

RAISING CLIMATE AMBITIONS AND IMPROVING AIR QUALITY IN MONGOLIA

Opportunities from taking integrated actions on air pollution and climate change in Mongolia

Stockholm Environment Institute (SEI) and Climate and Clean Air Coalition (CCAC)

- Country: Mongolia
- Co-Benefit: Air Quality and Health
- Method: Emission Mitigation Assessment
- Assessment by: CCAC SNAP initiative
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Air pollution in Mongolia

Mongolia faces many challenges related to the adverse impacts of climate change and air pollution. Due to a substantial rise in coal burning in the energy sector combined with increasing urbanization, air pollution reaches in the cold season dangerous levels in Mongolian cities. In the capital Ulaanbaatar, home to 45% of Mongolia's population, the **air pollution level is almost six times higher than World Health Organisation (WHO) air quality standards.**

Besides agriculture, transport and coal use for household heating and cooking, electricity and heat generation are main sources of short-lived climate pollutants (SLCPs), greenhouse gases (GHGs) and air pollutants in Mongolia.

In its revised NDCs, Mongolia states, among others, mitigation measures to reduce GHG emissions in the energy sector. This includes an **increase in the share of renewable energy in total energy production from around 7% in 2018 to 20 and 30 percent by 2020 and 2030** respectively. Simultaneously, actions have been identified and implemented to improve air pollution in Ulaanbaatar specifically.

As part of the Climate and Clean Air Coalition SNAP initiative, an **integrated assessment of air pollutant emissions, SLCPs, and GHGs** was undertaken to **evaluate the potential of mitigation options to simultaneously improve air quality and mitigate climate change.**



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Infographic

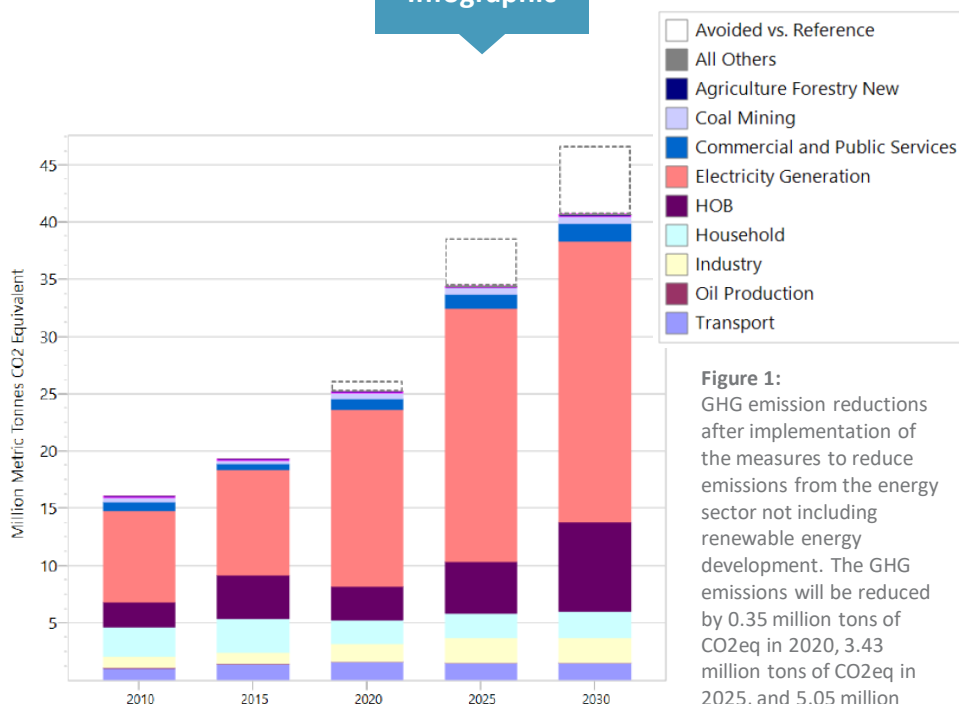


Figure 1: GHG emission reductions after implementation of the measures to reduce emissions from the energy sector not including renewable energy development. The GHG emissions will be reduced by 0.35 million tons of CO₂eq in 2020, 3.43 million tons of CO₂eq in 2025, and 5.05 million tons of CO₂ in 2030.

Source: SEI, 2020



Methodology

To quantify emissions of air pollutants, to generate mitigation scenarios and to estimate benefits of actions, **the LEAP-IBC (Low Emissions Analysis Platform (LEAP) Integrated Benefits Calculator (IBC) tool was applied.** Deployed as part of the SNAP project by CCAC/SEI, LEAP-IBC enables the development of policy scenarios and facilitates their comparison and selection based on a socio-economic co-benefit analysis.

For Mongolia, data from the energy and non-energy sectors as well as environmental data in a variety of areas were analysed. Having already been used in Mongolia, the LEAP tool could be applied for an integrated assessment of greenhouse gases, short-lived climate pollutants and air pollutants based on the latest available national data.

Indicators assessed

- Emission of SLCPs, GHGs and air pollutants by source
- Projections of SLCPs, air pollutant and GHG emissions for 2030 following different scenarios

Key findings

- In Mongolia, GHG, SLCP and air pollutant emissions are in many cases are emitted from the same sources, e.g. from coal use for heating and for power generation
- **Electricity and Combined Heat and Power Plants contributed over 70% of emissions from the electricity and heat generation sectors**, while heat-only boilers (HOBs) contributed approximately 28% of total emissions
- **Full implementation of Mongolia's revised NDC will result in a 22.7% reduction in GHG emissions.** The implementation of Mongolia's climate change commitment and additional air pollution measures can reduce emissions of black carbon by 26%, PM2.5 by 17% and NOx by 22% in 2030 compared to a business-as-usual scenario
- Most effective GHG emission reduction measures are efficiency improvements of coal fired power plants and HOBs, together with the use improved briquette fuel. Most of effective measures to reduce air pollution is the modernization of housing, the use of electric heaters and the ending of raw coal use in Ulaanbaatar.

Recommendations

- To ensure an improvement in ambient air quality and climate change mitigation alike, **emission reduction measures outlined in the revised NDCs needs to be implemented** in combination with air pollution reduction measures for Ulaanbaatar
- An **increase in technical capacity for integrated air pollution, climate change and SLCP planning** is essential to be able to track progress on air pollution and climate change mitigation, and to revise priorities as national circumstances change
- **Capacity-building at local government level** is necessary to develop air quality management strategies in municipalities outside of Ulaanbaatar. Collaborations with local academic institutions can be effective in building capacity for air pollution and climate change assessments, and may support generating improved or additional data to increase the accuracy and precision of emission estimates



CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

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