Vinh Phu Village, Hoa An Commune, Phu Yen Province

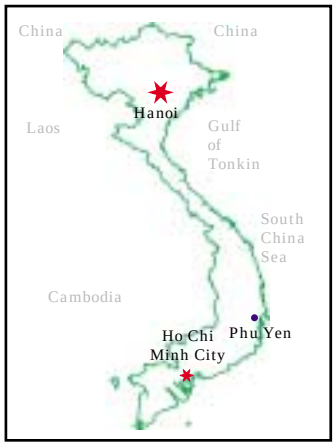
GENERAL INFORMATION

Vinh Phu village had Green Productivity (GP) implemented during 2000 and 2001 under the GP Integrated Community Development Program.

The Tuy Hoa town border (Highway 25) and the Ba River form the boundries of Hoa An commune.

There are six villages within Hoa An. Vinh Phu village consists of five hamlets: Nam, Trung, Tay, Dong, and Xoi.

Some characteristics of the village are as follows:



Vinh Phu Village, Hoa An Commune, Phu Yen Province

Population: 4780 people within 986 households.
Average income: 100,000 VND/person/month.
Main production activities
Agriculture: 80% of the population is dependent on agriculture
Other: carpentry, rattan-bamboo weaving, brick making, and rice paper making

MAIN ISSUES

- Potable water was limited and polluted. All households in the village obtained potable groundwater from wells. Approximately 10% of these wells had groundwater that was contaminated by iron and contained no water during the dry season. In the southern area of the village alone, approximately 70% of the wells contained water that was polluted with iron, even at depths of 14 m.

- According to a survey conducted in October 2000 by the GP team, more than 50% of the households in Vinh Phu commune did not have hygienic latrines and 35% of households had only temporary latrines that did not meet health requirements. Sewage disposal problems were the main cause of environmental pollution and the village health problems. Some of the waste from breeding livestock was collected and used as fertilizer. A large amount of sewage was filled into holes in the ground and covered without treatment. Apart from the human population, there were 2,000 pigs and 500 cows in the village. The villagers had no knowledge of biogas technology or of other methods for composting their waste.
- Around 300 tons of solid waste were produced annually. The main disposal method of domestic waste was by burning. In some markets, solid waste was put in mounds and left untreated, thus polluting the environment.
- The excessive use of pesticide and chemical fertilizer was also an issue. The living standard of the villagers in Vinh Phu commune is dependent on the income from rice cultivation. Therefore, a large amount of chemical pesticides and fertilizers was used to increase rice productivity. Cultivation methods in use were based only on past experience and the application of updated agricultural technology like the use of new seeds, integrated pest management (IPM), etc., was still limited. Money spent on cultivation was high and mostly spent on pesticides and fertilizers, but productivity was low.
- There was no integration between cultivation and animal breeding. These can be integrated using a model such as VAC (fishpond-animal husbandry-vegetable garden). These models integrate the cultivation of vegetables to benefit the breeding of livestock and fish.
- The income of the villagers was very low due to the above issues.

GP OPTIONS

(1) Organize training courses on GP methodology for water management, solid waste management, and human and animal waste management.

(2) Establish village-specific regulations for the protection of the environment. Ensure that the villagers care for their local environment.

(3) Introduce a simple water treatment method for households. A method that will be tried is the up-straight filtration system. This system is an efficient process that pumps water vertically up through the filter system and effectively removes iron.

(4) Construct a central water treatment plant capable of producing 2 m^3/hour of clean water located at the clinic in the center of the commune.

(5) Construct hygienic latrines. Hygienic latrines will be constructed using funding from the villagers. Each month households requiring latrines will contribute a certain amount of money to the village latrine-building fund and will continue giving money monthly until all households contributing to the fund have latrines.

(6) Introduce a composting technique for sewage.

(7) Construct biogas plants by integrating with latrine-building activities.

(8) Set up a collection and classification system for rubbish within individual households. This

system involves using a wooden frame to hold a bag for each kind of solid waste. The separated solid waste will be treated by composting, recycling, or reusing.

(9) Construct energy-efficient stoves. These stoves reduce smoke emissions and the time needed for cooking and fuel consumption by 30-50%.

(10) Conduct training courses on IPM and natural farming.

(11) Introduce mushroom farming to generate new income for the villagers and to make use of rice straw, which normally would be burned.

(12) Initiate worm rearing; this is an economic and technically feasible option that can provide a source of protein for ducks, fish, etc.

(13) Grow crops such as logan and seedless lemons that can be sold for high prices.

IMPLEMENTATION AND RESULTS

- Training courses were conducted in GP concepts and methodology, potable water and waste management, solid waste management, biogas, and composting methodology.
- Two information boards on GP methodology were constructed and a regular cleaning schedule was organized for the village. The GP concept and associated environmental tasks are now advertised over the loudspeaker system in the village.
- Two up-straight water filtration systems were constructed in Nam hamlet.
- One water treatment plant capable of producing 2 m^3/hour of clean water was constructed at the village clinic.
- Five biogas plants with a capacity of 6 m^3 were constructed. Some of the biogas plants integrated biogas technology with latrine construction purely for human sewage and some were designed to cater for both human and animal sewage. Two to three neighboring households can share one biogas plant designed for human and animal sewage.
- Fifty latrines were constructed during this project; more are under construction.
- Teams for constructing biogas plants and energy-efficient stoves were established.
- Sixty-six wooden frames were made for separating different solid waste types. Sixty frames were used for households within the village and one frame each for the clinic, school, kindergarten, and People's Committees.
- Fifty energy-efficient stoves were constructed. Many villagers saw the advantages of these stoves and are now paying to get a stove put into their own homes.
- Three training courses were conducted for GP team members and interested villagers on IPM, VAC, worm rearing, mushroom growing, and natural farming.
- A competition on GP and general environmental knowledge was organized and 1750 people participated in this competition. This was beneficial in improving the environmental awareness of the villagers.
- To increase the productivity of fish for sale, 2 kg of worms were bred for fish food. Worm breeding continues to expand throughout the village.

- Pilot planting of 50 “gio bau” plants, 20 seedless lemon plants, and 30 “coc” plants from Thailand. These plants receive higher selling prices and will thus increase the financial status of the village.

Cost-benefit analysis of GP options for Vinh Phu Village

GP option	Total investment (VND)	Savings per month (VND)	Cost recovered within (months)
Biogas plant with the capacity of producing 4.6 m^3	4,600,000	100,000	46
Integration of biogas model with latrine model	5,200.000	150,000	34.6
Simple filtration tank	500,000	60,000	12
Water supply plant	35,000,000	800,000	43.7
Energy-efficient stove	250,000	20,000	12.5
Latrine	200,000	50,000	4
Breeding worms	650,000	300,000	2.2
Wooden frame for solid waste classification	100,000	20,000	5