Scenario of India GHG emissions in Energy sector inventory data: Methodological approach and challenges

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Abstract

As highlighted in the recent BUR4, India has reduced the emission intensity of its GDP by 36% between 2005 and 2020, which indicates improvement in technology and energy efficiency. Thus, we achieved the initial NDC target much ahead of the deadline. The energy sector accounted for the largest share of GHG emissions, around 75%, followed by agriculture, around 14%, industrial processes and product use (IPPU), around 8%, and waste around 3%. Considering, the energy sector is the most important sector with regards to the emissions, analyzing and reconciling the activity data of energy emissions are real challenges as there are inadequacies and gaps in activity data available from diverse sources. In this sector, coal/lignite are primary energy sources and emission sources. The study of methodologies and choice of data applied in the emission estimation studies are very crucial to fulfill the objectives of the inventory preparation. There are various constraints in data availability in energy sector and in some cases data as per IPCC requirements, e.g., calendar year data are unavailable. To resolve such issue, two consecutive financial years data were reconciled to derive calendar year activity data. As activity statistics from different sources may vary, judicious decision is taken to choose the appropriate one. In India, supply data are often considered be more accurate/appropriate than consumer end data. Nevertheless, the emissions are estimated using the country-specific coal/lignite emission factors and IPCC default values for other fuels. For non-coking coals in power and heat production, and also for few other key sectors, sector-specific emission factors are utilized. These sector-specific factors and country-specific emission factors are being revised for future communications. Tier levels of the estimations are mostly Tier II or improved Tier I. A realistic approach was used to allocate coking coal usage in iron and steel and solid fuel manufacturing. Imported coal, washery performance data, washed coal delivery were considered for Iron and Steel Sectors. The inventory of GHG emissions also includes uncertainty analysis according to the IPCC 2006 guidelines. The uncertainty analysis normally prioritizes national efforts to improve future inventory accuracy and precision and guide policy decisions for mitigation actions.

Keywords: India, GHG Inventory, Methodology, Energy Sector

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