



Greenhouse Gas Emissions in Mongolia

Mongolia Numbers at a Glance (2012)

59 MtCO₂e*

Total GHG emissions
(0.12% of world total)
World: 47,599 MtCO₂e

2,796,484

Population
World: 7,043,181,414

21.1

tCO₂e per capita
World: 6.76 tCO₂e

US\$4,562 Million
GDP**

World: US\$55,261 Billion

12,958

tCO₂e/million US\$ GDP
World: 861 tCO₂e/million US\$ GDP

3.7 MtCO₂e (7%)

Change in GHG emissions
(1990–2012)
World: +13,661 MtCO₂e

Sources: WRI CAIT 2.0, 2016.

Emissions including Land-Use Change and Forestry

*Million metric tons of carbon dioxide equivalent

**Gross Domestic Product (GDP) in constant 2005 US\$

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Greenhouse Gas (GHG) Emissions by Sector

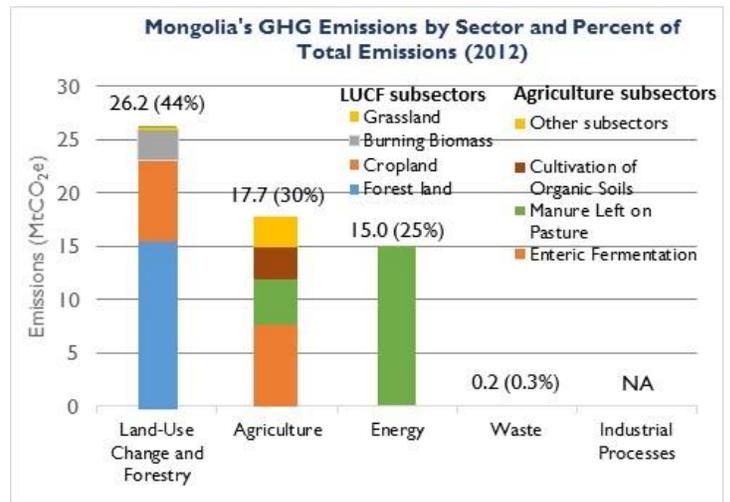
According to the World Resources Institute Climate Analysis Indicators Tool (WRI CAIT), Mongolia's 2012 GHG profile consisted almost entirely of emissions from land-use change and forestry (LUCF) (44%), agriculture (30%), and energy (25%). WRI CAIT does not report GHG emissions from the industrial processes (IP) sector for Mongolia in 2012.¹

Mongolia's [Second National Communication \(SNC\)](#) to the UNFCCC, submitted in 2010, tells a different story. The SNC includes a GHG inventory for the year 2006, which shows the LUCF sector as a large net CO₂ sink, absorbing more carbon dioxide than was emitted. It attributes this to large-scale abandonment of managed lands, which reverted back to grasslands following the fall of the Soviet Union.² WRI CAIT data for the same year show that LUCF was the country's largest emitter in 2006 (52%), followed by agriculture (28%).³

Change in GHG Emissions in Mongolia (1990-2012)

According to WRI CAIT, Mongolia's GHG emissions increased by 3.7 MtCO₂e from 1990 to 2012. The average annual change in total emissions during this period was 0.5%, with sector-specific average annual changes as follows: LUCF (0.04%), agriculture (1.3%), energy (0.9%), waste (2.3%) and IP (5.2%).⁴ The change in emissions in selected sectors during this time is discussed below.

LUCF: Mongolia's LUCF emissions decreased by 5% from 1990 to 2012, driven by changes in forest land.⁵ Mongolia's forest reserves are greatly affected by forest fires, disease, pests, mining activities, and illegal logging.⁶ In 2010, 375,700 hectares of land with forest reserves were affected by various factors including 39,000 hectares burned in fires (104 incidents were recorded), 95,600 hectares destroyed by diseases and pests, and 42,200 hectares affected by mining activities. In the period 2008 to 2010, the total land area for mining increased 29% due to an increase in gold, copper and coal mining sites.⁷ The mining sector accounts for about 20% of Mongolia's GDP and half the country's exports.⁸ Supported by the Mongolian government



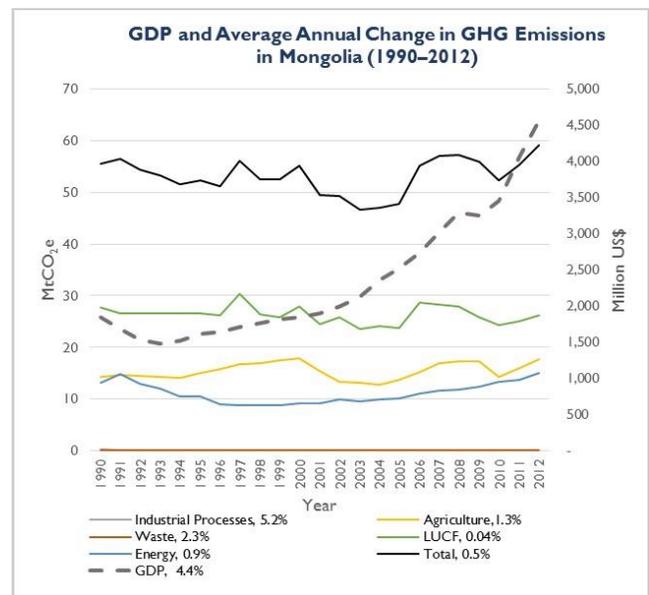
Sources: WRI CAIT 2.0, 2016; FAOSTAT, 2016
WRI CAIT does not present IP sector emissions for Mongolia in 2012

¹ World Resources Institute Climate Analysis Indicators Tool (WRI CAIT 2.0, 2016). Comprising only 0.3% of total GHG emissions in 2011, IP sector emissions are not a significant contributor to Mongolia's GHG profile.
² Mongolia, Mongolia's [Second National Communication \(SNC\)](#) to the UNFCCC, 2010.
³ WRI CAIT 2.0, 2016.
⁴ WRI CAIT 2.0, 2016. The average annual change in emissions for the IP sector is shown for the period 1990-2011 since WRI CAIT does not show IP emissions for 2012.
⁵ Ibid.
⁶ Mongolia's Ministry of Nature, Environment and Tourism, [Report on the State of the Environment of Mongolia 2008-2010](#), 2011.
⁷ Ibid.
⁸ Mongolia, Mongolia's SNC to the UNFCCC, 2010.

through incentives and favorable conditions, it attracts the majority of foreign investment in the country.

Agriculture: According to WRI CAIT, Mongolia's agriculture emissions grew 24% from 1990 to 2012, with enteric fermentation driving this growth.⁹ Herding is a business and a way of life in Mongolia. A large segment of the Mongolian population (small-scale and large-scale herders) remains dependent on livestock production as their primary means of livelihood.¹⁰ In the decade from 1990 to 1999, livestock numbers increased, largely due to a rapid rise in the goat population from approximately 5 million head in 1990 to 11 million head in 1999. This increase was due in part to high cashmere prices. Although livestock producers increased livestock numbers in response to market factors, the widespread and multi-year drought of 2000-2002 caused high livestock mortality in the national herd.¹¹ Accordingly, GHG emissions from the agriculture sector dropped during this period.¹² From 2004 to 2009, livestock numbers rose again with government support in veterinary and feed services.¹³ However, in 2010, livestock production declined again due to extreme winter events.¹⁴

Energy: Mongolia's SNC notes that the high energy sector GHG emissions in 2006 were driven by emissions from coal-fired electricity and heat generation. As of 2013, Mongolia generated 93% of its electricity and over 99% of its heat using coal.¹⁵ According to WRI CAIT, energy sector emissions grew 14% from 1990 to 2012 with electricity and heat production driving this increase. During this period, Mongolia increased its electricity generation by 29%, with the share of coal in its generation mix remaining roughly constant over time.¹⁶



Source: WRI CAIT 2.0, 2016
 Note: The IP sector emissions line is not visible as it is covered by the red line showing the waste sector emissions.

Carbon Intensity: GHG Emissions Relative to Gross Domestic Product (GDP)

Mongolia's GHG emissions increased 7% from 1990 to 2012, averaging 0.5% annually, while GDP grew by 147%, averaging 4.4% annually. The carbon intensity of Mongolia's economy is almost 15 times the world average, and its per-capita GHG emissions of 21 tons (including LUCF) is among the highest in the world. Although GDP has grown faster than total GHG emissions, there is potential for Mongolia to further reduce its GHG emissions relative to GDP.

Climate Change Mitigation Targets and Plans

In its [Intended Nationally Determined Contribution \(INDC\)](#), submitted to the UNFCCC in September 2015, Mongolia commits to reduce its GHG emissions by 14% by 2030 (excluding LUCF) compared to a business as usual (BAU) scenario. This goal is conditioned on financial support from the international community. Proposed mitigation actions in the energy sector include increasing the share of renewables in electricity generation capacity from 7.62% in 2014 to 20% by 2020 and to 30% by 2030, increasing the share of private hybrid road vehicles from approximately 6.5% in 2014 to approximately 13% by 2030, and improving Bus Rapid Transit (BRT) and other public transport in Ulaanbaatar. To mitigate emissions in the agriculture sector, Mongolia plans to maintain the livestock population "at appropriate levels according to the pasture carrying capacity."¹⁷ Mongolia's INDC builds on national policy and strategy documents including the 2011 National Action Programme on Climate Change, the 2010 Mongolian National Livestock Programme, and the 2014 Green Development Policy. Additionally, the FAO and UNDP have assisted the Mongolian government in developing the National REDD+ Readiness Roadmap, which was completed and endorsed in 2014. As a result, Mongolia's boreal forest is the first National Programme to be funded by UN-REDD.¹⁸

⁹ Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT), viewed July 5, 2016: <http://faostat3.fao.org/browse/area/141/E>.

¹⁰ World Bank, [Mongolia Livestock Sector Study, Volume I, Synthesis Report](#), 2009.

¹¹ Ibid.

¹² WRI CAIT 2.0, 2016.

¹³ World Bank, [Mongolia Livestock Sector Study, Volume I, Synthesis Report](#), 2009.

¹⁴ Mongolia, Mongolia's SNC to the UNFCCC, 2010.

¹⁵ International Energy Agency (IEA) Statistics: Mongolia, 2016: <http://www.iea.org/statistics/statisticssearch/report/?country=Mongolia&product=electricityandheat>.

¹⁶ Ibid.

¹⁷ Mongolia. Mongolia's Intended Nationally Determined Contribution (INDC) to the UNFCCC, 2015.

¹⁸ Grantham Research Institute on Climate Change and the Environment, 2015 Global Climate Legislation Study – Mongolia, 2015.