

Integrated Pest Management in Indonesia: The Cost of Chemicals



Intensive agriculture...

taxes on pesticides. The CGE consisted of six blocks of equations that represented the interactions between various economic players, markets, investments and demands.

Resosudarmo found that from 1993 to 1998 IPM had lowered the total health costs associated with pesticide poisoning by nearly 2% and that total

Excessive use of pesticides in Indonesia during the 1970's and 1980's created many serious environmental problems. These included pesticide poisoning, the contamination of agricultural products, the destruction of beneficial natural parasites and pest predators and the development of pesticide resistance in pests. In response, the Indonesian government has actively pursued a strategy of integrated pest management (IPM) since 1989.

So far IPM has helped farmers to reduce their use of pesticides by half while increasing yields by about 10%. Despite this success, little



Clay excavation in Sri Lanka

health costs relating to rice farmer pesticide poisoning were reduced by about 5%. Among his other findings was the calculation that doubling the IPM program would improve the efficiency of rice production. Because this would lower the price of rice, the benefits would mainly go to consumers.

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analysis has been done of the impact of the IPM program on Indonesia's overall economic performance. This has made it difficult for policy makers to decide how much to invest in the program in the face of competing demands for funds.

This research gap has, however, been partly filled thanks to an EEPSEA-funded project undertaken by Budy Resosudarmo, of the Inter University Center for Economics at the University of Indonesia. His research has led to renewed support for integrated pest management and additional funding. "My result provided the Indonesian government with an economic reason to extend the IPM program and to request more World Bank loan support," explains Resosudarmo. Moreover, his work has highlighted the need for economic analysis of this important agricultural strategy and has sowed the seeds for the further involvement of an economist in the program.

"In developing countries like Indonesia there isn't much funding," says Resosudarmo, explaining why the work was a challenge. "EEPSEA's support allowed me to develop a network and conduct seminars. From this I could get more funding and more involvement in the national program. EEPSEA kick-started my career development and networking outside Indonesia."

To provide the information needed to assess the economy-wide effects of IPM implementation, Resosudarmo used a computable general equilibrium (CGE) model to look at the impact of a number of different development scenarios on income distribution and national economic growth. These were: implementing the IPM program; halting the IPM program; doubling spending on the program; and increasing

Resosudarmo concluded that the integrated pest management program reduces pesticide use and in turn decreases the quantity of pesticide-related illnesses. He also found that, as the program improves efficiency in agriculture, it would also stimulate higher outputs of some non-agricultural sectors. Since implementation of the IPM program should stimulate most sectors to produce more, Resosudarmo argues that it should induce a higher rate of GDP growth and that the more farmers who adopt the program, the higher the country's economic growth will be.

To publicize his findings, Resosudarmo ran seminars on integrated pest management and organized other related meetings at the University of Indonesia. "People in the government noticed my work and realized that this is something they hadn't done," he says, explaining that he was then invited to be part of a committee conducting an economic evaluation of the IPM program.

According to Resosudarmo it was this team's evaluation that persuaded the World Bank that the Indonesian IPM program is producing economy-wide benefits. "The Indonesian government cited my results in their new IPM proposal submitted to the Bank for a new IPM loan program," he explains, adding that his research made both the World Bank and the Indonesian government realize that there should be an economist in the national council/committee of the national IPM program. "They realized that an economist should both help, plan and evaluate the IPM program," says Resosudarmo. "This came about as a result of my involvement in the evaluation of the integrated pest management program." 