

A Study on Utilizing International Market Mechanisms to Mitigate Green House Gas Emissions: A Case Study on Energy Sector of Mongolia

Undarmaa Khurelbaatar *, Takeshi Mizunoya, Yoshiro Higano

Graduate School of Life and Environmental Sciences, University of Tsukuba

Abstract

Compared to other countries, Mongolian historic GHG emissions are comparatively low. However, there is still necessity to implement mitigation activities not only to reduce such emissions but also include the reduction of environmental pollution as co-beneficial activities. Mongolia's main energy generating resource is fossil fuel combustion; consumption of coal is relatively high. During the past years, various approaches have been implemented to mitigate climate change particularly in the energy sector, the main source of GHG emissions. Mongolia has implemented many Clean Development Mechanism initiatives, which creates the basis for new market-based mechanisms including Joint Crediting Mechanism. Hereafter current market uncertainty creates a need and interests for new source of carbon finance including new market mechanisms and according to the new agreement on climate change further research and studies are needed for the mitigation activities. Mongolia has outlined a series of policies and measures that the country commits to implement up to 2030, in the energy, industry, agriculture and waste sectors. The expected mitigation impact of these policies and measures will be a 14% reduction in total national GHG emissions by 2030, compared to the projected emissions under a business as usual scenario. Current international mechanisms could be one of the tangible contributions to achieve our country's expectation to reduce GHG emission as an internationally agreed mechanisms and instruments under the auspices of the UNFCCC. Therefore, the main purpose of this research is to study possibilities and ways to use carbon mechanisms in reducing GHG emissions from energy sector, especially in mining industry.

Keywords: Climate Change Mitigation, Greenhouse Gas, Carbon Mechanism

1. Introduction

According to the INDCs (2015), Mongolia is fully committed to the UNFCCC negotiation process towards adopting at COP21 a legal instrument or an agreed outcome with legal force under the Convention, applicable to all Parties, in line with confining global warming below 2°C. Comparing to other countries, Mongolian historic greenhouse gas emission is comparatively low.

However, there is still necessity to implement mitigation activities not only to reduce greenhouse gas emission but also include the reduction of environmental pollution as co-beneficial activities since Mongolia's main energy generating resource is fossil fuel and its consumption is high. During the past years, various approaches has been done to mitigate climate change particularly in energy sector since the amount of greenhouse gas emission is high comparing to the other emitting sectors. Such as needs assessment, technology transferring as well as capacity building activities were taken place (Government of Mongolia, 2015).

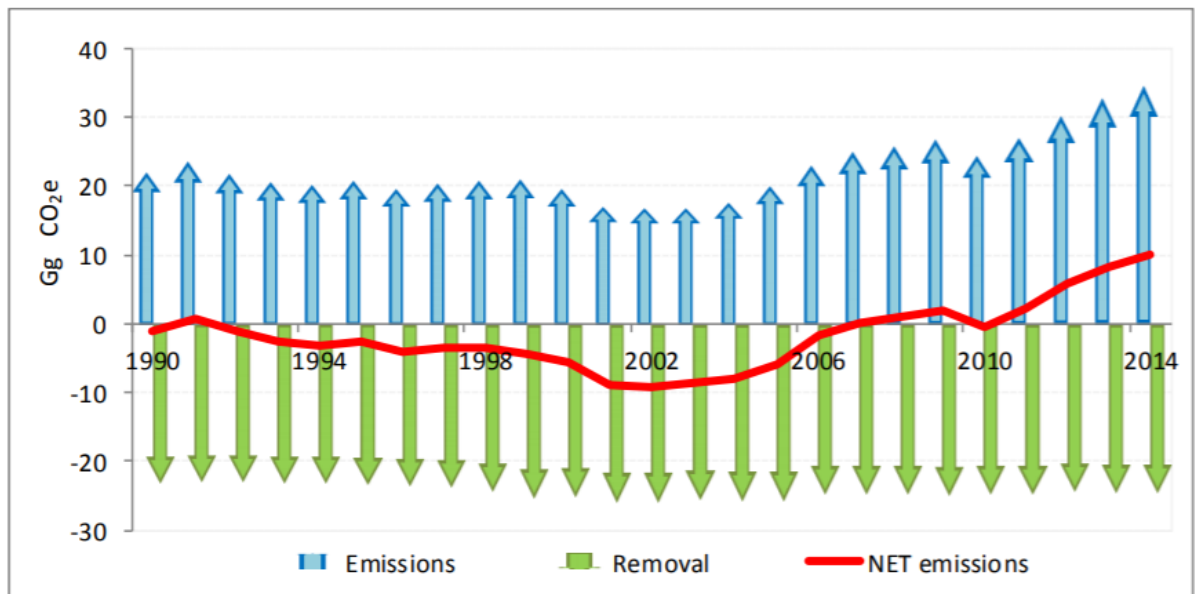


Figure 1 Mongolia's total and net GHG emissions and removals, 1990-2014 (Gg CO₂e), Mongolia's National Inventory Report 2017

Our country has an experience of implementing Clean Development Mechanism(hereafter CDM), which is one of the carbon mechanism under the Kyoto protocol and based on its current situation and experiences of CDM creates the basis for new market based mechanisms including Joint Crediting Mechanism in Mongolia (Japan, 2013). Current

market uncertainty creates a need and interests for new source of financing mechanisms and according to the new agreement on climate change further research and studies are needed for the mitigation activities. As one of the means of implementation, utilizing international funding and carbon mechanisms would be the possible contribution stated in its INDCs.

So far, to engage above mentioned mitigation activities, Mongolia has been implementing market-based initiatives such as CDM and JCM. According to the reports and updates of CDM and JCM, most of the projects under these mechanisms are in energy sectors but there are few research activities were conducted regarding the utilization of market mechanism in Mongolia.

2. Objective and questions:

In implementation of energy sector work plan aimed to achieve the 14% GHG reduction target, it is necessary to conduct emission reduction activities on the main sources.

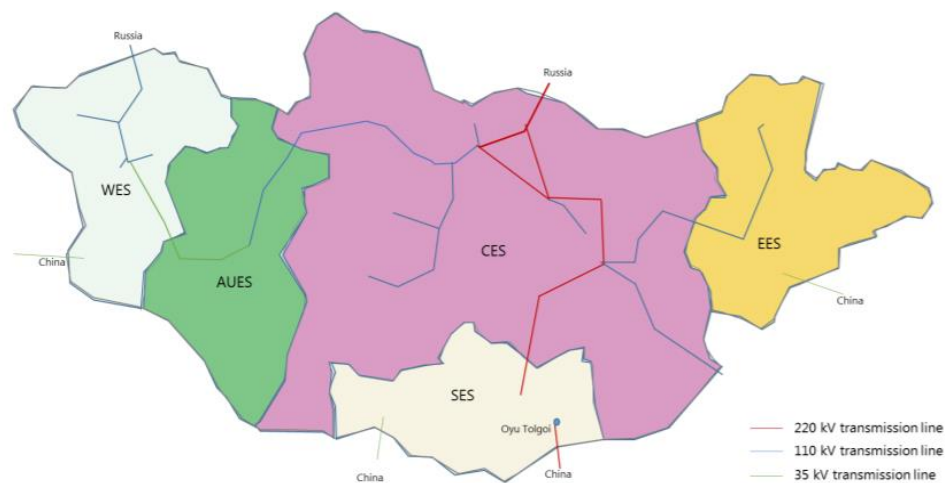


Figure 2. Map of Mongolia energy system, Government of Mongolia, 2017

Since, coal fired CHPs and small-scale stoves are the key sources of GHG emissions in the country, mitigation measures and action in energy sectors will have high potentials to show significant result to reduce GHG emission reduction and air pollution reduction at the same time. However, as for the mitigation activities, technology renovation and financial costs for changing or installing the new technologies to the existing plants and sources are the main barriers and to achieve the determined approach stated in Mongolia's INDCs, there are needs

of furthermore research on improvement areas on technology, reduction potentials and usage of market mechanisms based on the existing condition.

Therefore, the main objective of this research is to study possibilities reduce the GHG emissions on main sources and ways to use existing carbon mechanisms to reduce GHG emissions from energy sector and possibly mining industry.

With this research following questions will be determined.

- To understand the GHG emission particularly from energy sector in Mongolia
- Potentials to reduce the GHG emission from the point and non-point sources
- What are the barriers of the mitigation measures in chosen area?
- What are the potential market-based or other approaches to trade the emission reduction from the energy or mining industries?
- Future benefits

3. Methodology

For the research, literature review and desk review will be conducted using government related reports and policy documents. Accordingly,

- Policy and action review among the existing international and national documents and studies will be conducted
- Estimation of integrated social cost-benefit analysis to compare existing market-based approaches

Data collection

Data will be covered from the official organizations such as national statistics agency and coordinating ministries and agencies. Primary and secondary data of energy system including default values as well as socioeconomic data and it will be collected from the related organizations and specialists based on data survey or interview.

4. Expected results and Significance:

- Identification of high result measures in mitigating GHG emission as well as environmental pollution in energy sectors
- Estimation and comparison of GHG mitigation potentials in energy and mining

sectors

- Results on investment cost needs
- Detection of compatible international market mechanisms to reduce the GHG emissions (possibly cap and trade)
- An initial recommendation on national level emission trading scheme establishment
- Result on Co-benefits (air pollution reduction, environmental and human health improvement, livelihood poverty reduction, etc.)

Based on the result of the proposed research, there will be basis of opportunities to implement and improve the usage of existing mitigation activities in energy and mining sector by comparing the reduction approaches and technology improved scenarios. Hereafter using international financing mechanisms and other tools to achieve our country's policy and development objectives reflected in important documents such as Intended National Determined Contributions to United Nations Framework Convention on Climate Change 2015, Concepts of Mongolia's Sustainable development 2030, Green Development Policy of Mongolia (2015), Phase 2 of the implementation plan of National Action Plan for Climate Change (2010). Many activities and measures can be detected by researches and studies but most importantly utilizing international funding and support to implement necessary activities are crucial in our country since our country's current economic growth is not very favorable.

This research would complement climate change mitigation activities since not many studies were conducted particularly in use of international fund/mechanisms.

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