

Agriculture, Forestry and Other Land Use Emissions by Sources and Removals by Sinks



Photo credits (right to left):

©FAO/Olivier Asselin

©FAO/Daniel Hayduk

©FAO/Antonello Proto

©FAO/Rocío Dánica Cóndor Golec

©FAO/Asim Hafeez

©FAO/Sia Kambou

FAO Statistics Division

Working Paper Series

ESS/14-02

Agriculture, Forestry and Other Land Use Emissions by Sources and Removals by Sinks

1990-2011 Analysis

F.N. Tubiello, M. Salvatore,
R.D. Córdor Golec, A. Ferrara, S. Rossi,
R. Biancalani, S. Federici, H. Jacobs,
A. Flammini

March 2014



The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the author(s) and do not necessarily reflect the views or policies of FAO.

© FAO 2014

FAO encourages the use, reproduction and dissemination of material in this information product. Except where otherwise indicated, material may be copied, downloaded and printed for private study, research and teaching purposes, or for use in non-commercial products or services, provided that appropriate acknowledgement of FAO as the source and copyright holder is given and that FAO's endorsement of users' views, products or services is not implied in any way.

All requests for translation and adaptation rights, and for resale and other commercial use rights should be made via www.fao.org/contact-us/licence-request or addressed to copyright@fao.org.

FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org.

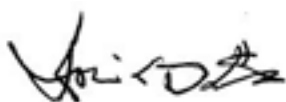
Foreword

The contribution of agriculture, forestry and fisheries to global emissions of greenhouse gases is well recognized. So are the critical gaps in information, knowledge and capacity development which need to be addressed with urgency. Meeting these challenges can allow member countries to reduce their emissions through changes to management practices that can simultaneously improve productivity, reduce hunger and increase the resilience of production systems in the coming decades.

The new work of FAO on greenhouse gas emissions statistics represents a critical step on this important path. The new FAOSTAT Emissions database, developed jointly by the Climate, Energy and Tenure Division and the Statistics Division, is aimed at improving and disseminating agricultural statistical data for better quantification of greenhouse gas emissions and for the identification of the actions needed to reduce them. This report provides the first comprehensive analysis of the challenges and opportunities that exist to this end in the relevant production sectors, at global and regional level, covering the period 1990-2011.

The new FAO database offers broad support to FAO's member countries and provides benefits to users worldwide which include the increased ability to conduct analyses of greenhouse gas emissions from agriculture, forestry and fisheries at national, regional and global level, as well as the provision of improved and continuously updated statistical knowledge in support of agricultural planning. This is underpinned by the recognition that enhanced national statistics are a pre-requisite for identifying climate-smart solutions which bring improved productivity, resilience and mitigation together in one coherent package.

Xiang Jun Yao



Director
Climate, Energy and Tenure Division

Pietro Gennari



Chief Statistician and Director
Statistics Division

Agriculture, Forestry and Other Land Use Emissions by Sources and Removals by Sinks

1990 – 2011 Analysis

*F.N. Tubiello, M. Salvatore, R.D. Córdor Golec, A. Ferrara, S. Rossi, R. Biancalani, S. Federici,
H. Jacobs, A. Flammini*

Climate, Energy and Tenure Division, FAO

Abstract

This report discusses new knowledge on anthropogenic greenhouse gas (GHG) emissions from agriculture, forestry and other land use (AFOLU) activities made available through the new FAOSTAT Emission database. The database is available globally, with country detail, for all agriculture, forestry and land sub-categories available in FAOSTAT and in the Forest Resources Assessment (FRA). GHG emissions are computed from official national activity data and geo-spatial analyses, applying international standard methodologies of the Intergovernmental Panel on Climate Change (IPCC) to ensure consistency with GHG Inventory processes established under the climate convention. The analysis shows increases in emissions of agriculture (from 4.6 to 5.0 Gt CO₂ eq yr⁻¹ in 1990s and 2000s; 5.3 Gt CO₂ eq yr⁻¹ in 2011), decreases in deforestation rates (from 4.6 to 3.8 Gt CO₂ eq yr⁻¹ in 1990s and 2000s; 3.7 Gt CO₂ eq yr⁻¹ in 2010), and decreases in forest sinks, albeit with a reversal since the mid-2000s (from -2.9 to -1.9 Gt CO₂ eq yr⁻¹ in 1990s and 2000s values; -2.1 Gt CO₂ eq yr⁻¹ in 2010). At the same time, the data show that GHG intensity of products (i.e., GHG emissions per unit commodity produced) decreased during 1990-2010, but that if no further mitigation measures and technical efficiency improvements are implemented, future emissions may further increase by up to 30% by 2050. Better information on AFOLU emissions is critical in many developing countries, given the potential to identify and fund actions that can usefully bridge national food security, resilience, mitigation and development goals into one coherent package.

Key words: Greenhouse Gas, Statistics, Mitigation, Agriculture, Forestry, Land Use

JEL codes:

Acknowledgements

This work was carried out with generous funding by the Governments of Germany (GCP/GLO/286/GER) and Norway (GCP/GLO/325/NOR) to the “*Monitoring and Assessment of GHG Emissions and Mitigation Potential from Agriculture*,” a component of the MICCA Program of the FAO Climate, Energy and Tenure Division. We acknowledge the many contributions by colleagues at FAO and around the world who provided useful suggestions over the entire period of development of the database. We thank for their significant support Ms Marja-Liisa Tapio-Bistrom, Mr Fred Snijders, Ms Xiangjun Yao, Mr Robert Mayo, Mr Josef Schmidhuber, Mr Piero Conforti, Mr Pietro Gennari, Mr Pierre Gerber, Mr Ken MacDicken, Mr Orjan Jonsson, Ms Maria Sanz Sanchez, Ms Carola Fabi, Ms Giorgia De Santis, Ms Simona Mosco, Mr Nicholas Sakoff, Ms Amy Heyman, Mr Simone Murzilli, Mr Guido Barbaglia, Mr Jacques Joyeux, Mr Till Neef, Mr Johannes Broetz, Ms Lini Wollenberg and Mr Pete Smith. Special thanks to Ms Amanda Gordon and Mr Fabio Grita, whose mastery of the FAOSTAT system and patient implementation of our endless data requests made this work possible. Finally, we are grateful to our reviewers, whose comments and suggestions contributed to greatly increase the clarity and effectiveness of this manuscript.

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_22520

