

Greenhouse Gas Emissions in the Philippines

Philippines Numbers at a Glance (2012)

157.6 MtCO₂e*

Total GHG emissions
(0.33% of world total)

World: 47,599 MtCO₂e

96,706,764

Population

World: 7,043,181,414

1.63

tCO₂e per capita

World: 6.76 tCO₂e

US\$145,175 Million

GDP**

World: US\$55,261 Billion

1,085.6

tCO₂e/million US\$ GDP

World: 861 tCO₂e/million US\$ GDP

+54 MtCO₂e (+53%)

Change in GHG emissions
(1990–2012)

World: +13,661 MtCO₂e
(+40%)

Sources: WRI CAIT 2.0, 2016.

Emissions including Land-Use Change and Forestry

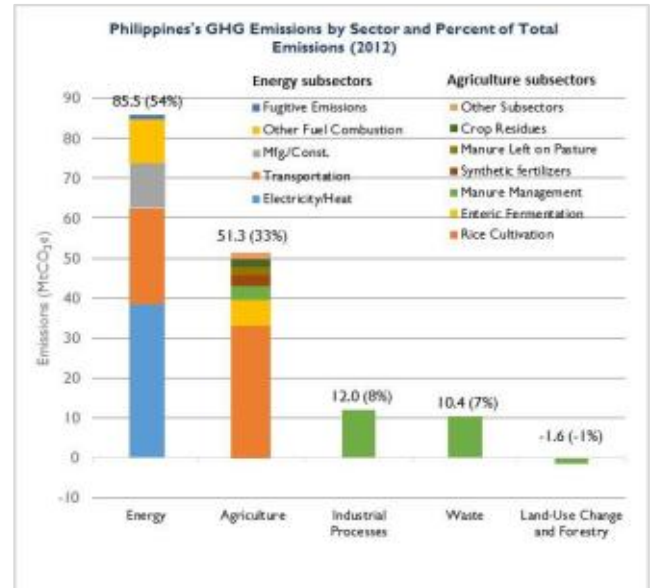
*Million metric tons of carbon dioxide equivalent

**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), the Philippines' GHG emissions in 2012 were dominated by the energy sector (54%), followed by agriculture (33%), industrial processes (IP) (8%), and waste (7%). The land-use change and forestry (LUCF) sector is a net sink absorbing more emissions than it releases due primarily to activities in the forest land subsector which in 2012 removed 1.64 MtCO₂e. Within the energy sector, electricity and heat production contributed 45% of the sector emissions.¹



Sources: WRI CAIT 2.0, 2016, FAOSTAT, 2016

Change in GHG Emissions in Philippines (1990-2012)

According to WRI CAIT, the Philippines' GHG emissions increased by 54 MtCO₂e between 1990 and 2012. The average annual change in total emissions during this period was 2.1%, with sector-specific average annual changes as follows: energy (3.4%), agriculture (1.5%), IP (7.1%), waste (2.1%), and LUCF (-12.4%). The change in emissions in selected sectors during this period is discussed in more detail below.

Energy: Energy sector emissions increased by 43 MtCO₂e from 1990 to 2012, with electricity and heat production driving this increase, followed by transportation.² Between 1990 and 2012, total electricity generation almost tripled. Despite a 66% reduction in the share of power generation from oil, the share of coal-fired power generation grew from 7% to 39% and the share of natural gas increased from 0% to 27%. Hydroelectric, geothermal, waste, wind, and solar photovoltaic power generation almost doubled during this time. The total share of generation from renewables reached 28%.³ As of 2012, total installed electric generation capacity was nearly 17,000 MW.⁴ Almost 77% of households in Philippines had access to electricity in 2012 and the government is planning to achieve 90% by 2017.⁵ Increased grid interconnections through transmission lines and submarine cables between the islands are planned to support a future unified grid.⁶

Transport is a key sector in the Philippines' economy. Water transport is important due to the archipelagic nature of the country, but road transport is by far the dominant subsector

¹ World Resources Institute Climate Analysis Indicators Tool (WRI CAIT 2.0, 2016). Global Warming Potentials (GWPs) are from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (SAR).

² WRI CAIT 2.0, 2016.

³ International Energy Agency Statistics: Philippines Electricity and Heat [1990](#) and [2012](#).

⁴ Philippines Department of Energy. [2012 Capacity Mix – Summary](#), 2013.

⁵ Republic of Philippines. Department of Energy. [Philippines Energy Plan 2012-2030](#), 2012.

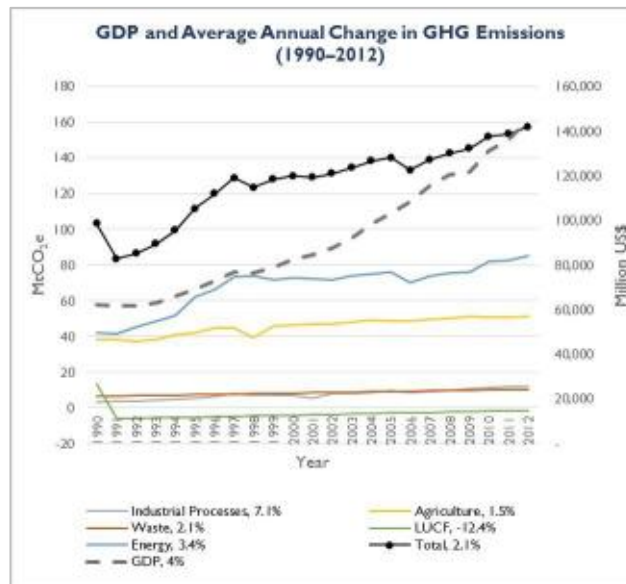
⁶ National Grid Corporation of the Philippines. [Transmission Development Plan](#), 2015.

accounting for 98% of passenger traffic and 58% of cargo traffic.⁷ Since 2000, the annual increase in the number of vehicles has averaged 12%.⁸ As of 2012, there were 7,463,393 motor vehicles.⁹ Car travel accounts for 30% of person-km, but constitutes 72% of the road traffic in terms of passenger car unit-km. The modal split shows that public transport including tricycles, taxis, community taxis, jeepneys, and buses remain the dominant mode of travel.¹⁰ Transport sector challenges include the poor quality of the road network, poor intermodal integration, weak governance and institutional capacity, lack of quality urban transport systems, and limited private investment in transport infrastructure.¹¹

Agriculture: According to WRI CAIT, agriculture emissions increased 13.19 MtCO₂e from 1990 to 2012, driven by rice cultivation.¹² From 1990 to 2012, the rice paddy harvested area grew 41% while rice production increased 82%.¹³ Although the Philippines' economy has been transitioning to services and manufacturing due to accelerated industrialization, agriculture remains significant, employing about 12 million people or 30% of the total labor force. In 2012, the agricultural sector accounted for 11% of the country's Gross Domestic Product.¹⁴

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

WRI CAIT data show the Philippines' GHG emissions increased 53% from 1990 to 2012, averaging 2.1% annually while GDP grew 134%, averaging 4% annually. Despite GDP growing faster than GHG emissions, in 2012, GHG emissions relative to GDP were higher than the world average, indicating potential for improvement.



Source: WRI CAIT 2.0, 2016

Climate Change Mitigation Targets and Plans

In 2010, the Philippines Climate Change Commission (CCC) formulated the [2010-2022 National Framework Strategy on Climate Change](#) which identified a long-term mitigation objective of facilitating the transition towards low GHG emissions for sustainable development. The CCC developed the [National Climate Change Action Plan](#) in 2011 which outlines the agenda for adaptation and mitigation from 2011-2028 in seven strategic priority areas. The Philippines also participated in the Enhancing Capacity for Low Emission Development Strategies and the UNDP/EU Low-Emission Capacity Building Project to operationalize the GHG inventory management system, formulate Nationally Appropriate Mitigation Actions (NAMAs) and sectoral roadmaps, and design measurement, reporting and verification (MRV) systems to support the implementation of NAMAs and Low Emissions Development Strategy/sectoral roadmaps.¹⁵ In its [Intended Nationally Determined Contribution \(INDC\)](#), the Philippines committed to reduce its GHG emissions by 70% by 2030 compared to a business-as-usual scenario through mitigation measures in the energy, transport, waste, forestry, and industry sectors. This commitment is conditioned on receipt of financial resources including technology development and transfer and capacity building.¹⁶ Philippines also participates in the UN-REDD Programme and the Forest Carbon Partnership Facility, which both support national level planning and implementation for Reducing Emissions from Deforestation and Forest Degradation and the conservation and sustainable management of forests and enhancement of forest carbon stocks (REDD+). In 2010, the Philippines developed and approved the [Philippines National REDD+ Strategy](#). Throughout 2012, the UN-REDD Programme focused on strengthening participatory processes, social and environmental safeguards, a harmonized methodology for reference baselines and the establishment of a national MRV approach. The Philippines received targeted support on REDD+ corruption risks, REDD+ safeguards information and national forest monitoring systems.¹⁷

⁷ Asian Development Bank. [Philippines Transport Sector Assessment, Strategy, and Road Map](#), 2012.

⁸ World Bank. East Asia and Pacific Region. [The Philippines Country Environmental Analysis](#), 2009.

⁹ Philippines Statistics Authority, Transportation and Communication, [Rail, Water, Land and air Transportation Statistics \(2003-2012\)](#), viewed on November 21, 2016.

¹⁰ Japan International Cooperation Agency (JICA). [Roadmap for Transport Infrastructure Development for Metro Manila and its Surrounding Areas](#), 2014.

¹¹ Transport Division of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP). Transport and Communications Bulletin for Asia and the Pacific, [Battling Congestion in Manila: The EDSA Problem](#), 2013.

¹² Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT), Philippines [Emissions – Agriculture total](#), viewed November 11, 2016.

¹³ FAOSTAT, [Crops - Philippines](#), Viewed on November 14, 2016.

¹⁴ Ibid.

¹⁵ Low Emission Capacity Building Programme. [Philippines](#), viewed November 21, 2016.

¹⁶ Republic of the Philippines. The Philippines's [Intended Nationally Determined Contribution \(INDC\)](#) to the UNFCCC, 2015.

¹⁷ UN-REDD Programme, [Philippines](#), Viewed on November 11, 2016.