

Workshop on GHG Platform – India: Energy and Industries

Concept Note

The GHG Platform – India is a collective civil-society initiative providing an independent estimation and analysis of India's greenhouse gas (GHG) emissions across key sectors such as energy, waste, industry, agriculture, livestock, forestry, and land-use and land-use change sectors. The platform currently hosts national estimates for GHG emissions from 2007–2012 by accounting CO₂, CH₄ and N₂O gases estimated during the first phase of the project. At present, the estimation process is underway and will provide sub-national GHG emission estimates while simultaneously expanding the time-series for the national estimates. Notable institutions such as CSTEP, CEEW, ICLEI SA, Vasudha Foundation, and WRI India in addition to a few sectoral experts in their individual capacity are contributing to the on-going analyses of emission estimation.

Energy Sector

Emissions from the energy sector include emissions from electricity generation, transport, residential, commercial, agricultural, fisheries and fuel mining (fugitive emissions). India's energy sector contributed 64% of the total estimated economy-wide emissions in 2012; this grew at a Compounded Annual Growth Rate (CAGR) of 7% in 2007–12.

Electricity generation is the single largest emitting category in India's emissions portfolio, accounting for 40% of total emissions, as per official inventories. Emissions from utility-scale power plants increased from 674 to 916 million tonnes of CO₂ equivalent (MtCO₂e) in 2007–12, while that from captive power plants increased from 85 to 139 MtCO₂e during the same period. Emissions from the transport category (road, railways, navigation and aviation) increased from 164 to 230 MtCO₂e between 2007 and 2012. Road transport emissions contributed more than 85% of the total emissions, registering a CAGR of 7.61% in this time frame, whereas the overall emissions from this category grew at around 7% CAGR.

Between 2007 and 2012, the overall emissions from the residential category increased by less than 1% annually. Emissions from commercial, agriculture and fisheries categories grew at 12%, 6.6% and 1.9% per annum, respectively, in this period. Burning diesel in generator sets, tractors, agriculture pump sets and fishing fleets contributed 90% of the total emissions from all these categories. However, increased penetration of cleaner cooking fuels along with better electrification rate has relatively stabilised the emissions from these sectors. Fugitive emissions grew at a CAGR of 3% annually in 2007–2012, with about equal contribution from coal mining, oil and Natural Gas (NG) extraction. Emissions generated by the residential sector due to burning Liquefied Petroleum Gas, NG and diesel have shown an increasing trend, while emissions from burning fuel wood and kerosene have declined over these years.

Industry Sector

Industrial emissions include emissions from Industrial Process and Product Use (IPPU) and Industrial Fuel Combustion. This sector represents 25% of the overall national estimates for greenhouse gas emissions, growing at approximately 4% annually from 2007 to 2012. Fuel use by industries contributes 69–74% of the overall emissions, while the rest comes from IPPU activities. The manufacture of iron and steel contributes the largest share of emissions (35–39%) in India, closely followed by the manufacture of non-metallic minerals (primarily cement), which is a major coal consumer. Emissions from coal contribute more than 80% of the overall emissions from fuel consumption. Hence, the increase in India's industrial emissions is primarily driven by an increase in coal consumption. This is also evident from the fact that the fuel mix of Indian industry has remained relatively constant during the period 2007–12.