Pesticide Use in Developing Countries
Development Economics Research Group (DECRG)
World Bank
Official Name
Socialist Republic of Vietnam

Geography
Located in Southeastern Asia, bordering the Gulf of Thailand, Gulf of Tonkin, and South China Sea, alongside China, Laos and Cambodia.

Area: 332,000 sq. km.
Terrain: Low, flat delta in south and north; central highlands; hilly, mountainous in far north and northwest.
Climate: Tropical in south; monsoonal in north with hot, rainy season (May to September) and warm, dry season (October to March).
Capital: Hanoi

People
Growth rate: 1.0% (2006).
Health: Infant mortality- 17/1,000; Life expectancy at birth- 70 years (2004).

Economy
GDP: 45 ($ billions)
Growth rate: 7.7% (2004)
Per capita: $540 (2006)
Poverty rate: 29 % pop. (2006)
Natural Resources: Coal, crude oil, zinc, copper, silver, gold, manganese, iron.
Agriculture: Products- rice, maize, sweet potato, peanut, soya bean, cotton, coffee, cashews.
Land- cultivated area 12.2 million hectares per year; land use- 21% arable, 28% forest and woodland, 51% other.
Industry: Mining and quarrying, manufacturing, electricity, gas, water supply, cement, phosphate, and steel.
Services: Wholesale and retail, repair of vehicles and personal goods, hotel and restaurant, transport storage, telecommunications, tourism.


**Agriculture**

Agriculture, including crops, livestock, forestry, aquaculture and fisheries, accounts for 22% of gross domestic product, 30% of exports and 60% of employment in Vietnam. Rice is the major crop, accounting for 45% of agricultural production and 60% of cultivated land. Industrial crops, e.g., coffee, rubber, cashew, sugarcane and pepper, now account for 20% of sector output by value but diversification has been slow. In spite of the unfavorable external environment of low commodity prices, agricultural growth in Vietnam over past five years has been sustained at 4% a year. Agricultural de-collectivization: farm land allocation to individual households in the early 1990s and the introduction of market-based incentives through agricultural commodity trade liberalization were main factors contributing to the impressive performance of agriculture in the last five years. However, significant challenges remain ahead with annual growth rates in labor productivity and yields falling behind the rate of rural population increase, rigidities in promoting further agricultural diversification, under-developed marketing channels, institutions and infrastructure resulting in high post-harvest losses and transaction costs, growing use of chemical pesticides and related mismanagement.

With three quarters of the population and around 90% of the poor living in rural areas, the development of sustainable agriculture as an engine of growth is vital for the achievement of broad-based rural prosperity and livelihood security.

**Pesticide Use**

Like many developing countries, Vietnam has promoted the use of pesticides to expand agricultural land and increase output per acre. The Socialist Republic of Vietnam began extensive use of pesticides in the 1950s, when agricultural production was limited to cooperatives, collective farms, and state farm enterprises. During this period, pesticides were not regulated and agronomists and farmers had little knowledge of the hazards of pesticide use. Pesticide applications were done by specialized teams of 4-5 farmers, who worked in conjunction with the Plant Protection Department (PPD). The PPD supplied pesticides at subsidized prices and recommended spraying on a calendar basis, with little or no attention to field conditions.

After the land reforms of 1988 recognized farms as autonomous production units, households assumed control over all stages of production, including pesticide use. Applications doubled during the following decade (Figure 1), reaching over 40,000 tons per annum in 1998 (FAO, 2004).
Expanded applications have been accompanied by widespread use of chemicals that are hazardous for human health and the environment. A nation-wide survey conducted by the PPD in 2000 found 2,500 kg of banned pesticides in use (methamidophos, DDT and other chemicals), along with 4,753 liters and 5,645 kg of illegally imported or counterfeit pesticides (PPD, 2000). Another survey in August 2000, among 480 farmers in four provinces in the South, found that 96.6% used pesticides more intensively than product labels recommended, and nearly 95% of farmers disposed of any remaining pesticide by pouring it into canals or ditches, reapplying it to the same crops, or spraying crops that were not identified.

**Integrated Pest Management**

In 1989, Vietnam began to participate in the FAO’s Southeast Asia Inter-country Program (ICP) on IPM. With FAO assistance, the program began with ecosystem studies in rice fields in the North, Central and South of Vietnam from 1990-1991. A national committee was established in 1994 for the National IPM Program (initiated in 1992) at the request of MARD (Ministry of Agriculture and Rural Development) and included several other ministries and unions. The Plant Protection Department (PPD) of MARD is
responsible for coordinating and implementing Vietnam’s National IPM Program, and the Provincial Plant Protection Sub-Departments (PPSDs) currently manage the program at the local level. Over the past 10 years, with the assistance from the governments of Australia, the Netherlands, Switzerland and Denmark, non-governmental organizations, and local financial resources, a large number of IPM programs on other crops such as vegetables, cotton, tea, soybeans, and groundnuts also have been implemented. As Table 1 clearly shows, although the growth of IPM training has been quite remarkable, by 1998, the total number of IPM-trained farmers was only 3% of the nearly 11 million farmers in Vietnam.

Table 1. Annual number of IPM-trained farmers

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<td>No. of farmers</td>
<td>19,490</td>
<td>50,539</td>
<td>58,870</td>
<td>125,273</td>
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A national survey of PPSDs on funding sources for IPM training for three seasons ending May 2000 revealed that during that period, 54% of all rice Farmer Field Schools (FFS) and 67% of all IPM follow up activities were locally funded – including funding by NGOs and other donor-funded projects accounted for 10% of the FFS and 3% of follow up activities.

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