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The FAOSTAT database of greenhouse gas emissions from agriculture

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Abstract

Greenhouse gas (GHG) emissions from agriculture, including crop and livestock production, forestry and associated land use changes, are responsible for a significant fraction of anthropogenic emissions, up to 30% according to the Intergovernmental Panel on Climate Change (IPCC). Yet while emissions from fossil fuels are updated yearly and by multiple sourcesincluding national-level statistics from the International Energy Agency (IEA)no comparable efforts for reporting global statistics for agriculture, forestry and other land use (AFOLU) emissions exist: the latest complete assessment was the 2007 IPCC report, based on 2005 emission data. This gap is critical for several reasons. First, potentially large climate funding could be linked in coming decades to more precise estimates of emissions and mitigation potentials. For many developing countries, and especially the least developed ones, this requires improved assessments of AFOLU emissions. Second, growth in global emissions from fossil fuels has outpaced that from AFOLU during every decade of the period 19612010, so the relative contribution of the latter to total climate forcing has diminished over time, with a need for regular updates. We present results from a new GHG database developed at FAO, providing a complete and coherent time series of emission statistics over a reference period 19612010, at country level, based on FAOSTAT activity data and IPCC Tier 1 methodology. We discuss results at global and regional level, focusing on trends in the agriculture sector and net deforestation. Our results complement those available from the IPCC, extending trend analysis to a longer historical period and, critically, beyond 2005 to more recent years. In particular, from 2000 to 2010, we find that agricultural emissions increased by 1.1% annually, reaching 4.6 Gt CO 2 yr 1 in 2010 (up to 5.45.8 Gt CO 2 yr 1 with emissions from biomass burning and organic soils included). Over the same decade 20002010, the ratio of agriculture to fossil fuel emissions has decreased, from 17.2% to 13.7%, and the decrease is even greater for the ratio of net deforestation to fossil fuel emissions: from 19.1% to 10.1%. In fact, in the year 2000, emissions from agriculture have been consistently largerabout 1.2 Gt CO 2 yr 1 in 2010than those from net deforestation.

Keywords: greenhouse gas emissions, agriculture, forestry and other land use, FAOSTAT, crop production, animal

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