

# **An Economic Impact Assessment of IPM CRSP Activities in Bangladesh and Uganda: A GIS Application**

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## **ABSTRACT**

The purpose of this study is to assist planners and scientists in assessing the economic implications of the USAID-funded Integrated Pest Management-Collaborative Research Support Program (IPM CRSP) research activities. The study presents a framework and a set of procedures for documenting, evaluating and communicating aggregate economic impacts of IPM technologies within targeted areas and across agro-ecological regions.

Performing an economic impact assessment involves consideration of many factors, from the adoption patterns of IPM technologies to the level of benefits and costs producers and consumers can reap from their adoption. Adopting the framework and procedures outlined in this study will help ensure that economic benefits of IPM CRSP activities are consistently and comprehensively evaluated and documented. The assessment process involves identifying and defining alternative pest management strategies, data and information collection, and analytical procedures.

Two case studies are carried out to demonstrate the functionality and practical nature of the framework. Partial budgeting and ex-ante economic surplus analysis are employed to estimate the aggregate benefits of IPM CRSP strategies in Bangladesh and Uganda. In Bangladesh, an altered schedule of hand weeding in cabbage production and Neem leaf powder as an insecticide for eggplants were selected for assessment. In Uganda, the maize variety Longe-1 and seed dressing with Endosulfan for management of bean fly and root rot on beans, are evaluated. Also, a Geographic Information System (GIS) is used to project the transferability of IPM CRSP strategies beyond the primary sites. Data on production, consumption, prices, price elasticities for demand and supply, and experiment costs are gathered and refined to derive aggregate benefits for each country. Expert questionnaires were developed to determine adoption rates, and to elicit information about yield and cost changes due to the adoption of these technologies. Agro-ecological and socio-economic data were collected to facilitate the spatial framework and examine adoption rate patterns. The GIS analysis gives insight into the spatial dimension of economic analysis and complements the effort of the IPM CRSP to globalize its activities.

The research findings show that the IPM practices investigated gave a substantial amount of benefits discounted over thirty years to both consumers and producers. This study has shown that IPM CRSP-induced pest management practices in Bangladesh and

Uganda are viable and more profitable production practices than existing farmer practices. Efforts to promote the adoption of these technologies will likely result in more efficient production and greater economic rewards for the farmers, consumers, and in turn for the country as a whole. Finally, the study presents recommendations for further research relating to gender and cross-border trade issues to strengthen the functionality of the framework.

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