

National Resource Framework on Science of Emission Inventory in India

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Abstract

Air pollution and climate change are closely interlinked, as both share common emission sources. Therefore, air pollution mitigation actions will bring co-benefits for climate change and human health. India has accepted a huge transformation of its energy system, which is being designed for the future and compliance with the new climate change goals. Hence, a strong emphasis to develop emission inventory of GHGs and air pollutants is needed to deal from a common platform. This poster provides the detail of such a National Resource Framework for the Emission Inventory of India. The framework aims to develop emission estimates using all available methodologies including bottom-up and top-down approaches. It also includes technological developments to improve the emission estimates and intercompare results obtained by various technique. Looking beyond, it discussed in detail the emerging new methodologies like drone based artificial intelligent to improve the activity data generation, satellite-based inverse modelling and direct monitoring of greenhouse gases (GHGs). Some preliminary results on Black Carbon emission estimates for India are presented. Key sectors analyzed include biomass burning, transportation, industrial processes, and indoor woodfire cooking. Notably, black carbon (BC) emissions have shown a 32% increase over eight years, with 1480 Gg/yr reported in 2018. This framework promotes advanced techniques for data precision and methodological validation to enhance the accuracy of India's emission inventory, thereby supporting informed decision-making for emission reduction strategies.