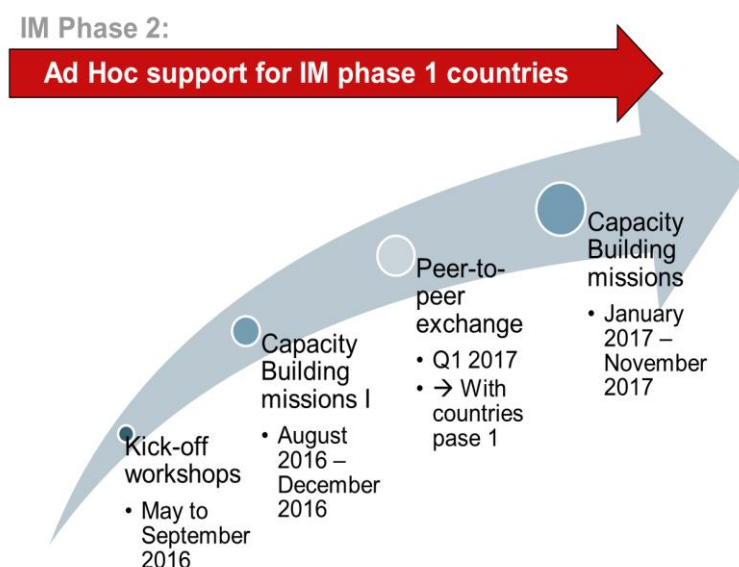
In the pipeline is the development of the Process Guidance Analysis Tool for BUR and ICA which:

- is 6-step interactive tool to guide parties through the process to set-up a comprehensive MRV system and sustainable reporting system

- Calculates time to fulfill the recommended steps

- Includes information on BUR and ICA guidelines as well as country experience to support countries through the process.

Update on National Climate Reporting and BUR State of Play (and GHG Inventory) in the Philippines

Ms. Sandee Recabar, *Climate Change Commission*

As a party to the convention, Philippines is obliged to submit BUR every 2 years, using the GHG inventory, 4 years prior to the year of submission, hence if the country decides to submit the BUR in 2018, GHG inventory year is 2014. One of the crucial elements in making such decision on BUR submission is the institutional arrangement within the government and the Commission has been working on this, in consultation with the national agencies. In addition, efforts being done are aligned with the BUR reporting guidelines.

In 2015, Executive Order (EO) 174 which institutionalizes GHG inventory management and reporting system was signed by the President. EO 174 aims to enable the country to transition towards a climate resilient pathway for sustainable development. It outlines two key elements a) functions and roles of CCC as overall lead and lead agencies from each sector and b) funding. A guidance document to serve as its IRR for the conduct, implementation, documentation, reporting and archiving of data is being finalized. This guidance document will officially a) establish and strengthen the institutional frameworks,

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arrangement, and linkages, b) serve as guide or reference for future GHG inventory and National Communication preparation, c) establish the process and rules of procedures, and d) establish the QA/QC and maintenance strategy system. The approval of the guidance document is a priority in the agenda items of the first Commissioners' Meeting for 2016.

CCC decided to have a national MRV system that is sustainable. The National Integrated Climate Change Database and Information Exchange System (NICCDIES) is a database for an organized data collection on climate change mitigation particularly on GHG Inventory, Mitigation Actions, LEDs, and MRV system. It is a source of information, where data has been processed in such a way as to be meaningful to the user. It is an exchange system for sharing of data and information that is integrated and accessible by collecting and gathering the data

In terms of the NDC, the development partners like GIZ, USAID, and UNDP assisted the Commission in developing the roadmap for NDC which is parallel with the ratification process of the Paris Agreement.

Key Inputs from the Discussion

On relationship between EO 174 and NICCDIES.

EO 174 mandates government agencies to conduct greenhouse gas inventory. It has identified lead agencies for the five (5) sectors and CCC as consolidator of all GHG data. While EO 174 is a form of policy measure, NICCDIES is system that would enable the exchange of information between the agencies that covers three (3) components (GHGI, MRV and Support)

Figure 3. NICCDIES Framework
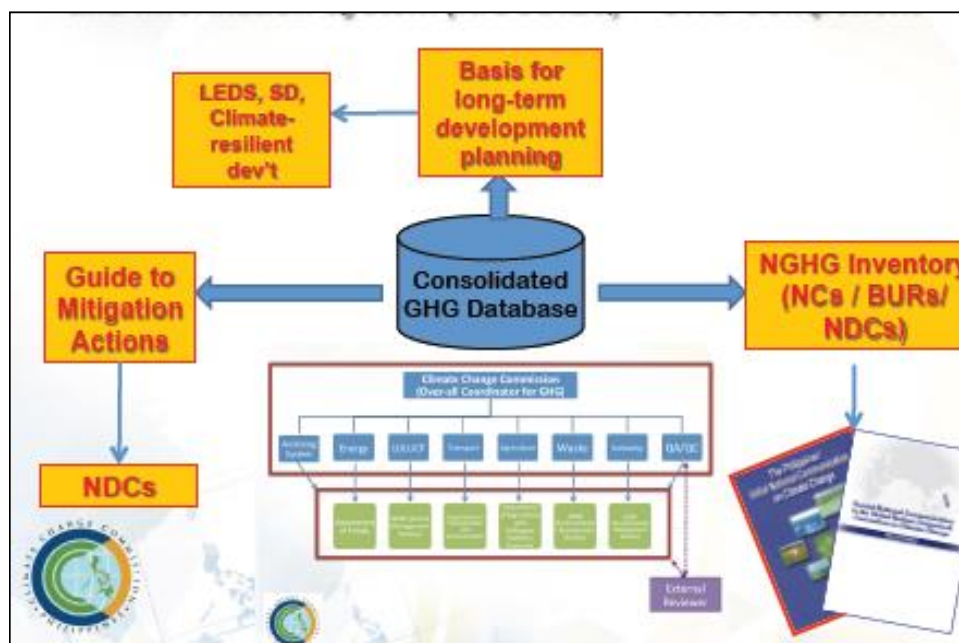
and information at a "single location" at the national level specifically the Agriculture, Waster, Industry, Transport, Forestry, Energy (AWIT-FE) sectors.

On data consolidation

CCC has just started setting up the hardware and getting necessary software to be distributed to agencies as outlined by EO 174. Protocols on exchange of information and submission are also

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being finalized. The structure of who should do what has been already elaborated and the 2010 inventory data is a good exercise for the government agencies to check on the quality of data.

Figure 4. NDC Roadmap
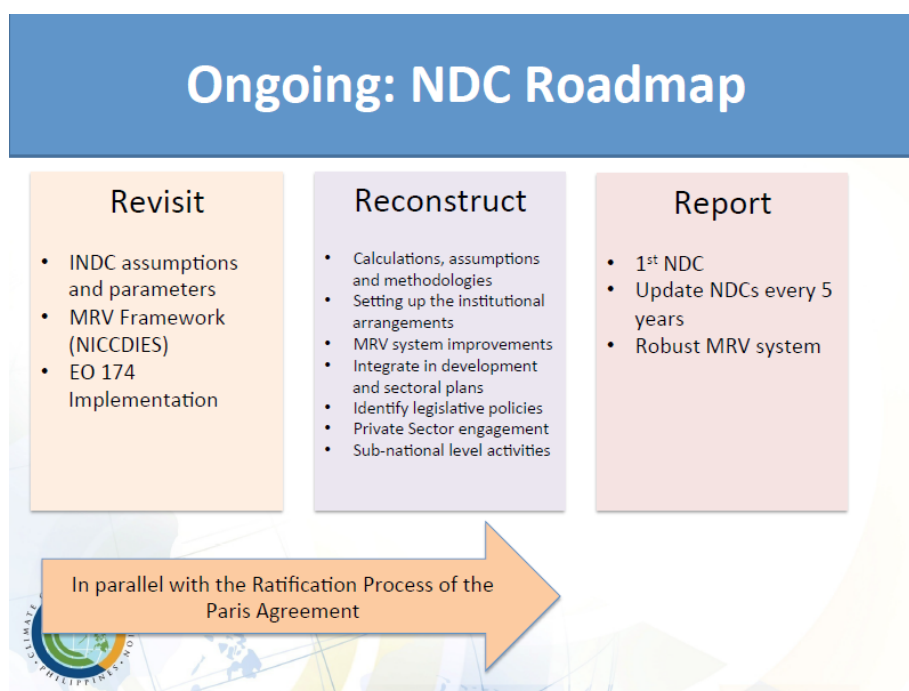
Program and Methodology of the Workshop

Mr. Gonçalo Cavalheiro, *CAOS*

Mr. Cavalheiro presented the methodology of the workshop. He mentioned that they "*are not trainers rather facilitators*" who will guide the participants in understanding better the BUR. Tools will be provided and elaborated that can be used by the sectors in the context of available information. He also set the ground rules for the breakout sessions:

a. Before starting to work, read the instructions carefully (one volunteer out loud)

b. If the instructions have been given orally, one volunteer repeats to the group to make sure everybody had the same understanding

c. Three participants need to volunteer for three roles:

   o **Facilitator** – making sure that the discussion keeps focused, that everybody participates and that all opinions are discussed and taken into account

   o **Time keeper** – helps the group keep track of time. If the group is going slow, the time keeper should warn the group

   o **Rapporteur** – reports back to the entire room the key conclusion of the group work

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After his discussion, he then requested the participants to write down their top 2 expectations from the workshop. In general, the participants expected to better understand the BUR preparation and reporting, its principles and process. They also wanted to acquire the skills in using the tools through hands-on exercises and presentation of other countries' experiences. Moreover, clarifying of roles of the different agencies/institutions for the BUR reporting and the link of such in the country's development planning and other reportorial commitment were also expected to be addressed in the training-workshop. Details are in the table below.

Table 1. Board of Expectations

Board of Expectations	
Knowledge and Tools	
Basics of Climate Change	• To have an increased awareness on the climate change issues affecting the country • Review of CC concepts • Utilize the knowledge obtained from the workshop to other events
Basic concepts of BUR report and process	• Learn and understand on how to go about the BUR • Set clear guidelines on how to report and fill up the BUR contents • Learn the basic principles prior to BUR updating • Acquire some skills on BUR preparation • Clear understanding of the preparation of BUR • Familiarize and understand the creation of BUR and to appreciate its importance • Understanding the BUR guidelines and how the preparation relates to existing process and set up of the Philippines • Clear direction for reportorial requirements • Appreciation of challenges faced by the sectors in BUR • Better understanding of CC mitigation in the context of collecting data and reporting
Tools/templates to prepare the BUR	• What is BUR template composed of • Learn how to use different approaches and tools • More examples/calculations • Technical annex of the BUR
GHG Inventory	• Bridge the existing agency data to the requirement of GHGI • Connection between GHGI methods of this workshop with the other institute's GHGI • Understand and appreciate what is GHG in regards of the different sectors • Learn how GHGI works • Appreciate the choice of Method (tier levels, IPCC 2006 guidelines) • Computation/assessment of GHG emission from different sectors to consider • Gain understanding of conduct of GHGI

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Analysis of mitigation actions	- Develop skills on uncertainty and mitigation analysis - Mitigation action analysis - Understand reporting of mitigation, how to capture the co-benefits
MRV	- Learn how the MRV system become more efficient to people - How the program/training will help - Learn how to uses and process of MRV system
BUR and data gaps	- How to address data gaps needed for BUR - Overview of available information and how to access them - Identify gaps in the Philippines to further improve country's experience
Roles and Link of BUR	
Roles of Agencies and other organizations	- Become more familiar in the BUR process since I am working on mitigation issues - How each agency can contribute - Create better coordination between agencies and stakeholders on the BUR - Get ideas/exchange of ideas with other organizations, agencies involvement in climate change adaptation/mitigation/BUR - Clear roles and responsibilities for agencies concerned - Better understanding of our role in the preparation of the BUR - Clear structure of responsibilities - Clear understanding of the role in the preparation of the BUR - To relate BUR on our agency's mandate specifically
BUR and development planning and other reports	- Learn how to use BUR in the long term development planning - How to integrate BUR with other reporting requirements to UNFCCC - Avoidance of overlapping reports - How to use BUR from the Philippines to understand the BUR of other countries
General Expectations on the Workshop	
Workshop processes	- Interactive discussions - Easy step-by-step procedure for the hands-on exercises - Active participation of the participants during the discussions - Workshop to finish on time
Sector-specific concerns	
• Transport	- Major inputs to BUR - Choice of method (tier method/level) - Quantifying uncertainty on vehicle deterioration curves - Learn how to comply with BUR requirements
• Forestry	Get clearer pointers how to help the sector in filling up data gaps

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Plenary Presentations: Key Concepts and Tools on BUR

The Framework of Biennial Update Report (BUR) and International Consultation and Analysis (ICA)

Mr. Gonçalo Cavalheiro, *CAOS*

The framework of BUR and ICA came in Cancun after the Copenhagen COP. Transparency had reached to top of the political agenda, when reduction commitments were replaced by national pledges. The BUR guidelines outline the following:

a. National circumstances and institutional arrangements for preparation of NC on a continuous basis. The national communication guidelines can be used as guidance for the national and regional development priorities, objectives and circumstances, on the basis of which they will address climate change and its adverse impacts. However, there is no further legal guidance on institutional arrangements, but the UNFCCC Secretariat and the CGE have prepared extensive materials on this.

b. GHG Inventory, 4 years prior to submission of BUR. The Inventories are to be submitted in accordance with the NC guidelines for inventories. Some key new concepts have been included (even if nuanced) such as good practice guidance for LULUCF, consistent time series, and national inventory report.

c. Mitigation action. A big step forward in relation to NC guidelines since the simple updating of information based in NC guidelines does not seem sufficient to comply with BUR guidelines. The requests include type of action, quantitative goals and indicators, methodologies and assumptions, steps for implementation and progress towards achieving estimates emission reductions, international carbon markets, and description of domestic MRV system put in place specifically for mitigation action.

d. Finance, technology and capacity-building needs and support received. The reporting on needs, constraints and gaps are based on NC guidelines, but the new challenge is reporting on financial, technical and technological support received from bilateral and multilateral partners.

e. Domestic MRV. There is no guidance yet, but may be partially covered by the institutional arrangements, limited to domestic MRV of mitigation action as required in the relevant section of the guidelines, and applicable to all information MRVed in the BUR, namely GHG inventory, mitigation action and support needs as well as received.

Key Inputs from the Discussion

On Domestic MRV

The decision on Domestic MRV adopted by the Decision 21/CP.19 does not provide structured guidance on the establishment of a domestic MRV system. The establishment and reporting of this system is particularly relevant for the case when mitigation policies are funded solely by national resources. The current state of understanding of climate policy resulting from the Paris Agreement and all the discussion that led into it, make this COP-16 and COP-19 understanding of domestic MRV systems rather outdated. Countries have been establishing MRV

systems with the purpose of enhancing and facilitating MRV as a whole.

On submission of a single report since some of the scopes in the BUR are covered in National Communication (NC)

The BUR was agreed under a politically-intense moment, however there is no clear guideline set under such agreement. BUR as a stand-alone document is easier to comply with, but it becomes more complex since BUR goes hand-in-hand with the National Communication. The guidelines have stipulated that submission can be either an integrated document or annexed in the NC.

Some countries submitted an integrated document, some have annexed BUR in the NC while some submitted a National Communication but other information is included in the BUR. Thus, the decision on which approach to take is up to the country, but Mr. Cavalheiro recommended to do both as full standalone documents, regardless of repetition of information in both documents.

On carbon market for REDD-plus and where does REDD-plus fall under domestic MRV

The international regime is in a transition period and it is not yet clear where REDD-plus fits.

Others consider REDD-plus as carbon market, while others do not. At the moment, REDD-plus is not yet a carbon credit mechanism but it will be discussed and changed after 2020.

Where does REDD-plus fit?

First, REDD-plus is a mitigation action and if the country wants payment for the results, there is a specific guideline for inclusion as an annex on FREL and reference results in the BUR. This should undergo technical review process which is more tedious than other technical analysis of BUR due to financial transactions involved.

On inclusion of all mitigation actions in the BUR.

After Paris, (and in that sense also in the run up to 2020) every single effort that may reduce emissions should be included in the BUR and NC being it to receive initial support or just to show how the country is contributing to emission reduction.

How about in the NDC, since this is a mitigation action, would it have different presentation in the BUR?

These are all just terminologies; the notion is that, if such action resulted in emission reductions it should be included in the BUR to show that country's effort is working on the ground.

Data Gaps in GHG Inventories

Mr. Juan José Rincón Cristóbal, *Aether España*

Data gap is the lack of some needed information in the activity data (AD) or in the emission factor (EF), in the context of GHG inventories. He mentioned the five principles of the GHG Inventories based on the IPCC guidelines. However, he focused in the completeness and consistency as both are the most affected by data gaps.

a. Completeness. Means that an inventory covers all sources and sinks, as well as all gases, included in the IPCC Guidelines as well as other existing relevant source/sink categories which are specific to individual Parties and, therefore, may not be included in the IPCC Guidelines. Completeness also

means full geographic coverage of sources and sinks of a Party.

b. Consistency. Means that an inventory should be internally consistent in all its elements with inventories of other years. An inventory is consistent if the same methodologies are used for the base and all subsequent years and if consistent data sets are used to estimate emissions or removals from sources or sinks.

There are different data gaps due to, for example, activity data ceased to be available, information is only available for some of the historical years, information required is not available for recent years, information is not reported annually, coverage of the information is incomplete and/or no information at all.

The collection of available data is sometimes hindered by the following barriers:

- Lack of awareness of what data might be available

- Lack of structured data sharing processes

- Timeliness – key datasets are not available at the time required

- Sharing data may be viewed as losing power by individuals, departments or organizations

- Restrictions on statistics data prior to official release

- Commercially sensitive data – e.g. from individual companies or installations

- Restricted data and confidentiality

Thus, to overcome these barriers, there are possible solutions such as systematic review of data available (who have the info you need?), setting up working groups of key data providers, enter in a data supply agreements (DSA's: who, what and when?), and take care of confidential data. All of them show the importance of a functional GHG Inventory national system in place

In terms of addressing data gaps in time series, there are four (4) splicing techniques: Overlap, Surrogate Data, Interpolation, and Trend Extrapolation. Note that a good practice is to perform the splicing using more than one technique before making a final decision and document why a particular method was chosen. Additionally, expert judgment could be used to solve data gaps' problems.

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Table 2. Splicing Techniques

Technique	When to Use	How	Applicability	Comments
Overlap	• New method is introduced • data are not available to apply the new method to the early years in the time series	• Develop a time series based on the relationship (or overlap) observed between the two methods during the years when both can be used • Assuming that there is a consistent relationship between the results of the previously used and new method	Data necessary to apply both old and new method must be available for at least one year, preferably more	• Most reliable when the overlap between two or more sets of annual estimates can be assessed • If the trends observed using the previously used and new methods are inconsistent, this approach is not a good practice
Surrogate Data	• Need to understand relationship prior to using surrogate data e.g. using regression analysis • Possible outcomes (a) correlation is not obvious and considers more sophisticated regression techniques to see if a relationship between actual and surrogate parameter can be found and (b) if no actual data, justify why the surrogate parameter is a legitimate proxy for actual variable(s)	• The surrogate method links an information to underlying activity or other indicative data • Changes in these data are used to simulate the trend in the needed information • The estimate should be related to the statistical data source that best explains the time variations of the category	Missing date is strongly correlated with proxy data	Should test multiple potential proxy data variables
Interpolation	Information is not available for some years in the middle of the time series	• Interpolating between the detailed estimates • Caution: If information on the general trends or underlying parameters is available, then the surrogate method is preferable	For periodic data or gap in time series	• Linear or non-linear interpolation. • Only use where data shows steady trend
Trend Extrapolation	Detailed data have not been prepared for the base year or the most recent year in the inventory (a base year)	• Extrapolate from the closest detailed data; linear and non-linear • Assumption: the observed trend during the period when detailed estimates are available remains constant over the period of extrapolation	Missing data is at the beginning or the end of the time series	• Only use where trend is steady and likely to be reliable • Should only be used for a few years • Only use where data shows steady trend

Breakout Session: How to Fill Data Gaps

The participants were grouped according to their respective sectors: energy, transport industry, waste, forestry, and agriculture. The facilitator emphasized that the groups should document everything as to the process, data source, and process in deriving the data gaps. Each was given a handout and requested to get the data from 1990 to 2015. Before the practical exercise an example based on Industrial Wastewater emissions was presented.

Presentation of Breakout Session Output

a. **Agriculture**. Data on the area of rice and coconut was provided for 1995, 2000 and 2005; for banana only 1995 and 2000 data was provided. Hence to generate the other years both interpolation and extrapolation methods were used.

b. **Transport.** Steps taken are:
   1. Identify the assumptions and missing data using GDP pattern;
      a. But it was realized that it may not be good to use the GDP rather GNP
      b. There are changes in the data that is reflected by the GDP but not reflected by what happened.
   2. Look for values between 1995-2005 using interpolation to derive the activity data from 1995-2005, but there is a need to look for data for other years.
   3. Look at the differences between years like 1995-1996/1996-1997 to find a common factor, which was extended from 1990 to 1995.
   4. For 2005-2015, look at the difference between 2000 and 2001, 2001 and 2002 to find the common factor and added the value to be extended to 2015.

c. **Energy:** to complement what the transport sector did, the average growth rate from 1995-2000, 2000-2005 were used for the interpolation. It was applied to extend the years for motorbikes, while trucks grew slower, assuming the same trend that applies the same average growth. Results are; for cars: 1.9; for motorbikes: 3.3; trucks: 0.5: then multiply the elasticity to estimate growth rate.

d. **Waste specific to wastewater.** Steps taken are:
   1. Filled out the data using population and correlation of waste generated per year per person, but there is still a need to get the growth rate before 2012. The correlation was then converted to cubic meter per year.

   2. Upon getting the values, the exact data can be derived; however the difference between 1995-2012 is very minimal, hence cost of living was taken into account.

   3. A flowchart was developed based on the discussion:
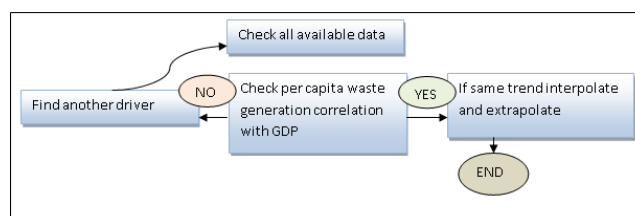
   4. Note that data is not always the same every year, hence verify the ratio between each year and ensuring correlation of income and food intake.

e. **Forestry.** Steps taken are:
   1. Use interpolation and extrapolation techniques.
   2. Inserted 2005 and 2015 to derive the trend from 1998-2015.
   3. Computed the data using the NGP 2011-2015, to get hold of the historical data

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4. From 1998 to 2008: 10 years gap; 2008-2015: 7 years gap
5. Interpolation for 2005 and extrapolation for 2015.

   f. **Industry**. Steps taken are:
      1. Verification of availability of data such as amount and type of cement produced: add the cement imported and deduct the cement exported.
      2. Projection based on the industrial roadmap and extrapolate data up to 2015 based on the targets.

3. Combination of company B and C total data and get the percentage for company B and C.

Feedback from the Facilitator
- Sometimes, several methods have to be used for the same activity data to avoid the different data gaps.
- Take into account the importance of other sources of information to explain the trend of the data.
- For forestry, since the Philippines has REDD-plus, the regulations/policies in the country should be taken into account.

Chilean Experience on the BUR Compilation and ICA Preparation

Mr. Sergio Gonzalez Martineaux, professor for AFOLU and GIZ IM team member- *Chile*

On behalf of Dr. Farias, head of the Climate Change Department in the Ministry of Environment, Mr. Sergio Gonzalez Martineaux, presented the experience of Chile in BUR and ICA preparation. He emphasized that Chile was the first Latin-American country and fourth country in the world that submitted its BUR within the deadline set in Durban (COP 17, 2011).

The preparatory activities for BUR included the setting up of an institutional structure relevant to reporting to the UNFCCC. Headed by the Council of Ministries for Sustainability and Climate Change (CMSCC), the Department of Climate Change is mandated to lead the coordination and compilation of reports, with support from technical focal points from the Ministries under CMSCC.

The Department has taken three (3) steps for pre-assessment of the process which includes: analysis of decision and guidelines, definition of chapters and content and identification of key tasks and work plan elaboration. After the pre-

Figure 5. Institutional Arrangement of Chile
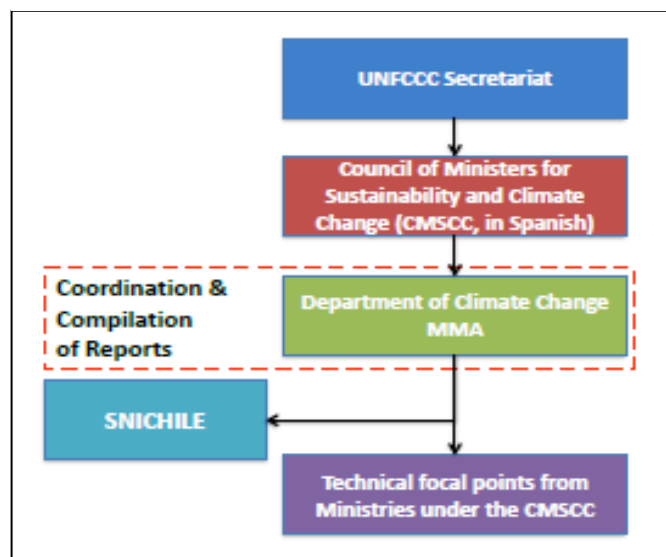
assessment was done, BUR compilation process commenced.

Step 1: National GHG inventory update process:

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Step 2: Identification of sectoral mitigation actions and policies and updated information on NAMAs, completed early 2014.

Step 3: Support received and needs matrix/database competed in June 2014

And for a country to be able to sustain the reporting system, Chile's experience on BUR compilation revealed the following realizations:

- Improving the planning of the activities to complete the BUR;

Table 3. Challenges and Solutions

BARRIER / CHALLENGE	HOW THE WERE ADDRESSES
Lack of capacities in BUR elaboration	CGE Training on BUR /Information Matters Missions
Lack of professionals and HH to compile and elaborate the document	Prioritize the BUR work over others obligations and contracted studies to collect and update some information
Lack of coordination and definition of roles	The work was assumed by few professional at a high personal cost (stress, heavy work load)
Very tight deadlines	As same as previous

Figure 6. ICA Timeline
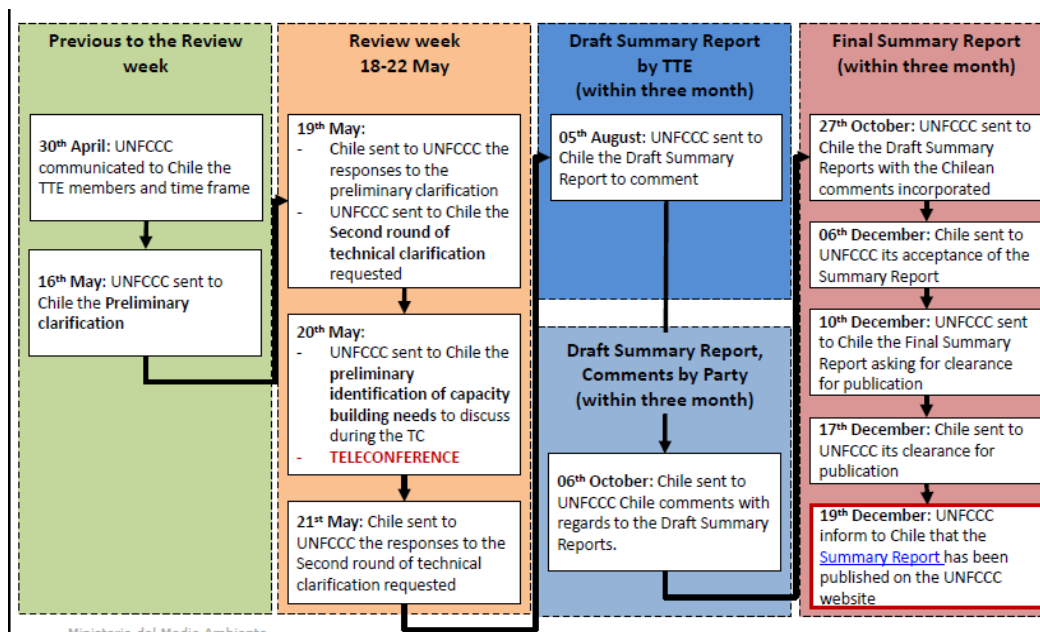
In the process of BUR complication, the country has experienced key challenges but these are addressed along the way.

- Involving more professionals in the preparation of the report;

- Building capacities and creating awareness of the importance of the reporting;

- Providing templates and tools to sectors to collect the information.

In terms of ICA, a team was created within the institutional structure for country reporting. Headed by the Head of the Department of Climate Change, focal points were identified for mitigation actions and GHG inventory, and Information Matters for overall support, which provides technical support as need arises from the ministerial focal points.

Part of the preparation was that the ICA team studied the BUR requirement as per the guidelines as well as the ICA guidelines. This was followed by the definition of roles and responsibilities of the ICA team and setting of timeframe for the technical review week (May 18-22, 2015).

To conclude, Mr. Sergio Gonzalez Martineaux enumerated key take away points from their experience:

- For 2016, Chile expects to improve the procedures and information gathering and processing by the next BUR preparation process, continuous improvement;

- After ICA process Chile is more prepared and it has a better understanding of what is expected from a BUR.

- Chile is updating the National GHG inventory for inclusion in its second BUR (new time series to be reported: 1990-2013);

- Different work lines with different sectors to enhance MRV discussion;

- Looking forward for the next step in ICA process, during 2016: Facilitative sharing of views

- ICA is a process for helping NAI countries **in terms of** improving BUR (also reporting our National Communications) and identifying country needs.

- ICA Process served as a tool to highlight needs for internal authorities and prioritize the resources.

- Relevance of experts within the team participating locally in the ICA process.

- Important to define clearly roles, responsibilities and deadlines.

Key Inputs from the Discussion

On financing of the BUR.

Chile received funding from the GEF, but prior to that, the Commission has already secured funding from different projects in order to finance the BUR (Funding from GEF: USD352, 000.00 for BUR, USD500, 000.00 for NC)

On streamlining/improving the 2015 BUR process based on your 1st BUR experience for instance data collection.

The Department of Climate Change has its own instrumentalities with focal points from different ministries to provide the data requirements. With the guidance of the Department, the focal points were provided with template/s on what is exactly needed for the BUR.

On ownership of the information about support received by Chile.

Nobody owns the data. Support received is the most difficult area in the BUR and there is no designated agency yet to lead in the collective gathering of information on support received by Chile. Thus, this is the support the Department has asked from Information Matters Project, to specifically provide guidance in building the system to collect the information on support received.

On ensuring sectoral buy-in and ownership to the BUR process and output

Coordination and communication between councils of ministries is the best way to ensure the buy in on BUR process.

On staffing/human resources requirement for BUR

- Sustainability Issue. In Chile, another project is already approved to finance the BUR and NC for the next four years.

- Composition for the 2nd BUR. One of the challenges is the political change that has implication in the management in the Ministries. However, the key is to have people within the Ministries who both work on inventory and mitigation actions. In the case of Chile, the government is not dependent on the consultants and 90% of human resources requirement for the BUR came from the Ministry of Environment. Hence, lessons and experiences gained remain in the Ministry.

- Recommendation on Staffing Structure for the BUR. The challenge with hiring a consultant is that once the work is completed, the experience/lessons are with them, not with the Ministries. It might be more effective to have a team composed of regular staff from the Ministries and just hire a consultant who can train the team so lessons/experience remain with the Ministries, which can be easily transferred from one staff to another.

On FREL as an indispensable component of BUR.

FREL was not relevant in the first BUR, only the mitigation actions are included.

The Singapore's National Communication and Biennial Update Report was also presented as follow through the presentation of Chiles' experience. Singapore has included information from the national communication (NC) in the BUR; the only difference is that NC has vulnerability and adaptation measures.

BUR Guidelines on Support Needs and Support Received

Mr. Gonçalo Cavalheiro, *CAOS*

Mr. Cavalheiro presented the guidelines for the reporting of support needs and support received. He mentioned that the requirements for this are simply reports on the country's financial, technological, and capacity building gaps, constraints, and needs and report on financial, technology, and capacity building received. The guidelines elaborated the following steps:

Step 1: Identify Needs. The three (3) items should be reported are resource needs, resource available *(national and international sources)* and support needed *(difference between the resource need and available)*

Step 2: Identify constraints and gaps. Why is the country not being able to access support and what, in the country's view, could be done to overcome such constraints and gaps.

Step 3: Report on Support received. From different sources such as multilateral and bilateral and activities like preparation of the BUR, mitigation, adaptation, RSO, education, training and awareness raising.

Mr. Cavalheiro presented the reporting of South Africa on support received. He mentioned that since some support for the country are not monetized; they have provided a summary of non-monetary support.

Key Inputs from the Discussion

Lead in collecting data on support received.

CCC is on top of this. The EO 174 can be used as reference in building the system on collecting information on support received.

In terms of climate finance, an informal group composed of government agencies (CCC, NEDA, DBM, DOF) regularly meets to specifically discuss how to move forward with climate financing. CCC also plans to include support received in MRV system (NICCDIES), however while having a system to monitor the government is spending for CC, structure for support received it is not yet systematic.

On inclusion of support from private sources to local organizations (INGOs to local NGOs) since this is not captured by the government process.

It is a decision that needs to be elaborated by the government. For some countries, these are included but depending on the reporting system set up between the INGOs and official organization in the country. If it does not capture from the government process, hence it should be linked.

BUR Guidelines and Domestic MRV System

Mr. Gonçalo Cavalheiro, *CAOS*

Domestic MRV System is a set of procedures and arrangements aimed at making more efficient and less resource consuming, the process of MRVing climate policy and fulfilling the UNFCCC requirements.

The decision in Warsaw on domestic MRV system is weak and there are no guidelines for reporting; only a simple reporting requirement that Parties should provide information on the description of domestic measurement, reporting, and verification arrangements. There are several options that can be used such as CGE training materials on institutional arrangement and the UNFCCC Toolkit for non-Annex I Parties on establishing and maintaining institutional arrangements for preparing national communication and BURs.

There are several countries that are already reporting their respective DMRV systems such as Ghana and India. Ghana's DMRV system captures all the chapters of the BUR and aims at making sure that the existing sector or national development M&E system is able to "monitor" [and report]

o   GHG emissions or reductions attributed to a particular mitigation action

o   climate-related support provided by the Government of Ghana or received from donors or the market in a form of finance, technology transfer and capacity to enable implementation of a certain action or as a result of an action taken in a particular sector of the economy;

o sustainable development benefits of mitigation actions.

Key Inputs from the Discussion

On possible connection of MRV and regulation functions

In addressing the overlaps, there is a need to systematize the system and monitor policies that have connection to the country's actions on mitigation, for instance, relation of rice production policy with utilization of fertilizer. It is important to sit down and take a decision on who should do what and integrate the most important indicators so as not to repeat the process.

BUR Guidelines and Mitigation Actions

Mr. Juan José Rincón Cristóbal, *Aether España*

As part of the BUR, countries do not need to report on each and every mitigation action or project they may be implementing. Rather BURs should paint a broad picture of a country's mitigation actions.

Mitigation actions are not limited to those communicated officially to the UNFCCC and compiled in document FCCC/SBI/2013/INF.12/Rev.2 (NAMAs). However, the NAMAs that were originally communicated under the Copenhagen Accord already cover a large range of different approaches and types of actions that can be envisioned.

Almost every action affects the atmosphere and almost any human activity is a source of emission or (a sink). Therefore, the effect of any measure taken to modify the current situation could lead to a mitigation or increment in GHG emissions. The effect of most of the measures is negligible, but climate change should be included in the decision making processes.

Mitigation actions can be grouped depending on the focus of the analysis, but there are three most common classifications for MAs.

o **Type of action**: Here the main question is what type of action is the focus of the mitigation action, i.e. which instruments are used as mitigation actions

o **Scope**: Another dimension is the coverage of the mitigation action by sector, geography or technology

o **Source of funding**: If the source for funding is the dominant question, a different classification will result

Table below further details relevant information on mitigation actions reporting:

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Table 4. Other Information on Mitigation Action

Types of mitigation action	• **Goals:** Actions that are framed as commitments. They are formulated as national, economy-wide or sectoral targets. These can be reductions below business-as-usual (BAU) emissions scenarios, or absolute reductions. They can also be formulated as reductions in carbon intensity or as technology related goals, for example renewable energy targets. • **Policies:** Actions that aim to impact emissions through relevant national policies. This includes broad strategies as well as the full range of policy instruments, such as regulations, taxes and incentive schemes. • **Projects:** Activities that are targeted at a specific investment or that are limited in scope, scale and duration. This includes the installation of renewable power capacity, infrastructure investments as well as pilot projects and capacity building initiatives.
Scope	• **Economy-wide:** Mitigation actions that cover the entire economy of a country, for example economy-wide GHG reduction goals. • **Cross-sectoral:** Actions that span in a number of sectors, but not all, which could be the case for actions that target all energy demand sectors. • **Sector-specific:** Activities that target one specific sector, for example agriculture. • **Technology-based:** Actions that target specific technologies, for example certain renewable energy technologies, or packages of technologies. Technology-based actions are often sector specific, but could also be cross-sectoral or economy-wide.
Source of Funding	• **Domestically supported actions** are implemented unilaterally by the country itself without specific international support (e.g. Israel's target to achieve a 20% reduction in GHG emissions by 2020 below BAU levels, which would be achieved primarily through the implementation of two government decisions by 2020). • **Internationally supported actions** involve international funding through direct finance (e.g. Indonesia's goal to reduce emissions to 41% below BAU with sufficient international support). • **Credited activities** would be funded through the international carbon market • **Individual activities** can also be funded with a combination of sources. In such cases this type of classification would consider the main source of funding.

In general, the most detailed the information the better. But it is important to take note of the difference between information needed for the reporting and information needed for the proper inclusion of the MA in the MRV system for the country. There is no "official" template for reporting but there are templates that can used like GIZ-developed template or CGE, or a country may develop its own based on its circumstances. The template should include minimum information required in the NAI BUR Reporting Guidelines.

The status of the mitigation actions could be clustered into four: *planned* is an action already developed but requires approval, *adopted* is an approved action but its effectivity has not yet started, *implemented* is an action that is adopted and implemented but yet to be completed, and *expired* is an action no longer in place. The policy instruments on the other hand are classified as the following:

Figure 7. Information to be collected for MA

ID	Scope	Mitigation projected
Name	Policy instrument	Mitigation achieved
Description	Policies related	Cost
Implementing entity	Objective	Source of funding
Entity type	Indicator(s)	International market mech.
Gas/Gases affected	Methodology	MRV arrangements
Start date	Assumptions	Adaptation action
End date	Steps planned	
Status	Steps taken	
Sector	Co-benefits	

o **Economic:** provides an economic incentive or reduce GHG emissions. This includes measures such as infrastructure programmes, subsidies, investment programmes, feed-in-tariffs, loans/grants and trading schemes.

o **Fiscal:** provides a financial incentive via taxes. This includes both increases and decreases in taxes.

o **Voluntary/negotiated agreements:** A binding or voluntary standard/regulation as in regulatory and information measures, but agreed between regulators and the sector targeted.

o **Regulatory:** Measures that set binding standards and regulations. This includes for instance building regulations or eco-design standards.

o **Information:** Measures such as labeling, awareness raising, voluntary standards. The objective is to disseminate information to the general public or specific target groups.

o **Education:** Measures such as training programmes, capacity building.

o **Research:** Research programmes and demonstration projects.

o **Planning:** Measures such as waste management plan, transport plan, urban planning.

o **Others:** Measures that do not fit in any of the above.

Another important information to collect are the co-benefits of the MA, which could be group into: health, economic, energy security, ecosystems, wastes and social. In reporting, it is good to include adaptation actions that have a mitigation effect.

Similarly, linking of MA to GHGI and the projections cannot be seen as a stand-alone process because the effect of the MA should be included in the projections and have an effect in the GHGI future results. In projections, there are different scenarios based on the MA: baseline scenario without MA, WeM scenario with current MA and WaM scenario with additional MA. It is important to remember that assumptions must be the same in projections and MA. If not, there is a problem of consistency.

Note that mitigation action does not always equate only to good impacts. For instance, a MA proposes that all vehicles in the country is electric in five (5) years. So, there will be no emission from transport sector, but the electricity comes from the energy sector. This sector would increase to cope up with the demand which may lead to building coal plants.

There are six (6) steps in assessing mitigation actions

Step 1. Assess situation and organize process
• Determine and prioritize objectives of assessment (information to be obtained)
• Assess existing studies, current capacities and data availability
• Define key participants and stakeholders (wide range)

Step 2. Clarify scope of the mitigation action
• Sectoral scope: energy supply, transport, buildings, industry, agriculture, land-use, forestry, solid waste
• Time Frame of Mitigation Assessment

Step 3. Study the GHGI and baseline scenarios
• GHGI and projection assumptions should be followed
• Projections should be available including a baseline scenario
    • A baseline scenario provides a plausible and consistent description of future developments in the absence of explicit new GHG mitigation policies
    • Not simply an extrapolation of past trends
    • Often called "business-as-usual (BAU)" scenario
• Methodologies used for estimating the effect of the MA should be coherent with GHGI & Projections

Step 4. Design assessment methodology
Consistency with GHGI & Projections
    • Are their methodologies applicable to the MA?

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- • Is the needed AD available? If not, why?
- Select methodologies consistent with study objectives, desired outputs, available data and resources
  - • Is the methodology coherent with the projections methodology?
  - • Will the effects of the MA be noticeable in the GHGI?

Step 5. Collect data and calibrate assumptions
- Data requirements and level of disaggregation depend the study
- Assumptions should be consistent with GHGI and Projections assumptions

Step 6. Estimate the reduction in emissions
- Estimate the emissions of applying the MA
- Estimate the difference with the baseline scenario

Key Inputs from the Discussion

On cross-sectoral mitigation actions (e.g. waste and agriculture effects)

Both effects should be estimated given that the mitigation action has impacts on both sectors

Is REDD-plus considered NAMA in forestry?

The system will change once the country started with something in particular regarding REDD-plus. It can be under NAMA given that activities under REDD-plus aim to reduce emission. There are a lot of mitigation actions under REDD-plus; hence it is better to be more concrete on the policies included in REDD-plus and differentiate between different measures.

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Breakout Session: Mitigation Actions Links with GHGI and Projections

The breakout session focused on the linking mitigation action as identified by each sector with GHGI and projections. The groups discussed the steps in performing a mitigation effect assessment and the necessary requirements to carry out such assessment. Table below details the outputs of the sectors.

Table 5. Workshop Results: MA links with GHGI and Projections

Steps	Waste: Landfill Biogas Recovery and Use	Forestry: The National Greening Program	Energy: Renewable energy increase	Industry: Lower-carbon cements	Transport: Phase-out of public utility buses that are older than 15 years
STEP 1: Assess situation and organize process	**Objective:** avoid methane emissions in the landfill through the recovery of the gas. 100% of methane is expected to be recover in 2017 **Key Stakeholders** : • LGU • EMB(ECC) • Private NGOs & Other Sector • PPP/BOT • DOE (energy generation from BIOGAS) • NSWMC (EMB as secretariat) • DOST (technology on biogas) • NEDA • Operator of the Landfill • Community, etc.	**Objectives**: grow 1.5 billion trees in 1.5 million hectares nationwide within a period of six years, from 2011 to 2016. **Available**: Existing Studies, current capacities & data availability Policies: EO26 (NGP) s. 2011 EO 193 (Extended NGP) s. 2015 2016-2028	**Objective:** 60% Increase in share of Renewable Energy **Policies:** NREP; PEP (DC 2015-07-0014 at least 30% of Cad. RE Fuel/Mix Policy) 30-RE 30- Nat Sources 30-Fossil 10- Others; EE Road Map and Action Plan **Key Stakeholders**: NGA's/LGUs; Private Sector; FIs; Technology Providers; CSOs	**Objectives:** • Modification of the current existing factories to allow the production of low carbon cements. • 2 years and it is expected to cover 90% of the national production **Existing Studies**: CBA Study (USAID); WTO Study (for validation) **Key Stakeholders**: • CEMAP • Cement Industries • Development Partners • PSA • DPWH/DOTC • DTI • DENR • BOC • Real estate/Construction associations, etc.	**Objective:** • Removal of bus and mini buses that are more than 15 yrs. old Determine the no. of buses and mini buses that are more than 15 yrs. old from date of manufacturing as of 2013 - baseline (mini bus: 1,239 Bus: 5297 for phase out) Key Stakeholders: operators, drivers, LTFRB, LTO, DOTC

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Steps	Waste: Landfill Biogas Recovery and Use	Forestry: The National Greening Program	Energy: Renewable energy increase	Industry: Lower-carbon cements	Transport: Phase-out of public utility buses that are older than 15 years
STEP 2: Clarify scope of the mitigation action	**Scope:** Solid Waste Energy Supply **Timeframe** : 2017-2027 (dependent on the budget)	**Scope**: Forestry **Timeframe:** 2 years	• Energy Supply (Generators) • RE Contracts: 857- Full Implementation by 2020, to be completed by 2030	**Scope**: Industry **Timeframe:** 2020-2030	**Scope:** Transport Bus & Mini-bus ≥ 15 years old **Timeframe:** 2013-2020
STEP 3: Study the GHGI and baseline scenarios	NAMA in place for waste to energy, composting, land fill IPCC (2006)	**Baseline:** Historical GDP from 2010-2014 & annual ave. 6.5% for 2015-2030 **Methodologies**: Forestry Resource Assessment (FRA); 2006 IPCC Guidelines **Baseline data:** 2003 & 2010 NAMRIA forest cover data	**Baseline:** Fossil Fuel; Power Plants: 42% coal; 26% RE BAU; 24% NG	**Baseline:** • Clinker Fraction of Cement • Exports Data of Clinker • Cement Production • Imports Data of Clinker	**Baseline:** • Data need for the BAU emission: vehicle km travelled, fuel consumption, emission factors • Need to have local study to come up with data that consider traffic congestion among others. • No phase out of buses **Assumptions:** Every year buses ≥ 15 yrs. to be phased out; new buses are registered -> check the manufacturer
STEP 4: Design assessment methodology	Use of IPCC 2006 guidelines	Use of IPCC 2006 guidelines (Tier 1)	Use of IPCC 2006 guidelines	Use of IPCC 2006 guidelines	Mitigation scenario phase out ≥ 15 yrs. (CO_2 = vkm x Fuel consumption Emission factor)
STEP 5: Collect data and calibrate assumptions	National Greenhouse Gas Inventory	National Greenhouse Gas Inventory	Technical Operating Data (e.g. fuel used, etc.)	• GHGI • Disaggregation acc. to the type of cement • Conduct Study regarding CO_2 Emissions (production) for alternative materials • Quality study of low carbon cement	• Growth of the buses • Number of buses > 15yrs. per year •

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Steps	Waste: Landfill Biogas Recovery and Use	Forestry: The National Greening Program	Energy: Renewable energy increase	Industry: Lower-carbon cements	Transport: Phase-out of public utility buses that are older than 15 years
STEP 6: Estimate the reduction in emissions	ER 2027 = E2027-e2017 Where :E = (EF-AD)	EE = AD x EF (CO2)	Reduction of BAU GHG Projected RE/mix GHG Change of Energy Production Mix	ER2020=EBS2020 PE2020	Baseline – no. of bus phased out X EF

NAMAs in the Refrigeration and Air Conditioning (RAC) Sector

Ms. Denise Andres, *GIZ PROKLIMA*

Proklima is a 20-year initiative that already covers 280 projects in 40 partner-countries. The initiative has resulted to 8,100 ODP tons reduced which is about 100 million tons of carbon equivalent and about 600,000 technicians trained.

Proklima is focused on the refrigeration and air conditioning (RAC) sector. A project called C4 – Cool Contributions fighting Climate Change Project aims to contribute to an accelerated implementation of an international regulation of F-gases, a strengthened and clustered cooperation between various F-gas initiatives, and the advancement and exemplary implementation of INDCs in the RAC sectors of the partner countries. Specifically, the project aims to:

- identify and pursue national development pathways in relevant sectors;

- support international initiatives on F-gas matters in coherence with the global climate regime;

- cooperate with 6 selected partner countries or regions, and their respective climate, ozone and energy divisions, technical assistance on: Introduction of tools and methods (RAC inventory) and capacity building;

- develop RAC mitigation strategies as part of further INDC elaboration; and

- support for exemplary implementation until 2020 (e.g. in the frame of NAMAs)

The project is being implemented from 2015 to 2020, with working packages and outputs as follows:

- Guidance for partner countries in RAC policy and transformation processes;

- Support of structures and processes to coordinate and harmonize international initiatives and organizations.

- Guidance to reduce overlap and parallel structures within F-gas activities.

- Analysis and further development of RAC mitigation strategies as part of INDCs as well as their exemplary implementation and dissemination.

Figure 8. RAC Potential for Mitigation
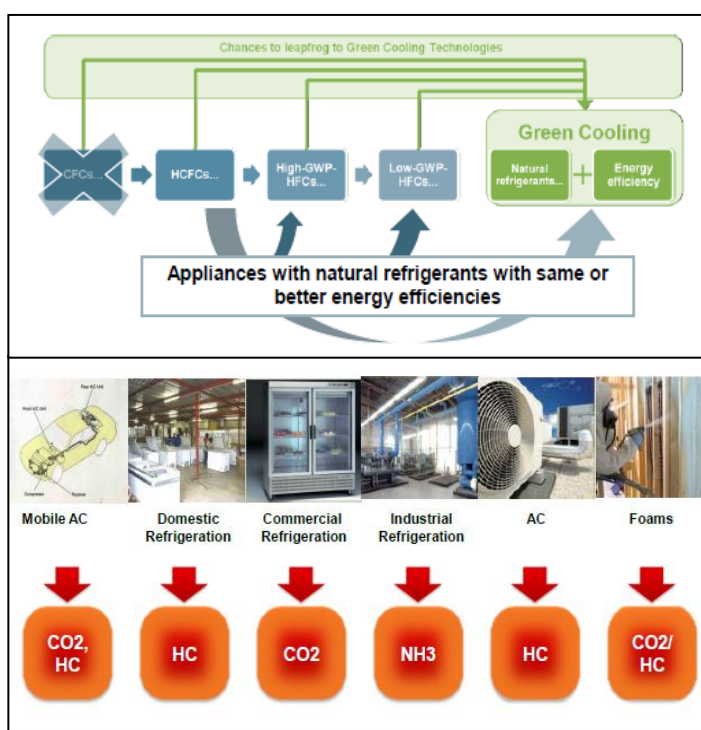
The RAC sector is composed of subsectors such as unitary air conditioning, chillers, mobile AC, and refrigeration (domestic, commercial, industrial, and transport). Direct emission from refrigerant of high GWP HCFCs and HFCs is 20% (relatively high from old appliances), while indirect emissions accounts for 80% due to energy use of RAC appliances. With the growing global share in electricity consumption and GHG emission of the sector, its mitigation potential is also high. In fact until 2030, mitigation potential for direct emissions can be at 73.7% globally and 28.6% from indirect emissions. It would also bring energy saving with the combination of energy efficient with natural refrigerants.

Thus, addressing GHG emissions in the RAC sector through a NAMA may bring various benefits:

- Huge saving potential with increased energy efficiency and phasing down HFCs (straightforward measures, low cost, proven technology)

- Energy savings through increased energy efficiency and reduced life-time cost of appliances

- Emission reductions due to natural refrigerants and reduced energy consumption

- Further co-benefits of avoidance of costs for patents/licenses for chemical refrigerants.

The key components of RAC NAMA are:

- Key stakeholders willing to take the lead

- Robust inventory including direct and indirect emissions

- Baseline and BAU scenario

- Low GWP options

- Technology roadmap including key actions and milestones

- Financing needs and funding sources

- UNFCCC registry

Figure 9. Addressing GHG emission from RAC through NAMA
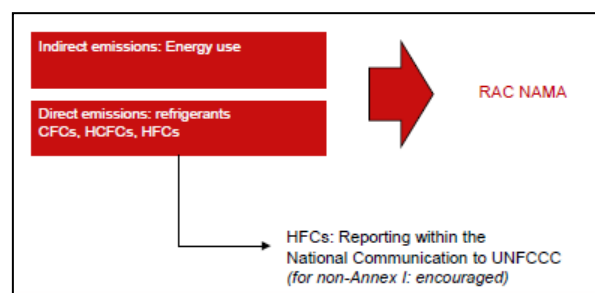
There are three steps in RAC NAMA development, establishing the baseline, selection of sub-sectors, and action for NAMA.

Step 1. Baseline:

- Establish inventory/data collection

- Direct and indirect emissions

- Baseline and BAU emissions

- Mitigation potential

Step 2. Selection

- Sub-sector overview

- Criteria for sub-selection

- Shortlist of 2-3 possible sub-sectors

- Analysis of specific policy and technology options

Step 3. Action

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- Outline the applicable policy instruments, technologies, and incentive mechanism and develop to proposals

- Seek financial support

In Thailand, RAC NAMA was part of global project funded by BMUB from 2010-2014 and partnered with ONEP, TGO, DIW, EPPO, DEDE, and private sector. The project aimed to develop the national strategies and preparation of NAMA proposals in the RAC and foam sectors and targeted the following outcomes:

- first comprehensive national inventory (Tier2) of fluorinated gases and their GHG emissions (one of the first non-Annex-I countries)

- Complete emission scenarios established (baseline, BAU, mitigations)

- Thailand with support of GIZ, submitted a RAC NAMA proposal at the 1st round of the UK-German NAMA-Facility (08/2013)

- NAMA Facility project volume of EUR 14.7 M (duration 2015-2019) in appraisal

In Indonesia on one hand, the commercial and industrial air conditioning and refrigeration NAMA aims to significantly contributes to the achievement of the Indonesian GHG mitigation target. The project costs 4.1 million Euros, to be implemented from 2014-2018. The main partners of the project are Ministry of Energy and Mineral Resources, Ministry of Environment and Forestry, Ministry of Finance, Ministry of Industry, Planning Ministry Bappenas.

Figure 10. Indonesia Green Chillers NAMA
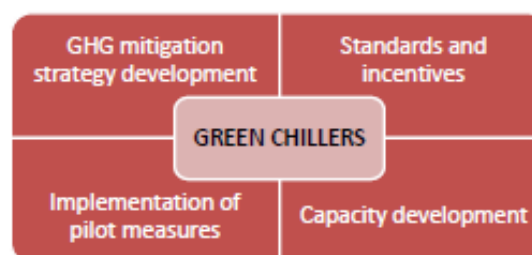
Key Inputs from the Discussion

On investment structure and mobilization of private investments.

The project aims to improve the standards in the country in terms of energy efficiency requirements. It is being partnered with different scales of companies to show that the technology works.

The NAMA is considered as a form of incentive, for instance if a company submits a report on their utilization of energy efficient technology (i.e. chiller), the government will pay for the cost of such technology.

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Reporting of Mitigation Actions

Mr. Juan José Rincón Cristóbal, *Aether España*

The relevant information on mitigation actions shall be reported in BURs in accordance with decision 2/CP.17, annex III, section IV. Guidelines for Non-Annex I countries adopted in 2011 (decision 2/CP.17, Annex III) 'enable enhanced reporting by NAI Parties on mitigation actions and their effects, needs and support received, in accordance with their national circumstances, capacities and respective capabilities, and the availability of support'.

For each mitigation action or group of mitigation actions, the following information should be provided to the extent possible:

- Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators.

- Information on methodologies and assumptions.

- Objectives of the action and steps taken or envisaged to achieve that action.

- Information on the progress of implementation of the mitigation actions and the underlying steps taken or envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible.

- Information on international market mechanisms.

- Parties should also provide information on the description of domestic measurement, reporting and verification arrangements.

Prior to proceeding with the breakout session, Mr. Cavalheiro presents some examples (CGE and GIZ templates, see *annex 3)* on reporting of mitigation actions so the sectors will be guided throughout the group exercise. He also took note that the GIZ developed a template that combine the three (3) templates of CGE. These templates are not mandatory, but the information for reporting should comply with the guidelines.

Breakout Session: Reporting of Mitigation Actions
The groups were tasked to fill out the template for reporting of mitigation actions based on their assigned mitigation action:

1. Energy – The National Renewable Energy Program

2. Transport – Jeepney Modernization NAMA

3. Industry - Thailand Refrigeration and Air Conditioning NAMA (RAC NAMA)

4. Agriculture & LULUCF – National Greening Program

5. Waste – Increase in solid waste diversion rate by 17 percentage points from 33 percent in 2010 to 50 percent in 2016

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Table 6. Forestry MA Reporting

FORESTRY					
Mitigation Action	**Status**	**Specific Objectives & Timeframe**	**Description (Type of action, reduction, gas)**	**Coordination & Management**	**Estimated Sequestration Potential**
National Greening Program (phase 1)	On-going	• 1.5B trees in 1.5M ha • (2011-2016)	Massive reforestation program fully funded by the government	DENR- overall manager in coordination with: LGUs, IPs, other NGAs, academe	X% of 218.96 Mt CO2e Cumulative mitigation potential (2010-2030)
		• EO 26 (NGP) s. 2011 • EO 193 (Extended NGP) s. 2015 2016-2028	CO2	National Convergence Initiative (NCI)	
Co-benefits	• **Other Effects**	**Type of support received**	**Cost of Preparation & Implementation**		
• Biodiversity Conservation • Livelihood • Job creation	Controlled soil erosion	• (n/a) GOP • (100%)	• Php 30 billion • (Total GAA 2011-2016)		

Table 7. Industry MA Reporting

INDUSTRY				
Mitigation Action	**Status**	**Specific Objectives & Timeframe**	**Description (Type of action, reduction, gas)**	**Coordination & Management**
Thailand RAC NAMA	Implementation to commence 2016 Status: funding approved	• Introduction of low GWP technology in the RAC sector • Promote energy efficient RAC appliances • Increased capacity in the servicing sector	Project duration 2015-2019	Implementing Partner: DEDE EPPO
			• f-gases (HFCs only) • reduction against baseline • Incentive schemes • Technology transfer • Regulatory framework	Partner Ministries: MNRE-ONEP, ME Delivery Organization: GIZ
Co-benefits	• **Estimated emissions reduction potential**	**Other effects**	**Cost of Preparation & Implementation**	**Types of support received**
• Job creation • Improved energy security • Less production of chemicals for refrigerants • Reduced ODS emission	46M tons CO2 eq reduced by 2030	• Problem on disposal of dd/inefficient RAC technologies • Climate friendly RAC sector in Thailand-NAMA	EUR 14.7 million	Financial, technology, capacity building

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Table 8. Transport MA Reporting

TRANSPORT				
Mitigation Action	**Status**	**Specific Objectives & Timeframe**	**Description (Type of action, reduction, gas)**	**Coordination & Management**
PUJ Modernization	Planned (pilot implementation – 2016)	Replacement of jeepneys with low carbon & safe vehicles	DOTC to set max operating age of PUJs DOTC to launch e-jeepneys/ EURO W.	DOTC as lead, LTO, LTFRB OTC, DILG, LGUs, GIZ
			Time frame: 2016-2020 Pilot test in Metro Manila N20 CH4 CO2	
			Replacement of 78% (43,000 vehicles) - 22% reduction of jeepney fleet in MM	
Co-benefits	**Est. emission reduction potential**	**Other effects**	**Type of support received**	• **Cost of Prep & implementation**
Health benefits Cleaner air Economic benefits	13.1-16.1 MtCO2e till 2030 accumulated or about 1MtCO2e per year		SVPCF as funding source	USD 362,932,000

Table 9. Energy MA Reporting

ENERGY				
Mitigation Action	**Status**	**Specific Objectives & Timeframe**	**Description (Type of action, reduction, gas)**	**Coordination & Management**
Increase in share of renewable energy	On-going 88% increase of NREP compared to original NREP version	• Increase geothermal capacity by 75% • Increase hydropower by 160% • Develop the 1st ocean energy facility for the country • Mainstream an additional ? solar power capacities & work towards achieving the aspired target of 1,528 MW • Attain wind power grid with the commissioning of 2345 MW additional capacities • Deliver additional 277MW biomass power capacities	• Fiscal & non-fiscal incentives • tCO2e • CO2, NOx, SOx	DOE/ERC, NGCP, TRANSCO, DUs NREB, LGUs, NGAs, PEMC
Est. emissions reduction potential	**Co-benefits**	**Other effects**	**Type of Support Received**	**Cost of preparation and implementation**

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• It is in our heads for processing • Data will be taken from ER-BAU-ERP	• Improved air quality • Eco-tourism attraction • Energy security & independence • Green Jobs • FCREX saving	• Land-use • Land-conversion • IP displacement	None	• Dev't Cost • HYDRO $2.5-3.0 • MN per MW • BIOMASS $2-2.5 per MW • Wind $3Mn/MW • Solar $2.5-5Mn/MW • Ocean P7mn

After the presentation of each sector, the facilitator gave their feedback on the outputs.

Table 10. Feedback from the Facilitator

Sectors	Feedback
Energy	• The status should be specific to the achievement of objectives. • The formulation of emission reduction is a bit tricky since RE development does not reduce emission rather the decrease of potential increase of emissions due to the production of electricity with fossil fuel (e.g. coal power plants).
Transport	• It is good to indicate the planned actions and to detail 2 effects from such mitigation action.
Forest	• In order to improve transparency of the cost, it is better to provide an estimated cost in Euro or USD. • Different timeframes for the planting and growing. Have to be cautious on the effects of the mitigation action after the end of the project (the forestation stops but the trees will continue growing).
Industry	• Due to the fact that different stakeholders will participate in this project, it would be good that costs from different institutions were separated.

Selection of Mitigation Actions

Mr. Juan José Rincón Cristóbal, *Aether España*

The methodology for selection varies from one country to another given that many policy analysis frameworks are available. Nonetheless qualitative and quantitative approaches can be used. The methodologies mostly involve evaluation against a series of agreed objectives or criteria that can be highly process-oriented with structured input from a variety of stakeholders. Table below are some available tools for selection of MAs.

Table 11. Various Tools in Selecting MAs

• Integrated Tools		• Sector-specific	
ClimateDesk	LEAP	HOMER	RETScreen
EFFECT	MARKAL/TIMES	Various Transport Models: ITDP, ICCT, GREET	Various Agriculture Models
ENPEP-BALANCE	IAEA Tools (MAED, MESSAGE, etc.)	Various Forestry and Land Use Models	

The mitigation assessment aims to assess the scale and timing of emission reductions as well as financial, economic and other impacts of mitigation strategies, which can be based on spreadsheets, cost curves, formal modeling tools, national developed models or tools, and through an independent consultant. However, success depends less on the sophistication of models and more on the care, rigor, consistency, and data quality underpinning the analysis itself. There are some issues in mitigation assessment:

- Simple assessments where data is lacking may be sufficient: can help focus and prioritize future data collection efforts.

- Even the simplest formal models require many months and a good level of expertise.

- Don't expect modeling to be done only by analysts: requires ongoing training and strong guidance from experienced local experts.

- Ideally set up a permanent team responsible for mitigation modeling to ensure continuity of expertise.

- Strong and coordinated team needed: economists, engineers, energy and industrial engineers, agriculture and land-use change and forestry (LULUCF) experts, as appropriate.

- Close coordination with the team working on GHG inventories is critical.

The important message is that MA selection tools could not be used blindly. It is necessary to study their adequacy to the national circumstances.

To that end, Mr. Rincón Cristóbal mentioned that if one has to deal with national actions and bring such in the local areas, it is important to consider the level of emission reduction to target because the situation may differ at the local level.

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General Uncertainty Analysis

Mr. Juan José Rincón Cristóbal, Aether España

Figure 11. Uncertainty Analysis Flowchart
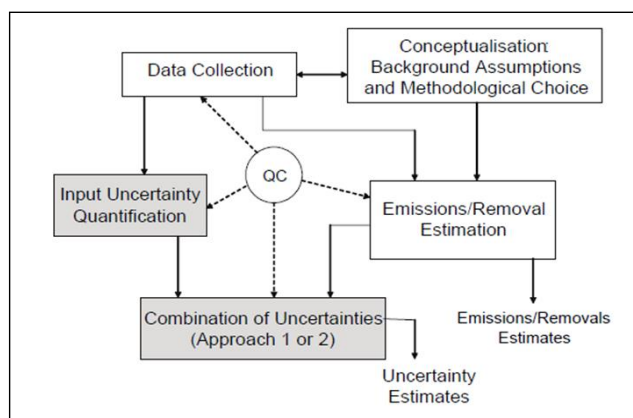
Uncertainty is the state of having limited knowledge where it is impossible to exactly describe the existing state, a future outcome, or more than one possible outcome. Based on the IPCC 2006 Guidelines, 'the lack of knowledge of the true value of a variable that can be described as a probability density function (PDF) characterizing the range and likelihood of possible values. Uncertainty depends on the analyst's state of knowledge, which in turn depends on the quality and quantity of applicable data as well as knowledge of underlying processes and inference methods'.

Uncertainty could be by 'level' which is related to other categories and by 'trend' which is related to other years. Both quantitative and qualitative data is subject to uncertainty. The use of uncertainty in GHG inventories should ensure that estimates are accurate in the sense that they are systematically neither over nor under true emissions or removals, so far as can be judged, and that uncertainties are reduced so far as is practicable. Also, an uncertainty analysis should be seen, first and foremost, as a means to help prioritize national efforts to reduce the uncertainty of inventories in the future, and guide decisions on methodological choice. Uncertainty is use for validating the accuracy of the estimates

and help to prioritize efforts in improving the inventory.

The key category analysis (tier 2) is based in the uncertainty of the different activities. Note that moving to higher tier inventory methods should typically reduce uncertainties, provided the higher tier methods are well implemented.

Activity data are often collected and published regularly by national statistical agencies, which may have already assessed the uncertainties associated with their data as part of their data collection procedures. Uncertainty data should be collected as part of data acquisition.

- Request estimates of source data uncertainty as part of routine requests to all data providers.

- This information has not necessarily have been published, so it is recommended to contact the data provider (e.g. statistical agencies) directly.

Activity data tend to have lower uncertainties and a lower correlation between years than emission factor data.

In terms of gathering the uncertainties in emission factors, the IPCC 2006 guidelines

outline that information about uncertainty could be found in each chapter in the "uncertainty assessment" section and in most EF tables. Additionally, he mentioned expert's judgment as a source of information for uncertainty.

Uncertainties of activity data and emission factors must be combined to obtain the uncertainty of the emissions. 2006 IPCC Guideline provides two (2) approaches:

- Approach 1: Error propagation equations

- Approach 2: Estimation by simulation (e.g. Monte Carlo)

Procedures and examples for estimating the uncertainty of one activity and one sector were provided, based on the error propagation equations.

Trend uncertainty depends on 2 sensitivities:

Breakout Session: Uncertainty Estimation

The discussion was then followed by a simulation exercise. The table for uncertainty Approach 1 calculation included in 2006 IPCC Guidelines was explained.

- Type A: Dependency between the different years of the series. It implies an strong dependency of previous years data over the current one (usually assumed for emission factors).

- Type B: Independency of each year value (usual in most activity data).

Approach 2 (Estimation by simulation) consist in 'The use of a mathematical model to recreate a situation, often repeatedly, so that the likelihood of various outcomes can be more accurately estimated'. It is recommended when: uncertainties are large; their distribution is non-Gaussian; algorithms are complex functions; correlations occur between some of the activity data sets, emission factors, or both; or uncertainties are different for different years of the inventory.

The sectors were tasked to fill out the table using the information provided to each sector. *Outputs are in a separate excel file.*

Introduction to sensitivity analysis

Juan José Rincón Cristóbal, Aether España

Sensitivity is 'the process of recalculating outcomes under alternative assumptions to determine the impact of variable'. As projections and MA are usually heavily based on assumptions, the sensitivity analysis is focused on them. Its uses are:

- gain increased understanding of the relationships between input and output variables

- test the robustness of the results of a model in the presence of uncertainty

- reduce uncertainty by identifying those model inputs which cause significant output uncertainty and should therefore be the focus of attention for further research

- enhance communication between the projection's team and the decision makers by

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making recommendations based on model output more credible and understandable

The following are some simplified steps to perform a sensitivity analysis:

- Create a "sensitivity scenario" by changing one (or several) input parameter, keeping all other input parameters constant

- Run the model(s) / methods used to create the GHG emission projection again with the changed settings

- Return the input parameter to its original value

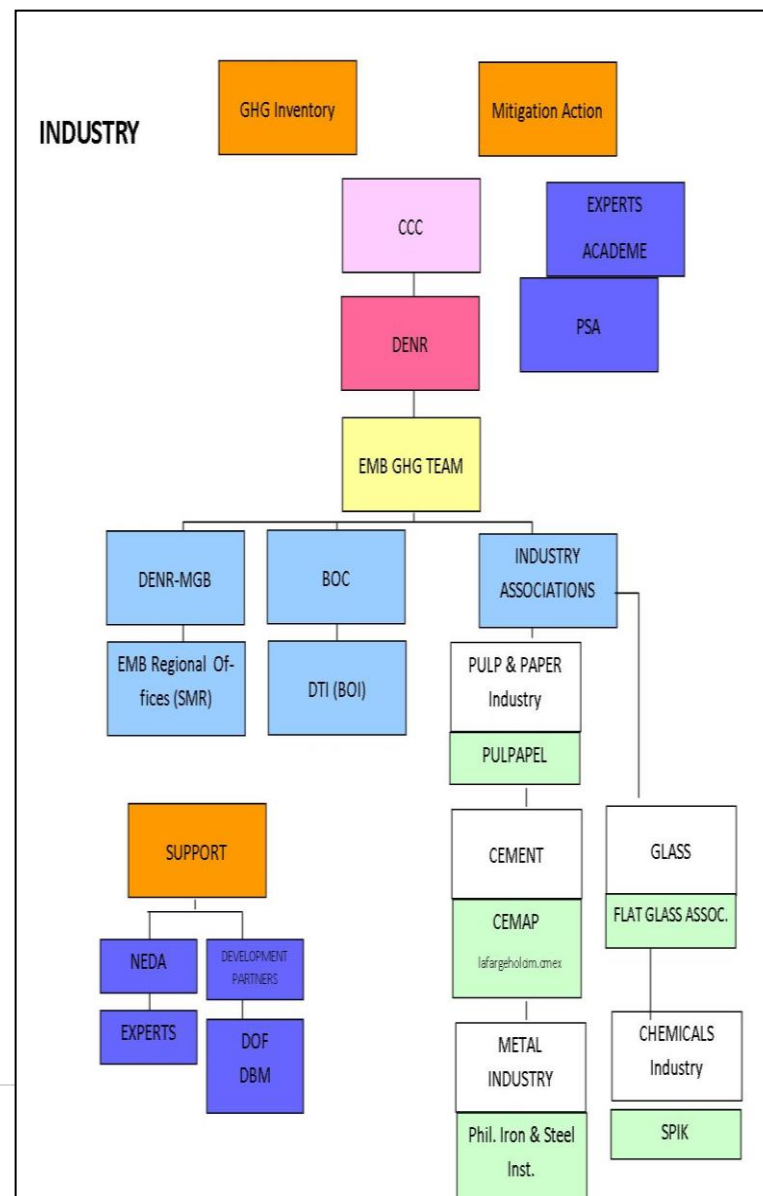- Document the changes in GHG emissions due to the change in the input parameter

Each time the previous method is applied, a new scenario is generated. This new scenario differs from the original scenario by only the modified parameter(s). Sensitivity is obtained as a comparison of the new results with the original scenario. It is important to be cautious as, depending on the system/model, the generation of a new scenario could be really cumbersome; and interaction of parameters: change in one value may affect other values (e.g. population and GDP).

Institutional Arrangement in Designing the MRV System for the BUR

Mr. Gonçalo Cavalheiro, *CAOS*

The facilitators reminded the participants the relevance of documenting the entire process from the beginning to the last step/s taken, which could later become a reference in improving country's process in reporting. Mr. Cavalheiro presented the instructions to the Breakout Session. He mentioned that as per EO 174 and NICCDIES, the sectors need to validate the institutional arrangement for GHGI, mitigation action, support, and adaptation action *(optional, if relevant)*. Below figures show the results of the breakout session.

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Figure 12. Institutional Arrangement: Forestry, Industry, Waste and Transport Sectors
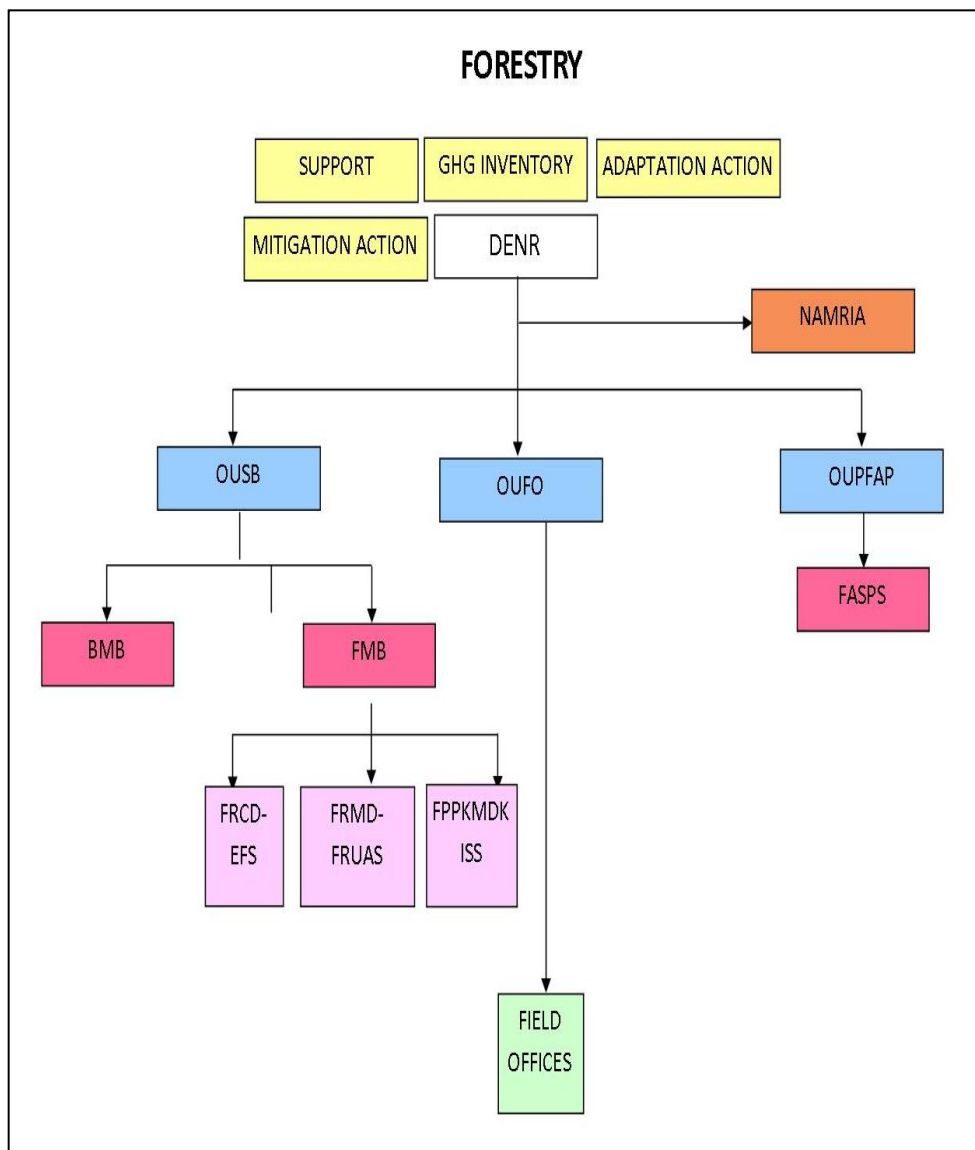
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Figure 13. Institutional Arrangement for Energy Sector

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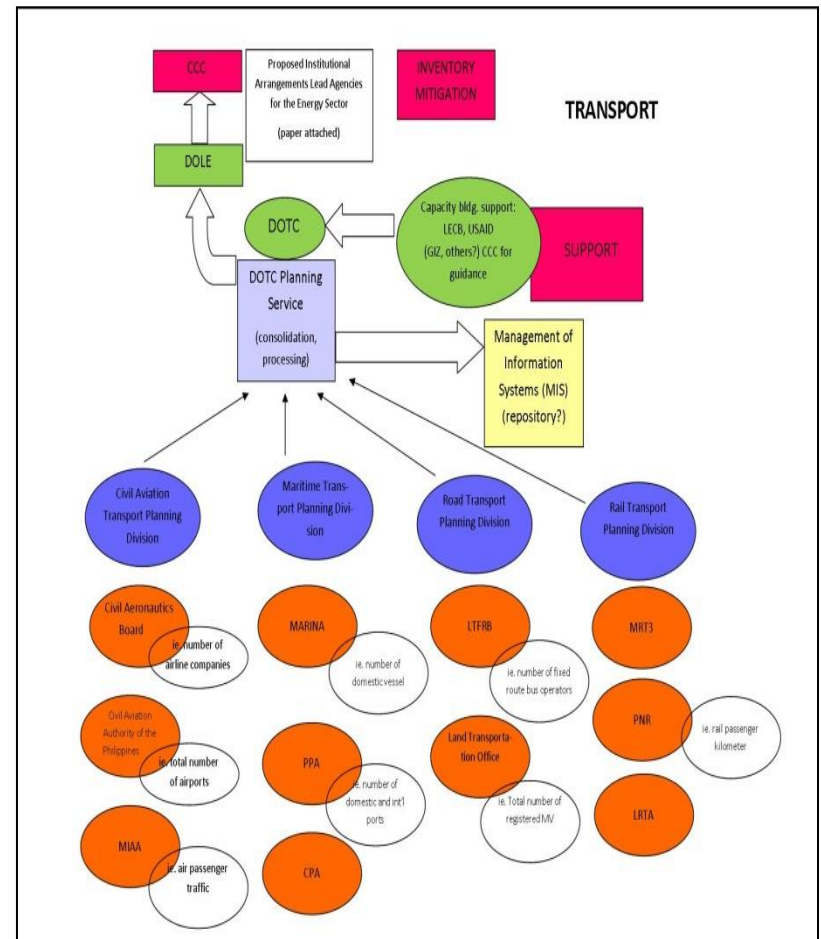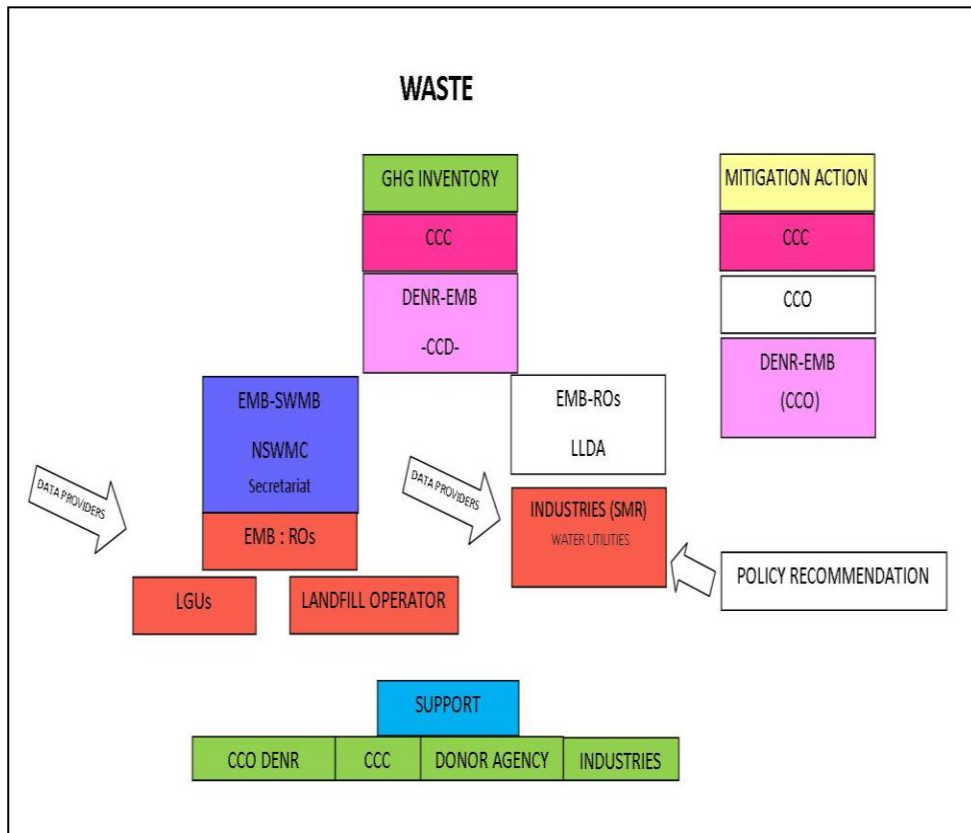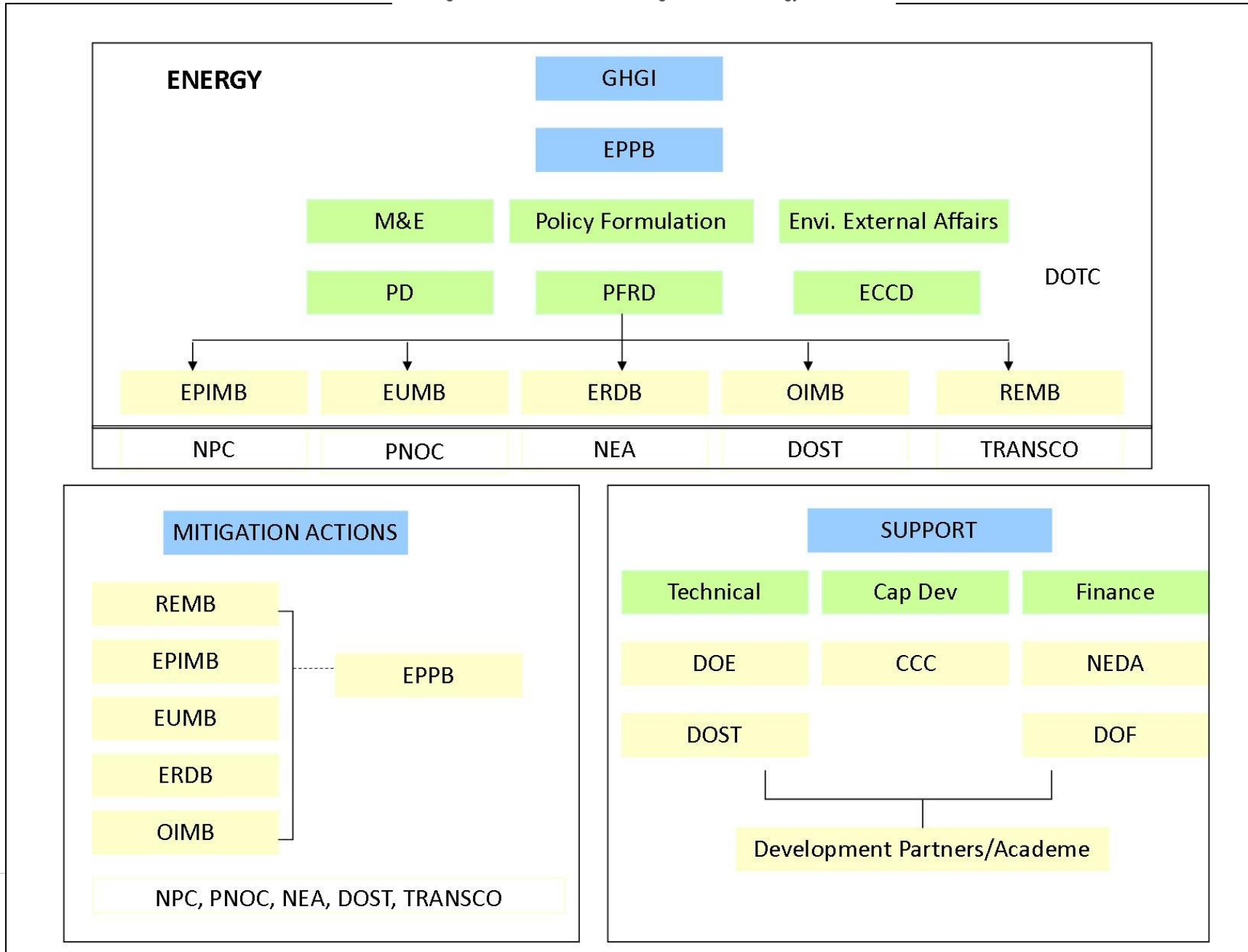
Feedback from the Participants

a. **Forestry.** NAMRIA has clustered the land-use based on 2006 IPCC guidelines as basis for the calculation of GHGI.

b. **Industry**
- The structure includes other partners since the guidance only elaborated the internal structure within EMB.
- EMB is looking at a joint Memorandum Order with DTI to ensure that responsibilities and functions are carried out. The same mechanism of entering in a Memorandum of Agreement with the Industries regarding data collection.

c. **Agriculture.** Due to newly created Philippine Statistics Authority, there is a need to discuss further the structuring since 95% of the data were already collected by Bureau of Agricultural Statistics (BAS), as well as how to go about the data in terms of GHGI calculations.

d. **Waste.** The challenge is not on the data from the industry (SMRs), rather the consolidation and validation of SMRs from the regional offices.

e. **Transport**
- Both MIS and planning bureau will designate their respective staff for the NICCDIES. Data repository is the MIS, while in terms of policy direction, planning will take the lead in such policy requirements.

- In terms of coordination, for attached agencies, some do not automatically submit reports to DOTC; hence the department requests the data through a formal letter. Since this process may delay data collection, a Department Order will be disseminated among the attached agencies for the regular submission using a standard template for reporting.

f. **Energy**
- There is a separate agency mandated to monitor the emission. The initial talks resulted that DOE can already conduct the initial inventory including transport sector, in collaboration with DOTC for the data provision. Currently, DOE's capacity is being developed while DOTC is preparing the data inputs for the calculation of higher tier.
- Note that this is a new undertaking for DOE, hence capacity building in terms of policy formulation, planning and monitoring is essential in the process. CCC was included in the structure since it is the lead agency for GHGI, but on the assumption that the Commission will seek support from other agencies to help DOE.

General Feedback. CCC is already finalizing the templates for each agency; once these are final the agencies will be called for the orientation.

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# International Consultation and Analysis (ICA)

Mr. Gonçalo Cavalheiro, *CAOS*

The International Consultation and Analysis (ICA) was decided during Cancun together with BUR, (2/CP. 17 Annex-IV). ICA is neither a review nor an examination with pass or fail procedure rather an important element of the process to enhance transparency of climate policy, specifically of "mitigation action" (and their effects). It is built to support developing countries identify less transparent areas in the BURs and to identify capacity building needs to enhance such support.

lead by one expert from Annex I and one expert from non-Annex I.

While the technical analysis is not aimed at discussing the appropriateness of mitigation action, experts have three tasks aimed at enhancing its transparency; check the completeness, analyze the information (transparency), and identify capacity building needs. Additional information may be provided by the Party during the technical analysis, but guidelines are not clear whether experts can make

Figure 14. ICA Flowchart
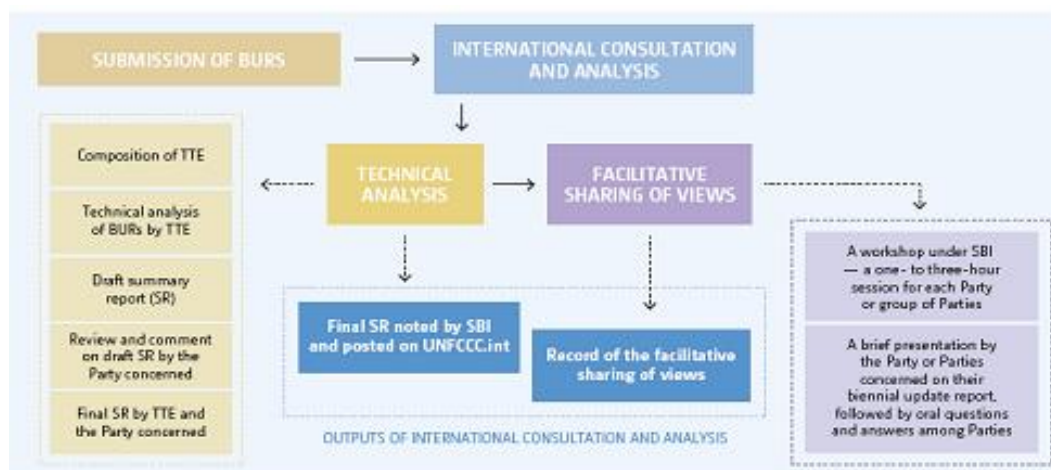
ICA is carried out for 15 months from the submission of the BUR, led by Team of Technical Experts (TTE). Experts, who received training by the CGE and that cover the technical areas of the BURs meet in a single location

questions.

In current practice, the teams have been interacting with the Party via e-mail. Video conferences have also been held, but it is unclear

Figure 15. ICA Timeline

(usually Bonn). The team is composed of a majority of experts from non-Annex I and is co-

whether this practice will continue.

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The TTE drafts a summary report and sends it to the Party, where the Party should provide comments to the draft report within 3 months. The TTE then incorporates the comments from the Party and finalizes the report within 3 months.

A Summary Report of the Technical Analysis is published in the UNFCCC website and may be used as a source of information for the facilitative sharing of views (FSV). This should constitute of a short slot in dedicated meetings during the formal sessions of the Convention Bodies (COP, SBs).The Party makes a presentation of the information contained in the BUR, while other Parties may put questions. A record of the FSV will be prepared by the secretariat.

There were delays in the previous technical analysis, but since BUR submissions are now coming in, the team is now more ready as they are mandated to conduct the analysis in 6 months.

Key Inputs from the Discussion

The submission of BUR is based on the capacity of the country.

- Since Cancun, it is an obligation to submit BUR and the only countries that have flexibility are least developed and small developing countries. Although there is no legal implication if such country opted not to submit the BUR, there might be implication at the political level especially on support needed.

- Once MRV system is established and reporting has started every two years, the coordination and methodologies will improve since it is a continuous process for the country to undertake.

- The most important thing in establishing credibility is transparency.

On sequence of activities for the preparation of BUR

Every country is different from one another, but having an institutional framework first is more logical in building the capacities of the country, otherwise efforts might be wasted.

The Commission emphasized that it is the very reason why the country is taking a long time in deciding whether to submit the BUR or not. While BUR is not mandatory at the moment, there is a need to ensure that institutional arrangement is set up prior to any decisions by the government; hence efforts will not be wasted. For instance, the COP decision is strict on the 4-year inventory before submission, but some countries in the ASEAN region has been doing the preparation for BUR using the 2010 inventory and without putting the institutional arrangement in place. Nonetheless, the experience of the agencies has shown that the country is ready for BUR, parallel to moving towards mitigation process. At least now, EO 174 is approved and final stages for the MRV are being carried out.

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ICA, including Technical Analysis of BURs: Process ad Outcome

Ms. Karen Ortega, *UNFCCC Secretariat*

A Skype call with Ms. Ortega of UNFCCC Secretariat was conducted to mainly elaborate the process and outcomes from ICA including the technical analysis of BUR.

In COP 16, Parties decided to conduct an ICA of BURs from developing country Parties under the Subsidiary Body for Implementation (SBI). This process aims to increase the transparency of mitigation actions and their effects and consists of two steps: a) technical analysis of BUR by a team of technical experts (TTE) and b) facilitative sharing of views in the form of workshop under the SBI.

The ICA will be conducted in a manner that is non-intrusive, non-punitive, and respectful of national sovereignty. The discussion on the appropriateness of domestic policies and measures planned or implemented as mitigation actions is not part of the ICA process. The implementation of ICA is guided by 2 sets of COP decisions; Decision 2/CP.17, paragraphs 56 - 62 and annex IV - modalities and guidelines for ICA and Decision 20/CP.19 and its annex - composition, modalities and procedures of the team of technical experts under ICA.

a. Decision 2/CP.17, paragraphs 56–62

- Adopted the modalities and guidelines for international consultation and analysis

- Decided that;

   o the first rounds of ICA will be conducted for developing country Parties, commencing within six months of the submission of the first round of BURs;

   o the frequency of participation in subsequent rounds of ICA by developing country Parties, based on their respective capabilities and national circumstances, and special flexibility for SIDs and the LDC Parties, will be determined by the frequency of the submission of BURs

   o To revise the modalities and guidelines prescribed herein based on experiences gained in the first round of ICA, no later than 2017;

   o That SIDs and the LDCs may undergo ICA as a group of Parties at their discretion;

- Urges developed country Parties and other developed Parties included in Annex II to the Convention to provide new and additional financial resources at the agreed full cost

Technical Analysis. The process covers the following:

1. Selection of members of the TTE. Criteria includes:

   a. member is nominated to the UNFCCC roster of experts;

   b. has expertise needed to cover the areas of information contained in

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the BUR, and as outlined in paragraph 3(a) of annex IV to decision 2/CP.17, taking into account the national circumstances of the Party concerned;

c. successfully completed the CGE training programme;

d. include, as a high priority and to the extent available, at least one CGE member and up to one third of the TTE; for other experts on the TTE, priority will be given to experts who served as the members of the CGE;

e. majority of experts in the team should come from non-Annex I Parties;

f. geographical balance among the experts selected from non-Annex I and Annex I Parties

g. the participating experts serve in their personal capacity;

h. neither be a national of the Party whose BUR is under analysis nor be nominated by that Party, nor have been involved in the preparation of the BUR under analysis; and

i. the technical analysis of successive BURs from the same Party shall not be undertaken by the same TTE.

2. Process of Technical Analysis of BUR

a. Initiate technical analysis of a BUR within six months of its submission.

b. Technical analysis of BURs shall be conducted by a TTE in a single location.

c. A TTE may analyze several BURs in a series of separate technical analyses (SIDs and LDCs may undergo ICA as a group of Parties at their discretion).

d. Each TTE to be co-led by two experts: one from an Annex I Party and another from a non-Annex I Party.

e. Result in an individual summary report for each BUR submitted and analyzed.

3. Scope of the Technical Analysis

a. Information reported. Identifying the extent to which the elements of information listed in paragraph 3(a) of the guidelines contained in annex IV of decision 2/CP.17 are included in the BUR of the Party concerned.

b. Technical analysis. Undertaking a technical analysis of information contained in the BUR as outlined in the BUR guidelines contained in annex III to decision 2/CP.17, and any additional technical information that may be provided by the Party concerned.

c. Capacity building needs. Identifying, in consultation with the Party concerned, capacity-building needs in order to facilitate reporting in accordance with annex III to decision 2/CP.17, and participating in international consultation and analysis in accordance with annex IV to decision 2/CP.17, taking into account Article 4, paragraph 3, of the Convention.

4. Preparing and Finalizing Summary Report

a. Draft Summary Report. To be completed within 3 months from

the start of the technical analysis to share with the respective Party for review and comments.

b. Review and Comment. The Party concerned reviews and comments within 3 months from the receipt of the report. TTE then responds to and incorporates the comments, and finalizes, in consultation with the Party concerned, the summary report within 3 months of the receipt of comment.

c. Final Summary Report. To be noted by SBI and made publicly available on the UNFCCC website.

Facilitative Exchange of View. The SBI shall, at regular intervals, convene a workshop for the facilitative exchange of views, open to all Parties, for all Parties for which there is a biennial update report and a final summary report. Parties will be allowed to submit written questions in advance.

The facilitative exchange of views among Parties will consist of a one to three-hour session for each Party or group of Parties. Parties may request to go individually or in a group of up to five

Parties. The session will consist of a brief presentation by the Party or Parties concerned on their biennial update report, followed by oral questions and answers among Parties. The

outcome of the ICA will be a summary report and a record of the facilitative sharing of views.

In 2015, there were three rounds of technical analysis held and below are lessons learned from the experiences of Parties during the process:

- To have a clear institutional framework in place (defining roles and responsibilities during the process);

- Create domestic expertise on the process (attending workshops, encouraging experts to undertake the CGE training programme);

- Enhance knowledge on reporting requirements in BURs; and

To be accessible to have a direct interaction with TTE for the identification of capacity building needs.

Key Inputs from the Discussion

- The coordination/interaction with TTE through the Secretariat is being done prior to technical analysis.

- BUR can be the platform for implementation of mitigation actions and monitoring of NDCs, as the summary technical report from the TTE includes support needed for such mitigation action.

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Identifying Next Steps

Prior to formally closing the training-workshop, Ms. Sandee Recabar led the discussion for the next steps. The table below details the inputs from the participants in terms of moving forward with the BUR.

Table 12. Next Steps

Outputs	Measures and Activities	Lead Agencies/Contributing Agencies
Preparation	Submit proposal to GEF Funding Bilateral Meetings	PSA, CCC to be initiated by CCC
Chapter 1. National Circumstances and Institutional Arrangement	Core BUR Team +	
Chapter 2. National GHG Inventory Report	Conduct of National GHGI (per EO 174)	
	• Preparation of DO/circular between DENR and DTI for NGHGI • Draft MOA for relevant partners (private sector) • Conduct Consultation with relevant agencies and private sector • Conduct advocacy/awareness on EO 174 with relevant stakeholders • Check available data for inventory then work on the data gaps	DENR-EMB
	GHGI for agriculture sector	PSA
	GHGI for Energy	DOE-EPPB
	GHGI for Forestry	DENR-FMB
Chapter 3. Mitigation Actions and their effects including methodologies and assumptions	Finalize MA template	
	Conduct Consultation with relevant agencies and private sector	DENR-EMB
	REDD-plus, NGP, Forest Restoration and Forest Protection	DENR-FMB
	MA for energy sector	DOE-EPPB
Chapter 4. Constraints and gaps (financial, capacity building, technology transfer)	Finalize MOI templates	
Chapter 5. Support received for BUR preparation	Listing of support received Coordinate with NEDA, DOF, DBM on Support received	
Chapter 6. Domestic MRV System	Describe NICCDIES formulation and implementation	
	MRV System for Forestry	DENR-FMB
	MRV System for Energy	DOE-EPPB
Chapter 7. Technical Annex (optional)	GHG Manual, Report (technical)	DOE-EPPB
	NFMP/s, FREL	DENR-FMB

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Closing Remarks

Ms. Recabar and Ms. Orschulock thanked the participants for their continuous support to the project and their invaluable inputs in the discussion. Ms. Recabar mentioned that the workshop serves as the first meeting related to the preparation of the BUR, but the once the formal process for the BUR preparation started especially the identification of roles and responsibilities, CCC will call the again the

agencies for their participation. She hoped that the agencies will never get tired of providing support to the Commission's initiatives and efforts.

Ms. Orschulok thanked everyone for the support as she has mentioned that the workshop is her last mission in the Philippines.

Contribution to the BUR

The participants were asked to fill out a survey questionnaire that looks into their potential contribution to BUR. Seven (7) organizations/agencies within six (6) sectors (Energy, Transport, Waste, Agriculture, Industry, and Forestry) participated in the survey. The

results revealed the sets of information necessary for the preparation of BUR are ready to be shared by the sectors, but capacity building on further enhancement of data collection and BUR is essential in the process.

Table 13. Survey Results

Participating Agencies/Organizations	Sector	Most Important information to contribute with	Capacity Constraints/Needs
UNDP-LECB Project	Energy and Transport	• Capacity building in all chapters of BUR • Development of MRV system in the Philippines • Information on the use of multi-criteria (decision) analysis framework for mitigation actions prioritization for the AWIT-FE sectors	• All chapters of BUR
	Waste and Industry	• Philippine NGHGI reference documents • Capacity assessment, training modules, and capacity building plan on NGHGI, NAMAs and MRV Systems • Philippine Climate Change Mitigation Strategy Development	• Development of MRV Systems, specially identifying appropriate indicators, applicable surrogate data for measurement of progress
	Agriculture, Forestry	• Information on support received	• Tools for the updating of inventory and mitigation actions (sector-specific)

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Participating Agencies/Organizations	Sector	Most Important information to contribute with	Capacity Constraints/Needs
DENR	Forestry, Waste, Environment cross cutting	• Fill in data gaps for the forestry, waste and industrial sector • Information on support received from foreign donors	• Missing/lost or invalidated data • Further guidance from CCC about the technicalities of writing BUR • Orientation/informing the most concerned agency/office for this training workshop
	IPPU and Waste	• Gather activity data in coordination with relevant stakeholders, calculate GHG emission, data on solid waste (disposal sites, waste types)	• Further training on data filling gaps, excel training and cost benefit analysis of mitigation options
	Forestry	• National Forestry Inventory (NFI) through Forest Resource Assessment • GHGI Data • FREL	• Capacitating FMB staff on REDD-plus concerns, international/national agreements, policies, laws on CC • Training on FREL, MRV, BUR, GHG
	Cross cutting (Forest Management Division, Foreign Assisted and Special Projects)	• Information on support received from donors/overseas development assistance • Can be tapped for possible financing /to fund the ENR related programs/projects as well as to support projects/activities on NAMA	• If possible/feasible, more trainings/capacity building activities regarding BUR, enhanced reporting, mutual learning, and other matters related to CC (mitigation, adaptation, data collection and enhancement) • Technical staff to be trained who will be also responsible and focus on BUR to provide the inputs during every preparation
DTI	Industrial process	• Provision of data on the existing green process (if any) of the industries identified in the IPCC 2006 guidelines, specifically on pulp and paper industry	• Tools, advocacy and awareness on IPCC 2006 guidelines and other relevant tools and guidelines as applied to the industry
PSA	Agriculture	• Philippine Agriculture Performance	• Training for NGHGI group of PSA

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Participating Agencies/Organizations	Sector	Most Important information to contribute with	Capacity Constraints/Needs
DOTC	Transport/Energy	• Regulation of the age limit of vehicles • Promoting the use of alternative fuels in public transportation • Calculation of Carbon Emission • Related policies in mitigation options/pollution mitigation • Transport data	• Capacity building for those who will be in charge of the BUR update • Capacity building on GHGI, development of localized emission factor, data collection (technical design), data processing
MMDA	Transport, urban and regional planning	• Data/information on MMDA programs/projects, regional SWM data esp. SLFs	•
DOE	Energy	• Law on RE • National Energy Efficiency Act	• Constraints due to existing workload

On one hand, table below shows the number by respondents who have said that they can contribute to each chapter of the BUR and the names by organization/institution. As can be seen in the table, majority (16 out of 19) respondents said that they can contribute information on mitigation action; these individuals are from DOTC, DENR (FMB, EMB), UNDP-LECB, and DOE, while chapter on Domestic MRV system have the least number of respondents who may contribute. Nonetheless, the agencies have committed their possible contribution to each chapter of the BUR.

Table 14. Question 2. To which chapter of the BUR can I/my organization contribute?

Chapters	By Respondents	By Organization
National Circumstances	8	DENR (FMB, EMB); DOTC; DTI, DOE
Institutional Arrangement	10	MMDA; DOTC; DENR (FMB, EMB, FASPO), DOE
GHG Inventory	14	PSA, DOTC, DENR (FMB, EMB), UNDP-LECB, DOE
Mitigation Action	16	DOTC, DENR (FMB, EMB), UNDP-LECB, DOE
Support Needs and Support Received	8	MMDA, DTI, UNDP-LECB, DENR-FASPO, DOE
Domestic MRV System	6	DOE, UNDP-LECB, DENR-FMB

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Post-Training Evaluation by the Participants

In general, participants showed much interest on the training-workshop given that majority of the participants' general satisfaction was rated "5". The respondents have strongly agreed that workshop objectives were met with a weighted average of 4.54.[1] Figure below demonstrates the results to each cluster of questions, while next table details additional comments from the post-evaluation exercise.
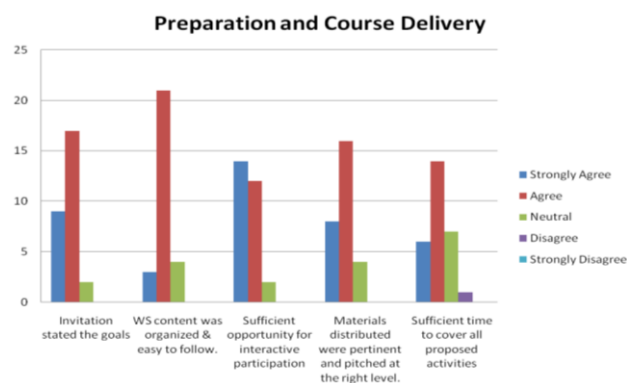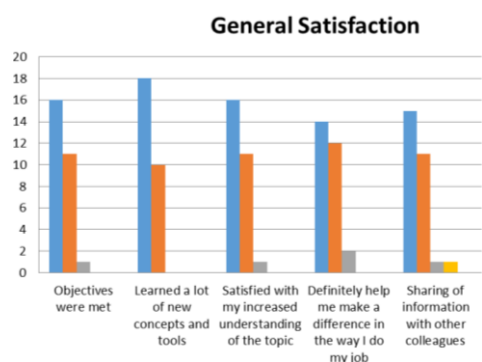
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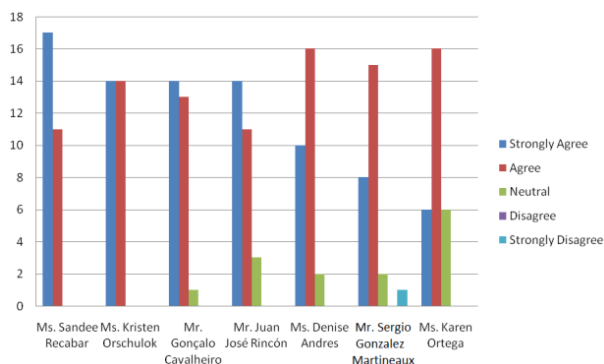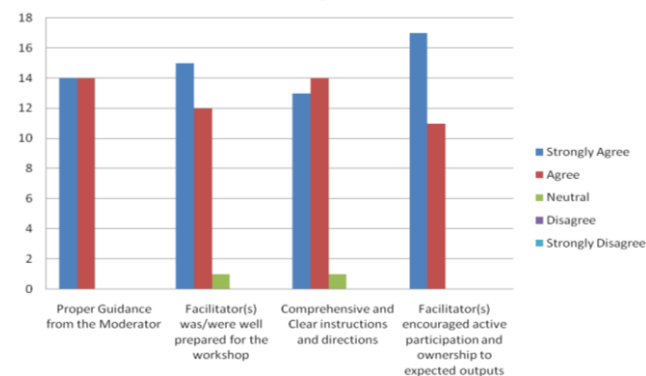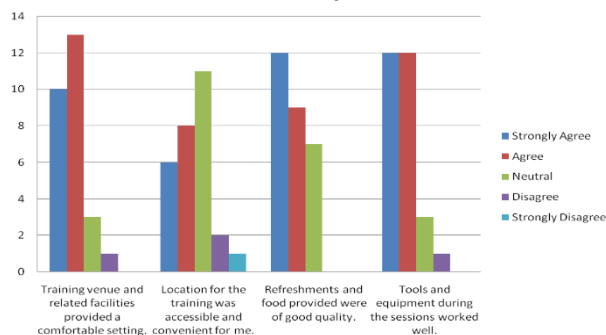
[1] Each evaluation score is assigned with weight to determine the relative importance of each quantity on the average. Thus, the following is the assigned weight for each score: strongly agree (5)=2, agree (4)=1, neutral (3)=0, disagree (2)=-1, and strongly disagree (1)=-2

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Specific Comments were:

Table 15. Other Comments

Questions	Comments
What will you do differently in your work/practice setting as a result of this workshop	Share the information to colleagues
	Use the workshop in developing a monitoring system of the company
	Be part of the TWG for GHG Inventory
What aspects of the workshop could be improved	Materials/handouts for the group activities should be provided on time
	Audio should be improved especially if there is teleconferencing
	More time for group work
	Provide clear instructions during exercise
	More time to practice equations
	Less group presentation
	Time management
Other Remarks	Good job to all
	Biased Examination (no to Voltaire :))
	Entertaining quiz
	Thank you!

Annex 01: Training Agenda
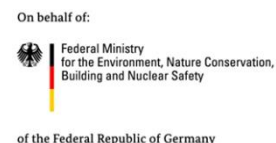
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Objectives

- To support the understanding of, and the preparation process for, the Philippines' first BUR with GEF funding, and the sharing of BUR and ICA experience by other countries.
- To provide a chapter-by-chapter guidance regarding the UNFCCC guidelines, and provide venue for hands-on exercises to apply the learned knowledge directly with examples from other countries.
- To develop skills on the following highlighted topics:
    a. Analysis of mitigation actions and their effects and how to report them
    b. Uncertainty/Sensitivity analysis of sectoral GHGI results
    c. Filling up of data gaps in activity data and in BUR contents

AGENDA

Time	Activity/Topic	Trainer/Speaker	Comment
Day 1 February 22, 2016			
08.40	Registration	GIZ	
09:00	Prayer and national anthem Welcome addresses Objectives of the workshop Participants introduction round	Secretary Emmanuel C. de Guzman, Ph.D., Climate Change Commission (CCC) Dr. Bernd-Markus Liss, GIZ Participants	
09:30	Setting the scene: • Update IM: What have we achieved in two years and global perspectives on BURs and ICA • Update National climate reporting and BUR state of play (and GHG Inventory) in the Philippines	Kirsten Orschulok, GIZ Sandee Recabar, CCC	BUR Template
10:00	Program and methodology of the workshop Expectation of participants	Gonçalo Cavalheiro, CAOS All	Board of expectations
10.30	Coffee break		

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Time	Activity/Topic	Trainer/Speaker	Comment
11:00	Input: Overview of BUR and ICA Q+A	Gonçalo Cavalheiro, CAOS	Guidelines and current experiences Similarities between BUR and NC Short Presentation of BUR • Viet Nam • Singapore
11:30	Understanding the BUR guidelines and identifying gaps • GHG Inventory	Juan José Rincón, Aether España Gonçalo Cavalheiro, CAOS Sectoral groups	Input on guidelines and templates
12.30	Lunch		
13.30	Data gaps in GHG Inventories: • Completeness issues • Types of data gaps • Techniques to fill gaps	Juan José Rincón, Aether España	Input on strategies and usual problems related with data gaps in GHGI
14.15	How to fill data gaps (practical examples)	Lead by: Juan José Rincón, Aether España	--> sectoral specific Practical examples based on the previous presentation
14:45	Group work: Solving data gaps	Lead by: Juan José Rincón, Aether España Gonçalo Cavalheiro, CAOS	Mock example to perform a data gap filling.--> sectoral specific
15:30	Presenting the outcomes of group discussion	Sectoral Groups	Presenting the outcomes of group discussion
16.00	Coffee break		
16.15	Understanding the BUR guidelines and identifying gaps • Support received	Gonçalo Cavalheiro, CAOS	Input on guidelines, GIZ BUR templates and best practices by other countries Groups identify key gaps (gaps will be found through exercises with templates)
17:00	Presenting the outcomes of group discussion	Lead by Gonçalo Cavalheiro, CAOS	Presenting the outcomes of group discussion
17:30	Plenary discussion	Gonçalo Cavalheiro, CAOS and Kirsten	
17.45	Wrap up of the day	Gonçalo Cavalheiro, CAOS	
Day 2 February 23, 2016			
09:00	Recapitulation from day 1	Voltaire Acosta, GIZ	
09:15	The Chilean experience on BUR compilation and ICA preparation	Mr. Sergio Gonzalez Martineaux, professor for AFOLU and GIZ IM team member	Via skype
10:00	BUR Guidelines on Domestic MRV System Q+A	Gonçalo Cavalheiro, CAOS	International cases

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Time	Activity/Topic	Trainer/Speaker	Comment
10.30	Coffee break		
11:00	Mitigation Actions introduction: • Requirements • Information to be collected • Collecting mitigation actions	Juan José Rincón, Aether España	Requirements, information suggested and issues during the collection of the information.
11:45	Movie on NAMAs by the UNFCCC		
12.00	Lunch		
13.00	Mitigation actions: Analysis of their links with GHGI, projections and INDCs (consistency) and estimation of the effect	Juan José Rincón, Aether España	Estimation of the effect of a MA and consistency issues to be take into account when estimating impacts
13:30	Example of NAMAs in the south-east Asian region: Refrigeration and Air-conditioning (RAC) NAMAs	Denise Andres, GIZ	Examples from Thailand and Indonesia; Assessment of potential of RAC NAMA for the Philippines
14:00	Group Work: Estimation of the GHG emission impact of selected mitigation actions	Lead by: Juan José Rincón, Aether España	Practical estimation
14:30	Presenting the outcomes of group discussion	Lead by: Juan José Rincón, Aether España	Difficulties and solutions
15.00	Coffee break		
15:30	Reporting mitigation actions in BUR	Juan José Rincón, Aether España	BUR requirements and MA tabular formats
16:00	Reporting of mitigation Actions: Examples of other countries	Kirsten Orschulok, GIZ	Examples of Singapore, Chile, Ghana
16:20	Group Work: Reporting on mitigation actions – How to fill up CGE/GIZ Template on mitigation actions	Lead by: Juan José Rincón, Aether España	Practical exercise for filling CGE and GIZ template based on the selected Philippines NAMAs
16:35	Presenting the outcomes of group discussion	Lead by: Juan José Rincón, Aether España	Findings
16:50	Selection of mitigation actions: approaches and tools	Juan José Rincón, Aether España	Tools and model to do a mitigation assessment
17.10	Wrap up of the day	Voltaire Acosta, GIZ	
Day 3 February 24, 2016			
09:00	Recapitulation from Day 2	Voltaire Acosta, GIZ	

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Time	Activity/Topic	Trainer/Speaker	Comment
09:15	General uncertainty analysis: • Gathering and assessing uncertainty • Combining uncertainty • Level/Trend uncertainty • Simulation Q+A	Juan José Rincón, Aether España	Understanding uncertainties and uncertainty combination in the context of IPCC guidelines.
10.15	Coffee break		
10:45	Group work in sectors: Uncertainty estimation	Lead by: Juan José Rincón, Aether España	Practical example based on GHGI
11:15	Presenting the outcomes of group discussion	Lead by: Juan José Rincón, Aether España	Findings
11:45	Introduction to sensitivity analysis	Juan José Rincón, Aether España	Methodologies, problems and applications
12:30	Lunch		
13:30	Group work on Sectoral MRV system within the Philippines' National Integrated Climate Change Database and Information Exchange System (NICCDIES) [Plenary Discussion and presentation: Mainstreaming BUR requirements with the NICCDIES]	Sectoral Groups	Labeling the responsible institutions for the national MRV system for GHG Inventory, mitigation actions and support received and /needed and who the information will be submitted for the national reporting
14:45	Input: what is ICA? • Guidelines • Technical Analysis • Summary Report • Facilitative Sharing of Views Q+A	Gonçalo Cavalheiro, CAOS	Summary Report of Singapore ➔ GIZ ICA paper (short input by Kirsten)
15:15	Skype link with UNFCCC secretariat on types of question put to countries by the TTE	Karen Ortega, UNFCCC	
15.45	Coffee break		
	Quiz! And prizes!	**Gonçalo and Juan**	
16:00	Way Forward • Next steps for the BUR compilation process • Relationship between BUR and NDC	CCC	Session will be moderated by the CCC • Ms. Sandee Recabar, CCC • Ms Kirsten Orschulok and Engr. Voltaire Acosta, GIZ
17:00	Evaluation and wrap up of the workshop		• TBA, CCC • Ms Kirsten Orschulok and Dr. Bernd-Markus Liss, GIZ

Engr. Voltaire L. Acosta, GIZ
Moderator

Annex 02: CGE and GIZ Templates for Mitigation Actions

CGE Suggested Tabular format for Mitigation Actions

Suggested Tabular Format 1: Description of Mitigation Actions

This table serves as a suggested tabular format for item (a) of paragraph 12					
Name: State the name of the action here					
Description: Provide a description of the action here and provide further details in the columns below					
Nature of the action	**Coverage**		**Quantitative goals**	**Progress indicators**	
	Sectors	**Gases**			
Eg.	i.	i.	i.	i.	
	ii.	ii.	ii.	ii.	

Source: Consultative Group of Experts (CGE), 2013

Suggestion Tabular Format 2: Details of Mitigation Actions

This table serves a suggested tabular format for items (b), (c), (d) and (e) of paragraph 12				
Name: State the name of the action here				
Information				
Methodologies		**Assumptions**		
i.		1.a		
ii.		2.a		
		3.b		
Objectives and progress of implementation				
Objectives of the action	**Steps taken or envisaged to achieve the action**		**Results achieved, such as estimated outcomes (metrics depending on type of action)**	**Estimated emission reductions, to the extent possible**
	Steps taken	**Steps envisaged**		
i.	i.	i.	i.	i.
	ii.	ii.	ii.	ii.
Information on international market mechanisms				
State information on international mechanisms relevant to the action's implementation				

Source: CGE, 2013.

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Suggested Tabular Format 3: Summary of Mitigation Actions

Mitigation Action	Status (planned/ ongoing/ implemented)	Specific Objectives	Description (Type of action, type of reduction, target gas, time frame)	Coordination and Management	Estimated Emissions Reduction Potential	Co-benefits	Other Effects	Type of Support Received	Cost of Preparation and Implementation
Action 1									
Action 2									
Action 3									
...									

Source: CGE, 2013.

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GIZ Mitigation Actions Template for BUR report

Name of the mitigation action	Status [Idea, Planning phase, under implementation]	Implementing institution	Duration (20XX-20YY)	Sector[1] and subsector (if applicable)	Scope [national, regional, city-wide]		Greenhouse gases covered
Objective[2] of the mitigation action							
Activities planned under the mitigation action							
Key indicators used							
Name of the indicator	Unit	Indicator baseline value	Indicator target value	Year baseline and target relate to	Indicator value in the last reporting year	Reporting year (e.g. 2015)	Most relevant data sources for indicator value
Progress Indicators							

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[2] You may wish to include any quantitative targets (both GHG-related and non-GHG impacts) as applicable.

	Indicators related to GHG impacts						
	Indicators related to sustainable development						