Abstract for your presentation at WGIA14: about 400 words (one page)

Tier 2 emission factors of CH_4 and N_2O from rice rotation systems

Nittaya Cha-un[1], Amnat Chidthaisong[1] and Sirintornthep Towprayoon[1*]

[1] The joint graduate school of energy and environment (JGSEE), Centre of Excellence on Energy Technology and Environment (CEE), King Mongkut's University of Technology Thonburi (KMUTT), 126 Prachauthit Rd, Bangmod, Tungkru, Bangkok, 10140, Thailand
** Corresponding author: Sirin@jgsee.kmutt.ac.th*

Abstract

Rice remains an important economic crop in Thailand, which cultivation area covers almost a half of the country's arable land (OAE, 2012). The different crop management practices have shown different effects on greenhouse gas (GHG) emissions. The flooded rice cultivation increases CH_4 emissions, while upland crop cultivation with fertilizer application produce N_2O emission. In agricultural sector, accurate and reliable estimation of the emissions are the key for supporting GHG inventory. Tier selection for GHG estimation depend upon the availability of activity data and emission factors. Under Tier 2, country-specific emission factors should be measured and used instead of default factors (IPCC 2006). This study measured CH_4 and N_2O emission from different crop-rice rotation systems and proposed country specific emission factors. The four crop-rice rotation systems were made including fallow land-rice (RF), Rice-rice (RR), Corn-rice (RC), and Sweet sorghum-rice (RS). In rice cultivation season, averaged daily CH_4 emissions from RF, RR, RC and RS were 1.72, 5.22, 1.88 and 1.64 kg CH_4 ha^{-1} day^{-1}, respectively. Emission factors for N_2O emissions from N-input were observed from N-fertilizer, incorporated manure and crop residues. It was found that annual amounts of their N-input were different on each crop-rice rotation system.

References

OAE, 2012. Agricultural Economics Database (in Thai). Office of Agricultural Economics, Ministry for agricultural and cooperatives.

IPCC 2006, 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan.