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Implications of Climate Change Clean Development Mechanisms on Livestock Agricultural Modernisation in Africa: Case Studies in Uganda

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Abstract

Clean Development Mechanism (CDM) is a Flexible Mechanism designed by the United Nations Framework Convention for Climate Change to encourage cooperation of the developed nations in promoting sustainable socioeconomic development in less developed countries while mitigating emission of Green House Gases. CDM benefit to the animal sector is to attract support from developed countries, including private sector, in promoting improved methods of milk and meat production, and provision of animal draught power, while reducing methane emission. A prerequisite for such investment is establishment of a baseline projection under non-improvement scenario, which serves as an auditing tool for such interventions. Therefore a baseline survey was conducted in 14 districts of Uganda, respecting various cattle production and management scenarios. The specific objectives were to understand the conditions, knowledge base, motives and cattle base of the cattle keepers on various parts of the country; and to develop production targets for meat, milk and draught power for the next 30 years; and to estimate the amount of methane associated with developments of using the current knowledge and cattle resource base. Also, the implications of this environmental concern on the directions livestock agriculture to meet the cattle meat, milk and traction demand was assessed. Results indicated that to meet the demand for meat and milk for a growing population over the next 30 years, the country would require a cattle population of 10.4, 13.9, 18.7, 27.4 and 40.2 million heads of cattle during the target years of 2010, 2015, 2020, 2025, and 2030 respectively. This will be associated with 0.317, 0.571, 1.03, 1.52, and 2.25 million tons of methane production in the respective years. At the current growth rate of cattle population, Uganda will not have enough animals to meet demand for milk and meat. The Ankole, Zebu, Nganda and improved cattle breeds will produce 899.8, 803.6, 798.3, 82.1 g of methane kg^{-1} of milk, suggesting a strong reason for adoption of improved breeds to increase productivity while reducing methane gas emission. The genetic base should be however fully exploited with better environmental analysis.

Keywords: Cattle agriculture modernisation, clean development mechanism, climate change, global warming, greenhouse gases, methane