GOVERNMENT OF MONGOLIA

MINISTRY OF ENVIRONMENT AND GREEN DEVELOPMENT

NAMA and JCM

Enkhtaivan SANAA
CDM National Bureau, Climate Change Coordination Office

Ulaanbaatar
03 December 2013

Content

I. **Current status of NAMAs in Mongolia**

II. JCM as a tool to implement NAMAs

III. Possible projects and capacity building needs

NAMA

NAMA = Nationally Appropriate Mitigation Action

NAMA was first used in the Bali Action Plan agreed at the UNFCCC/COP13 in December 2007, and also formed part of the Copenhagen Accord issued following the UNFCCC/COP15 in December 2009.

- Different countries, different nationally appropriate action on the basis of equity and in accordance with **common but differentiated responsibilities** and respective capabilities
- Consistent with the **sustainable development goals**
- Should be supported and enabled by **technology, financing and capacity-building,** in a measurable, reportable and verifiable (MRV) manner.

Mongolia's NAMA submission

Mongolia has associated with the Copenhagen Accord and submitted the list of NAMAs to the Climate Change Secretariat according to the Appendix II of Copenhagen Accord.

No	**Sector and Actions (**Publication date: 28th January 2010)
1	Energy supply - Increase renewable options
2	Energy supply - Improve coal quality
3	Energy supply - Improve efficiency of heating boilers
4	Energy supply - Improving household stoves and furnaces
5	Energy supply - Improve CHP plants
6	Energy supply – Increase use of electricity for local heating in cities
7	Building – Building energy efficiency improvement
8	Industry – Energy efficiency improvement in industry
9	Transport –Use more efficient cars
10	Agriculture- Limit the increase of the total number of livestock by increasing the productivity of each type of animal, especially cattle
11	Forestry –Improve forest management

National Policy goals and targets

Name	**NATIONAL ACTION PROGRAM ON CLIMATE CHANGE (approved by Parliament in 2011)**
Specific Targets	Specific fuel consumption of electricity generated in the central energy system will be reduced by 10-20 gJ/ kW h, Specific fuel consumption of thermal energy production will be reduced by 20 kgJ/gCal compared to 2010, Share of Renewable energy sources in the energy balance will reach 10 % , Heat use will be reduced by 25 % [by the end of first phase].
Duration	2011-2021 (to be implemented in 2 phases)
Name	**NATIONAL RENEWABLE ENERGY PROGRAM (approved by Parliament in 2005)**
Specific Targets	To increase share of renewable energy in total energy generation to 20-25% by 2020, and to reduce system loss by more than 10% (baseline yr. 2005) by 2020
Duration	2005-2020
Name	**NEW RECONSTRUCTION MIDTERM DEVELOPMENT PROGRAM (approved by Parliament in 2010)**
Specific Targets	To decrease air pollution -30% by 2012, -50% by 2016 compared to 2010
Duration	2010-2016
Name	**CONCEPT NOTE AND MIDTERM PROGRAM FOR GREEN DEVELOPMENT (DRAFT)**
Specific Targets	To increase share of RE in the total installed capacity to 20% by 2020, and 30% by 2030 and to reduce CO2 emissions per GDP twice compared to 2006 by 2020, and 2.5 times by 2030.
Duration	2013-2032 (to be implemented in 2 phases)

Related projects/studies and cooperation activities

SECTORS	PROJECT NAME/DURATION	OBJECTIVE	IMPLEMENTING PARTNERS
Construction	Building Energy Efficiency/2009-2013	The goal is the reduction in the annual growth rate of greenhouse gas (GHG) emissions from the building sector in Mongolia	UNDP/Ministry of Construction and Urban Development
Transport	Green Public Transport /2012-2013	The project studies the feasibility and viability of converting diesel engine buses to eco-friendly engines as well as improving public transport in an effort to reduce GHG emissions and to improve air quality in Mongolia	GGGI/ MEGD
Forestry-REDD+	Biodiversity and Adaptation of Key Forest Ecosystems to Climate Change/2012-2022	To conserve biodiversity by protecting important ecological areas and managing these in a sustainable manner which is adapted to meet the needs of climate change, while ensuring an improvement in living conditions for rural populations	GIZ & UNDP/ MEGD
Livestock and grassland	Strengthening Carbon Financing for Regional Grassland Management in North East Asia /2011-2013	Review of financing mechanisms for sustainable grassland management , Field assessments on carbon sequestration potential and monitoring of grasslands , Heightened awareness of carbon financing opportunities for sustainable grassland management, Development of terrestrial carbon financing opportunities for Northeast Asia	ADB/Ministry of Industry & Agriculture
Energy	Capacity Building Cooperation for Implementing NAMAs in a MRV-able manner	To develop detailed NAMAs implementation plan, identify methods to quantify emission reductions to be achieved, look into possibilities of establishing domestic MRV system	Overseas Environment Cooperation Center and MEGD
	Strategies for Development of Green Energy Systems	Assist in providing tools, training and ideas to help Mongolia to grow its economy with substantially less growth in GHG and other pollutant emissions	GGGI/Stockholm Environment Institute /Ministry of Energy, MEGD

Cooperation for Implementing NAMAs in a MRV-able manner with OECC

Action 1. Identify BAU and NAMA scenario in the Energy Supply Sector

(A. on the biggest CHPs in capital city in 2012-2013)

Action 2. Preparation of an Implementation Plan for NAMA

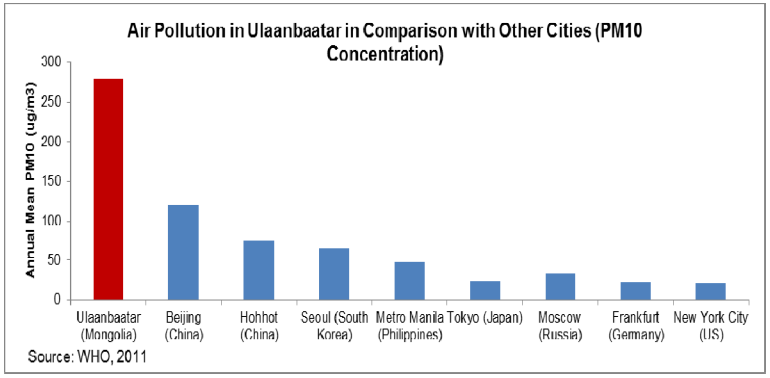
Action 3. Preparation of MRV

Action 4. Preparation of Institutional Arrangement for NAMA implementation

Action 5. Collection of information on suitable technology

Further

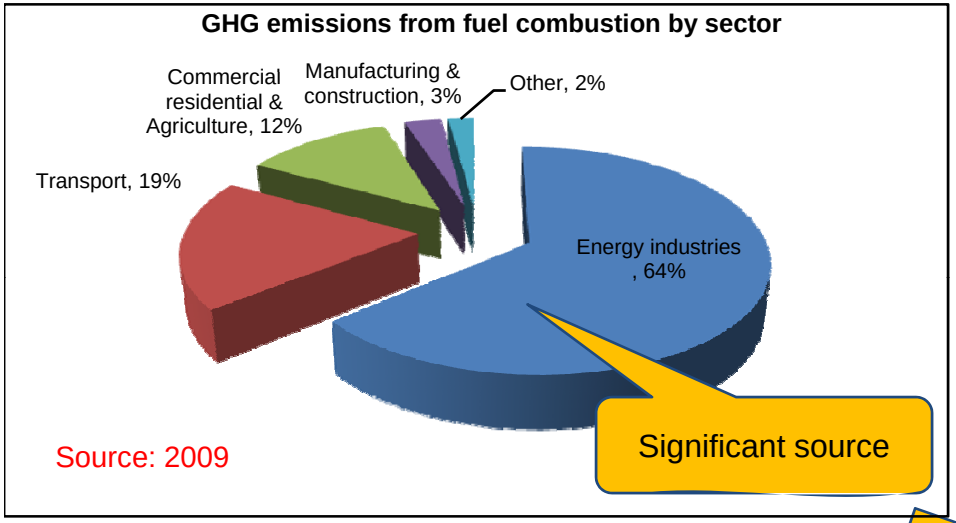
In 2013-2014, additional areas to be covered for NAMAs in energy supply sector such as renewable energy, energy efficiency improvement in HOBs, heating in Ger district.

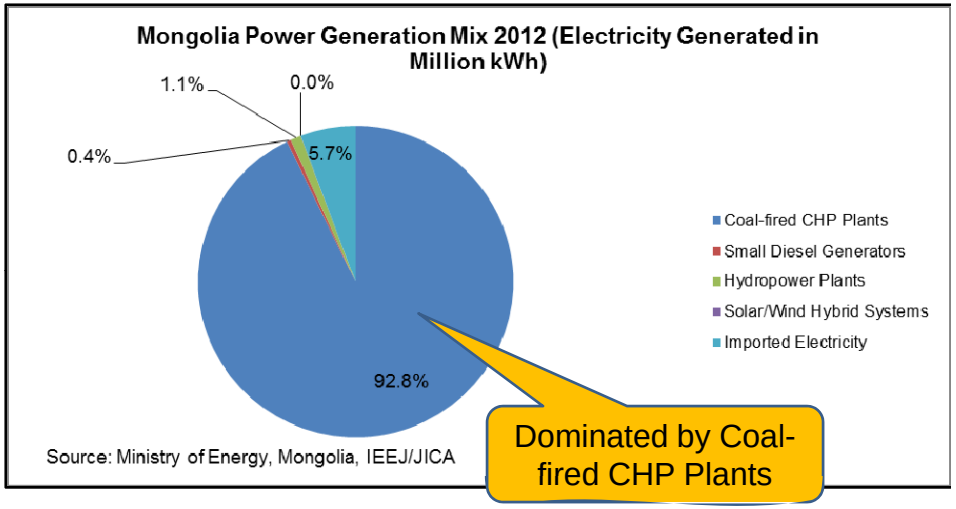


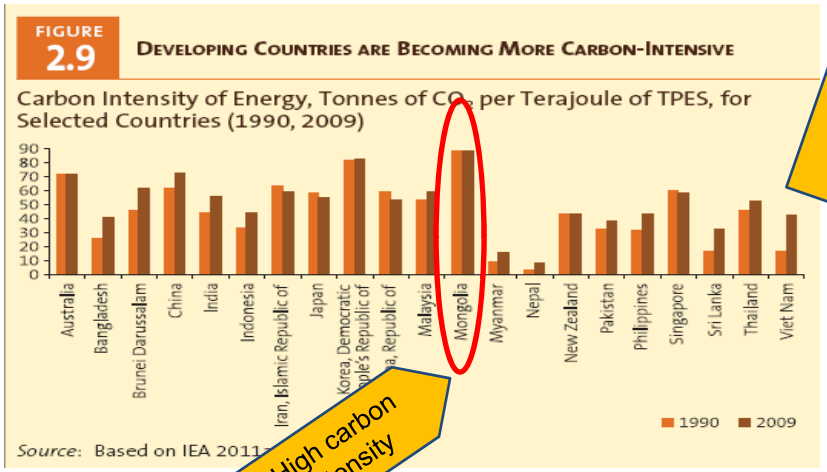
Air Pollution in Ulaanbaatar in Comparison with Other Cities

Why energy sector and especially CHPs ?

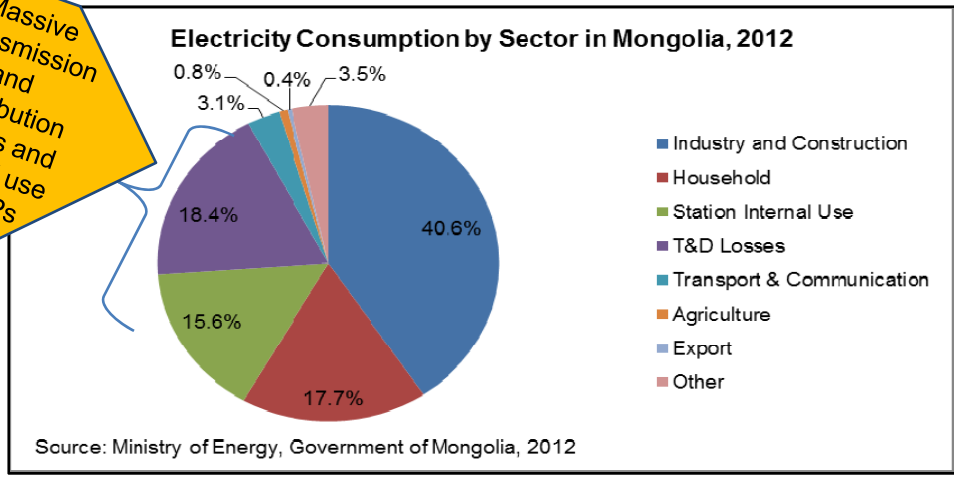
The energy sector is the most significant source of CO_2 emissions in Mongolia due to inefficient ageing coal-fired CHP plants and its fuel type (coal)







Massive Transmission and Distribution Losses and Internal use of CHPs



Content

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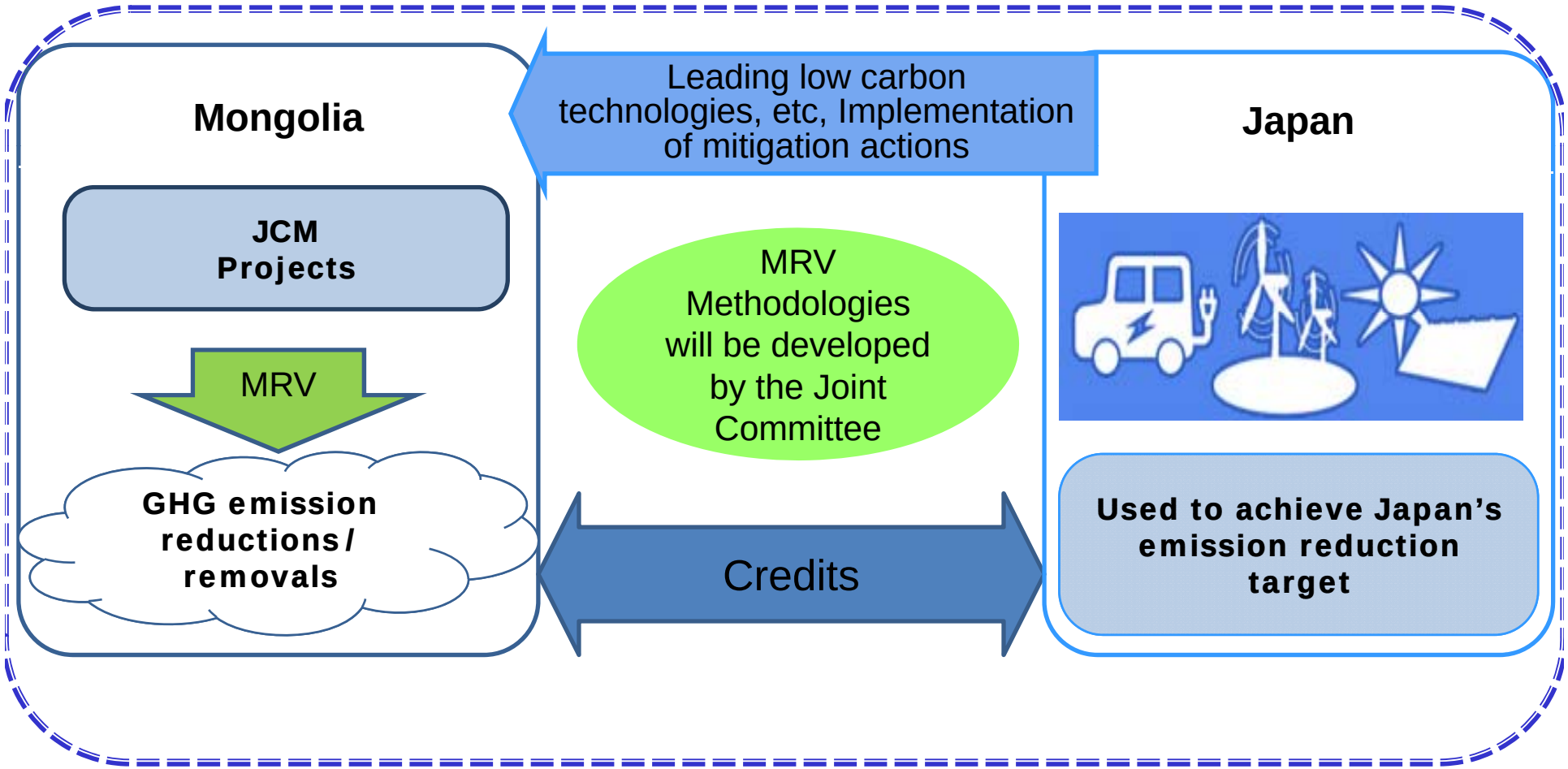
JCM as a tool to implement NAMA

JCM=Joint Crediting Mechanism



JCM as a tool to implement NAMA

To implement NAMAs submitted to the UNFCCC, Mongolia is seeking various supports including **finance, technology transfer and capacity building** from bilateral and multilateral sources including ODA and soft loan etc.,

Signing of the "Low Carbon Development Partnership"

(bilateral document for the JCM)

(Ulaanbaatar- 8 January 2013)

Start of "JCM"

Technical Meeting between Mongolian and Japanese Government Officials (Ulaanbaatar - 28 Feb - 01 March, 2013)

JCM first Joint Committee meeting
(Ulaanbaatar - 11 April 2013)

Joint Committee

Mongolia	Japan
Co-Chair	Co-Chair
Members (7 Ministries and UB City Authority)	Members (2 Ministries and Japanese Embassy in Mongolia)
Secretariat	Secretariat
Observers	Observers

Governance Scheme of the JCM

Japan

Government

- Issuance of credits

Project participants

Implementation & monitoring of projects

Joint Committee

- Develops/revises the rules and guidelines
- Registers projects
- Discusses the implementation of JCM

Conduct policy consultations

Third party entities

- Validate projects
- Verify amount of GHG emission reductions or removals

Mongolia

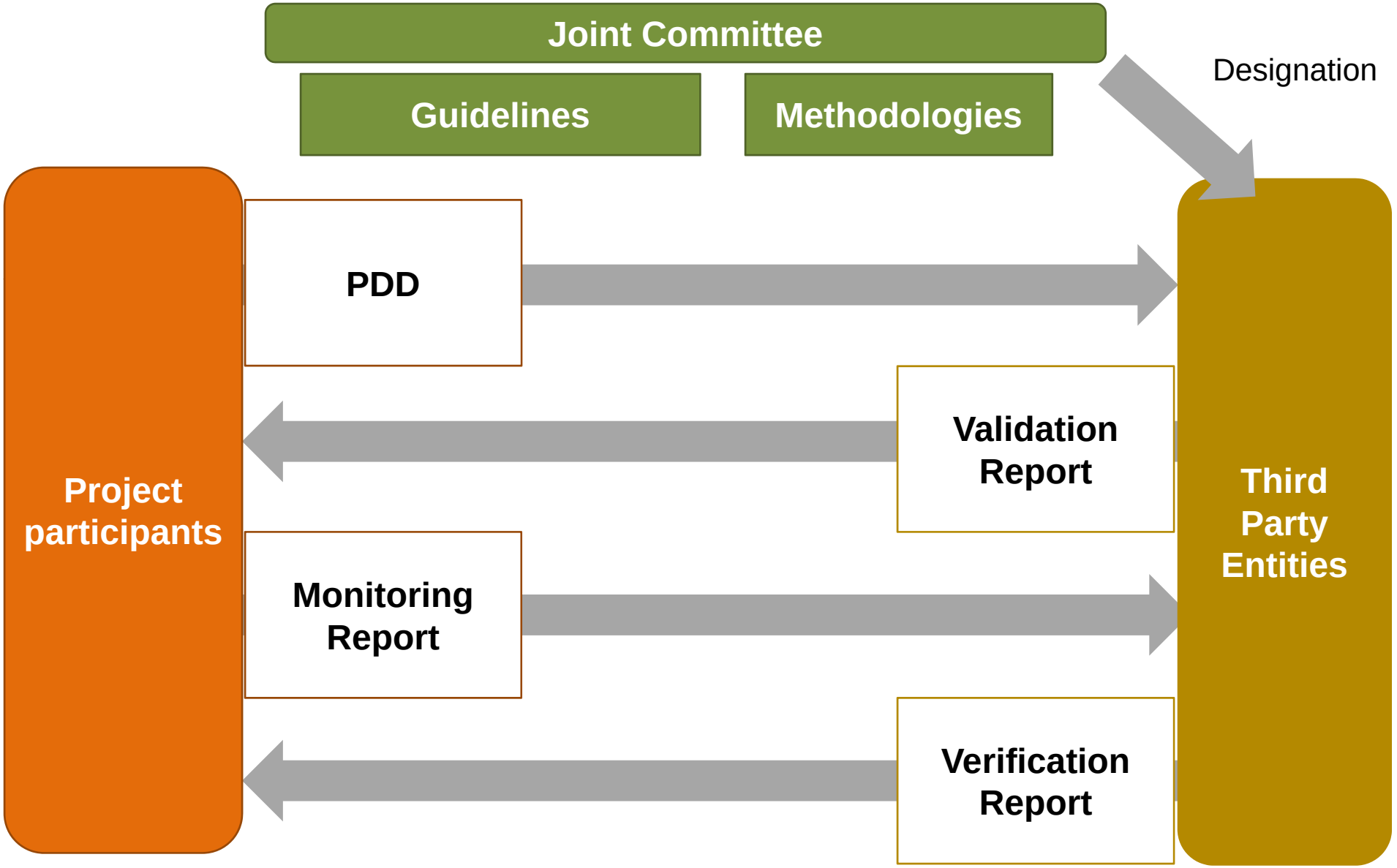
Government

- Issuance of credits

Project participants

Implementation & monitoring of projects

Project cycle of the JCM



Current financing scheme

- **Global Environment Centre Foundation (GEC)**
  - Finance up to 50% of the initial investment cost
  - Budgetary scale- 1.2 billion JPY/ 18 billion MNT(FY2013)

- **New Energy Development Organization (NEDO)**
  - Almost full finance, but the installed facilities need to be purchased by the consortiums at a discounted price later
  - 3.1 billion JPY/ 46 billion MTG (FY2013)
  - 50 million-1000 million per project / 733 million-14700 million MTG per project

MoEJ and METI

Content

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Sector scopes for the JCM

1	Energy industries (renewable/non-renewable sources)
2	Energy distribution
3	Energy demand
4	Manufacturing industries
5	Chemical industries
6	Construction
7	Transport
8	Mining/ Mineral production
9	Metal production
10	Fugitive emissions from fuels (solid, oil and gas)
11	Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride
12	Solvent use
13	Waste handling and disposal
14	Aforestation and reforestation
15	Agriculture

Selected projects for FY2013 (MOEJ's Subsidy)

Type	Project title	Entity	Planned project site	Estimated GHG Reductions
JCM Model project	Upgrading and Installation of Centralized Control System of High-Efficiency Heat Only Boiler	Suuri Keikaku; Anu-service	(i) Bornuur soum (ii) 118th School, Khan-Uul District, Ulaanbaatar	750 tCO2/year
JCM Project Planning Study (PS)	10MW-scale Solar Power Plant and Rooftop Solar Power Generation System	Shimizu corporation; NREC, Sankou Solar Mongolia Co., Ltd, National University of Mongolia	(i) Durgun (ii) Buildings in Ulaanbaatar (Not specified)	(i) 16,500 tCO2/year (ii) 4 tCO2/year/project
JCM Methodology Demonstration Study (DS)	Centralization of Heat Supply System by Installation of High-Efficiency Heat Only Boiler	Suuri Keikaku	(i) Bornuur soum (ii) 118th School, Khan-Uul District, Ulaanbaatar	750 tCO2/year
JCM Feasibility Study	Improvement of Thermal Insulation and Water Cleaning/Air Purge at Power Plant	(Kanden Plant; CHP3; CHP4)	Ulaanbaatar	3,000 tCO2/year
	10MW-scale Solar Power Generation for Stable Power Supply	MyClimate Japan; Saisan; Unigas	Govi-Altai province, Taishir soum	17,537 tCO2/year
	Energy conservation at cement plant	Taiheiyo Engineering; Erel cement	Darkhan-Uul province	78,000 tCO2/year

Selected projects for FY2013 (METI and NEDO)

Type	Project title	Entity	Planned project site	Estimated GHG Reductions
NEDO's Feasibility Studies with the Aim of Developing the JCM				
Feasibility Study	GHG emission reduction by introducing an energy-efficient complex in Ger area of Ulaanbaatar	Taka-gumi Co.,Ltd; MIBACE LLP)	Ulaanbaatar (not specified)	500 t CO2/year/complex
NEDO's Dissemination and Promotion of Global Warming Countermeasure Technology Program Country: Mongolia				
Demonstration and verification project	High efficiency and low loss power transmission and distribution system in Mongolia	Hitachi Ltd.,	Oyu tolgoi – Tsagaan Suvraga transmission line	-
Ministry of Economics, Trade and Industry (METI)				
Feasibility Study	Research on developing projects on wind power generation	Softbank; Mitsui Sumitomo Bank; Komai Haltek, Japan Research Institute, Ltd.,	Umnugobi Province, Tsogttetsii soum	-

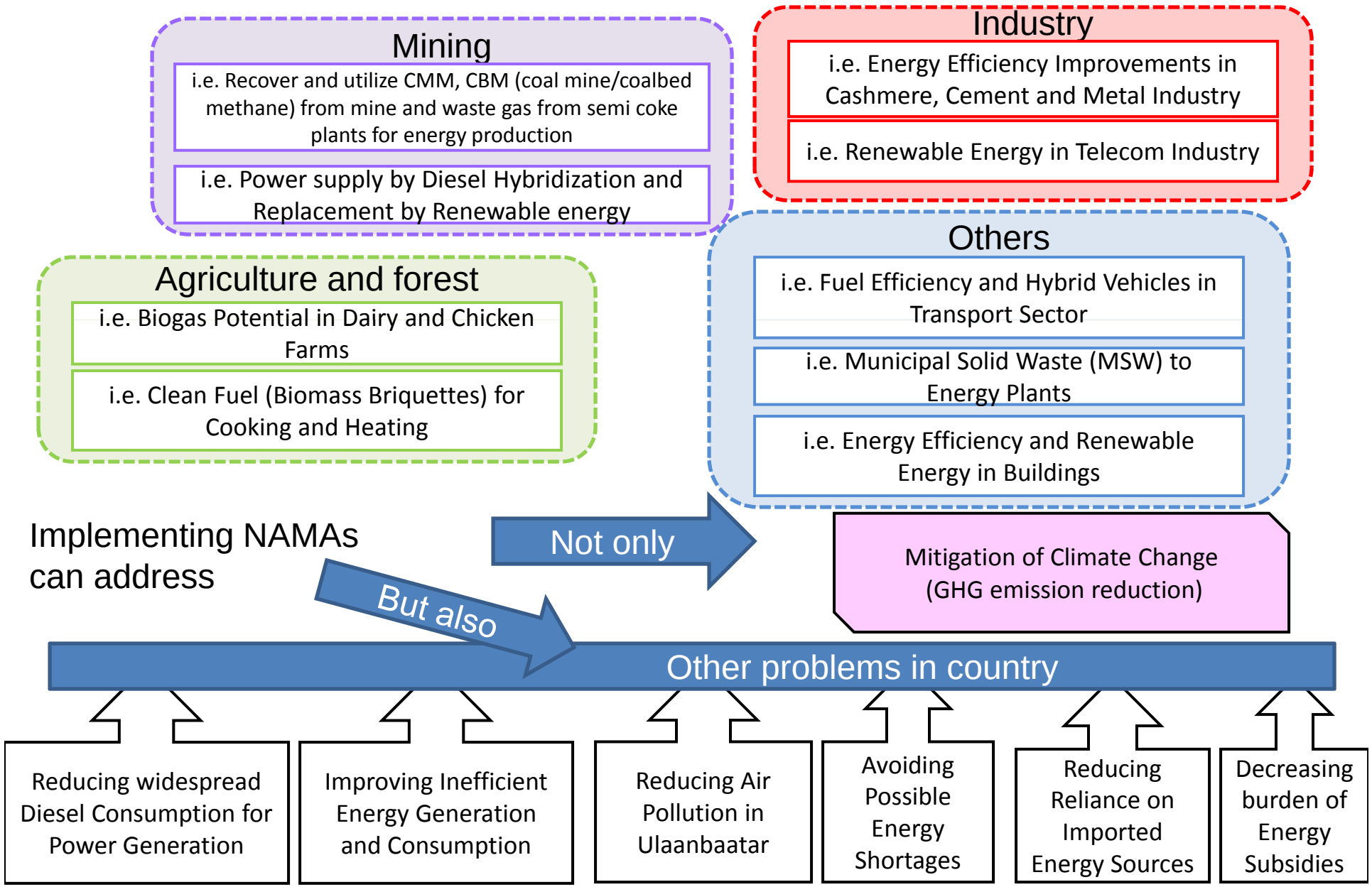
How can you involved in the JCM

1. Develop a project idea to reduce GHG emission
2. Partner with Japanese firms to develop consortiums
3. If possible, undertake feasibility studies for GHG-reducing projects, including how to calculate GHG emission reduction

Lesson learned?

1. Identifying suitable projects?
   I. Technology
   II. Emission reduction (could be not reducing GHG emissions or too complex and difficult to estimate)
   III. Policy support (co-benefit)
   IV. Pre feasibility study (some basic study)
2. Identifying potential partners?
3. Identifying possible financing scheme?

Other potential areas for mitigation



Conclusion

- Mongolia has been developing and vigorously promoting various policies and measures to mitigate greenhouse gases emissions by sources and to enhance greenhouse gas sinks by removals.
- Technology transfer and financing is essential part of NAMAs and it is very important to identify clean technologies that are best suited each countries for climate change mitigation and adaptation as well as funding source
- Various approaches such as Bilateral Offset Credit Mechanism (BOCM/JCM) could be used to implement NAMAs
- Establishing proper institutional arrangement is key for successful implementation of JCM/BOCM in Mongolia

Thank you for your kind attention!

www.mmechanisms.org

www.climatechange.gov.mn

JCM Methodology Formats

- Key Features of the methodology formats
  - ➢The methodology formats should be designed, so that project proponents can use them easily, verifiers can verify the data easily, and calculation logic is disclosed transparently.
  - ➢In order to reduce monitoring burden, default values should be widely used in conservative manner.

Eligibility	• A “check list” will allow easy determination of eligibility of a proposed project under the mechanism and applicability of methodologies to the project.
Method	• Flow chart will guide project proponents to the most appropriate calculation method for the proposed project.
Data	• List of required parameters will inform project proponents of what data is necessary to calculate GHG emission reductions/removals with methodologies. • Default values for specific country and sector are provided beforehand.
Calculation	• Premade spread sheets will help calculate GHG emission reductions/removals automatically by inputting required parameters, in accordance with methodologies.

Image of JCM Methodology Formats (1/5)

- Eligibility
  - Simple check list is provided for project proponents to determine the eligibility of a proposed project under the mechanism and applicability of the methodology
  - All the criteria have to be met in order to apply a methodology.

Example: High-Performance Industrial Furnace

	Eligibility	Check
Criteria 1	• High-performance industrial furnaces implemented in the planned project are equipped with regenerative burners.	☑
Criteria 2	• High-performance industrial furnaces are implemented in the aluminum sector of the host country.	☑
Criteria 3	• The same heat source is used by the waste heat generating facility and the recipient facility of waste heat.	☑
Criteria 4	• Unused waste heat has to exist with in the project boundary prior to the planned project implementation.	☑
Criteria 5	• Fossil fuels and electricity consumption by the high-performance industrial furnaces have to be measureable after the project implementation.	☑

Image of JCM Methodology Formats (2/5)

- Method
  - ➢Flow chart will guide project proponents to the most appropriate calculation method for the proposed project

Example: High-Performance Industrial Furnace

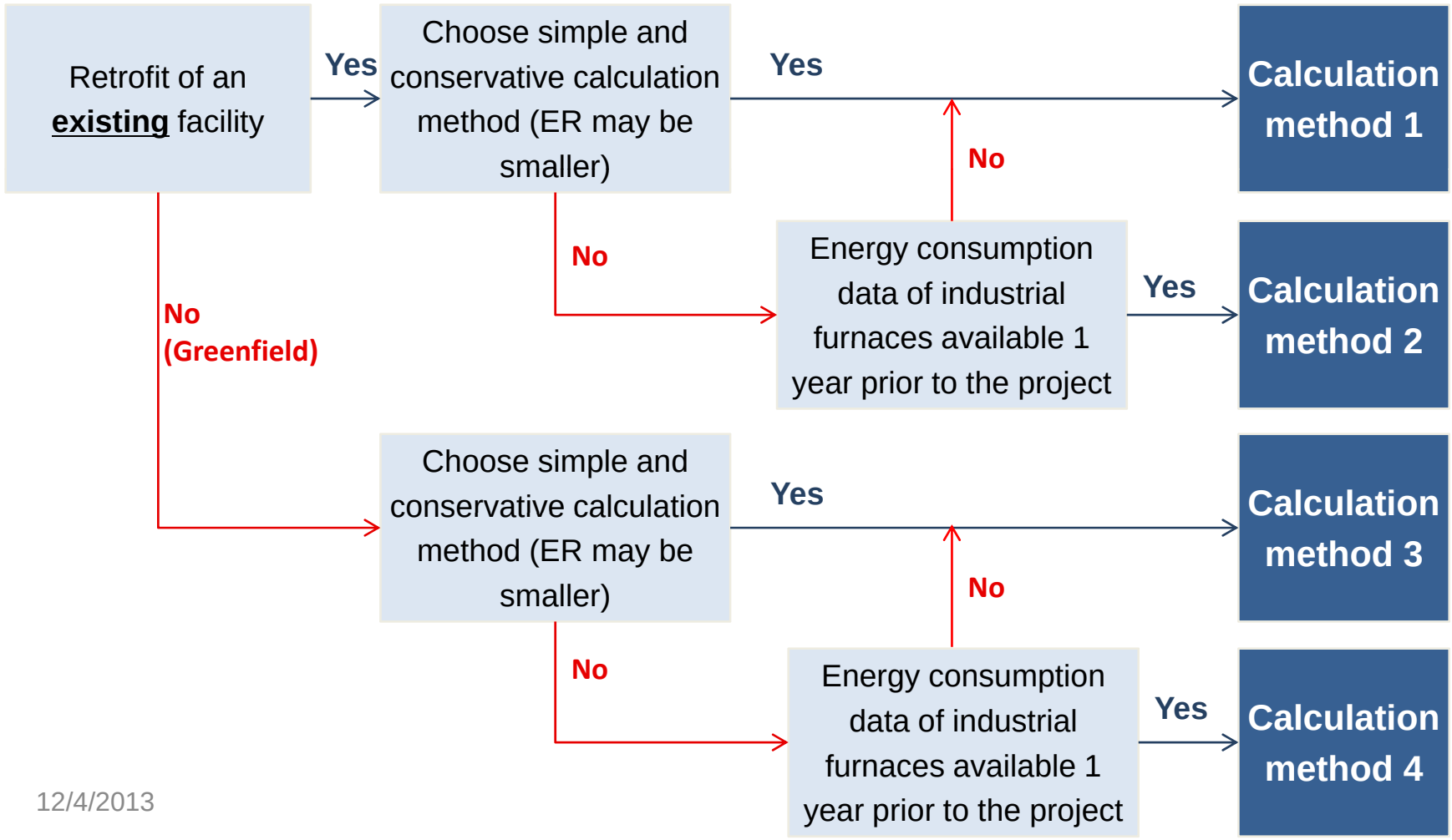
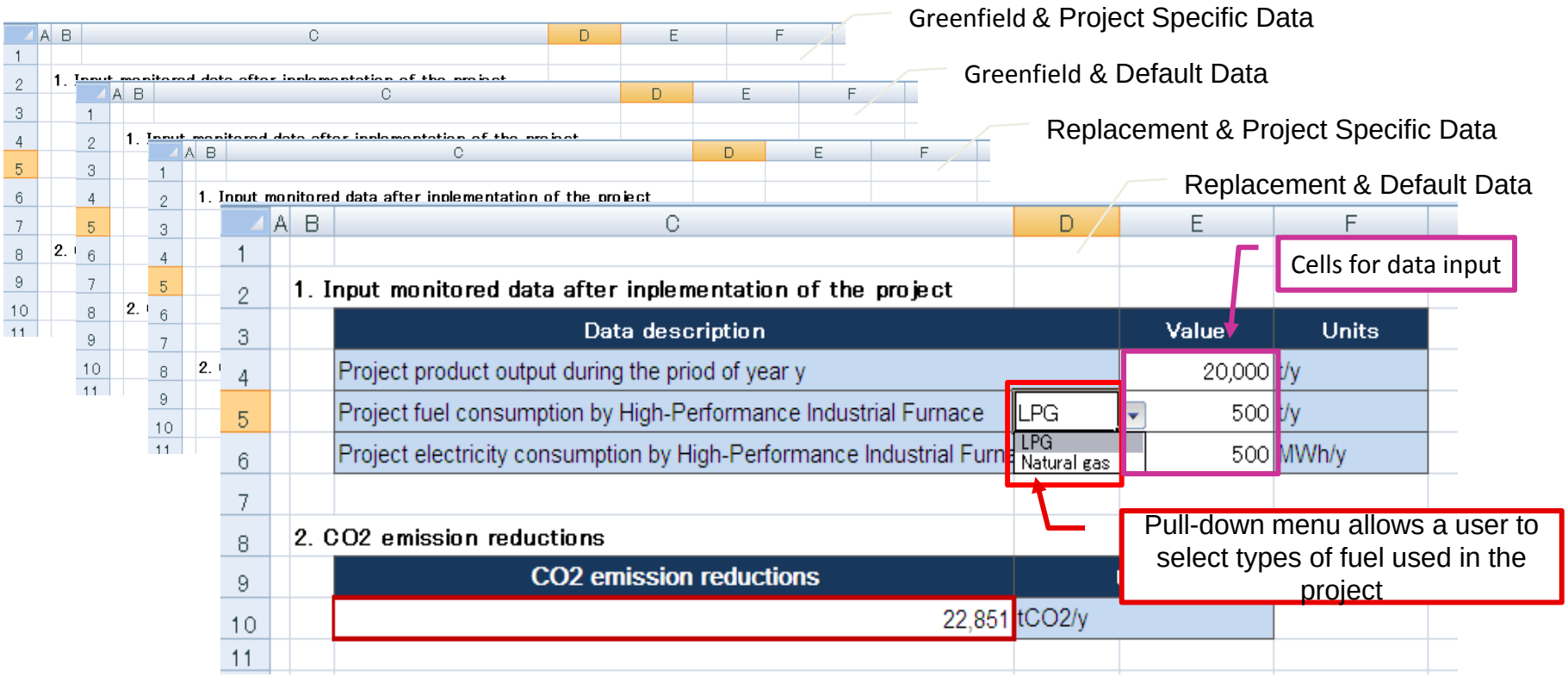


Image of JCM Methodology Formats (3/5)

- Data input
  - ➢Project proponents are requested to input data in the data sheet only.
  - ➢Spread sheets are prepared for different methods.

Example: High-Performance Industrial Furnace

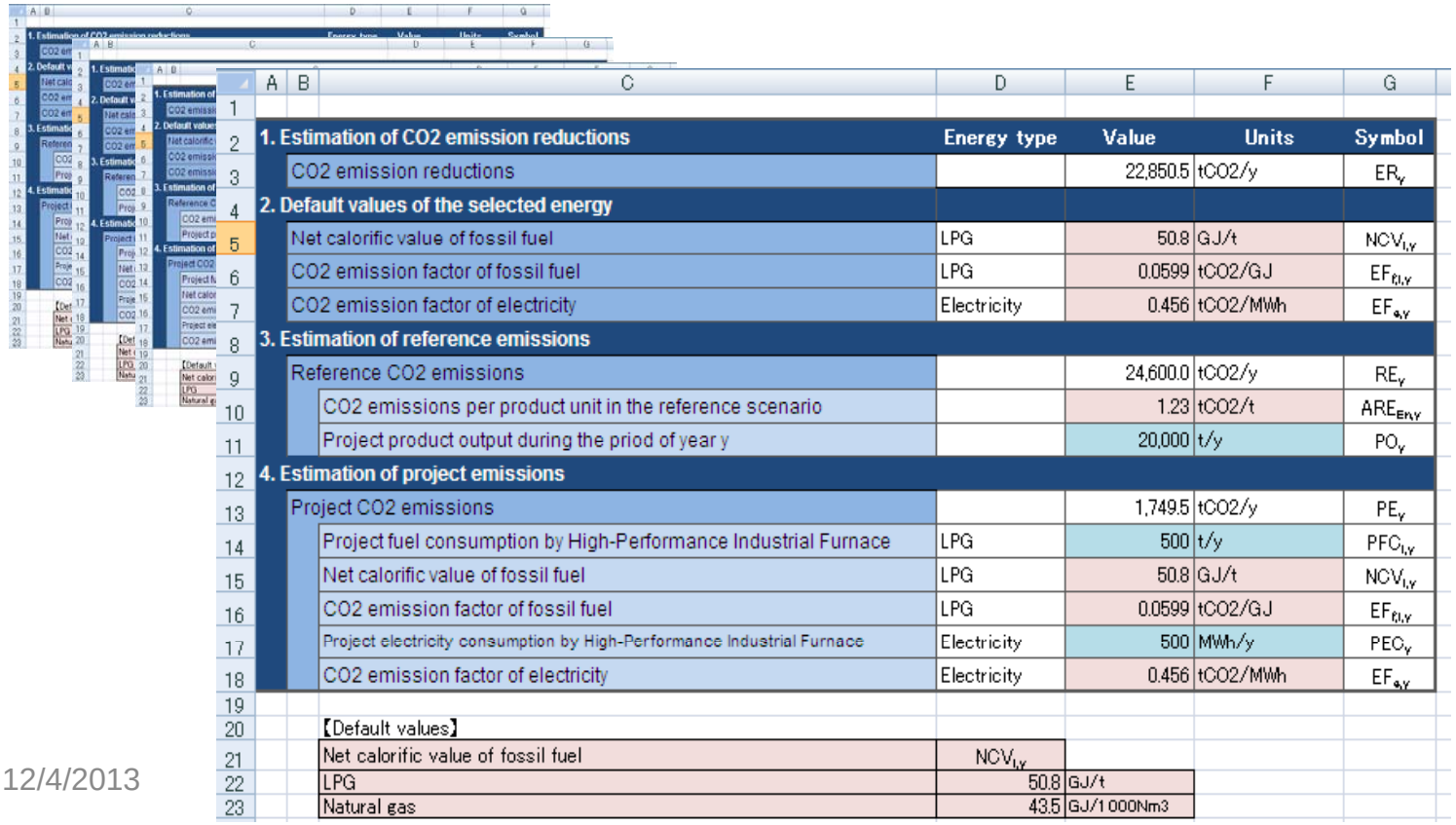


An example above provides different cases for greenfield project and existing (replacement) project and required data for each case.

Image of JCM Methodology Formats (4/5)

- Calculation of Emission Reductions/removals
  - Spread sheets for calculation logic are provided in separate sheets and data input in the “data input sheet” automatically calculate emission reductions/removals.
  - Default values should be widely used, in a conservative manner, in order to reduce monitoring burden.

Example: High-Performance Industrial Furnace



1. Estimation of CO2 emission reductions	Energy type	Value	Units	Symbol
CO2 emission reductions		22,850.5	tCO2/y	ER_y
2. Default values of the selected energy				
Net calorific value of fossil fuel	LPG	50.8	GJ/t	$NCV_{i,y}$
CO2 emission factor of fossil fuel	LPG	0.0599	tCO2/GJ	$EF_{f,i,y}$
CO2 emission factor of electricity	Electricity	0.456	tCO2/MWh	$EF_{e,y}$
3. Estimation of reference emissions				
Reference CO2 emissions		24,600.0	tCO2/y	RE_y
CO2 emissions per product unit in the reference scenario		1.23	tCO2/t	$ARE_{En,y}$
Project product output during the priod of year y		20,000	t/y	PO_y
4. Estimation of project emissions				
Project CO2 emissions		1,749.5	tCO2/y	PE_y
Project fuel consumption by High-Performance Industrial Furnace	LPG	500	t/y	$PFC_{i,y}$
Net calorific value of fossil fuel	LPG	50.8	GJ/t	$NCV_{i,y}$
CO2 emission factor of fossil fuel	LPG	0.0599	tCO2/GJ	$EF_{f,i,y}$
Project electricity consumption by High-Performance Industrial Furnace	Electricity	500	MWh/y	PEC_y
CO2 emission factor of electricity	Electricity	0.456	tCO2/MWh	$EF_{e,y}$

【Default values】

Net calorific value of fossil fuel	$NCV_{i,y}$	
LPG	50.8	GJ/t
Natural gas	43.5	GJ/1000Nm3

Image of JCM Methodology Formats (5/5)

- Description of methodologies
  - Details of methodologies should be described by writing and calculation formula so that project proponents can understand logic behind and to enhance transparency.

Structure of the methodology

- Project description
- Eligibility
- Calculation method selection
- List of required data
- Project boundary
- Reference scenario
- Calculation
- Monitoring