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## Decomposition analysis of factors influencing emissions and their impact on mitigation targets

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The historic Paris agreement was based on the strong commitment of 196 member countries to mitigate emissions. These human induced emissions are on rise due various reasons including electricity production, transportation, manufacturing and production of goods and services, and agriculture. Hence, a deeper understanding of the driving forces pertaining to energy related CO<sub>2</sub> emissions is very important in formulating future mitigation policies. This paper aims at identifying these factors that have influenced the changes in the level of CO<sub>2</sub> emissions over last two decades. By means of decomposition method, the observed changes are analysed in terms of four factors affecting the emissions - energy intensity, structural changes, emission intensity and economic activities. One of the popular Index Decomposition Analysis (IDA) method Log Mean Divisia Index (LMDI) is used, to decompose factors of emission, due to its theoretical foundation, adaptability, ease of use and results interpretation with zero residual. The paper aims to study major economic sectors of four highest CO<sub>2</sub> emitting developed countries (U.S, Japan, Germany and Canada) as well as four highest CO<sub>2</sub> emitting developing countries (China, India, Russia, South Korea). The analysis is to be based on empirical data ranging from 1990-2014, which will decompose emissions based on sectoral (industry, services and agriculture) trends. It will further develop an understanding of how these changes in drivers, influencing emissions, will impact the mitigation targets committed by countries in their respective INDCs.

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