



Greenhouse Gas Emissions in Vietnam

Vietnam Numbers at a Glance (2012)

251 MtCO₂e*

Total GHG emissions
(0.53% of world total)

World: 47,599 MtCO₂e

88,772,900

Population

World: 7,043,181,414

2.83

tCO₂e per capita

World: 6.76 tCO₂e

US\$87,531 Million
GDP**

World: US\$55,261 Billion

2,870

tCO₂e/million US\$ GDP

World: 861 tCO₂e/million US\$ GDP

+227 MtCO₂e (+937%)
Change in GHG emissions
(1991–2012)

World: +14,318 MtCO₂e

Sources: WRI CAIT 2.0, 2016
Emissions including Land-Use Change
and Forestry

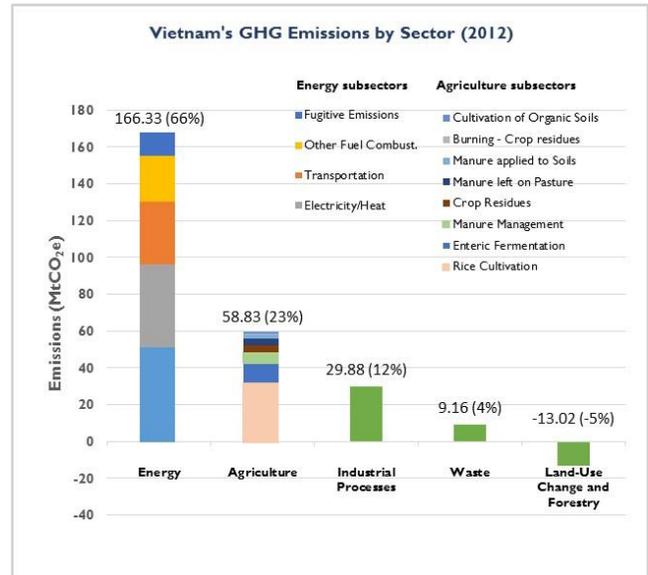
*Million metric tons of carbon
dioxide equivalent

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

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Greenhouse Gas (GHG) Emissions by Sector

Vietnam's GHG profile is dominated by emissions from energy and agriculture, which combined contribute 89% of total GHG emissions. According to the World Resources Institute Climate Analysis Tool (WRI CAIT), energy is by far the highest emitting sector, accounting for 66% of Vietnam's total annual GHG emissions. Agriculture accounts for 23% of total GHG emissions, of which rice cultivation is the primary contributor (54%). Industrial processes (IP) and waste contribute 12% and 4%, respectively. 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 about 28.6 MtCO₂e according to WRI CAIT.¹ According to Vietnam's [Biennial Update Report \(BUR\)](#) to the UN Framework Convention on Climate Change, the forest land subsector in 2010 removed 22.5 MtCO₂e.²



Sources: WRI CAIT 2.0, 2016 and FAOSTAT, 2016

Change in GHG Emissions in Vietnam (1991-2012)³

Vietnam's total GHG emissions grew 937% from 1991-2012. The average annual change in total emissions during this period was 12%, with sector-specific average annual changes as follows: energy (9.4%), agriculture (1.5%), IP (15.6%), waste (6.4%), and LUCF (-4.7%). Energy emissions in Vietnam grew by 141 MtCO₂e from 1991 through 2012, contributing to 62% of total emissions growth. During the same time, agriculture emissions grew by 16 MtCO₂e and contributed 7% of the total increase. Emissions from IP showed the highest average annual increase, but contributed relatively little given the small share of total emissions.⁴

Energy: According to WRI CAIT, the manufacturing/construction and electricity/heat subsectors were the main drivers of energy sector emissions growth, contributing 32% and 29%, respectively, of the total increase. GHG emissions from the former increased eight-fold, from 6.2 MtCO₂e in 1991 to 50.6 MtCO₂e in 2012.⁵ Between 1995 and 2010, manufacturing output grew by 16%, with food industries contributing the largest share of the growth.⁶ The

¹ World Resources Institute Climate Analysis Indicators Tool (WRI CAIT 2.0, 2016).

² Vietnam. Vietnam's Biennial Update Report (BUR) to the UNFCCC, 2014: <http://unfccc.int/resource/docs/natc/vnmbur1.pdf>.

³ 1990 data is omitted from this fact sheet due to a large inconsistency between WRI CAIT and FAOSTAT LUCF figures in this year. The rationale for this disparity is not provided in either source.

⁴ WRI CAIT 2.0, 2016.

⁵ WRI CAIT 2.0, 2016.

⁶ Hung Xuan Tran, The evolution of productivity in Vietnam's manufacturing sector, University of Wollongong, 2014: <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=5452&context=theses>.

electricity subsector has drawn heavy government investment; installed generation capacity quadrupled from 6.4 GW in 2000 to 27.3 GW in 2012.⁷ Access to electricity reached 99% in 2011.⁸

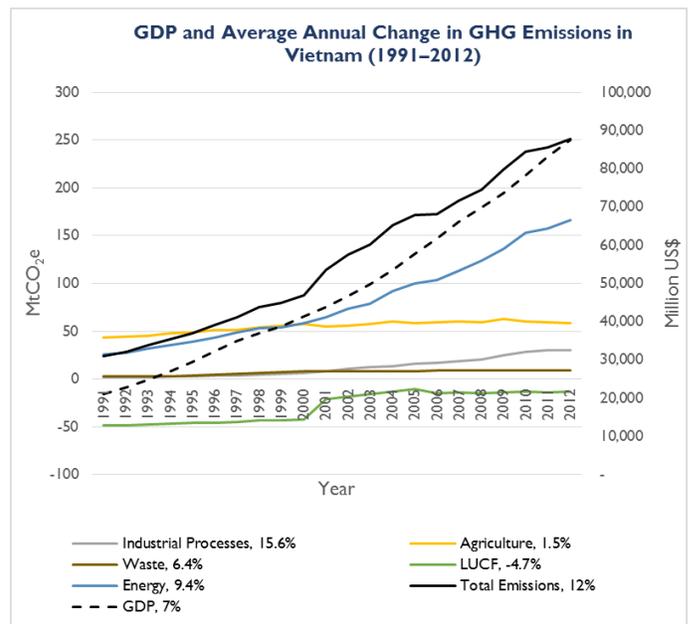
Agriculture: Rice cultivation was the largest contributor to growth in agriculture emissions, contributing 28% of the total change in the sector from 1991-2012. Total rice production more than doubled from 19.2 million tons to 43.7 million tons during this time. Other significant contributors included manure management (15.1% of the total increase), enteric fermentation (14.2%) and synthetic fertilizers (12.5%). According to the Food and Agriculture Organization, production of cattle, the largest livestock sector, increased from 883,000 to 2.2 million head from 1990-2012.⁹ The BUR notes that animal husbandry is developing toward large-scale farming.

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

Vietnam’s GHG emissions grew nine-fold from 1991 to 2012, averaging 12% annually, while GDP grew by 315%, averaging 7% annually.¹⁰ With the carbon intensity of Vietnam’s economy at almost triple the world average, there is potential to reduce Vietnam’s GHG emissions relative to GDP.

Climate Change Mitigation Targets and Plans

In the last 10 years, Vietnam has developed several sectoral policies including the “National Target Programme on Energy Efficiency” (2006) and the Law on “Economical and Efficient use of Energy” (2010). Vietnam’s [Intended Nationally Determined Contribution \(INDC\)](#), submitted on September 30, 2015, states that with domestic resources, Vietnam aims to reduce GHG emissions by 8% below the Business as Usual (BAU) scenario by 2030. The INDC notes that this target could be strengthened to 25% with international support. The INDC references Vietnam’s 2011 [National Climate Change Strategy \(NCCS\)](#), which outlines objectives from 2011-2050 and priority projects for the period 2011-2015. It also refers to the [2012 National Green Growth Strategy \(NGGS\)](#), which includes mitigation targets and measures including regulations linked to international carbon markets. Vietnam also has prepared Nationally Appropriate Mitigation Action (NAMA) proposals in energy, industry, construction, agriculture, forestry and waste sectors contingent upon international support.¹¹



Source: WRI CAIT 2.0, 2016

⁷ Asian Development Bank, Assessment of Power Sector Reform in Vietnam, 2015 <http://www.adb.org/sites/default/files/institutional-document/173769/vie-power-sector-reforms.pdf>.
⁸ World Bank World Development Indicators, viewed June 2, 2016: <http://data.worldbank.org/indicator/EG.ELC.ACCS.ZS>.
⁹ Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT), viewed May 3, 2016: <http://faostat3.fao.org/>.
¹⁰ WRI CAIT 2.0, 2016.
¹¹ Vietnam. Vietnam’s BUR to the UNFCCC, 2014: <http://unfccc.int/resource/docs/natc/vnbur1.pdf>.