ABSTRACT

EDWIN SANSO SARAGIH. Ex-ante Valuation of Transgenic Corn Economic Feasibility and Sustainability at Farm Level and Analysis of Factors to Enable Transgenic Seed Adoption in Indonesia. Under the direction of SANTUN R. P. SITORUS as Chairman of Advisory Committee, HARIANTO and SUGIONO MOJOPAWIRO as Members of the Advisory Committee.

An ex-ante valuation was carried out to determine economic feasibility and sustainability of transgenic corn seeds adoption at farm level. Farm surveys had been conducted in Jawa Timur and Lampung provinces to collect data from existing corn farming. Data were analyzed with several methods namely input-output analysis, CVM (contingent valuation method) and MAVT (multi-attribute value theory). Simulated input-output analysis (with vs. without) was conducted using previously available trial data and reference from a neighbouring country. Concerning enabling factors for effective adoption of transgenic crops, experts were requested to weight potential alternatives based on various criteria, sub-criteria and indicators using analytical hierarchy process (AHP) technique.

Economic valuation showed that transgenic corn seeds would provide higher farm revenue than that of conventional hybrid corn seed. Therefore, transgenic corn seeds adoption also increased corn farming profitability. Without transgenic corn seeds adoption, such economic benefits would not materialize at the farm level. Furthermore, more than 1 million ton grain adding to national corn production would not be possible without adoption. On the other hand, dependence on corn grain import could be reduced and could create reserve saving as much as Rp 3.6 trillions with adoption. Majority of farmers would like to pay higher price for transgenic corn seeds. However, it should not exceed 10% than the price of hybrid corn seeds. Few farmers were willing to pay transgenic corn seeds price 30% more expensive than the hybrid corn seeds price. Sustainability index calculated at farm level showed slightly better aggregate index with the transgenic corn seeds adoption compared with that of the existing hybrid corn farming.

Institutional aspect was weighted as the most determinant key for a go or no go in the development and application of transgenic seeds in Indonesia. In this regards, regulation and public perception were judged as most critical aspects in ensuring successful adoption of the transgenic crop seeds. Looking more in depth with public perception, pesticide residue was perceived as having more risk than transgenic seed application. Concerning regulatory regime, decision making instrument in managing safe application and release of transgenic seeds has not existed despite the fact that capacity for biosafety assessment conduct is undoubtedly more than sufficient. The regulation on biosafety (PP No. 21/2005) opens opportunities for assessing transgenic product safety, however, food safety statement of imported transgenic products have not been in place, despite the fact especially imported transgenic corn and soybean have already been used for domestic use and consumption for years.

Key words: transgenic corn, ex-ante valuation, sustainability index, with vs. without analysis