



Greenhouse Gas Emissions in Kyrgyzstan

Kyrgyzstan Numbers at a Glance (2013)

15.5 MtCO₂e*

Total GHG emissions
(0.034% of world total)

World: 45,261 MtCO₂e

5,719,600

Population

World: 7,176,092,192

2.7

tCO₂e per capita

World: 6.31 tCO₂e

US\$ 5,629 Million

GDP**

World: US\$71,059 Billion

2,753

tCO₂e/million US\$ GDP

World: 637 tCO₂e/million US\$ GDP

-6 MtCO₂e (-27%)

Change in GHG emissions
(1992–2013)

World: +15,193 MtCO₂e
(+51%)

Sources: WRI CAIT 2.0, 2017.

*Million metric tons of carbon dioxide equivalent; Emissions exclude Land-Use Change and Forestry; Global Warming Potentials are from the Intergovernmental Panel on Climate Change Second Assessment Report

**Gross Domestic Product (GDP) in constant 2010 US\$

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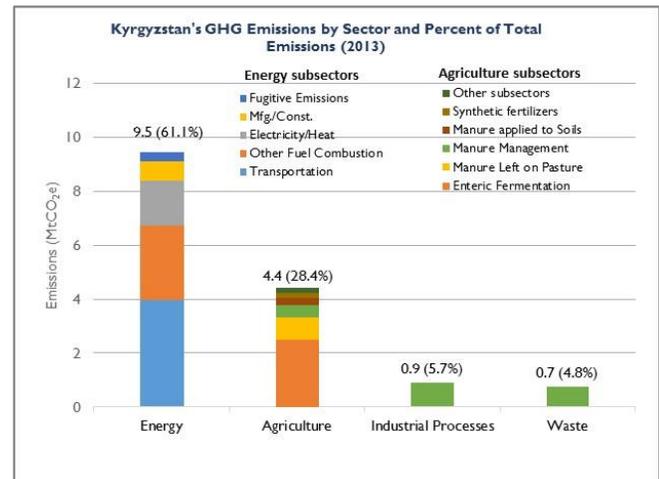
Greenhouse Gas (GHG) Emissions by Sector

According to the World Resources Institute Climate Analysis Indicators Tool (WRI CAIT), Kyrgyzstan's GHG emissions in 2013,¹ excluding the land-use change and forestry (LUCF) sector,² were mainly from the energy sector (61.1%), followed by emissions from agriculture (28.4%), industrial processes (IP) (5.7%), and waste (4.8%). Within the energy sector, transportation and other fuel combustion were responsible for approximately 71% of emissions.³ Within the agriculture sector, enteric fermentation from livestock contributed 56% of emissions.⁴

WRI CAIT shows activities in the LUCF sector to have removed 0.8 MtCO₂e in 2013.⁵ Similarly, Kyrgyzstan's [Second National Communication \(SNC\)](#) to the UNFCCC, which includes a GHG inventory from 1990 to 2005, shows activities in the LUCF sector to have been a source of removals.⁶

Change in GHG Emissions in Kyrgyzstan (1992-2013)

According to WRI CAIT, Kyrgyzstan's GHG emissions, excluding LUCF, decreased from 1992 until 1995 and have fluctuated since then, with total emissions reaching a low point in 2001 and climbing along with energy sector emissions.⁷ As of 2013, agriculture and waste emissions increased, but have yet to return to their 1992 levels. From 1992 to 2013, total emissions, excluding LUCF, decreased by 6 MtCO₂e. The average annual change in total emissions during this period was -0.7%, with sector-specific average annual change as follows: energy (-0.5%),



Source: WRI CAIT 2.0, 2017, FAOSTAT, 2017.

Note: Percent of total emissions exclude LUCF – see Footnote 2.

¹ World Resources Institute Climate Analysis Indicators Tool (WRI CAIT 2.0, 2017). Global Warming Potentials (GWPs) are from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (SAR). WRI CAIT draws on data from the International Energy Agency (IEA), primarily, for energy emissions, the US Environmental Protection Agency for IP and waste emissions, and the Food and Agriculture Organization (FAO) for LUCF and agriculture emissions. WRI CAIT does not show total GHGs, agriculture and LUCF emissions for Kyrgyzstan for the 1990-1991 period.

² WRI CAIT data show that the LUCF sector was a carbon sink between 1992 and 2005, absorbing on average 2.41 MtCO₂e during this period. Between 2006 and 2010, WRI CAIT data show that LUCF emissions changed dramatically, switching the LUCF sector from a carbon sink to a significant source contributing on average 14.45 MtCO₂e during this period. In contrast, data from the FAO [Global Forest Resource Assessment](#) show that forest areas in Kyrgyzstan increased 14% from 1990 to 2010. Due to data discrepancy between WRI CAIT and other sources, LUCF sector emissions are excluded from the total GHG emission estimates in this factsheet and are not shown in the graphs.

³ WRI CAIT 2.0, 2017.

⁴ Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT). [Emissions – Agriculture total](#), viewed on March 22, 2017.

⁵ WRI CAIT 2.0, 2017. WRI CAIT draws on FAO data for LUCF and agriculture emissions. WRI notes that its data is useful as reference only and may not coincide with LUCF emissions reported by countries to the UNFCCC (WRI. CAIT Country Greenhouse Gas Emissions: Sources & Methods, 2015.)

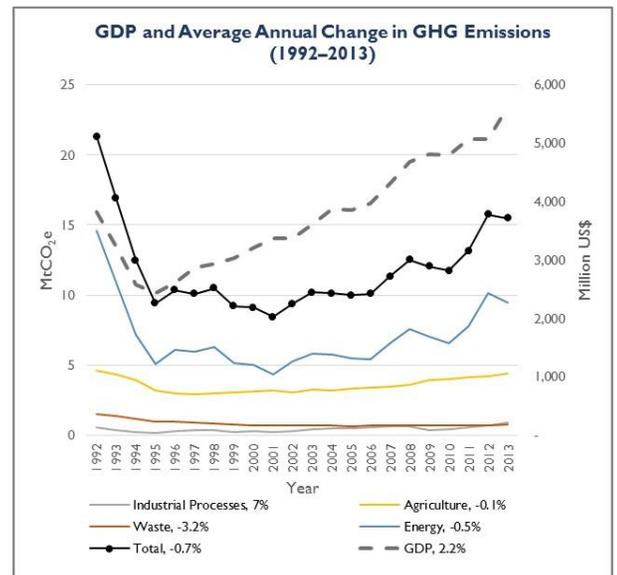
⁶ Kyrgyz Republic's [Second National Communication \(SNC\)](#) to the UNFCCC, 2009. The inventory uses GWPs from the IPCC SAR. The SNC estimates 30% uncertainty in calculating sinks of carbon dioxide from the change of stocks of wood biomass; 50% uncertainty in methane and nitrous oxide emissions from the change of stocks of wood biomass; and 80% uncertainty in carbon dioxide emissions from the change of carbon stocks in soil.

⁷ WRI CAIT does not show total GHGs, agriculture and LUCF emissions for 1990-1991. Emissions from energy, waste, and IP during this period are approximated according to the methodology WRI uses to calculate emissions for newly formed countries (WRI. [CAIT Country Greenhouse Gas Emissions: Sources & Methods](#), 2015). 1992 is the first year that emissions from all sectors are included. Therefore the change in emissions in this factsheet are presented for the period 1992-2013.

agriculture (-0.1%), IP (7.0%), and waste (-3.2%). The change in emissions in the highest emitting sectors is discussed:

Energy: Energy emissions decreased by 5 MtCO₂e between 1992 and 2013, mainly due to decreases in manufacturing and construction and other fuel combustion.⁸ During this time, International Energy Agency (IEA) data show that industrial fuel consumption decreased almost four-fold,⁹ and primary solid biofuels consumption decreased 25%.¹⁰ Metallurgy (mostly gold production), electric power generation, food and beverages, and tobacco processing industries constitute 75% of total industrial production, contributing 30% of Gross Domestic Product (GDP).¹¹ In transportation, the SNC notes a significant decrease in fuel consumption between 1993 and 1997 due to changes in the country's vehicle fleet; the number of trucks and buses decrease significantly while cars increase. From 1990 to 2005, the SNC shows a decline in the means of motor transportation.

Agriculture: Agriculture emissions decreased 5% from 1992 to 2013,¹² driven by reductions from enteric fermentation.¹³ Between 1990 and 2007, the livestock population decreased by approximately 30%.¹⁴ Kyrgyzstan's rural population is heavily dependent on livestock and small-scale farming that is a mix of market and subsistence farming.¹⁵ Agriculture and livestock remain the backbone of the economy, providing substantial employment and playing a critical role in household food security. According to the International Fund for Agricultural Development, the continuing decline in agriculture's contribution to GDP indicates an inefficiency in the sector.¹⁶



Source: WRI CAIT 2.0, 2017

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

According to WRI CAIT data, Kyrgyzstan's GHG emissions, excluding LUCF, decreased 27% from 1992 to 2013, averaging -0.7% annually, while GDP increased 47% in the same period, averaging 2.2% annually. It is a positive trend for GDP to grow faster than GHG emissions, although as of 2013, Kyrgyzstan emitted approximately 4 times more GHGs relative to GDP than the world average, excluding LUCF. This indicates potential for improvement.

Climate Change Mitigation Targets and Plans

In its [Intended Nationally Determined Contribution \(INDC\)](#), the Kyrgyz Republic commits to unconditionally reduce its GHG emissions in the range of 11.5% to 13.8% compared to a business as usual (BAU) scenario by 2030, through actions in energy, agriculture, forestry and other land use, industry, and waste. The 2030 target could be expanded to reductions of 29.0% to 30.9% with international financial support. The INDC also includes 2050 targets whereby it will reduce GHG emissions from 12.7% to 15.7% below BAU by 2050 which could be expanded to 35.1 to 36.8% with international financial support. The Kyrgyz economy is expected to grow and so will its GHG emissions. However, the long term vision of the government is to limit the per capita GHG emissions from all sectors to 1.23 tCO₂ by 2030 and 1.58 tCO₂ by 2050. Kyrgyzstan plans to monitor the implementation of mitigation actions and update regularly its national mitigation priorities, programs and action plans.¹⁷ Kyrgyzstan signed but has not ratified the Paris Agreement.¹⁸

⁸ WRI CAIT 2.0, 2017. Manufacturing and construction includes emissions from fossil fuel combustion in industrial activities including (but not limited to) iron and steel, chemicals and petrochemical, non-ferrous metals, non-metallic minerals, mining and quarrying, paper, pulp and printing, and construction. Other fuel combustion includes emissions from biomass combustion (charcoal or fuel wood), stationary and mobile sources (not allocated in the Transportation sub-sector) and other sectors (commercial/ institutional activities, residential, and agriculture/forestry/fishing as well as other emissions not specified elsewhere) (WRI, [CAIT Country Greenhouse Gas Emissions: Sources & Methods](#), 2015).

⁹ International Energy Agency (IEA). Kyrgyzstan: Balances, 1992 and 2013.

¹⁰ IEA. Kyrgyzstan: [Renewables and Waste, 1992 and 2013](#), and [IEA Definitions](#): Primary solid biofuels and charcoal are defined as any plant matter used directly as fuel or converted into other forms before combustion.

¹¹ Kyrgyz Republic, SNC, 2009.

¹² WRI CAIT 2.0, 2017.

¹³ FAOSTAT, 2017.

¹⁴ National Statistical Committee of the Kyrgyz Republic. [Livestock and bird population by category of households in Kyrgyz Republic](#), viewed on March 22, 2017.

¹⁵ University of Central Asia. [Sustainable Land Management in Kyrgyzstan and Tajikistan: A Research Review](#), 2013.

¹⁶ International Fund for Agricultural Development. [Kyrgyz Republic Livestock and Market Development Programme II, Project Design Report](#), 2013.

¹⁷ Kyrgyz Republic. [Intended Nationally Determined Contribution](#), 2015.

¹⁸ UNFCCC, [Paris Agreement – Status of Ratification](#), viewed on March 22, 2017.