



MINISTRY OF ENVIRONMENT
AND GREEN DEVELOPMENT

PREPARATORY ACTIVITIES TO OPERATIONALIZE NAMAs IN MONGOLIA

**The 22nd Asia-Pacific Seminar on Climate Change
27th and 28th June, 2013
Hanoi, Vietnam**

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INTRODUCTION



GEOGRAPHY & POPULATION

Location: Northern Asia between Russia and China (Landlocked)

Area: 1,564,114 sq km (%99 land, less than 1% water surface)

Land boundaries: 8220 km (with China 4677km, with Russia 3543 km)

As of 2010

Total population: 2,754,685

Urban population: 67.9%

Rural population: 32.1%

Population density: 1.76 person per sq.km

Literacy rate: 98.3

Households living in apartments and houses: 382,808

Households living in ger: 322,836

Households not connected to any electricity sources: 3.3%

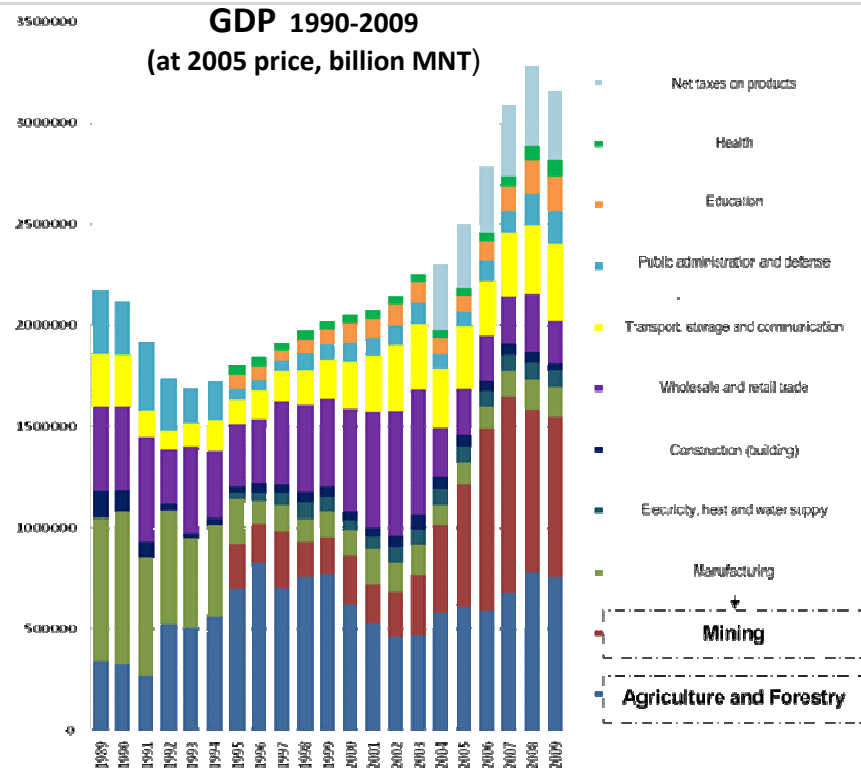
ECONOMY

As of 2010

GDP: 6.125 billion USD (nominal)

GDP per capita: 2,227 USD

Real GDP growth rate: 17.2 (2011)



As of 2011, Agriculture and Mining sector are together accounting for more than 50% of the GDP.

POLICY

CLIMATE CHANGE RELATED LEGISLATION AND POLICY DOCUMENTS

- Law on Air revised (2012, 2010, 1995)
- Law on Environmental Protection (1995, 2007)
- Law on Disaster Prevention, 2003
- National Security Priorities
- The Mongolia Action Programme for the 21st Century (MAP21)
- National Action Program on Climate Change (NAPCC) (2000, 2011)
- The Strategy of Ecology of Mongolia
- The National Strategy of Sustainable Development
- The Strategy of Food and Agriculture
- The Strategy of Herders of Mongolia

THE MDG BASED COMPREHENSIVE NATIONAL DEVELOPMENT STRATEGY OF MONGOLIA (2008)

The Fifth priority is “to create a sustainable environment for the development by promoting capacities and measures on adaptation to climate change, halting imbalances in the country’s ecosystems and protecting them.”

Within the framework of the fifth priority, many goals and measures have been presented for implementation. In particular, **goal six of the fifth priority** is to “Adapt to climate change, establish and implement capacity to cope with adverse consequences of climate change.”

POLICY RELEVANT TO MITIGATION OF GHG EMISSIONS

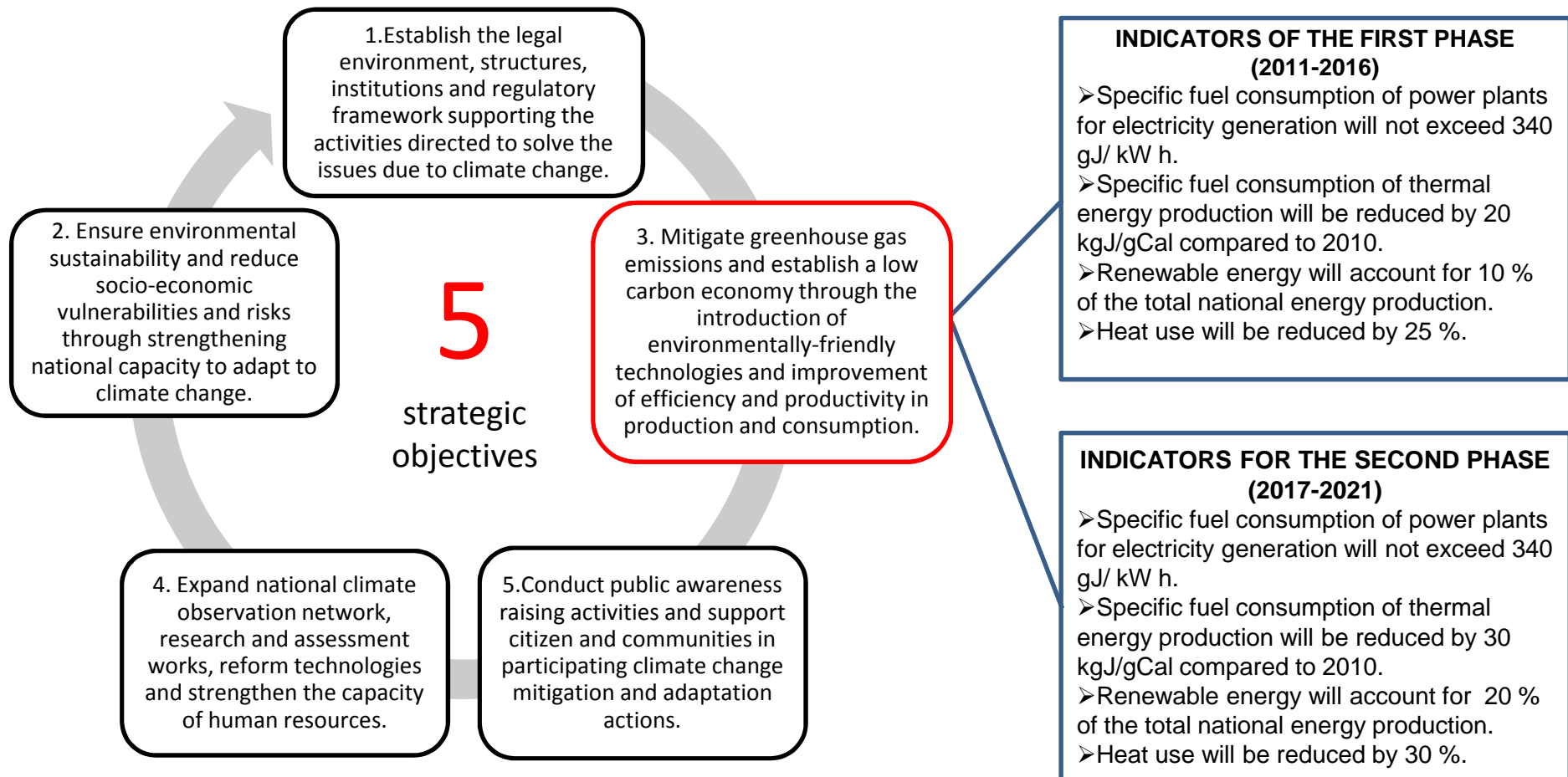
- Renewable Energy Law (2007)
- Law on Air Pollution Payment revised (2012)
- National Renewable Energy Program (2005)
- New Reconstruction Mid-term (development) Program (2010)

NAPCC

The “National Action Program on Climate Change” (NAPCC) was approved by the second resolution of State Great Khural (Parliament) on 6th January, 2011. The following five strategic objectives will be implemented in **two phases** over the period **2011-2016** and **2017-2021**.

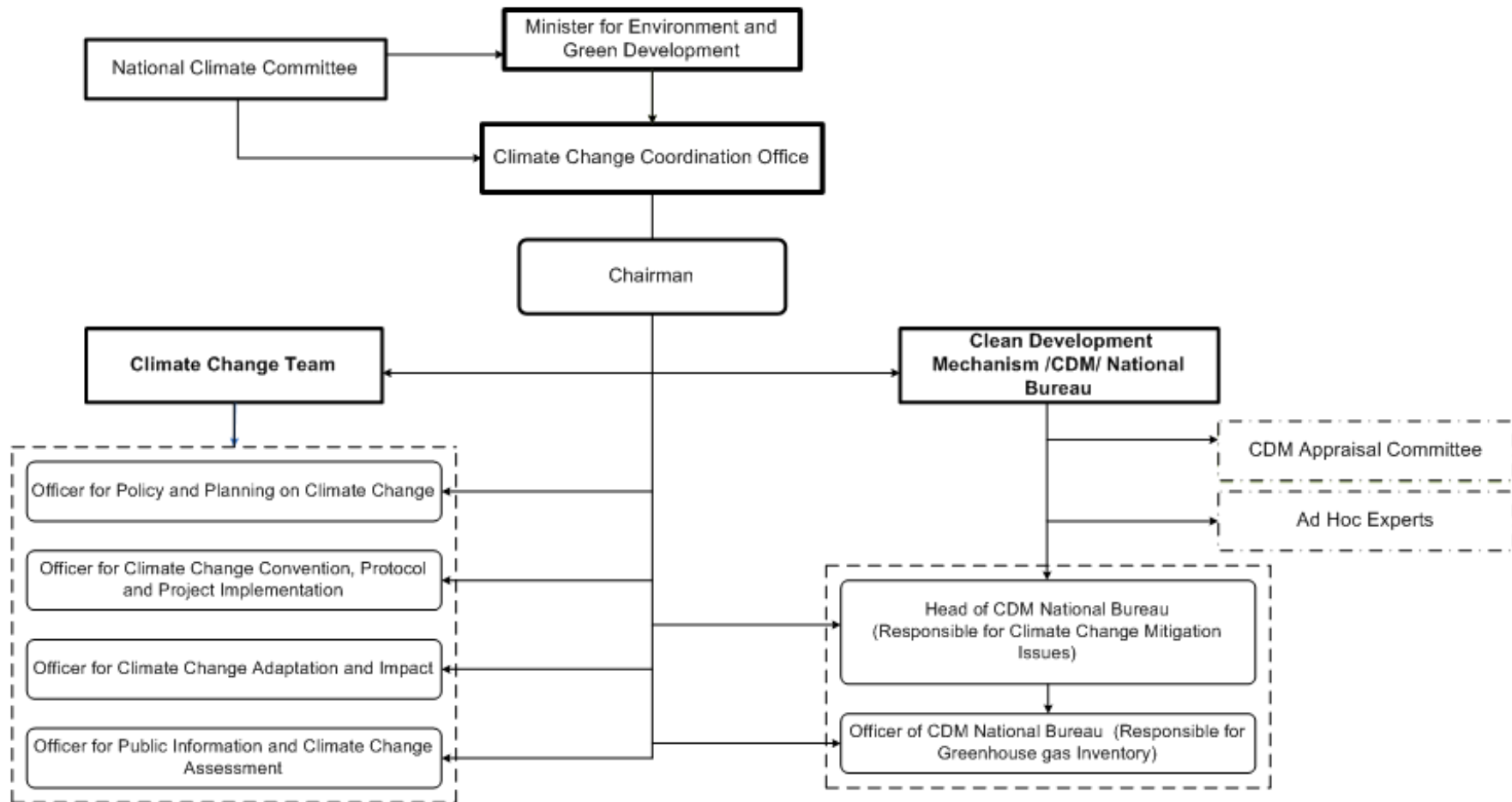
➤ **In the first phase (2011-2016)**, national mitigation and adaptation capacities will be strengthened, legal, structural and management systems will be set up and community and public participation will be improved.

➤ **In the second phase (2017-2021)**, climate change adaptation measures will be implemented and start up greenhouse gas mitigation actions.



CCCO MONGOLIA

ORGANIZATION CHART OF THE CLIMATE CHANGE COORDINATION OFFICE



POLICY TO MITIGATE GREENHOUSE GASES EMISSIONS

- Mongolia has been developing and vigorously promoting various policies and measures to mitigate greenhouse gases emissions by sources and to enhance greenhouse gases sinks by removals.
- Actions to address climate change challenges must be ultimately linked to the government strategies on sustainable development and economic growth, and fall across a variety of sectors, including energy, industry, transport, agriculture, forest, grassland management and waste management sectors.
- Effective solutions require well coordinated national policies and priorities that are developed with the engagement of a variety of government stakeholders, such as different ministries and agencies as well as other relevant stakeholders, such as the academy, private sector, NGOs and civil society.

The Copenhagen Accord and Cancun Agreements: NAMA and MRV

- In accordance to the Copenhagen Accord and Cancun Agreements (Decision of the COP15 and COP16/UNFCCC), Non-Annex I Parties to the Convention will implement NAMAs, including those submitted to the UNFCCC secretariat by non-Annex I Parties and in the context of sustainable development.
- 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.
- NAMAs are:
 - consistent with the sustainable development goals
 - should be supported and enabled by technology, financing and capacity-building

Mongolia: Nationally appropriate mitigation actions of developing country Parties

Non-Annex I	Actions
Mongolia	1. Energy supply: Increase renewable options
	a. PV and solar heating - Install large scale PV systems in Gobi region
	b. Wind power generators and Wind farms
	<ul style="list-style-type: none"> ● Place 100-150kW wind turbine generators in provincial centers in the southern part ● Implement large scale wind farm project
	c. Hydro power plants - Encourage the use of small and medium sized hydro developments
	2. Energy supply - Improve coal quality
	a. Coal beneficiation - Introduce coal washing at the biggest coal mines such as Banganuur, Shivee-Ovoo and Tavantolgoi
	b. Coal briquetting - Introduce coal briquetting technology
	3. Energy supply - Improve efficiency of heating boilers
	a. Improve efficiency of existing HOBs and Install boilers with new design and high efficiency
<ul style="list-style-type: none"> ● Use 25MW efficient boilers x 12 ● Install 1MW new boilers x 260 	
b. Convert hot water boilers into small capacity thermal power plants - Convert steam boilers into 10MW thermal power plants x 5	
4. Energy supply - Improving household stoves and furnaces	
a. Change fuels for household stoves and furnaces - Change raw coal used in stoves of households in cities by LPG and Coal briquette	
b. Modernize existing and Implement the new design for household stoves and furnaces - Modernize stoves and furnaces x 250,000	
5. Energy supply - Improve CHP plants	
a. Improve efficiency and Reduce internal use	
<ul style="list-style-type: none"> ● Improve efficiency at CHP plants ● Reduce own use at CHP plants 	

Mongolia: Nationally appropriate mitigation actions of developing country Parties

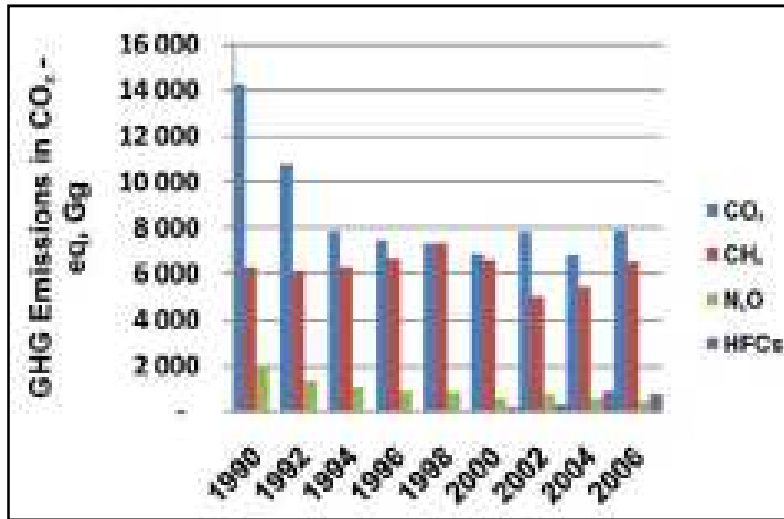
Non-Annex I	Actions
Mongolia	6. Energy supply – Increase use of electricity for local heating in cities
	a. Use of electricity from grid for individual households in cities - In ger (traditional tent house) districts of Ulaanbaatar city
	7. Building – Building energy efficiency improvement
	a. Improve district heating system in buildings <ul style="list-style-type: none"> Reduce the loss such as minimizing leakage and replacement of valves and compensators Regulate room temperatures by residential customers
	b. Install heat and hot water meters in apartments - Install the meters in apartments to calculate their heating fee and price based on actual amount of heat used
	c. Make Insulation improvements for existing buildings and implement new energy efficient standards for new buildings - Lesson the heat loss to improve energy efficiency at houses and buildings 2-3 times higher than current
	d. Improve lighting efficiency in buildings - Replace current ILB to energy efficient CFL in 30% of service and commercial buildings
	8. Industry – Energy efficiency improvement in industry
	a. Improve housekeeping practices - Good housekeeping and energy management
	b. Implement motor efficiency improvements - Energy efficient motors; variable speed drives; improved operation and maintenance; correction of previous over-sizing; improved mechanical power transmission, efficiency of driven equipment
	c. Introducing dry-processing in cement industry - Change the wet-processing of cement to 1,000 -12,00 kcal/kg.cl. dry-processing
9. Transport	
a. Use more fuel efficient vehicles <ul style="list-style-type: none"> • Implement used vehicle import standards to promote import of fuel efficient vehicles • Implement vehicle registration tax to improve overall fuel efficiency of vehicles 	

Mongolia: Nationally appropriate mitigation actions of developing country Parties

Non-Annex I	Actions
Mongolia	10. Agriculture
	<p>Limit the increase of the total number of livestock by increasing the productivity of each type of animal, especially cattle -</p> <ul style="list-style-type: none"> • Arrange a good environment of economics and infrastructure for the animal husbandry sector • Refine upon livestock breeding and service in accordance with social needs • Bring the veterinary works and service into international standards • Improve abilities if bearing risks like various change of climate, nature and ecology • Develop the goal-directed market of livestock, livestock raw materials and products and accelerate the economic circulation
	11. Forestry
	<p>a. Improve forest management</p> <ul style="list-style-type: none"> • Natural regeneration • Plantation forestry • Agro-forestry • Shelter belts • Bioelectricity <p>a. Reduce emissions from deforestation and forest degradation, improve sustainable management of forests and enhance forest carbon stocks in Mongolian forest sector - Initiate and implement a REDD projects through reforestation activities by community based forest management improvement and sustainable use of forest resources</p>

EMISSIONS AND MITIGATION POTENTIAL

GHG EMISSIONS IN MONGOLIA



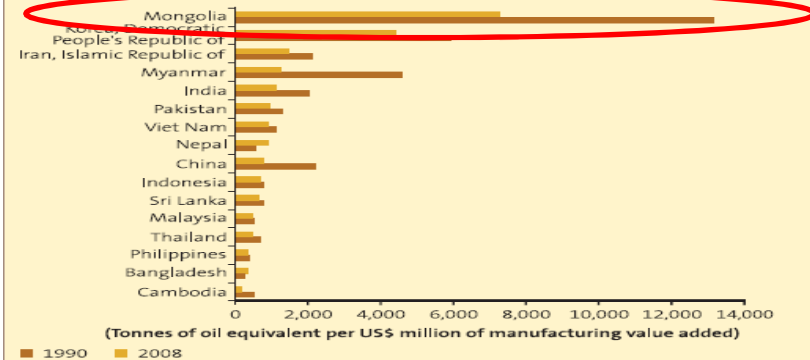
Source: MARCC, 2009

In 1990, Mongolia's net GHG emissions were 22532 thousand tons of CO₂ eq and due to economic downturn in early and mid 1990ies GHG emissions decreased.

Due to abundant coal resource and usage, energy sector is very Carbon intensive. Even though absolute size of GHG emissions in Mongolia is tiny, GHG emission per capita is twice as much as world average and GHG emission per 1000 USD of GDP is ten times higher than world average reflecting cold climate as well as inefficient use of resources.

FIGURE 2.4 ASIA-PACIFIC COUNTRIES DIFFER WIDELY IN INDUSTRIAL ENERGY INTENSITY

Energy Intensity of Industrial Output, Tonnes of Oil Equivalent, for Selected Countries (1990-2008)



Source: UNIDO 2011. Note: Energy intensity of industrial output is measured by toe/million US\$ of manufacturing value added (2000 constant prices).

Energy intensity of industrial production in Mongolia is several times higher than other countries in the region.

FIGURE 2.9 DEVELOPING COUNTRIES ARE BECOMING MORE CARBON-INTENSIVE

Carbon Intensity of Energy, Tonnes of CO₂ per Terajoule of TPES, for Selected Countries (1990, 2009)



Source: Based on IEA 2011a.

Carbon intensity of Mongolian energy sector is highest among regional countries due to extensive use of coal for electricity and heat production.

Source: Asia Pacific HDR, 2012

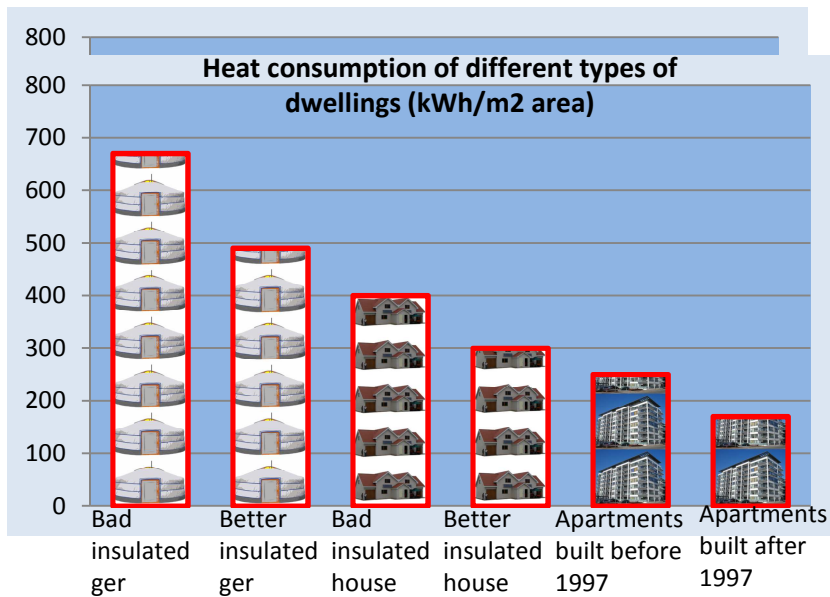
EMISSIONS AND MITIGATION POTENTIAL

REDUCE LOSSES AND INCREASE EFFICIENCY

There are GREAT potential for reducing GHG emissions by reducing losses and increasing energy efficiency

DEMAND SIDE

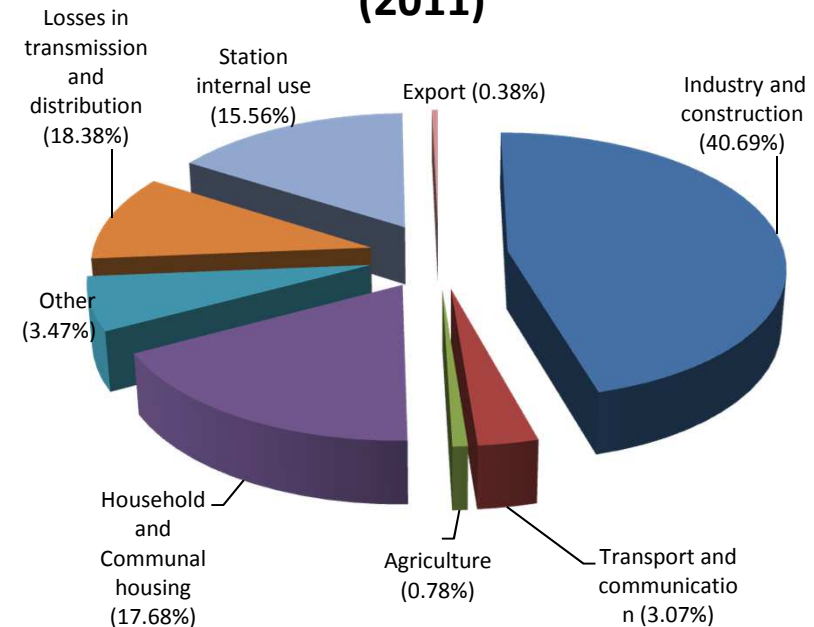
In Mongolia, heating season lasts 9 months in a year and there is tremendous heat losses in buildings due to poor insulation.



Source: UNDP Building energy efficiency project (BEEP)

SUPPLY SIDE

Electricity consumed by different sectors (2011)

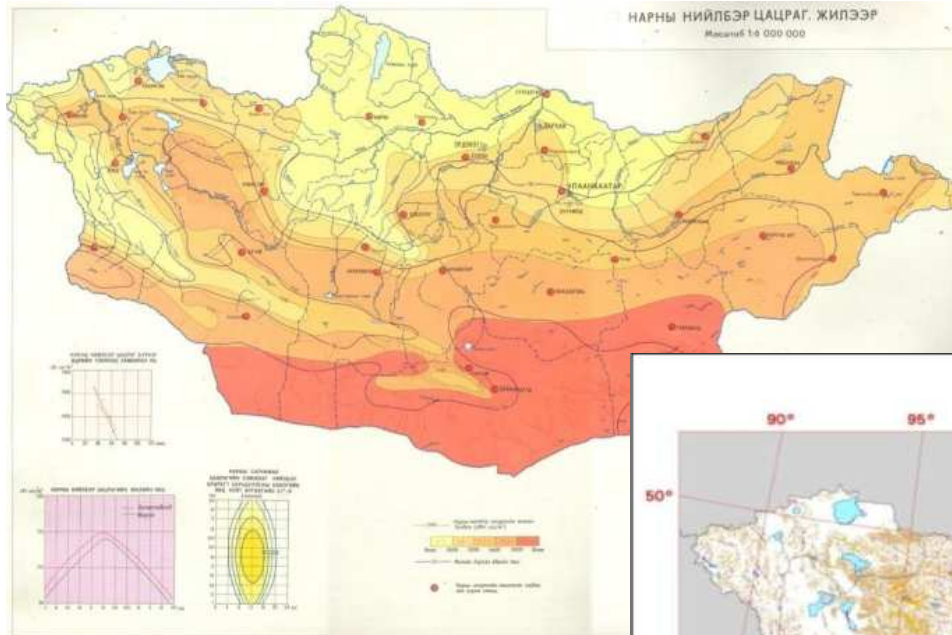


Internal use and distribution and transmission losses account more than 30% of the total electricity produced by Combined Heat and Power Plants (CHPs) in Mongolia. And there IS much room for reducing GHG emissions by reducing losses and increasing energy efficiency.

Source: Ministry of Energy, Mongolia

EMISSIONS AND MITIGATION POTENTIAL

INCREASE UTILIZATION OF RENEWABLE ENERGY

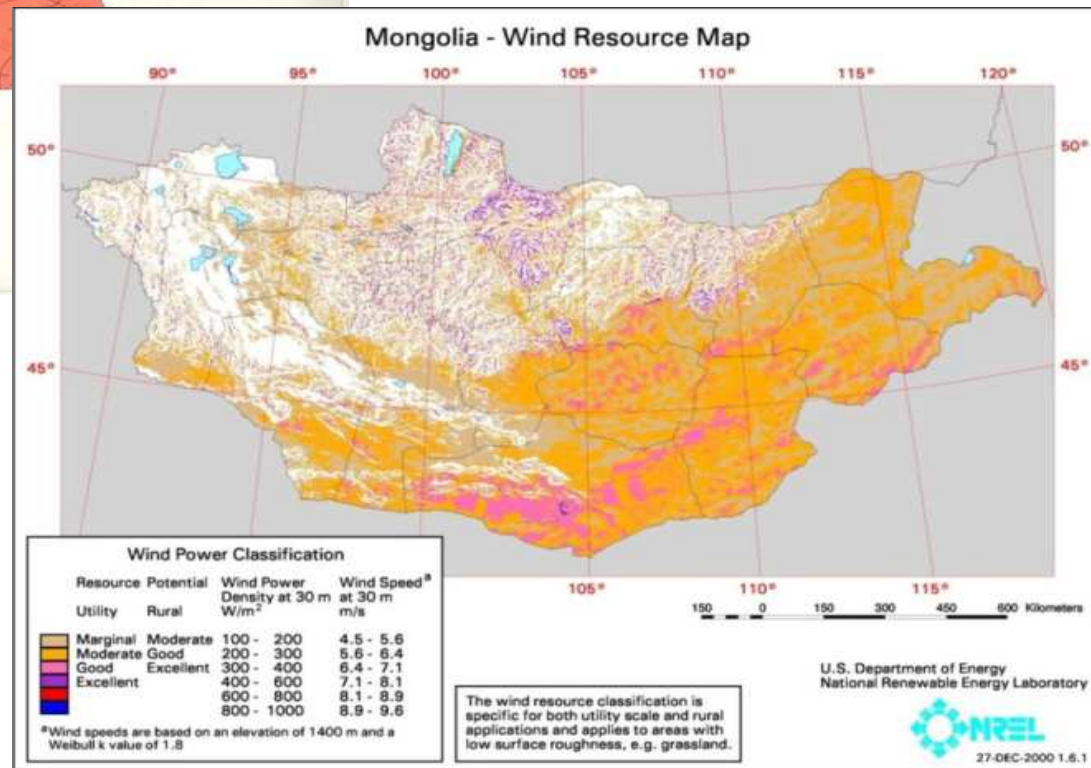


Source: Ministry of Energy, Mongolia

Mongolia has extensive renewable energy resources (solar, wind ...) yet to be utilized.

An annual average amount of solar energy is 1,400 kWh/m²/y with solar intensity of 4.3-4.7 kWh/m² per day.

Mongolia has potential to be a major wind power producer. Mongolia has enormous wind power resources; Good-to-excellent wind resources equivalent to **1,100 GW of wind electric potential.**



Source: U.S Department of Energy

- In particular, CHP3 and CHP4 are the biggest coal fired CHP plants in the capital. Thus, improving the efficiency of CHPs and introducing energy-saving technology -like highly efficient turbines and combustion systems in the facility level, and the adoption of the equipment management technology in the operational level is the key concerns.
- CHP3 and CHP4, which constitute major share in the energy supplies and in the total CO₂ emissions, are exclusively chosen provided with its BAU emissions (historical and future emissions up to 2020), and quantified emission reductions to be achieved by implementing specific measures described in the NAMAs such as technology change, and their associated cost requirements.



MINISTRY OF ENVIRONMENT
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MEGD and OECC signed MoU on 31 of July, 2012 in a framework of capacity building cooperation for NAMAs in MRV manner.

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

Action 2. Preparation for an Implementation Plan for NAMA

Action 3. Preparation for MRV

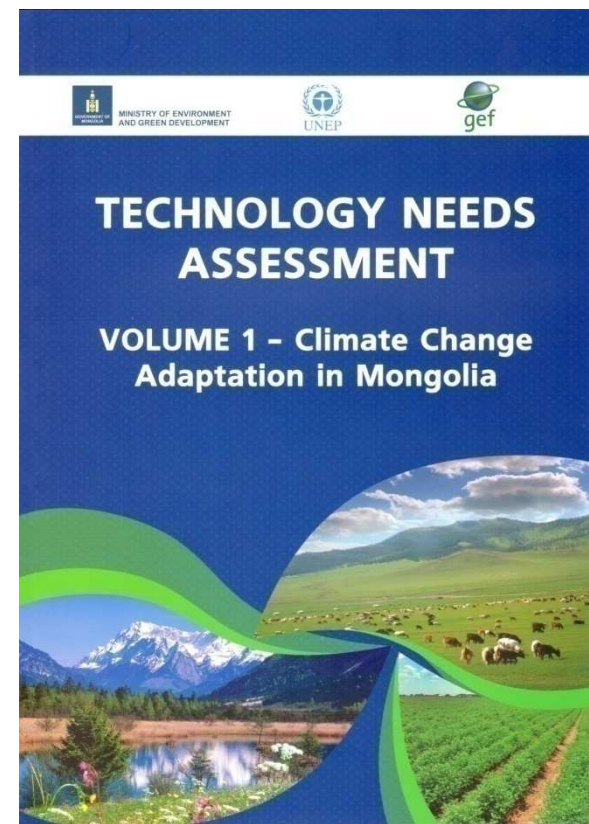
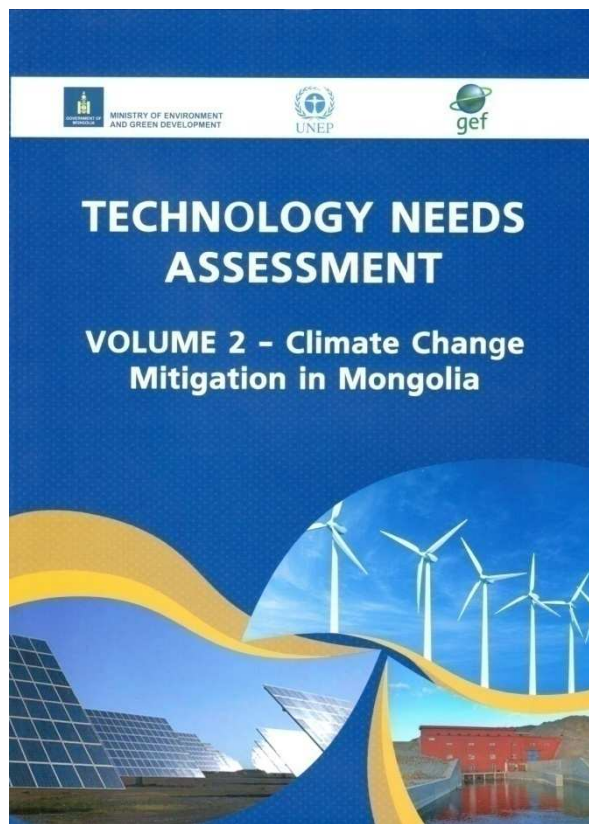
Action 4. Preparation for Institutional Arrangement for NAMA
implementation

Action 5. Collection information on technology to be employed etc

NAMA RELATED ONGOING ACTIVITIES

Sectors	Project name/duration	Objective	Partners /
Construction	Building Energy Efficiency/2009-2013	The goal is the reduction in the annual growth rate of greenhouse gas (GHG) emissions from the buildings sector in Mongolia	UNDP/Ministry of Construction and Urban Development
Transport	Green Public Transport /2012-2013	The project focuses on the viability of converting diesel engine buses to eco-friendly engines in an effort to reduce GHG emissions and to improve air quality	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 NE Asia/2011-2013	NAMA aims to limit the increase of the total number of livestock by increasing the productivity of each type of animal, especially cattle	ADB/Ministry of Industry & Agriculture
Energy	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 /MEGD
	Joint study in Mongolia energy supply-improve CHP Plant	Identify BAU and NAMA scenario in the Energy Supply Sector	OECC/Ministry of Environment & Green Development

Technology Needs Assessment project has just finished. Technology Needs Assessment Report describes key mitigation technologies in priority sectors for Mongolia such as large scale Hydro-power plants; Wind parks, Super critical coal fired power plants; energy efficient lighting; and improvement of insulation of panel apartment buildings.



JOINT CREDIT MECHANISM (JCM) AS A ONE MEANS TO IMPLEMENT NAMAs

Road to
"LCDP"

Governmental consultation
(Ulaanbaatar -3 July 2012)

Governmental consultation
(Tokyo -1 November 2012)

Governmental consultation
(Doha -30 November 2012)

Joint Statement
(Doha -6 December 2012)



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

Co-Chair

Members (7
Ministries and UB
City Authority)

Secretariat

Observers

Japan




Co-Chair

Members
(2 Ministries and
Japanese Embassy
in Mongolia)

Secretariat

Observers

CAPACITY BUILDING ACTIVITIES UNDER JCM

	Studies for JCM		Capacity Building and awareness raising (training, workshop)	
	New Mechanism Feasibility Study	MRV Demonstration Study	MRV/JCM and CDM	NAMAs
2011-2012	<ul style="list-style-type: none"> ❖ Energy Saving at Buildings by Utilizing Geothermal Heat Pump and Other Technologies (Shimizu Corp.) ❖ Multiple Application of Energy Efficiency Improvement Measures at Coal Thermal Power Plants (Suuri-Keikaku CO.,LTD) 	<ul style="list-style-type: none"> ❖ Replacement of Coal-Fired Boiler by Geothermal Heat Pump for Heating (Shimizu Corp.) ❖ Upgrading and Installation of High-Efficiency Heat Only Boilers (HOBs) (Suuri-Keikaku CO.,LTD) 	<ul style="list-style-type: none"> ❖ Seminar on CDM and New Market Mechanisms (18 June 2012) ❖ CDM Program of Activity (PoA) workshop (25 September 2012) ❖ Workshop on New Market Mechanisms (26 September 2012) 	<ul style="list-style-type: none"> ❖ Inception workshop (19 Sep 2012) ❖ Advisory Committee meetings for NAMAs in the energy supply sector (5 times) ❖ Study tour to Japan (Oct 2012)
2013-2014	<ul style="list-style-type: none"> ❖ <u>JCM Model Projects and Feasibility studies</u> 		<ul style="list-style-type: none"> ❖ Market mechanisms and MRV Workshop (31 January 2013) <p>....CB cooperation to be continued!</p>	<ul style="list-style-type: none"> ❖ Environmentally friendly technologies and measures in the energy supply sector: potential for NAMAs (24 Jan 2013) <p>....CB cooperation to be continued!</p>
Partner /responsible organization	 Global Environment Centre Foundation		 Institute for Global Environmental Strategies, Japan and CCCO of Mongolia	 Overseas Environmental Cooperation Center, Japan and CCCO of Mongolia

BUR MONGOLIA

EA Title	Preparation of first Biennial Update Report (BUR) to UNFCCC
Objective	To prepare and submit Mongolia's first biennial update report (BUR) to UNFCCC and in doing so enhance Mongolia's capacity to meet its reporting obligations under the UNFCCC on continuous basis
Expected fund	352.000\$ from GEF trust fund
GEF agency	UNEP
Executing Partner	MEGD

- Inevitably , the works undertaken and the expected outputs of NAMAs in MRV manner will be outlined in BUR and
- Will be submitted to UNFCCC as a stand-alone update report

CONCLUSION

- Technology transfer is essential part of NAMA and to identify clean technologies that are best suited for climate change mitigation and adaptation priorities
- Financing is key to implement NAMAs, and credible MRV mechanism is crucial to get international support
- Capacity building, research and study is necessary to set up MRV system for NAMAs
- Various approaches could be used to implement NAMAs such as Joint Offset Credit Mechanism (JCM)

Thank you!

For more information: <http://www.climatechange.gov.mn>
<http://www.cdm-mongolia.com/>