Information Matters, Philippines:
Capacity Building for Enhanced Reporting and Facilitation of International Mutual Learning through Peer-to-Peer Exchange

Training-Workshop on
Climate Relevant Data Management

Crowne Hotel Manila, 11-13 August 2014

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List of Abbreviations

AURN	UK Automatic Urban and Rural Monitoring Network
AWIT-FE	Agriculture, Waster, Industry, Transport, Forestry, Energy
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
CC	climate change
CCC	Philippine Climate Change Commission
CCKM	climate change knowledge management
CDM	Clean Development Mechanism
CMR	Compliance Monitoring Report
CSO	civil society organization
DA	Department of Agriculture
DA-BAS	DA-Bureau of Agricultural Statistics
DBK	database keepers
DBKC	Database Keepers Committee
DBM	Department of Budget and Management
DBMS	database management system
DENR	Department of Environment and Natural Resources
DENR-EMB	DENR-Environment Management Bureau
DENR-FMB	DENR-Forest Management Bureau
DKM	Distributed Knowledge Management
DMP	Data management platform
DOE	Department of Energy
DOE-EPPB	DOE-Energy Policy and Planning Bureau
DOE-ERDB	DOE-Energy Resource Development Bureau
DOE-OIMB	DOE-Oil Industry Management Bureau
DOE-REMB	DOE-Renewable Energy Management Bureau
DOTC	Department of Transportation and Communications
DOTC-EPPB	DOE-Energy Policy and Planning Bureau
DSA	Data Supply Agreement
EC-LEDS	Enhancing Capacity for Low Emissions Development Strategies
GEF	Global Environment Facility
GGBP	Green Growth Best Practice
GHGI	greenhouse gas inventory
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GIZ-IM	GIZ-Information Matters Project
GIZ-Support CCC	Support to the Climate Change Commission in the Implementation of the National Framework Strategy on Climate Change and the National Climate Change Action Plan
IKI	International Climate Initiative
IP	Internet Protocol
IT	Information Technology
ITMS	Informatin Technology Management System

LEDs	Low Emission Development Strategies
LGU	local government unit
LRTA	Light Rail Transit Authority
LTFRB	Land Transportation Franchising and Regulatory Board
LTO	Land Transportation Office
M&E	monitoring and evaluation
MA	mitigation action
MARINA	Maritime Industry Authority
MDD	Methods, data and documentation
Meralco	Manila Electric Company
MOU/MOA	Memorandum of Understanding/Agreement
MRV	Measurement, Reporting, and Verification
NAMA	Nationally appropriate mitigation actions
NAMRIA	National Mapping and Resource Information Authority
NC	National Communications
NCCRD	National Climate Change Response Database
NEDA	National Economic and Development Authority
NGHGIS	National Greenhouse Gas Inventory System
NGO	non-government organization
NICCDIES	Nationally Integrated Climate Change Database and Information Exchange System
NSWMC	National Solid Waste Management Commission
PSA	Philippine Statistics Authority
QA	Quality Assurance
QC	Quality Control
QC	Quality Control
REDD+	reducing emissions from deforestation and forest degradation
SaaS	Software as a Service
SEA – GHG	South East Asia regional capacity building programme
SMR	Self Monitoring Report
TCCCA	Transparency, Completeness, Consistency, Comparable, Accuracy
UDMP	unified data management platform
UK	United Kingdom
UNDP	United National Development Programme
UNDP Project ReBUILD	Resilience Capacity Building for Cities and Municipalities to Reduce Disaster Risks from Climate Change and Natural Hazards
UNDP SecurePHL Project	Securing a Climate Resilient Philippines
UNDP-LECB	UNDP-Low Emission Capacity Building Philippine Project
UNDP-NCSP	UNDP-National Communications Support Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNREDD	UN-Reducing Emissions from Deforestation and forest Degradation
US EPA	US Environmental Protection Agency
WRI	World Resources Institute

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, which aims to provide technical support to the Philippines through the Climate Change Commission (CCC) in building and improving climate information basis in order to be more able to plan and implement national low carbon development policies. These information bases include data collection of emissions inventories, emissions trends, emissions reduction potentials, ongoing mitigation actions, climate policies, financial, technology and capacity building support needs and received support, international collaboration and international commitments, and established procedures and methodologies to monitor and collate these data. Ricardo-AEA, as a subcontractor of GIZ, provides the technical expertise for the capacity building missions to the CCC and sectoral lead agencies including backstopping support. The content of these CB workshops is decided in close consultation between GIZ and CCC.

Thus, the training-workshop on Climate Relevant Data Management was conducted on August 11-13, 2014. This activity aimed to build the capacities of the participants on collection, storage, and management of climate relevant data, ensuring its quality and reliability.

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. It lasted for three (3) days and at the end of the workshop, a post-training evaluation and post-training quiz were administered to assess if objectives were achieved and to gauge the level of knowledge the participants have gained, respectively.

Representatives from Information Management Offices of line agencies from 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. Key topics on uses of climate relevant data, collection, management and access to data were presented by Dr. Watterson and Ms. Pang as well as update on the Nationally Integrated Climate Change Database and Information Exchange System (NICCDIES) was given by the Climate Change Commission, while a SKYPE session with RICARDO-AEA experts was conducted to further discuss key concerns on topics presented. The knowledge and skills shared by RICARDO-AEA IT experts became a reference point towards the creation of roadmap for implementation of NICCDIES that would fit the country's requirements.

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

1. Developing a platform on data management that is not separated as to adaptation and mitigation, to include institutional arrangements which can be shared by both systems. There is no separation between adaptation and mitigation, which is also a main concern for other countries like South Africa and Kenya. One option is to have separate systems, but both can be accessed from only one website. Second is that the system can be designed that encompasses both mitigation and adaptation, however the skills of those who will manage the system is one major consideration.

2. Reconciliation of two (2) datasets due to change in the assessment method and location of observations. There can be an initial estimate for comparison based on the two datasets to see if there is an overlap or commonality of data, however if the new data is

more accurate, there is a need to derive the uncertainty among two datasets.

3. <u>Availability of international standards as guideline for collection of climate relevant data at the national level</u>. There is no international standard on data collection; however there is a set of common data countries typically collect like energy statistical data.

4. <u>Protocol on data sharing amongst agencies and the public to include legal liability such as penalty</u>. There can be two levels, first is a standard format with graphical representation that can be accessed by all agencies either offline or online, then second level is for public use. In terms of penalty, in the case of UK, the government takes GHG emissions seriously and even putting the collection of data into law. It needs to be serious enough to make people think and reflect on what they are doing

5. <u>Practical solutions: open source application vs enterprise.</u> There are various sources of packages with strong analytics. An open source does not necessary mean free but rather may entail low cost, however in some cases, an enterprise may address the requirements. The key is that there is a need to spend time on the details and requirements of such system. Also the cost of licenses has to be included into the consideration.

6. <u>Security measures to protect the data management system from hackers.</u> There are various ways of ensuring that the system is secured and the right people have access to it. In the case of UK, the government works with ISO 2001 and goes through the process of risk management that includes physical environment, control, and physical access.

7. The need for communication link between the sectoral experts and IT experts on what data to put, otherwise it will be costly just for developing the website.

Prior to formally closing the activity, a quick session on backstopping need was conducted related to baselines and baselines scenario setting. The participants suggested the following need:

a. Assessment/surveys on additional requirements for NICCDIES system;

b. IT expertise on reviewing the test run (alpha to beta: QA); and

c. Development of sample templates for mitigation actions/support/GHGI

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 Information Management Offices of line agencies from Waste, Industry, Energy, Transport, Agriculture, and Forestry sectors and Philippine Statistics Authority attended the training-workshops, joined by officials and staff from the Climate Change Commission and GIZ. Technical expertise was provided by RICARDO-AEA, a British Company and subcontractor of GIZ for the Information Matters project

Preliminaries

Prayer and National Anthem were rendered, followed by the opening remarks from Assistant Secretary Joyceline Goco from the Climate Change Commission and Ms. Kirsten Orschu-lok, GIZ IM Project Coordinator.

On behalf of the Climate Change Commission, Assistant Secretary Joyceline Goco welcomed the participants to the workshop. She emphasized the need to have a strong foundation in building a house, hence the bottom-line of the activities is to have data in finding relevance in terms of the programs and activities of the government. However, this is the usual problem specific to data access not just in climate change but in all other works the agencies are doing.

Thus, the workshop will facilitate better understanding of where the data are, who are the users and producers, and how does data flow from the users to the keepers. For instance, in the implementation of climate change activities, there are already measures in place such as MRV and it is important that data source is credible and can be validated.

To that end, she encouraged the participants to ask questions and take advantage of the experts from RICARDO-AEA and GIZ. She wished for an interactive session.

On behalf of GIZ, Ms. Kirsten Orschulok thanked the participants for attending the workshop. She mentioned that in the previous activities she finds the discussions very interesting and hopes for the same results. She reiterated that it is important to ask questions every time to have clarity on the topics that will be presented, hence achieving the objectives of the workshop. She expressed her gladness to see old and new faces and looked forward to the results of the workshop.

After the opening remarks, quick introductions of participants and expectations check were conducted to set the tone of the capacity building workshop. Dr. Watterson requested the participants to list down things that worry them in the context of workshop. As can be seen in the table below, there are six (6) clusters of worries relevant to the topics to be presented by the consultants from RICARDO-AEA.

Table 1. Workshop Output: Participants' Expectations

Clusters	Worries/Concerns
Information Sharing	• What to give to the public and what to keep for institutional use? • What are the best practices so far in climate-relevant data management specific to data sharing • How can we engage the public to share important climate data • Which is for general consumption
Data Management System	• What are the different knowledge management structures • How to establish a climate relevant data management system • What are the current challenges in archiving climate relevant data • Need for consolidated/integrated database for GHGI • Management and storage of data and how to classify them • How to address data gaps and disaggregation of data • Where to look for reliable climate relevant data
Institutionalization within the sectors	• Integration of climate relevant data from other agencies • Overlapping activities from different donors/bilateral institutions
Relevance of database and data management system	• How can economic policy planners use climate relevant data? • What data from DOE-REMB are climate relevant and how will this data help in the climate relevant data system • It gives an idea on the past, but what should be done in the present to

Clusters	Worries/Concerns
	what we want environment be in the future.
	• Indicators used in measuring emissions
	• Improvements on actions points (documented data gaps)
	• Improvements on data availability
Security Measures	• How to secure classified information
QA/QC	• How can we determined if the information we are keeping are credible

After the expectations check, it was followed by an overview of the project and updates on project implementation in the Philippines.

1. Information Matters: Transparency through Reporting – An Overview of the Project
Ms. Kirsten Orschulok, Junior Adviser, GIZ Information Matters Project

Ms. Kirsten Orschulok presented an overview of the project and updates from the other three participating countries. Under the support of German Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), the project aims to strengthen the participating countries' capacities for enhanced reporting of the climate relevant information to UNFCCC. It is a complementation project with UNDP-LECB, NCSP, UNEP in partner countries, WRI, and International Partnership on Mitigation and MRV, being implemented in the Philippines, Dominican Republic, Chile, and Ghana. The technical expertise required by the

project is being provided by RICARDO-AEA, a British Consulting Firm. Figure 1 shows the project structure and partners involved in the project.

In the Philippines, the gap analysis in September 2013 was validated during the followed kick-off workshop, focusing on three key elements, institutional, technical and capacity on GHG MRV, Mitigation Actions and Climate Finance dimensions, overarched by five (5) key concerns specifically on coordination, policy framework, institutional mandate, common processes and procedures, and data access and archiving. From the gap analysis, specific needs and priorities on

Figure 1. GIZ Information Matters Project steering structure
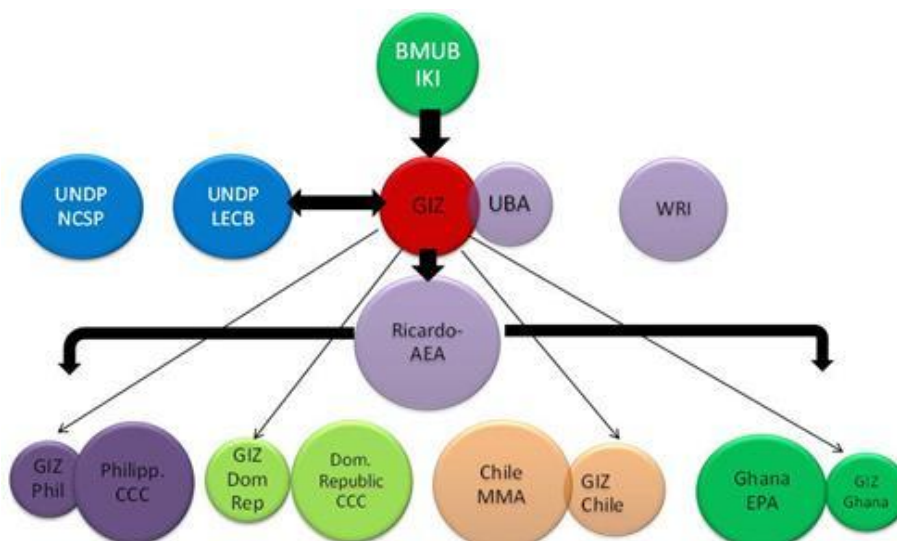
MRV systems and GHG monitoring were identified and through tailored capacity-building trainings and workshops, countries will be able to improve and refine procedures, methodologies and responsibilities to institutionalize their reporting system, with the special focus on the requirements for national-level mitigation-related reporting to the UNFCCC. The series of capacity building activities is the key building block towards the peer-to-peer exchange workshop in Bonn on September 2015.

Figure 2 shows the overall project timeline, while below are updates on the project in three other participating countries.

a.) Chile: although the country already identified five (5) NAMAs with its corresponding MRV system, a comprehensive, national MRV system integrating the 5 MRVs will be developed. Training on MRV of GHG Inventory is also on the pipeline as requested by the part-

ners. Chile will submit their Biennial Update Report in December 2014 to the UNFCCC and wants to organize a Side Event at the COP 19 in Lima for this.

b.) Dominican Republic. The country's direction is to set up an institutional arrangement for MRV and GHG inventory since both are new topics, unlike in the Philippines where the country has already good institutional arrangement for GHG Inventory.

c.) Ghana. The country is keen on improving the quality of GHG inventory in order to define better the country's goal. They have already secured funding from GEF for the preparation of their biennial report. Also Ghana will submit their first Biennial Update Report in December 2014.

Figure 2. GIZ Information Matters Project Timeline

Start: September 2013   **End:** September 2015

Peer-to-peer exchange workshop
(Bonn, Germany) - September 2015

Kick off in-country missions
September to December 2013

Capacity building missions
January 2014 to June 2015
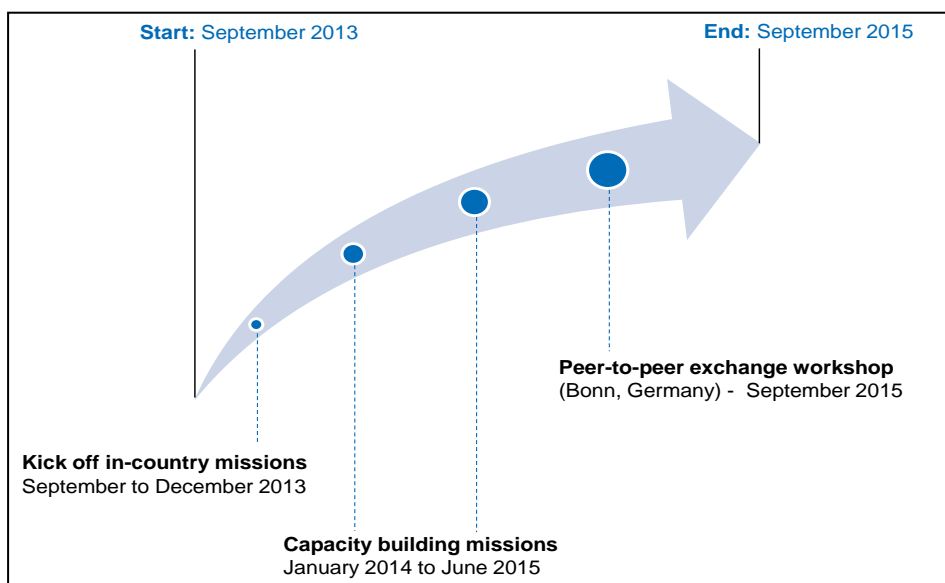
2. Updates on the Information Matters Project in the Philippines
Mr. Voltaire Acosta, Senior Adviser Information Matters Project, GIZ

Mr. Acosta gave a brief overview on the scope and boundaries and criteria of the project. He also presented key highlights of the conducted activities under the IM project in the country.

Table 2 shows the scope of the project as well as its boundaries and criteria.

Table 2. IM Scope and Boundaries and Criteria

Scope and Boundaries	Criteria
a. Strengthen in-country capacities thru tailored capacity-building trainings and workshops, countries improve and refine procedures, methodologies and responsibilities to institutionalize their reporting system with the special focus on the requirements for national-level mitigation-related reporting to the UNFCCC.	a. The capacity building must be relevant to international reporting of climate change information (i.e. NC).
b. The work is designed to identify gaps related to the collection, processing, analysis and interpretation, tracking, and reporting of climate relevant information.	b. It must complement or strengthen on-going projects where relevant and can cover any of the sectors or elements relevant to mitigation monitoring and reporting.
c. IM looks at what capacity building is needed to fill the gaps, e.g., MRV, baselines setting, GHGI-QA/QC, etc.	c. The capacity building needs to ensure an enduring outcome, with the aim of institutionalising processes and procedures.
d. The concept of mitigation as a function of adaptation is important for the Philippines policy makers. The IM project does not consider adaptation, but for the work done in the country, does consider mitigation as a function of adaptation and in pursuit of national sustainable development goals.	d. It can also be relevant to understanding how mitigation is a result of adaptation and/or development actions (co-benefits).
e. More than mere compliance to UNFCCC agreements, the Philippines may also utilize the updated baseline information from national climate reports as rational basis in developing, coordinating and prioritizing climate-responsive policies, plans and programs, i.e., informed decision-making.	

Various activities were already conducted to support the project from validation of gap analysis on September 2013, stakeholder's consultation on concept note and capacity building workshops on MRV architecture and baselines.

Table 3. Activities supported by Information Matters Project

Activities	Key Highlights
Validation of Gaps Analysis	a. GHG inventory is yet to be institutionalized although capacity building of sectoral leads is ongoing. b. The need for GHG inventory tools since activity data depends on this. No MRV systems in place, hence data collection needs by all sectors have to be identified. c. No training on QA/QC. There is a need to identify QA/QC needs by all sectors. d. Tools on MRV and tools for analysis of mitigation actions e. Application of MRV and mitigation action analysis tools f. Capacity to develop country-specific emission factors for the GHG inventory: how to calculate within 1-2 years g. Baseline (GHG emissions): capacity to extract, gather: tools and criteria to establish the baseline within 1 year h. National government tagging system for climate finance is in the pipeline; No institution yet for climate support. i. The CCC and DBM has passed in December 2013 a Joint Memorandum Circular that provides guidelines in the tagging/tracking government expenditures for climate change in the budget process.
Stakeholders Consultation on Concept Note Development	a. Discussed the Concept Note and agreed on priority topics to be covered under the BMUB-supported IM Project, including modes of delivery and time frame b. Developed a roadmap of activities that will be supported by the project
Capacity Building on MRV Architecture	Participants were introduced to the following skills and knowledge - Basic concepts on Measurement, Reporting, and Verification (MRV) System - MRV of GHG inventories - MRV of mitigation actions / NAMAs MRV of support - Institutional structures for MRV
Capacity Building on Baselines	Participants were introduced to the following skills and knowledge - Basic Concepts of Baselines - Application of Baselines - Connections of Baselines and Projections - Developing Indicators - Data Management: Steps, Principles, and Challenges - Dealing with Uncertainties - Methods in Addressing Data Gaps - Institutionalization of Baselines and MRV of Baselines

Plenary Presentation: Key Topics and Concepts on Climate Relevant Data Management

1. National Integrated Climate Change Database and Information Exchange System (NICCDIES)

Mr. Francisco A. Benito, Chief Technical Adviser, LECB PHL Project

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

NICCDIES is a relevant solution for the following requirements

a. Design and establishment or institutionalization of the National Greenhouse Gas Inventory System (NGHGIS) that would cover:

- GHG inventory composed by spreadsheets to calculate emission estimates; activity data and emission factors as well as methodologies which are referenced to their data sources.

- Archiving and storing of all inventory data, supporting information, inventory records as well as all the reference documents.

- Organized data/information so that users could obtain relevant data sources and spreadsheets, reproduce the inventory and review all decisions about as-

sumptions and methodologies undertaken

b. Formulation of Mitigation Actions which are derived from plans, programs, projects and policies of the government (local/national) and from CSOs/private sector, ensuring that Mitigation Actions are coherent and no overlapping/duplication of efforts, for example: renewable energy and energy efficiency that cut across all sectors.

c. Development of MRV systems to support GHG inventories, mitigation actions/LEDs for effective coordination mechanisms and synergetic approaches by/between and/or among the LECB project and similar and complementary initiatives.

Thus, NICCDIES aims to provide a national "one-stop-shop" information portal for climate change mitigation actions/activities due to the following:

- MAs will require considerable investments and most will likely be implemented on the ground by private investors - but private investors need information to make informed/investment decisions.

- The general public needs information to appreciate the effects of climate change in general and help create or support/increase demand for environment-friendly products and services.

- Government agencies/planners, CSOs and institutions need information to appreciate the importance, advantages or co-

benefits of climate change mitigation actions/initiatives.

- Researchers need information as their studies would later help create awareness

of importance/advantage of climate change mitigation actions.
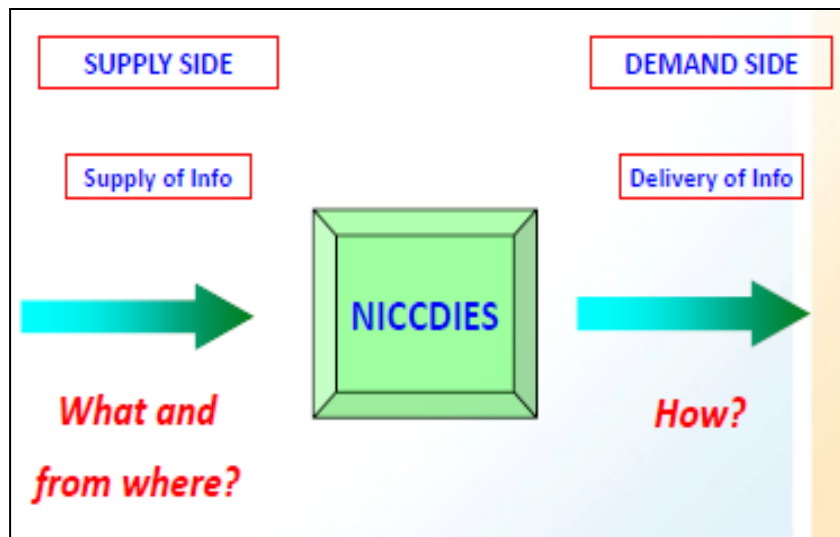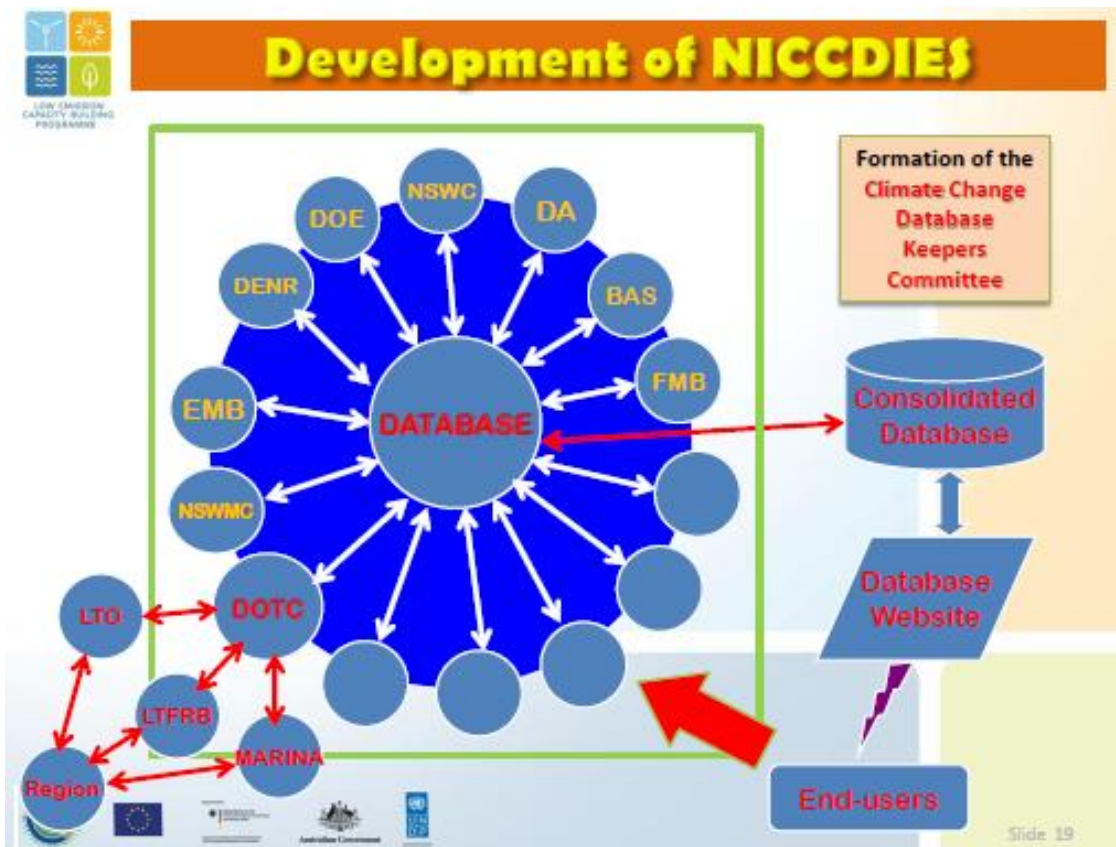
Figure 3. Data Flow in NICCDIES

Figure 4. Development Framework of NICCDIES

Although survey form is not sufficient at the moment and the need to take on considerable efforts in identifying which information should be stored or made available in the system to make it truly a portal for CC mitigation activities, the Commission has developed a proposal for the formation of the database keepers (DBK).

A DBK is any government and private institution that generates, stores, or maintains climate change data, GHGI data or related information and provides information or services to clients or end-users in need of such data or information. Figure 3 demonstrates how the NICCDIES will be developed with the DBK Committee as Lead.

The proposed roles of Database Keepers are the following:

a. Define the scope of the CC-related databases and information that will be covered by the consolidation and information exchange and services;

b. Formulate specific guidelines for the consolidation and integration existing databases and information;

c. Review and recommend on the design and implementation plan for the establishment of the NICCDIES;

d. Formulate the specific guidelines for the information exchange and services for the NICCDIES;

e. Recommend policies and specific security requirements on the access and proper use of the data and information

f. Recommend tools, techniques and services adequate to meet information needs and demands of users/clienteles;

g. Review and recommend on the design and implementation plan for the establishment of an integrated info exchange

and service system that will utilize the DBMS;

h. Recommend strategies and activities that will improve, expand and sustain the operation of the system;

i. Recommend and implement a program that will strengthen the capability of the CC Database Keepers; and

j. Resolve any issues concerning the establishment and operation of the system.

Database Keepers Committee (DBKC) on the other hand will a) assist and/or support the establishment of the national database and information exchange facility that would cater to climate change data clients or end-users, b) responsible for the development, integration, management and dissemination of climate change mitigation-related data and information in the country, and c) review and recommend on the technical design and implementation plan for both the database management and information exchange systems.

It should be noted that each institution-member shall be a party to a MOU/MOA for a mutual commitment and joint collaboration for the establishment of the NICCDIES. And with the Climate Change Commission as the Head of the DBKC and the lead agency for all climate change-related activities in the country, it would be ideal for Government to make climate change mitigation data and information accessible by collecting and gathering it at a single location which is ideally at the CCC,

To the end, Mr. Benito presented the ways forward in pushing for the development of the NICCDIES.

a. CCC shall conduct needs assessment and data consolidation capabilities of participating agencies to include hardware and software assessment

- Hardware: enough memory capacity, appropriate for NICCDIES: Shared among units/departments within the sector?

- Software: type of database management system (DBMS) used; desktop database and server database

b. The needs analysis process will be specific to each agency but, at a minimum, should answer the following questions:

- Who will be using the database and what tasks will they perform?

- How often will the data be modified? Who will make these modifications?

- Who will be providing IT support for the database?

- Who will be responsible for maintaining the data?

- Will data access be offered over the Internet? If so, what level of access should be supported?

c. Officially designate/assign CCC personnel to head the DBKC.

d. Send invites to DBKs to join the DBKC

e. Draft MOA/MOU to be sent to each DBK to formalize their DBKC membership. The MOA/MOU will be executed by and between the DBK and CCC.

f. Finalize the survey/inventory of data/information

2. Uses of Climate-relevant Data in the Philippines
Dr. John Watterson, RICARDO-AEA

The presentation built on the previous capacity building workshops and covered four (4) key sub-topics; relevance of climate data for now and in the future, summary of outputs from the MRV architecture and baselines discussion, link of data flows to national reporting (PDP) and international reporting (NCs/BURs), and co-benefits associated with climate inventory and mitigation data.

The scope of climate relevant data could be huge, or much smaller based on the require-ments that could cover three (3) pillars of MRV; GHG emissions, NAMAs and support needed/received and could extend to additional information such as measurements of environ-mental variables associated with climate change, such as temperature, rainfall sea level. It is likely to include numerical data, metadata, electronic reports (e.g. National Communications, NA-MAs) for the purpose of domestic and interna-tional climate reporting. Below is sample of projects and initiatives that could be relevant for generation of climate data.

Table 4. CCC Projects and Initiatives

Area	Project	Description
Mitigation	UNREDD	Collaborative initiative on Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries
	SEA – GHG	South East Asia regional capacity building programme - overcoming data challenges and produce transparent, accurate, complete, consistent and comparable national GHG inventories with focus on agriculture and land use, land use change and forestry sector
	LECB	Low Emission Capacity Building Philippine Project (LECB PHL Project)
	EC-LEDS	Enhancing Capacity for Low Emissions Development Strategies
Adaptation	Support CCC	Support to the Climate Change Commission in the Implementation of the National Framework Strategy on Climate Change and the National Climate Change Action Plan.
	SecurePHL	Securing a Climate Resilient Philippines or SecurePHL supports the implementation of the NCCAP from 2012 to 2016.
	ReBUILD	Assessing disaster vulnerabilities of the cities and municipalities surrounding the Cagayan River Basin and the Jalaur River Basin, Philippines, to geological, meteorological and meteorologically-induced hazards due to climate

While GHG Inventory sectoral "data keepers" are Energy, Transport, Agriculture, Waste, Industry, and Forestry sectors with the following formats of data.

Table 5. Sectoral Format of Data

Sector	Format of data
Energy	Excel files from various bureaus consolidated by the Department of Energy's Energy Policy and Planning Bureau (DOE-EPPB)
Transport	Surprisingly they once had an Oracle software that consolidates transportation data. Although they have to renew it.
Agriculture	Excel files from statistical sampling. For GHGI, they use ALU Software, and then input it to the IPCC Software.
Waste	They have an interactive database system (DBMS) where regional offices can just update information regularly. However, regional offices reverted back to sending hard copies of the reports that the MIS of the National Solid Waste Management Secretariat still has to encode again in the DBMS.
Industry	Data from SMRs/CMRs are submitted in hard copies to EMB but no processing is done at the regional or national level to "extract" climate mitigation relevant data (only for compliance). For GHGI, they just gather annual reports (hard copies) from industry associations such as cement, steel, etc and input it into the IPCC software.
Forestry	Data from GIS models, and with random field verification

From each sector, Dr. Watterson presented their respective available data which are culled out from the capacity building workshops on MRV architecture and baselines. He also presented the results of the focus group discussion on the formation of a Database Keepers Committee on May 21, 2014. The discussion focused on the National Integrated Climate Change Database and Information Exchange System (NIC-CDIES), responding to key questions about extent of data, current hardware, views on software to use and views on data sharing.

Meanwhile, data flow from NAMAs is being detailed in the figure below as a result of the CB on MRV architecture and Baselines on April 2014.

Figure 5. Institutional Structure for the MRV System Data Flow (CB WS Output)
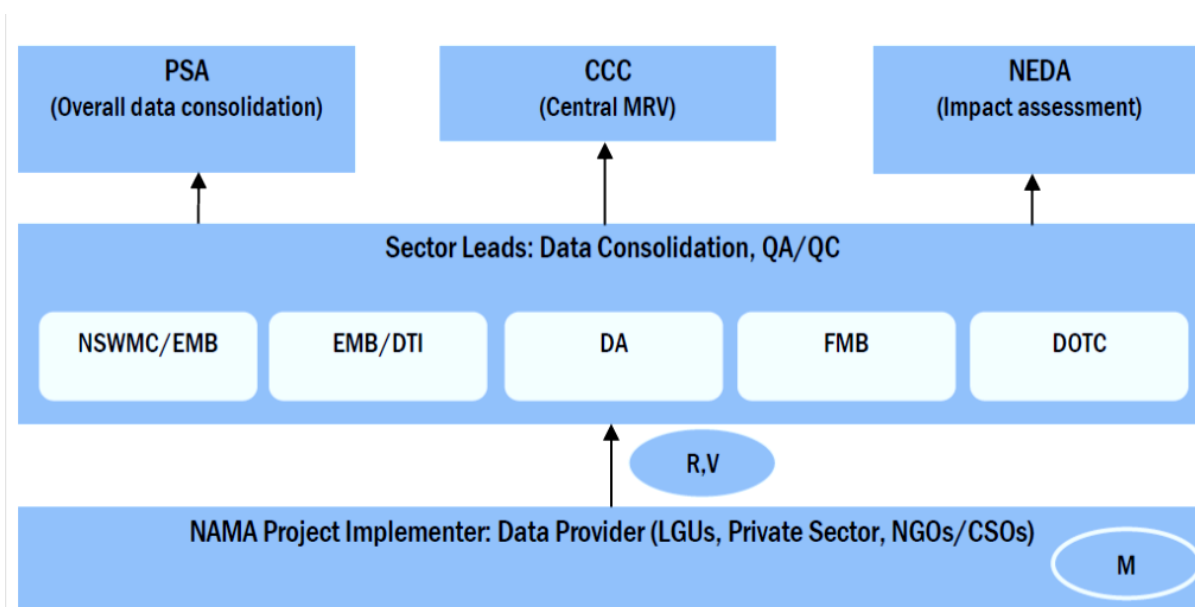
In addition, Dr. Watterson presented some samples on US Data Climate initiative and Ghana Climate Change Hub which can accessed through www.whitehouse.gov and http://www.epa.gov/ respectively.

Finally, he gave a brief discussion on co-benefits and presented some cases. According to him co-benefits can better term as sustainable development benefits on non-GHG benefits to distinguish such from emission reductions, which is helpful with NAMAs. He presented various models on co-benefits, for instance the Green Growth Practice carried out by the Green Growth Best Practice (GGBP) initiatives de-

tailed lessons from country experiences and mentioned that 'e*ven where individual targets and baselines have been established for different aspects of green growth, it is important to note that many of these metrics are linked. For example, countries may set targets for biodiversity conservation, deforestation abatement and GHG emission reduction, but in practice these three are not independent.*"

3. Collection and Management of Data
Ms. Yvonne Pang, RICARDO-AEA

Prior to the presentation, Ms. Pang gave a quick recap on key elements of an MRV system since climate data collected, institutions involved, and the ongoing development work on the National Integrated Climate Change Database & Information Exchange System (NICCDIES) are part of a wider MRV system, hence it is important to understand the MRV system's basic elements,

building blocks, be aware of the institutions that could be involved, and see the interrelationships.

The presentation focused on the following discussions:

- What climate relevant data is required and available (types of data, sources of data, frequency of update, time-series, interruptions)?

20

- Processes and procedures for data collection and management (ensuring its relevance and timeliness)

- Linking with national and international reporting

- Methods, data and documentation – the US (MDD) stock-taking tool

She first presented some conclusions on what data to collect based on the CB workshop outputs and UK's experience.

Table 6. Conclusions on What Data to Collect

Types of Data	• Numeric and Textual • Non-spatial and spatial • Wide ranges of electronic formats (i.e Transport sector; Franchise data for Buses; IPCC Emission Factor; Type of fuel that can be used per bus)
Scale of data	• A very wide of data could be needed and could be part of the NICCDIES • Even a simple spreadsheet could contain thousands of numbers; i.e UK NAEI has > 10^7 data points in the main database
Data Sources	• Wide range from MDAs, CSOs, NGOs, and Academe • Scale of international, national, and local
Frequency of Update	• Reporting obligations can dictate the frequency (i.e BURs) • Range from hourly (meteorological data) to every several years (census, surveys)
Time series and quality	• This can be a challenge: older data sets may not exist or of poor quality • Interruptions to data availability: raise issues of time series consistency • Quality of data collected in the future can be controlled • Long time series of data can soon accumulate: providing large volumes of data

In terms of data collection, there are different approaches and various sources for data collection using the following mechanisms in ensuring data will be provided by such agency.

- *Gentlemen's agreements.* An informal agreement supported by proper documentations which can be done through meetings or dialogues.

- *Some sort of Data Supply Agreement (DSA).* Non-legally binding agreement.

- *Legal agreements with penalties* Legally binding with provision of penalties for non-compliance.

However, it should be noted that legal mandate may not be necessary since securing of data may depend on the level of trust, cooperation and communication between the "data suppliers" and "data users". Nonetheless, in the case of UK, there is a legal basis for the collection of data using a non-legally binding data supply agreements to help secure access to data. The DSA in UK is consists of four (4) key elements; scope and format of data, time for delivery, information about uncertainty, and requirements for commercial confidentiality.

While in the case of the Philippines there is a range of laws that facilitate the collection of climate-relevant data which is directly linked to the national and international reporting.

Finally, the US EPA has developed a capacity-building approach to help countries build sustainable GHG inventory management systems such as the Methods and Data Documentation (MMD). MDD is a document, created in MS Word and structured to help document methods and data used to create a GHG inventory. It is designed to assist inventory teams in documenting and reporting the methodologies, datasets (including activity data and emission factors) and assumptions used to estimate emissions and removals from each category, but does not create any estimates of emissions – not really applicable to mitigation or climate support

Discussion Highlights

- <u>On reconciliation of two datasets, taking into consideration the homogeneity of data and change in assessment method.</u> There can be an initial estimate for comparison based on the two datasets to see if there is an overlap or commonality of data, however if the new data is more accurate, there is a need to derive the uncertainty among two datasets.

- <u>On legal liability on providing data being adopted in UK.</u> UK has taken serious steps in generation of data on GHG emission. For instance, the agency can invoke the provisions on the DSA in requesting for information from a specific industry, and in such case that the industry did not comply, they will be subjected to penalties or even imprisonment.

- <u>On country's experience on data collection to feed in the National Communication</u> The first and second national communications were formulated by consultants, however if the government wants to capacitate the agencies for the preparation of the third national communication, a manual is already available as guide.

- <u>On ensuring that data is correct and accurate.</u> With limited resources, there is a need to look at the overall trend or a snapshot of certain dataset for categorization of its important characteristics.

- <u>On international standard for data collection that can be used as guide or benchmark.</u> Each country has their own data requirements and there is no international standard on data collection; however there is a set of common data, countries typically collect like energy statistical data.

- <u>On US MDD Stock-taking tool.</u> There is a lot of room for collaborations since the MDD has five templates for the national GHG inventory. It started at the institutional arrangement, detailing the structure for the development of the inventory report, QA/QC, and innovations as newly added component.

Breakout Session

The participants were divided into their respective sectors and tasked to discuss the following guide questions.

- What are climate relevant data for GHG emissions, mitigation actions, and climate finance support?

- What are the processes and procedures already in place to manage the data flows?

Table 7. Agriculture Sector

Climate Relevant Data	Status of Data Collection	Organiza-tion/Agency	Processes/Procedures Managing/Sharing
Primary Data		Philippine Statis-tics Authority	1. Data collection with supervision
Harvested area for annual crops other than palay and corn	Semi Annual Data Collected		2. Data Processing (en-coding to table genera-tion)
Area planted to perennial crops			
Area applied in palay and corn	Quarterly data collected		3. Data Validation from Provincial, Regional, National (PDR, RDR, NDR)
Fertilizer applied in palay and corn			
Harvested area for palay and corn			
Inventory by animal type and classification			
Average liveweight (for slaughter only)			4. Publication, Dissemi-nation (website) through Country STAT Philippines
Secondary Data		NAMRIA	
201 Forest/Land Cover			5. Preparation of Medata
			6. Data Archiving

Table 8. Forestry Sector

Climate Relevant Data	Data Holders/Producers	Data Management
Forest Cover	NAMRIA	Remote Sensing/Ground Validation
Forest Resource Assessment Data (tim-ber inventory)	FMB	Relocation of tracks/Inventory/Survey
National Greening Program Data	FMB-DENR	Regular Reporting/Geo-Tagging (weekly)
Forest Disturbances Report	DENR	Regular monthly reporting
Forest Products	FMB	Regular Quarterly Reporting
Tenurial Instruments	FMB	Resource Inventory/Regular Reporting

Table 9. Energy Sector

Climate Relevant Data	Organization	Processes and Procedures
Production and Consumption of Fuel	EPPB	Monthly Updating
Non Renewable Energy	OIMB, ERDB	
Renewable Energy	REMB	
• Existing RE Power Plants		ITMS to Store in Central Server
• RE Technology		DOE Website
• Plant Capacity		
• Gas Emissions		

Table 10. Industry Sector

Climate Relevant Data	Who Holds the Information	Processes and Procedures
• Production Data of Industries based on SMR • (Production/Process Data)	• EMB from Regional to Na-tional Office • Industry Associations	CMR: Semi Annual SMR: Quarterly Reporting • Self Monitoring Reports • Compliance Monitoring Reports • Submission and Review of IS Manual • Can be shared upon request • Storage (Manual/File Cabinet)

Table 11. Transport Sector

Climate Relevant Data	Organization	Existing MRV System
Number of Passengers	EPPB	Reporting Mechanism: Monthly Basis to DOTC-MIS (available as public information)
Number of train trips (per loop) per day	LRTA	
Electricity consumption per system		
Operations expenses service facilities (e.g escalator, elevator, lights)		Store Mechanism: Record Management
Energy Mix	Meralco	Data Sharing Mechanism: Electronic Sharing (in XML/ PDF Format)

4. Access to Data

Dr. John Watterson, RICARD-AEA

The session covered the entire data management system including barriers to data access, as well as samples of other countries approaches that would provide inspiration in the NICCDIES development.

Dr. Watterson mentioned that each terminal where data entry can occur is designated as a "client", with the databases, including the NCCRD being designated as "servers". These types of users are the capturers or users that use the "client-terminals" and have to secure credentials set up by the system administrator. These types of users are comprised of two groups:

- *Level 1Capturers.* Those who sit on the data provider side and are able to enter and edit their own data

- *Level 2 Capturers*: Those who sit on the data repository side that are able to check data contained in the QC/QA repository and then validate it to be passed on to the actual NCCRDB (or return to data providers). As explained above, this will include the database team and sectoral experts.

Any participant in the M&E system will be assigned with relevant access rights for their role in entering, validating or extracting data. The system users will either be from the central M&E team, the Database team and/or be a data provider. A Rubric or matrix can be used by the system administrator to set up access and privileges for each M&E system participant.

In terms of data flow, below are key components and it should be taken note that the difference is that front-end side makes use of people to enter data, while the back-office side makes use of software and data mining to produce results that can be viewed by people.

- The front-end data entry - the front end used by people to enter data

- The back-office computing refers to a stage in the system where metadata is formed and information/results produced using the entered data.

  - All the data will exist in the repository where individuals with level 2 capture access rights will perform quality assurance and validate the data

  - Simple QC could be automated

  - But more detailed checks might also be carried out by sector experts (e.g. someone from the sector lead organisation)

  - Once validated, the data will then be passed automatically to the NCCRDB,

and data mining or simply run queries will be performed on it.

- These queries will only be carried out by those individuals with viewing rights

- Input terminals. This will be the terminal(s) used by the registered data providers and can be any computer that has access to the internet

- Data entry interface

- This is the actual website used to enter the data which will eventually end up in the NCCRDB The format will be standard and the fields being required dependant on the data being captured – data and contextual factors

- Will be a standardised form with predetermined fields to populate based on the data structures to ensure a first level of quality control

Error! Reference source not found. and **Error! Reference source not found.** detail the requirements of the system in terms of hardware and software and the entire data management, respectively.

To that end, Dr. Watterson mentioned Kenya as an example to provide inspiration in the context of country's initiative in developing the NIC-

CDIES. Kenya has developed three (3) important documents; Climate Change Action Plan, Knowledge Management and Capacity Development, and Climate Change Knowledge Management Strategy. The government went through several steps in discovering the kind of data management system already in place and the availability of climate information and knowledge by sector. The identification of the potential uses of climate change knowledge is a key component of their strategy, hence responding to the following concerns:

- Who is a potential user?

- What are the users' or potential users' level of understanding of the climate change knowledge?

- What is the gender, education background, geographic distribution of the actual or potential users?

- Why are they interested in climate change knowledge?

- What are their use case scenarios?

- Do the users need any specific aspect of the climate change knowledge?

- What do they do?

Table 12. Requirements of a Data Management System

Hardware	• Specific hardware requirements will be made once the scope of the data and estimated number of participants has been determined – no specific recommendations were made in the report	Risks	• Of course, there will be many risks – hardware failures and software errors • But the big risk the study identified was "setting up the necessary bi-lateral arrangements and memorandums of understanding with the relevant data providers" • Without the MoU's the system has no data to collect
Software	• Suggestion to use software for the management/mining and reporting of the data. • Any programming needs to be "programming which is easily upgradeable, scalable and interoperable"		

Figure 6. Partnership of Climate Change Actors
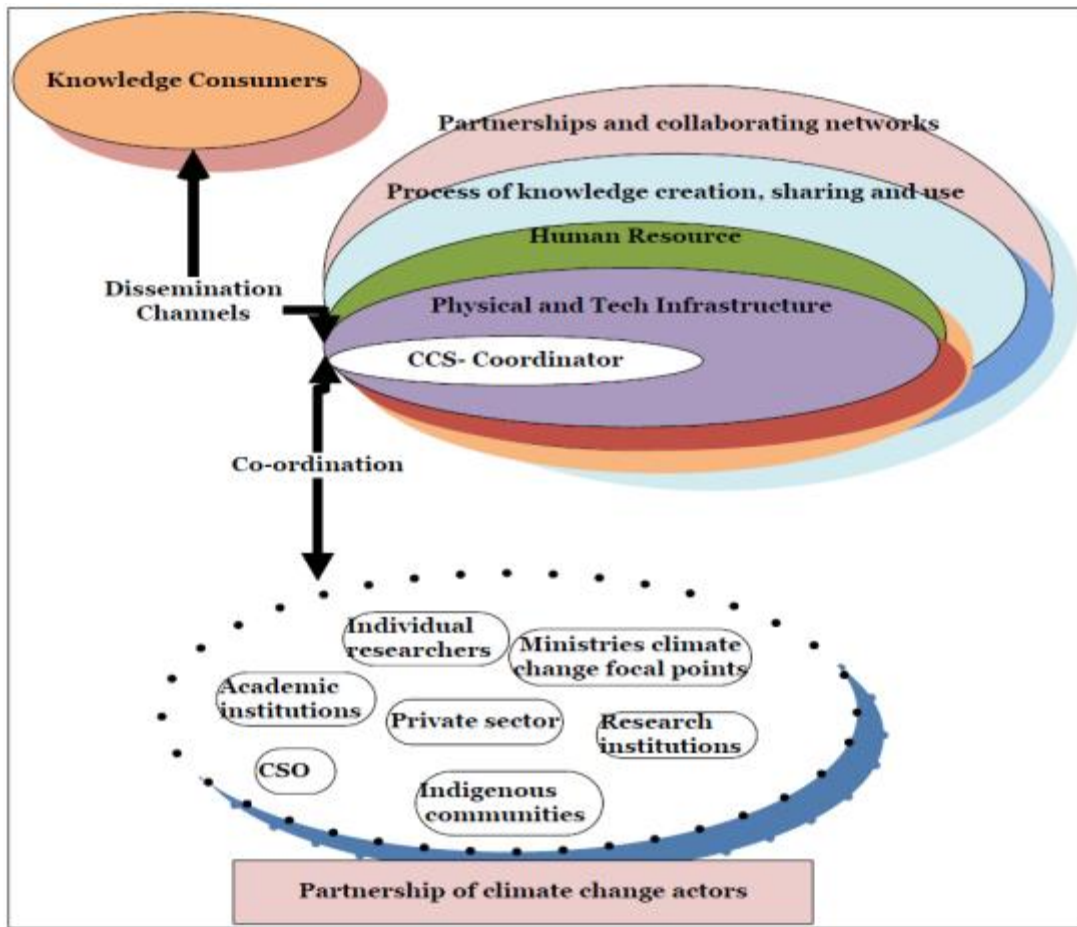
The approach used in Kenya to climate change knowledge management (CCKM) was based on the Distributed Knowledge Management (DKM) model. It will be the main generators of climate change information knowledge in Kenya and to be overseen by the equivalent institutions of the Climate Change Commission.

Discussion Highlights

- On having a one stop shop for all climate information
  Prior to developing a one stop shop, there is a need to think about the users of the climate information.

- On trust since there are different levels of data capturers.
  As part of classification of the system, there is a need to explain the rules on data access and the users should understand the rules and provisions regarding data access.

5. Data Storage and Management
Dr. John Watterson, RICARDO-AEA

The sessions aimed to provide the Philippine government with an insight of the key issues to attain the right data management solution for climate-relevant data.
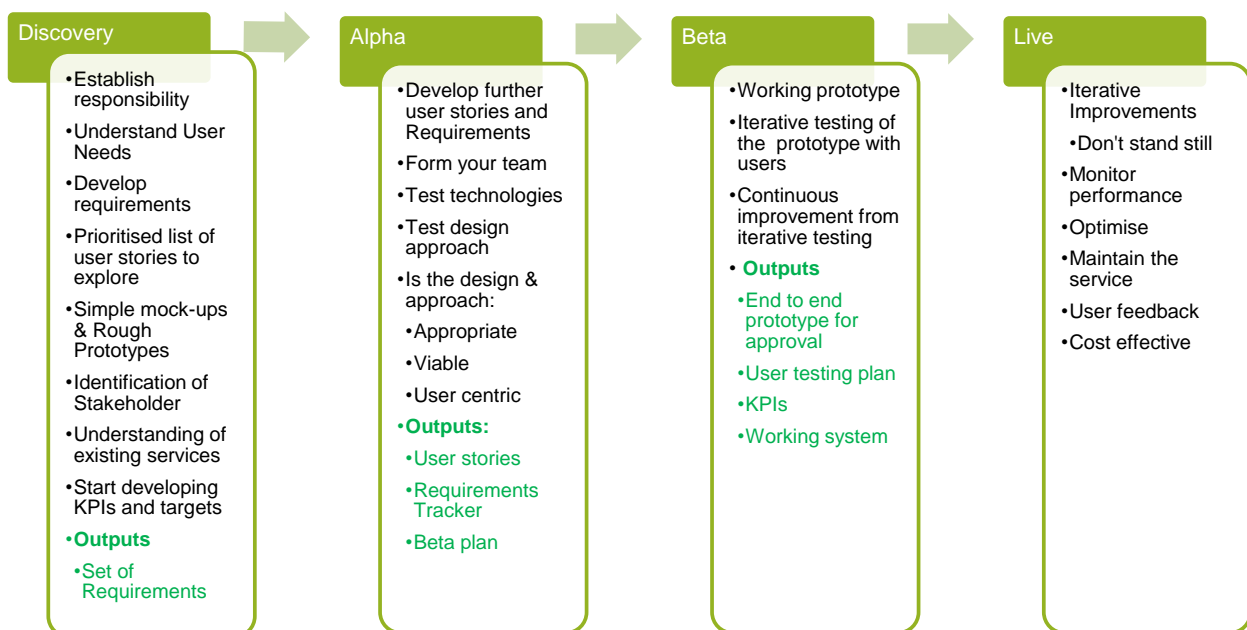
Data management platform (DMP), also called as unified data management platform (UDMP) is a centralized computing system for collecting, integrating and managing large sets of structured and unstructured data from disparate sources. In the context of NICCDIES, as need has been identified and questions around the use of the database have been established. The high level functional requirements have been identified with the initial list of users and stakeholders and data management and governance roles consid-

and designs and develops and implements a system, similar to the UK Governments Digital Standard.

a. Discovery: Establishing and under-standing user requirements

b. Alpha: Explore user requirements

c. Beta: Testing and developing user requirements

d. Live: Delivering user requirements

In terms of requirements, there are two kinds in data management platform; non-functional and functional, where the latter are requirements that define the activities, functionality, and be-

Figure 7. Roadmap to a Data Management Solution

Discovery
- Establish responsibility
- Understand User Needs
- Develop requirements
- Prioritised list of user stories to explore
- Simple mock-ups & Rough Prototypes
- Identification of Stakeholder
- Understanding of existing services
- Start developing KPIs and targets
- **Outputs**
  - Set of Requirements

Alpha
- Develop further user stories and Requirements
- Form your team
- Test technologies
- Test design approach
- Is the design & approach:
  - Appropriate
  - Viable
  - User centric
- **Outputs:**
  - User stories
  - Requirements Tracker
  - Beta plan

Beta
- Working prototype
- Iterative testing of the prototype with users
- Continuous improvement from iterative testing
- **Outputs**
  - End to end prototype for approval
  - User testing plan
  - KPIs
  - Working system

Live
- Iterative Improvements
  - Don't stand still
- Monitor performance
- Optimise
- Maintain the service
- User feedback
- Cost effective

ered pertaining to the Database Keepers.

The approach to sourcing technical solution using an "Agile" establishes the requirements

havior of the system, while the former relates to the operation of the system rather than the functionality.

Table 13. Requirements in Data Management System

Functional Capability	Non Functional Headers	Tracking Requirements
Data Capture and Load	System Access	Document and track your requirements throughout the procurement and delivery period, this is called a Requirements Tracker
Data Management	Development activities and processes	In their tender response potential Providers should: - state which they will fully, partially or not comply with the requirement - detail how they intend to comply with the requirements and where not why they won't - state when the requirement will be met to allow the Customer to schedule requirements reviews during the delivery of the project
Data Archival	The detailed technical design and architecture	Once a Provider is chosen this document is then used to track the delivery of your requirements to ensure they are all delivered as expected
Data Presentation	Enterprise Architecture	
Data Analysis	Security	
Reporting	Performance	
Spatial Data Management	System Availability	
Document Management	Incident Management	
Work Flow	Service Support	
Audit and Assurance	Data Management	
Notifications	Business Continuity, DR and Back-Up and Recovery	
Interfaces	License Management	
Functional Life beyond the end of the programme	Release, Configuration Management and Change Management	
	Technical Support Documentation	
	Useability	
	Standards Compliance	
	Training	
	Live system management	
	User Engagement	

Moreover, technology consideration is an important key in finding solutions for data management system. Technology selection must be based upon how the provider tendering for the contract proposed to solve the problem. Some providers have the expertise in particular technology stacks and may propose Microsoft SQL Server or Oracle, however the technology stacks have similar capabilities and things that should be looked at in detail are:

- Long Term Costs such as licenses, hosting, support, upgrades

- Skills to maintain: are these in place internally or require external consultants

- Configurability : can it easily configure the solution or there is a need for external consultants

- Physical location: the need for hosting or Software as a Service (SaaS) where providers supply the hosting reduces the hardware and skills overheads

- Data: kind of formats the technology can accept and produce

Dr. Watterson emphasized that data management and governance is about people and processes supported by IT solutions, not driven by

them. And a data management solution should look like **Error! Reference source not found.**.

One concrete sample is the MODUS, a system developed by RICARDO-AEA. It was configured to meet the requirements of EC Directive and Local Air Quality Monitoring reporting for the UK, as well as international monitoring programmes though the MODUS system. It has the following characteristics:

- Reliable data collection

- Calibration import, review & adjustment

- AURN compatible data storage and uncertainty.

- Graphing tools

- Simple & rapid data edits

- Real time reporting

- All commonly used Air Quality instruments and logger types have been incorporated and tested within the system. Data collection can be via MODEM (telephone) or over IP (internet).

- Built-in protocols for checking and high-lighting common data problems.

- Developed within ISO9001, ISO14001 and TickIT.

There are three (3) MODUS modules; MODUS-T (receipt of air quality measurement data), MODUS-R (data management and ratification), and MODUS-e (reporting).

The MODUS holds billions of data with 10's of GBs in terms of files size using the SQL database. It is largely structured numerical data with data in for site (air quality site) configuration, workflow that is non-numeric, but the primary function of MODUS is to collect and manage numerical data. It took 6 months for the specification and designing and another 18-24 months to build and test with current cycle of support for improvements and ongoing development.

Consequently, with the experience of RICARDO-AEA in developing the MODUS Module, they have learned three (3) key lessons:

- Do not rush to talk about technology. Fo-

Figure 8. Data Management Solution
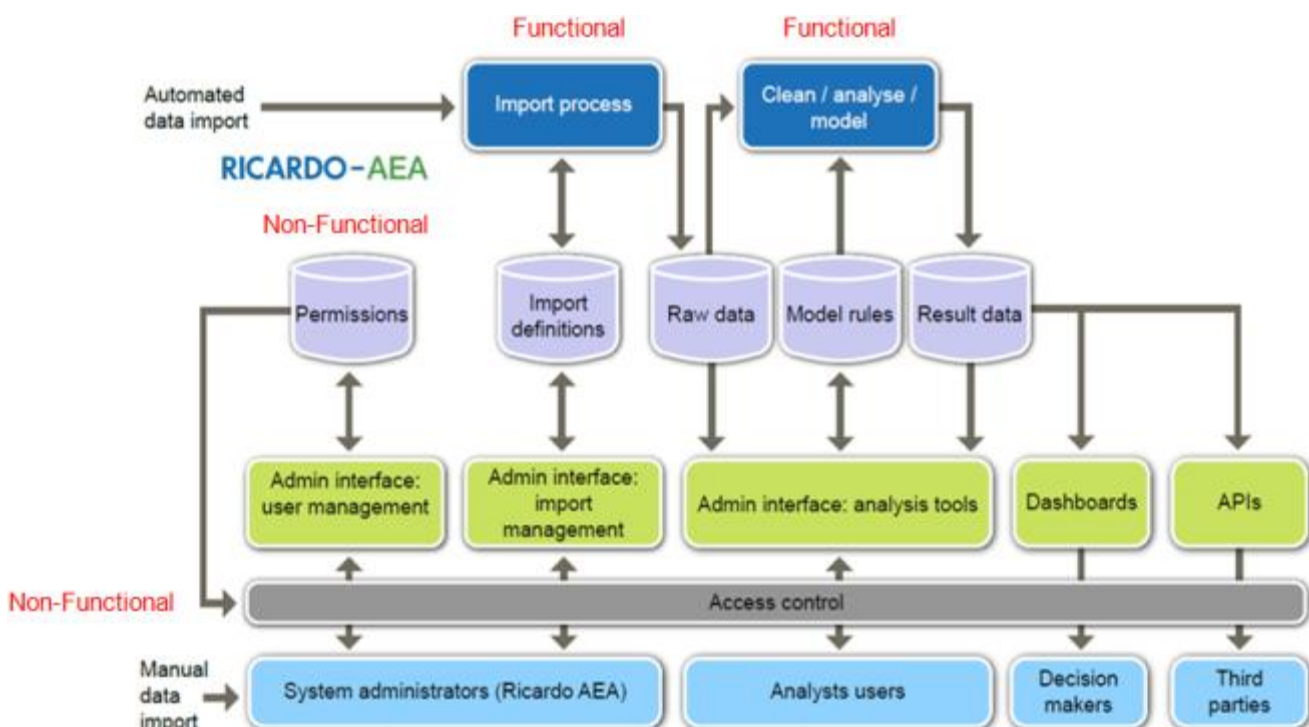
cus on the user requirements, proof-of-concepts that are quickly developed to demonstrate functionality will be very useful;

- Collaboration and frequent involvement of users to validate if you are heading in the on the right lines;

Discussion Highlights

- <u>Developing a platform on data management that is not separated as to adaptation and mitigation, to include institutional arrangements that can be shared by both systems</u>. There is no separation between adaptation and mitigation, which is also a main concern for other countries like South Africa and Kenya. One option is to have separate systems, but both can be accessed from only one website. Second, is that the system can be designed that encompasses both at mitigation and adaptation, however the skills of those who will manage the system is one major consideration. The key is to spend time of knowing the system's requirements and communicate it to people who can provide such solution.

- <u>On standards for data management system in UK</u>. In UK, there is standardization like ugov for the interaction on how public works. Things like this are more loosely defined and although departments of UK have different looks, there is a standard on how the website

- Consider implementing an agile approach, short cycles of development and frequent testing.

should work In the Philippines on one hand, there is a standard template for the government agencies including services. The igov.ph under the provisions of the Administrative Order 29, provides the services and space to house the websites including security measures.

- <u>On budget implications for coming up with such standard</u>. There is a need for criteria or indicators in putting up a cost-effective data management system and in the case of UK, there are rules on procurement. In the case of the Philippines, line agencies maintain/formulate a 5 year plan outlining the software, hardware, and training for database management which is submitted to DBM for budget allocation.

- <u>On link of data provider and website developer</u>. There should be a communication link between the sectoral experts and IT experts on what type of data to store; otherwise it will be costly just for developing the website.

Breakout Session

The participants were divided into four groups and tasked to discuss the functionality of data management system that would be important and relevant to country's requirements.

Table 14. Group 1 Ouput

Characteristics/Functionality	Web-based (internet)
Scale	Lead Agency: Local/Regional/Sectoral CCC: National
Mechanisms: Input, Uploading	Extract, Transform, and Load Feature
Mechanisms: Processing, Output Generation	Anchored KP Accounting/reporting system: default data
	Inputted values or alternating/substitute data to be back-calculated to the desired activity data
Automatic Reporting	Yes, with access disclaimer and simple interpretation
Automatic QA/QC	Simple Consistency (Range check)
Sensitive Data/Access Restrictions	Levels (establish), DBK

Table 15. Group 2 Output

Characteristics/Functionality	- Web-based (authorized access) - With Public Information - Accept all kinds of climate related data - User Friendly - Includes Visuals and figures from credible sources - Graphs and stats translated into laymanized information (with relation to concerned sectors/stakeholders) - Flexible to various devices (mobile, desktop, etc.) - Interactive
Scale: Local, Regional, National	To cover all levels (system to accommodate all levels)
Mechanisms to upload, consolidate, feed in data	- Offline template then upload/ Online template - Clearing House (validation, exchange system, protocol, etc.)
Expected data processing, mechanism, expected outputs	- Projected results of mitigation actions - National GHG inventory (by sector) - Support briefer, status, and accomplishments
Automatic Reporting	Yes
Automatic QA/QC	Yes
Sensitive Data/Access Restrictions	- MOU, MOA (raw data and user) - Username/Password - iGov Standard compliant - Establishment of Steering Committee to govern information management

Table 16. Group 3 Output

Characteristics/Functionality	- Web-based (authorized access) - With Public Information - Accept all kinds of climate related data - User Friendly - Includes Visuals and figures from credible sources - Graphs and stats translated into laymanized information (with relation to concerned sectors/stakeholders) - Flexible to various devices (mobile, desktop, etc.) - Interactive

Scale: Local, Regional, National	To cover all levels (system to accommodate all levels)
Mechanisms to upload, consolidate, feed in data	• Offline template then upload/ Online template • Clearing House (validation, exchange system, protocol, etc.)
Expected data processing, mechanism, expected outputs	• Projected results of mitigation actions • National GHG inventory (by sector) • Support briefer, status, and accomplishments
Automatic Reporting	Yes
Automatic QA/QC	Yes
Sensitive Data/Access Restrictions	• MOU, MOA (raw data and user) • Username/Password • iGov Standard compliant • Establishment of Steering Committee to govern information management

Table 17. Group 4 Output

Characteristics/Functionality	• User-friendly • Reference period • Web-based • Downloadable in varied formats
Scale: Local, Regional, National	All levels: Local, Regional, National
Mechanisms to upload, consolidate, feed in data to the system	• With Standard template for data inputs • Data Admin, upload data
Expected data processing, mechanism, expected outputs	• All GHG Aggregated per sector per region • Maps • With Graphs and Charts •
Automatic Reporting	Automatic reporting but for narrative data analysis should be done
Automatic QA/QC	Yes for data security
Sensitive Data/Access Restrictions	• Use of password per account/sector • Assign data manager

6. Quality Assurance and Quality Control
Ms. Yvonne Pang, RICARDO-AEA

The discussion started with the principles based on the 2006 IPCC guidelines on QA/QC and Verification and the CDM Guidelines n QA/QC of data used in establishment of GHG baselines.

Quality Control (QC) is a system of routine technical activities to ensure data integrity, correctness and completeness. Core elements include checking or identification and addressing errors and omissions and documentation and archiving. It is performed by personnel who are involved in collecting, processing, compiling and reporting data/information for the required purposes. Quality Assurance (QA) on one hand is a planned system of reviews conducted by those not directly involved in the compilation/development process of the datasets. It reviews verify that data quality objectives are met; assess the conformity and effectiveness of the QC system; and to identify where improvements could be made. Both concepts differ from verification that refers to the collection of activities and procedures conducted during the planning and development, or after completion of an inventory that can help to establish its reliability for the intended applications of the inventory. The activity verifies the change in GHG emissions due to the NAMA/policy and effectiveness of the support.

QA/QC is a good practice to implement procedures in order to produce a high quality and reliable sets of information to underpin decisions, ensuring that data quality objectives are met (Transparency, Completeness, Consistency, Comparability, Accuracy, Relevance, Currentness, Security, Credibility, and Conservativeness).

The TCCCA criteria as important considerations in QA/QC are outlined in the IPCC guidelines,

a. Transparency - clear explanation of the assumptions and methodologies used for an inventory to enable replication/assessment of the inventory by others.
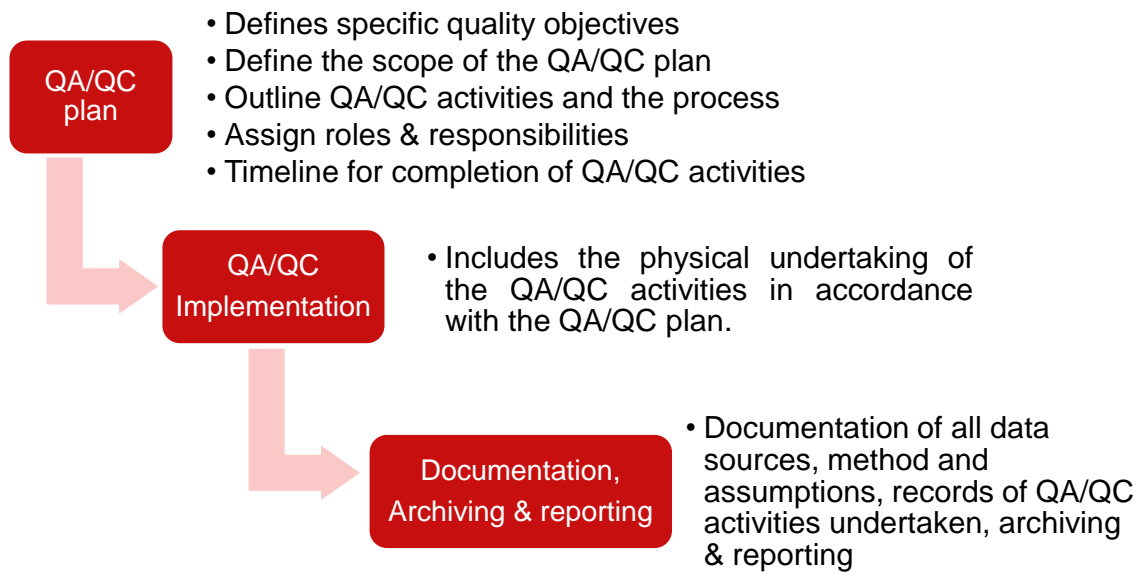
b. Completeness - covers all relevant sources and sinks, gases included in the IPCC Guidelines and full geographic coverage of sources and sinks.

c. Consistency - Consistent use of data/methods across time series.

d. Comparable – Comparability with other countries' GHG inventories

e. .Accuracy - Emissions or removal estimates are systematically neither over nor under true emissions or removals, and that uncertainties are reduced as far as practicable.

While, CDM has stipulated criteria for GHG baselines

a. Currentness - utilize recent data available in order to reflect the current economic and technological practices

b. .Security - develop procedures for restricted access to the datasets and maintain the security of the datasets

c. Credibility - identify and utilize authoritative data and information sources

d. Conservativeness - while processing and using data, ensure that any deviation that may lead to an overestimation of the baseline emissions should be addressed by taking a conservative approach.

A QA/QC system involves three steps: planning, implementation, and documentation, archiving and reporting. **Error! Reference source not found.** illustrates the system:

Figure 9. Steps involving QA/QC System

```
┌──────────┐    • Defines specific quality objectives
│  QA/QC   │    • Define the scope of the QA/QC plan
│   plan   │    • Outline QA/QC activities and the process
└──────────┘    • Assign roles & responsibilities
                • Timeline for completion of QA/QC activities

        ┌──────────────┐    • Includes the physical undertaking of
        │    QA/QC     │      the QA/QC activities in accordance
        │Implementation│      with the QA/QC plan.
        └──────────────┘

                ┌───────────────┐    • Documentation of all data
                │ Documentation,│      sources, method and
                │  Archiving &  │      assumptions, records of QA/QC
                │   reporting   │      activities undertaken, archiving
                └───────────────┘      & reporting
```

Ms. Pang also mentioned that a good practice for developing a QA/QC and verification system should seek to achieve balance between available resources, quality control, timeliness and cost effectiveness. It should considers resources allocated to QC, frequency of checks on different parts of the process, time allocated to conduct the checks, procedures to ensure confidentiality is respected, and procedures to ensure data delivery from external data providers are of quality. Thus, in summary:

- QA/QC is important and by embedding quality principles in the working procedures will help increasing confidence and reliability of the reported information and outcomes…"Invest time – to save time"

- Develop a QA/QC system tailored to your needs by reviewing the data flows and requirements of your end goals

- A QA/QC plan is a fundamental elements of a QA/QC system, which specifies data objectives (e.g. TCCCA), QA/QC activities (including documentation & archiving), assigns roles/responsibilities, timeframe for implementing them.

- There are simple QC routines checking that can be applied (to any data handling processes) as well as sector specific QC procedures.

- There are well established QA/QC guidelines for GHG estimates and many of the principles can be used in other data management tasks

Discussion Highlight

- On criteria for ex-ante and post-ante assessments to determine if the mitigation is effective. For ex ante, there is a need for estimation of GHG before the project implementation in order to decide

on the kind of policy needed, while post-ante is the result after the project implementation. With NAMAs on one hand, there is a need to define the starting point of NAMAs

- On typical data quality issues on agriculture since there is a separate software for GHG emissions on livestock. The issue is not about emission or emission factors rather on common activity data. One or two departments may conduct the same inventory but there might be small differences on reporting, nonetheless the activity data is still the same.

- On QA being done internally by different divisions within the sector. It can be done internally as long as the QA team is different from the team who has prepared the data. The capacity will depend on the requirement for quality checking

of data sets, but the key is independence and knowledgeable.

- On zero standard for NAMAs and Verification. There is no standard, however WRI is one of the non-compulsory guidelines. The key is to meet the requirements to see if data is comparable. In terms of verification, six (6) months after the submission of report on December 2014, verification process will commence where everyone could be a verifier.

Breakout Session

The identification of data quality problems was done through a plenary discussion and table below details the inputs from the participants.

Table 18. QA/QC Discussion

GHG Inventory	NAMA/Mitigation Action	Support	Cross-Cutting
• Leakage due to unaccounted data • Inaccessibility of source of data (due to remoteness and lack of staff) • Delayed data submission • Inconsistent data • Non Submission due to confidentiality and against competition practice • Primary data is not available • Consistency (copyright and Methodology • Expectation QA/QC in NICCDIES			How can we engage public to share important climate-data

Skype Conference

A Skype conference with other consultants from RICARDO-AEA was conducted to further discuss questions raised during the plenary session. Below is a summary of discussion points.

a.) <u>On standardized system for UK government in collection of climate relevant data.</u>

The government service aims to streamline the procurement process and ensure that the system works well for replication in other uses within government's digital landscape. The procurement process has become more efficient and streamlined due to Gcloud contract to help its IT framework.

b.) <u>On Gcloud Framework Agreement</u>

Level of confidence the UK government has for putting data in the cloud. Not every cloud provider gets on the Gcloud framework. They need to comply with stringent requirements of the government to ensure that data is safe and secure, not just on the capacity to provide cloud hosting. The main concern is that the UK government needs to know the physical location of the data with key consideration that it cannot leave the shoes of UK. It is around security and location of data and questions if Gcloud would be able to hold the data within UK.

Minimum requirements to starting a Gcloud in the context of infrastructure and software as platforms. Gcloud is just a procurement mechanism of UK government.

c.) <u>On open source application vs enterprise for data mining to output analytics</u>

It depends on the requirements. There are various sources of packages with strong analytics. An open source does not necessary mean free but rather may entail low cost, however in some cases, an enterprise may address the requirements. The key is to spend time on the details and requirements

of such system for data mining in order to find appropriate solution or technology.

d.) <u>On data management systems specifically security measures.</u>

The right level of security based on the requirement of the system is one key consideration and there are various ways of ensuring that the system is secured and the right people have access to it. In the case of UK, the government works to ISO 2001 and goes through the process of risk management that includes physical environment, control, and physical access. There are available publications of UK government in terms of security measure/ framework.. Sophisticated and simple system comes back to the requirement where it does not necessary need everything. Keeping it simple is a great benefit and data management is the primary process to apply software solution in supporting the process and outcomes. And such software solution or technology should be reasonable in responding to the requirements.

e.) <u>On level of access since each data provider would require different access to dataIt is not about the system but the process of accessibility and decisions on who wi</u>ll have the access on what data. In UK, it has data protection act with a lot of security measures including rights to hold and access to data with corresponding protocols and mechanism. The key approach is building the access protocol outlining who has the access to what data which again comes back to looking at the details of such requirements for the data management system.

f.) <u>On data archiving and other approaches that would represent good practice.</u> UK government looks at data archiving that sets retention policy for holding the data, information and documents for 5 years due to legislation or legal liabilities, which can be

later reviewed if new legislation is coming. However archive is different from back-up, where the former is not always readily accessible and not always on demand. Archiving is about taking the data to a secured location, but there is a need to ensure its accessibility later on.

g.) <u>On two or three things that tend to go wrong and best practice in procuring large data management system.</u> In general, it is around understanding the requirements because the usual mistake in IT projects is misunderstanding between the IT provider. However, there are few ways around that, for instance we coordinate very closely with IT project team working within small cycle because in some cases written specification

does not necessary represent the ideas one wants to see. If there is frequent involvement and testing of application and the team works very collaboratively, the rest will follow.

h.) <u>On type of server to ensure capacity of the Modus project</u>. For Modus, we built on a Microsoft Secret Server 2008 and modelled to a desktop application rather than web-browser because we want to have more flexibility for visualization using the VMware. We have no physical boxes built on virtual environment, should in any case we need to increase performance.

Roadmap: NICCDIES Protocol and Critical Success Factors

The participants were divided into four groups with mixed sectors and tasked to discuss the following guide questions:
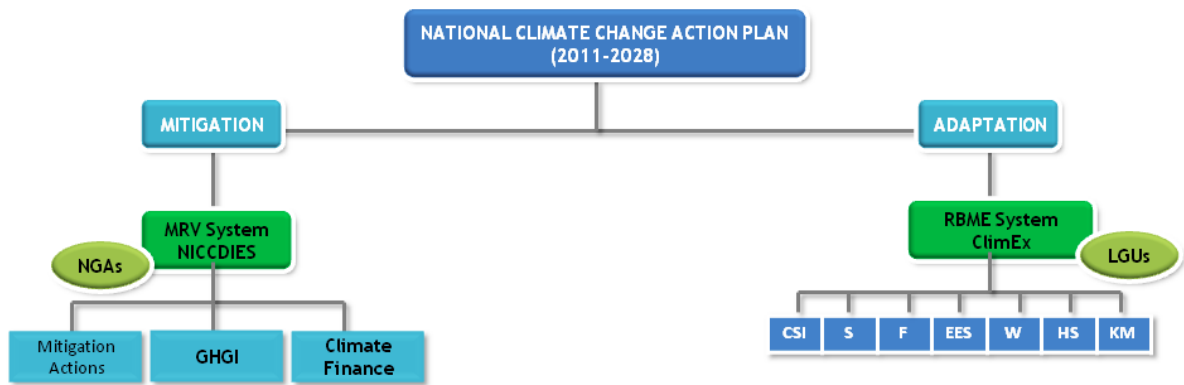
a. Key considerations to ensure the Philippines get the most out of the proposed NICCDIES;

b. Key actions to establish and maintain the climate relevant data management system; and

c. Who to undertake them and by when?

Table 19. Group 1 NICCDIES Roadmap

NICCDIES Structures and Format		NICCDIES Management and Arrangements	
Where NICCDIES sit in the overall Philippines MRV System	• MRV is part/sub-system of NICCDIES	**Does the Philippine Transparency Seal apply to NICCDIES?**	• No, TS for procurement, disbursement, and accomplishments
How do sectors see the NICCDIES format look like? Will there be separate data?	• Ideally, it should be integrated but IT resources (repository) will be considered • Raw data in excel • Software compatibility • User-friendly • IPCC exports software xls/mdb	**How could the NICCDIES help with international climate change reporting?**	• Provide information gathered/processed by agencies • Capacitate government agencies • Facilitate crafting of Phil position papers/strategies • Information Exchange among government agencies
How might the proposed NICCDIES system consider the existing, yet different formats being used by all the relevant lead agencies?	• CCC and Lead agencies will agree on a standard format and reporting template	**Are there any further surveys needed to establish the baseline, capacity and the supply side and demand side functions that the NICCDIES needs to service?**	• Yes, policy/institutional support survey • Benchmark/existing source of info (bottom-up/top-down) • Baselines/Baseline Info • Stock taking of available resources
Should the NICCDIES GHG data input be based around the needs of the IPCC Software?	• Yes but which IPCC version?	**Access level** - Data providers - Lead agencies - CCC Information (raw primary data, metadata)	• Level 1 for public consumption • Level 2 • Level 3
Harmonization with other government systems? How much harmonization which might be relevant to the system?	• For output/report, yes, as long as format is agreed upon and input to NICCDIES	**How will the NICCDIES be tested before it is introduced?**	• Pilot test by sector
What should the interface to the NICCDIES be? Primarily web-based?	• Interactive (inter-agency access • Web-based	**How will it be maintained and who will be responsible?**	• CCC (administrator and repository of server)
		QA/QC routines for NICCDIES	• CCC's technical panel of experts; experts per sector
		Expected outcomes of NICCDIES; what metrics could be used to	• Climate reports • No of hits (for public access)

		judge success?	• Relevant publications • Data Used • Policies formulated based on NICCDIES report
		Does the NICCDIES project timeline fit with the other climate reporting deadlines? (if the Philippine chose to report)	• Yes

Figure 10. Group 2 NICCDIES Roadmap

Table 20. Group 3 NICCDIES Roadmap

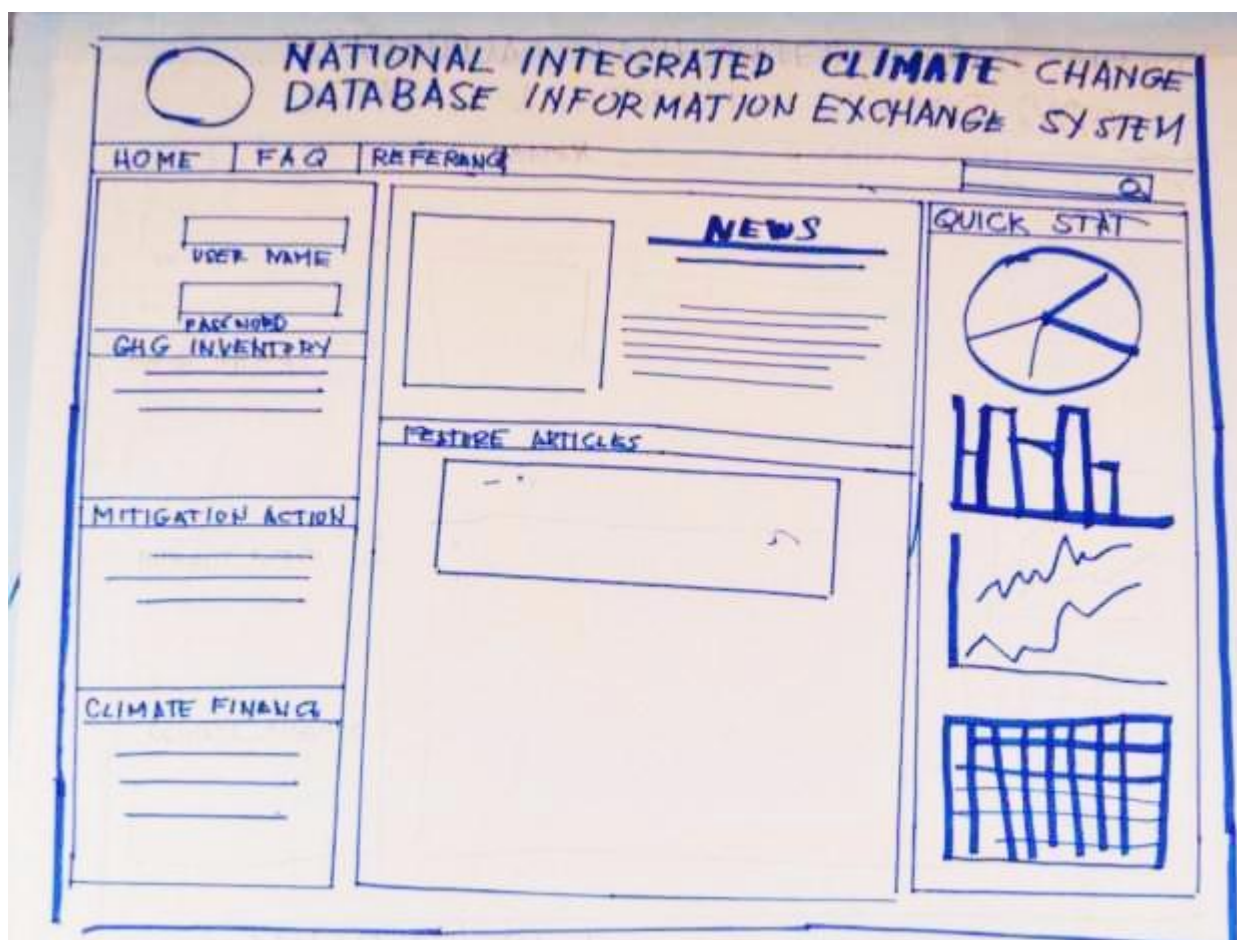| NICCDIES Structures and Format		NICCDIES Management and Arrangements	
Where NICCDIES sit in the overall Philippines MRV System	• It provides a framework, backbone and integrated database	**Does the Philippine Transparency Seal apply to NICCDIES?**	• Not applicable
How do sectors see the NICCDIES format look like? Will there be separate data?	• Separate data requirements but one system • GHG Inventory • 1996 IPCC vs 2006 IPCC. However GHG inventory share some similar data	**How could the NICCDIES help with international climate change reporting?**	• It may generate reports needed for reporting but its intention is for domestic purposes
How might the proposed NICCDIES system consider the existing, yet different formats being used by all the relevant lead agencies?	• Adopt a uniform format/templates	**Are there any further surveys needed to establish the baseline, capacity and the supply side and demand side functions that the NICCDIES needs to service?**	• Needs assessment • Requirements Analysis
Should the NICCDIES GHG data input be based around the needs of the IPCC Software?	• Yes but the government has to decide: 1996 or 2006 Guidelines	**Access level** - **Data providers** - **Lead agencies** - **CCC** **Information (raw primary data, metadata)**	• Administration • Executive (classified) • Sectoral focal person • Viewing for general public
Harmonization with other government systems? How much harmonization which might be relevant to the system?	• Hybrid (complete for GHG, NAMAs, and MRV; mix for others)	**How will the NICCDIES be tested before it is introduced?**	• Testing be done by levels plus third party tester
What should the interface to the NICCDIES be? Primarily web-based?	• Web-based with authorized access/restrictions	**How will it be maintained and who will be responsible?**	• By CCC and other related focal agencies and MOU
		QA/QC routines for NICCDIES	• Automatic for NICCDIES and Manual routine to be done by the TWG
		Expected outcomes of NICCDIES; what metrics could be used to judge success?	• Sustainable GHGI • NAMA options • MRV • Tool to policy formulation • Monitor the support we are getting
		Does the NICCDIES project timeline fit with the other climate reporting deadlines? (if the Philippine chose to report)	• Yes, International: IPCC and BUR • National: Mitigation Actions

Figure 11. Group 3 Proposed NICCDIES Website

Table 21. Group 4 NICDIES Roadmap

NICCDIES Structures and Format		NICCDIES Management and Arrangements	
Where NICCDIES sit in the overall Philippines MRV System	Climate Change Commission (integrator and central coordinator)	Does the Philippine Transparency Seal apply to NICCDIES?	Yes
How do sectors see the NICCDIES format look like? Will there be separate data?	- Per Sector format - IPCC format for CCC	How could the NICCDIES help with international climate change reporting?	The system should generate data and reports comparable with international community reqts and needs
How might the proposed NICCDIES system consider the existing, yet different formats being used by all the relevant lead agencies?	IT to assess and rationalize current formats	Are there any further surveys needed to establish the baseline, capacity and the supply side and demand side functions that the NICCDIES needs to service?	Yes, depending on the TIER. Issues need to be addressed
Should the NICCDIES GHG data input be based around the needs of the IPCC Software?	Yes	Access level - Data providers - Lead agencies - CCC Information (raw primary data, metadata)	CCC as lead and agencies to provide data
Harmonization with	- Towards complete	How will the NICCDIES	

other government systems? How much harmonization which might be relevant to the system?	harmonization - Standard template for each agency/sector depending on the data needed	be tested before it is introduced?	
What should the interface to the NICCDIES be? Primarily web-based?	- Offline system for sectors - Web-based system linked to central server - Phone applications for future use (when no internet connection)	**How will it be maintained and who will be responsible?**	CCC
		QA/QC routines for NICCDIES	
		Expected outcomes of NICCDIES; what metrics could be used to judge success?	-
		Does the NICCDIES project timeline fit with the other climate reporting deadlines? (if the Philippine chose to report)	CCC to answer

Figure 12. Group 4 Proposed NICCDIES Website
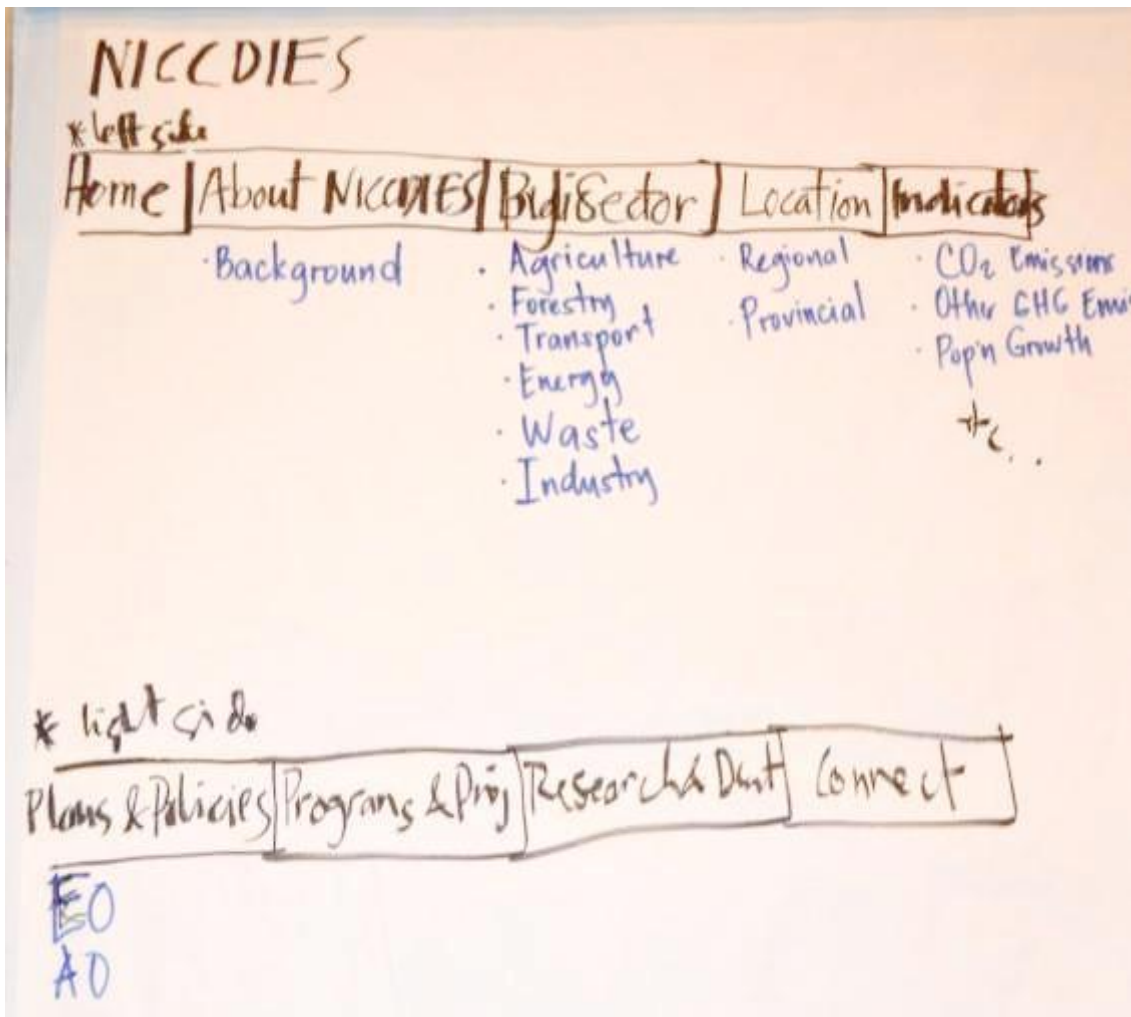
Forward Planning

Below are suggested next steps for backstopping arrangements for baselines and baselines scenario setting:

a.) Assessment/surveys on additional requirements for NICCDIES system;

b.) Needs assessment and requirements analysis for NICCDIES system;

c.) IT expertise on reviewing and test run for the viability of the system (alpha to beta version), while CCC to verify the output of the IT experts; and

d.) Development of sample templates for mitigation actions/support/GHGI.

Closing Remarks

Prior to formally closing the activity, **Mr. Mark de Claro** from FMB thanked the facilitators in behalf of the participants. He mentioned that the knowledge and skills acquired will help FMB in developing similar system for REDD-plus.

Dr. John Watterson expressed his gratitude and appreciation on the energy and participation of the participants. He thanked the Climate Change Commission and GIZ for making the workshop possible and successful.

In behalf of GIZ, **Ms. Kristen Orschulok** thanked the participants for an interesting discussion and for sharing valuable information. GIZ is very happy on having a good working relationship with CCC, and hoped for support of the sectors in the upcoming activities.

Lastly, **Assistant Secretary Joyceline Goco** of the Climate Change Commission expressed her thanks to the participants for their active participation. She emphasized that the Commission has been always in consultation with the agencies in every direction CCC wants to take. In this way, CCC would be able to know and recognize the needs of the agencies. It also values the buy-in of different mandated agencies otherwise it would be difficult to sustain the process.

Asec. Goco thanked BMUB and GIZ for the support and RICARDO-AEA for sharing their expertise on data management system. She wished for the same support on the next training, hence the commencement of collaboration on climate data management.

Post-Test Scores on Climate Relevant Data Management

A 19-item post-test was developed by the trainers to gauge the level of understanding of the participants on the basic elements in climate-relevant data management. The highest possible score obtainable was 39.

The graph below shows the frequency distribution of scores garnered by the participants. A total of 26 participants took the test. The highest score registered was 38 while the lowest was 15. The lowest score obtained represents 38% of the total possible correct answers.

The group's average was 31.25 while the median and mode were 32.5 and 33, respectively. Standard deviation was 5.98 based on total population.
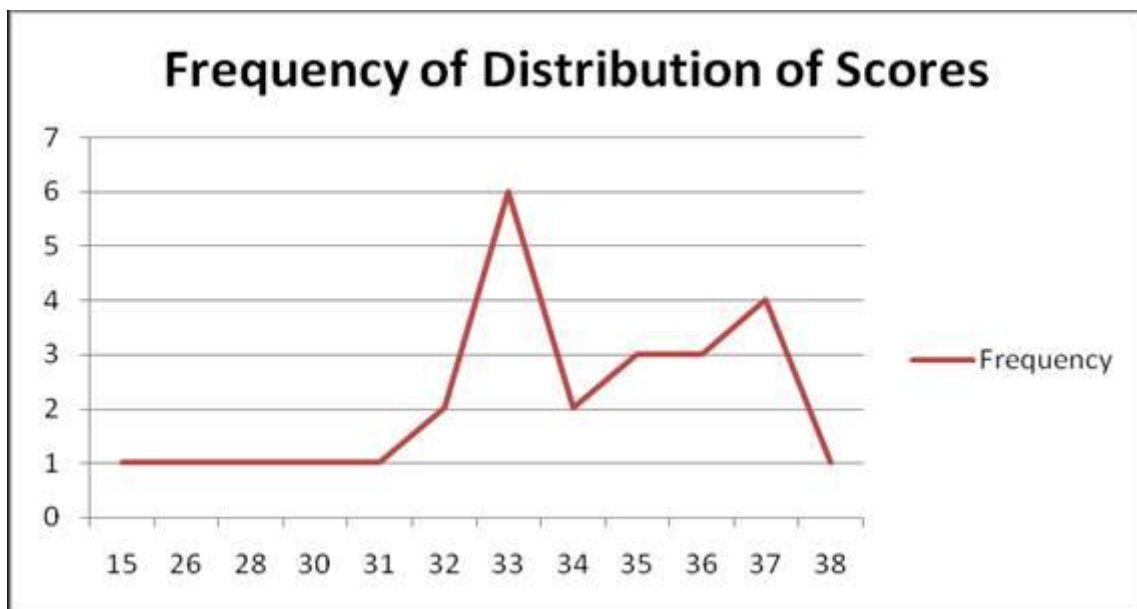
Post-Training Evaluation by Participants

In general, participants showed much interest on the training-workshop given that majority of the participants' general satisfaction was rated "5" except for satisfaction to increased understanding which was rated "4". The respondents have strongly agreed that workshop objectives were met with a weighted average of 1.55, while 1.49 is the weighted average from the responses on satisfaction to increased understanding on the topics and expertise shared by the consultants from RICARDO-AEA.[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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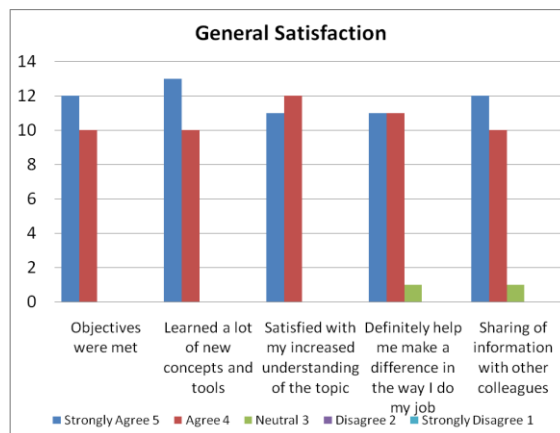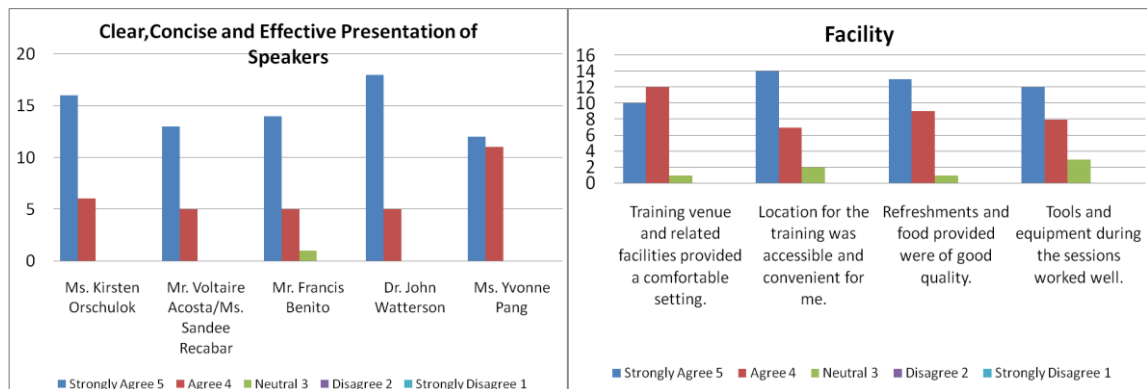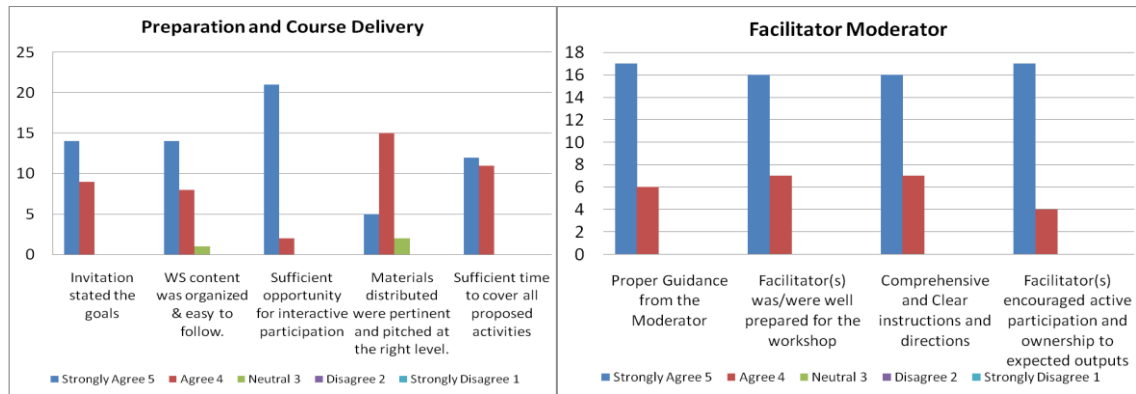
[1] Each evaluation score is assigned with weight to determine the relative importance of each quantity on the average. Thus, the following is the assigned weight for each score: strongly agree (5)=2, agree (4)=1, neutral (3)=0, disagree (2)=-1, and strongly disagree (1)=-2

Specific comments were:

Questions	Comments
What will you do differently in your work/practice setting as a result of this workshop	- Need to review on climate mitigation and adaptation - Plan in relation to climate change - Encourage colleagues to share the learnings - Strict compliance on the system requirements to avoid revisions - Apply ideas/new concepts learned in creating an interactive web-based for MRV system - Apply the learnings in the development of an interactive web-based platform for MRV system - Improve on workplan to incorporate the learnings from the workshop - As secretariat of the TWG on Climate Change (in PSA), I can share all the things I learned from this workshop - Implementing QA/QC protocols for data management - Data Management of NAMAs - More consultation regarding importance of climate relevant data
What aspects of the workshop could be improved	- Visual Presentation - Presentation (laymanized terms) - MIS participants should have the basic background in GHG, IPCC guidelines, etc. - It should have been better if all the activities were grouped per sector to maintain better focus on specific discussions.
Other Remarks	- Nicely done - Job well done - Thank you for the opportunity in attending the workshop - Training on how to echo the workshop back to the respective institutions of the participants - You may look at the UN Framework (UNFDES)

Annex 01: Participants List (Climate Relevant Data Management Training Workshop)

PARTICIPANTS LIST

NAME	DESIGNATION	OFFICE/BUREAU	INSTITUTION	DAY 01	DAY 02	DAY 03
Joyceline Goco	Deputy Executive Director	Climate Change Office	Climate Change Commission	x		x
Rayziel Alcantara	Librarian	Climate Change Office	Climate Change Commission	x	x	x
Lino Flores		Climate Change Office	Climate Change Commission	x	x	
Anthony Serrano	IT Assistant	Climate Change Office	Climate Change Commission			x
Alona Arrezza	Development Management Officer I	Climate Change Office	Climate Change Commission	x	x	
Erwin Husmalaga	Information Officer	Climate Change Office	Climate Change Commission	x	x	x
Harriet Tauli	Development Management Officer III	Climate Change Office	Climate Change Commission	x	x	
Theresa Lim	Technical Assistant	PhilCCAP Project	Climate Change Commission	x	x	x
Donna Sanidad	IT Officer II	Climate Change Office	Climate Change Commission	x	x	
Marvin Pereja		Climate Change Office	Climate Change Commission	x		
Maricar Palaña	Technical Assistant	Climate Change Office	Climate Change Commission	x		x

NAME	DESIGNATION	OFFICE/BUREAU	INSTITUTION	DAY 01	DAY 02	DAY 03
Reynaldo Miguel		Climate Change Office	Climate Change Commission	x		
Arnold Belver		Climate Change Office	Climate Change Commission			x
Kathryn San Juan		Climate Change Office	Climate Change Commission			x
Rosa Perez	Consultant		GIZ	x		x
Anna Manahan	Documenter		GIZ-Information Matters Project	x	x	x
Mary Martha Merilo	Technical Assistant		GIZ-Information Matters Project	x	x	x
Kirsten Orschulok	Junior Adviser		GIZ-Information Matters Project	x	x	x
Voltaire Acosta	Senior Adviser		GIZ-Information Matters Project	x	x	x
Mara Mendoza	Knowledge Management Advisor		GIZ-SupportCCC and REDD+ Projects		x	x
Bernd-Markus Liss	Principal Advisor		GIZ-SupportCCC and REDD+ Projects	x		x
Agnes Balota	Senior Adviser		GIZ-SupportCCC Project	x	x	x
Ellie Bacani			GIZ-TCC Project	x	x	x
Danielle Guillen	Senior Adviser		GIZ-TCC Project	x	x	x
Yvonne Pang			Ricardo-AEA	x	x	x

NAME	DESIGNATION	OFFICE/BUREAU	INSTITUTION	DAY 01	DAY 02	DAY 03
John Watterson			Ricardo-AEA	x	x	x
Francis Benito	Chief Technical Adviser		UNDP-LECB Project	x	x	x
Lani Cortes			UNDP-LECB Project	x	x	x
Eugenio Anino III	Information Systems Analyst		USAID-B-LEADERS Project	x	x	x
Edgardo Villena	Information Systems Specialist		USAID-B-LEADERS Project	x	x	x
Maria Ellen Donoja	Project Implementation Associate		USAID-LEAD Project		x	
Jo Tioseco	Country Coordinator		USAID-LEAD Project	x	x	
Cristina Villaraza	Project Assistant		GIZ-TCC Project	x	x	x
Mark Angelo Tacderas	Transport Researcher		Clean Air Asia		x	x
Alvin Mejia			Clean Air Asia	x		
Edward Neri	Science Research Specialist II	Renewable Energy Management Bureau	Department of Energy	x	x	x
Xerxes Oliver Manuel	Science Research Specialist I	Renewable Energy Management Bureau	Department of Energy	x	x	x
Maria Adeline Pagauitan	Science Research Specialist II	Renewable Energy Management Bureau	Department of Energy	x		
Jeffrey Sayco	Science Research Specialist II	Renewable Energy Management Bureau	Department of Energy	x		

NAME	DESIGNATION	OFFICE/BUREAU	INSTITUTION	DAY 01	DAY 02	DAY 03
Eda Soriano	Project Evaluation Officer II	Foreign Assisted and Special Projects Office	Department of Environment and Natural Resources		x	x
Ma. Alma Segui	Project Evaluation Officer II	Foreign Assisted and Special Projects Office	Department of Environment and Natural Resources		x	x
Eugene Estrada	Information Systems Analyst III	Forest Management Bureau	Department of Environment and Natural Resources	x	x	x
Jundy del Socorro	Science Research Specialist	Air Quality Management Section Environmental Management	Department of Environment and Natural Resources	x	x	
Mark de Claro	Attorney II	Forest Management Bureau	Department of Environment and Natural Resources	x	x	x
Donna Gopez	Forester II	Forest Management Bureau	Department of Environment and Natural Resources	x	x	
Lexter Muymuy		Management Information System	Department of Environment and Natural Resources	x	x	
Rolando Abad, Jr.		Climate Change Office Environmental Management	Department of Environment and Natural Resources	x	x	
Rose Ilagan	Information Specialist	Board of Investments	Department of Trade and Industry	x		
Dennis Atendido	Executive Assistant	Planning Department	Light Rail Transit Authority	x	x	x
Dominic Kabigting			Light Rail Transit Authority	x	x	
Marloun Hernando	Technical Staff	Management Information System	Light Rail Transit Authority	x	x	x
May de Guzman	Legal Assistant		Light Rail Transit Authority	x		
Edwin Abelleja	Liaison Officer		Light Rail Transit Authority	x		

NAME	DESIGNATION	OFFICE/BUREAU	INSTITUTION	DAY 01	DAY 02	DAY 03
Carmelita Escalanda	Economic Development Specialist		National Economic and Development Authority	x	x	
Abella A. Regala	Statistician II		Philippine Statistics Authority	x	x	x
Odette Soller	Statistician I		Philippine Statistics Authority	x	x	x
Editha Balcera	Statistician III		Philippine Statistics Authority	x	x	x
Mary Ann Alcachupas	Statistician I		Philippine Statistics Authority	x	x	x
Ellen Grace Guiam	Statistical Coordination Officer I	Philippine Economic-Environmental and Natural Resource Accounting Project	Philippine Statistics Authority	x		x

Annex 02: Training Agenda for Climate Relevant Data Management

Objectives:

- All participants understand a) what data is currently available and how it flows between institutions; b) what measures are in place or needed to institutionalize data collection and management and what their department's role and responsibilities are in helping to set up and maintain the climate relevant data system.
- All participants understand key data sets that are "sensitive" and how access to information can be secured and managed in an appropriate way.
- All participants understand the need for and options for data storage. This will include how to build on what is already in place in the Philippines and how to get the most out of the proposed NCCDIES
- All participants understand where the main focus of attention needs to be in their sector regarding QA/QC of climate relevant data and how to improve data quality and reliable data management in the future

AGENDA

Time	Activity / Topic	Discussant
Monday, 11 August 2014		
08:45a	**Registration**	
09:00a	**Opening ceremonies** • Prayer and National Anthem • Welcome Remarks • Introduction of Participants	 • ASec Joyceline Goco, Deputy ED, CCC-CCO • Dr. Bernd-Markus Liss, Principal Advisor, GIZ • Moderator and Participants
09:15	**Setting the scene** • About the Information Matters Project	 • Ms Kirsten Orschulok, GIZ IM Project • Ms Sandee Recabar, Senior SRS,

Time	Activity / Topic	Discussant
	• Overview and objectives of the workshop: 2.5 day training workshop plus 0.5 NICCDIES critical success factor assessment and planning for Baselines backstopping	CCC-CCO • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
09:45	**The board of expectations/questions** • Participants to write down their concerns/questions about climate data management, and <u>expectations</u> of the workshop	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
10:00a	**Update on the "National Integrated Climate Change Database and Information Exchange System (NICCDIES)** • A short update on this CCC initiative that is supported by the LECB Project	• Ms Sandee Recabar, Senior SRS, CCC-CCO
10:15a	*AM Break*	
10: 30a	**Uses of climate relevant data in the Philippines** • Uses of climate relevant data in the Philippines • Summary of the pre workshop survey • What is all this data used for now and in the future? • Examples of data on 'co-benefits' • Linking with how data flows through to national reporting (e.g. Philippine Development Plan) and international reporting (NatComs/BURs)	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
11:15a	**Collection and management of data** • What climate relevant data is required and available (types of data, sources of data, frequency of update, time-series, interruptions)? • Processes and procedures for data collection and management (ensuring its relevance and timeliness) • Linking with national and international reporting • Methods, data and documentation (MDD) stock-taking tool	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
11:45a	***Breakout Session <u>A</u>.* Mapping out climate relevant data flows**	• Facilitated by

Time	Activity / Topic	Discussant
	• Map out climate relevant data flows in the Philippines relevant for **a.** GHG emissions, **b.** mitigation actions and **c.** climate finance support. • Identify processes and procedures already in place to manage this.	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • GIZ
12:00p	*LUNCH*	
01:00p	***Breakout Session A*** *(contd.)* • Report back to plenary, and discussion	• Facilitated by • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • GIZ
02:30p	**Access to data** • Typical barriers to data access • Who needs access to what data (linking to national and international reporting) • Defining access policies and rights - who needs access to what - data managers, government departments, public access • Identify sensitive data sets and barriers to access/sharing of data • Current practices on management of sensitive data and considerations for improving this • The bigger picture – whole data management system	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
02:45p	*PM Break*	
03:15p	**Access to data** (contd.) • Examples including • South Africa M&E Framework • European Environment Agency GHG emissions viewer • Kenya data management platform	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project

Time	Activity / Topic	Discussant
04:30p	**Closing of Day 1; Expectations for Day 2**	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • Voltaire Acosta, GIZ
Tuesday, 12th August 2014		
09:00	**Preliminaries** • Recapitulation • Overview of Day 2 Agenda	• Voltaire Acosta, GIZ • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
09:15	**The board of expectations, concerns/questions** • Quick review to see if the workshop is helping to answer questions raised	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
09:30	**Data management solutions and storage of data** • Approach to sourcing technical solutions • Important principles to consider regarding functionality • What are the requirements and how to track them • What does a data management platform look like?	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
10:15	*AM Break*	
10:30	*Breakout Session B*. **Data management system functionality** • Consider the creation of a data management system - what functionality would be important for the Philippines? • What kind of data should be managed – data from remote regions, "process" data, "report" data? • What is already in place that should build on, or be compatible with?	• Facilitated by • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • GIZ
12:00n	*LUNCH*	
01:00p	**Warmup: Snakes and Ladders Game**	• Ms. MM Merilo, GIZ IM Project

Time	Activity / Topic	Discussant
	• Challenges and Gaps that need to be addressed in relation to Climate-relevant Data Management	
01: 15p	**QA/QC of data** • What is QA/QC and why is it important • Data quality objectives (TACCC: transparency, accuracy, consistency, comparability, and completeness, etc.) • Elements of a QA/QC system • Examples of QA/QC being applied • Typical things to look out for in each sector (energy, industry, agriculture, waste and LULUCF) • How to deal with inconsistencies in data and data gaps	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
02:45p	*PM Break*	
03:00p	*Breakout Session C.* **Identifying data quality problems** • Work through examples – to identify QA/QC problems • Not everything can be improved all at once. Where does data in the Philippines need improving most urgently and what can be addressed later on. How can this be implemented? • Who can lead and support these activities? • How can this be taken account of in the data management system?	• Facilitated by • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • GIZ
04:00p	*Skype session with Ricardo-AEA experts*	
05:00p	**Closing of Day 2; Expectations for Day 3**	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • Voltaire Acosta, GIZ
Wednesday, 13th August 2014		

Time	Activity / Topic	Discussant
09:00	**Preliminaries** • Recapitulation • Overview of Day 3 Agenda	• Voltaire Acosta, GIZ • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
09:15	**The board of expectations, concerns/questions – Quick review** • Quick review to see if the workshop is helping to answer questions raised	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
09:30	**Create roadmap for implementation of climate relevant data management system** • Identify key actions to establish and maintain the climate relevant data management system • Agree who needs to undertake the activities • Plan a timeline for delivery	• Led by CCC • With facilitation by GIZ/Ricardo-AEA
10:15	*AM Break*	
10:30	***Breakout Session D*. NICCDIES protocol formulation and critical success factors** • Discuss key considerations to ensure the Philippines get the most out of the proposed NICCDIES • Identify key actions to establish and maintain the climate relevant data management system • Who to undertake them and by when.	• Facilitated by • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • GIZ
12:00n	*LUNCH*	
01:00p	***Breakout Session D*** *(contd.)* • Presentations from each group on the roadmap • Groups discussion	• Facilitated by • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • GIZ
02:45p	*PM Break*	

Time	Activity / Topic	Discussant
03:00p	**Quiz! And prizes!**	• Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project
04:00p	**Discussion on backstopping arrangements for Baselines and Baseline scenario setting**	• Facilitated by • Dr John Watterson and Yvonne Pang, Ricardo-AEA/IM Project • GIZ
04:30p	**Closing ceremonies** • Post-workshop participant survey • Closing remarks and summary	• ASec Joyceline Goco, Deputy ED, CCC-CCO • Ms Kirsten Orschulok, Dr. Bernd-Markus Liss, GIZ

Engr. Voltaire L. Acosta
Moderator

Annex 03: Post-Training Evaluation by Participants

Evaluation Questions	Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1	Total	Weighted Average
PREPARATION AND COURSE DELIVERY							
Invitation stated the goals	14	9	0	0	0	23	1.61
WS content was organized & easy to follow.	14	8	1	0	0	23	1.57
Sufficient opportunity for inter-active participation	21	2	0	0	0	23	1.91
Materials distributed were per-tinent and pitched at the right level.	5	15	2	0	0	22	1.14
Sufficient time to cover all pro-posed activities	12	11	0	0	0	23	1.52
Average	*13.2*	*9*	*0.6*				
FACILITATOR/MODERATOR							
Proper Guidance from the Mod-erator	17	6	0	0	0	23	1.74
Facilitator(s) was/were well pre-pared for the workshop	16	7	0	0	0	23	1.70
Comprehensive and Clear in-	16	7	0	0	0	23	1.70

structions and directions							
Facilitator(s) encouraged active participation and ownership to expected outputs	17	4	0	0	0	21	1.81
Average	**16.5**	**6**					
SPEAKERS: Clear, Concise and Effective Presentation							
Ms. Kirsten Orschulok	16	6	0	0	0	22	1.73
Mr. Voltaire Acosta/Ms. Sandee Recabar	13	5	0	0	0	18	1.72
Mr. Francis Benito	14	5	1	0	0	20	1.65
Dr. John Watterson	18	5	0	0	0	23	1.78
Ms. Yvonne Pang	12	11	0	0	0	23	1.52
Average	**14.60**	**6.40**	**0.2**				
GENERAL SATISFACTION							
Objectives were met	12	10	0	0	0	22	1.55
Learned a lot of new concepts and tools	13	10	0	0	0	23	1.57
Satisfied with my increased understanding of the topic	11	12	0	0	0	23	1.48
Definitely help me make a difference in the way I do my job	11	11	1	0	0	23	1.43
Sharing of information with other colleagues	12	10	1	0	0	23	1.48
Average	**11.8**	**10.6**	**0.4**				

FACILITY							
Training venue and related facilities provided a comfortable setting.	10	12	1	0	0	23	1.39
Location for the training was accessible and convenient for me.	14	7	2	0	0	23	1.52
Refreshments and food provided were of good quality.	13	9	1	0	0	23	1.52
Tools and equipment during the sessions worked well.	12	8	3	0	0	23	1.39
Average	*12.25*	*9*	*1.75*				

Annex 04: Photo-Documentation

Annex 05: Press Release

Capacity building on climate relevant data management
Posted on the Climate Change Commission's Webpage (http://climate.gov.ph/node/414)

Following a series of capacity building missions on measurement, reporting and verification (MRV) and baseline scenario setting, the Climate Change Commission (CCC) once again partnered with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Information Matters Project in the conduct of the "Climate-Relevant Data Management" Training-Workshop on August 11-13, 2014 at Crowne Plaza Hotel, Ortigas. Technical expertise was provided by Ricardo-AEA, a British consulting firm specializing in MRV methodologies and climate data management.

More than 40 representatives from sectoral lead, planning, and statistics agencies learned the processes involved in collecting, managing and validating climate-relevant information in each area of application. The climate change focal persons and database keepers of each agency were also guided on the steps to elaborate the data and system requirements prior to identifying the appropriate hardware and software tools for the proposed National Integrated Climate Change Database and Information Exchange System (NICCDIES).

The NICCDIES is being developed by the CCC as part of the Philippines' domestic MRV architecture. As the system is envisioned to be a multi-agency repository of climate-relevant information, the CCC facilitates convergence among development partners to assist in the setting up of the NICCDIES system and ensure that any support provided is responsive to the needs of the Philippine government. Complementary to the support being provided by the UNDP Low Emission Capacity Building Programme (LECB) and the USAID-funded Building Low Emissions Alternatives to Develop Economic Resilience and Sustainability (B-LEADERS) under its Enhancing Capacities for Low Emission Development Strategies (EC-LEDS) Program, the GIZ Information Matters Project contributes in the form of backstopping support and the enhancement of the capacities of participating agencies through a series of capacity building missions.

This activity is in line with the goal of working with the Philippine government in the enhancement of national climate reporting processes to provide a clear basis for lead government agencies to mainstream climate relevant programs and sustainable development objectives. It also supports the United Nations Framework Convention on Climate Change's (UNFCCC) climate reporting initiatives at the international level.

The Information Matters Project is part of the International Climate Initiative. The German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB) supports this initiative on the basis of a decision adopted by the German Bundestag.