

# Estimation of Methane and Nitrous Oxide Emission from Animal Feeding Sector in Taiwan during 1990 to 2010

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## Abstract

To investigate the greenhouse gases emissions from the animal feeding and waste management of livestock and poultry, methane and nitrous oxide emissions were estimated from the local measurement and the IPCC guidelines during 1990 to 2010 in Taiwan. Hog is the major livestock and follows by goat and cattle; while chicken is the major poultry and follows by duck and geese. Methane emission from enteric fermentation of livestock was 30.8 Gg in 1990, increased to 39.2 Gg in 1996, and then decreased gradually to 29.9 Gg in 2010. Methane emission from the waste management was 48.5 Gg in 1990, reached the peak value of 60.7 Gg in 1996, and then declined to 35.9 Gg in 2010. In the case of poultry, annual methane emission from enteric fermentation and waste management was 15.7 to 22.7 ton, and 4.5 to 6.8 Gg, respectively. Nitrous oxide emission from waste management of livestock was 0.78 ton in 1990, increased to 0.86 ton in 1996, and then decreased to 0.53 ton in 2010. Nitrous oxide emission from waste management of poultry was higher than that of livestock. It was 1.11 ton in 1990, increased to 1.71 ton in 2006, and then decreased to 1.53 ton in 2010. There is an urgent need to reduce methane emission from enteric fermentation and recover methane from anaerobic waste treatment for energy in livestock and poultry feeding in Taiwan.

*Keywords:* Methane, nitrous oxide, animal feeding, enteric fermentation, waste management.