

Nguyen binh Duy. 2011. Environmental and Economic Effect of Nitrogen Use On Paddy Rice Production In Vietnam and Asia-Pacific Countries. **MSc. Thesis.** Hankyong National University, Korea. E-mail: duy.nb@iasvn.org

Master Thesis ABSTRACT

Major in Agricultural and Rural Development International Development Cooperation and Department Hankyong National University. The current study was conducted to investigate and evaluate the level of nitrogen fertilizer use as well as the effect of nitrogen use on some of particularly cultivated crops as rice, maize and vegetables in Vietnam, Korea, Japan and Thailand. The study concentrates on two main issues: the economic effect of nitrogen application and the impacts of nitrogen on environment. In the first content, all of information was surveyed concerning to harvested area, yield, production, amount of nitrogen fertilizer use, revenue of products and economic efficiency index. In the second content, it was focused on collecting information and data that relates to the problems of environmental pollution in soil, surface water and groundwater. Of particular interest was the nitrate component. The findings on the first issue indicate that the concentration of nitrogen fertilizer use in Vietnam was increasing continuously over many years, from 1980 to 2008. The estimated economic efficiency response of nitrogen fertilizer use was inverse proportion with concentration of nitrogen application. Furthermore, they have a very significant correlation at level 0.01. This clearly indicated that eco-efficiency index of nitrogen was dramatically decreased when the added nitrogen for rice was increased above 70 kg N ha⁻¹. The correlation between concentration of nitrogen application and economic effect of nitrogen use was also illustrated on maize and vegetables. Findings on the environmental pollution indicate that the concentrate of nitrate in water is very high. Especially, the nitrogen concentration of the river in Vietnam was higher than the national standard by many times. The study therefore suggests that it is useful to reduce amount of nitrogen fertilizer application on rice and vegetables in Vietnam so as to improve economic efficiency and the environment. In this regards the study recommends that the agricultural extension centers of Governments adopt specific guides of fertilizer use to local farmers.

Key words:

Environmental pollution, nitrogen application, economic efficiency, eco-efficiency index.