2015 International Modeling Conference

Enhancing global efforts for the Post-2020 era : Towards 2℃ target

July 2nd, 2015

THE PLAZA Hotel, Seoul, Republic of Korea

GIR
Greenhouse Gas Inventory & Research Center of Korea

Organized and Sponsored by
Ministry of Environment
Greenhouse Gas Inventory & Research Center of Korea (GIR)

CONTENTS


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▶ 2015 IMC Schedule

Time	Session		Speaker
09:00-10:00	Registration		
Opening Ceremony			
10:00 ~ 10:20 ('20)	10:00 ~ 10:10 ('10)	Opening Speech	* Jeong-Seop Lee (Ministry of Environment, Korea)
	10:10 ~ 10:20 ('10)	Photo Session	
[Session 1] Challenges of the Post-2020 era and Establishing new global governance			
10:20 ~ 12:00 ('100)	Panel Discussion - Emilio Sempris (Ministry of Environment, Panama) - Kilaparti Ramakrishna (UNESCAP) - Rolf Schuster (German Embassy in Korea) - Tran Anh Vu (Vietnamese Embassy in Korea) - Youba Sokona (South Centre, Mali) - Taeyong Jung (Yonsei University, Korea)		* Chair : Hoesung Lee (IPCC)
12:00 ~ 13:30 ('90)	Luncheon		
[Session 2] GHG reduction in order to stay below 2℃ of global warming			
13:30 ~ 15:10 ('100)	13:30 ~ 13:50 ('20)	Country case 1: Frances Wood (Economic Counsellor, British Embassy in Korea)	* Chair : Emilio Sempris (Ministry of Environment, Panama)
	13:50 ~ 14:10 ('20)	Country case 2: David Mitre (National Institute of Ecology and Climate Change, Mexico)	
	14:10 ~ 14:30 ('20)	Country case 3: Ritu Pantha (Ministry of Science, Technology and Environment, Nepal)	
	14:30 ~ 15:10 ('40)	Discussion	
15:10 ~ 15:30 ('20)	Coffee Break		
[Session 3] Transparency enhancement and Implementation mechanism in the Post-2020			
15:30 ~ 17:10 ('100)	15:30 ~ 15:50 ('20)	Presentation 1: Jae.H Jung (GIR, Korea)	* Chair : Seungdo Kim (Hallym University, Korea)
	15:50 ~ 16:10 ('20)	Presentation 2: Li Peng (Sino Carbon Innovation & Investment Co.,Ltd., China)	
	16:10 ~ 16:30 ('20)	Presentation 3: Ajeya Bandyopadhyay (Ernst & Young LLP, India)	
	16:30 ~ 17:10 ('40)	Discussion	
17:10 ~ 17:20 ('10)	Closing Ceremony		

International Modeling Conference

Session 2

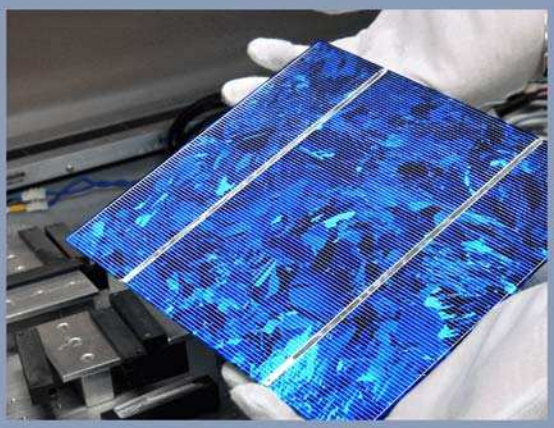
GHG reduction in order to stay below 2℃ of global warming

Session 2

1. Frances Wood

Eu-path to 2030? UK as a case study

EU – path to 2030?



Foreign & Commonwealth Office

UK as a case study

Frances Wood
Economic Counsellor
British Embassy Seoul

Overview

Foreign & Commonwealth Office

- Where are we on 2°C?
- What is the EU's target?
- EU Challenges and Opportunities
- EU's target and is it working?
- Additional benefits?
- What is the UK doing?
- Apart from the obvious, why are we taking action?
- Role of subsidies
- What does the EU want from Paris?

2°C?

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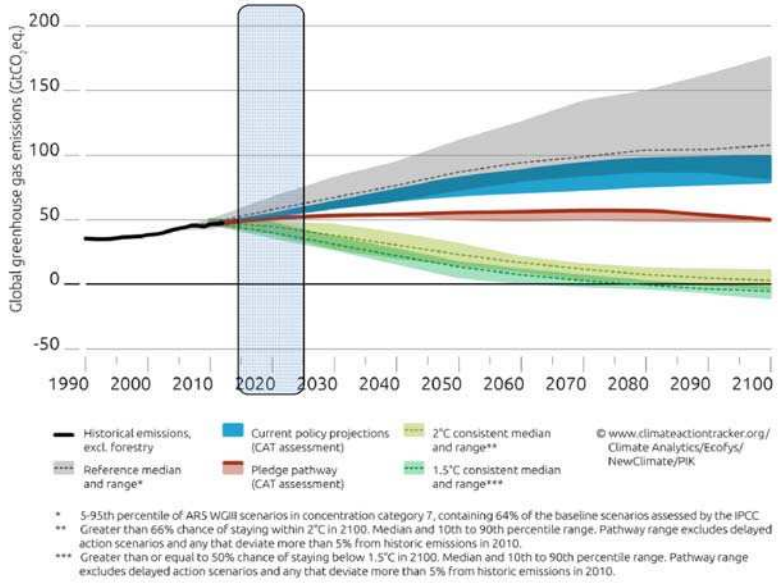

Warming projected by 2100

Baselines 4.1- 4.8 °C

Current policy projections 3.6 – 4.2 ° C

With EU, US, CN pledges 2.9 – 3.1 ° C

Below 2 C: 1.5 – 1.7 ° C
Below 1.5 C: 1.3 – 1.5 ° C

* 5-95th percentile of AR5 WGIII scenarios in concentration category 7, containing 64% of the baseline scenarios assessed by the IPCC
** Greater than 66% chance of staying within 2°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.
*** Greater than or equal to 50% chance of staying below 1.5°C in 2100. Median and 10th to 90th percentile range. Pathway range excludes delayed action scenarios and any that deviate more than 5% from historic emissions in 2010.

Source: Climate Action Tracker

EU – challenges and opportunities

Foreign & Commonwealth Office

High energy import dependence

Advanced knowledge economies

Open, trading economies

Emissions trading systems

Importance of energy intensive industries

Regional and global leadership

EU's target?

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Type	Absolute reduction from base year
Coverage	Economy wide
Scope	CO2, methane, nitrous oxide, F-gases
Base year	1990
Period	2021-2030 inclusive
Reduction level	At least 40% in 2030
Agriculture, forestry, other land uses included	Yes
% of Emissions covered	100%
Net Contribution of International Market Based Mechanisms	No contribution from international credits.
Planning process	EUCO Oct.2014; legislative proposals
Fair and ambitious	In-line with transition to a low emissions economy. Consistent with IPCC's assessment of reductions required from developed countries as a group of 80-95% by 2050. EU emissions peaked already.

Is it working?

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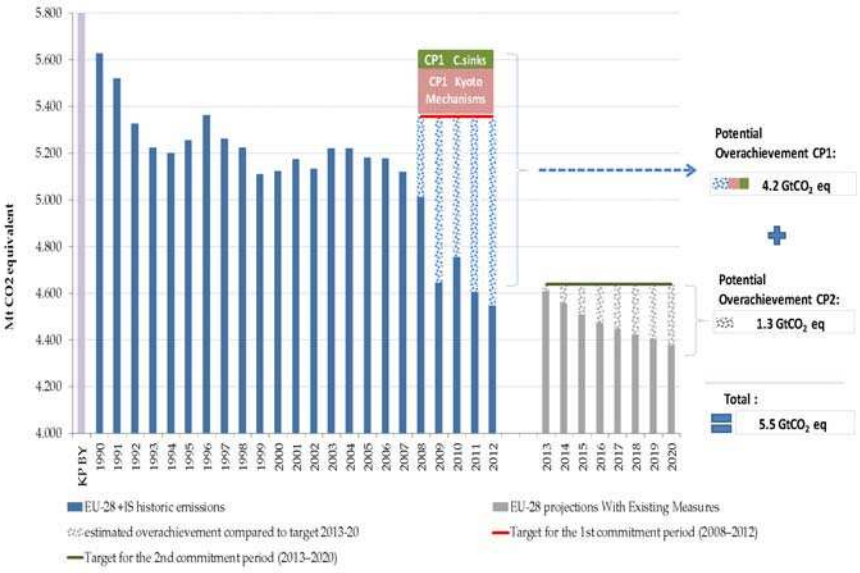
Emissions going down since 1979…



Emission reductions (EU-28 and Iceland):

- Total emissions (without LULUCF) in 2012 are 21.7% below base year levels
- Projected to be around 24,5% below base year levels in 2020.
- Over the period 2008-2012, the average annual emissions are 18.8% below base year levels

Additional benefits?

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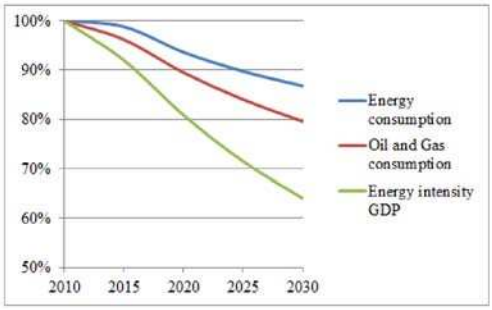
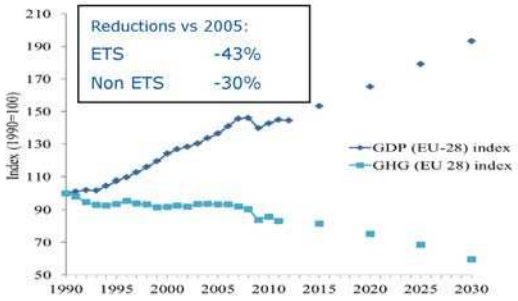
- Decoupling of Gross Domestic Product growth from Greenhouse Gas Emissions will continue





- Fuel savings: additional € 18 billion fuel per year next 2 decades
- Energy security: additional 11% cut in energy imports in 2030
- Innovation: jobs & growth
- Health and air pollution benefits: €7-13.5 billion in 2030

Additional benefits?

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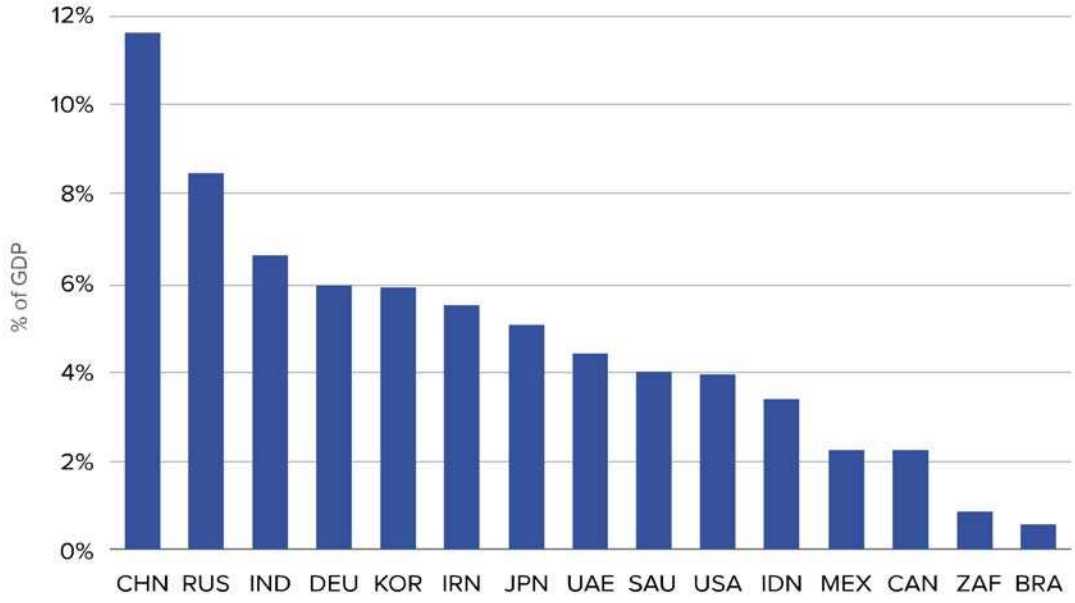
Economic value of premature deaths from PM2.5 air pollution



Source: New Climate Economy

What is the UK doing?

Foreign & Commonwealth Office

> The UK was the first country in the world (in 2008) to pass a Climate Change Act setting a statutory target for emission reductions (80% reduction by 2050).

> We have the world's leading financial centre in carbon trading and we were the first country to establish a Green Investment Bank (in 2012) which uses public funds to leverage private sector investment in renewable energy and energy efficiency projects.

> The UK has delivered groundbreaking Electricity Market Reform with Contracts for Difference and a capacity (peak demand) market (both give certainty to investors).

What is the UK doing?

Foreign & Commonwealth Office

> We are providing nearly £3.8 billion of climate finance over 5 years as part of our commitment to spend 0.7 per cent of our GNI on aid.

> UK contribution of up to £720m ($1.2bn) to Green Climate Fund is 12% of total ($9.7bn) and 3rd largest.

> UK ranked 3rd in clean-tech investment (behind US and China), invested £1 billion in Carbon Capture and Storage, has more marine energy patents than any other country.

> UK has 3.7% share of the environmental goods and services sector – 6th largest (US 19%, China 13%).

What is the UK doing?

Foreign & Commonwealth Office

UK renewable electricity generation has more than doubled since 2010. 18% of British electricity comes from renewables halfway to our goal of 30% of our electricity from renewable sources by 2020.

Currently, there are over half a million installed solar projects in the UK (generating 2.7 GWp) which places the UK firmly in the global top 10 economies for deployed solar.

The UK has more offshore wind capacity than anywhere else and is recognised globally as the best place to invest. We have the largest offshore wind farm in world (London Array). UK is 6th largest producer of wind power.

Apart from the obvious: why take action?

Foreign & Commonwealth Office

> **We must all take action to decarbonise economies – the good news is that most of the required action is beneficial for economic growth.**

> At the Climate Summit **the PM** said, "*We need to give business the certainty it needs to invest in low carbon. That means fighting against the economically and environmentally perverse fossil fuel subsidies which distort free markets and rip off taxpayers. It means championing green free trade, slashing tariffs on things like solar panels. And it means giving business the flexibility to pick the right technologies for their needs. In short we need a framework built on green growth not green tape.*"

Apart from the obvious: why take action?

Foreign & Commonwealth Office

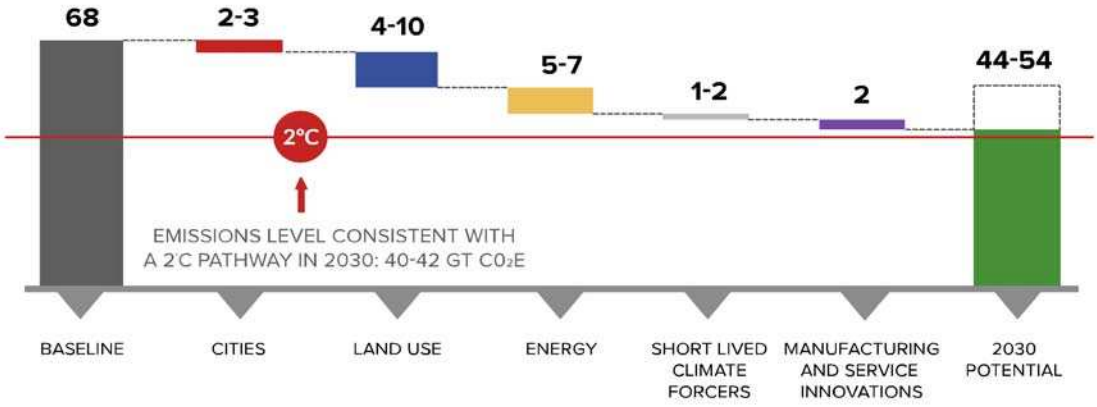
- Green growth is a massive global opportunity. The green goods and services sector is valued globally at around £4 trillion and has grown consistently at 4-5% pa (including during recession). Could be worth £7-10 by 2030.
- 92% of UK business leaders think green growth is an opportunity for their own business.
- The global market in low carbon construction is forecast to grow at 22% pa during this decade.
- The **New Climate Economy** study provides clear evidence that the transition to a low carbon economy will bring net economic benefits to all countries: new jobs, cleaner air, better health, lower poverty and more energy security.
- Governments and businesses can simultaneously achieve economic and climate goals by prioritising action across the critical economic systems of cities, land use and energy, by using three key drivers of economic growth: **raising resource productivity, enhancing infrastructure investment and stimulating innovation.**

Actions with economic benefits could deliver most of the greenhouse gas abatement needed by 2030

Foreign & Commonwealth Office

GHG EMISSIONS AND ABATEMENT POTENTIAL FROM SELECTED MAJOR LEVERS: 2030

Gigatonnes of CO_2 equivalents



Source: New Climate Economy

Subsidies?

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Paris?

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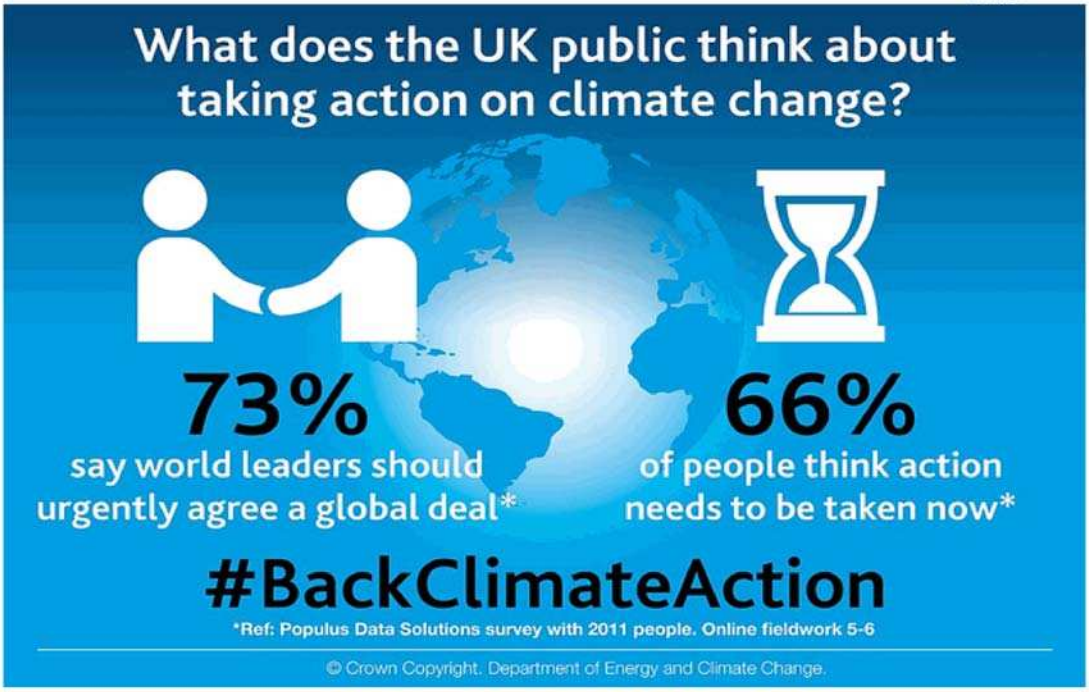


The Paris Protocol – a blueprint for tackling global climate change beyond 2020

Foreign & Commonwealth Office

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

EU vision for the Paris protocol

- Long term goal
- Fair, ambitious and legally binding mitigation commitments for all Parties
- Dynamism - 5 yearly reviews to increase ambition
- Robust common rules for transparency and accountability
- Climate resilient sustainable development
- Efficient and effective implementation and cooperation

Foreign & Commonwealth Office

The false dilemma

vs

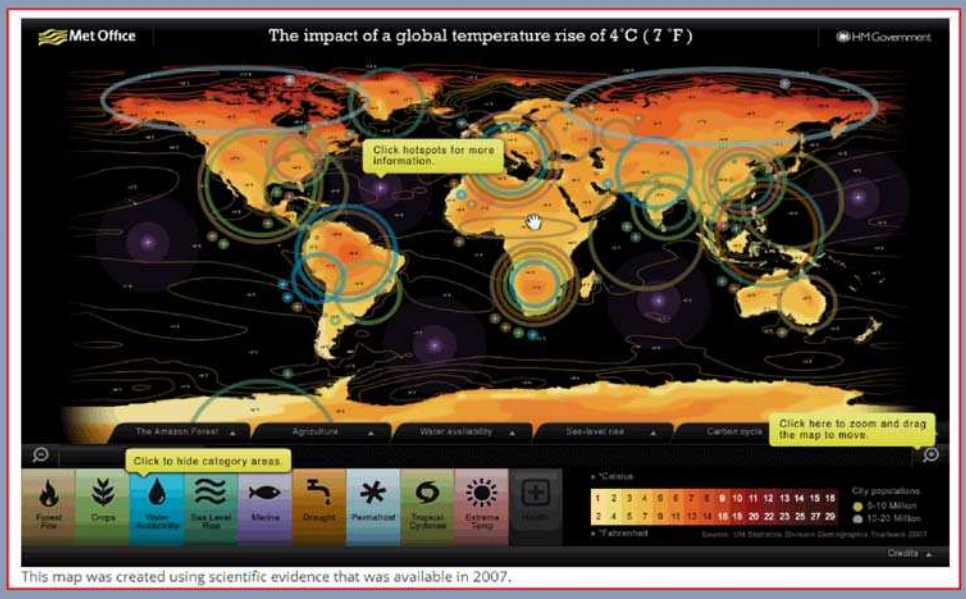
Promoting Economic Growth

Fighting Climate Change

It is possible to have better growth and a better climate at the same time

Thank you

Foreign & Commonwealth Office



This map was created using scientific evidence that was available in 2007.

Session 2

2. David Mitre

Mexico's experience on Intended Nationally Determined Contribution

INECC

INSTITUTO NACIONAL DE ECOLOGÍA Y CAMBIO CLIMÁTICO

Mexico's experience on Intended Nationally Determined Contribution

Mexico
National Institute of Ecology and Climate Change

Seoul, Korea
July 2015

Mexico's climate change risks

INECC

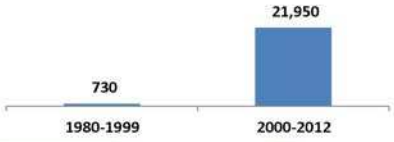
Mexico's geographical features make it vulnerable to climate change: located between two oceans, latitude, and landscape

Hurricanes: *increased its occurrence*, especially those of high intensity (between 1970 and 2009)/1

Temperature: *national average have augmented* 0.85°C showing regional differences; less cooler days and more warm nights (since the 60s)/2

Precipitation: *have diminished*, specially in the southeast region (over the past half century)/3

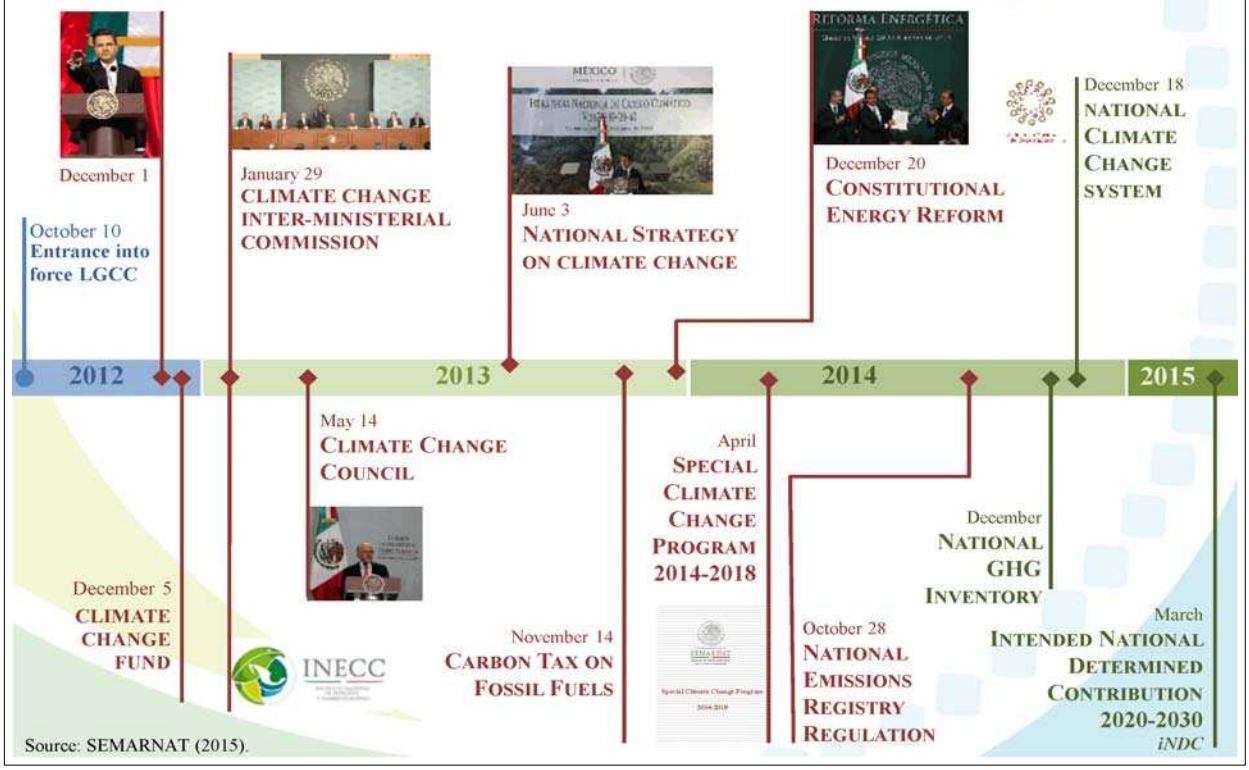
Average annual economic impacts caused by extreme weather phenomena (million pesos)/4



13% of Mexico's municipalities are classified as the most vulnerable to climate change/5, which accounts for:
26,288.5 km of highways
5,984 schools
494 hospitals

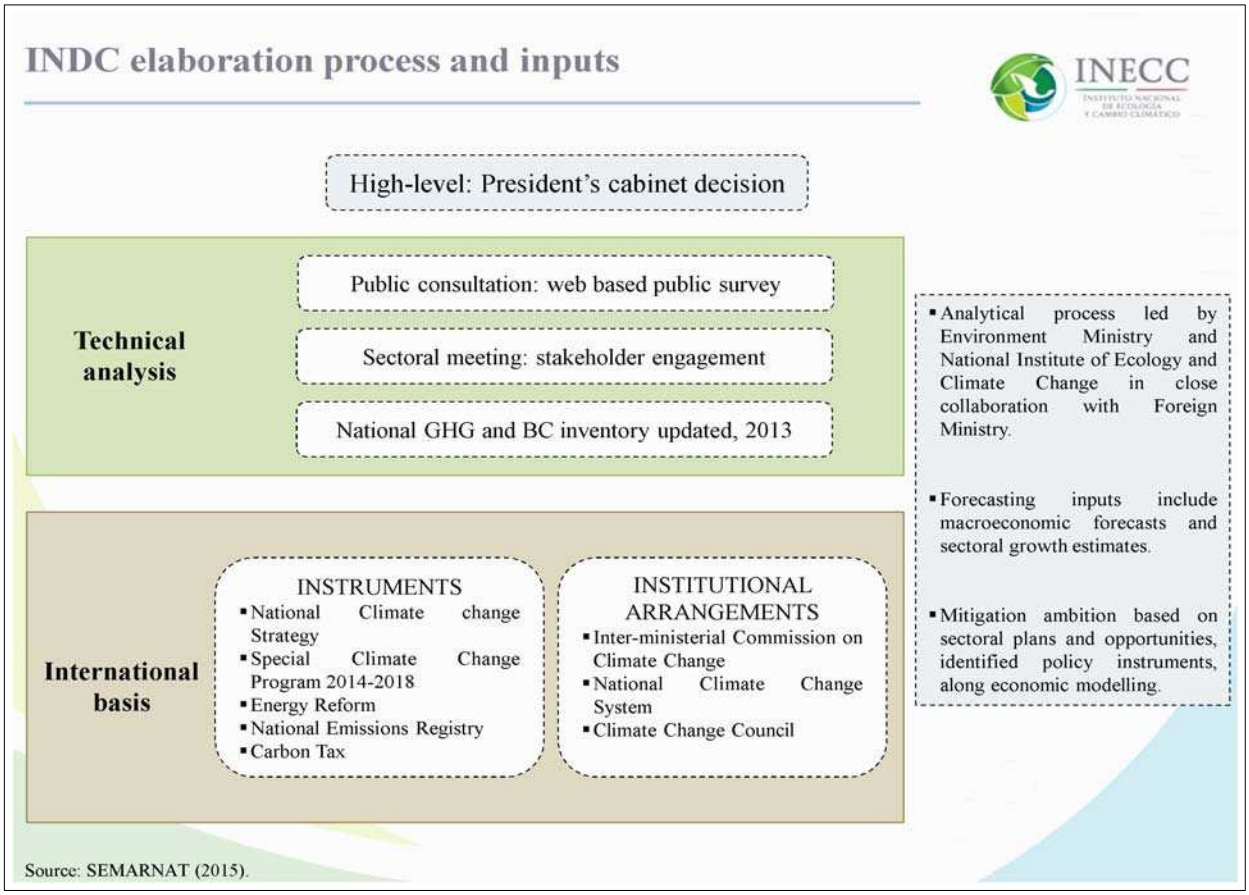
Source: /1 CICC (2012). /2-/3 Met Office-INECC (2013). /4 ENCC (2013). /5 PECC (2014).

Mexico's milestones against climate change



Source: SEMARNAT (2015).

INDC elaboration process and inputs



Source: SEMARNAT (2015).

Mexico's INDC highlights

Includes **mitigation of GHG and Black Carbon and adaptation actions** for 2020-2030.

Commitment with a **conditional and unconditional component**, strictly aligned to the objectives and priorities established in the General Law on Climate Change (2012).

For the first time Mexico translate previous **aspirational commitments (GLCC) into mandatory goals.**

The unconditional reduction implies that Mexico will reach **a net emissions peak starting in 2026**, decoupling GHG emissions from economic growth: **emissions intensity per unit of GDP will reduce** by around 40% from 2013 to 2030.

Economy-wide, business as usual scenario, **based on an updated inventory for 2013** with a bottom-up approach.

Source: Gobierno de la República (2015)

Black carbon: BAU and INDC unconditional goals

-51% black carbon

	Baseline				Emissions (thousand of metric tonnes) 2030 Goal Unconditional
	2013	**2020**	**2025**	**2030**	**2030**
Transport	47	47	52	58	10
Electricity generation	8	4	4	3	2
Residential and commercial	19	16	15	15	6
Oil and gas	2	3	3	3	3
Industry	35	43	49	56	41
Agriculture and livestock	9	11	12	13	10
Waste	<1	<1	<1	<1	<1
LULUCF	4	4	4	4	4
TOTAL EMISSIONS	**125**	**127**	**138**	**152**	**75**

Notes: LULUCF: land use, land use change and forestry. Subtotals do not coincide with the total because of rounding.
Source: SEMARNAT (2015)

Greenhouse gases: BAU and INDC unconditional goals

-22% greenhouse gases

	Baseline				GHG emissions ($MtCO_2e$) 2030 Goal
					Unconditional
	2013	2020	2025	2030	2030
Transport	174	214	237	266	10
Electricity generation	127	143	181	202	2
Residential and commercial	26	27	27	28	6
Oil and gas	80	123	132	137	3
Industry	115	125	144	165	41
Agriculture and livestock	80	88	90	93	10
Waste	31	40	45	49	<1
SUBTOTAL	633	760	856	941	776
LULUCF	32	32	32	32	-14
TOTAL EMISSIONS	**665**	**792**	**888**	**973**	**762**

Notes: LULUCF: land use, land use change and forestry. Subtotals do not coincide with the total because of rounding.
Source: SEMARNAT (2015)

Sectoral participation to meet Mexico's contribution (1)

Energy and Industry

- Generate 35% of clean energy in 2024 and 43% by 2030.
- Substitution of heavy fuels for natural gas, clean energy and biomass in national industry.
- 25% reduction in methane leaks, venting and controlled combustion.
- Control of soot particles in industrial equipment and installations.

Transport sector

- Standardize the environmental norms and regulations of the NAFTA for existing and new vehicles as well as for locomotives, vessels and mobile machinery for agriculture and construction.
- Provision of ultra-low sulfur gasoline and diesel.
- Increase the vehicle pool using natural gas and access to clean fuel.
- Modernize the vehicle pool and reduce imports of used automobiles.
- Promote multi-modal transport for freight and passengers

Source: SEMARNAT (2015)

Sectoral participation to meet Mexico's contribution (2)

Urban sector

- Foster sustainable buildings and cities;
- Promote residential use of solar panels and heaters;
- Methane recovery and use in municipal landfills and water treatment plans.

Agricultural and forestry sector

- Meet zero deforestation rate target;
- Improve forestry management;
- Drive the sustainable technification of the agriculture and livestock sector;
- Promote the use of biodigesters in livestock farms;
- Enhance recuperation of grasslands

Source: SEMARNAT (2015)

Conditional goals 2020-2030

The reductions commitments for short lived climate pollutants and greenhouse gases could increase on a conditional basis.

- The fulfillment of a global agreement on a scale equivalent to the global climate change challenge that would include (for example): international carbon pricing, climate-weighted leveis, technical cooperation, access to low-cost financial resources, and technology transfer.

Under these conditions, national reductions in black carbon could increase to 70% and in GHG to 36% by 2030.

- This would be consistent with the route proposed by the General Law on Climate Change that seeks a 50% reduction in the volume of emissions by 2050 in reference to a year 2000 baseline.

Source: SEMARNAT (2015)

Some lessons learned and emerging challenges

Methodological assumptions are difficult to communicate in a small text document.

Estimate incremental mitigation and deeper cuts that make a competitive economy.

Include detail actions that support INDC such as sectoral approach, cost-benefit analysis, etc.

Develop the Measuring, Reporting and Verification framework.

Strengthen policies and measures that support economy-wide actions: carbon tax, phase-out subsidies, carbon pricing.

Define finance, technology transfers and capacity building support measures.

Source: SEMARNAT (2015)

Thank you

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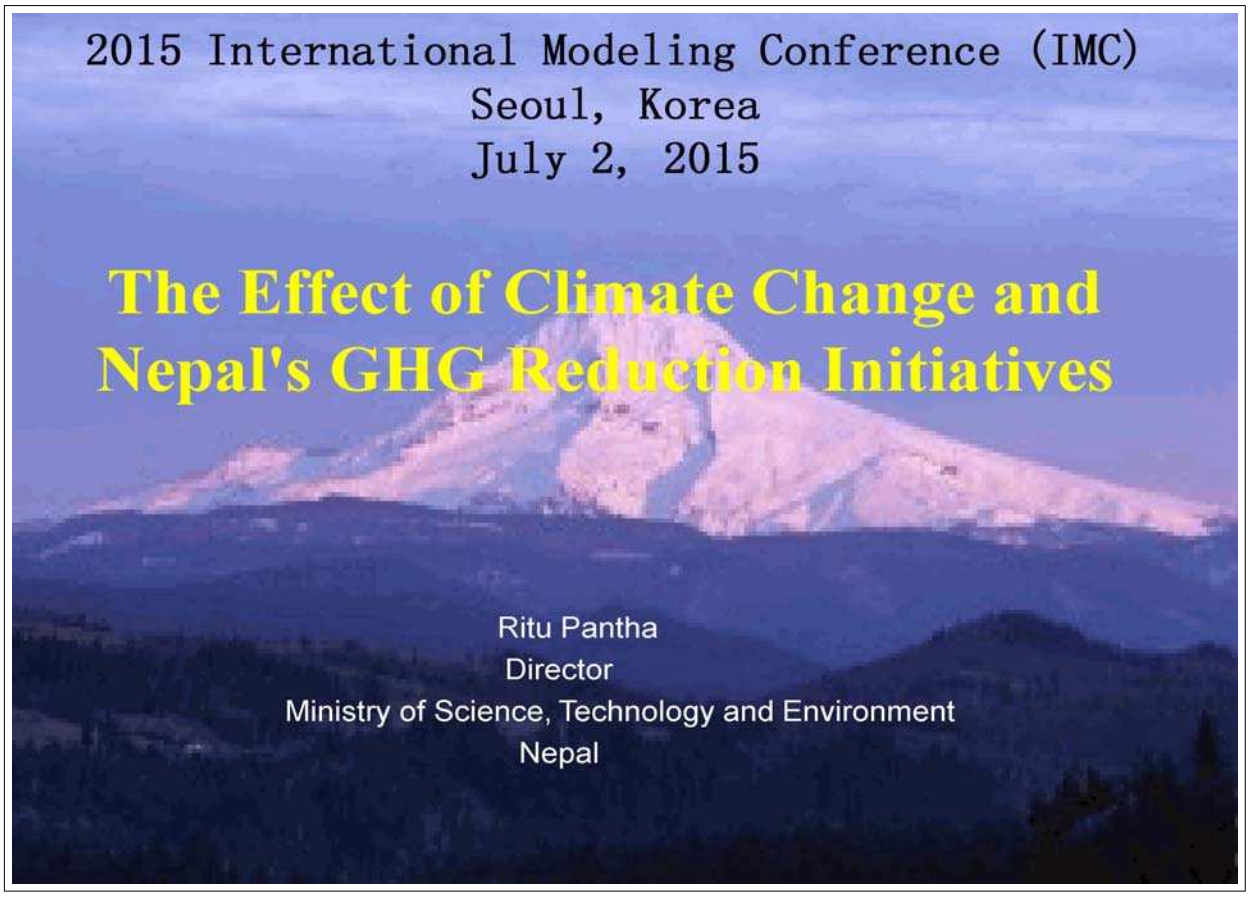
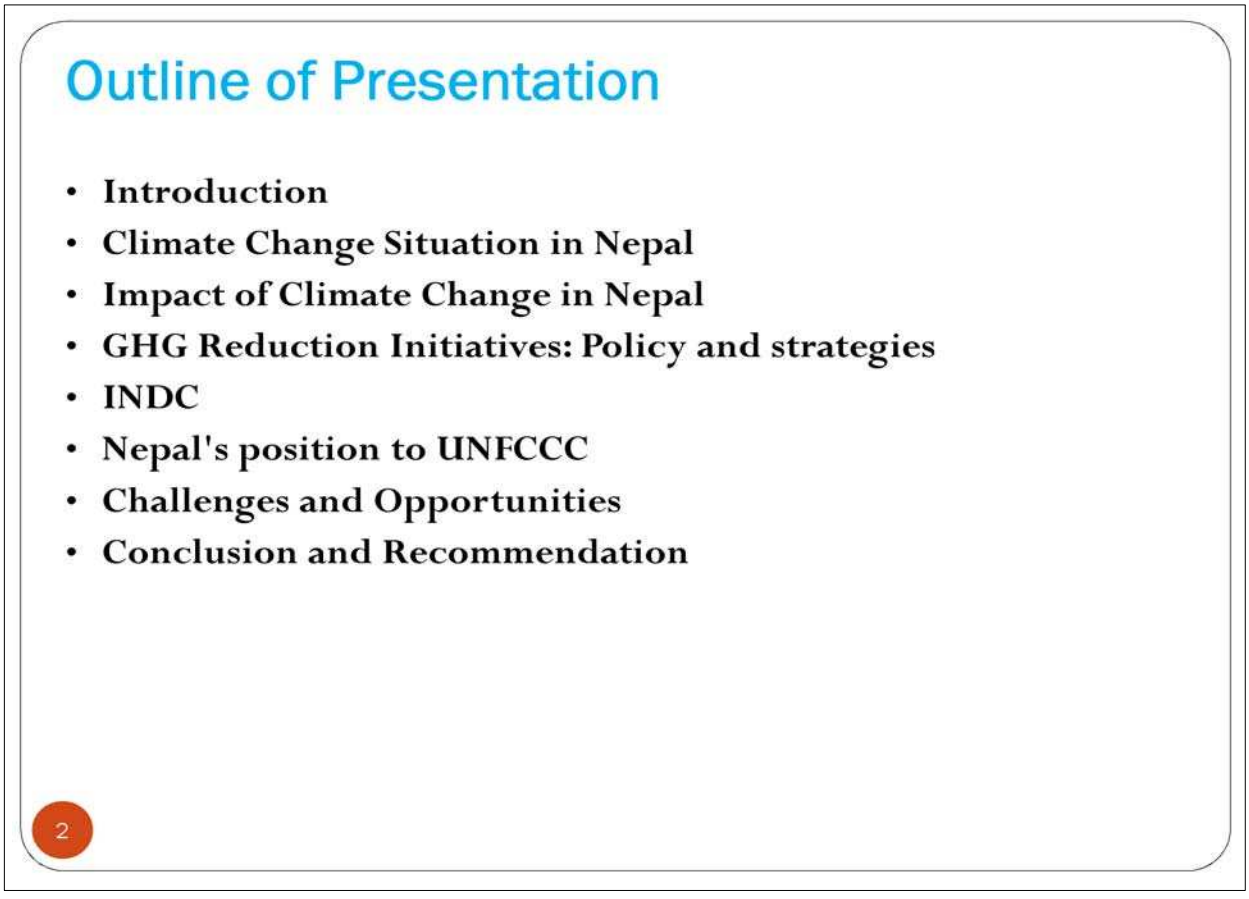
Session 2

3. Ritu Pantha

The Effect of Climate Change and Nepal's GHG Reduction Initiatives


2015 International Modeling Conference (IMC)
Seoul, Korea
July 2, 2015
The Effect of Climate Change and Nepal's GHG Reduction Initiatives
Ritu Pantha
Director
Ministry of Science, Technology and Environment
Nepal

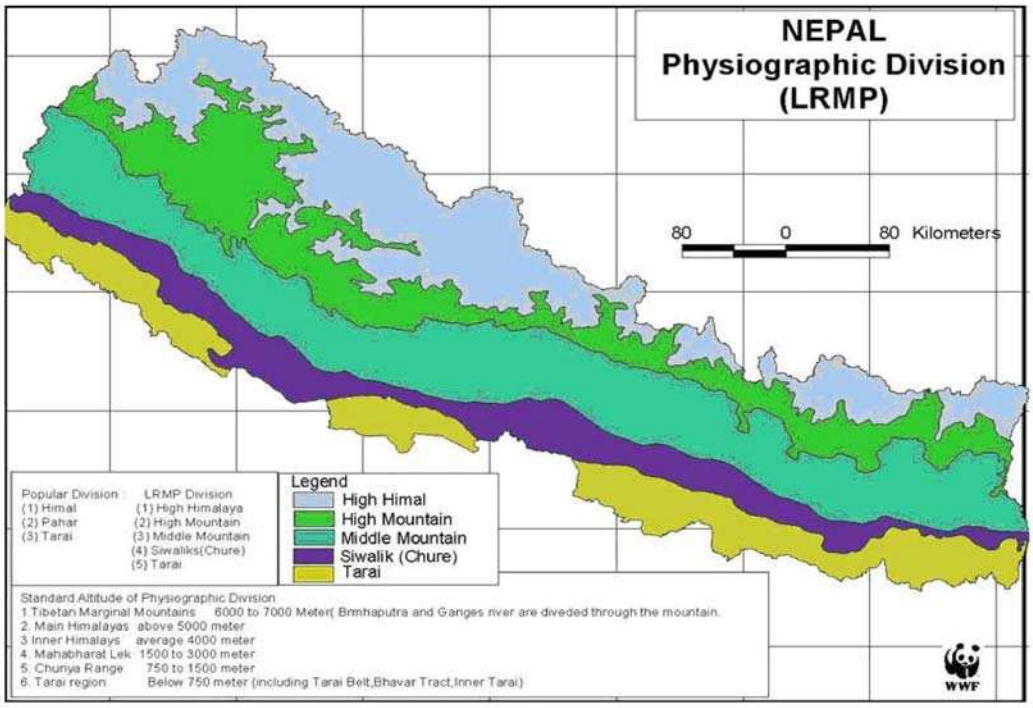

Outline of Presentation
Introduction
Climate Change Situation in Nepal
Impact of Climate Change in Nepal
GHG Reduction Initiatives: Policy and strategies
INDC
Nepal's position to UNFCCC
Challenges and Opportunities
Conclusion and Recommendation
2

Introduction

- Nepal is landlocked country having total area of 147, 181sq. km.
- Forest covers approximately 39% of the total area.
- 23.23% of the country has been delineated as national park and conservation areas (DoFRS 1999a).
- Nepal ranks twenty-fifth globally in biodiversity, with 118 ecosystems, 75 vegetation types and 35 forest types, 5,100 flowering plants, 1,600 species of fungi, and over 460 species of lichen.
- Although Nepal occupies only 0.1 % of the earth's surface, it possesses over 2% of the world's flowering plants, about 9% of the world's birds species and 4% of the world's mammalian species (FAO 1999).

3

Physiographic Zone



4

Climate Change Situation in Nepal

- Nepal is one of the most vulnerable (4^{th}) countries in terms of climate change.
- Globally Nepal emits only 0.025 percent of total GHG emissions.
- CC impacts both on upland and lowland ecosystem systems, especially threatening the vital biodiversity, water, energy and food Security.
- Rapid melting of glaciers, formation of new supraglacial lakes, expansion of existing lakes, and disappearing of some small lakes have been noticed.

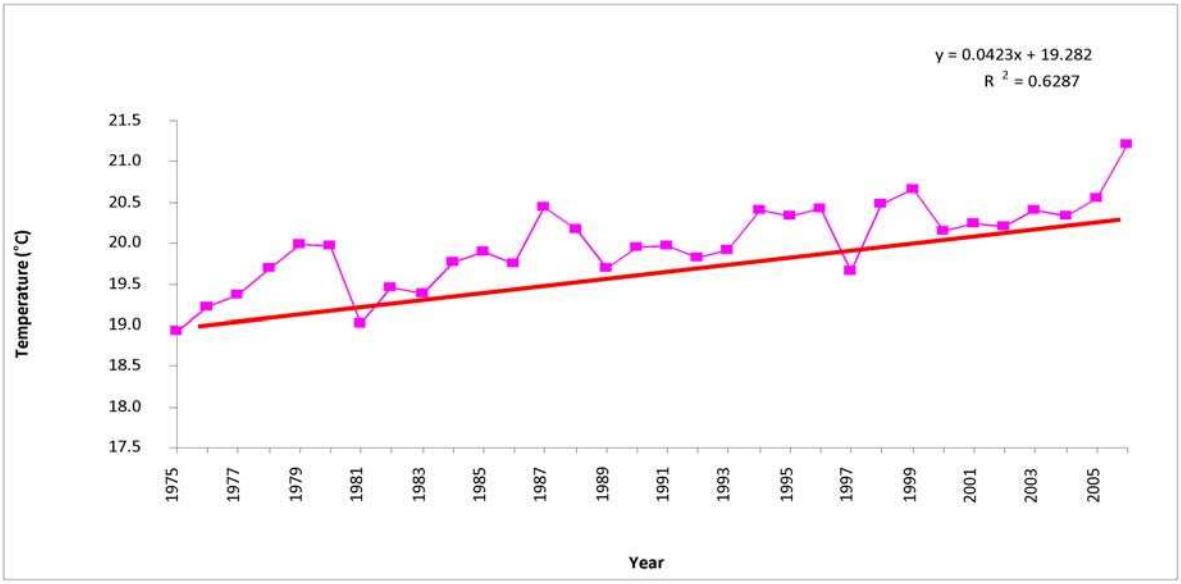
5

Climatic Scenario

- Observed data indicate consistent warming and rise in the maximum temperature at an annual rate of 0.04-0.06 degree Celsius.
- Observed warming trend is not uniform across the country.
- Warming is more pronounced in high altitude regions compared to the Terai and Siwalik regions.
- There has been increase in average temperature by 1.8°C within 32 years between 1975 and 2006 in Nepal(Baidya et al., 2008).
- Nepal Responsible for only 0.025 percent of total GHG emissions in the world.

6

All Nepal Temperature Trend



- All Nepal Temperature is increasing steadily
- About 1.8°C increase from 1975 – 2006

Source: Baidya 2007

Impacts of Climate Change in Nepal

- IPCC 4th Assessment Report submitted estimates that by 2050 crop yields in South Asia can decrease by up to 30%.
- Increase in pests, diseases and invasive species owing to temperature change affect agricultural productivity resulting in food insecurity and loss of livelihoods.
- Atmospheric CO2 concentration will reduce Nepal's forest types from 15 to 12, and habitats and ecosystem.
- The adverse impacts on the Himalayas are expected to affect both the upland and lowland systems, especially threatening the vital biodiversity, water, energy and food security.

8

Major Climate Change Impacts Identified by the IPCC Relevant for Nepal

- Increase in poverty in low and lower middle income countries, including high mountain states (AR5, WG2, Technical Summary)
- Increase in mountain phenomena such as slope instabilities, mass movement, glacial lake outbursts and increase in hazards due to moraine dammed lakes (AR5, WG2, Chapter 3, Box 3-1)
- Decrease in mountain glaciers3 (AR5, WG2, Chapter 3, 3.4.3).
- Increase in economic losses from weather- and climate-related events. Decrease in biodiversity in mountain ecosystems given the limited range of population movement of the species. (AR5, WG2, 4.3).
- Greater radioactive effect of deposited soot and, therefore, a bigger impact on snow melt(AR5, WG2, Box 3-1 and Qian et al 2011)

9

GHG Reduction Initiatives : Policy and strategies

- The Climate Change Policy, 2011 states that the Government would formulate and enact Low Carbon Economic Development Strategy.
- Nepal Development Vision 2030 published by National Planning Commission in 2011 states that Nepal will adopt climate-friendly plan and low carbon development approach.
- Nepal has been able to gain some economic benefit from Clean Development Mechanism under Climate Change Convention for contributing to the emission of greenhouse gas by promoting renewable energy.
- Nepal could benefit much from "REDD+" and carbon trading. Nepal's Concept Paper on the reduction of greenhouse gas emissions from forest sector has been approved recently by Forest Carbon Partnership Facility under the World Bank.

10

National Low Carbon Economic Development Strategy (Draft)

- The most important objective of this Strategy is to make the country independent on clean energy by 2022 and achieve rapid economic growth through green technology by 2030.
- Other objectives of the Strategy are as follows:
  - To develop and promote hydroelectricity and other renewable energies.
  - To emit low carbon in various sectors such as agriculture, forestry, industry, transportation and housing and support the sustainable economic growth by encouraging the development and use of the high energy capacity technologies. Preserve and develop original low carbon technologies, as well.
    - To put emphasis on the use of low carbon technologies in the development of the infrastructures such as building, road, bridge, irrigation, hydropower, etc. and make them climate resilient.
    - To mobilize economic resources from both internal and external sources for climate-friendly economic development.
    - To develop necessary institutional and human resources capacity for the development and spread of low carbon technologies from national to local level.-

11

National Low Carbon Economic Development Strategy (Draft)

- Sectoral Strategies:
  - Energy Sector
  - Agriculture and Livestock
  - Forest Sector
  - Industry Sector
  - Building and Waste
  - Commercial Sector
  - Transport Sector
  - GESI

12

GHG Emission Reduction Initiatives

- Application of renewable energy technology for greenhouse gas emission reduction
- Nepal Biogas Project:
  - Reducing emissions while providing community benefits
- Reducing Emissions from Nepal's Community Managed Forests
- CDM Project/program Clean Development Mechanism Plan

13

INDC

- UNFCCC has invited all Parties to communicate to the secretariat their INDCs "well in advance of COP 21"
- LDCs and SIDS have contributed less to current global emissions.
- The burden of cutting emissions will rest with major economies.
- However to avoid dangerous levels of global warming, all countries will have to play a role. The UN has communicated that contributions towards a global agreement should reflect the 'special circumstances' of these low-emitting countries.

14

INDC

- At present, there is no formal, standard template for INDCs.

- Nepal is starting INDC's reviewing of the following:
  - National Development Objectives
  - National, subnational and sectoral climate change priorities on both mitigation and adaptation, national and subnational strategies/plans, national legislation
  - Climate variability, which includes trends in averages and extremes of precipitation and temperature
  - Climate impacts, such as drought, flooding, and subsequent social, economic and environmental impacts
  - Budgetary allocations towards climate change activities
  - Previous or existing climate change pledges or commitments (voluntary or legislated) or actions to date

15

Nepal's Position to UNFCCC...

- We seek clarity on what mechanisms will be in place to support LDCs (Nepal) in the preparation of intended nationally determined contributions. While we are willing to take part in the INDCs process, it would be very difficult for us to do this national exercise without timely support.
- We rely on continued support and leadership in redoubling efforts to close the pre-2020 mitigation gap. Closing this gap is a requirement for the success of the future regime.
- We would like to engage with all parties to explore how to future expand and strengthen the guidelines with a view to adopting a decision on NAPs implementation.
- We would like to see a permanent institutional arrangement and more resources to be allocated to capacity building, which we see extremely important to enable our countries effectively implement the Convention.

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Challenges

- Lack of scientific data and information related to the science of climate change and its impacts of CC on different geographical and socio economic development sectors limit the use climatic modeling for proper planning and decision making.
- Proper institutional set up, flow of financial resources and technology transfer is crucial for CC mitigation and adaptation.
- Nepal is likely to face constraints in implementing actions imagined in INDCs and certain actions/levels of ambition are likely to be dependent or conditional on the provision of funding from developed countries.
- Nepal is the most climate-vulnerable country and therefore adaptation is likely to be a major focus of national climate change plans.

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Opportunities

- Demonstrating the plans for economic growth are compatible with low-carbon development pathways and avoiding lock-in to carbon intensive infrastructure.
- Highlighting the adaptation-related co-benefits of mitigation actions, and other co-benefits such as poverty alleviation, improved air quality and health, energy access and security.
- Capturing the mitigation-related co-benefits of planned and potential adaptation activities.
- Encouraging other countries to take equivalent action, thereby increasing global ambition and reducing climate impacts.
- Attracting international support to implement action such as finance, technology transfer and capacity-building.

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Conclusion and Recommendation

- INDCs are contributions by *all* parties to the UNFCCC to reduce GHG emissions for the global agreement on climate change post 2020 period.
- Based on the understanding that further ambitious emission cuts are needed to stay below 2 degrees global warming.
- INDCs should present a progression beyond current mitigation efforts.
- To generate momentum for implementation, clear policy signals from strong INDCs are much needed.
- Considering Nepal's low emission level and its low capacity to adapt and mitigate, the country's government could consider including in their INDCs potential options that ensure continuous improvement of the regulatory framework currently implemented to support climate action after 2020. These options would include a continuous improvement of the strategies, policies and programmes in sectors relevant for Nepal's GHG emissions development. Based on the sectorial analysis above, more ambitious contributions could be envisaged with further international support.

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Session 3

Transparency enhancement and Implementation mechanism in the Post-2020

Session 3

1. Jae H. Jung

ENHANCING TRANSPARENCY FOR THE 2℃ TARGET

ENHANCING TRANSPARENCY FOR THE 2℃ TARGET

INTERNATIONAL MODELING CONFERENCE
JULY 2, 2015

JAE H. JUNG
GREENHOUSE GAS INVENTORY & RESEARCH CENTER OF KOREA

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1. WHY ENHANCING TRANSPARENCY FOR 2℃ TARGET ?

The Conference of the Parties,

- 2. "Also decides to launch a process to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties, through a subsidiary body under the Convention hereby established and to be know as **the Ad Hoc Working Group on the Durban Platform for Enhanced Action**."
- 4. "... at the twenty-first session of the Conference of the Parties and for it to come into effect and be implemented from 2020."
- 5. "... mitigation, adaptation, finance, technology development and transfer, transparency of action and support, and capacity-building, ..."

Source : FCCC/CP/2011/9/Add.1

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1. WHY ENHANCING TRANSPARENCY FOR 2℃ TARGET ?

- To increase THE COMPARABILITY OF EACH PARTY'S EFFORTS for the achievement of the objective of the Convention (Article 2, UNFCCC) and the Cancun Agreement (Decision 1/CP.16, Para.4)

Source : Carbon Brief, Climate Action Tracker (CAT)

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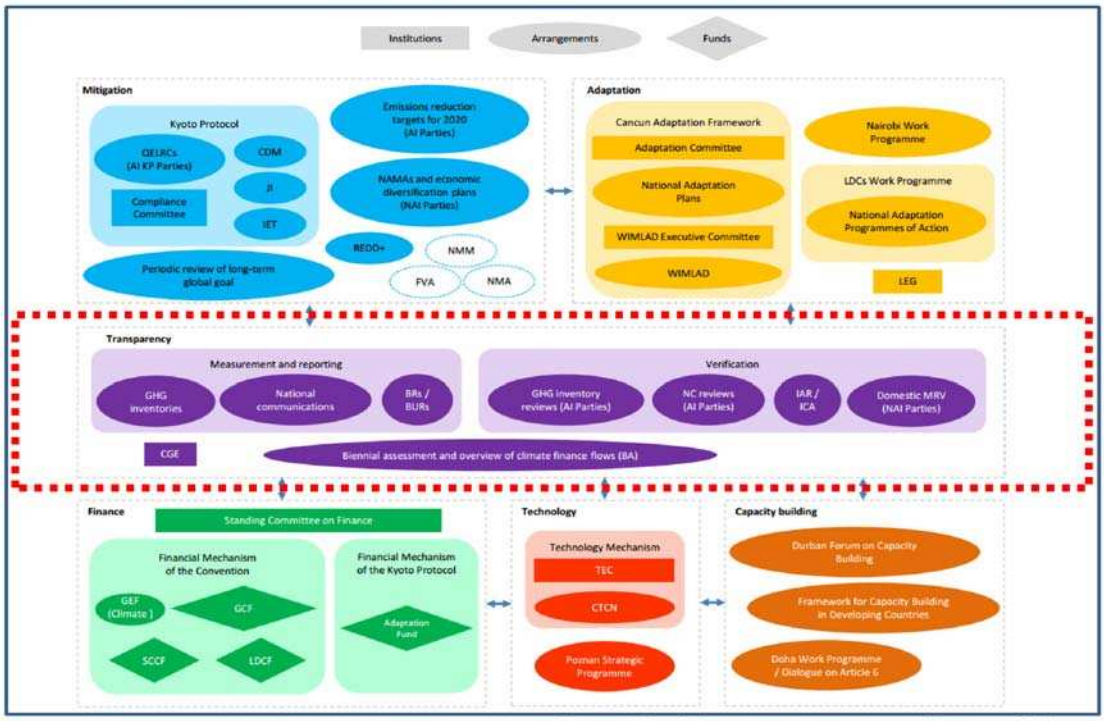
2. EXISTING "MRV" FRAMEWORK IN THE UNFCCC



Source : OECD(2014), "Taking Stock of the UNFCCC Process and its Inter-linkages

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2. EXISTING "MRV" FRAMEWORK IN THE UNFCCC

1992 1995 → 2007 2011 2014 2020
COP13 (Bali) COP17 (Durban)

AI

NC/BR

MR: ANNEX I Parties started communicating their 1st NCs within six months of the entry into force of the Convention (MAR 21, 1994) and periodically thereafter.
2nd NC during 1997~1998
3rd NC by NOV 30, 2001
4th NC by JAN 1, 2006
5th NC by JAN 1
6th NC + 1st BR by JAN 1, 2014

V: In-depth review (IDR) is conducted by ERT.
IAR is conducted on BR.

GHG Inventory

MR: Each Annex I Party has submitted NIR and CRF by April 15 annually from 2003.

V: Initial assessment (by the Secretariat) and technical review (by the ERT) are conducted.

NAI

NC/BUR

MR: Total number of submitted National Communications
1st NC : 147 (OCT 11, 2014)
2nd NC : 108 (APR 1, 2015)
3rd NC : 11 (DEC 29, 2014)
4th NC : 1 (DEC 14, 2009)
5th NC : 1 (DEC 6, 2012)
1st BUR by DEC 31, 2014

V: No verification on NCs of Non-Annex I Parties.
ICA is conducted on BUR.

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2. EXISTING "MRV" FRAMEWORK IN THE UNFCCC

	BR/IAR	BUR/ICA
Entities	AI (43 Parties)	NAI (153 Parties)
M·R	**(1) Information on GHG emissions and trends** **(2) Quantified economy-wide emission reduction target** **(3) Progress in achievement of quantified economy-wide emission reduction targets and relevant information** **(4) Projections** **(5) Provision of financial, technological and capacity-building support to developing country Parties** ** BR + Common Tabular Format*	**(1) Updates of national GHG inventories** **(2) Mitigation actions** (a) Name and description of actions (b) Information on methodologies and assumptions (c) Steps taken or envisaged to achieve that action (d) Progress of implementation of the mitigation actions (e) Information on int'l market mechanism **(3) Finance, technology and capacity-building needs and support received** ** Parties are encouraged to use the CTF.*
V	**(1) Technical Review** **(2) Multilateral Assessment** (1st MA: 17 countries, 2nd MA: 24 countries)	**(1) Technical Analysis** **(2) Facilitative Sharing of Views** (only 13 countries submitted BURs as of March 31, 2015)
1st IAR /ICA	1st round of IAR is completed. (*except Belarus, Kazakhstan*)	1st round of FSV is planned to be held at SBI 44 in June 2016.

Source : FCCC/CP/2011/9/Add.1, Annex I, III

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2. EXISTING "MRV" FRAMEWORK IN THE UNFCCC

- **Achievements**
  - **Overall : "Enhanced" 1st ver. (1995-2013) → 2nd ver. (2014-)**
  - **Annex I : 6th NCs, Annual GHG inventories from 2003, 1st BRs**
  - **Non-Annex I : 1st NCs (147 Parties), capacity-building for GHG inventories (ownership), 1st BURs (11 Parties)**
- **Limitations**
  - **Overall : Only 43 Parties are under mandatory MRV, double counting, uncertainty in Land sector**
  - **Annex I : Mitigation effects by sector ← 1st IAR (MA)**
  - **Non-Annex I : Statistics (activity data), country-Specific EFs, domestic MRV system, domestic experts (inventory/modeling)**

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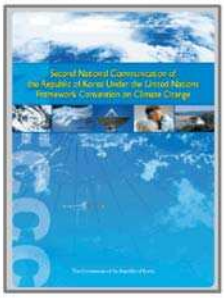
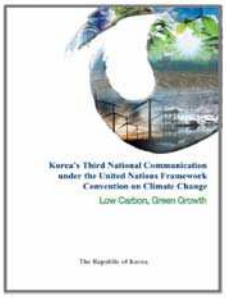
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

NC1 (FEB 12, 1998)

NC2 (DEC 1, 2003)



NC3 (MAR 20, 2012)



BUR1 (DEC 29, 2014)

NIR 2011

NIR 2012

NIR 2013

NIR 2014

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3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

1960s 1970s 1980s 1990s 2000s 2008 2009 2010 2011 2015 2020

1910 Forest Statistics by KFS
- Report from local forest office, yearly

1960 Agriculture and Fisheries Statistics by SK
- Complete survey, every 5 yrs

1961 National Electricity Statistics by KEPCO
- Report from power generation companies and plants, yearly

1964 Trade Statistics by KCS
- Report from regional customs office, monthly

1975 Mining Production Statistics by MKE
- Report from companies, monthly

1981 National Forest Resource Survey by KFS
- Sample survey + interview, every 5 yrs

1981 National Energy Survey by MKE & KEEI
- Sample survey + interview, every 3 yrs

1986 Energy Balance by KEEI
- Report from relevant associations, corporations, and companies, monthly (yearly from 1983)

1994 Oil Demand and Supply Statistics by KNOC
- Report from gas station to relevant associations, monthly

1996 National Waste Statistics by ME
- Sample survey + interview, every 5 yrs

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3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

1960s ~ 2000s | 2008 | 2009 | 2010 | 2011 | 2015 | 2020

Aug ~ 09.Jun/ Joint research team established for GHG emission projection (BAU scenarios)
- 8 institutes including KEEI, KIER, KEI and etc. participated for 10 months
- energy modeling(MARKAL) and economic modeling(CGE)
- 6 sectors and 10 sub-sectors

Feb/ Presidential Committee on Green Growth(PCGG) established

Jul/ Nat'l Strategy for Green Growth and 5-year Implementation Plan announced

Aug/ Review Committee selected 3 scenarios and announced by PCGG
- 21%, 27%, and 30% reduction for low carbon development

Aug ~ Oct/ over 80 times of public hearings for 3 months
- 2 intensive special discussions
- industries(over 30 times), NGOs and citizens(44 times)
- public opinion poll(2 times)

Nov/ National voluntary mid-term reduction target of 30% below BAU by 2020 set

Jun/ GIR established by the enforcement of the Framework Act on LCGG

Jun ~ 2011.Apr/ Mitigation potential analysis through modeling for 11 months
- various modeling tool for scientific comparison(LEAP, MESSAGE, AIM,)
- 7 sectors and 25 sub-sectors
- designed low carbon development paths for 2012, 2013, and 2015

Apr ~ Jun/ Sectoral sub-target setting
- GIR and relevant ministries
- over 30 times of public hearing from experts and ministries

Mar/ Target Management Scheme(TMS)
- 1st performance plan submitted by controlled entities to GIR (May)

Dec/ GIR started publishing annual National Inventory Report (NIR)

Jan/ Emissions Trading Scheme (ETS) implemented

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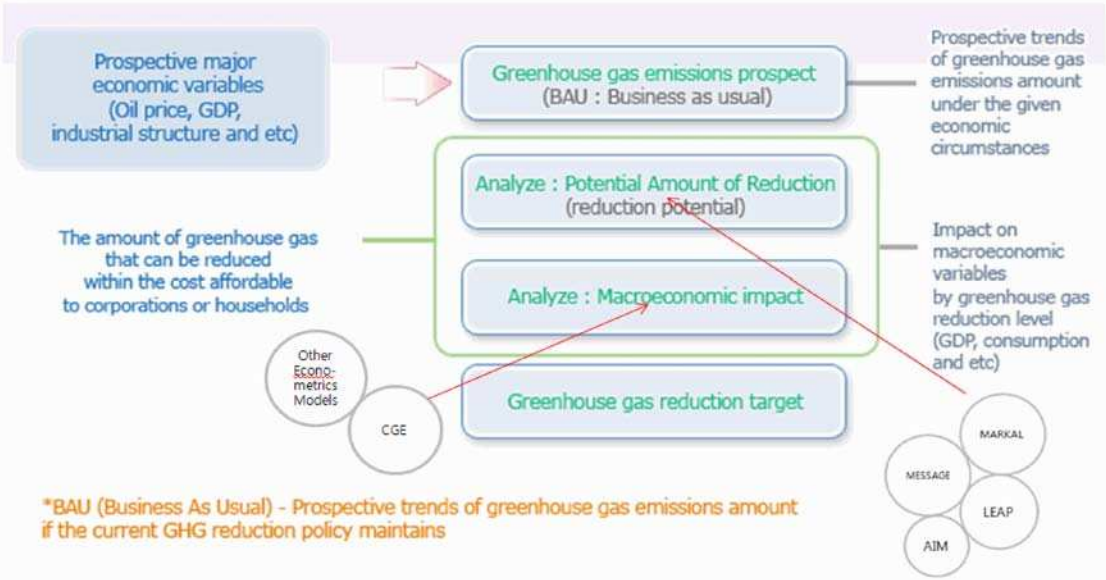
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

"Reliable data and Modeling analysis for GHG reduction target and policies for implementation"



*BAU (Business As Usual) - Prospective trends of greenhouse gas emissions amount if the current GHG reduction policy maintains

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3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

Industry	Emission Trading Scheme	1st phase('15~'17), 2nd phase('18~'20)
	Fuel switching (Cement)	Coal → Waste ('12, 7.9% → '20, 30%)
	Expanding waste heat recovery facilities	For Iron & Steel and Cement industries → '20, 5,369 thousand tons Co.eq. reduction
Transport	Building ITS (Intelligent Transport Systems)	'13, 15.8%(13,458km) → '20, 25%(20,635km)
	Expanding public transport infrastructure	Trunk-line railroad '20, 4,934km / Share of public transports '20, 60%
	Railroad and coastal shipping	Railroad : '20, 18.5% / Coastal shipping : '20, 21.2%
Buildings	Energy saving and energy performance improvement	Strengthening insulation : houses('20, 30%), buildings('20, 25%)
	Heating/Cooling system and heat sources for households	Spreading highly efficient air-conditioner('15, 45% → '20, 80%)
	Green re-modelling	Pilot projects, Improving insulation performance / Activating green re-modelling of existing buildings
Public/Others	TMS for public sector	For pre-emptive GHG reduction of public organizations (778 organizations)
	Strengthening insulation standards for existing and new buildings	Spreading buildings with strengthened insulation standards (New : '20, 100%, Existing '20, 60%)
	Motor efficiency improvement	Increase in motor efficiency improvement rate('15, 11.0% → '20, 12.2%)

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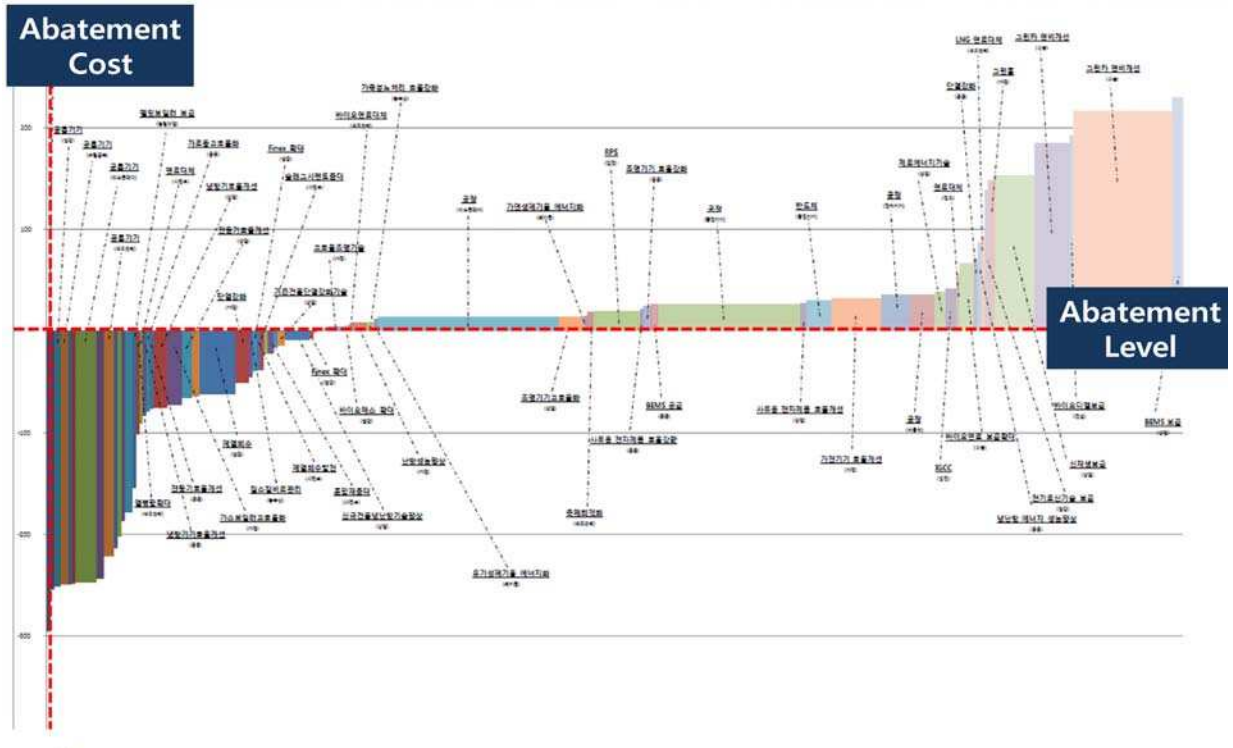
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED



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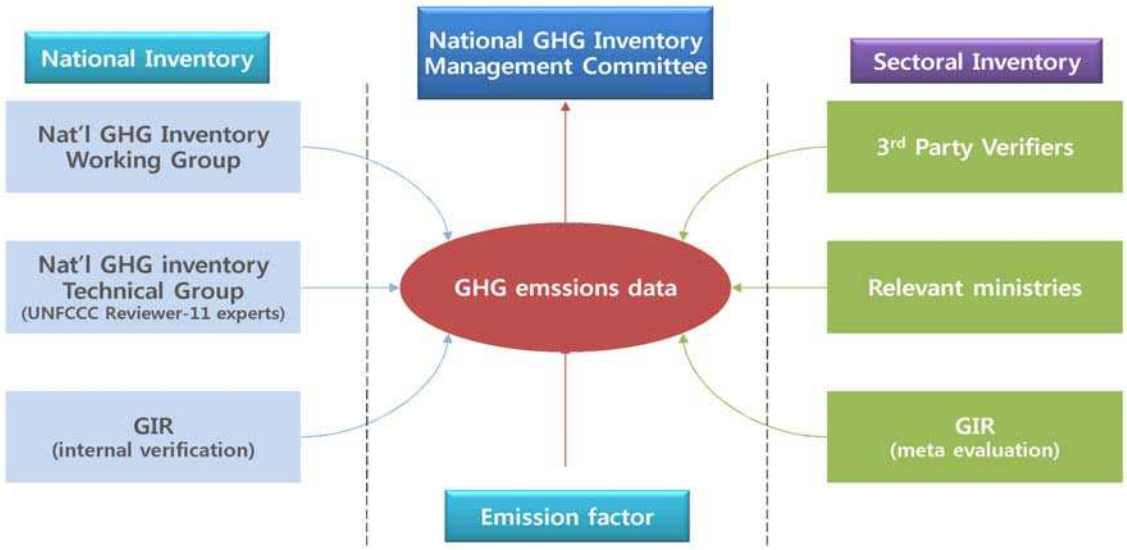
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

- **Korea operates both the "Top-Down" and "Bottom-Up" MRV systems.**



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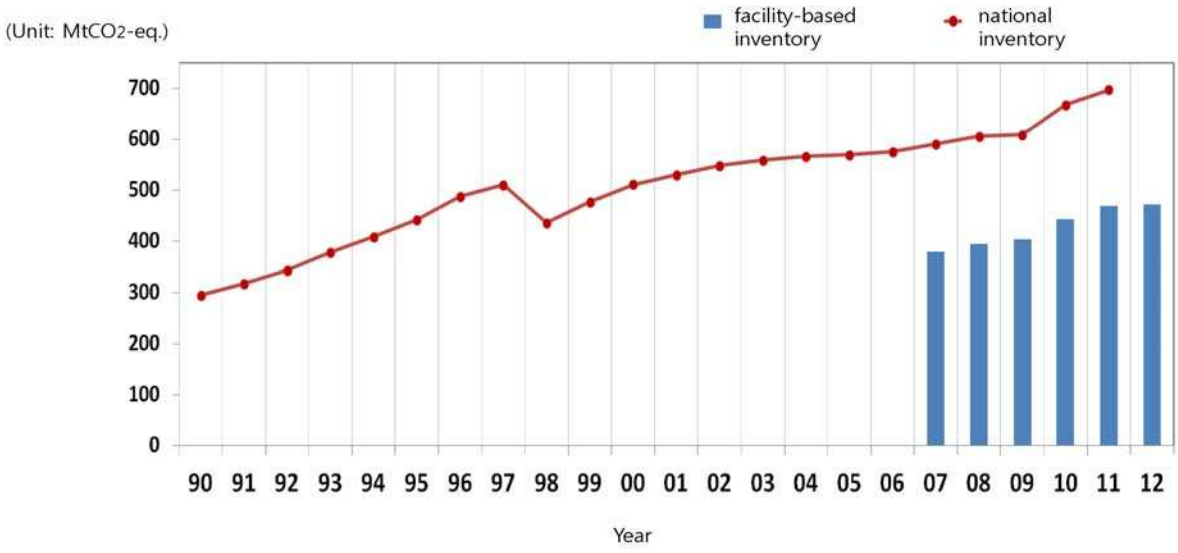
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED



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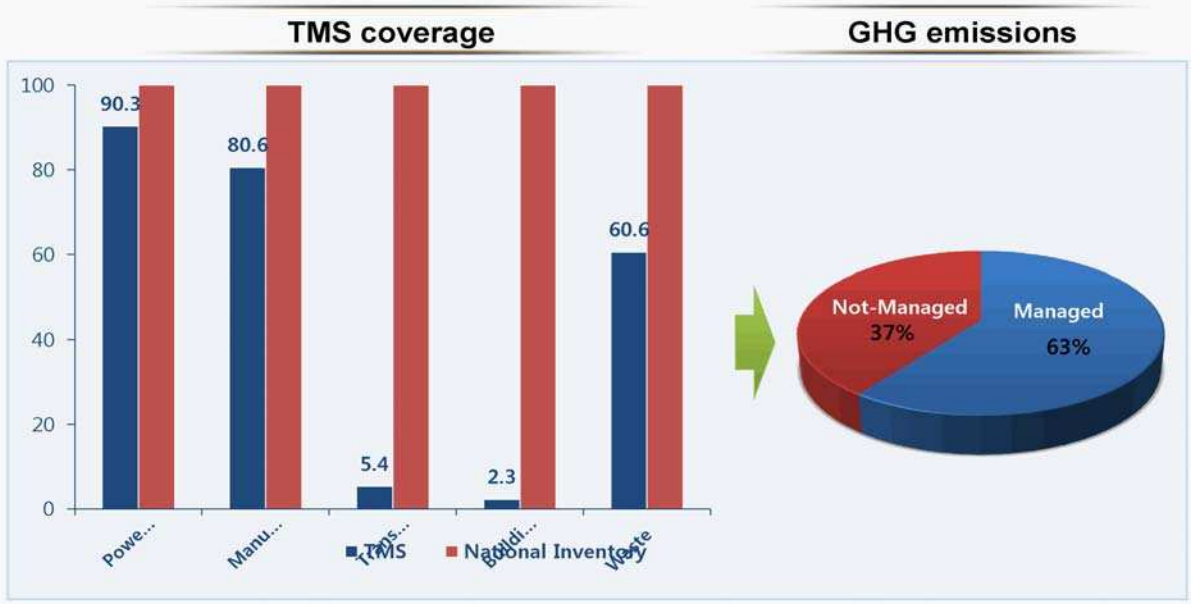
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

● About 63% of Korea's GHG emissions covered by the TMS (2012)



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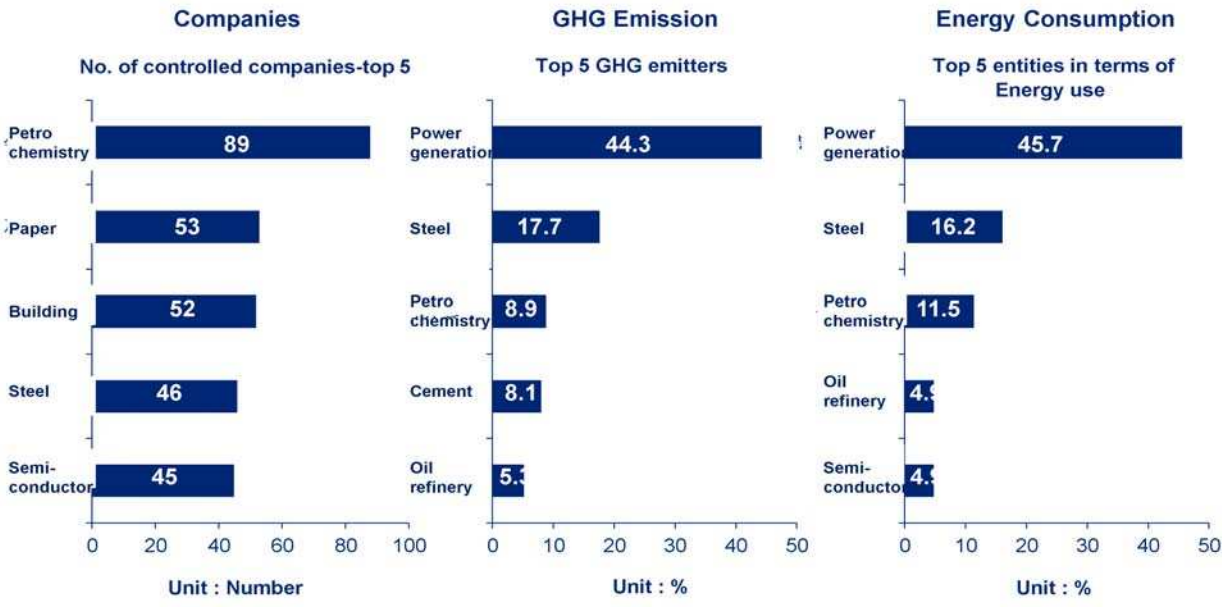
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED



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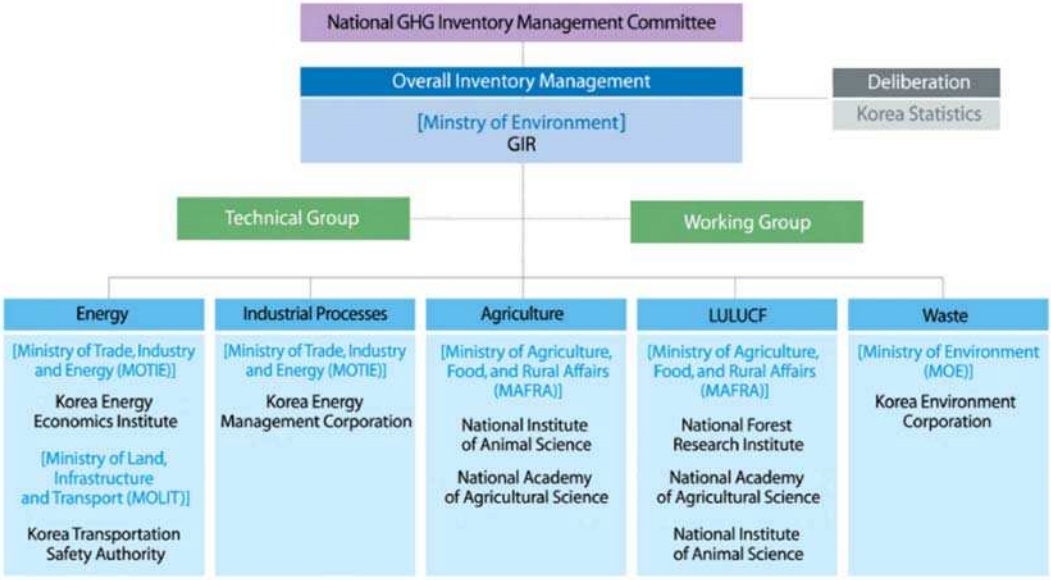
3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

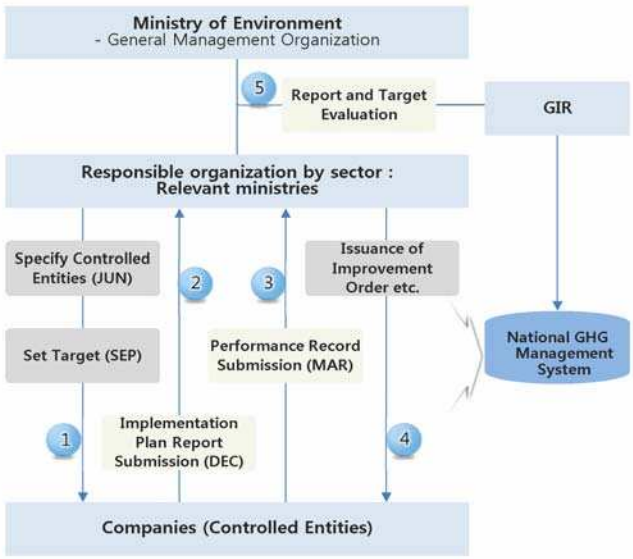


3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

Phase		Responsible Entities	Description	Date
Measurement · Reporting	Revision of MRV Guidelines	GIR	• Preparing a revised version of MRV Guidelines	January
	Discussion and approval of the revisions	GIR (Working Group, Management Committee)	• Discussing and approving the revisions made in the MRV Guidelines	February
	Announcement of the annual MRV Guidelines	GIR → Relevant ministries	• Distributing the MRV Guidelines	February
	Sectoral measurement and reporting	Agencies in each sector→ Relevant ministries → GIR	• Submission of sectoral NIR and CRF • Conducting QA/QC activities and submitting the result report	March– June
Verification	Internal/external verification	GIR	• Verification of the drafts of sectoral NIR, CRF • Preparing the final draft of the NIR and CRF	July– August
Deliberation · Approval · Publication	Technical review of Technical Group	GIR (Technical Group)	• Conducting technical reviews of data used for calculation of national GHG inventory • Documenting verification and review results in a verification report	September
	Working Group Review	GIR (Working Group)	• Reviewing the final draft of national GHG inventory • Discussing agendas related to quality improvements in the national GHG inventory	October
	Final review and approval	GIR (Management Committee)	• Approving the official version of the annual national GHG inventory	
	Publication	GIR	• Publishing and distributing the national GHG inventory to the public	November

3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

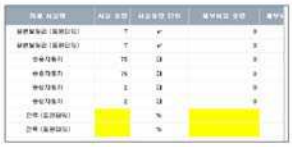
TMS



NGMS Verification Support Function

Company Target Review

- Target adequacy Review
- Comparison with sales trend or production trend



Report Data Review

- Checking emissions
- Comparison by report

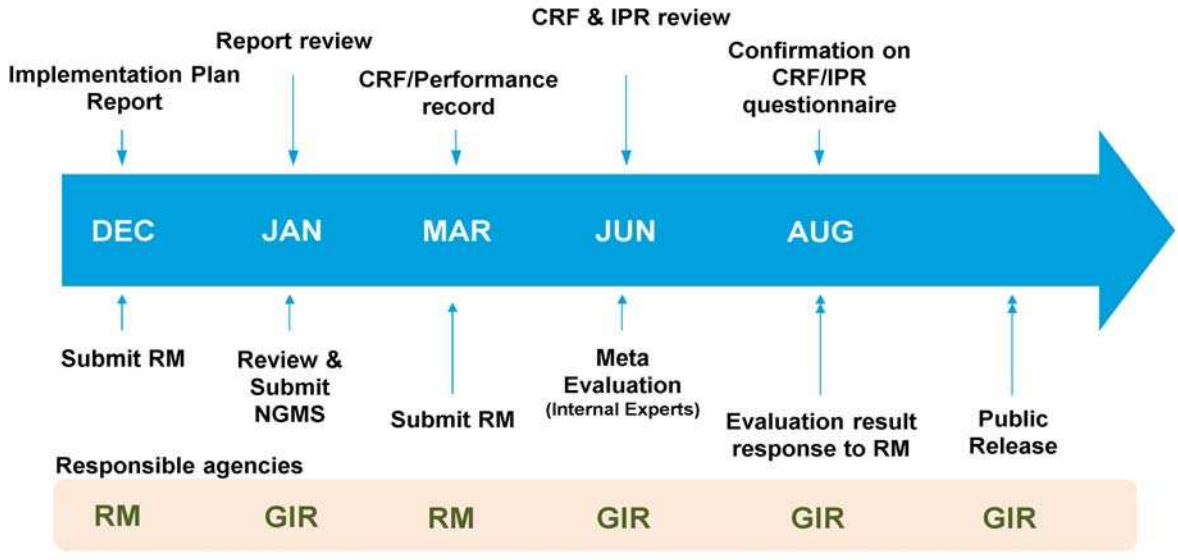
GHG Trend analysis

- Emissions trend analysis
- Activity data, EF, etc

GHG Calculator

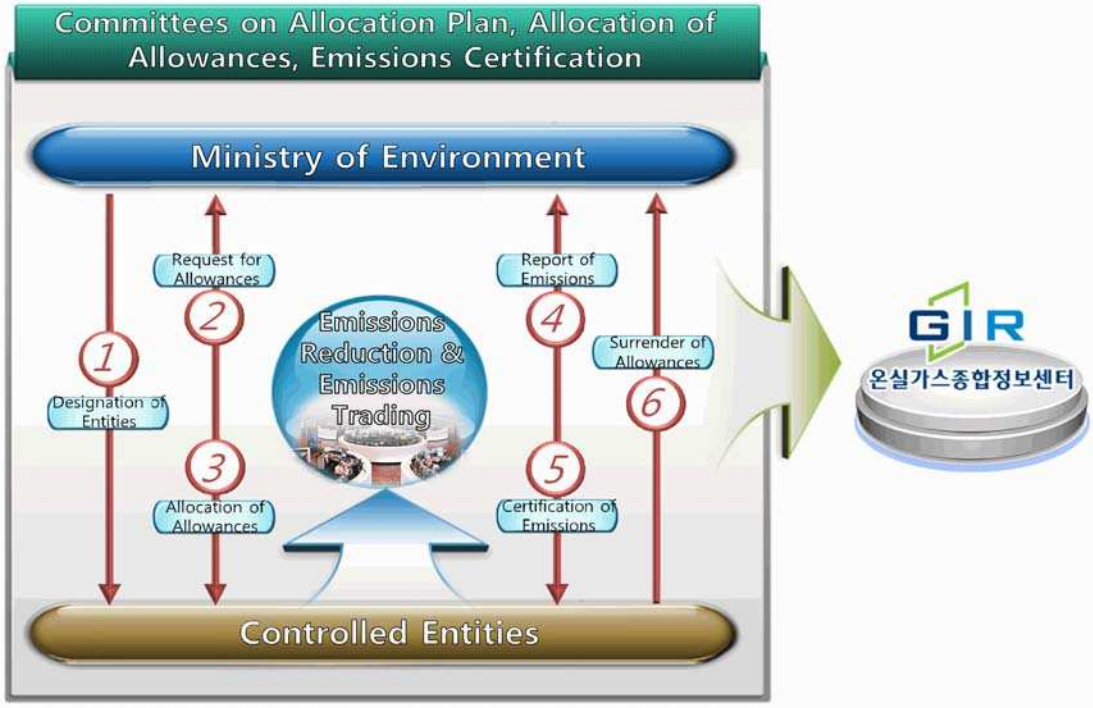
- Automatic calculation after verification by 3rd Party Verifiers

3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED



- **RM** : Relevant Ministries
- **CRF** : Common Reporting Format
- **IPR** : Implementation plan of reduction report for GHG reduction
- **NGMS** : National GreenhouseGas Management System

3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED



3. "KOREAN MRV EXPERIENCE" : LESSONS LEARNED

Sectors affected	Name of mitigation action	GHG (s) affected	Objectives	Description of mitigation actions	Type of instrument	Implementing ministry	Status of implementation	Start year and month of implementation	Performance indicator(s)
All Sectors	Greenhouse gas & energy target management system (GHG & Energy TMS	CO_2 CH_4 N_2O	GHG and energy reduction	o To regulate GHG emissions and the energy consumption of business entities emitting large amounts of GHGs in order to achieve national mid-and long-term GHG reduction targets and to reduce energy consumption	Policy	Ministry of Environment	Implemented	2010.4	The amount of GHG emission reduction
	Emissions Trading Scheme (ETS)	CO_2 CH_4 N_2O	GHG and energy reduction	o To set the total amount of GHG emission permits for each company and to compel it to achieve GHG emission reduction targets through emission permits trading alongside its own GHG reduction efforts.	Policy	Ministry of Environment	Planned	2015	The amount of GHG emission reduction
Energy transformation	New & renewable energy supply expansion and industry fostering	CO_2	Contributing to the creation of new & renewable energy markets by encouraging GHG emission reductions and by creating a stable investment environment where companies can invest in new & renewable energy industries	o To enforce FIT(2002~2011) and RPS(from 2012) in order to require power generation companies possessing more than certain amount of power generation facilities (500 thousand kW) to supply new & renewable energy of more than a certain percentage of the total power generation, o To expand new & renewable energy supplies and create a supply base of newly developed technologies through a project to subsidize a portion of installation costs for new & renewable energy projects, including houses (1 million Green homes), buildings (general supply), regions (regional supply), etc. o To make domestic technical standards for new and renewable energy equipment in compliance with international standards and to bring national standards in line with international standards as a COSD*(designated in 2009) * Cooperation Organization for Standards Development (COSD): the organization is accredited by the Korean Agency for Technology and Standards for its ability to develop KS standards for each specialized sector	Policy	Ministry of Trade, Industry, and Energy	Implemented	Informed separately	Power supplied by New and Renewable Energy (TOE)

Source : 1st Biennial Update Report (BUR), Republic of Korea, 2014

4. PROGRESS FROM LIMA, GENEVA TO PARIS

Section I : Transparency of actions and support

- **[General] para.140~146**
  - Purpose, Scope, Type of system(Single/Common, Applicable to all/CBDR•RC)
- **[Commitments] para.147~150**
  - Contents (QEWERTs & policies and actions, adaptation, provision of supports, etc.)
- **[Rules and Modalities] para.151~160**
  - Accounting methodologies(IPCC guidelines, common metrics, the use of market mechanisms, land sector), MRV of support, guidelines development by a governing body, templates

Source : FCCC/ADP/2015/1

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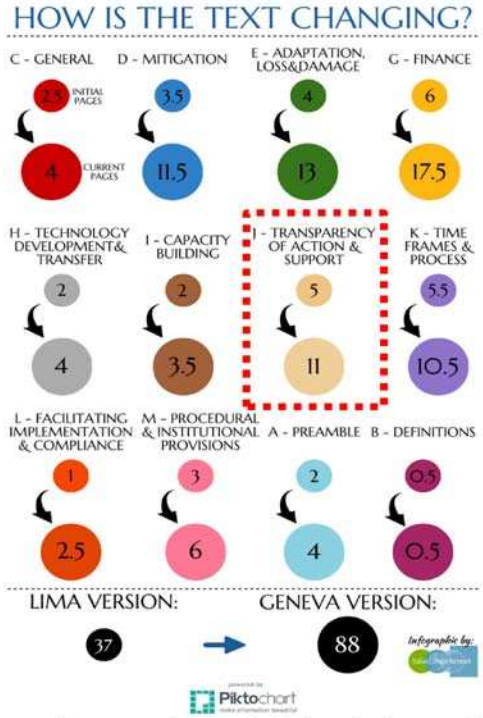
4. PROGRESS FROM LIMA, GENEVA TO PARIS



Source : adoptanegotiator.org/adp-how-is-the-text-changing

" ...A fully streamlined, consolidated, clear and concise version of the Geneva Negotiating Text that will present clear options and will not omit or delete any option or Position of Parties. "

Source : Co-Chairs' Suggestions on the Way Forward for the Preparation of ADP 2.10 (June 11, 2015)

BONN VERSION (July 11, 2015) → 85

CO-CHAIR'S VERSION (July 24, 2015) → ?

Source : FCCC/ADP/2015/1

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4. PROGRESS FROM LIMA, GENEVA TO PARIS

1992 CONVENTION	1997 KP	2015 DRAFT TEXT (based on Geneva Text)
Article 12 – Communication of information related to implementation	**Article 5**	**Section D – Mitigation**
Para. 1 Elements of communication for each Party : ① National inventory, ② General description of implementation, ③ Other information	Para. 1 National system establishment	Para. 39 Market mechanisms; land use; accounting
Para. 2 Annex I Parties' elements of Communication : ① Detailed description of policies and measures adopted for QEWERTs for 2020, ② Specific estimate of the policies and measures	Para. 2 Accounting Methodology	Para. 49 Accounting rules
Para. 3 Annex II Parties' elements of Communication : ① financial support, ② adaptation assistance, ③ environmentally sound technologies and know-how transfer	Para. 3 Metrics	**Section E – Adaptation and loss and damage**
Para. 5 Period	**Article 7**	Para. 54.2 Reporting on adaptation
Para. 10 Publication (sharing)	Para. 1 Annual inventory submission	Para. 57 Monitoring and evaluation
	Para. 2 Demonstration of compliance with its commitments under the Protocol in national Communication	**Section F – Finance**
	Para. 4 Adoption and periodic review of guidelines	Para. 88 MRV of support mechanism
	Article 8	**Section I – Transparency of action and support**
	Para. 1~6 Review by expert review teams	Para. 141 ~ 157 Objective, Architecture, Scope, Metrics, Rules & Modalities, Accounting Rules
1 Article 10 Para.	3 Articles 13 Para.	4 Sections 22 Para.

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4. PROGRESS FROM LIMA, GENEVA TO PARIS

- **(Type) SINGLE vs. COMMON vs. SELF-DIFFERENTIATION?**
  - **Common with flexibility (but how flexible?)**
  - **Degree of self-differentiation for Transparency Framework?**
- **(Scope) Only Mitigation? or Adaptation, MOIs ?**
  - **MRV for Adaptation? or Capacity-Building?**
- **(Key Elements) "Paris Core Agreement" vs. COP decisions**
  - **"unpacking and "repacking" without losing any substance, and maintaining the respective positions of Parties**
  - **specific modalities on reporting/verification process (frequency, format), guideline development, accounting methodologies, etc..**

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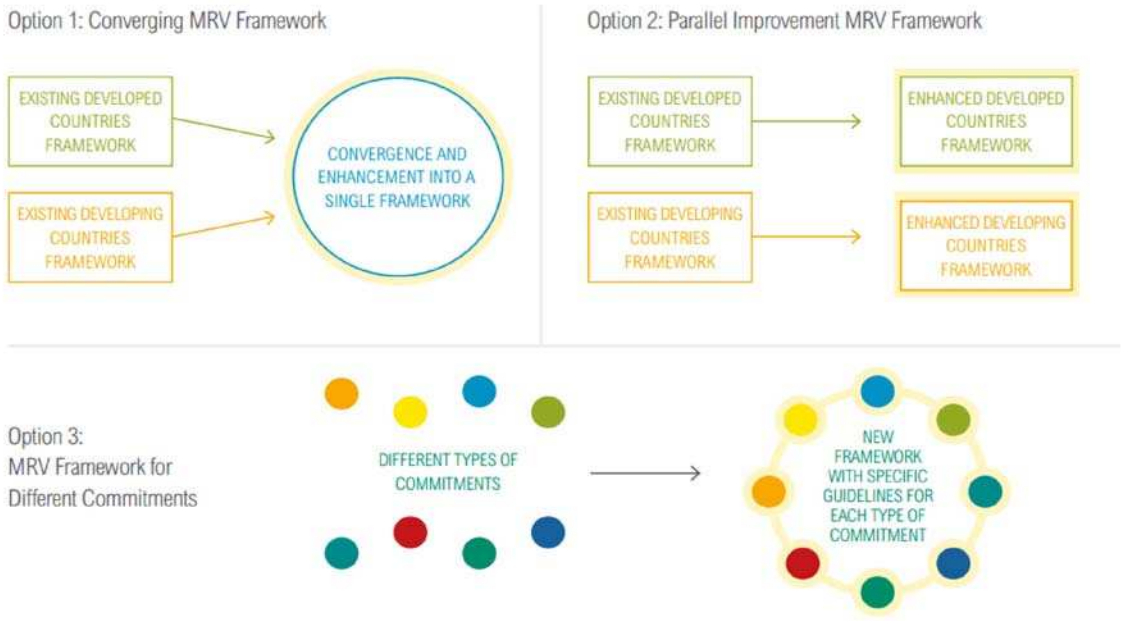
4. PROGRESS FROM LIMA, GENEVA TO PARIS



Source : ACT 2015, Working Paper (2014), "Improving Transparency and Accountability in the Post-2020 Climate Regime : A Fair Way Forward"

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4. PROGRESS FROM LIMA, GENEVA TO PARIS

- **Will "APPLICABLE TO ALL PARTIES" principle end The existing binary division between Annex I and Non-Annex I countries?**

- **How should "COMMON BUT DIFFERENTIATED RESPONSIBILITY AND RESPECTIVE CAPABILITY (CBDR/RC)" principle be applied in a legally binding agreement?**

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5. CHALLENGES UP TO 2020

- Continuing negotiations on designing specific rules and modalities to be decided in the future COP meetings before 2020
- As complying with the IAR/ICA, preparing domestic MRV systems at the "minimum requirement level" by 2020

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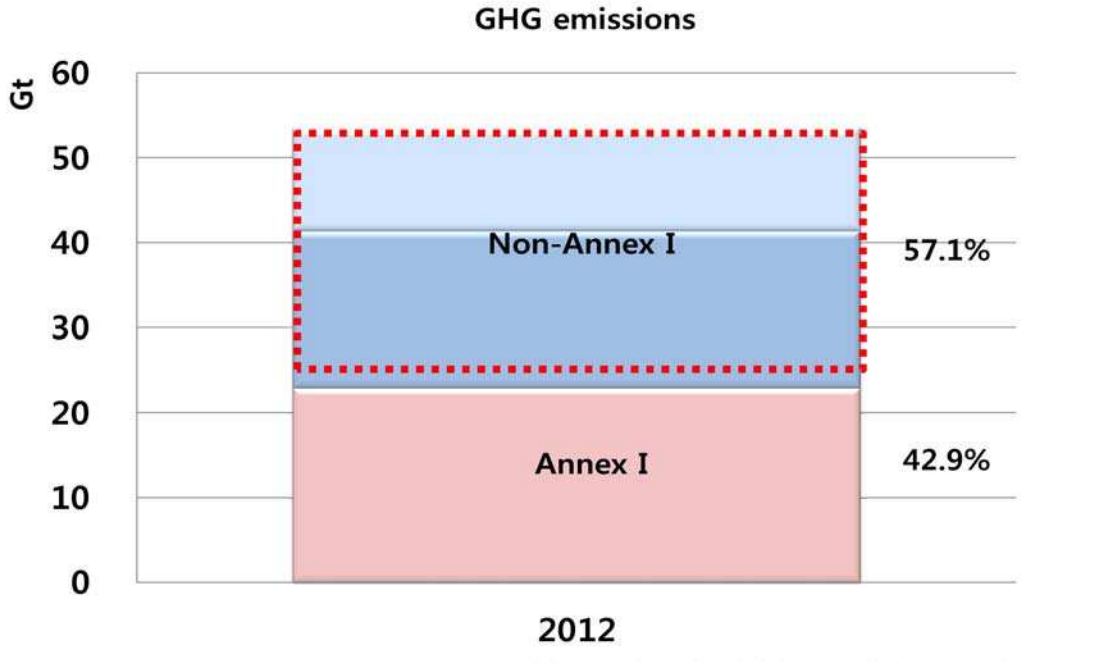
5. CHALLENGES UP TO 2020



Source : Emission Database for Global Atmospheric Research (EDGAR)

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5. CHALLENGES UP TO 2020

- **Many obstacles to overcome, but establishing a enhanced Transparency Framework is the key to achieve the 2℃ target.**

  ① Trust & Confidence among Parties & stakeholders

  ② Robust GHG inventory system(country, region, city, project..)

  ③ Clear Post-2020 target (keep raising ambitions on a regular review cycle)

  ④ Effective Policies incentivizing GHG reductions (renewables, fuel efficiency, building standards)

  ⑤ New market, new jobs for long-term investment (ETS)

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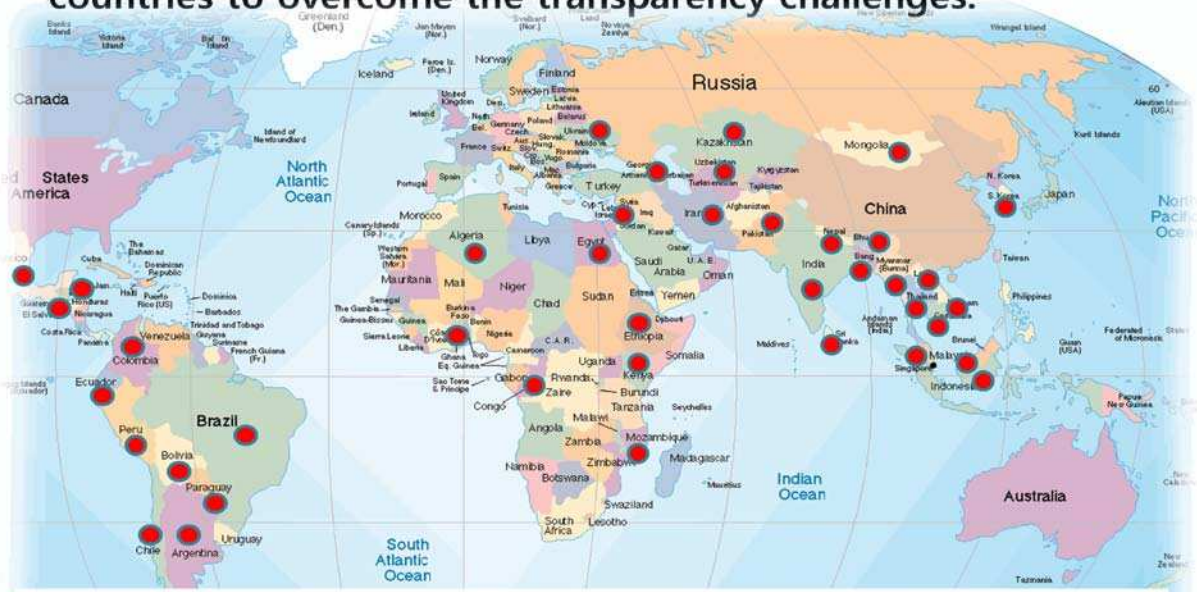
5. CHALLENGES UP TO 2020

- **GIR's international cooperation programs supports developing countries to overcome the transparency challenges.**



Countries in cooperation (Cooperative Green Growth Modeling Forum & International GHG Training Program)
Algeria, Argentina, Azerbaijan, Bangladesh, Bhutan, Bolivia, Brazil, Cambodia, Chile, Columbia, Congo, Ecuador, Egypt, Ethiopia, Ghana, Guatemala, Honduras, India, Indonesia, Iran, Jordan, Kazakhstan, Kenya, Lao PDR, Lebanon, Malaysia, Mexico, Mongolia, Mozambique, Myanmar, Nepal, Pakistan, Paraguay, Peru, Singapore, Sri Lanka, Thailand, UAE, Ukraine, Uzbekistan, Vietnam, Korea (41 developing countries)

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5. CHALLENGES UP TO 2020

GHG Training Program

"A 3-4 weeks intensive education course of GHG inventory compilation and modeling analysis. This program invites government officials, young graduate-level students, or researchers from all over developing countries every Summer to South Korea."

1st program : 44 trainees from 21 countries completed, 2011
2nd program : 42 trainees from 22 countries completed, 2012
3rd program : 38 trainees from 28 countries completed, 2013
4th program : 34 trainees from 29 countries completed, 2014

To download the latest version of the event's brochure click More

Source : www.gir.go.kr/eng

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THANK YOU

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Session 3

2. Li Peng

MRV of GHG emissions for Key enterprises in China-System & Features


MRV of GHG emissions for Key enterprises in China—System & Features
Sino Carbon Innovation & Investment Co., Ltd.
July.2015
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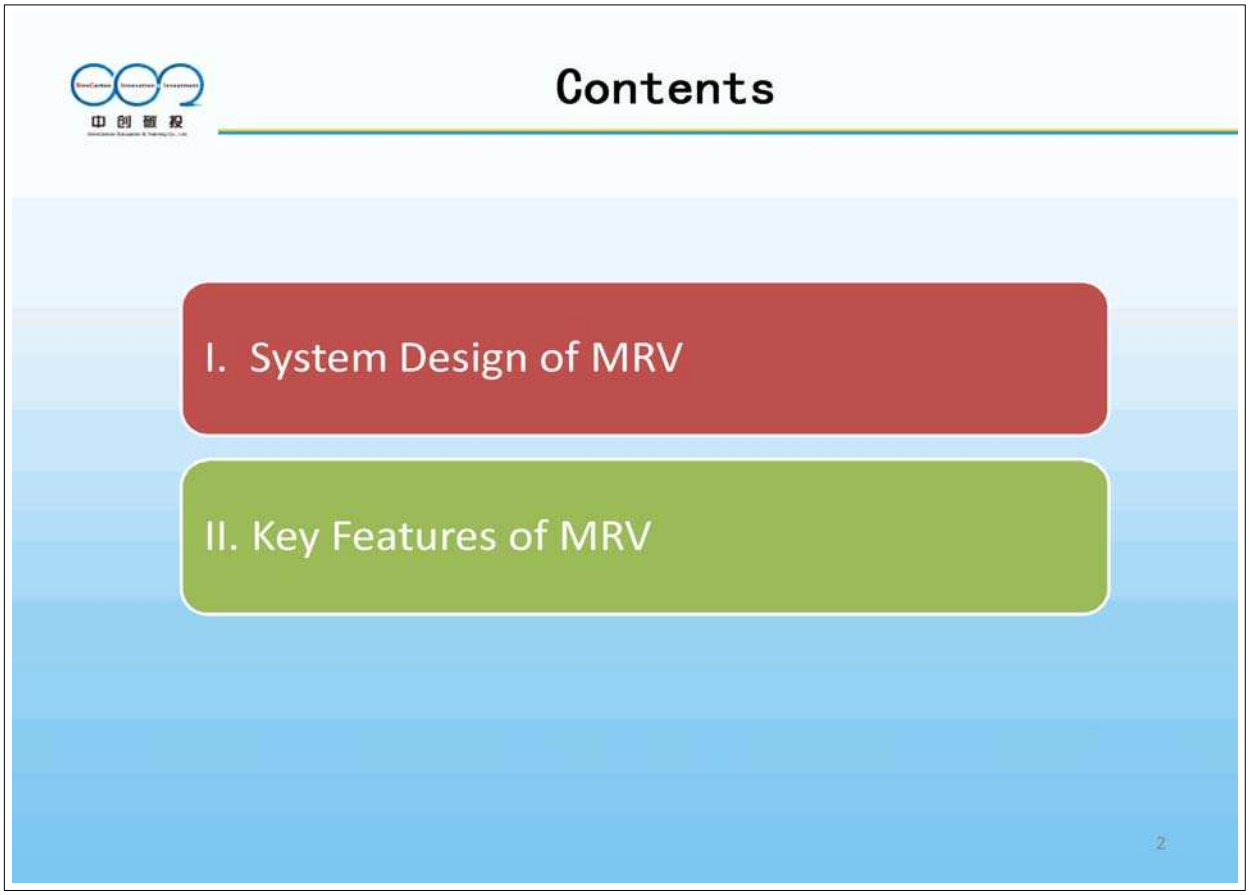
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I. System Design of MRV
II. Key Features of MRV
2

I. System Design of MRV

3

Work Program for GHG Emission Control in the 12th Five-Year Plan

Accelerate system building of GHG accounting and reporting

1.Basic Statistics System

For GHGs, Build Statistics System which covers energy activities, industry progresses, agriculture, forestry and waste disposal

Strengthen Energy Statistics.

2.Accounting and reporting
Design MRG for industries and enterprises
Building GHG emission data system
Compiling national and provincial GHG inventory
Building accounting and reporting system in national, local and enterprises level
Building direct reporting system for Key enterprises.

4

Main Progress – National Level

On Nov. 15th 2013,NDRC published Guidelines for Accounting and Reporting GHG Emissions for **10** sectors

- Power generation
- Power grid
- Cement
- Ceramics
- Glass Plate
- Aluminum
- Magnesium
- Chemical
- Iron & Steel
- Aviation

On 3rd December 2014, NDRC published Guidelines for Accounting and Reporting GHG Emissions for **4** sectors

- Oil &gas production
- Coal production
- Independent coking
- Petrochemical

Other 10 guidelines are to be released quite soon

- Mining, Transportation, Building
- Machinery manufacturing, Electronics manufacturing
- Food Tabaco and beverage
- Non-ferrous metal, Paper making
- Fluorine Chemistry
- Other industries

Main Progress – National Level

On 13th. Jan. 2014, NDRC required entities whose emissions reach 13000 tCO2e or total energy consumption 5000Mtce to report emissions .

（1）Entities Report.

Report GHG emissions to provincial department who are in charge of climate change by Mar.30th.

（2）Verification of provincial CA

Provincial CA organize review and verification of GHG emissions in 3 months

Require those unqualified rectify and report again in limited time.

（3）Summarization and report by provincial CA

Summarize the qualified report data which passed the verification assessment and Report to NDRC before 30th June

Main Progress –Local Pilots

Covered sectors and entities

Pilots	Covered Sectors	Criteria for covered Entities	Amounts for covered Entities
Shenzhen	Industries (e.g. Electronic , water supplies, Manufacturing Industry), Building	Industries: 5,000 tCO_2 (3000 t after 2014) 20,000sqm(Public Building) 10000sqm(Institution Building)	Industries：635 Buildings：197
Shanghai	Industry: Power, Iron & steel, Petrochemical, Chemical, Non-ferrous metal, Building materials, Textile, Paper making, etc. Service: Aviation, Port, Airport, Railways, Commerce, Hotels, Finance	20,000 tCO_2 (industry) / 10,000 tCO_2 (other)	191
Beijing	Non industry: Power, Heat, Cement, Petrochemical, Other Industries and Service	10,000 tCO_2	490
Guangdong	Power, Cement, Iron & steel, Petrochemical (After 2014 included other industries sector, Hotel, Commerce, Finance, public institution)	20,000 tCO_2 After 2014: 10,000 tCO_2 (industry) / 5,000 tCO_2 (other)	242 （including 40 new entities）
Tianjin	Power & heat, Iron & steel, Chemical, Petrochemical, Oil & gas production	20,000 tCO_2	114
Hubei	Power, Iron & steel, Petrochemical, Chemical, Cement, Vehicle manufacturing, Non-ferrous metal, Glass, paper making, Health(化纤、食品饮料)	60,000 tce consumption	138
Chongqing	Power, Aluminum , Ferroalloy, Calcium carbide, Caustic soda, Cement, Iron & steel	20,000 tCO_2	242

Main Progress –Local Pilots

Deadline for GHG Reporting and Verification

Pilots	Submit Monitoring Plan	Initial Emission report submission	Verification report submission
Shenzhen	-	Before 31 March	Before 30 April
Shanghai	Before 31 December	Before 31 March	Before 30 April
Beijing	-	End of February	Before 30 April
Guangdong	-	Before 30 March	Before 30 April
Tianjin	Before 30 November	Before 30 April	
Hubei	End of September	End of February	Before 30 April
Chongqing		Before 20 February	

II. Key Features of MRV

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M&R Guideline in the national level

- Characteristic for published guidelines
  - Legal Person
  - All emissions in relation to production activity (Direct and Indirect emissions)
  - 6 type of GHGs（CO2、CH4、N2O、HFCs、PFCs、SF6）
  - Accounting methodology easy to use, high applicability

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MRV Systems of Pilots in China

Comparison of MRV Factors of Pilots

	Accounting boundary	Category of GHG emissions	Category of GHGs	Accounting method
Shenzhen	Organizational boundary	Direct emissions：Combustion emissions(stationary + mobile) industries process emissions Indirect emissions：purchased electricity, heat, cold, stream	CO_2（CH_4、N_2O、HFCs、PFCs、SF_6）	Calculation & measurement
Shanghai	Legal Person，Related to the production and operation activities	Direct emissions：Combustion emissions(stationary + mobile) industries process emissions Indirect emissions：purchased electricity, heat	CO_2	Calculation & measurement
Beijing	Legal Person，Related to the production and operation activities	Direct emissions：Combustion emissions（stationary）、industries process emissions, waste treatment Indirect emissions: purchased electricity	CO_2	Calculation & measurement

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MRV Systems of Pilots in China

Comparison of MRV Factors of Pilots

	Accounting boundary	Category of GHG emissions	Category of GHGs	Accounting method
Guangdong	Organizational boundary(legal person)	Direct emissions：Combustion emissions(stationary) industries process emissions Indirect emissions：purchased electricity, heat	CO_2	Calculation & measurement
Tianjin	Legal Person	Direct emissions：Combustion emissions(stationary + mobile) industries process emissions Indirect emissions：purchased electricity, heat	CO_2	Calculation & measurement
Hubei	Organizational boundary	Direct emissions：Combustion emissions(stationary + mobile) industries process emissions Indirect emissions： purchased electricity	CO_2	Calculation & measurement
Chongqing	Legal Person	Direct emissions：Combustion emissions(stationary + mobile) industries process emissions Indirect emissions： purchased electricity, heat Special emissions: energy output, captured and transferred emissions	CO_2（CH_4、N_2O、HFCs、PFCs、SF_6）	Calculation & measurement

MRV Systems of Pilots in China

Verification Institutions

Pilots	Number of Verifiers
Beijing	19
Tianjin	4
Shanghai	10
Guangdong	16
Shenzhen	21
Hubei	3
Chongqing	11

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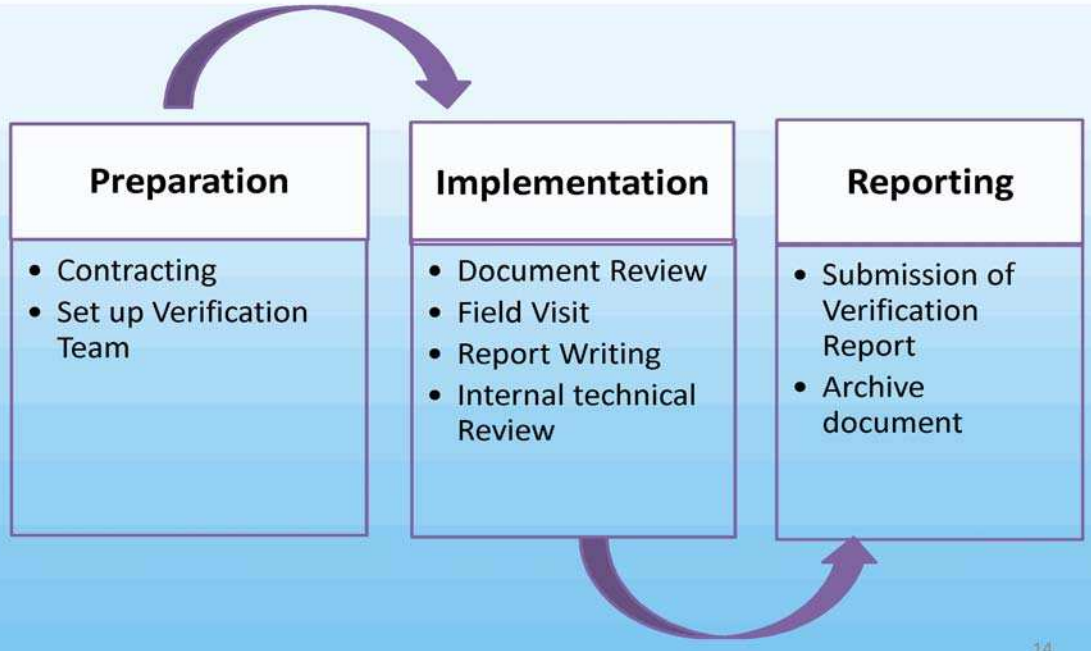
MRV Systems of Pilots in China



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Thank you!

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Session 3

3. Ajeya Bandyopadhyay

Transparency enhancement of post-2020 carbon market mechanism
Developing Country Experience

Transparency enhancement of post-2020 carbon market mechanism

Developing Country Experience

2nd July 2015
International Modelling Conference
Seoul

EY
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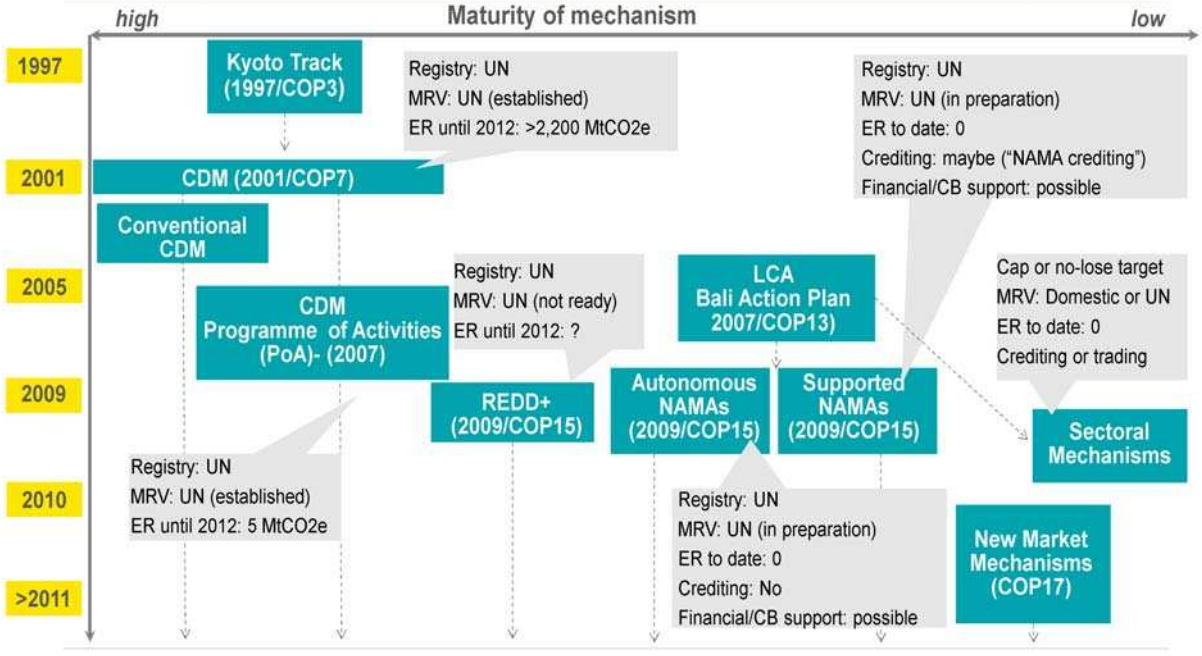
Contents

01

Evolution of market and non-market mechanisms

Evolution of market and non-market mechanisms under the UNFCCC



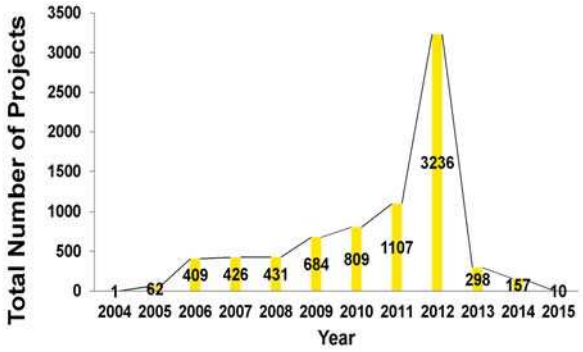
02

CDM market

Trends of CDM project registration and issuance of CERs globally

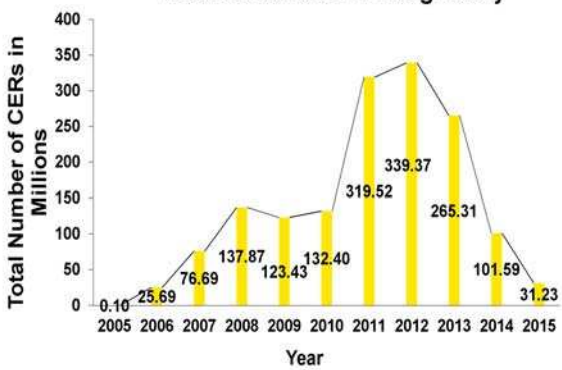
No. of registrations and issuances have dropped significantly due to reduced CER demand and increased procedural stringency

Total Number of CDM Projects Registered Globally



Total Number of Projects Registered Globally = **7619**

Total Issuance of CERs globally



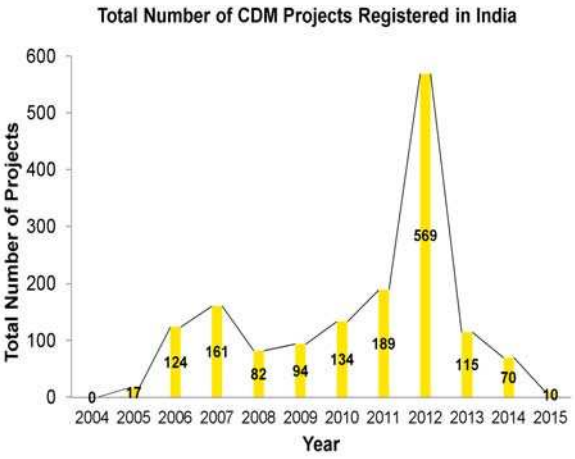
Total Issuance of CERs in Millions Globally = **1553.2**

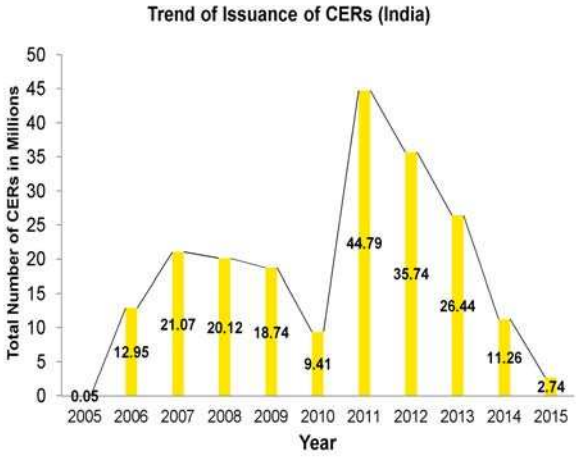
Source: CDM Database, UNFCCC

*All figures till March 2015

Trend of CDM Registrations and Issuance of CERs (India)

Global trend is reflected for India





Total Number of Projects Registered in India = 1565

Total CERs issued in India (Millions) = 916.84

Source: CDM Database, UNFCCC

*All figures till March 2015

Areas to further enhance transparency in the CDM process

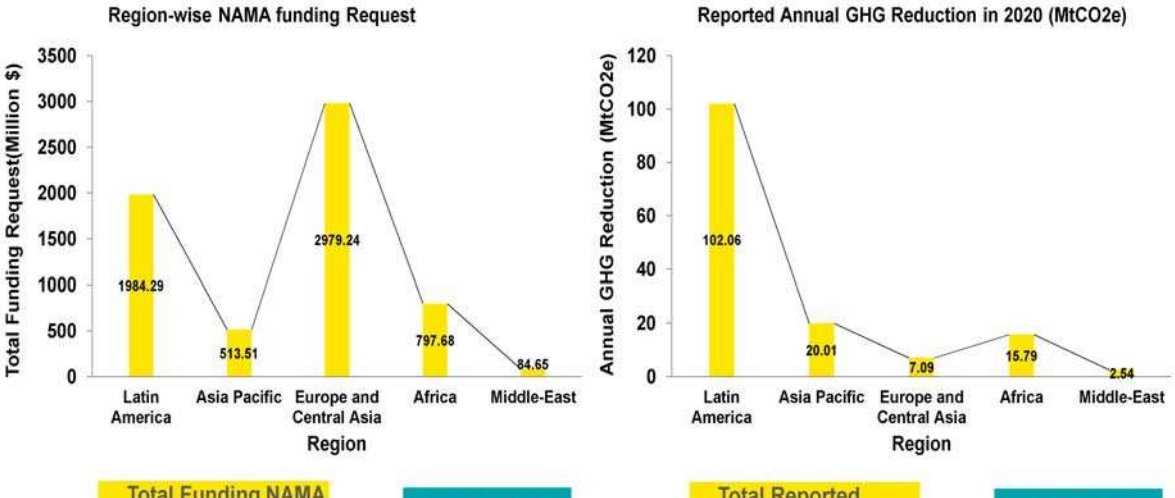
CDM was designed with the intention of ensuring perfect transparency during the validation and registration process. However, CDM projects have always been plagued by transparency issues. Few steps may be taken to further enhance transparency in the system:

- To combat this, the project regulators at UNFCCC have added additional layers of scrutiny before project approval. Many projects could not get through the registration stage and were rejected.
- Transparency to be increased for the stakeholder consultation process so that project developers have to ensure that all stakeholders are informed about the project. It needs to be ensured that all affected stakeholders are consulted.
- There should be provision for stakeholders to raise grievances on sustainability aspects even after the project activity is registered
- Provision to be made for checking if the project conforms to the sustainability parameters as given in the PDD at the verification stage. Presently, Verification entails checking only parameters for calculation of GHG emission reduction.
- More stringency to be introduced for Host Country Approval stage

03

NAMA and MRV

Level of NAMA funding and corresponding GHG emission



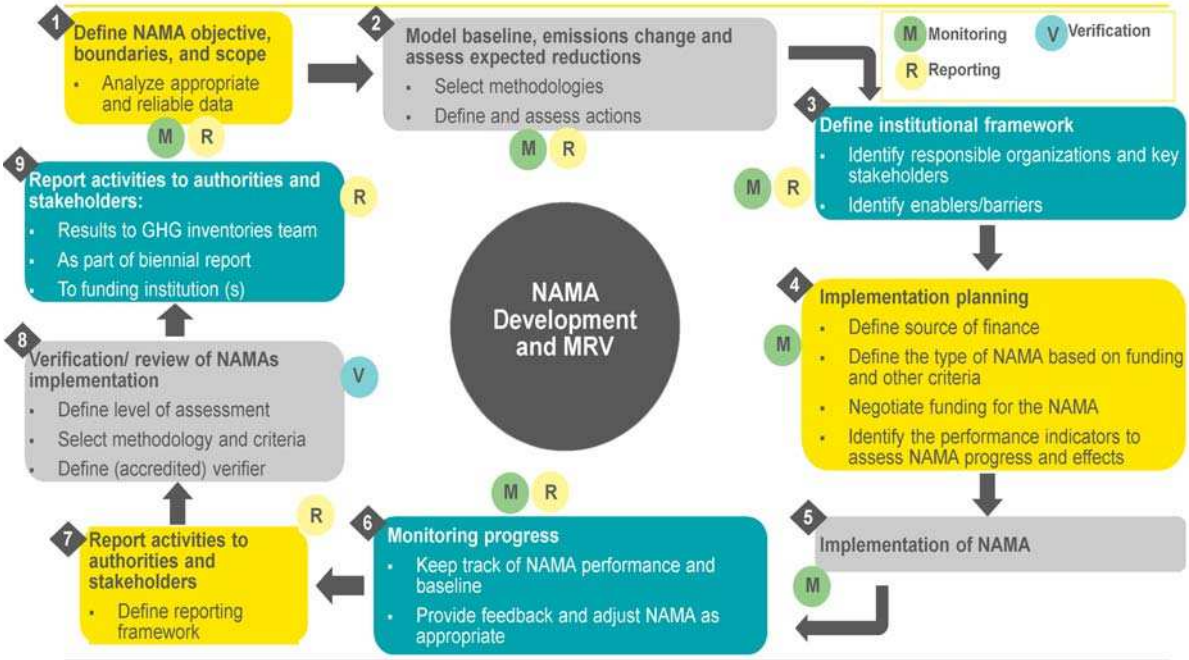
Total Funding NAMA funding request (Million $) = 6359.36

Total Reported Annual GHG Reduction in 2020 (MtCO2e) = 147.79

Source: NAMA Registry, UNFCCC

*All figures till June 2015

Process of NAMA baseline setting, preparation, implementation and MRV



Source: Gap Analysis Report (EU/GIZ)

Enhancement of transparency for different NAMA types

Example NAMA	Quantitative Financial metrics	Quantitative Process metrics	Qualitative Process metrics	Quantitative Technical metrics	Transparency issues
Capacity development NAMA	▸ Donor investment and recipient fund allocation for capacity development	▸ Establishment of data and record keeping systems at national level	▸ Quality of data system		- How to ensure quality of the data system- no standardized definition
Building energy efficiency	▸ Donor investment and recipient fund allocation for retrofitting of buildings ▸ Cost of retrofitting office buildings per square metre	▸ Number of buildings with energy management systems implemented ▸ Number of energy efficient devices Installed	▸ Assessment of behaviour-based energy management outcomes following training	▸ Reduction in energy use in buildings with an implemented energy management system ▸ Recording "power" of the device installed (as per CDM methodology) ▸ Metering "energy use" of an appropriate sample of the devices installed (as per CDM methodology)	-Fixing the baseline needs to be done transparently and accurately using models

NAMAs and metrics (contd.)

Example NAMA	Quantitative Financial metrics	Quantitative Process metrics	Qualitative Process metrics	Quantitative Technical metrics	Transparency issues
Sectoral emissions reductions programme	▸ Donor investment and recipient fund allocation for technology diffusion	▸ Establishment of sectoral inventory including baseline and reporting systems	▸ Quality of sectoral inventory including baseline and reporting systems	▸ Estimated reduced avoided emissions (tCO2 eq) at the facility level ▸ Estimated reduced avoided emissions (tCO2 eq) at the sector level	-Fixing the baseline needs to be done transparently and accurately -Implementation of MRV systems to be done by Govt authorities

Source: A Primer on MRV for NAMA, UNEP RISO Centre

NAMA and transparency issues

- Although the concept of monitoring and evaluation is not new to most developing countries, MRV of NAMAs will require new capacities and knowledge
- In addition to complying with UNFCCC and funder requirements, host countries would expect to use MRV to track progress towards domestic objectives
- MRV of the actions receiving support and their outcomes in terms of emission reductions are a priority for most funders in order to assess effectiveness of support
- However, attempting to link emission reductions with specific activities funded by multiple sources raises a number of issues, since emission reductions resulting from those activities could overlap
- Transparency on the use and impact of (public) funds is a key objective of MRV.
- The principle of accountability in case of non-performance still needs to be refined through practice and experience sharing, especially with regards to result-based approaches
- More clarity is expected from funders on the ideal level of transparency that reporting and verification processes should achieve
- Lack of standardisation of reporting formats can pose challenges especially with regards to the coherence of information reported through various channels

Key areas to improve transparency in MRV systems

- All data and methodologies used should be clearly explained and appropriately documented in the report, so that anyone can verify their correctness.
- Reporting should include all relevant information to enable readers to replicate the impact results that are arrived at in the report.
- QA/QC to be introduced to improve the MRV system over time by providing feedback on measurement methods and procedures and improvements in reporting
- For setting baseline, different models may be used. To assess the impact of NAMA, models such as CGE or MARKAL may be used.
- Transparency in stakeholder engagement and consultations
- Baseline for NAMAs on capacity building need to be fixed using international indices such as Transparency International which give an indication of the institutional capacities of a country.

Criteria for attracting international investors as potential NAMA financier: A robust MRV design

Governance	Policy coherence	Robust and pragmatic MRV	"Bankable" proposals
Good leadership by lead agency (national champion)	Building on existing sector policy, but Strengthens ambition	Availability of data or credible plan for sourcing	How will funds be deployed, how much and over what period
Evidence of strong partnerships	Clearly linked with national climate developmental policies & priorities	Solid baseline, credible statement of the counterfactual	Leveraging impact of donor funds
Coordination e.g. Inter-ministerial committees		Clear and measureable indicators/ parameters	Cost of financing
Role of private sector	Potential for scale up and replicability	Full set of metrics, including GHG & co-benefits	Performance based?
			Overcoming financial barriers

Case studies of how developing countries attempting to meet transparency requirements for CDM/NAMA

1 INDIA

- The public consultation phase of registration is often held nominally without properly seeking feedback from local communities
- The GoI has asked the NCDMA to meet more frequently for issuing HCA and to delist projects where the developers take more than 3 months to submit requisite documents (this has the dual function of preventing easy forgery of documents and reducing delays)
- Government documents to validate certain baseline facts and figures are provided by GovT officials after robust scrutiny

2 BANGLADESH

- Supported NAMA in the steel sector (Implementation of heat recovery system in identified pilot sites)
- Reporting of co-benefits is not clear
- For the MRV system, at present only the steel mill is involved. Data should be gathered by the national authorities with the mandate to monitor, report, verify and enforce. Using the existing structures this fits best with DOE.
- If a third party verify is needed this could be done by the World Steel Association as they have an already established infrastructure.

Case studies of how developing countries attempting to meet transparency requirements for NAMA/MRV

3 CHILE

- Facilitates decision-making and national planning
- The country is implementing a national registry of all domestic and supported mitigation actions
- The registry will track basic information on each action with a consistent methodology that will allow Chile to fulfil international reporting requirements

4 TUNISIA

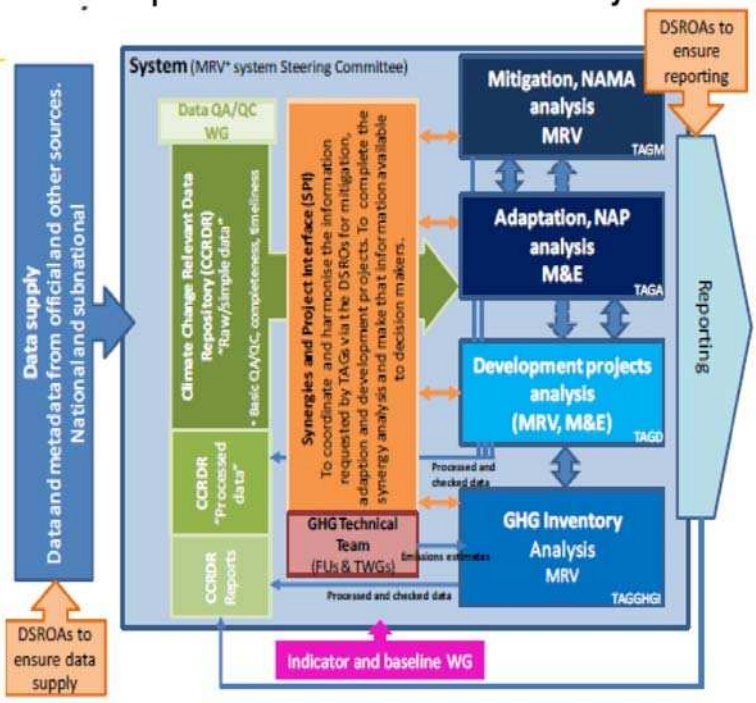
- Capacity building of service providers is necessary to ensure proper installation and functioning of technologies
- Besides, a communication programme is also needed to advertise access to a subsidy/loan programme
- If different funding sources were to finance the capacity building component of the NAMA, outreach activities and technology installation, it will prove challenging to associate the emission reductions with each specific source of support

5 INDONESIA

- In order to allow each province to internally monitor and report back to the national level, Indonesia is designing a national monitoring, evaluation and reporting framework
- MRV system will build on existing practices rather than create parallel processes
- This will also facilitate MRV of the delivery and use of international support at both the national and provincial levels

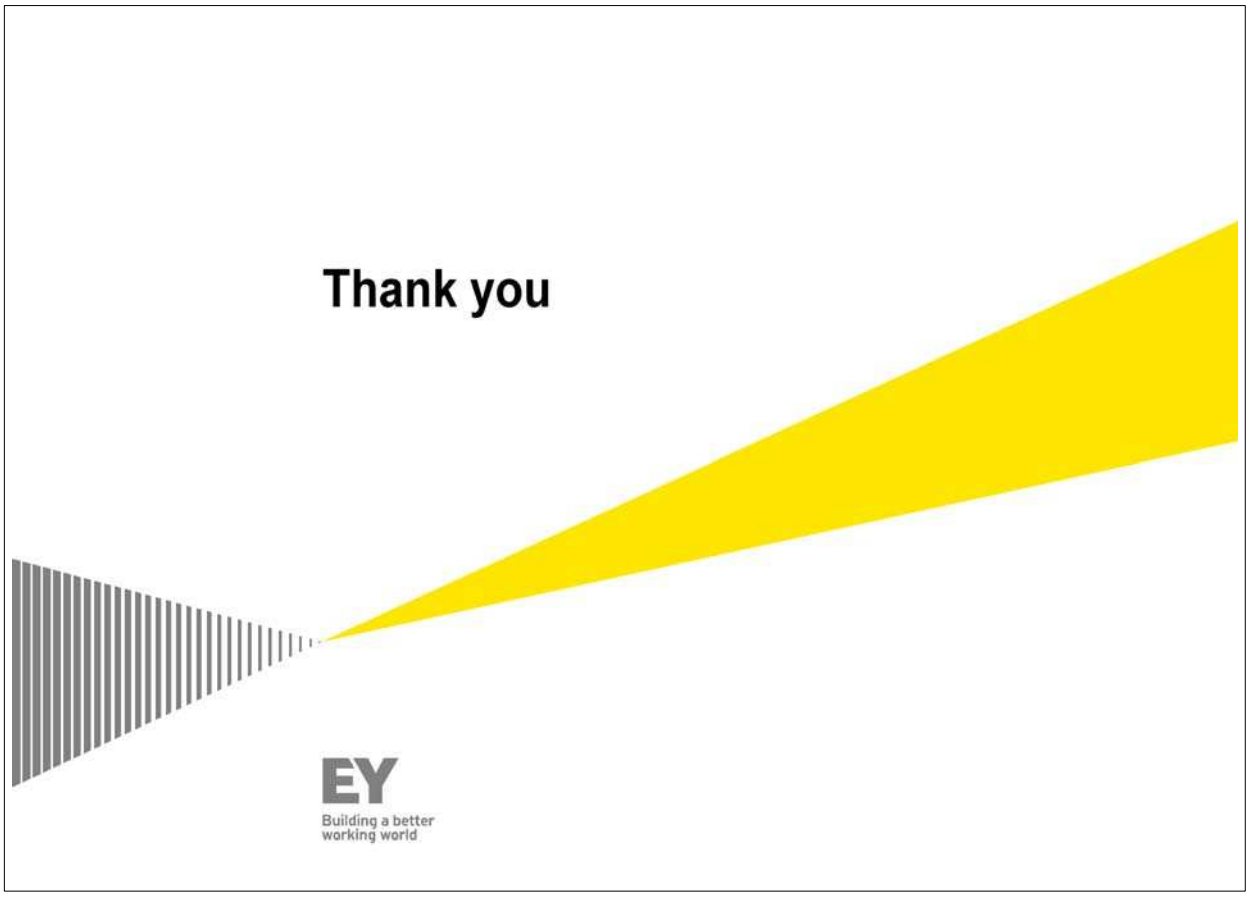
Developing a Robust and Transparent MRV of NAMAs: Kenya MRV+ case study

- MRV+ system designed to cover mitigation actions, adaptation actions and development actions
- Central to system is a climate change relevant data repository, where all data is stored (raw data, processed data and final reports)
- Data requirements decided through Data Supply Reporting Obligation Agreements
- Raw data processed by the respective Technical Analysis Group (e.g. for mitigation, adaptation, development and GHG inventory)



Key conclusions

- Implementation of MRV systems by Govt authorities- Suitable Institution Arrangement in place
- Consultations with local stakeholders, statutory authorities, regional/national/global entities
- Cross-sectional approaches, e.g. by using policy and control groups, which are equivalent in all respects except for the existence of the NAMA (method applicable for ex-post assessment only).
- Suitable methods for modeling cause-effect relationships and establishing impact hypotheses on the effects of NAMA
- Reports to clearly include
  - Description of process of preparing the inventory
  - GHG emissions by category and trends by type of gas
  - Information on indirect GHG
  - Key Sources (including brief description of methodology)
  - Level of uncertainty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EY
Building a better
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