Mitigating Hazardous Packaging Waste in Thailand's Agricultural Sector by imposing an attractive Deposit-Refund System

Komwit Siritorn[1,*], Direk Patmasiriwat[2]

[1] Faculty of Management Sciences, Songkhla Rajabhat University,
160, Tambon Khoa-Roob-Chang, Muang District, Songkhla 90000, Thailand
[2] School of Development Economics, National Institute of Development Administration,
Klong Chan, Bangapi, Bangkok, 10240, Thailand

Abstract
Hazardous waste has been a critical issue in Thailand for many years as there is as yet no effective regulatory framework for it, especially in the Thai agricultural sector. This study attempted to utilize a Deposit-Refund System (DRS) with an attractive rate of deposit in order to increase the return rate of hazardous chemical packaging waste back into the system. The study obtained both survey and time series data to examine the willingness to pay (WTP) of Thai farmers and the marginal social cost of waste disposal (MSC) so that they would be used to analyse an attractive deposit rate. The findings indicate that using MSC at 0.30 USD/bottle as deposit rate would induce a higher return rate than using WTP at 0.15 USD/bottle. The distance between farmers' homes and hazardous chemical shops can also negatively affect the return rate. Thus, to reduce hazardous packaging waste in Thai agriculture, the government needs to impose a deposit rate at 0.30 USD/bottle (MSC) and strategically increase the number of returning points in order to boost the return rate for hazardous packaging waste in this sector.

Keywords: Deposit-Refund System; Hazardous Packaging Waste; Agriculture; Pesticides; Herbicides