

Perspectives on Measurable, Reportable, and Verifiable actions

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The 18th Asia Pacific Seminar on Climate Change

March 2-3, 2009 Hanoi, Vietnam

1. Introduction

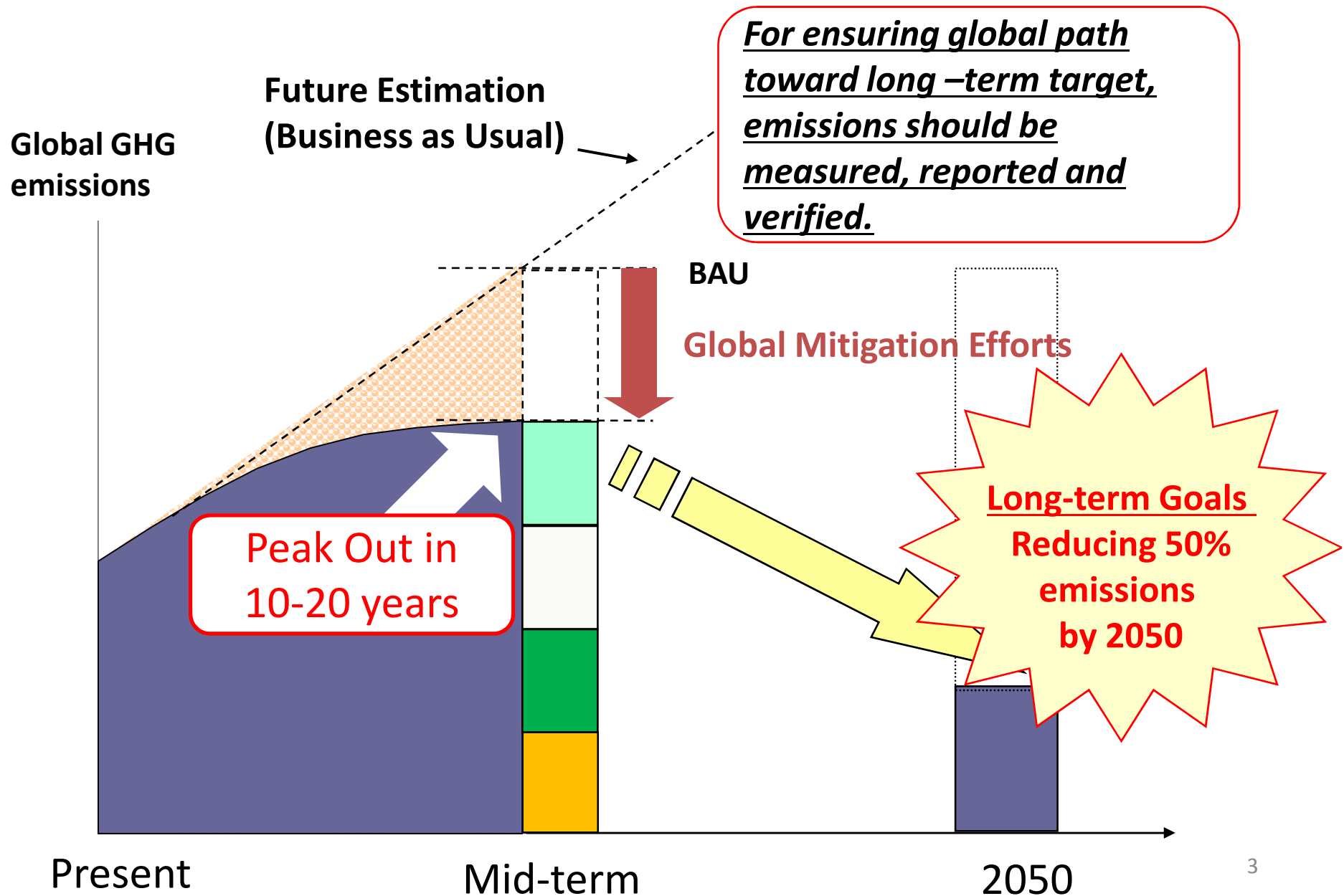
- To avoid dangerous impact by climate change, global mitigation efforts are necessary.
- Developed countries take a lead, but DCs also need to act in accordance with CbDR/RC.
- Bali Action Plan 1(b)(ii) required NAMAs by DCs in MRV manner with MRV support by developed countries.

NAMAs: Nationally Appropriate Mitigation Actions

DCs: Developing countries

CbDR/RC: Common but Differentiated Responsibilities and Respected Capabilities

2. Importance of MRV



3. Principles for MRV

MRV Framework should;

- Focus on Quantitative information (GHG emissions)
 - MRV aims to ensure reduction of GHG emissions.

- Facilitate effective actions
 - Support should link to effective actions

- Be developed based on current system
 - Unnecessary administrative burden should be avoided

- Be differentiated based on principles of CbDR/RC
 - Each country should contribute within its capability

4-1. Measurability: What should be measured?

Developed countries

QELROs

Developing countries

National action plan

- including policies and measures for mitigation
- quantitative to the extent possible in terms of GHG
- China, Indonesia, South Africa, Brazil have already made its national action plan
 - South Africa and Korea propose “Registry of NAMAs”
 - EC proposes “Low-carbon development strategies”

Example of MRV indicators

[Existing sectoral indicators]

	Iron & Steel	Cement	Power
China -target in 2020 -Mid & Long-term Energy Saving Plan (2004) - Based on China's 11 th Five-Year Plan (2006-2010)	700 kg-ce*/t-steel ≈ 1.82 t-CO2/t-steel *ce= coal equivalent	129 kg-ce/t-cement ≈ 0.34 t-CO2/t-cement	<Coal fired power plant> 320 g-ce/kWh ≈ 0.83 kg-CO2/kWh Ex. Raise the proportion of renewable energy (inc. hydro) in primary energy supply up to 10% by 2010 From "China's National Climate Change Program" (2007)
Japan -target in 2010 -Voluntary action plan under Kyoto Protocol	2,274 Pjour ≈ 1.53 t-CO2/t-steel* *Supposing that iron & steel output in 2010 will be 100Mt.	3,451 MJ/t-cement ≈ 0.23 t-CO2/t-cement	<Electric power industry as a whole > 0.34kg-CO2/kWh Ex. •Photovoltaic generation : 3.0Mkw •Wind generation : 2.5Mkw

<Reference>

- CO2 intensity of Coal : 3.7620 Gg-CO2/10¹⁰kcal
- CO2 intensity of Crude oil : 2.8641 Gg-CO2/10¹⁰kcal
- 1 MJ = 2.58258 x 10⁻⁵ kiloliter of crude oil equivalent

- Calorific value of Coal : 6,928 kcal/kg
- Calorific value of Crude oil : 9,126 kcal/L
- 1 MJ = 2.58258 x 10⁻⁵ kiloliter of crude oil equivalent

(Source):EDMC Handbook of Energy & Economic Statistics in Japan

4-2. Possible 3 Components of Voluntary National Action Plan

1. Autonomous mitigation actions
 - Its primary purpose is development
 - negative-cost or low-cost actions
 - Energy efficiency improvement in major sectors for major DCs
2. Additional mitigation actions
 - high-cost actions
3. Flexibility mechanisms such as CDM

*What action is Autonomous actions and what is additional depends on capability of each country

4-3. Reportability

- All Parties have obligations to submit national communication incl. inventory (Convention Articles 4.1, 12.1)
 - Current situation
 - Annex I: National communication every 4-5 years and Inventories every year
 - Non-Annex I: Most of countries submit only once
 - Need to strengthen the current National Communication
 - Contents (guideline for NAMAs is required)
 - Frequency (yearly is desirable for inventories)
- Capacity building is necessary
(Japan hosts series of WS on GHG Inventories in Asia)

4-4. Verification

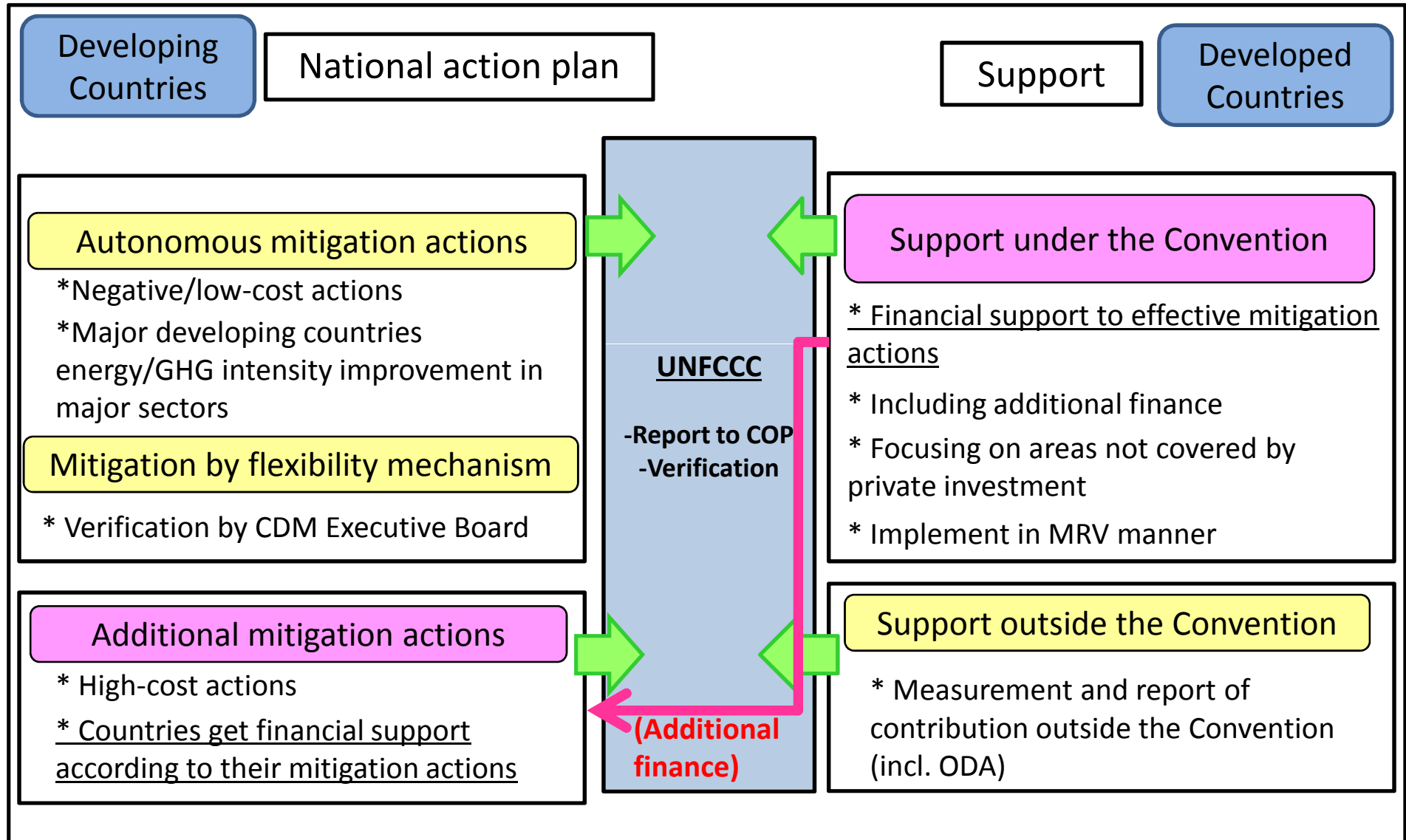
- Review by own country for autonomous mitigation actions
- Review by COP for supported mitigation actions
 - A country achieving more effective reductions should get more support.
 - Facilitating actions rather than punishing fault.
- Review by CDM Executive Board for CDM

5. MRV Support

- Financial support to effective mitigation actions
 - Linking support to quantitative actions give incentives to take effective mitigation actions
- Focusing on areas not covered by private investment and leveraging private investment (private investment account for 86% of all investment)
- Including support from carbon market

6. MRV framework (example)

National action plans /support to UNFCCC, report to COP, verification



Conclusion

- MRV is a key to ensure global reduction toward long-term target.
- MRV should quantify GHG emissions.
- MRV actions by DCs should be differentiated based on the principles of CbDR/RC.
- Linking support and actions can provide incentives for effective mitigation actions.
- MRV is not new. We should build on our experience from current system.
- Capacity building is necessary.

ANNEX

Table 1. Energy Consumption Index per Unit of Major Products

Items	Unit	2000	2005	2010	2020
Coal consumption of power supply	gce/kWh	392	377	360	320
Comprehensive energy consumption per tone steel	kgce/t	906	760	730	700
Comparable energy consumption per ton steel	kgce /t	784	700	685	640
Comprehensive energy consumption of 10 types of non-ferrous metals	tce/t	4.809	4.665	4.595	4.45
Comprehensive energy consumption of aluminum	tce/t	9.923	9.595	9.471	9.22
Comprehensive energy consumption of copper	tce/t	4.707	4.388	4.256	4
Energy consumption of unit energy factor of oil refining	kgoe /t.factor	14	13	12	10
Comprehensive energy consumption of ethylene	kgoe/t	848	700	650	600
Comprehensive energy consumption of large scaled synthetic ammonia	kgce/t	1372	1210	1140	1000
Comprehensive energy consumption of caustic soda	kgce /t	1553	1503	1400	1300
Comprehensive energy consumption of cement	kgce /t	181	159	148	129
Comprehensive energy consumption of plate glass	kgce /weighting box	30	26	24	20
Comprehensive energy consumption of architectural ceramics	kgce /m ²	10.04	9.9	9.2	7.2
Comprehensive energy consumption of railway transportation	tce/million t-km	10.41	9.65	9.4	9

Source: China Medium and Long Term Energy Conservation Plan (2004)

Establishment of an Advisory Group for Sectoral Technology Cooperation (AGSTC)

AGSTC can contribute to both transfer and development of **the key technologies**.

- Consists of **representatives of industrial community** and **experts** (IEA, etc) by each sector
- **Analyze the current situation** of development and transfer of the technologies by each sector.
 - For development: government R&D budget, international roadmaps for key tech., latest development outcomes, international cooperation activities
 - For transfer: the BAT, the BP, reduction potentials, barriers and solutions
- **Formulate advice for further actions** by each sector based on the analysis
- **Regularly report on outcomes to the COP**/equivalent body

