Historical Trends in Agricultural Greenhouse Gas Emissions in Malaysia (1990–2021)

Mohd Saufi B[1]., Rozimah M. R[1]., Mohd Aziz R[1]., Mohd Fairuz M.S[1]., and Sub-working Group GHG Inventories for Agriculture Sector[1,2]

[1]Malaysian Agricultural Research and Development Institute (MARDI), Malaysia

[2]Ministry of Natural Resources and Environmental Sustainability, Malaysia.

Abstract

Greenhouse gas (GHG) emissions from Malaysia's agriculture sector have exhibited a 14.9% increase over the past three decades compared to 1990 levels, largely attributable to intensified agricultural practices aimed at meeting food security demands amid population growth. Nitrous oxide (N_2O) and carbon dioxide (CO_2) represent the primary contributors to this trend, having increased by 45.7% and 38.7%, respectively. Emission sources include direct N_2O emissions from managed soils, methane (CH_4) emissions from flooded rice cultivation, indirect N_2O emissions from nitrogen volatilization and leaching, enteric fermentation, and manure management systems. In 2021, agricultural emissions accounted for 7,310.04 Gg CO_2-equivalent, or 2.20% of Malaysia's total GHG emissions. Methane (CH_4) and N_2O constituted the majority of emissions from this sector, at 55% and 39%, respectively, with CO_2 emissions comprising approximately 6%. Despite the sector's relatively modest contribution to national emissions, its high output of non-CO_2 GHGs underscores its importance for mitigation efforts. The projected rise in population beyond 37 million by 2023 is expected to further intensify pressure on agricultural systems, necessitating the implementation of integrated mitigation and adaptation strategies to reduce emissions while maintaining productivity and enhancing national food self-sufficiency.

References/ Publications

Malaysia. 2024 Biennial Transparency Report (BTR). BTR1. | UNFCCC

Access to relevant information

https://unfccc.int/documents/645171