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THE IMPACT OF THE PANAY UNIFIED SERVICES
FOR HEALTH PROJECT

by

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THE IMPACT OF THE PANAY UNIFIED SERVICES
FOR HEALTH (PUSH) PROJECT: A FINAL REPORT

by

*Sylvia H. Guerrero and Elsa P. Jurado**

INTRODUCTION

Most people recognize the important role that good health plays in achieving personal and family well-being. To be sure, no enjoyment of this world is possible without good health. The Constitution of the World Health Organization, in fact, considers the enjoyment of good health as a "human right" and the improvement of the health conditions of all sectors and strata of the population as a "moral imperative".

Undoubtedly, the intrinsic value of health is accepted and health programs can be supported solely on humanitarian grounds. Other analysts have observed, however, that the estimation of potential economic benefits or the computation of health's contribution to economic and national development is necessary especially in poor countries, to ensure that health projects receive high priority ratings. It is further argued that like education, health is a productive investment, and health programs can affect economic development by increasing the availability of labor, improving the quality of the labor force, making feasible the

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development of previously unsettled regions and effecting changes in the attitudes of persons toward innovation and entrepreneurship (Sorkin, 1976:45).

This study focuses on the impact of a unified health services program in Panay Island. The PUSH project exemplifies the emerging concept of health care delivery designed to meet the basic health needs of the most disadvantaged and underserved rural population. It emphasizes illness prevention, health and nutrition education and utilizes traditional and indigenous medical and health technology appropriate at community levels. Its key person is a trained, village-based health worker who undertakes health interventions and involves the residents actively in the planning and implementation of the program.

The impact of the PUSH project on nine development areas namely: health, nutrition, fertility, employment, productivity, income growth, education, participation and the environment, will be the main concern of this report.

The Impact of Health Services: Some Experiences from the Literature 1/

The combined action or the synergistic effect of unified, integrated or comprehensive health services has not been systematically investigated in the literature. Because of the recentness of the approach, evaluative

^{1/} Abridged from an earlier report by Guerrero and Layo (April, 1979). For a review of the long-term impacts of health and nutrition on fertility, productivity, employment, income growth and learning, see the 1979 report.

studies in the Philippines and elsewhere have tended to focus primarily on measurement of effort rather than outcome and impact.

Some case studies, however, such as those published by the WHO and UNICEF (1975) have documented the impact of health programs adopted nationally (e.g. China, Cuba, and Tanzania) or schemes covering more limited areas (e.g., India, Nigeria, Guatemala).

These successful cases invariably demonstrate/dramatize the effects of the health situation of "major shifts of emphasis from curative to a curative-preventive approach, from urban to rural populations, from privileged to underprivileged and from vertical mass campaigns to a system of integrated health services" (Newell, 1975).

In all these cases, however, the stress is invariably placed on the impact of the health program in its totality, with relatively lesser emphasis on the impact of the component parts.

Sidel and Sidel's (Newell, 1975) account of the impact of the health care delivery system of the People's Republic of China is worth presenting at length to illustrate the dramatic effects of the holistic approach. The "before" conditions are described as follows:

".....the people of China in the 1930s and 1940s suffered from the consequences of widespread poverty, poor sanitation, continuing war, and rampant disease. The crude death rate was estimated at about 25 deaths per 1,000, one of the world's highest death rates. The infant mortality rate was about 200 per 1,000 live births; in other words, one out of every 5 babies born died in its first year of life. Most

deaths in China were due to infectious diseases, usually complicated by some form of malnutrition. Prevalent infectious diseases included bacterial illnesses such as cholera, diphtheria, gonorrhoea, leprosy, meningococcal meningitis, plague, relapsing fever, syphilis, tetanus, tuberculosis, typhoid fever, and typhus; viral illnesses such as Japanese B encephalitis, small pox, and trachoma; and parasitic illnesses such as encylostomiasis (hookworm disease), chonorchiasis, filariasis, kala-agar, malaria, paragonimiasis, and schistomiasis."

Changes brought about the liberation when the new health care system was instituted, were described thus:

"A picture of health in Shanghai, one of the most industrialized cities in China, was given by a Canadian hotel manager who returned to China in 1965 and sought the sights he had known for 20 years prior to 1949.

'I searched for scurvy-headed children. Lice-ridden children. Children with inflamed red eyes. Children with bleeding gums. Children with distended stomachs and spindly arms and legs. I searched the sidewalks day and night for children who had been purposely deformed by beggars, Beggars who would leech on to any well-dressed passer-by to blackmail sympathy and offering, by pretending the hideous-looking child was their own.'

'I looked for children with horrible sores upon which flies feasted. I looked for children having a bowel movement, which, after much strain, would only eject tapeworms.....'

"Although statistics are not yet available on the current health status of China's population, recent visitors report a nation of healthy-looking vigorous people.

"In one city, Shanghai health statistics are becoming available. They show a crude death rate of 6 per 1000, an infant mortality rate of 9 per 1000 live births and correspondingly low age-specific death rates at other ages.

The life expectancy at birth now appears to be about 70 years. Shanghai City is certainly not representative of the rest of China.....but the remarkable changes over the past two decades in Shanghai -- are probably indicative of rapid change in health status throughout China."

It is difficult to isolate the effects of the component parts of the Chinese health care system on the health levels of the population. The emphasis on preventive medicine, health services for the most disadvantaged and for rural population, indigenous medicine, mass participation and use of barefoot doctors -- all these have contributed to monumental improvements in the health of the population. It should be pointed out that these changes were not only due to the health care system alone but also to improvements in nutrition, sanitation and living standards.

Some cases analyze the most significant component in the integrated delivery scheme. Iran and Niger emphasize the role of primary health workers and village teams in achieving marked improvements in health status. For instance, with the creation of village teams in Niger, the health standards of the village improved considerably, as shown in the decrease in the number of conjunctivitis cases, more rapid healing of wounds and infections of the skin, cleanliness, and increased nutrition knowledge. The communities also developed their own scheme of village health workers.

The impact of a health assistant in a Costa Rican rural development project is likewise described by Newell:

"He explained his tasks of treating minor illness, supplementary feeding, immunization, family planning, basic sanitation, and health education. Finally, I asked if I could see his record of births and deaths, especially deaths of children under one year of age. He produced his birth register but became embarrassed when he showed a blank sheet for infant deaths. "Children did die in the first year of my work here," he said, "but none have died in the second year. I have checked and cross-checked with the families and the babies are alive. I cannot account for it."
(Newell, 1975:202)

The problems inherent in this "holistic" approach in accounting for changes in health can be easily discerned. For analytical purpose, it would of course be better to break down the "whole" into its component parts, to simplify the examination of relationships and to facilitate interpretation of information. Such an exercise, however, might fail to reflect the "synergistic" impact of integrated health services or to capture the essential difference between an integrated project and a conventional health care system. Ideally, a more rigorous research design and methodology that would undertake comparisons of differential impacts of various types of health services will be needed to arrive at more definitive conclusions.

A few studies may provide some methodological insights into this problem. For example, Cowen, et.al. (1978) looked at the impact of a rural preventive care outreach program in Appalachia. They used a

"treatment-control" research design incorporating a modified "tracer disease" methodology for measuring health outcomes. Children in both groups were matched with program-control children receiving only standard pediatric care without outreach services.

The results showed generally comparable rates for both groups of children on the tracer diseases (e.g., acute/chronic otitis media, iron deficiency anemia, bronchitis/clinical pneumonia and chronic diarrhea). Given the above design, more definitive conclusions can be made on the impact of an outreach service on child health.

The combined effects of primary health care and better nutrition are demonstrated in the results of three research projects in Guatemala, Nigeria and the U.S.A. (World Bank, 1975). The overall impact of these programs is reflected in the reduced mortality among infants and children 1-4 years of age: in Guatemala, the Infant Mortality Rate (IMR) decreased from 139 to 55 per 1,000 live births; Nigeria, from 292 to 72; and, in Navajo Many Farms from 150 to 70.

The more direct impacts on the health status of the population of specific outputs such as the water-sewage component, nutritional services, preventive and curative health services are well documented in the literature.

The dramatic decline of communicable diseases in Europe in the mid-19th century was attributed to the provision and/or the use of public health measures such as safe water, and sewage disposal, better

housing, and hygiene and sanitation (McDermott, 1969: 8-9, Dubos, 1968:99). These diseases include typhoid, cholera, dysentery, diarrhea, gastroenteritis, leptospirosis and infectious jaundice (Hilleboe and Larimore, 1959). A more extensive review of this literature is found in Layo (1975).

In developed countries more current reports of communicable disease epidemics have been traced to sewage contamination of water services (Feldman, 1974; Mahoney, 1974; Renteln and Hinman, 1967).

In the Philippines, Azurin (1974), reporting on a 5-year field study, estimated that the effect of provision of sanitary facilities for human waste disposal decreased the incidence of cholera by 68 percent while provision of safe water supply achieved a 73 percent reduction; when both components were available the reduction decreased to 76 percent. Furthermore, the spread of cholera in communities with both water and sewage facilities was less.

On the other hand, Tiglao (1964) noted that in one rural community, the provision of safe water supply and adequate toilet facilities did not affect the incidence of intestinal parasitism. While more households had adequate toilet facilities in 1960 compared with 1950 (71% vs. 8%) and adequate water supply (92% vs. 69%), the incidence of intestinal parasitism did not decline (72.5% vs. 73.4%).

The direct and positive effects of nutrition programs are shown in a number of Philippine studies. For instance, the two-year feeding

program cum nutrition classes for mothers, conducted in the Catholic Relief Services had a significant impact on nutritional status of children.

Results showed a 145.7 percent increase in the average weight-for-age gain for age of 3,500 children who attended a 12-week feeding in mothercraft centers.^{2/} Follow-up studies also revealed a decline in the prevalence of 2nd and 3rd degree malnutrition and some children attained normal weight for age: those participating in the modified mothercraft program (feeding in homes) for a period of 6 months showed positive/satisfactory weight response with a mean rate of 119.9 percent standard weight gain for age. Best weight gains were made by the most malnourished and by children 12-23 months of age (Boren and Jamili, 1976).

Studies of three Guatemalan villages by Scrimshaw and associates (Correa, 1975) showed the significant influence of nutrition on morbidity and mortality. Their five-year study indicated that illnesses per child were 20 percent lower in the village where dietary supplements were provided, compared with the control village. In terms of mean days of illness per child the feeding village registered 10.3 compared with 12.7 days in the control village. The other village, labeled treatment village (i.e., where comprehensive medical services were provided) suffered an unusually high number of epidemics and no interpretation of results could be made. However, based on mortality rates, it is significant to note that mortality rates were lowest in the treatment village. In

^{2/} Monthly weighing was done at the center prior to food distribution. Children were fed daily for 6 days a week.

terms of rate of decrease in mortality rates over a period of five years, the feeding village had an edge, "suggesting that better nutrition reduces mortality faster than improved medical care."

The PUSH Project: A Brief Description

The PUSH project provides a unified set of community-based health services to the most depressed barangays in Panay Island.^{3/} Its goal is to improve the health status of the residents of 600 depressed barangays in the provinces of Aklan, Antique, Capiz, and Iloilo, benefitting directly a population of 336,360 in 61,200 households.

Implemented on January 2, 1979, the objectives of the project are:

1. To reduce the incidence of tuberculosis, tetanus and gastro-intestinal infection by 25 percent
2. To reduce the infant mortality rate by 25 percent
3. To reduce the crude birth rate from 31.5 to 24 per thousand

^{3/}This section draws heavily from the project document.

4. To reduce the incidence of second and third degree malnutrition to 70 percent and 40 percent, respectively, among children aged six years and below.

These objectives will be attained through "the installation of a barangay-based system that will provide, in an integrated fashion, basic preventive, educative and health promotive services and essential environmental sanitation infrastructure." More specifically, the project is expected to do the following:

1. To immunize at least 70 percent of the target population with BCG and DPT
2. To increase the contraceptive prevalence rate from the present 23 percent to 38 percent
3. To provide an adequate safe water supply to 30 percent of the project household
4. To provide sanitary waste disposal facilities to 60 percent of the project households
5. To rehabilitate at least 10,000 malnourished children

As an approach emphasizing "health by the people", the project relies primarily on a paid barangay health worker (BHW) who serves as an "extender" of health services of the Rural Health Unit (RHU).

Chosen by the villagers from among the residents, they are based in the barangay and work on seven general areas of concern, namely: environmental sanitation, family planning, nutrition, control of communicable diseases, curative functions, recording of vital statistics, and community organization.

The primary health care strategy was formally adopted by the Philippines in 1979 with the issuance by President Marcos of LOI 949, directing the Ministry of Health "to design, develop, and implement programs which focus on health development at the community level." At the base or community level, simple, inexpensive but acceptable and effective methods of health care will be delivered; and at the "apex", more comprehensive and sophisticated medical care will be provided (Banzon, 1982).

The PUSH project is premised on active community participation and the provision of technical, logistical and referral support from other agencies of the health care system. The provision of at least seven outputs is necessary to attain its projected targets over the next five years. These outputs are:

1. the training and deployment of BHWs who will undertake health and health-related activities;
2. the construction of wells and water-sealed toilets;
3. the organization of village drugstore (Botica sa Barangay);

4. the stocking of RHUs with DPT and BCG vaccines and anti-TB drugs;
5. equipping provincial health laboratories for water analysis and sputum examination;
6. establishing Barangay Nutrition services; and
7. establishing barangay family planning supply points and services.

The project is estimated to cost \$9.7 million for a period of five years to cover the costs of ES construction, BHW training and salaries, equipment and supplies, personnel and rent/utilities.

Financing for the project comes from a loan/grant agreement between the Philippines and the U.S.A. The breakdown of this loan grant is as follows:

U.S.A.I.D. loan	----	\$5.4 M
U.S.A.I.D. grant	----	.3 M
Philippine government counterpart	----	3.0 M
Beneficiary counterpart	--	<u>1.0 M</u>
		\$9.7 M

The implementing agency of the PUSH project is the Regional Development Council VI headed by a chairman who serves as Project Director. The council is composed of provincial governors and city mayors in the region and regional directors of the national agencies operating in the region. Directly overseeing the project is the PUSH Project Executive Committee (PPEC) chaired by the PUSH project Executive Director/Coordinator who is also the Regional Director of the National Economic and Development Authority (NEDA). The PPEC is composed of the governors of the four Panay provinces, the Regional Directors of the following Ministries: Health, Social Services and Development, Local Government, Public Works, Agriculture; the Commission on Population, the National Nutrition Council and the Private Medical Society.

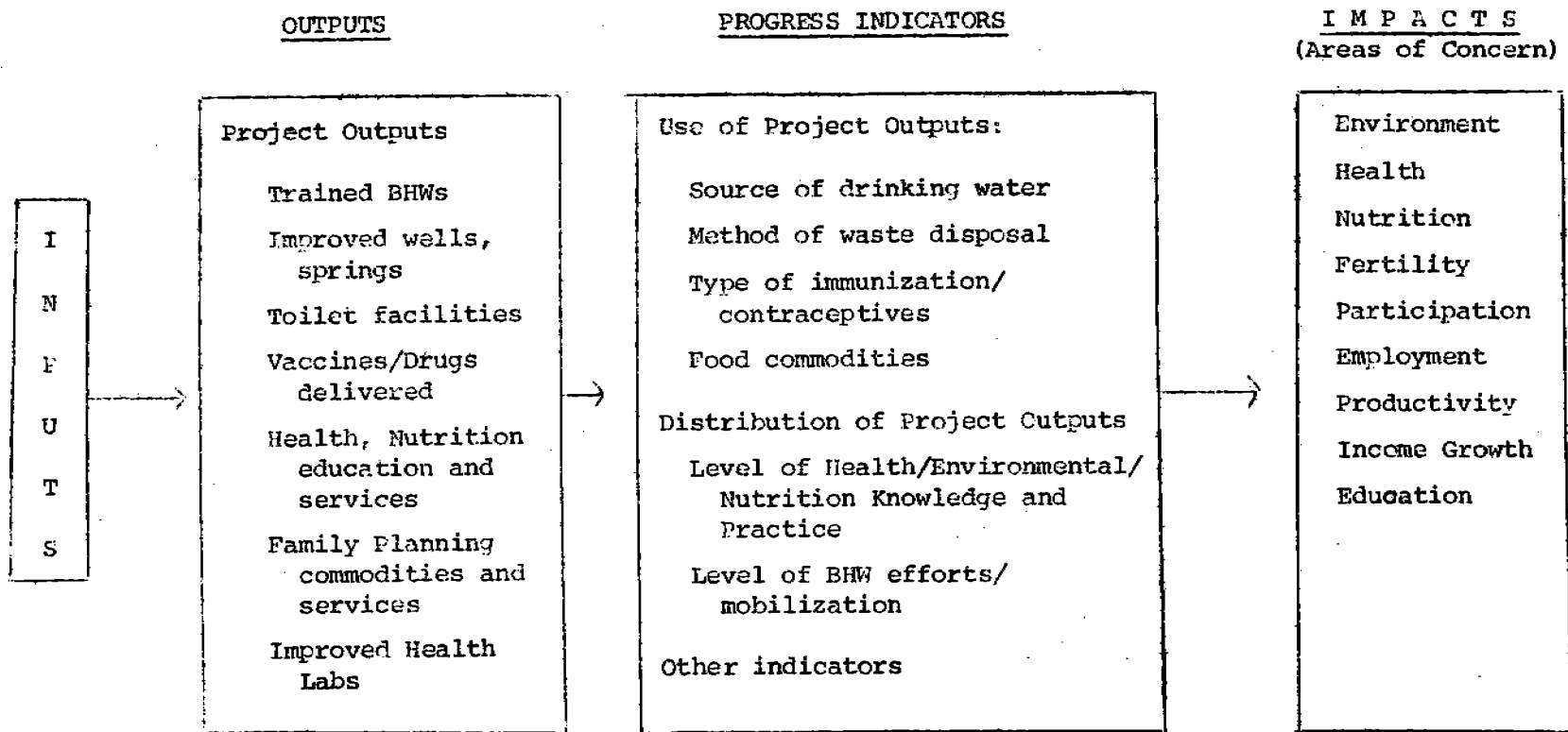
A project support staff of five persons provides the PPEC with the necessary technical and administrative support.

CONCEPTUAL FRAMEWORK

This study identifies and analyzes the impact of PUSH on ten areas of development concern. The linkages between project inputs and outputs of PUSH and the anticipated impacts are presented in the following diagram (see Figure 1).

Figure 1

LINKAGES BETWEEN OUTPUTS AND IMPACTS



Project inputs are those resources provided by the agencies or communities. These inputs are then combined by a project organization to yield project outputs. The impacts are those changes in the areas of concern resulting from the use of project outputs. The relatively short-term effects of the project, linking outputs and impacts are labeled as progress indicators. These involve the use of project outputs and the distribution of project outputs.

As envisioned by project proponents, PUSH will benefit, in general, all households and occupational groups in the target barangays. In particular, the benefits to women are emphasized in the project document.

"The most immediate target groups for the BHWs are the women and small children, who are generally available and at home. Improved nutrition, environmental sanitation, clean water supply, and reduced infection will have the greatest impact on the pregnant women and small children.....If piped water systems can be achieved, the women will be benefited by less work load....."

The health impacts are anticipated: adequate water supply would lead to improved sanitation, lower incidence of communicable diseases and parasitism, lower mortality rates, and lead to an improved state of community health.

Positive effects on employment and income are also expected. Construction of the barangay water system and toilets would provide a

few technical jobs initially..... Other employment opportunities will be provided by industries requiring adequate water... With time gained from lower incidence of illness and from cured TB patients, all due to better nutrition, better sanitation, immunization, additional person-hours will be available for the learning of income generating skills.... The income level of the community may then rise (p. 28).

Environmental conditions are expected to improve with increased water supply, sanitary waste disposal, and health education for barangay residents.

No adverse effects on the environment are anticipated. "No water impoundments are visualized that would seriously alter the natural flow of water or the downstream of water borne nutrients; no equipment will be utilized that will significantly increase noise levels in the community; and no harmful chemicals will be introduced to the environment" (Project Document, Annex C, p. 5).

The most general hypothesis that can be formulated is that PUSH will have positive impacts on environmental sanitation, health, nutrition and fertility levels, employment, productivity, and income levels, and participation. Better health and nutrition will lead to increased productivity and income growth. Improvements in health and nutritional status will also significantly influence educational development and improve the quality of life.

Intervening between outputs and impacts are the following progress indicators:

1. the use of water from improved wells and springs for drinking and household care;
2. the use of latrines installed;
3. the quantity and quality of BHW-efforts in organizing and mobilizing the community; and
4. the level of coordination among the local agencies involved in providing technical, logistic, and administrative support for the BHW.

To effect a significantly improved quality of life in the community through improvements in the population's environmental sanitation, health, nutritional status while reducing fertility rates, the necessary and required outputs have to be obtained at the right time and in sufficient quantities. This implies a support mechanism and machinery functioning efficiently and effectively to eliminate implementation delays and difficulties due to bureaucratic red tape.

Key intervening factors, therefore, are the effectiveness of the BHW and the organization and administrative coordination among local agencies. The PUSH impacts will then depend upon the quality of the BHW's catalytic efforts. The latter also depends in part on the level of support provided by participating local agencies.

HYPOTHESES, VARIABLES AND INDICATORS

This section presents the hypotheses, variables and indicators and the regression equations by areas of concern.

Block I: Environment

Hypotheses

1. Levels of environmental sanitation (ES) will be significantly affected by the use and distribution of ES outputs, BHW efforts in ES, ES knowledge and practices, education and income levels of households.
2. The level of environmental sanitation knowledge, attitudes and practice (ESKAP) will be positively related to BHW efforts, level of ES outputs, education and income levels of households.
3. The use of ES outputs will be affected by level of ES outputs, distribution of outputs and project duration.

The variables and indicators are:

<u>Progress</u>	<u>Impact</u>
1. level of environmental knowledge practice (ESKAP)	1. level of environmental sanitation index (ENVIRON): sum of five items scored for presence/absence of:
1.1 use of sanitary toilet facilities	1.1 pools of stagnant water under or around the house
1.2 use of potable HH water supply	1.2 stray animals
1.3 use of sanitary garbage disposal	1.3 pests/insects
1.4 use of pest control methods	1.4 animal waste
	1.5 garbage
2. level of BHW services for environmental sanitation (BHW-ES)	2. perceived improvement in the barangay's ENVIRON since PUSH
2.1 the proportion of time spent on ES activities; BHW's perception of sufficiency of time allocated	
2.2 quality of BHW's activities	

3. use of ES outputs
 - 3.1 whether HH has received ES materials
 - 3.2 whether HH has availed of BHW services
4. distribution of project outputs in ES or the percentage of barangay HH who have availed of ES outputs
5. duration of project, whether 3, 6, or 12 months
6. Education of Housewife in years
7. Income of HH in pesos

Using multiple regression, the following will be tested:

$$\text{ENVIRON} = f (\text{ESKAP}, \text{BHW-ES}, \text{USE-ES}, \text{Education}, \text{Income})$$
$$\text{ESKAP} = f (\text{BHW-ES}, \text{LEVEL-ES}, \text{Education}, \text{Income})$$
$$\text{USE-ES} = f (\text{LEVEL-ES}, \text{DISTR-ES}, \text{DUR})$$

Block II: Health, Nutrition, Fertility**Hypotheses**

1. Morbidity levels will be significantly affected by level of environmental sanitation/use of project outputs, health knowledge, attitudes and practice (KAP, nutrition, fertility, education, income, age of housewife and household composition.
2. Infant and child mortality levels will be significantly affected by the use of project outputs, health KAP, morbidity, fertility, nutrition, income, age and household composition.
3. Fertility levels will be significantly affected by the use of project outputs, health KAP, nutrition and income.
4. Nutritional levels will be significantly affected by the use of project outputs/level of BHW efforts in nutrition, income and education.
5. The levels of health and nutrition KAP will be significantly affected by the level of BHW efforts, income and education.

The variables and indicators are:

	<u>Progress</u>	<u>Impact</u>
Health	1. level of environmental knowledge and practice (ESKAP)	1. level of health (HEALTH) of household/ barangay 1.1 incidence of gastro-intestinal diseases, respiratory and other illnesses 1.2 infant and child mortality levels or number of infant deaths since PUSH and number of children (0-5) deaths per 1000 live births.
	2. level of health knowledge	2. perception of health state -- by Housewife/Respondent of her health, children's health and family's health
	3. type of immunization received	3. perception of PUSH health impact
Nutrition	1. Level of nutritional knowledge and practice (N-KAP)	1. nutritional status (NUTR) indicated by: 1.1 household meal pattern scored for quality -- proxy for per capita calorie/protein intake compared to RDA 1.2 level of satisfaction with food consumption

- | | | |
|-----------|---|--|
| | 2. type of BHW services received (BHW-N) | 2. prevalence of 2nd and 3rd degree malnutrition in pre-schoolers (PCM) |
| | | 3. prevalence of anemia and deficiency diseases |
| Fertility | 1. use of an effective contraceptive (USE-FP) | 1. fertility level (FERT) measured by: |
| | | 1.1 number of additional pregnancies (from baseline measure) |
| | | 1.2 length of child spacing |
| | | 1.3 marital fertility rate (ratio of number of live births to number of married women 15-49 years) |
| | 2. duration of use of FP (D-USE) | |
| | 3. level of family planning knowledge (FKAP) | |

HEALTH = f (ESKAP, NUTR, FERT, JKAP, AGE, Education, Income, HH Composition)

NUTR = f (NKAP, BHW-N, LEVEL-N, Income, Education)

NKAP = f (HKAP, BHW-N, LEVEL-N, Income, Education)

FERT = f (NUTR, FKAP, LEVEL-FP, D-USE, Income, Age)

HKAP = f (BHW-N, LEVEL-H, Income Education)

Block III: Employment, Productivity, Income Growth, Participation

More long-term impacts are anticipated for employment productivity and income growth. Better health and nutrition will lead to increased productivity and income growth. Improvements in health and nutritional status will significantly influence educational development and ultimately improve the quality of life.

Employment effects directly attributable to the project will be limited initially. The availability of water will, however, encourage water-using activities and income-generating projects in the area. Particularly for women, water availability/accessibility will lighten household chores by reducing time spent fetching water. This will then give women time to pursue gainful activities. Levels of education, participation and morbidity and use of project outputs will significantly affect employment levels.

Participation is a key impact area for community-based health projects, as they provide ample opportunities for local residents to participate in various activities. From the outset, the health workers will encourage participation in need/problem identification, priority setting and plan formulation to improve community life. Sanitation, food production and nutrition sub-projects will involve residents directly. The people will be involved as recipients/consumers of project outputs, information sources, manpower, and as active participants/decision-makers in the project implementation. Participation in decision-making maybe viewed as a higher form of participation

reflecting the progress made by community residents from serving as "objects" of the project to "becoming subjects" whose growing self-reliance will enable them to sustain the project. The instrumental role of people's participation to attain project goal is clearly evident. A "health by the people" approach stresses the importance of participation to sustain health services.

More specific hypotheses on participation are:

1. The levels of project output, BHW efforts, age, income and education of the residents and health levels will significantly affect the frequency, type and quality of participation in organization and project activities.
2. Factors associated with the levels of BHW efforts are: his/her personal and social characteristics, type of training undertaken and level of support from local agencies.
3. Women's participation will be significantly affected by the health, nutrition and fertility levels.
4. More meaningful and genuine participation will positively affect the level of community self-reliance and institutionalization of the primary health care approach.

The variables and indicators are:

	<u>Progress</u>	<u>Impact</u>
Participation	<ol style="list-style-type: none"> 1. level of BHW community mobilization (BHW-CM) 2. proportion of time spent in mobilization 3. quality of mobilization 	<ol style="list-style-type: none"> 1. level of community participation (PARTICPN) <ol style="list-style-type: none"> 1.1 organizational membership 1.2 frequency and quality of involvement in organizations and community projects 1.3 satisfaction with participation
Employment		<ol style="list-style-type: none"> 1. Employment level (EMPLOY) <ol style="list-style-type: none"> 1.1 total personhours employed in PUSH-related projects and activities 2. number of women with full or part-time work outside or based in the home
Productivity		<ol style="list-style-type: none"> 1. level of productivity (PRODUC) indicated by number of school/work loss due to illness

More qualitative analysis will be undertaken initially for this set of concerns. The following hypotheses may be tested eventually.

$$\text{EMPLOY} = f (\text{LEVEL-ES, LEVEL-H, LEVEL-N, DISTR-ES, EDUC, HEALTH})$$
$$\text{INC-GR} = f (\text{EMPLOY, EDUC, USE-ES})$$
$$\text{PARTICPN} = f (\text{HEALTH, FERT, INC-GR, EDUC, BHW-CM})$$
$$\text{PRODUC} = f (\text{HEALTH, FERT, NUTR})$$

THE STUDY DESIGN

Recent publications on the methodology of evaluation research have described both the practice and problems of evaluation in the United States with implications for other developing countries involved in the same activity (Klein 1979). The ideal experimental design and the various quasi-experimental designs developed by Campbell have been considered models from which researchers can select their choice. Discussions have focused not only on the problem of causal inference and the various threats to validity but also on the political considerations regarding the use of specific models. There is agreement on the need to develop methods which are a "compromise between the elegance of experiments and causal models on the one hand and the direct reflection of social reality on the other."

In designing the research to evaluate the impact of PUSH, we proposed initially a quasi-experimental "before-after with control group" design. Experimental and comparison groups/villages were to be studied with measurement at three points in time: before the project starts and twice during the year -- six months and one year after (Guerrero & Layo, 1979).

Many problems -- some logistical, others political emerged in the course of the year. Consequently, design changes were made. For instance, there was no assurance that "control" barangays will not become "experimental" during the year over a five-year period. Inclusion in the project was partly political as both the project

managers and town officials had to agree on certain requirements.

As the original quasi-experimental design could not be implemented, we settled for an after-only survey design. A 5 to 10 percent random sample of households was to be drawn from each of the 52 villages. Spot maps were prepared by the survey outfit contracted to undertake the interviews. The nature of clustering/dispersal of houses in the village presented some logistical problems. In some villages for instance, the houses were so widely dispersed that an interviewer had to walk two kilometers to get to the next sample household across muddy fields in stormy weather. Due to the relative homogeneity of villages, it was decided to cluster houses and obtain systematic samples from each cluster.

The 52 barangays thus selected come from 21 municipalities and are stratified according to the project's starting date. Table 1 shows the distribution of barangays and households by batch.

TABLE 1
SAMPLE DISTRIBUTION OF PROJECT'S STARTING DATE

<u>Starting Date</u>	<u>Number of</u>	
	<u>Barangays</u>	<u>Households (HH)</u>
Sept. 1979: Batch 1	22	257
Dec. 1979 : Batch 2	20	230
June 1980 : Batch 3	10	117
Total Sample	52	604
Percent of Population	52% (100%)	5% (13,051)

The survey sample includes 84 percent of Batch 1 and 2 barangays and 20 percent of Batch 3. The total number of HHs in the 100 PUSH barangays is 13,051: a 5 percent sample or 604 HHs was drawn for the survey. A list of the sample barangays is presented in Annex A.

The project barangays are generally located in clusters close to the poblacion to facilitate monitoring and supervision of BHWs by the Rural Health Unit (RHU). Figure 2 shows the approximate locations of barangay clusters in the four provinces.

Data Collection Procedures

Data for this study come mainly from personal interviews conducted from August to October 1980, with 804 housewives and 52 BHWs using structured questionnaires. The housewife-respondents provided household-level information on the following: sociodemographic characteristics and migration history of the family, production, employment, income, health, nutrition, fertility and associated use of project outputs, and sociopsychological variables. Barangay-level information and data were obtained from the BHWs and other key informants.

The study also makes use of the records kept by the BHWs and/or submitted to the health officer at the municipal level, later consolidated at the provincial and regional levels. These records consist

of the following:

1. The BHWs' records of a) the weights of children 0-6 years old and their corresponding nutritional levels, b) health (and illnesses) of household members and children in particular, c) TB cases, d) immunizations, and e) environmental sanitation and health services delivered. Data from two time periods -- at the start of the project and one year after -- were obtained.
2. The BHWs' logbook of activities, (Annex B lists the types of information collected by the BHWs).

Additional information from the Ministry of Health (MOH) reports on morbidity and mortality rates were also obtained. Intensive case studies of eight barangays using participant observation methods constitute the third set of data used for this report.

The original plan to include a biological analysis of the source of household water especially for drinking, diagnostic clinical examinations for TB and other illnesses such as parasitic infection among children, calorie intake and anthropometric measures for height and weight of children did not materialize. Consequently, we had to rely on the BHWs' records of children's weights and a proxy measure for calorie intake.

THE IMPACTS OF THE PUSH PROJECT:
PRESENTATION AND ANALYSIS OF
FINDINGS

Structure of the Presentation

This part of the report opens with a discussion of the characteristics of the barangays, the respondents and their families and the BHWs who are the key persons in the project. Subsequently, the impacts on environmental sanitation, health, nutrition, fertility and participation are presented, using "before-after" comparisons of selected information gleaned from the BHW files and the survey findings using frequency distribution and cross tabulations. In the next section, the different impacts are analyzed using multiple regression. The regression equations earlier specified to test the research hypotheses are computed for both the environment and the health nutrition and fertility blocks. Case studies of eight barangays are then presented to study in greater depth the processes contributing to the attainment of outputs and impacts. The final section summarizes the discussions and draw the conclusions and implications of the study.

The Project Sites

Most of the sample barangays are located from one to six kilometers from the municipal poblacion (69%) with five barangays located less than a kilometer from the poblacion. Eight out of ten barangays

do not have any direct access to the national highway. Though road conditions are generally poor, they remain passable all year round. The usual means of transportation to the nearest poblacion is by tricycle or jeepney (Table 2).

The typical barangay is without electricity. Most of the residents, therefore, use kingke for lighting and almost all households use wood as fuel for cooking.

Only a few health facilities are located in the barangay, since drugstores, puericulture centers and FP clinics are usually based in the town proper. According to our barangay captain-informants, most barangays have hilots and folk healers called herbolarios and mananabangs. Table 3 presents this information.

Most barangays have primary schools only (65%). About one-half of the sample barangays have elementary schools. Only in a few places do we find secondary and vocational schools.

The distribution of households and the total population in the sample barangays is shown in Table 3. Majority of the barangays have 200 households or less. The smallest barangay located in San Jose, Tubungan, Iloilo has 35 households and the largest, in Tambac, New Washington, Aklan has 370 households. Total population ranges from a low 192 in San Jose, Tubungan, Iloilo to a high 2,315 in Milan, Zamindan, Capiz.

TABLE 4
SELECTED PROFILE OF SAMPLE BARANGAYS

		%
1. Distance between barangay and municipal poblacion		
less than 1 km.	5	10
1-3	15	29
4-6	21	40
7-12	11	21
2. Distance between barangay and national highway		
less than 1 km.	9	17
1-5	15	29
6-10	10	19
11-25	13	25
highway within poblacion	5	10
3. Conditions of roads		
passable all year round even during rainy season	36	69
not passable all year round	16	31
4. Means of transportation to nearest poblacion		
jeepney	16	31
tricycle	25	48
walking	8	15
bus	2	4
motorbike	1	2

TABLE 3
SELECTED BARANGAY CHARACTERISTICS

<u>Characteristics</u>	<u>N</u>	<u>Percentage</u>
1. With electricity	11	21%
2. 1979 HH population		
35-100 HHs	15	29%
101-150	19	97
151-200	10	19
201-300	6	11
301-370	2	4
3. 1979 Barangay population		
190-400	5	10%
401-800	27	52
801-1200	14	27
1201-2400	6	12
4. Type of schools in the barangay		
primary school	34	65%
elementary school	26	50
secondary school	6	12
vocational school and others	8	15
5. Health facilities in barangay		
Puericulture center	2	
Primary Health Care Center	22	
Dispensary	2	
FP clinic	6	
6. Health practitioners/folk healer in the barangays*		
Midwife	4	
Nurse	4	
Dentist	1	
Physician	2	
Hilots	40	
Herbalist	42	
Mananabang	22	

*Information supplied by Barangay Captain.

A Profile of Respondents and Their Families

The wives interviewed for this study are mostly in their 30s -- the mean age for the whole sample is 38.34. As Table 4 shows, more than one-half (56%) of the respondents are below 40 years old while 23 percent are in their 40s. A little over one-fifth of the sample are 50 years old and over, or past their childbearing years. The mean ages by batch are 37.47, 38.78, and 39.24, for Batches 1, 2 and 3, respectively.

The respondents' educational levels are generally low -- three out of four have had an elementary education only. About one-fifth had some secondary education or were high school graduates. Quite understandably, less than one-half (48%) are satisfied with their level of education. They feel more satisfied, however, with educational opportunities for their children (59%).

Majority of the housewives (80%) are not gainfully employed. The 20 percent who are working are engaged in the following occupations: sales (5%), crafts (5.5%), farming (4.5%), and paid household work/labor (1.7%).

Their spouses are engaged primarily in farming (65%) relatively small parcels of lands. The mean size of land farmed is 1.7 hectares; the median is 1.4 hectares. Crops planted are mainly rice (93%), some corn, coconuts, and tobacco. They also grow fruits and vegetables in

TABLE 4
SELECTED SOCIODEMOGRAPHIC CHARACTERISTICS OF HW RESPONDENTS

Characteristics	Batch 1	Batch 2	Batch 3	Total
1. Age				
below 30	26	25	26	25
30-39	34	30	27	31
40-49	22	24	23	23
50 & above	19	22	24	21
	(257)	(230)	(117)	(604)
2. Educational attainment				
0-4 years	34	30	36	33
5-7	43	37	44	42
8-11	13	13	10	13
12-13	4	11	3	7
14-16	2	2	3	2
17-18	4	4	3	4
	(257)	(230)	(117)	(604)
3. % satisfied with level of education	48	49	45	48
% satisfied with educational opportunities for children	54	67	59	59

home gardens, the products of which they generally consume. A few of them sell some of the vegetables (6%) and fruits (20.5%) grown in their orchards.

About 11 percent of husbands are engaged in fishing. Less than one-fifth work as laborers, sales workers, craftsman, clerical/kindred workers and professionals.

Majority of the households raise pigs (84%), chickens (94%) and goats (13%) to generate additional income. Most raise from 1-9 pigs, up to 75 heads of chicken and 1-6 goats.

To determine total household income, we added all cash received from:

1. sale of rice, corn, coconut and other farm products
2. sale of poultry and livestock
3. sale of fruits and vegetables
4. sale of fish (for fishermen)
5. salary/wages and small-scale buy and sell activities
6. benefits derived for the year
7. money contributed by children and relatives
8. gifts, winnings, etc.

It will be noted, however, that farmers generally set aside rice and other products as well as poultry and livestock for family consumption.

The distribution of total incomes is shown in Table 5. Close to one-half (47.2%) have incomes of less than ₱1,000, with 28.5 percent earning only ₱500 or less annually. About one-third have incomes from ₱1,000 to less than ₱4,000. Only 3.6 percent belonged to the "high" ₱10,000 or more income group. Incomes range from ₱8 to ₱27,440 with a mean of ₱5,172.00. These income levels are generally lower than the 1975 incomes reported for Western Visayas. Table 6 indicates the competitive figures for Western Visayas' rural families (only 0.2 percent received ₱1,000 or less: mean income was ₱5,484 and median ₱4,150).

Examining further those reported by Panay Island provinces, we find the 1980 income levels of our sample HHS still lower than the 1975 levels in all provinces except for Antique. The mean incomes of rural families are ₱7,117 for Aklan; ₱3,807 for Antique; ₱7,194 for Capiz; ₱5,183 for Iloilo (Table 7).

The average household size is 6.78 members. Close to one-half of HHS (44%) have 4-6 members and 41 percent have 7-9 members. Only six households consist of 13-15 members.

Most households are also nuclear, consisting mainly of the husband, wife and children. Extended households generally include only close blood relatives such as grandchildren, and sometimes a brother or a sister. Only 37 of 2,308 household members (other than respondents and their spouses) are categorized as "other relatives".

TABLE 5
TOTAL ANNUAL HOUSEHOLD INCOME

Income Class	N	%
₱ 500 and below	172	28.5
501 - 999	113	18.7
1,000 - 1,999	126	20.9
2,000 - 2,999	58	9.6
3,000 - 3,999	38	6.2
4,000 - 4,999	22	3.5
5,000 - 7,499	33	5.5
7,500 - 9,999	20	3.3
10,000 or more	22	3.6
Total	604	100
Mean =	₱5,172	
Range =	₱ 8 - ₱27,443	

TABLE 6
INCOME DISTRIBUTION OF RURAL FAMILIES IN REGION 6: 1975

Income Class	Region 6 Total (%)	Region 6 Rural (%)
Below ₱1,000	0.2	0.2
₱ 1,000 - 1,999	3.2	4.2
2,000 - 2,999	9.7	11.7
3,000 - 3,999	12.4	13.7
4,000 - 4,999	10.3	11.7
5,000 - 5,999	9.9	10.9
6,000 - 7,999	12.3	12.0
8,000 - 9,999	10.4	11.8
10,000 - 14,999	10.1	8.9
15,000 - 19,999	6.2	5.1
20,000 - 29,999	4.9	2.9
30,000 and over	10.4	6.9
	<u>100.00</u>	<u>100.00</u>
Mean Income	₱5,484	
Median Income	₱4,150	

Source: NCSO, 1979, Manila, Philippines.

TABLE 7
INCOME DISTRIBUTION OF RURAL FAMILIES BY PROVINCE: 1975

Income Class	Aklan		Antique		Capiz		Iloilo	
	N	%	N	%	N	%	N	%
Below ₱1000	5350	11.7	10,877	22.7	1231	1.9	23,900	14.8
₱1,000 - 1,999	5442	11.9	11,453	23.9	3888	6.0	7,303	23.1
2,000 - 3,999	9237	20.2	13,513	28.2	21,449	33.1	48,607	30.1
4,000 - 5,999	6997	15.3	5175	10.8	17,367	26.8	23,093	14.3
6,000 - 7,999	4756	10.4	2583	5.4	3489	13.1	10,497	6.5
8,000 - 9,999	3567	7.8	1438	3.0	4666	7.2	6,298	3.9
10,000 - 14,999	5808	12.7	1533	3.2	4406	6.8	5,186	3.8
15,000 and lower	4573	10.0	1342	2.8	3305	5.1	5,652	3.5
Total	45,730	100.0	47,919	100.0	64,801	100.0	161,486	100.0
Mean	₱7,117		₱3,607		₱7,104		₱5,183	
Median Income	₱4,810		₱2,241		₱4,671		₱2,304	

Source: NCSO Special Release No. 301, March 1980, Manila, Philippines.

A good percentage of HH members are young -- 4 percent are less than one year; 32 percent are 1-10 years old; 22 percent, 11-20; and 22 percent are 21-40 years of age. Only 10 percent are over 50 years old (Total of 3,510 members).

Educational levels attained by members aged six years and above are generally low -- two out of three have an elementary education only and one out of five, a high school education. Only five percent have some college education with 1.8 percent obtaining a college degree.

Judging from their household possessions, the levels of living in the project barangays are expectedly low. Though a radio and a flat iron are common possessions, only 20 percent have a sewing machine and 8 percent own a gas stove. Less than a third own a Petromax lamp for lighting and kingke is used by 90 percent of households. Ownership of consumer goods does not differ significantly by batch (Table 8).

TABLE 8

OWNERSHIP OF CONSUMER ITEMS BY BATCH

Items	Batch 1	Batch 2	Batch 3	Total
	Percent of HH Possessing Items			
radio	62	60	63	62
flat iron	49	51	55	51
Petromax	31	30	30	30
sewing machine	18	23	17	20
gas stove	7	7	9	8
N	(257)	(230)	(117)	(604)

Majority of the families live in single detached houses (94%) which they own. Made of nipa, bamboo and light materials or a mixture of light and heavy materials, these houses are in fairly good condition (51%). Given these modest circumstances, more than half of R's (53%) rate their socioeconomic status (SES) to be fairly low (levels 1-3 in a 7-point ladder) and their income status even lower (40 percent place themselves at levels 1 and 2, and another 29 percent at level 3).^{4/} The mean ladder rating for SES is 3.39, and for income status, 2.9. No significant differences are apparent by batch (Tables 9 and 10).

TABLE 9

PERCEPTION OF INCOME STATUS BY BATCH

Ladder Rating (in steps)	B A T C H			Total
	1	2	3	
Low (1-2)	37	41	45	40
Medium (3-4)	52	49	50	50
High (5-7)	11	10	5	10
Total	100 (257)	100 (230)	100 (117)	100 (604)
$\chi^2 = 7.23$	df = 4	N.S.		

^{4/} Respondents were asked to locate themselves in a ladder where the top (7th step) represented "the best possible life" and the bottom "the lowest possible life".

TABLE 16
PERCEPTION OF SOCIOECONOMIC STATUS BY BATCH

Ladder Rating (in steps)	Batch (in percent)			Total
	1	2	3	
Low (1-2)	32	30	26	30
Medium (3-4)	48	54	62	53
High (5-7)	21	17	13	18
Total	101	101	101	101*
$\chi^2 = 4.59$ $df = 4$ N.S.				

* over 100 percent due to roundings.

Focus on the BHWs

As the key person in the project, the BHW helps the RHU in extending health services to the barangays and coordinates with other agencies to facilitate the provision of health related services. He/She is supervised directly by the RHU midwife who sees to it that work programs and status reports of activities in the barangay are submitted regularly.

To be eligible for nomination as a BHW, one 1) must be an indigenous and respected member of the community, 2) must have resided in the community continuously for five years, and 3) must be between 18-45 years^{5/} of age, able to read and write and must have completed at least six years education or an equivalent five year work experience in civic or social services related activities.

BHW nominations are submitted by the barangays to the municipal mayor. Any group of five adult-residents are convened to deliberate on all nominations before submission to the municipality. A screening committee with is formed at the municipal level recommends three names to the provincial screening committee. A psychological examination is also administered to the candidates after which a final selection is made.

^{5/} The age criterion has since been changed to 21-35 years.

The BHW undergoes a six-week basic training and a two-week retraining every six months. PUSH project spends a total of ₱6,000 per BHW. If he fails in the training, his barangay loses the opportunity to participate in the project. a BHW receives a basic monthly salary of ₱200.00, an allowance of ₱75.00 and government benefits amounting to ₱13.25, or a total of ₱328.35 per month.

The first batch of NHWs (N=26) were deployed on September 1, 1979, the second (N=24) on December 16, 1977, and the third (N=50) on June 16, 1980. Tables 11, 12, and 13 present the sociodemographic profile of the BHWs.

The typical Batch 1 BHW is female, young (mean age is 24.54 years), single and a high school graduate. Among the selected BHWs, there are three midwives, one auto-diesel mechanic, an electronics graduate and a college graduate. One out of three BHWs has some college education.

Batch 2 BHW differ significantly from their Batch 1 counterparts in educational attainment. Close to one-half of the BHWs in the second batch have some college education. Of these, two have completed a secretarial course and an A.A. in Marine Engineering. Others have completed two or three years of fisheries education, nursing, teacher education and theology. Six have college degrees in various fields such as commerce, chemistry, education and marine engineering.

TABLE 11
 SOCIODEMOGRAPHIC CHARACTERISTICS OF BATCH 1
 BHWs BY PROVINCE

Characteristics	Aklan	Antique	Capiz	Iloilo	Total	
					N	%
1. Sex						
Male	1	-	1	4	6	23
Female	3	5	4	8	20	77
2. Age						
20 & below	-	-	1	3	4	15
21 - 29	2	5	1	7	15	58
30 - 39	2	-	3	1	6	23
40 - 49	-	-	-	1	1	4
	Mean = 24.5 years					
3. Civil Status						
Single	2	3	3	10	18	69
Married	2	2	2	2	8	31
4. Education						
Elementary	-	-	-	1	1	8
High School	-	3	1	5	9	35
Vocational	1	1	-	1	3	11
Midwife	-	1	1	2	4	15
Some College	3	-	2	2	7	27
College graduate	-	-	-	1	1	4
	Total N = 26					

TABLE 12
 SOCIODEMOGRAPHIC CHARACTERISTICS OF BATCH 2
 BHWS BY PROVINCE

Characteristics	Aklan	Antique	Capiz	Iloilo	Total	
					N	%
1. Sex						
Male	-	1	3	6	10	42
Female	4	4	2	4	14	58
2. Age						
21 - 25	2	3	4	8	17	70
26 - 29	1	1	1	1	4	17
30 - 35	1	1	-	1	3	13
	Mean = 24.0 years					
3. Civil Status						
Single	4	2	3	6	15	63
Married	-	3	1	4	8	33
Widow	-	-	1	-	1	4
4. Education						
Elementary	-	-	-	-		
High School graduate	-	1	3	3	7	29
Some College	2	2	1	6	11	46
College graduate	2	2	1	1	6	25
	Total N = 24					

TABLE 13
 SOCIODEMOGRAPHIC CHARACTERISTICS OF BATCH 3
 BHW BY PROVINCE

Characteristics	Aklan	Antique	Capiz	Iloilo	Total	
					N	%
1. Sex						
Male	2	5	5	8	20	40
Female	6	7	5	12	30	60
2. Age						
21 - 25	5	7	8	14	34	68
26 - 29	1	3	-	5	9	18
30 - 35	1	1	2	1	5	10
36 and over	1	1	-	-	2	4
Mean = 25.0 years						
3. Civil Status						
Single	7	7	6	14	34	68
Married	1	5	4	6	16	32
4. Education						
Elementary				1	1	2
High School		7	4	5	16	32
Some College	6	3	5	9	23	46
College graduate	2	2	1	5	10	20
Total N = 50						

Batch 3 BHWs are not too different from their Batch 2 counterparts in sex, age, civil status and educational attainment. Older on the average by about one year, they are mostly single (68%) and possess a high level of education. Two out of three have some college education or have college degrees. The ten college graduates obtained their degrees in the following fields: B.S. Fisheries -- 2; B.S. Agriculture -- 2; B.S. Commerce -- 2; B.S. Education -- 1; B.S. Chemistry -- 1; B.S. Chemical Engineering -- 1; and Nautical Science -- 1.

More than one-half claim kin relationship to the barangay captain. This affinity tends to be very close -- of the 28 who are relatives of the barangay captain, 25 percent are first to third degree cousins, 36 percent are nephews/nieces, 28.6 percent are sons/daughters/in-laws of the captain. One is a brother and another is a grandson. They also claim many relatives (61.5%). Close to one-half report that 51-100 percent of the barangay population are their relatives. Quite expectedly, 92 percent say their relatives have helped them in mobilizing the community. This help takes the following forms:

1. involvement in project activities -- 30%
2. providing examples to residents by attending meetings and cooperating in activities -- 24%

3. assisting in the Barangay Health Center's extension work -- 22%
4. assisting information/education campaigns -- 14%
5. entertaining BHW visitors -- 4%

What were some activities undertaken by the BHW under each area of responsibility?

1. The construction of deep wells and improvement of open-dug and shallow wells, and the development of springs occupied a good portion of the BHW's time for environmental sanitation (25.5%). This was particularly true of Batch 1 BHWs. The most recently fielded Batch 3 BHWs concentrated more on the campaign for clean surroundings, building compost pits, using sanitary/covered garbage cans and constructing blind drainage. The installation of water-sealed toilets and construction of wells were the main concerns of Batch 2 BHWs.
2. Nutrition activities consisted mainly of the following: nutrition education, food production/communal gardening, weighing of preschoolers, referrals of malnutrition cases, organizing mothers, and breastfeeding campaigns.

3. Family planning activities involved mainly motivating new acceptors, and dropouts, following up continuing users and acceptors, providing information/giving lectures on contraception and maternal care. Some provided FP supplies or made referrals of cases.
4. Assigned to help in the control of communicable diseases, the BHWs occupied themselves primarily with the immunization campaign. Other activities included: lectures on environmental sanitation, provision of medicine to TB and Leprosy patients, collecting sputum for diagnostic/clinical examination and health education.
5. Medical care activities were mainly concentrated on applying first aid remedies, referrals, wound-dressing, and home nursing for patients.
6. Tasked with recording vital statistics in the barangay, the BHWs busied themselves with the collection of data on births and deaths as well as their causes.
7. Community mobilization by the BHWs took the following forms: calling for barangay assemblies/meetings and conducting group discussions; house-to-house campaigns enjoining residents to work on projects initiated,

demonstrating to them the methods/techniques recommended, and organizing mother's civic, and athletic and choral groups.

Almost all the BHWs have followed pretty closely all or most of the suggested work plans for PUSH.

How much time does the BHW devote to each of the main areas of concern? Table 14 reveals this information. As expected, environmental sanitation and health activities emerged as the BHWs' top concerns. Three out of four BHWs spent from 20-79 percent of their time on environmental sanitation concerns, and approximately two-thirds spent that much time on health activities. Nutrition, family planning and community mobilization were given about a fifth of the BHWs' working time.

Table 15 indicates how the BHWs' felt about their time allocation -- 25 percent and 11.5 percent felt too much time was spent on environmental sanitation and health activities, respectively. Majority, however, considered the time apportioned sufficient for most activities.

To what extent do institutions at the local level provide assistance and support to the BHW. When queried about this, BHWs identified support derived primarily from barangay, municipal and provincial levels. At the lowest political level, BHWs were helped mainly by the barangay captain and other officials/councilman as well as the residents themselves. Schoolteachers and members of the Kabataang Bayan were also mentioned. At the municipal level, the mayor, other municipal

TABLE 14
THE BHWs' REPORTED TIME ALLOCATION

Ratio to total Activities in a typical month (in percent)	A c t i v i t i e s				
	Environmental	Nutrition	FP	Health	Community Mobilization
	(in per cent)				
0	-	1.9	-	-	-
1 - 9	5.8	44.2	67.3	3.8	84.6
10 - 19	19.2	42.3	26.9	9.6	9.6
20 - 29	17.3	5.8	3.8	32.7	5.8
30 - 39	21.2	3.8	1.9	19.2	-
40 - 49	11.5	-	-	21.2	-
50 - 59	15.4	1.9	-	3.8	-
60 or more	9.6	-	-	9.6	-
Total	100	100	100	100	100
	(52)	(52)	(52)	(52)	(52)

TABLE 15
THE BHWs' ASSESSMENT OF TIME ALLOCATION

Assessment	ES	Nutrition	FP	Control of Communica- ble diseases	Medical Care	Community Mobiliza- tion
	(in percent)					
too little	10	18	25	16	6	14
enough	67	77	75	82	83	83
too much	23	6	-	2	12	4
Total	100	100	100	100	101*	101*
	(52)	(52)	(52)	(52)	(52)	(52)

*Over 100 percent due to rounding.

officials, the municipal development coordinator and officer and RHU officers were pinpointed as most helpful to the BHWs. The provincial development coordinator, officer and other staff members of the provincial development staff, the governor and the PUSH project staff were identified as helpful at the provincial level. The NEDA regional director was singled out as supportive of BHW efforts at the regional level.

The type of assistance mentioned at each level consisted of the following:

1. Labor was provided by barangay residents. Residents volunteered their services to carry pipes, cement bags and other materials to the construction sites. The construction of wells/springs and other technical services were generally done by outsiders.
2. Barangay captain and council members helped explain to residents PUSH-recommended projects, assisted in inspecting both site and materials for projects.
3. At the municipal level, help came mainly in the form of facilitating/approving the DPP, site/materials inspection, supervising work activities.
4. At the provincial level, officials checked/approved the DPP, processed papers to expedite fund releases, and gave advice on project implementation and problems encountered.

Asked about problems encountered in their work, two out of three BHWs singled out problems related to people's participation. More specially, they complained about the residents' lack of interest in the projects initiated. They found residents uncooperative, or unwilling to provide labor counterpart for projects, or busy with farm work, or distrustful of projects unless concrete proofs are shown to them. About one-fifth indicated problems related to delays in their salary and allowances. Seven of 13 percent complained about bureaucratic problems -- such as delayed processing of papers and non-liquidation of the PUSH barangay fund.

They attributed some of the causes of these problems to people's dissatisfaction when materials promised are not delivered on time, or when compensation for their work is delayed. Others attributed the people's lack of participation to their preoccupation with livelihood concerns.

Do BHWs consider their pay commensurate to the work expended? Some 60 percent were definitely unhappy/dissatisfied with the salary received. Only 23 percent were satisfied while 17 percent did not comment on it. Notwithstanding this relatively unattractive pay, most BHWs considered as the most rewarding part of their job, the happiness they feel when people avail themselves of the projects initiated and derive benefits from them. The people's non-response, non-participation or very instrumentally-oriented involvement (i.e., interested only when food supplies are given) were the least rewarding aspects of their job.

Impact on the Environment

This section examines the project's impact on the environment, as shown in the sanitation levels of the households, and the respondents' own assessments of these improvements/changes. The analysis relies on the BHWs' reports and records of water sources and methods of waste disposal in the barangay, at the time of her deployment and one year after, as well as on the survey interviews and observations.

Using information gathered by the BHWs at two time periods, we compare the environmental sanitation in the project barangays. It is evident from Table 16 that significant changes have occurred, as shown in the dramatic increase in number of households with sanitary toilets and waste disposal systems. Before PUSH, only 3 percent of Batch 1, 28 percent of Batch 2, and 9 percent of Batch 3 households were reported to have sanitary toilet facilities (either flush or water-sealed). One year after PUSH, approximately one-third to three-fourths of HHs had constructed the recommended water-sealed toilets. Batch 3 registered the highest increase -- 67 percent more HHs had installed the facility, followed by Batch 2 with a 35 percent increase and Batch 1 with 34 percent.

Moreover, one year after the BHWs were fielded in the barangays, two-thirds of HHs had adopted the recommended waste disposal systems, namely: covered trash cans and compost pits for solid wastes and the blind drainage for liquid ones.

TABLE 16

"BEFORE-AFTER" COMPARISON OF ENVIRONMENTAL SANITATION LEVELS IN THE PUSH BARANGAYS

Indicators	Batch 1 N = 20 out of 22		Batch 2 N = 15 out of 20		Batch 3 N = 5 out of 10	
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
	(Sept. 1979)	(Oct. 1980)	(Dec. 1979)	(Jan. 1981)	(June 1980)	(July 1981)
% of HH with sanitary toilet facilities	3	37	28	63	9	76
% of HH with sanitary waste disposal system:						
liquid waste	1	24	22	38	28	67
solid waste	8	64	31	69	35	64
% of HH drawing water from:						
dug well						
open dug well	44	35	10	5	51	51
improved dug well	1	11	8	11	2	28
deep drilled well	6	12	14	17	4	4
shallow driven well	23	15	28	27	30	32
unimproved spring	21	8	18	6	9	1
improved spring	6	15	10	25	0	8
others (rainwater)	0	0	13	12	3	3

Source: Community Baseline Survey Reports of BHWs.

Note: No data for bar. Binanogan and Manlacbo of Batch I Year 2; for bar. Rizal, San Jose, Naile, Garcia and Medina of Batch II Year 2; and for bar. Mambuquiao, Tambac, Aguila, San Rafael and Bunga of Batch III Year 2.

Also significant to note are the changes in the HHs' water sources. Though less dramatic changes are manifested in percentage terms, one year of project implementation has definitely made some difference. There are now less HHs drawing water from open dug wells (from 44% to 35% for Batch 1; 10% to 5% for Batch 2), shallow driven wells and unimproved springs. Improved dug wells and springs have now become the main sources of water for many HHs.

In our survey of the BHWs' activities, we noted the high priority given to the construction of environmental sanitation infrastructures. In their own assessment of the amount of time allocated to each of the seven responsibilities, environmental sanitation emerged as the activity to which they felt they had devoted "too much" time -- close to one-fourth of BHW-respondents said this. The BHWs usually undertake the preparatory work in the construction of wells and springs, water-sealed toilets and the like. They supervise the construction of shallow-driven wells and coordinate with a number of offices/agencies to ensure project completion at the earliest possible time. In fact, 36.5 percent of BHWs spent more than 40 percent of their time on ES activities alone and for 38.5 percent, from 20-39 percent of their total working time.

Our 1980 survey confirms these reports of the BHWs. Table 17 shows the percentage of HHs with sanitary waste disposal facilities in the three batches. For the whole sample, 39 percent reported they now have water-sealed and flush toilets, with Batch 2 reporting the highest percentage. The rest either have no toilets or use antipolo and open pit systems.

TABLE 17
 SELECTED ENVIRONMENTAL SANITATION PROGRESS INDICATORS

	Batch 1	Batch 2	Batch 3	Total
1. % of HH with sanitary toilet facilities	43	50	23	39
2. % of HH with s sanitary garbage disposal	55	63	74	62
3. % of HH with blind drainage	21	22	21	22
Total N	(257)	(230)	(117)	(604)

Two out of three respondents reported that the toilets were constructed in 1979 and 1980 (the years when PUSH began operations) and 32 percent gained their materials from PUSH specifically. Sixty-nine percent indicated that the materials were given free to them.

Close to two-thirds of the surveyed HHs use sanitary garbage disposal systems. At the time the interviews were conducted, more Batch 3 and 2 HHs (74% and 63%, respectively), compared with Batch 3, 55%) had adopted the recommended disposal system. It is quite sensible that Batch 1 adopters may have discontinued using the BHW-described methods, after one year. Apparently, the use of the blind drainage has not been too popular -- only one-fifth of HHs use this system of disposing liquid wastes.

What has been the impact of these sanitation efforts of the BHWs on PUSH? Have environmental conditions improved? Are surroundings possibly cleaner?

To assess the environmental impact, we used both the interviewers and respondents' report of observed physical changes. Our survey indicated the following notable changes:

62 percent have adequate provision for drainage, with no pools of stagnant water under or around the house.

72 percent have clean surroundings with no animal waste visible.

49 percent have trash cans/compost pits and surroundings are clean.

36 percent of HWs report they have used various methods to exterminate pests and there are now relatively fewer pests.

32 percent of HHs were observed to be relatively free of animals such as pigs, dogs and chicken roaming animal in the premises.

Table 18 shows the observed physical changes by batch/project duration. Batch 1 and 2 appear to have some edge over Batch 3 on most indicators of ES.

These environmental changes have been highly conspicuous too -- most noticeable to the visitors/researchers were fences sporting a brand new coat of paint in eye-catching white and green, compost pits, plastic trash cans and clean surroundings. The residents have noticed the changes too -- 90 percent of Batch 1, 85 percent of Batch 2, and 59 percent of Batch 3 respondents (Table 19). They noticed in particular, the improved street conditions and cleaner surroundings.

Responsible for these changes are the BHWs who have made environmental sanitation a priority concern. This is acknowledged by three out of four respondents. As the key person in the project, the BHW is known by almost all (93%) respondents though only 52 percent have availed themselves of PUSH services. These services have included the provision of toilet bowls, kitchen sinks, construction of wells and toilet facilities (72 percent reported this), cleanliness/environmental education, day-care and feeding programs and health education lectures.

TABLE 19
LEVEL OF ENVIRONMENTAL SANITATION (ES) BY BATCH

Indicator	B a t c h			Total
	1	2	3	
	(in percent)			
Observed environmental conditions of HHs:				
adequate drainage: no pools of stagnant water	65	59	59	62
adequate waste disposal: no animal waste visible	72	74	71	72
Adequate garbage facilities: clean surroundings	48	49	50	49
no pigs/dogs/chicken roaming around premises	29	34	36	32
markedly fewer pests in HHs (as reported by R's)	41	34	30	36

TABLE 19
SELECTED PROGRESS/IMPACT INDICATORS

Indicators	Batch 1	Batch 2	Batch 3	Total
1. % availing of PUSH services	72	58	39	62
2. % who know BHW	95	97	83	93
3. % who have noticed changes in barangay	90	85	59	82
4. % who attribute changes to BHW	82	75	55	75
Total N	(257)	(230)	(117)	(604)

The use of these commodities/services and the environmental changes associated with their use are related quite significantly with selected socioeconomic indicators.

Three of the five indicators of environmental sanitation are significantly associated with husband and wife's educational levels and with total household income (Table 20). This means that households with "higher" incomes and education also have more sanitary toilet facilities and cleaner surroundings, as evidenced by a relative absence of garbage piles and animal waste in the yard. The proportion of "low" (below ₱500) and "high (above ₱5,000) income households with flush and water-sealed toilets and those with no toilets at all is shown in Table 21. Compare 38 percent of low vs. 58 percent of high income HHs with water-sealed toilets, and 27 percent of low vs. 18 percent of high income HHs with no toilets. This same pattern is revealed when we examine the relationship between income/education and relative presence/absence of garbage and animal waste (see Tables 21.1-21.4 in Annex C-F).

As expected, the use of relatively safe water sources (i.e. deep-drilled wells, improve springs, piped-in water) is significantly associated with the use of sanitary toilet facilities (Table 22). Furthermore, these wells/springs were constructed/improved mainly through the PUSH project (61 percent vs. 31 percent under other projects). Similarly, most water-sealed toilets were installed through the PUSH project.

TABLE 20

A SUMMARY OF RELATIONSHIP BETWEEN HH INCOME, EDUCATIONAL
ATTAINMENT (HH HEAD/HW) AND ENVIRONMENTAL SANITATION (ES)
INDICATORS FOR TOTAL SAMPLE

ES Indicators	Chi-Square	Degree of Freedom	Level of Significance
<u>BY HH Income</u>			
1. presence/absence of:			
adequate drainage	1.3	4	N.S.
pests/insects	2.3	4	N.S.
animal waste	13.75	4	.05
garbage	7.8	4	between .05 and .10
2. type of toilet facilities	11.19	12	.001
<u>By HWs' Education</u>			
1. presence/absence of:			
Adequate drainage	1.2	3	N.S.
pests/insects	1.6	3	N.S.
animal waste	4.9	3	N.S.
garbage	8.0	3	.05
2. Type of toilet facilities	38.37	12	.001
<u>By HH heads' Education</u>			
1. adequate drainage	3.9	3	N.S.
pests/insects	2.9	3	N.S.
animal waste	7.5	3	.05
garbage	6.4	2	between .05 and .10
2. type of toilet facilities	44.6	12	.001

TABLE 21
HOUSEHOLD INCOME BY TYPE OF TOILET FACILITY

Type of toilet Facility	Income Level					Total
	Below P500	P500- 999	P1000- 2000	P2001- 5000	P5001 & over	
none	27	16	20	17	13	20 (114)
flush toilets	1	0	0	0	6	1 (7)
water-sealed	37	39	41	41	50	41 (236)
antipolo	28	32	21	27	22	26 (153)
open pit or pail system	7	13	18	15	8	12 (69)
Total	100	100	100	100	100	100 (579)
N	(162)	(110)	(118)	(107)	(82)	

chi-square = 41.187 with df = 16 $p < .001$

TABLE 22
HOUSEHOLD WATER SUPPLY BY TYPE OF TOILET
FACILITY USE

Type of Toilet Facility	Household Water Supply System				Total
	piped, in-house	deep well/ improved spring	unimproved spring	open dug well	
none	13	19	31	21	20 (123)
flush toilets	5	1	0	0	1 (7)
water-sealed toilets	57	44	20	37	40 (244)
antipolo	20	30	27	26	26 (159)
open pit or pail system	5	7	22	16	12 (71)
Total	100	100	100	100	100 (604)
N	(123)	(194)	(104)	(183)	

chi-square = 71.423 with df = 12 p < .001

It is interesting to note that in some barangays, households reportedly maintain two types of toilet systems -- the recommended water-sealed system which is used when water supply is adequate and the antipolo system, whenever water becomes scarce.

What is the level of ES outputs (i.e., how many projects have been implemented and/or completed) in the sample barangays? Tables 23-24 show the level of accomplishment, using the following scoring scheme:

<u>With completed projects</u>			
<u>Score</u>	<u>Wells/Springs</u>	<u>Household Toilet Facilities (HTFS)</u>	<u>Blind Drainage (BD) and other ESIs</u>
5	developed spring or 1-2 deep drilled wells (DDWs) or more than 9 shallow-driven wells (SDWs)	20 or more	some
4	1-2 SDWs or improved open-dug well (IODW) = 1 DDW with 15% or less users	20 or more	some
3	none	20 or more	some
2	none	less than 10	some
1	none	none	some

<u>With ongoing projects</u>	
3	spring being developed or DDWs
2	1 or 2 SDWs or 1 IODW or an equivalent of 8 or more HTFS
1	BDs only and/or some other ESIs

TABLE 23
LEVEL OF ES OUTPUTS

ES Output Score	N	%
0	3	5.8
1	3	5.8
2	2	3.8
3	10	19.2
4	7	13.5
5	11	21.2
6	6	11.5
7	10	19.2
Total	52	100

TABLE 24
DISTRIBUTION OF ES OR PERCENT
OF HHs AVAILING OF ES
OUTPUTS

Category (Percent of HHs)	N	%
0	3	5.8
1 - 9	6	11.5
10 - 19	14	26.9
20 - 29	17	32.7
30 - 39	9	17.3
40 - 49	3	5.8
50 and over	-	-
Total	52	100

The Prediction of Environmental Sanitation (ES) Level

Block 1 Hypotheses

Using 2-stage least squares procedures, we tested the effects of a number of independent variables on the households' ES levels. The variables and their definitions are listed in Table 24 (see Annex G). Their means and standard deviations are presented in Table 26 for the total sample. Those for Batch 1, 2 and 3 are shown in Table 26.1, Annex H.

We tested the hypotheses that:

- 1) ENVIRON = f (ESKAP, BHW-ES, USE-ES, Educ., Income)
- 2) ESKAP = f (BHW-ES, LEVEL-ES, Educ., Income)
- 3) USE-ES = F (LEVEL-FS, DISTR-ES, DUR)

The results of the regression analysis are presented in Tables 27-30. For the first equation, only one indicator of USE-ES (i.e. whether HH received toilet facility) is significantly associated with observed and perceived ENVIRON levels. The rest of the hypothesized predictors do not have any appreciable effects on ENVIRON, although the signs of the coefficients are generally in the direction expected.

The second hypothesis on ESKAP determinants is supported by the regression results. As may be gleaned from Table 29 (see also Table 29.1) in Annex I), the variables that significantly affect ESKAP are the ratio of BHW-ES activities, the perceived level of BHW-ES services, the level of ES outputs, income, education and project duration. The higher the level of ES outputs and BHW-ES efforts, the greater the use of ES facilities and services.

TABLE 26
 MEANS AND STANDARD DEVIATIONS OF VARIABLES IN THE REGRESSION
 Block 1: Environment (Total Sample)

	Means	SD
Observed ENVIRON level	2.26	1.15
Perceived ENVIRON level	0.88	0.33
Receipt and use of ES materials	0.47	0.16
Availed of BHW services	0.62	0.11
Perceived level of BHW services	2.14	0.55
Ratio of ES to total services	3.98	1.80
Quality of BHW services	1.56	0.56
Use of sanitary toilet facility	1.96	0.23
Use of potable HH water supply	4.51	0.62
Use of Sanitary garbage disposal	1.93	0.21
Use of pest control	1.12	0.17
Level of ES outputs	4.26	1.90
Distribution of ES outputs	2.60	1.15
Income	5.18	3.78
Wife's education	6.32	3.69
Duration	8.41	3.44

TABLE 27

REGRESSION COEFFICIENTS AND T-VALUES IN THE PRECISION OF
OBSERVED ENVIRONMENTAL SANITATION (ES) LEVEL

Independent Variables	Regression Coefficients (T-values)							
	Total Sample		Batch 1		Batch 2		Batch 3	
constant	-11.35		11.07		-102.01		-18.95	
received toilet facility	-4.76	(3.61)**	-16.98	(7.98)**	-3.47	(0.11)	47.44	(2.33)**
availed BHW services	02.38	(0.04)	25.06	(0.23)	-86.92	(0.11)	-49.51	(0.27)
perceived level of BHW services	0.61	(0.05)	-0.63	(0.02)	-3.10	(0.10)	-1.48	(0.01)
ratio of ES to total activities	0.25	(0.03)	0.21	(0.25)	1.36	(0.07)	-0.29	(0.02)
quality of BHW services	-0.09	(0.05)	0.27	(0.01)	10.17	(0.10)	-0.17	(0.00)
use of potable water	-0.10	(0.01)	-0.72	(0.03)	-5.04	(0.10)	0.11	(0.00)
use of sanitary toilets	-4.97	(0.07)	1.47	(0.02)	-18.72	(0.10)	-6.24	(0.11)
use of sanitary garbage disposal	-2.81	(1.14)	-0.54	(0.01)	-28.61	(0.10)	1.70	(0.02)
use of pest control	-2.10	(0.03)	2.94	(0.04)	31.62	(0.10)	2.67	(0.04)
education	0.29	(0.06)	-0.06	(0.03)	0.58	(0.07)	-0.21	(0.02)
income	0.20	(0.08)	-0.02	(0.08)	1.56	(0.09)	-0.05	(0.01)
duration	0.37	(0.23)						
R ²	0.05		0.08		0.12		0.33	
F-value	2.05		1.80		2.65		2.24	
N	525		241		223		61	

* t-values significant at .10 level

** t-values significant at .05 level

TABLE 28

REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION OF
PERCEIVED ENVIRONMENTAL SANITATION (ES) LEVEL

Independent Variables	Regression Coefficients (T-values)							
	Total Sample	Batch 1		Batch 2		Batch 3		
constant	3.84	1.28		0.22		-0.73		
received toilet facility	1.62 (4.35)**	1.43 (2.79)**	1.41 (0.14)	4.56 (0.57)				
availed BHW services	-1.26 (0.08)	-1.14 (0.04)	-2.56 (0.01)	-4.62 (0.06)				
perceived level of BHW services	-0.17 (0.05)	0.01 (0.00)	-0.20 (0.02)	-0.07 (0.00)				
ratio of ES to total activities	-0.06 (0.03)	0.01 (0.05)	0.15 (0.03)	-0.02 (0.00)				
quality of BHW services	0.09 (0.16)	-0.18 (0.02)	0.51 (0.02)	-0.03 (0.00)				
use of potable water	-0.01 (0.00)	0.03 (0.01)	0.04 (0.00)	0.02 (0.00)				
use of sanitary toilets	1.73 (0.08)	-0.20 (0.01)	-1.00 (0.02)	-0.25 (0.01)				
use of sanitary garbage disposal	0.87 (0.11)	0.24 (0.02)	-0.18 (0.00)	0.16 (0.00)				
use of pest control	0.40 (0.02)	0.38 (0.02)	0.76 (0.01)	0.15 (0.01)				
education	-0.09 (0.07)	-0.01 (0.02)	0.05 (0.02)	-0.67 (0.02)				
income	-0.06 (0.09)	0.00 (0.03)	0.05 (0.01)	0.03 (0.01)				
duration	-0.01 (0.20)							
R ²	0.05	0.02	0.04	0.21				
F-value	2.20	0.51	0.82	1.20				
N	525	241	223	61				

* t-values significant at .10 level

** t-values significant at .05 level

TABLE 29
 REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
 OF ENVIRONMENTAL SANITATION PRACTICE (ES-K/P)

Indicators: a) use of sanitary toilet facility
 b) use of potable HH water supply
 c) use of sanitary garbage disposal system
 d) use of pest control methods

Independent Variables	Regression Coefficients (T-values) for Total Sample							
	Indicator A		Indicator B		Indicator C		Indicator D	
constant	1.05		4.02		2.31		0.52	
ratio of BHW-ES activities	0.04	(1.25)	-0.19	(3.21)**	-0.03	(1.40)	0.02	(0.72)
quality of BHW services	-0.04	(0.46)	0.04	(0.19)	-0.04	(0.65)	0.08	(0.91)
perceived level of BHW services	0.06	(0.57)	-0.22	(1.14)	0.05	(0.75)	0.07	(0.81)
level of ES outputs	0.01	(0.42)	0.24	(4.31)**	-0.07	(3.51)**	0.03	(1.13)
income	0.02	(1.67)*	0.01	(0.42)	0.02	(2.02)**	0.02	(1.24)
education	0.04	(2.39)**	-0.00	(0.10)	0.02	(1.52)	0.03	(2.11)**
duration	0.04	(2.62)**	0.07	(2.45)**	-0.03	(2.59)**	-0.02	(1.33)
R ²	0.04		0.06		0.07		0.03	
F-ratio	2.97		5.16		5.27		1.90	
N	525		525		525		525	

* t-value significant at .10 level

** t-value significant at .05 level

TABLE 30
REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION OF USE
OF ES

Indicators: a) receipt and use of ES materials
b) availed of BHW services

	Regression Coefficients (T-values)							
	Total Sample		Batch 1		Batch 2		Batch 3	
	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>	<u>A</u>	<u>B</u>
level of ES activities	0.00 (0.23)	0.02 (1.10)	-0.06 (1.67)*	-0.01 (0.31)	0.07 (2.74)**	0.04 (1.72)*	-0.04 (1.31)	-0.02 (0.41)
distribution of ES outputs	0.02 (0.64)	-0.00 (0.04)	-0.02 (0.26)	-0.01 (1.45)	0.02 (0.58)	0.01 (0.33)	0.11 (2.04)**	0.06 (0.81)
duration	0.05 (5.46)**	0.03 (4.86)**						
R ²	0.05	0.04	0.01	0.01	0.03	0.01	0.05	-0.02
F-ratio	10.32	8.78	2.01	1.59	4.69	1.82	2.49	0.49
N	525	525	241	241	223	223	61	61

* significant at .10 level

** significant at .05 level

Impact on Health

A major objective of the PUSH project is to reduce the incidence of TB, tetanus, and gastro intestinal infections by 25 percent over the next five years. TB and gastroenteritis, together with pneumonia, are the leading causes of death in the area, while tetanus is the fourth leading cause of infant mortality.

The region suffers from a high TB and pneumonia rate -- in 1980, the morbidity rates were 243.2 and 321.3 per 100,000 population, respectively. As Table 31 shows, the ten leading causes of morbidity for the 1975-1980 period were bronchitis, influenza, pneumonia, gastroenteritis, TB, measles, dysentery, whooping cough, infectious hepatitis and malignant neoplasm. Though not consistently reported/recorded, intestinal parasitism was the fifth leading cause of morbidity in 1978 with a rate of 197,2/100,000.

The leading causes of death in the population are presented in Tables 32 and 33. In 1980 the infant mortality rate (IMR) was 55.6 per 1,000 live births and the main causes were bronchopneumonia, gastroenteritis, prematurity, tetanus and bronchitis. Malnutrition was ranked as the no. 10 killer in the region which, ironically, is a net exporter of food.

A 1978 survey of the Food and Nutrition Research Institute showed that the highest incidence of malnutrition was found among children aged one year -- with about 80 percent suffering from varying degrees of malnutrition (Table 34).

TABLE 31
TEN LEADING CAUSES OF MORBIDITY IN REGION 6
RATES/100,000 POPULATION
5-YEAR AVERAGE (1975-1979) AND 1980

Causes	1980		5-Year Average (1975-79)	
	No.	Rate	No.	Rate
1. Bronchitis	24507	540.76	21967	484.72
2. Influenza	15152	334.34	16379	361.41
3. Pneumonia	14582	321.32	7591	167.50
4. Gastroenteritis	14470	319.29	13590	299.87
5. TB, all forms	11022	243.21	13595	299.98
6. Measles	2562	56.53	1412	31.16
7. Dysentery, all forms	1617	35.68	1471	32.46
8. Whooping cough	1013	22.35	1668	36.81
9. Infectious hepatitis	843	18.60	516	11.39
10. Malignant neoplasm	149	3.29	162	3.95

Source: Ministry of Health, Region 6 Annual Report, 1980.

TABLE 32

TEN LEADING CAUSES OF MORTALITY IN REGION 6
 RATES/100,000 POPULATION
 5-YEAR AVERAGE (1975-1979) AND 1980

Causes	1980		5-Year Average (1975-1979)	
	No.	Rate	No.	Rate
1. Pneumonias	5013	110.62	4669	113.85
2. TB, all forms	2931	64.67	3686	89.88
3. Gastroenteritis	1379	30.43	1266	30.87
4. CVA (Cerebro-vascular accidents)	899	19.84	776	18.92
5. Malignant neoplasm	578	12.75	423	10.31
6. Bronchitis	369	8.14	648	15.80
7. Heart diseases	295	6.51	320	19.99
8. Tetanus, all forms	273	6.02	206	5.02
9. Measles	248	5.47	98	2.39
10. Malnutrition	205	4.52	1073	26.16

Source: Ministry of Health, Region 6 Annual Report, 1980.

TABLE 33
 TEN LEADING CAUSES OF INFANT MORTALITY IN REGION 6
 RATE/100,000 LIVE BIRTHS
 5-YEAR AVERAGE (1975-1979) AND 1980

Causes	1980		5-Year Average (1975-1979)	
	No.	Rates	No.	Rates
1. Bronchopneumonia	1826	20.28	1584	17.25
2. Gastroenteritis	577	6.40	639	6.96
3. Prematurity	457	5.07	494	5.38
4. Tetanus neonatorum	261	2.89	326	3.55
5. Bronchitis	249	2.75	410	4.47
6. Congenital debility	241	2.67	257	2.79
7. Asphyxia neonatorum	143	1.59	134	1.46
8. Sepsis neonatorum	72	0.79	56	0.61
9. Measles	54	0.59	28	0.31
10. Malnutrition	51	0.56	91	0.99

Source: Ministry of Health, Region 6 Annual Report, 1980.

TABLE 34

PERCENTAGE DISTRIBUTIONS OF 0-6 YEAR OLD CHILDREN
BY AGE AND NUTRITIONAL STATUS, PHILIPPINES: 1978
(In per cent)

Age (in years)	Number of Samples	Normal	Overweight	U n d e r w e i g h t			
				Total	Mild	Moderate	Severe
Less than 1	498	38.2	13.4	48.4	30.5	15.5	2.4
1	440	17.3	3.0	79.8	41.8	33.2	4.8
2	485	20.2	3.3	76.5	49.7	25.4	1.4
3	452	25.4	1.8	72.8	50.2	21.5	1.1
4	440	28.4	2.3	69.3	55.7	13.2	0.4
5	502	26.5	1.2	72.3	56.4	15.7	0.2
6	457	33.7	1.8	64.6	42.4	29.8	1.3
TOTAL	3,274	27.2	3.9	68.9	46.6	20.6	1.6

Source: First Nationwide Nutrition Survey of the Philippines, 1978.
Food and Nutrition Research Institute.

The project outputs that are likely to have a direct impact on the health of the residents are the water-sewage component, nutrition, and preventive as well as curative health services. Preventive health services include education, hygiene/sanitation activities and immunizations. All these services will be delivered by the BHWs.

This section of the paper, therefore, looks firstly, at the level of outputs attained by the project as revealed in the accomplishments of the immunization drive and the BHW's record of vital events in the barangay, and secondly, at the reported health status by the residents themselves. The BHW reports at the start of the project and one year after, as well as the survey results, constitute the main source of data for this analysis.

What is the health situation in the PUSH barangays? Table 35 presents selected health indicators gleaned from the files of the BHWs.

Two diseases -- TB, leprosy -- receive special attention from the BHWs. It must be noted that the region is the site of the fourth largest of eight sanitariums in the country. This is the Western Visayas Sanitarium in Sta. Barbara, Iloilo, where 247 patients who are disabled, destitute or suffering from advanced/highly infectious stage of leprosy are confined.

TABLE 35

"BEFORE-AFTER" COMPARISON OF HEALTH LEVELS IN THE PUSH BARANGAYS

Indicators	Batch 1*		Batch 2		Batch 3	
	N=20 out of 22		N=15 out of 20		N=5 out of 10	
	Year 1 (Sept. 1979)	Year 2 (Oct. 1980)	Year 1 (Dec. 1979)	Year 2 (Jan. 1981)	Year 1 (June 1980)	Year 2 (July 1981)
Number of PTB cases	19	30	55	52	10	12
% of population	0.12	0.20	0.4	0.5	0.3	0.4
Number of Leprosy cases	4	2	2	5	0	0
% of population	0.02	0.01	0.02	0.05	0	0
% of Children (0-6 Years) immunized:						
BCG	13	27	26	32	26	44
DPT						
1st dose	2	11	11	20	14	15
2nd doses	1	7	0.7	14	8	18
booster	0.03	1	0.3	8	4	14
Polio	0.1	0.3	2	10	6	6
Cholera	0.8	4	5	17	0	16

Source: Community Baseline Survey Reports of BHWs.

Note: No data for barangays Binangonan and Manlacbo of Batch I Year 2; for bar. Rizal, San Jose, Naile, Garcia and Medina of Batch II Year 2; and for bar. Mambuquiao, Tambac, Aguila, San Rafael and Bunga of Batch III Year 2.

*In Year 2, 9 out of 20 Batch 1 barangays reported TB cases compared to 6 out of 20 barangays in Year 1.

The region had a total of 2,099 registered cases of leprosy as of 1980, which was 52 cases more than in 1974. Of these, 1771 are active cases. Iloilo has 56.7 percent of all recorded cases. Aklan has 5.2 percent, Antique, 7.9 percent and Capiz, 7.4 percent. The rate for Iloilo is 10.78 per 10,000 population, for Aklan, 3,341 Antique, 4.81; and Capiz 3.04 per 10,000.

Though TB and leprosy tend to be generally underreported, partly due to the stigma attached to these diseases and to the absence of diagnostic laboratory examination, Table 35 shows that the TB rate is relatively high in Batches 2 and 3 -- 0.4 percent and 0.3 percent at Time 1, when the BHWs were first deployed and 0.5 percent and 0.4 percent, respectively, after one year of operations. The increase in the number of TB cases from 19 to 30 in Batch 1 is a result of improved reporting/recording of cases by the BHW. In Year 1 only six out of 20 barangays reported TB cases, during the second year, three more barangays completed their reports of TB cases, bringing the total of cases to 30 in nine of the 20 barangays. The TB rate for the region, as of 1980, was 0.23 percent. No leprosy cases were reported in Batch 3 barangays. Batch 2 had five cases for 1981 and Batch 1 had two cases recorded as of October 1980.

A primary health care project emphasizes the prevention of illnesses through health education and immunization. BCG and DTP immunizations are given to children under the public health program. As of 1978, 82 percent of all preschoolers in the Philippines had received BCG shots. The percentage of children with BCG immunization varied among regions -- from a low 59.2 percent in Central Visayas to a high 96 percent in Cagayan. The coverage rate for Western Visayas was 67.3 percent (Table 36).

TABLE 36

COVERAGE OF DTP AND BCG IMMUNIZATION AMONG PRE-SCHOOLERS
AND NEW ENTRANTS TO SCHOOL BY REGION, PHILIPPINES: 1978

		DTP (% Fully Immunized)	BCG (% Coverage)
	PHILIPPINES		<u>81.9</u>
	NATIONAL CAPITAL REGION	66.0	
I	Ilocos	64.4	93.9
II	Cagayan	73.7	96.0
III	Central Luzon	52.7	91.8
IV	Southern Tagalog	52.4	64.4
V	Bicol	34.7	92.3
VI	Western Visayas	44.7	67.3
VII	Central Visayas	33.0	59.2
VIII	Eastern Visayas	36.9	73.0
IX	Western Mindanao	75.0	76.0
X	Northern Mindanao	68.8	91.7
XI	Southern Mindanao	42.0	83.0
XII	Central Mindanao	38.4	67.5

Source: Ministry of Health

The proportion of children fully immunized against diphtheria, polio and typhoid is comparatively lower than that against tuberculosis. As of 1978, the percentage ranged from a low 33 percent in Central Visayas to a high 75 percent in Western Mindanao. The coverage rate for Western Visayas was 44.7 percent.

It will be noted from Table 35 that the immunization campaign of the Health Ministry has not reached the majority of its clientele in the remote rural areas of Panay Island. In the project barangays under study, the baseline survey showed that only one-fifth of children 0-6 years old had received BCG immunizations. Very few had DPT, polio and cholera typhoid vaccinations.

One of the first tasks of the BHW therefore was to assist the program so that RHU immunization teams could reach their target population. The deployment of the BHWs in 1979 and 1980 appear to have significantly increased the number of immunizations. In all three batches, BCG immunizations increased from 13 to 27 percent in Batch 1 and from 26 to 44 percent in Batch 3. More DPT vaccines have also been administered, though less than one-fifth of the children 0-6 years of age have received this type of immunization. Fewer children have received polio and cholera-typhoid vaccinations.

Our 1980 survey, however, showed a different picture -- for the total sample, the following results were indicated: 54 percent of children 0-6 years were reported by our respondents to have received all types

of immunizations, 34 percent had some immunizations and only 12 percent had none at all (Total N=496). Difference by batch were evident. Relatively more Batch 1 children had been immunized -- 90 percent compared with 86 percent and 85 percent of Batches 2 and 3.

Mothers whose children did not receive immunizations gave the following reasons: children were either sick at the time or were afraid of injections, or the mother did not know about it or was not reached at home (Table 37).

As mentioned earlier, the BHWs have concentrated most of their activities on environmental sanitation and health concerns during their first year of work. Close to 80 percent have spent from 20 to 80 percent of their time in the control of communicable diseases and medical care.

Though it is too early to assess health impacts in terms of reductions in morbidity and mortality rates, our survey interviews obtained from indications of the residents' health levels. Table 38 presents some of these initial impacts.

1. Only one-third of respondents had been ill during the three-month period immediately before the survey. This was true for all three batches, which appears to preclude. Therefore, any direct effects of the project, illnesses commonly reported were cough, cold and/or fever, bodily aches/pains. Most household (81%) had at least one member taken ill during the specified period.

TABLE 37

REASONS WHY CHILDREN DID NOT RECEIVE IMMUNIZATIONS

	<u>N</u>	<u>%</u>
1. Child was ill/on vacation at time immunizations were scheduled	59	37
2. R was informed of the immunization in school/was not available at the time/had weather conditions	64	40
3. Child/husband feared consequences of immunization	30	19
4. Supplies not available in the BHC/can't afford to pay private doctor	<u>7</u>	<u>4</u>
	160	100
Not Applicable Cases	444	74

TABLE 38
SELECTED HEALTH PROGRESS AND IMPACT INDICATORS

Indicators	Batch 1	Batch 2	Batch 3	Total
1. % of HWs who got sick in past 3 months	30	32	36	33
2. % of children with intestinal parasitism	25	26	22	24
3. % of children with scabies	28	21	15	21
4. % of HWs satisfied with family's health	71	71	75	73
5. % of HWs satisfied with own health	62	58	60	60
6. % of HWs assessing health status as fairly good/very good	71	67	69	67
7. % of HWs assessing children's health status as fairly good/very good	88	91	89	89
Total N	(257)	(230)	(117)	(604)

2. About one-third of all household members had suffered some illnesses ranging from a minor acid, headache, or body weakness to more serious ones such as gastroenteritis (symptoms reported are diarrhea, vomiting, abdominal pains) and pneumonia.
3. Close to one-fourth (24%) of all household members had some form of respiratory infection, but only 5 percent reported any gastrointestinal infections.
4. Parasitic infection among children was reported by only one-fourth (24%) of the respondents. There were no differences in the reported rate of parasitism by batch, income and educational attainment.

The percentage reporting parasitism among children is incredibly low and may be partly attributed to a low level of awareness/concern for this type of infection. It is probably not even considered an illness by most mothers, nor reported by the children themselves.

Health statistics for the region showed a high prevalence rate for parasitism in 1976 -- 155.2 per 100,00 population. This increased to 197.2 in 1978 and was the fifth leading cause of morbidity in the region. No statistics were reported for the years 1977, 1979-1981.

A survey conducted in 1975 and 1976, however, showed a high rate of parasitism not only in the Visayas but also in Manila. In the 1976 Manila Survey, the findings showed that 84.6 percent and 91.7 percent of children 1-6 years and 7-12 years old, respectively, were found positive to at least one parasite. The most common intestinal parasite harbored was ascaris lumbricoides. The 1975 Visayan Survey, on the other hand, indicated the following comparative figures -- 83.4 percent of children 1-6 years old and 86.5 percent of those 7-12 years were positive to at least one parasite. Furthermore, the survey also revealed significant rural-urban differences. As expected, more rural subjects were found positive to intestinal parasites (82% of 3,728 vs. 70% of the 4,164 urban sample). This rate is decidedly better than a decade ago, when 90.6 percent of all subjects studied in 1964-65 (N = 4164) were found positive to parasitism.

5. Very few (21%) mothers reported the prevalence of scabies among children.
6. A good percentage (73%) of the housewife-respondents are generally satisfied with their familys' health; slightly less (60%) are satisfied with their own health. By and large, they consider themselves fairly healthy (67%) and their children to be also fairly/very healthy (89%).

On health beliefs and practices

Health education is considered an important aspect of primary health care. For this reason, we asked our respondents 1) their beliefs on how to prevent illness and how to speed up the recovery of a sick person; and 2) their health care practices -- more specifically, the people they consult for pre-and post-natal care, children's illnesses, etc. Some of these information can be gleaned from Tables 39 and 40.

The importance of environmental sanitation -- of clean surroundings and sanitary toilet and garbage disposal facilities -- is stressed by more than one-half of the respondents. Another 25 percent emphasizes factors related to personal hygiene and 14 percent indicate good nutrition as the key to better health. These are the very factors that BHWs stress in their health and nutrition information and dissemination activities.

On factors perceived as contributing to the recovery of patients, 72 percent pointed out the importance of consulting a doctor, taking the prescribed medicine, or bringing the sick to the barangay health center. Another 16 percent prescribed good food, rest, and isolation of the patient to prevent the disease from spreading especially to children. Eleven percent recommended the herbolario and the use of medicinal herbs and plants.

TABLE 39
FACTORS PERCEIVED AS CONTRIBUTING TO ILLNESS-PREVENTION

	<u>N</u>	<u>%</u>
Factors related to environmental sanitation: (e.g. clean surroundings and sanitary toilet facilities; use of clean serving and kitchen utensils)	308	51
Factors related to personal hygiene: (e.g. observed proper/sanitary food handling; drink potable water; proper child care; avoid exposure to sick persons)	149	25
Factors related to good nutrition/Food habits: (e.g. eat well-balanced diet; avoid too much alcohol)	84	14
Factors related to health habits: (e.g. avoid staying late at night; avoid exposure to sun and rain; exercise and relaxation; avoid overwork)	50	8
Factors related to psychological/ religious reasons: (e.g. avoid worries, forget problems; prayer)	12	2
Factors related to medical care: (e.g. immunization; have regular medical consultation)	1	0.2
	604	100.0

TABLE 40
 FACTORS PERCEIVED AS CONTRIBUTING TO EARLY RECOVERY
 FROM ILLNESS

	<u>N</u>	<u>%</u>
Consult doctor; take prescribed medicine; bring sick person to Barangay Health Center; call midwife	433	72
Proper care of sick person; enough rest and exercise; eat well-balanced diet; isolate sick person especially from children	100	17
Bring sick person to herbolaryos; cure sick person with medicinal herbs and plants	69	11
	<hr/> 602	<hr/> 100
No answer	2	

The project likewise encourages the residents to consult first the BHW on any medical problems that may arise in the barangay. They are trained to screen patients and refer those needing immediate care to the nearest medical facility. Table 41 provides some indications on the extent to which the BHWs have been utilized for this purpose.

Only a few residents have consulted their BHWs on common and acute illnesses; 5 percent have sought advice from the BHWs on nutrition and 3 percent on child care. As expected, most of the residents consult RHU and private midwives on pre- and post-natal care as well as family planning; RHU and private physicians are consulted on common and acute illnesses. A good percentage however do not seek any professional help on illnesses, or other matters affecting their family's health.

TABLE 41

PERSONS CONSULTED BY TYPE OF HEALTH CONSULTATION

Persons Consulted	Common Illnesses (e.g. cough, cold, etc.) %	Acute Illnesses %	Pre-Natal Care %	Post-Natal Care %	Family Planning %	Advice on Nutrition %	Advice on Child Care %
Did not consult	22	58	22	39	53	64	70
Consulted hilot, babaylan, mananabang, etc.	5	8	15	25	5	8	6
Consulted BHW	3	1		1	2	6	3
Consulted RHU or private midwife	30	9	42	25	29	16	15
Consulted RHU or private nurse	2	1	3	2	4	4	5
Consulted RHU or private doctor	<u>38</u>	<u>22</u>	<u>18</u>	<u>8</u>	<u>8</u>	<u>3</u>	<u>3</u>
	100	100	100	100	100	100	100

Impact on Nutrition

As envisioned by the project, the BHWS would serve as key persons in the barangay nutrition program--initiating and conducting feeding programs, disseminating information on the requirements of good nutrition, and assisting in food production campaigns. To be able to establish the priorities of the barangay nutrition program, the BHWS were expected to periodically weigh children aged six years and below to determine their nutritional levels. In cases where a nutrition program already exists, her role becomes supportive to that of the nutrition worker of the National Nutrition Council.

Table 42 presents a summary of relevant information on the nutritional status of preschoolers in the project barangays as collected/recorded by the BHWS. "Before-after" data were obtained from 40 out of 52 samples barangays. The nutritional levels are indicated by batch.

For the total sample, only 18 percent of children weighed had normal weights at the start of the project with Batch 2 registering the highest percentage. Slightly over one-third (36%) were mildly undernourished, 39 percent were moderately undernourished and 5 percent were severely malnourished.

The percentages for normal and severely malnourished groups do not appear to be significantly different from those found by Operation Timbang (OPT) in their March, 1978 survey of 4.5 million pre-schoolers throughout the country.

TABLE 42

"BEFORE-AFTER" COMPARISON OF NUTRITIONAL STATUS LEVELS IN THE PUSH BARANGAYS

Particulars	Batch 1 N=19 out of 22		Batch 2 N=15 out of 20		Batch 3 N=5 out of 10		Total	
	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
	(Sept. 1979)	(Oct. 1980)	(Dec. 1979)	(Jan. 1981)	(June 1980)	(July 1980)		
Number of children 0-6 years old	3311	3414	1878	1861	520	615	5709	5890
Percent of Total Population	22	21	18	17	18	19	19	19
Number of children 0-6 years old weighed	1669	2065	1254	1484	270	549	3193	4098
Percent of Total	50	61	67	80	52	89	56	70
Percent malnourished by degree of malnutrition								
3rd degree	7	5	8	5	4	2	5	4
2nd degree	38	28	28	27	52	33	39	29
1st degree	41	41	37	42	30	45	36	43
Normal	14	26	27	27	14	20	18	24

Source: Community Baseline Survey Reports of BHWS

Note: No data for barangays Buluangan I, Binangonan and Manlacho of Batch I Year 2; for bar. Rizal, San Jose, Naile, Garcia and Medina of Batch II Year 2; and for bar. Mambuquiao, Tambac, Aguila, San Rafael and Bunga of Batch III Year 2.

The OPT results showed the following levels of malnutrition: 5.8 percent had third degree malnutrition, 24.8 percent had second degree, 47.1 percent had first degree, and 22.2 percent had normal weights. Results for Western Visayas showed the following distribution: of 542,520 preschoolers, only 16.6 percent had normal weights, 44.6 percent were mildly malnourished, 30.7 percent were moderately malnourished and 8.1 percent were severely malnourished. Hence, the malnutrition levels in the project barangays are comparatively better than those found in Western Visayas (cited in the Proceedings of the Philippine Pediatric Society, 16th Annual Convention, 1979).

The BHWs' records showed overall improvements in the preschoolers' nutritional levels after one year of sustained PUSH activities. There is a reduction in 3rd degree and 4th degree malnutrition -- from 5 to 4 percent and from 38 to 29 percent, respectively - and a corresponding increase in the percentage of normal and mildly undernourished children - from 18 to 24 percent and from 36 to 43 percent, respectively. Differences by batch are also apparent from the table.

A closer examination of a subsample of children's recorded weights over a three-month period showed average weight gains of 1.10 kg. for Batch 1 children, 0.97 kg. for Batch 2 and 0.65 kg. for Batch 3.

What were the projects' nutritional interventions? Table 43 reveals the type and frequency of activities undertaken by the BHWs. More than one-half (56%) reported disseminating information on proper

TABLE 43
NUTRITIONAL ACTIVITIES UNDERTAKEN BY THE LHW

Activities	N	%
1. information dissemination on proper feeding and food preparation	29	56
2. backyard gardening/communal garden/food production/green revolution	11	21
3. weighing of preschoolers	4	8
4. campaign for breast feeding	4	8
5. referrals of malnourished to Barangay Health Center	2	4
6. organized mothers	1	2
7. supply food to malnourished children	1	2
	52	100

feeding and food preparation and one-fifth initiated backyard/communal gardening and food production activities. Only a few actually supplied food commodities to malnourished children.

In terms of actual time spent on nutritional activities in a typical month, close to one-half reported spending up to 16 hours, about one fourth spent 17.24 hours and 27 percent spent over 25 hours. Compared with other activities, majority (86%) of BHWs actually devoted up to 20 percent of their time to nutritional activities. Three out of four BHWs considered this sufficient, though 18 percent felt the time spent was "too little". Only four BHWs considered time spent on nutrition as "too much".

What is the quality of the people's usual meals? As a proxy measure for calorie intake, scoring codes were devised for the household's meal patterns to reflect meal quality on a 5-point scale (see Annex J for details). To illustrate, a low score is given to breakfast consisting only of either a beverage, or rice/bread only; lunch/supper of rice and bagoong/salt, or rice and vegetables. A high score is given to breakfasts consisting of a beverage, rice, fish/meat and fruit; lunch/dinner of soup, rice, vegetable, chicken/meat/fish and fruit.

Table 44 presents the food the respondents' families usually eat. Rice and fish and other seafoods are the usual fare for most of them -- two-thirds of the household's surveyed have these for breakfast,

TABLE 44
THE FAMILIES "TYPICAL" MEAL PATTERNS

	% Responding "Yes"
Breakfast consists of:	
rice	93
fish and other seafoods	73.5
milk	13
coffee	12
fruits	13
bread	2
vegetables	6
others	26
Lunch consists of:	
rice	99
fish and other seafoods	62
vegetables	93
beef/pork	2
chicken	3.5
fruits	2.5
Supper consists of:	
rice	98
fish and other seafoods	73
vegetables	29
beef/pork	1
chicken	2
Snack consists of:	
bread	42
rice	11
banana	38
camote	14
milk	6
others	27

lunch and dinner. Vegetables are usually/served for lunch, and bread, banana, and camote were mentioned as typical snack foods. Housewives report choosing foods that are nutritious, inexpensive and available in the barangay.

The mean score for breakfast is 3.59, for lunch, 2.79 and for dinner, 2.16. The proportion of families which served relatively balanced or better quality breakfasts are 77 percent vs. 58 percent for lunch and 15 percent for dinner.

Low but positive and significant correlations were found among the meal quality scores for breakfast, lunch and dinner ($r = .30$ between lunch and dinner, $r = .20$ between breakfast and lunch, and $r = .16$ between breakfast and dinner).

It is the general quality of meals associated significantly with the socioeconomic status (SES) of the household? Table 45 (also see Tables 45.1-45.3 in Annexes K-M) examines this relationship more closely by comparing the percentage of "low" (₱500 and below) and "high" (above ₱5,000) income households serving good quality breakfast, lunch and dinner. A similar analysis is applied to the "low" and "high" income groups using "satisfaction with food consumption" as the dependent variable.

The distribution of meal quality scores is shown in Table 48.

TABLE 45

MEAL QUALITY, SATISFACTION WITH FOOD CONSUMPTION
 BY INCOME AND EDUCATIONAL LEVELS
 (Batch 1, N=257)

% with "High" Quality Meals	Income		Education	
	Low (Below P500)	High (P5,000 or more)	Low (Primary)	High (Some College)
Breakfast N=51	7	37	10	57
Lunch N=129	46	71	45	53
Dinner N=34	13	13	10	29
Satisfied with food consumption	25	65	27	69

The χ^2 values, df, and significance levels are:

	χ^2	df	p
Breakfast x Income	29.84	8	.001
Breakfast x Educ. level	26.49	6	.001
Lunch x Income	2.62	4	N.S.
Lunch x Educ. Level	5.37	3	N.S.
Dinner x Income	10.77	8	N.S.
Dinner x Educ. Level	6.96	6	N.S.
Satisfaction x Income	22.29	4	.001
Satisfaction x Educ. Level	11.8	3	.01

TABLE 46
MEAL QUALITY BY BATCH

Meal Quality	Batch			Total
	1	2 (in percent)	3	
Breakfast				
0 - 1	22	10	13	(94) 16
2 - 3	6	6.5	10	(44) 7
4	52	67	64	(362) 60
5	20	16.5	1.3	(104) 17
Mean =	3.59	SD =	1.31	
Lunch				
0 - 1	45	32.6	27	(222) 37
2 - 3	5	5	6	(32) 5
4	50	62.6	67	(350) 58
5	-	-	-	-
Mean =	2.79	SD =	1.44	
Dinner				
0 - 1	17	8	9	(73) 12
2	70	75	74	(439) 73
3 - 4	13	17	16	(92) 15
5	-	-	-	-
Mean =	2.16	SD =	.83	
Total Meal Score				
0 - 3	22.2	1.7	3.4	(28) 4.6
4 - 6		10.0	11.1	(73) 12.1
7 - 8	33.5	27.4	25.6	(179) 29.6
9 - 10	26.5	37.0	39.3	(199) 32.9
11 - 13	17.9	23.9	20.5	(125) 20.7
Total	100	100	100	100
N	(257)	(230)	(117)	(604)

Using wife's education as another indicator of SES, we then compare the HH's meal quality and satisfaction with food consumption between the "low" and "high" education groups. The results are summarized in Table 47.

It is evident from the results that the two SES groups differ significantly in the quality of meals served (particularly breakfast) and in their satisfaction with food consumption. The same pattern of differences is also apparent among the three batches, though the differences between "low" and "high" income and education groups are not statistically significant for Batch 3 households. The differences in the quality of dinner served are not significant either for most batches.

TABLE 47
 SATISFACTION WITH FOOD CONSUMPTION BY HH INCOME AND EDUCATION
 FOR TOTAL SAMPLE

	% Satisfied		
<u>Income Level</u>			
0-499			35
500-999			44
1,000-2,000			38
2,000-5,000			57
5,001 or more			66
	$\chi^2 = 26.1$	df = 4	p \leq .05
<u>HH Head's Education</u>			
0-4 years			37
5-7 years			43
8-13 years			66
14-18 years			64
	$\chi^2 = 27.48$	df = 3	p \leq .05
<u>HW's Education</u>			
0-4 years			35
5-7 years			47
8-13 years			57
14-18			56
	$\chi^2 = 16.66$	df = 3	p \leq .05

Impact on Fertility

Baseline data collected by the BHWs showed that more than one-half of all married couples in the project barangays were of reproductive age (MCRA). Of these, only 20 percent were FP-users at the start of the project (Table 48). One year after the BHWs had been deployed, the proportion of FP-users had increased from 20 to 37 percent for the combined sample. Batch 2 registered the highest increase -- 21 percent compared with Batches 3 and 1 which recorded an increase of 18 and 12 percent, respectively.

Our own survey included approximately 63 percent of housewives 45 years and below (79% of total sample are below 50 years of age). At the time of the survey, 12 percent of the 604 housewives interviewed were pregnant. Of those who were not pregnant (N=406) only 8 percent intended to have more children; the rest did not want any more children. They mentioned as primary reason the financial costs of having another child. With their meager income coupled with the instability of their husband's employment, they feared that they could not adequately provide for their needs. Having many children also means more work, emotional strain and other psychological problems, according to some respondents.

Table 49 shows that among the MCRAs who were not pregnant at the time of the interview, 93 percent claimed they know FP methods. Often mentioned were contraceptive methods such as pills (48%), condoms (42%), IUD (25%), rhythm and withdrawal methods.

TABLE 48

"BEFORE-AFTER" COMPARISON OF FP ADOPTION IN THE PUSH BARANGAYS

	Batch 1 N=19 out of 22		Batch 2 N=15 out of 20		Batch 3 N=5 out of 10		Total	
	Year 1 (Sept. 1979)	Year 2 (Oct. 1980)	Year 1 (Dec. 1979)	Year 2 (Jan. 1981)	Year 1 (June 1980)	Year 2 (July 1981)	Year 1 /	Year 2
% MCRA	55 (1464)	51 (1664)	57 (977)	57 (1036)	56 (337)	55 (292)	56 (2778)	58 (2972)
% of MCRA who have adopted Fp	21 (308)	33 (542)	23 (221)	44 (458)	17 (57)	35 (101)	20 (586)	37 (1101)

Source: Community Baseline Survey Reports of BHWs.

Note: No data for barangays Binanogan, Manlaocho and Cagban of Batch 1 Year 2; for bar, Rizal, San Jose, Naile, Garcia and Medina of Batch 2 Year 2; and for bar. Mambuquiao, Tambac, Agua, San Rafael, and Bunga of Batch 3 Year 2.

TABLE 49
 SELECTED INFORMATION ON FP-KAP AMONG NON-PREGNANT MCRA's

FP-KAP Particulars	Batch			Total
	1	2	3	
% who know FP methods	92 (158)	94 (147)	91 (71)	93 (376)
% who have practiced FP, among those who know FP	57 (90)	64 (95)	66 (46)	61 (231)
N currently practicing FP: as % of "FP ever-users"	(55) 60	(65) 68	(25) 57	(145) 63
as % of "FP knowledgeable"	35	44	35	39
as % of non-pregnant MCRA's	32	42	32	35
Total N	(172)	(156)	(78)	(406)

Sixty-one percent have actually practice family planning and 63 percent are currently using methods such as rhythm, withdrawal, condoms, and the pills. Twelve have been ligated and three reported that their spouses underwent vasectomy.

The BHWs concentrate their FP efforts mainly on motivating new acceptors and dropouts from the program as well as following up on continuing FP-users. About 40 percent of the BHWs interviewed claimed they had not undertaken any FP activity, and 31 percent said they usually devote up to eight hours a month to this area of responsibility. FP concerns, together with community mobilization, appear to be lower in priority, judging from the BHWs' time allocation. This is expected considering that some barangays are covered by POPCOM programs/workers, in which case, the BHW merely coordinates with them.

The BHWs claim however, that a good number of households have availed themselves of FP services -- about one-third said some 20 percent of HHs have been provided FP commodities/services and 38.5 percent reported a higher distribution of outputs --approximately 20-49 percent of HHs -- in their barangays.

About one-third of the wives practicing contraception who were interviewed received FP services and supplies from varied sources -- mainly from private medical practitioners, the RHU, the BHW, and the Health Center personnel (Table 50).

TABLE 50
SELECTED INFORMATION ON DELIVERY FP SERVICES AND SUPPLIES

Particulars	N	%
R's have received FP services	207	34
Sources:	<u>N</u>	<u>%</u>
BHW	21	10
RHU	62	30
Health Center	40	19
Private doctors/ nurses, others	84	
R's have obtained FP supplies	129	21
Sources:	<u>N</u>	<u>%</u>
BHW	23	18
RHU	31	24
Health Center	31	24
Private doctor/ nurses/hw/others	44	34

Respondents are generally satisfied with their number of children: 91 percent with the number of male children, 87 percent with female offsprings and 80 percent with the total number of children.

An examination of the crosstabulations between education and FP-KAP suggest the significant positive effect of educational level on FP knowledge and practice, though not on current user (Tables 51 and 52). Further specifications/crosstabulations by age and number of children will be needed before definite conclusions can be drawn.

TABLE 51
 HOUSEWIVES' EDUCATION BY KNOWLEDGE AND PRACTICE
 OF FAMILY PLANNING METHOD

Know of any FP method	Housewives' Education				Total
	Primary Schooling	Intermediate Level	High School Level	College Level	
yes	83	95	98	96	93 (376)
no	<u>17</u>	<u>5</u>	<u>2</u>	<u>4</u>	<u>7</u> (30)
Total	100	100	100	100	100 (406)
N	(102)	(189)	(87)	(28)	
chi-square = 17.936 with df = 3 p .001					
Practice any FP method					
yes	49	62	67	82	61 (231)
no	<u>51</u>	<u>38</u>	<u>33</u>	<u>18</u>	<u>39</u> (145)
Total	100	100	100	100	100 (376)
N	(85)	(179)	(85)	(27)	
chi-square = 10.901 with df = 3 p < .05					
Currently using any FP method					
yes	56	66	68	45	63 (145)
no	<u>44</u>	<u>34</u>	<u>32</u>	<u>55</u>	<u>37</u> (86)
Total	100	100	100	100	100 (231)
N	(43)	(110)	(56)	(22)	
chi-square = 4.941 with df = 3 N.S.					

TABLE 52
 HUSBANDS' EDUCATION BY KNOWLEDGE AND PRACTICE
 OF FAMILY PLANNING METHOD

Practice any FP method	Educational Level				Total
	Primary Schooling	Intermediate Level	High School Level	College Level	
yes	50	66	64	78	61 (231)
no	<u>50</u>	<u>34</u>	<u>36</u>	<u>22</u>	<u>39 (145)</u>
Total	100	100	100	100	100 (376)
N	(123)	(157)	(73)	(23)	
chi-square = 10.862 with df = 3		p < .05			
<hr/>					
Currently using any FP method					
yes	61	68	61	44	53 (145)
no	<u>39</u>	<u>32</u>	<u>39</u>	<u>56</u>	<u>37 (86)</u>
Total	100	100	100	100	100 (231)
N	(62)	(105)	(46)	(18)	
chi-square = 3.772 with df = 3		N.S.			

The Prediction of Health, Nutrition
and Fertility Levels

Block 2 Hypotheses

This section assesses both the efficiency and significance of the independent variables in explaining health, nutrition and fertility levels in the project barangays. We had earlier hypothesized that:

$$\begin{aligned} \text{HEALTH} &= f (\text{ESKAP, NUTR, FERT, HKAP, Age, Education, Income} \\ &\quad \text{HH Composition}) \\ \text{NUTR} &= f (\text{HKAP, BHW-N, LEVEL-N, Income Education}) \\ \text{FERT} &= f (\text{NUTR, FKAP, LEVEL-FP, D-USE, Income, Age}) \\ \text{HKAP} &= f (\text{BHW-H, LEVEL-H, Income, Education}) \end{aligned}$$

Given the use of multiple indicators in this research, an initial step was to construct indices from a number of variables specified in the regression equations. We subjected some items to factor analysis. For instance, the self-evaluations of health state and the health satisfaction measures (Table 53, in Annex N), emerged under a common factor in the analysis. We therefore combined the scores on these four items to form the health satisfaction level in the regression analysis.

The results of the analysis using two-stage least squares procedures are presented in Tables 56 to 63. The variables and indicators used in the regression analysis are listed in Table 54, Annex O), and the means and standard deviations are shown in Table 55.

The most important determinants of morbidity levels for respiratory diseases are: age, number of HH members 0-5 years old, nutritional level, FP-use, and income (for Batch 1 only). For gastrointestinal disease incidence, the significant predictors are FP-use and wife's age for the total sample and environmental sanitation level for Batch 1. The amount of variation explained by the predictors is relatively small but the signs of the coefficients are in the expected direction. Age of wife is negatively associated with morbidity. The presence of young children in the household is positively associated with respiratory disease incidence, as expected. The effect of environmental conditions on incidence of gastrointestinal disease is also in the direction hypothesized (Table 57).

The significant predictors for health satisfaction level are: observed environmental sanitation level, nutritional level, FP-use, number of HH members 0-5 years and 25 years and over, and project duration. For Batch 1 households, the important predictors are wife's education and nutritional level; for Batch 2, perceived environmental sanitation level, nutrition, health KAP, wife's education, income, and the number of HH members 25 years and over, contribute significantly to the prediction of health satisfaction levels.

The level of health practice is significantly affected by the wife's educational level, HH income, and in the case of Batch 3, by the level of BHW health activities. The inverse relationship between the level of BHW health activities and health KAP for Batch 3 reflects the intensity of BHW efforts to promote the project's health activities at the early stages of the project, where health practices are still predominantly tradition-bound.

Nutritional level (using meal quality as proxy indicator) is significantly associated with selected nutritional KAP, perceived level and quality of BHW nutrition activities, and level of nutritional outputs. The same set of predictors is related significantly with the food satisfaction measure.

The level of nutritional KAP is affected by both the level of nutritional outputs and the level of BHW nutrition efforts, project duration and demographic variables such as income and education.

FP-use is significantly affected by age, nutritional levels, and dissatisfaction of FP-services. As expected, age is negatively associated with FP-use. Nutritional level is positively associated with FP-use. The set of predictors explains 11 percent of variation in FP-use in the total sample and 22 percent for Batch 3.

Given the short period that the project has been in operation, the regression analysis undertaken in this study should be viewed more as an exploratory method to identify progress and impact indicators that could be meaningfully used in subsequent evaluation studies.

TABLE 55

MEANS AND STANDARD DEVIATIONS OF VARIABLES IN THE REGRESSION
 Block 2: Health, Nutrition and Fertility
 (Total Sample)

	<u>Means</u>	<u>SD</u>
Incidence of respiratory diseases	0.75	0.72
Incidence of gastrointestinal diseases	0.24	0.52
Satisfaction with health	8.17	2.08
Observed ENVIRON level	1.99	0.97
Perceived ENVIRONN level	0.83	0.37
Nutritional level (meal quality)	8.36	0.81
Satisfaction with nutritional level	0.44	0.13
FP use	0.37	0.16
Health KAP	11.78	2.42
Age of wife	38.31	11.87
Educational level (wife)	6.27	3.69
Income	5.18	3.76
Perceived level of nutrition efforts	2.03	1.12
Ratio of BHW nutrition activities	1.30	1.03
Quality of BHW nutrition activities	3.35	1.14
Level of nutritional efforts	3.17	1.15
Nutrition KAP #1	1.84	2.00
Nutrition KAP #2	1.06	0.24
Nutrition KAP #3	2.38	0.37
Distribution of FP services	3.28	2.37
Perceived level of BHW health efforts	4.06	1.15
Ratio of BHW health activities	4.09	1.60
Level of BHW health activities	5.71	1.55
Number of HH members 0-5 years	1.21	1.09
Number of HH members 6-24 years	2.49	1.78
Number of HH members 25 years and over	2.14	0.84
Duration	8.48	3.58

TABLE 56

REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF HEALTH LEVELS

(Indicator: Incidence of Respiratory Diseases)

Independent Variables	Regression Coefficients (T-values)			
	Total Sample	Batch 1	Batch 2	Batch 3
Constant	-0.46	-3.19	-0.30	-0.
observed ENVIRON Level	0.01 (0.36)	0.01 (0.23)	0.02 (0.42)	0.03 (0.38)
perceived ENVIRON level	0.08 (0.91)	0.18 (1.26)	-0.06 (0.43)	0.32 (2.11)**
satisfaction with nutritional level	-0.57 (0.72)	0.84 (0.58)	0.63 (1.20)	-0.47 (0.84)
nutritional level (meal quality)	0.32 (2.25)**	0.55 (3.50)**	0.18 (2.14)**	-0.20 (1.21)
FP use	-1.88 (1.96)*	-2.21 (1.62)*	-0.76 (1.21)	0.26 (0.24)
health KAP	-0.02 (0.19)	0.09 (1.21)	-0.04 (0.48)	0.02 (0.37)
age of wife	-0.02 (1.86)*	-0.02 (2.05)**	-0.00 (0.37)	0.01 (0.58)
education of wife	0.03 (0.66)	-0.06 (1.25)	0.01 (0.11)	0.02 (0.35)
income	-0.01 (0.38)	-0.09 (1.77)*	-0.02 (0.95)	0.01 (0.28)
HH members 0-5 years	0.12 (3.41)**	0.11 (2.22)**	0.10 (2.25)**	0.15 (1.36)*
HH members 6-24 years	0.01 (0.73)	0.04 (1.35)	0.02 (0.83)	-0.06 (1.42)
HH members 25 years and over	0.04 (0.95)	0.08 (1.22)	-0.02 (0.28)	0.05 (0.53)
duration	-0.01 (0.64)			
R ²	0.06	0.12	0.06	0.19
F-ratio	2.58	2.85	1.11	2.02
N	525	257	230	117

*significant at .10 level

**significant at 0.5 level

TABLE 57

REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF HEALTH LEVELS

(Indicator: Incidence of Gastrointestinal Infection)

Independent Variables	Regression Coefficients (T-values)			
	Total Sample	Batch 1	Batch 2	Batch 3
Constant	0.95	0.22	0.45	0.08
observed ENVIRON level	0.03 (1.14)	0.07 (1.85)*	0.05 (1.39)	-0.03 (0.62)
perceived ENVIRON level	-0.02 (0.25)	-0.06 (0.53)	0.02 (0.16)	-0.10 (0.94)
satisfaction with nutritional level	0.32 (0.55)	0.86 (0.78)	-0.44 (1.10)	0.63 (1.59)
nutritional level (meal quality)	0.07 (0.66)	0.13 (1.11)	-0.00 (0.03)	-0.10 (0.83)
FP use	-1.18 (1.63)*	-0.52 (0.50)	-0.08 (0.17)	1.14 (1.46)
health KAP	-0.07 (1.16)	-0.04 (0.76)	0.01 (0.12)	0.00 (0.09)
age of wife	-0.01 (1.61)*	-0.00 (0.48)	0.00 (0.27)	0.01 (1.05)
education of wife	0.04 (1.32)	-0.00 (0.12)	-0.30 (0.09)	-0.02 (0.52)
income	0.00 (0.20)	-0.04 (1.20)	0.00 (0.20)	-0.05 (1.67)*
HH members 0-5 years	0.02 (0.85)	0.01 (0.15)	0.04 (1.25)	0.01 (0.22)
HH members 6-24 years	0.02 (1.21)	-0.00 (0.27)	0.02 (1.13)	-0.01 (0.37)
HH members 25 years and over	-0.04 (1.15)	-0.04 (0.78)	-0.08 (1.62)*	0.08 (1.19)
duration	0.01 (0.74)			
R ²	0.03	0.08	0.04	0.10
F-ratio	1.38	1.78	0.79	0.93
N	525	257	230	117

*significant at .10 level

**significant at .05 level

TABLE 58
REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF HEALTH LEVELS

(Indicator: Health Satisfaction Level)

Independent Variables	Regression Coefficients (T-Values)			
	Total Sample	Batch 1	Batch 2	Batch 3
constant	9.69	14.23	14.90	4.66
observed ENVIRON level	0.18 (1.99)*	0.16 (1.14)	0.15 (1.08)	0.38 (1.37)*
perceived ENVIRON level	0.06 (0.25)	0.35 (0.83)	-0.86 (2.21)**	1.06 (2.70)**
satisfaction with nutritional level	-1.80 (0.80)	-2.27 (0.55)	-0.00 (0.00)	1.39 (0.94)
nutritional level(meal quality)	-0.81 (1.97)*	-1.09 (2.46)**	-0.66 (2.57)**	0.45 (1.03)
FP use	5.79 (2.11)**	2.97 (0.77)	2.48 (1.30)	-1.36 (0.46)
health KAP	0.26 (1.04)	-0.04 (0.18)	-0.47 (2.00)**	-0.07 (0.38)
age of wife	0.04 (1.34)	0.00 (0.02)	0.01 (0.19)	-0.02 (0.43)
education of wife	-0.05 (0.41)	0.24 (1.84)*	0.40 (2.31)**	0.04 (0.26)
income	0.01 (0.08)	0.12 (0.39)	0.16 (2.13)**	0.01 (0.09)
HH members 0-5 years	0.16 (1.62)*	0.12 (0.82)	0.14 (1.01)	0.24 (1.10)
HH member 6-24 years	0.06 (1.22)	0.04 (0.50)	0.14 (1.66)*	0.66 (0.51)
HH members 25 years and over duration	0.25 (2.11)**	0.26 (1.42)	0.38 (2.01)**	0.15 (0.30)
	-0.09 (1.69)*			
R ²	0.08	0.09	0.13	0.21
F-value	3.18	2.10	2.63	2.26
N	525	259	230	117

* significant at .10 level

** significant at 0.5 level

TABLE 59
REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF HEALTH PRACTICE

Predictors	Regression Coefficients (t-values)							
	Total Sample		Batch 1		Batch 2		Batch 3	
perceived level of BHW health efforts	0.25	(0.93)	-1.66	(1.48)	0.34	(1.22)	-0.94	(0.88)
ratio of BHW health activities	0.17	(0.85)	0.40	(1.54)	0.21	(0.53)	-0.64	(1.33)
level of BHW health activities	-0.25	(1.22)	-0.24	(0.73)	-0.30	(0.87)	-0.94	(2.10)**
wife's education	0.49	(5.60)**	0.29	(2.18)**	0.64	(5.44)**	0.57	(2.90)**
income	0.28	(3.18)**	0.26	(2.00)**	0.21	(1.77)*	0.30	(1.58)
duration	0.02	(0.22)						
	R ²	0.11	0.07	0.17	0.20			
	F-value	10.40	3.66	9.26	5.69			
	N	525	257	230	117			

* significant at .10 level

** significant at 0.5 level

TABLE 60
REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF NUTRITIONAL LEVEL
(Meal Quality as Indicator)

Independent Variables	Regression Coefficients (T-values)							
	Total Sample		Batch 1		Batch 3		Batch 3	
constant	9.61		24.39		15.12		0.43	
nutrition KAP # 1	-2.49	(1.60)*	-9.14	(2.47)**	-3.28	(2.94)**	0.75	(0.16)
nutrition KAP # 2	0.60	(0.65)	-1.36	(1.13)	0.66	(0.50)	-0.89	(0.40)
nutrition KAP # 3	1.75	(2.13)**	2.28	(1.42)	0.90	(1.15)	2.63	(1.76)*
perceived level of BHW nutrition efforts	0.07	(0.52)	-2.31	(2.87)**	0.10	(0.57)	0.17	(0.18)
ratio of BHW nutrition activities	0.08	(0.38)	-1.29	(1.32)	-0.24	(0.95)	0.15	(0.45)
quality of BHW nutrition activities	-0.03	(1.31)	-0.48	(1.62)*	-0.34	(0.12)	-0.65	(0.61)
level of nutritional outputs	0.13	(0.76)	1.18	(1.93)*	-0.02	(0.12)	0.77	(1.20)
distribution of FP services	-0.12	(2.22)**	-0.08	(1.05)	-0.27	(2.98)**	0.20	(0.56)
duration	-0.11	(1.11)						
R ²	0.10		0.10		0.15		0.17	
F-value	6.63		3.28		4.87		2.72	
N	525		257		230		117	

* significant at .10 level
**significant at .05 level

TABLE 61
REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF SATISFACTION WITH NUTRITIONAL LEVEL

Independent Variables	Regression Coefficients (T-Values)			
	Total Sample	Batch 1	Batch 2	Batch 3
constant	-1.40	-0.77	-0.44	-1.58
nutrition KAP # 1	0.47 (1.47)	0.36 (0.53)	-0.17 (0.68)	0.35 (0.33)
nutrition KAP # 2	0.01 (0.08)	0.35 (1.62)*	0.14 (0.48)	-0.44 (0.90)
nutrition KAP # 3	0.48 (2.86)**	0.03 (0.11)	0.13 (0.72)	0.62 (1.89)*
perceived level of BHW nutrition efforts	0.01 (0.44)	0.03 (0.23)	-0.03 (0.69)	0.22 (1.15)
ratio of BHW nutrition activities	0.10 (2.39)**	0.21 (1.19)	-0.05 (0.86)	0.12 (1.73)*
quality of BHW nutrition activities	-0.08 (2.02)**	0.05 (0.94)	0.19 (1.75)*	-0.18 (1.02)
level of nutritional outputs	-0.09 (2.53)**	-0.17 (1.57)	0.04 (0.93)	-0.07 (0.51)
distribution of FP services	0.01 (0.46)	-0.00 (0.06)	0.03 (1.64)*	0.17 (2.16)**
duration	0.02 (1.08)			
R ²	0.07	0.09	0.06	0.12
F-value	4.36	3.06	1.80	1.91
N	525	257	230	117

* significant at .10 level

** significant at .05 level

TABLE 62

REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION OF
NUTRITIONAL KAP

Indicators: Nutrition KAP no. 1
 Nutrition KAP no. 2
 Nutrition KAP no. 3

Independent Variables	Regression Coefficients (T-values)					
	Indicator A Total Sample		Indicator B Total Sample		Indicator C Total Sample	
constant	0.71		-0.34		0.07	
health KAP	0.15	(1.91)*	0.13	(1.82)*	0.02	(0.16)
perceived level of BHW nutrition efforts	0.06	(1.84)*	0.00	(0.07)	-0.09	(1.50)
ratio of BHW nutrition activities	-0.02	(0.54)	-0.08	(2.48)**	-0.21	(3.03)**
quality of BHW nutrition activities	0.03	(0.96)	-0.00	(0.08)	0.19	(3.06)**
level of nutritional output	0.07	(2.33)**	0.06	(2.31)**	0.04	(0.77)
income	-0.05	(1.96)*	-0.03	(1.30)	0.04	(0.94)
wife's education	-0.09	(2.12)**	-0.02	(0.51)	0.02	(0.26)
duration	-0.04	(3.59)**	0.01	(0.97)	-0.05	(2.37)**
R ²	0.06		0.11		0.07	
F-ratio	4.29		7.94		4.84	
N	525		525		525	

* t-value significant at .10 level

** c-value significant at .05 level.

TABLE 63
REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF FP USE

Independent Variables	Regression Coefficients (T-values)							
	Total Sample		Batch 1		Batch 2		Batch 3	
constant	-0.67		-0.61		0.24		-0.04	
satisfaction with nutritional level	-0.13	(0.35)	-0.74	(2.01)**	-0.40	(1.24)	-0.14	(0.48)
nutritional level (meal quality)	0.17	(3.85)**	0.17	(3.79)**	0.07	(1.70)*	0.11	(2.13)**
distribution of FP services	0.02	(1.71)*	0.02	(1.88)*	0.04	(2.43)**	-0.05	(1.77)*
income	-0.01	(0.71)	0.01	(0.68)	0.01	(1.10)	0.03	(2.37)**
wife's age	-0.01	(5.30)**	-0.01	(2.92)**	-0.01	(4.52)**	-0.01	(3.75)**
duration	0.00	(0.05)						
R ²	0.11		0.12		0.12		0.22	
F-ratio	10.37		6.64		6.36		6.26	
N	525		257		230		117	

* significant at .10 level

** significant at .05 level

Impact on Participation

As a social development project, PUSH is expected to affect significantly women's participation in community affairs. Their involvements as recipients/consumers of project outputs and as active participants in the implementation of the project is considered extremely critical to the success of this health care scheme.

The BHWs categorized as community mobilization the following activities: organizing groups in the community to help implement environmental, health and nutritional programs; calling for barangay meetings and encouraging the cooperation of all agencies and residents to attain the program objectives.

Two indicators are used to measure community participation: one is organizational membership and the other is frequency and quality of involvement in community activities.

The formation of organizations at local levels is needed for at least three reasons (Uphoff, Cohen & Goldsmith, 1979):

1. Collective action by people may be necessary "to get health programs underway and to make them responsive to local needs"
2. Organizations are effective channels for "learning about community health perceptions and for disseminating information"

3. Since "health problems affect entire communities and cannot be resolved by individual effort, organizations are needed to significantly raise health levels" in rural areas.

Our survey showed a low level of organizational participation among the wife-respondents and their spouses (Table 64). Only 28 percent (or N=168) of wives and 32 percent (or N=193) of husbands belong to any organization: slightly more wives in Batch 2 are members of organizations.

The most popular organizations for the wives are:

- | | |
|---|----|
| 1. Mother's Clubs ----- | 44 |
| 2. Ladies Auxilliary ----- | 22 |
| 3. Parents-Teachers Association ----- | 22 |
| 4. Catholic Church Organizations ----- | 17 |
| Frequently mentioned are Barangay sa
Birhen, Legion of Mary, Medalla
Milagrosa, Catholic Action Organizations | |
| 5. Purok Organization | |
| 6. Samahang Nayon, BISA, NIA | |
| 7. Daycare Organization | |
| 8. Barangay Brigade | |
| 9. Rural Improvement Club | |
| 10. Other civic organizations such as Girl Scouts,
dance troupes, etc. | |

TABLE 64
IMPACT ON PARTICIPATION

Indicators	Batch 1	Batch 2	Batch 3	Total
1. % of HH heads who have attended PUSH meetings	51	41	43	46
2. % of HWs who have attended PUSH meetings	55	58	45	54
3. % of HH heads who are members of organization	88 (84)	82 (74)	30 (35)	32 (193)
4. % of HWs who are members of organizations	26 (67)	30 (70)	27 (31)	28 (168)

The men belong to a number of farmers' associations and community organizations formed to promote cooperation and mutual protection among community residents: Some of these are:

1. farmer's associations such as Samahang Nayon, KABSAKA, NIA, ISA, BISA (irrigators association) and Grain Millers Association;
2. socio-civic organization such as Barangay Brigade, Lupong Tagapayo, Happy Family Life, Barangay Tanod; and
3. religious organizations such as Birhen sa Barangay, Knights of Columbus.

The wife's organizational membership is positively associated with her level of education. Table 65 shows that 48.4 percent of wives with "high" education are members of organization compared with 25.3 percent of those with "low" education.

TABLE 65

ORGANIZATIONAL MEMBERSHIP BY WIFE'S EDUCATION

ORGANIZATIONAL MEMBERSHIP	Education		
	1 - 7 yrs.	8 - 11 yrs.	12 - 19 yrs.
	(in percent)		
member	25.3	36.2	48.4
non-member	74.7	63.8	51.6
Total	100	100	100
N	(451)	(94)	(31)
$\chi^2 = 11.065$	df = 2	p < .05	

Most of the women's organizations are active in beautification, nutrition and fund-raising activities. The BHWs generally use the existing organizations such as Mothers' Clubs and Ladies Auxiliary to promote the health, nutrition and community beautification activities of PUSH.

The men are generally mobilized by the BHW to assist in the construction/improvement of wells and installation of toilet facilities.

The BHWs have complained about the low level of people's participation in the barangay which they attribute to their preoccupation with livelihood concerns. To a large extent the poverty of the people severely limits their time to participate in efforts directed to meet community needs.

It is encouraging to note however, that 54 percent of wives and 46 percent of husbands have attended community meetings to discuss PUSH activities. The intensive house-to-house campaign of the BHWs to generate interest in the project appears to have been effective. Furthermore, the BHWs' close relationships with barangay officials and residents have had positive effects.

Barangay assemblies are called at least once a month in most project sites to discuss matters related to the labor participation of the residents in project implementation, the allocation of funds/ construction materials, project proposals, work scheduling and financial counterparts.

It is gratifying to note that a majority of the wives (88%) are satisfied with their participation in these activities. A slightly lower percentage of husbands (65%) express satisfaction with their participation.

At least 25 organizations have been formed since the BHWs were deployed in the barangays. Fifteen of these are Mothers' Clubs/Nutrition groups/craft classes; two are youth associations, five are neighborhood and purok associations. The BHWs claim responsibility for their formation, with most of them (N=17) claiming sole responsibility.

According to the BHWs, participation in these organizations is generally satisfactory; enthusiastic in at least 13, "so-so" in 11 and poor in only one organization. The BHWs rate the wives as most participative, followed by husbands, teenagers and out of school youth.

It appears that more time, more skills and more innovativeness in terms of techniques by the BHWs will be needed before participation gains a significant foothold in the barangays. For people to begin to realize the efficacy of collective action, more evidences too, in terms of concrete impacts, will have to be manifested by the project.

Perceived Impact of PUSH: An Overall Assessment

What did respondents perceive as the three most important impacts of PUSH?

Tables 66 and 67 reveal the wives' assessment of project impacts by batch/project duration. It is apparent both from the computed mean scores^{6/} and percentage distribution of responses, that the direct benefits to the poor as well as environmental improvements were considered by respondents to be the two most significant effects of the project. About one-half of respondents selected these two impact areas out of the eight presented to them.

As expected, Batch 1 ratings differ significantly from those of Batch 3. Significantly more Batch 1 HWS ranked environmental conditions as the most important impact (23% Batch 1 vs. 9% for Batch 3).

Increased health consciousness and cooperation among residents were also perceived as significant impacts. Employment/income impacts have not been felt at all or effects have been extremely minimal. What is noteworthy is the high proportion of "can't say" and "don't know" responses among the batches. This can be mainly attributed to

^{6/} Responses were scored on a 3-point scale as follows: 3, for first ranked response; 2, for second ranked and 1 for third ranked; "can't say" and "don't knows" were scored 0.

TABLE 66
MEAN SCORES ON PUSH IMPACT BY BATCH

	Total	Batch 1	Batch 2	Batch 3
1. Helped the poor more than the rich	1.28	1.38	1.28	0.632
2. Improved environmental conditions	1.22	1.21	1.17	0.50
3. Increased health consciousness	.84	.87	.75	.39
4. Made the barangay a better place to live in	.82	.83	.80	.44
5. Increased cooperative activities	.75	.73	.70	.41
6. Given the people more employment/income opportunities	.43	.41	.46	.30
7. Enabled women to have more time for income generating activities	.31	.29	.43	.29
8. Increased women's participation	.23	.18	.32	.17

TABLE 67
PERCEIVED IMPACT OF PUSH BY BATCH

Perceived Impact	Ranking	Batch			Total
		1	2	3	
		(in percent)			
1. Improved environmental conditions	1st	23	21	9	20
	2nd	16	17	8	15
	3rd	20	20	9	18
	can't say				
	DK	41	42	75	48
Total		120/1	(230)	(117)	(604)
		$x^2 = 43.32$		df = 6	p $\leq .001$
2. Helped the poor more than the rich	1st	23	30	14	24
	2nd	20	16	8	16
	3rd	9	6	7	8
	can't say/				
	DK	48	48	72	53
		$x^2 = 27.81$		df = 8	p $\leq .001$
3. Made the barangay a better place to live in	1st	12	8	6	10
	2nd	16	15	5	14
	3rd	16	16	6	14
	can't say/				
	DK	56	61	80	63
		$x^2 = 22.71$		df = 6	p $\leq .001$

Table 67

Perceived Impact	Ranking	Batch			Total
		1	2	3	
		(In percent)			
4. Increased health consciousness	1st	16	11	6	12
	2nd	13	13	7	12
	3rd	11	15	7	12
	can't say/ DK	59	60	80	64
		df = 6		p <u><</u> .01	
5. Increased cooperative activities	1st	9	10	6	9
	2nd	15	14	9	14
	3rd	16	13	4	13
	can't say/ DK	60	64	80	65
		df = 5		p <u><</u> .01	
6. Enabled women to have more time for income generating activities	1st	4	6	3	5
	2nd	6	8	3	7
	3rd	5	10	6	7
	can't say/ DK	85	77	84	82
		df = 6		N.S.	

Table 67

Perceived Impact	Ranking	Batch			Total
		1	2 (in percent)	3	
7. Given the people more employment/ income opportunities	1st	5	8	4	6
	2nd	4	8	3	6
	3rd	9	6	10	8
	NA	82	78	82	80
	$\chi^2 = 9.62$	df = 6		N.S.	
8. Increased women's participation	1st	1	3	2	2
	2nd	4	6	4	5
	3rd	8	11	3	8
	NA	87	80	91	85
	$\chi^2 = 11.19$	df = 6		p < .10	

the recency of the PUSH project in the barangays particularly in the case of Batch 3, where the BHWs were only beginning to prepare their baseline surveys and ESI projects.

Comparing residents' perceptions with those of the BHWs, we find agreement mostly on the environmental impacts.

Asked about barangay improvements since their deployment, the BHWs readily disclosed the following:

1. improved environmental sanitation practices among residents, i.e. better/sanitary waste disposal method, fenced yards and home gardens -- 54%
2. improved community facilities, i.e. water systems, park -- 23%
3. residents are more cooperative and involved in community activities --21%
4. better/improved health status of residents; greater health consciousness -- 2% mentioned this as first improvement, 17% as second and 13% as third.

Almost all (89%) BHWs claimed major responsibility for these improvements.

What did they perceive as the most important impacts of PUSH in the community? Half of the BHWs considered environmental sanitation impacts as the most important and visible effect; one-fourth felt the increase in people's participation most significant' and 19 percent considered the health impacts most noteworthy.

CASE STUDIES: EFFECTIVE AND INEFFECTIVE PUSH BARANGAYS

The case study aimed to look more intensively into the impacts of PUSH on communities where the project operates. It was intended to complement the quantitative measures of the program's impact. Eight (8) barangays were chosen on the basis of reported accomplishments, judgements of knowledgeable people and the researchers' preliminary assessment of their levels of effectiveness.

This section presents a summary appraisal of eight PUSH barangays, four of which have been deemed effective and four ineffective, and tentatively assess the factors contributing to the barangays' effectiveness or ineffectiveness.

Barangays were considered effective if:

- 1) they had completed and already functioning spring development project/deep well;
- 2) they had completed and already functioning shallow driven wells/improved open dug wells;
- 3) the barrio health worker (BHW) provided all/most/some health services beyond those required by the PUSH program;
- 4) the BHW provided all/most/some of the health services specified in the PUSH program;
- 5) the BHW submitted reports regularly as noted by the rural health unit (RHU); and
- 6) the BHW completed environmental sanitation infrastructure (ESI) projects within a reasonable time, again as noted by RHU.

On the other hand, barangays were considered ineffective if they scored low on these counts.

Applying the foregoing criteria on all the barangays covered by Batch 1 survey and Batch 2 survey, a number of barangays turned out to be "effective" and a number "ineffective". From the effective barangays, two were chosen each from Batch 1 and Batch 2 for case studies; and from the ineffective barangays, another two each from Batch 1 and Batch 2 were selected for case studies. Thus, eight barangays were subjected to in-depth studies.

The tentative assessment of the factors that contributed to the barangays' effectiveness or ineffectiveness was based on four considerations: 1) the structural characteristics of the barangays; 2) the adequacy of PUSH financial inputs; 3) the quality of management of PUSH projects; and 4) the Barangay Health Worker (BHW).

The structural criterion is important because structural factors rather than PUSH projects may well be the reason for the success of a barangay. Barangays that are economically substantial, to begin with, will have higher probabilities succeeding relative to less substantial ones, with or without PUSH projects.

But again, the abundance of a PUSH financial inputs may cause the success or failure of a PUSH project, rather than the management ability of the barrio health worker or even the structural features of the barangay. If the financial inputs are too meager relative to the dimension of the undertaking, it will be unrealistic to expect success from such undertaking.

The management quality criterion is critical because the quality of management may facilitate or impede successful action. Structural features in the barangay or inadequacy of funds may hinder or slow down progress, but if management is systematic, persistent or far-sighted, it can overcome the handicap. On the other hand, even the most favorable of structural considerations or the most abundant of resources can be frustrated by aimless, sporadic or shortsighted management.

Finally, the BHW, plays a very critical role in the PUSH programs. The character and quality of the BHW unifies and moves the community into activities that transform it to conditions of better health and quality of life.

Summary Appraisal

All the eight barangays covered in the case studies are economically depressed, though some are less so than others. Their populations differ in size, though the average size of their households was about the same. The details are shown in Table 68.

On the average, the effective barangays are slightly bigger population and number of households than the ineffective ones,

the figures being 750 and 128 for the former as against 729 and 119, respectively, for the latter. In terms of average size of household, the effective barangays are somewhat smaller than the ineffective barangays, with 5.8 persons for the former as against 6.1 persons for the latter.

TABLE 68
POPULATION AND GENERAL ECONOMIC
CONDITION OF EIGHT CASE STUDY
BARANGAYS

Barangay	Population	No. of Households	Average Household Size	General Economic Condition
<u>Effective</u>				
Magayon, Iloilo	664	115	5.8	Poor
Madasig, Capiz	1,114	182	6.1	Poor
Malipayon, Antique	516	98	5.3	Poor
Maisog, Aklan	708	118	6.0	Poor
Average	750	128	5.8	
<u>Ineffective</u>				
Bukid, Aklan	429	83	5.2	Poorest
Busay, Antique	1,069	145	7.4	Poorer
Bato, Iloilo	373	66	5.7	Poorest
Baybay, Iloilo	1,044	182	5.7	Poorer
Average	729	119	6.1	

As has been said, all the barangays are poor, but two can be considered as poorer and another two poorest.

The status of PUSH-generated projects in the eight barangays is summarized in Table 69. This status is of course nothing but a reflection of the criteria employed in the selection of effective and ineffective barangays, hence, no causal relations between project status and barangay status should be inferred. One might say that the success of barangays in this section is almost entirely definitional.

The number of springs tapped, deep wells built and dug wells improved is about the same in the effective and ineffective barangays -- a total of eight as against a total of seven -- but the number of shallow drive wells and toilets built in the effective barangays -- 13 and 239, respectively -- is much higher than in the ineffective barangays, 3 and 153, respectively.

An individual appraisal of these facilities is given in Table 70. In general, the facilities in the better barangays are not only in a higher state of completion but are also more widely enjoyed by barangay residents.

Table 71 summarizes the status of PUSH-provided services in the eight barangays. Again, more residents or couples received family planning, nutrition, vaccination/immunization and other services in the effective barangays than in the ineffective barangays.

TABLE 69
 PUSH-GENERATED PROJECTS IN THE EIGHT
 (8) CASE STUDY BARANGAYS

Barangays	Spring	Deep Wells	Shallow Deep Wells	Improved Open Dug Well	Toilets	Total
<u>Effective</u>						
Magayon		1	2	2	39	44
Madasig		1	1	2	20	24
Malipayon	1				90	91
Maisog			10	1	90	101
Total	1	2	13	5	239	260
<u>Ineffective</u>						
Bukid	1		1		33	35
Busay	1				62	63
Bato		1	1	2	20	24
Baybay		1	1	1	38	41
Total	2	2	3	3	153	164

TABLE 70
STATUS OF PUSH GENERATED PROJECTS IN THE
EIGHT CASE STUDY BARANGAY

Barangays	Spring	Deep Wells	Shallow Driven Wells	Improved Open Dug Wells	Toilets
<u>Effective</u>					
Magayen	Water is not potable	Water is not potable	Adequate for general use	Adequate for general use	75% installed and used
Madasig		Inadequate water in some	Adequate for general use	Well dried up	100% installed and used
Malipayon	Adequate for general use				100% installed and used
Maisog		Adequate for general use			100% installed and used
<u>Ineffective</u>					
Bukid	Completed but no water		Shared by 2 barangays		100% installed and destroyed
Busay	Highly inadequate				55% installed but not used
Bato		Pump destroyed	Dried up	Pump lost Well opened	60% installed
Baybay		Dried up	Dried up	Only source of drinking water	55% installed and used

TABLE 71
 PUSH-GENERATED SERVICES IN THE
 EIGHT CASE STUDY BARANGAYS

Barangays	Family Planning (Couples)	Nutrition (# of children)	Immunization/ Vaccination (People)	Other Services
<u>Effective</u>				
Magayon	21	208	136	First Aid
Madasig			118	Electrification
Malipayon	42	110	516	
Maisog	all	*	708	MPP0/Herbal garden/ Curative
	Total	218	1,478	
<u>Ineffective</u>				
Bukid	3			Communal garden
Busay				
Bato		48		Pest Control
Baybay	53	154	339	Communal garden
	Total	56	339	

* No malnutrition problem.

Table 72 presents a detailed appraisal of these services. Understandably, the extent of services provided is higher in the effective than in the ineffective barangays. Similarly, the state of sanitation is better in the effective than in the ineffective communities.

In the subjective perception of barrio health workers, the effective barangays received more enthusiastic support from barangay officials, from the people themselves and from other agencies than the ineffective barangays (Table 73).

The individual reports on each of the case studies are presented in Appendix R.

Causes of Differences in Performance: A Tentative Assessment

This section explores some of the factors underlying the success or failure of the case study barangays. These factors, to reiterate, consist of the structural features of the communities, the amount of PUSH financial inputs, and the quality of project management. A few comments are also made on the BHWs and their influence in the barangays.

1. Structural Factors

Table 74 summarizes the socioeconomic status of the residents in the various barangays. Majority of the

TABLE 72

STATUS OF PUSH GENERATED SERVICES IN THE EIGHT CASE STUDY BARANGAYS

Barangays	Family Planning	Nutrition	Vaccination/ Immunization	Other Projects	State of Sanitation as perceived by POs
<u>Effective</u>					
Magayon	BHW is also BSPO	Weighing and feeding	Organized for RHU	First aid is continuing	Very clean
Madasig	Coordinated with BSPO & FTOW	Donated utensils	Organized for RHU	10 HH provided with electricity	Dirty
Malipayon	Provided supplies	Donated utensils	Organized for RHU		Clean
Maisog	Coordinated with BSPO & FTOW	Donated equipments	Organized for RHU	Herbal and MPPD continuing	Very clean
<u>Ineffective</u>					
Bukid	Acceptors reduced from 21 to 3			Communal garden discontinued	Very dirty
Busay					Dirty
Bato		No more supplies	Referrals to RHU	Pest control discontinued	Dirty
Baybay	Coordinated with BSPO & FTOW	BHW is also BNS	Referrals to RHU	Communal garden is on-going	Clean

TABLE 73
 SUPPORT RECEIVED BY PUSH IN THE EIGHT CASE STUDY BARANGAYS
 AS PERCEIVED BY BHW'S

Barangays	From Barangay Council	From People	From Agencies
<u>Effective</u>			
Magayon	very good	very cooperative	very good
Madasig	very good	cooperative	good
Malipayon	very good	cooperative	very good
Maisog	good	very cooperative	very good
<u>Ineffective</u>			
Bukid	good	indifferent	indifferent
Busay	good	uncooperative	poor
Bato	good	uncooperative	good
Baybay	indifferent	indifferent	good

TABLE 74

SOCIOECONOMIC CHARACTERISTICS OF THE EIGHT CASE STUDY BARANGAYS AND RESIDENTS

Barangays	Status of Majority home users	Status of Majority Farm Ownership	Major Crops	Accessibility to means of transport
<u>Effective</u>				
Magayon	lot owners	small farm owners	Rice	easily accessible
Madasig	lot owners	small farm owners	Rice	accessible
Malipayon	lot owners	small farm owners	Rice	easily accessible
Maisog	lot owners	small farm owners	Rice	accessible
<u>Ineffective</u>				
Bukid	lot owners	small farm owners	Coconut	almost inaccessible
Busay	lot owners	small farm owners	Rice	almost inaccessible
Bato	squatters	farm laborers	Sugar	accessible
Baybay	renters	fishermen	Fish	accessible

households in all four effective barangays own the lots on which their houses are built. In comparison, this situation is true in only two of the ineffective barangays. In the other two ineffective communities, the majority of the households are renters or squatters.

The picture is about the same with respect to the farm ownership status of the households. In all effective barangays, the majority of households are small farm owners. This is true in only two ineffective barangays. In one effective community, the majority of households are farm laborers. (In the fourth barangay, the people are fishermen.)

The industries to which the barangays belong also differ in an interesting way (Table 74). All the effective barangays are engaged in the rice industry, compared to only one of the ineffective barangays. The rest are in coconut, sugar, and fish.

Rice farmers in the survey area harvest at least two crops a year (at least three crops in the irrigated areas). Among sugar and coconut workers, their incomes fluctuated sharply in the last few years. The small fishermen in Panay have been unable to compete successfully with the big

fishermen.

Again for Table 74, the barangays differ in terms of their accessibility from outside. All four effective barangays are either accessible or easily accessible. Of the effective communities, only two are accessible while the other two are almost inaccessible by any means of transportation especially during the rainy season.

These structural features of the barangays may have nothing to do with the success or failure of the PUSH projects initiated in them. Nevertheless, the data tend to confirm the hypothesis that the more economically substantial the households (as shown by the status of their lot and farm ownership), the closer their industry is to the rice industry, and the more easily accessible the barangay, the more likely is the barangay to be effective.

2. Financial Inputs

Table 72 summarizes the financial inputs of PUSH into the barangays. In terms of absolute average amounts, PUSH contributions to the effective barangays are larger (average of (45,600) than in the ineffective barangays (average of ₱36,700). In per household and per capita terms, they are about the same -- but the figures

TABLE 75
FINANCIAL INPUTS OF PUSH IN THE EIGHT CASE STUDY BARANGAYS

Barangays	Total	Per Household	Per Capita
<u>Effective</u>			
Magayon	₱ 57,282	₱ 498.10	₱ 86.27
Madasig	38,000	208.79	34.11
Malipayon	36,528	373.26	70.90
Maisog	50,648	429.22	%#./%
Average	₱ <u>45,628</u>	₱ <u>377.34</u>	₱ <u>61.24</u>
<u>Ineffective</u>			
Bukid	35,000	421.80	81.59
Busay	39,000	248.28	33.68
Bato	38,000	575.76	101.88
Baybay	36,750	208.79	36.40
Average	₱ <u>36,750</u>	₱ <u>363.80</u>	₱ <u>63.40</u>

for the ineffective barangays are biased upward by the contribution to one barangay, suggesting that, minus this particular contribution, the resulting averages will be considerably lower for the ineffective barangays.

The amount of PUSH financial inputs into the barangays hardly correspond to the needs and requirements of these barangays. There is even a slight indication that the more (less) economically substantial a barangay, the higher (lower) is its financial allocation -- a rather perverse relationship.

These figures tentatively suggest that the amounts of PUSH financial inputs into the barangays have something to do with the effectiveness or ineffectiveness of the barangays.

3. Project and Services Management

One can analyze the management aspect on two levels: at the objective level (how many projects were established or made operational, how many services were initiated, etc., given the financial constraints), and at the perception level (do the people think that the project/service has been successful? Are they impressed by the BHW?). Depending on the answers to these questions, one may conclude that the project management has been effective or ineffective.

The very definition of effective and ineffective barangay precludes the use of concrete achievements of the BHW as "explanatory variables" for effectiveness or ineffectiveness. Still, there is some basis for believing that peso for peso of financial inputs, the project management produced less projects and initiated fewer services in the ineffective than in the effective barangays (See Tables 69, 70 and 71).

We must also look at the judgements and perceptions of people relative to the project management, though these perceptions alone, taken apart from facts, can be extremely misleading and seriously unfair. Table 76 provides a listing of the barangay people's subjective perception of their BHW. In all of the effective barangays, the people have a positive view of their BHW. They think their BHW is a community mobilizer, a community organizer, a planner or a manager. In the ineffective barangays, residents describe their BHW as indifferent or absentee.

In other words, people in the effective barangays think that PUSH project and service management is successful whereas in the inefficient barangays, the perception is that such management is less than successful. These judgments seem consistent with the data at the objective level though they must of course be moderated by a more detailed confrontation with facts.

TABLE 76
 ROLE OF THE BHM AS PERCEIVED BY INFORMANTS IN THE EIGHT
 CASE STUDY BARANGAYS

Barangays	Perceived Role
<u>Effective</u>	
Magayon	Community mobilizer
Madasig	Community mobilizer
Malipayon	Planner/Manager
Maisog	Community mobilizer and organizer
<u>Ineffective</u>	
Bukid	Indifferent
Busay	Absentee
Bato	Indifferent
Baybay	Indifferent

4. The Barangay Health Worker

Central to the conception of PUSH projects is the role of the barrio health worker. The BHW is expected to serve as the "agent of change" in the barangay, the initiator of development, or the catalyzer of progress. It is thus important that the BHW be "suitable" or "qualified" for that role in terms of physical ability, educational preparation, relations with the barangay people, relations with agency and local government personnel, among other things. There is of course no guarantee that possessing positive abilities in these areas will generate effectiveness. But the very recruitment procedures of PUSH implicitly assume that these positive qualities are essential to success.

Table 77 presents an expanded resumé of the BHWs in eight barangays. The BHWs in all eight barangays are about the same in terms of various characteristics, except perhaps on three counts. The BHWs in the effective barangays are all female; those in the ineffective ones include two males. Those in the effective barangays also seem to have somewhat superior education. Finally, they also seem to have more relatives in the barangays.

Perceived Impacts

Table 78 presents the perceived impacts of PUSH and the reasons for the quality of the impacts as indicated by key informants. PUSH

TABLE 77
CHARACTERISTICS OF THE BHWs IN THE EIGHT CASE STUDY BARANGAYS

Barangays	Sex	Age	Marital Status	Education	Born in the Barangay	No. of Relatives in barangay	Relation with the Barrio Captain
<u>Effective</u>							
Magayon	F	22	S	College graduate	Yes	Many	None
Madasig	F	36	M	6th Grade	No	None	None
Malipayon	F	26	S	College graduate	Yes	Many	Daughter
Maisog	F	22	S	College	Yes	Many	None
<u>Ineffective</u>							
Bukid	M	28	M	Vocational	No	None	Son-in-law
Busay	F	22	M	High School	Yes	Few	Sister
Bato	M	24	U*	Vocational	Yes	Few	None
Baybay	F	24	S	College graduate	Yes	Many	Niece

*Not legally married.

TABLE 78

PERCEIVED IMPACTS OF PUSH AND REASONS FOR THE
QUALITY OF IMPACTS IN THE EIGHT CASE STUDY
BARANGAYS

Barangays	Perceived Impacts	Major factor for Program Success/Failure
<u>Effective</u>		
Magayon	Sate water supply	BHW's work dedication
	Better sanitation	Support of barangay council, assembly and people
	Improved health conciousness	Cooperation of local government and agencies
Madasig	Success of PUSH	BHW's presence
	Selective utilization of projects	Assistance of local government and agencies
	Conflicts created by PUSH on use of wells	Mobilization of people to work on programs
	Demonstration effects on neighboring barangays	
Malipayon	PUSH program rated as effective	Presence of the BHW
	Running water provided	
	Time spent in fetching water cut down	
Maisog	85% of the population with potable water supply	The BHW's role as a mobilizer uniting various factions to work for the community
	90/118 households with water sealed toilets, used and well-maintained clean surroundings	The fairness of the barangay captain and the support he extends to BHW
	Women in the community organized into the MPFO	Cooperation of government agencies

Table 78 cont....

Ineffective

Bukid	Spring development project did not produce water	People are suspicious of BHW
	Community withdrew support from BHW	The community is not cooperative
	BHW is disillusioned	PUSH Barangay Fund has no funds
Busay	PUSH program is ineffective	There is no effective community leader
	Water supply did not improve	Community is not organized
	Community is dirty	BHW is ineffective
Bato	The PUSH wells dried up and the pump of 1 is destroyed.	The BHW is ineffective
	Residents refused to put up water-sealed toilets.	PUSH projects lacked maintenance.
		Landlords refused to donate lands for PUSH projects.
Baybay		Poor relations exist between BHW and Community.
		People are uncooperative.
	2 wells dried up. Only 1 PUSH well is still functioning	BHW lost interest in her job.

has more positive impacts in effective than in ineffective barangays. Also the principal contribution of PUSH as perceived is the delivery of the water project. PUSH making available water supply is mentioned in the effective barangays, while PUSH inability to make water available is noted in the four ineffective barangays.

As a factor affecting the quality of impacts, the BHW is mentioned consistently in both effective and ineffective barangays. However, it should be noted that the success or failure of the community is independent of the BHW. The latter has nothing to do with the drying up of wells. At most, the BHW is responsible for accelerating the construction and delivery of spring development projects and wells to the community.

The cooperation and support of local leaders and organizations and the coordination with government and private agencies contribute to more positive PUSH impacts. On the other hand, the lack or absence of some factors leads to less or no impact whatsoever in the PUSH communities.

Tentative conclusions

The eight case study barangays have been deemed effective or ineffective on the basis of certain criteria. Apart from these criteria, which are not conclusive, there seems to be explanatory

factors for the barangays' effectiveness or ineffectiveness. Such factors as the barangay's socioeconomic features, the amount of PUSH financial inputs, and the quality of local PUSH management could possibly have something to do with the barangay's effectiveness or ineffectiveness.

The barrio health worker is certainly an important person in the scheme of PUSH projects and his personal qualities, motivation, commitment and mobilization efforts may have direct bearing on the success or failure of PUSH projects. At the same time, people's perception of the BHW's role may well be influenced by their blood kinship or personal relationship with the BHW.

CONCLUSIONS AND RECOMMENDATIONS

This investigation focuses on the impact of a unified health project in Panay Island on five development concerns, namely: environmental sanitation, health, nutrition, fertility and participation. More specifically, it examines the linkages between specific project outputs and impacts. This study analyzes data collected in a survey of households in 52 depressed barangays of 21 municipalities in Aklan, Antique, Capiz and Iloilo, one year after the first group of BHWs were fielded. The project provides in an integrated fashion, basic preventive, educative and health promotiv- services and essential environmental sanitation infrastructure.

Impact is defined here as those changes in the areas of concern resulting from the use of project outputs. The relatively short-term effects of the project linking outputs and impacts are referred to as progress indicators. The analysis has tended to focus on immediate effects (progress indicators) because of the short time span since the start of the project. Though long-term impacts on productivity, employment, income growth and distribution were specified, it would be premature to assess them until after improved health and nutrition will have become evident.

The methods of analysis consisted mainly of 1) comparisons of conditions before and after PUSH, using the BHWs' baseline data and records/reports; 2) crosstabulations between progress and impact variables; and 3) multiple regression techniques to predict the effects of sets of variables on health/nutrition/fertility levels.

The study shows that the first year of project implementation centered primarily on the completion of ESI projects consisting of well construction/improvement, spring development, installation of toilet facilities, etc. and sanitation and beautification campaign of the barangays.

As we reported earlier (Guerrero, 1980), issues often discussed in the barangay had to do with funding sources for ESI projects or how the BHW can successfully hurdle the bureaucratic red tape to obtain the funds allocated for the barangay. Elaborate schemes and detailed guidelines/instructions had been worked out by the implementing agency for the planning, implementation and control of ESI projects -- and the utilization, disbursement and liquidation of PUSH barangay funds. Accomplishment reports of the BHW showed that ESIs were accorded top priority and attention over all other concerns.

These efforts have dramatically increased household and community facilities -- one year after, more households had installed

sanitary toilets and garbage disposal systems, obtained water from safer/more adequate sources. Surroundings were cleaner and compost pits were conspicuously seen in a number of homes. Fences sported a brand new coat of paint and households displayed new water-sealed toilets.

These highly visible improvements in the environment were considered by residents to be among the most important accomplishments of PUSH. They also regarded the BHW as the person responsible for these changes and for the increased access to health services.

The PUSH project, according to the wives, has also raised people's health consciousness, with people becoming more aware of health promotion and illness-prevention methods. The health delivery scheme has become more efficient with the implementation of the PUSH project. More children have been immunized with BCG and the proportion of severely and moderately malnourished children has decreased.

The impacts on health, nutrition, and fertility levels, participation and the environment have generally been positive, judging from the wives' evaluations of their own family's health and nutrition.

To a good percentage of the women, the PUSH project is decidedly intended to benefit the poor. Though more concrete effects in terms

of employment and income have not been felt, the conditions generated by the project appear conducive to greater cooperation and collective action by the people.

Through regression analysis, the most important sets of determinants and predictors of the impact variables were identified: these consisted mainly of 1) sociodemographic/economic characteristics (age, income education) of the household; 2) implementational factors -- level, distribution, and access to project outputs; 3) the BHW factor -- quantity and quality of efforts expended for the different activities; 4) knowledge, attitude and practice (KAP) levels.

The case studies provided an in-depth examination of the processes that affect the delivery of outputs, thereby yielding insights into the key determinants of impact. The BHWs' mobilizing efforts and relationships with people in the community, the level of support provided by the community and the governmental agencies, are factors that affect the timely delivery of project inputs and outputs.

This study, while focusing mainly on micro-level socioeconomic impacts, has revealed important implementational and management issues and problems that bear directly on project impacts. The lessons thus learned from the PUSM experience are highly relevant both to policy making and administration of the primary health care programme which

has been launched as the national strategy for achieving good health for all Filipinos in the year 2000.

A unified or integrated health project requires a great deal of coordination among local agencies which provide technical, logistical and administrative support to indigenous health workers who play the central role in the delivery of health services. It is rather ironical that in an effort to provide rationality to the organization and ensure efficiency in its operations, planners tend to devise complex structures and elaborate schemes and procedures which often militate against the very efficiency they espouse. In the initial stage of the PUSH project implementation, for instance, an inordinate amount of time was spent by the BHWS following up appointment papers, ESI project and fund releases and breaking through the "breaucratic barriers" to obtain needed outputs. The construction of ESI was crucial to their work since their initial success or failure as BHWS depended to a large extent on their delivery of water to the barangays. A first recommendation therefore is to continue to evolve more appropriate structures, mechanisms and procedures which will ensure prompt delivery of required health inputs and outputs.

A second recommendation concerns the BHWS who play a leading role in the primary health care (PHC) strategy. Expected to deliver all seven outputs in the PUSH project, the BHWS tended to operationalize the project objectives rather uniformly -- ESI construction,

beautification, weighing of preschoolers, immunization drives, etc. with the primary aim of creating visible impacts. There was little diversity and innovation in approaches and methods of problem identification and solution. Although the packaged approach may be necessary at the early stages of the project, it is worthwhile now to consider more seriously the community health workers' role as a catalyst to initiate and expedite the process of achieving health by and for the people. This suggests a training program for community health workers and health professionals which stresses the philosophy of the PHC. This training could provide workers with additional skills in analyzing community structures, and processes, understanding socioeconomic and political realities, and generating community participation and increasing collective self-reliance. Thus, subsequent training should deemphasize the role of the health worker as a mere channel for implementing or delivering a government-designed program. Rather, it should underscore the workers active role in helping communities build their capabilities for achieving self-reliance with respect to health care.

To sustain a health worker's commitment and motivation, it is further recommended that an appropriate reward system be evolved by the MOH. A comparative study of the effectiveness of health workers under different incentive schemes (e.g. paid vs. volunteer workers)

should provide helpful insights relevant to policymaking. However, considering the magnitude of financial inputs needed if indigenous health workers were to be paid, the MOH may try other incentive schemes or alternatively make use of existing health or health-related personnel or community groups who can be trained in the PHC strategy. The formation of core groups in the community who will function as "extenders" of health services is one such alternative.

The short period that has elapsed since the provision of ESI, health, nutrition and FP services has made this impact assessment study somewhat premature. A second survey is needed to test the hypotheses formulated in this research, particularly those covering the long-term (or second-order) impacts. To analyze the changes in the PUSH communities over time, a longitudinal survey should be undertaken -- using either cohort or panel studies. Moreover, a biological analysis of water used for drinking and diagnostic clinical examination for TB and other illness are deemed necessary. It is likewise recommended that data obtained from clinical examination be compared with those reported in the health interview schedules, to take into account both lay perceptions and professional definitions of illness.

In subsequent investigations of the PUSH impact, a careful assessment should be undertaken of the holistic impact of the project, or the extent to which the barangays have achieved collective self-

reliance. Some of the variables measures suggested earlier may be used such as the extent to which community health consciousness focuses on preventive rather than curative practices, the emerging community norms with respect to health practices, and the level of institutionalization of the PUSH model of health care.

It must be mentioned here that the PUSH Project has its own elaborate built-in monitoring and evaluation system -- where the BHWS collect data on project outputs and impacts which are later consolidated at the municipal, provincial, and regional levels. These data sets are listed in the Annex. Altogether, 12 forms are accomplished by the BHWS; among these are the community baseline reports, HH health records, TB case records activity logbooks and body weights of preschoolers. A good portion of the BHWS' time is generally taken up by these recording activities. Having examined and/or utilized some of these data, we noted varying levels of accuracy and reliability according to types of data generated or recorded. There is room for improving the accuracy of data recording as well as speeding up the processing, consolidation and analysis of information at higher levels. Integrating the impact indicators tested in this research into the MOH's monitoring and evaluation system will increase the responsiveness of health programmes.

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ANNEX "A"LIST OF PUSH PROJECT BARANGAYS
INCLUDED IN THE SURVEY

<u>Province</u>	<u>First Batch Municipality</u>	<u>Barangay</u>	<u>No. of Households Surveyed</u>
Aklan	Nabas	1. Buenafortuna	11
		2.	11
		3. Matabana	11
		4. Magallanes	11
Capiz	amindan	1. Bayebaye	11
		2. Linambasan	11
		3. Guintas	11
		4. Milan	15
		5. Lucero	15
Antique	Valderrama	1. Buluangan	11
		2. Binanongan	11
		3. Tigmamale	11
		4. Pandanan	15
		5. Manlacho	11
Iloilo	Igharas	1. Buga	15
		2. Lutangan	11
		3. Balibagan	11
		4. Sta. Barbara	11
	New Lucena	1. Baclayan	11
		2. Damires	11
		3. Bololacao	11
		4. Caqban	11
Total	5 municipalities	22 barangays	258 households

<u>Province</u>	<u>Second Batch Municipality</u>	<u>Barangay</u>	<u>No. of Households Surveyed</u>
Aklan	Ibajay	1. Rizal	11
		2. Nalonguisan	11
		3. San Jose	11
		4. Noile	15
Capiz	Tapaz	1. Garcia	11
		2. Gibio-an	11
Antique	Barbaza	1. Gua	11
		2. Igpalge	11
		3. Cabuy-an	11
		4. Palma	11
		5. Ipil	11
Iloilo	Anilao	1. Badiang	11
		2. Serallo	11
		3. Agbatuan	11
		4. Medina	11
	Banate	1. Zona Sur	11
		2. Bularan	11
		3. Talokgangan	15
	San Joaquin	1. Pitogo	11
		2. Taslan	11
	Total	8 municipalities	28 barangays

<u>Province</u>	<u>Third Batch Municipality</u>	<u>Barangay</u>	<u>No. of Households Surveyed</u>
Aklan	Batan	Mambuquiao	11
	New Washington	Tambac	15
Antique	Sebaste	Aguila	11
	Tibiao	Lapaz	11
Capiz	Dumalag	San Rafael	15
	Mambusao	Bunga	11
Iloilo	Lemery	Milan	11
	San Rafael	Bagaycay	11
	Tigbauan	Tan Pael	11
	Tubyngan	San Jose	11
Total	10 municipalities	10 barangays	118 households
Grand Total	21 municipalities	52 barangays	604 households

ANNEX "B"

BHWs SUMMARY OF FORMS AND DATA ELEMENTS

1. BHW Form 1. Community Baseline Survey Report: The BHW applies this interview schedule to every household in her barangay.
Basic variables are:
 - a. Child nutrition and immunization
 - b. Family planning among eligible couples
 - c. TB and leprosy
 - d. Toilet
 - e. Water supply
 - f. Household roster: occupation, religion, education, sex, age, civil status, relationship, child nutrition and immunization
 - g. Gardening and livestock
 - h. Medical services: access and use
2. BHW Form 2. Monthly Work Program. The BHW's work program is determined in conference with her superiors, and BHW 2 is used to record her activities by type.
3. BHW Form 3. Accomplishment/Status Report. This form is oriented towards project outputs and impacts. It records:
 - a. Symptomatic complaints attended
 - b. Immunization administered
 - c. Family planning supplies, referrals, and statistics

- d. Nutrition referrals and statistics
 - e. Educational and informational activities
 - f. TB control
 - g. Collection of sample specimens
 - h. Vital events
4. BHW Form 4. Household Record. A file is maintained for each household in the barangay. Variables include:
- a. Location
 - b. Number of families
 - c. Average monthly income
 - d. Occupation
 - e. Water sources
 - f. Toilet facilities
 - g. Gardening
 - h. Livestock
 - i. Household roster:
 - 1. Name
 - 2. Sex
 - 3. Civil status
 - 4. Date of Birth
 - 5. Weight
 - 6. Height
 - 7. Relationship to head of household

- j. Family planning by method
 - k. Organizational memberships
 - l. Diseases in family
5. BHW Form 5. Household Health Record
- a. Name
 - b. Date
 - c. Age
 - d. Complaint/Symptom
 - e. Advice given
6. BHW Form 6. Child Record. For each child six years and below,
the following data are collected and maintained:
- a. Date of birth
 - b. Registration
 - c. Sex
 - d. Parity
 - e. Location
 - f. Birth date
 - g. Immunization record
 - h. Health record
7. BHW Form 3. TB Case Record
- a. Personal characteristics and ID
 - b. Symptoms history and checklist
 - c. Medical management

8. BHW Form 8. Body Weighing Record. For children six years old and below.
9. BHW Form 9. Activity Logbook on Health.
10. BHW Form 10. Information/Education/Communication Activity Logbook
11. BHW Form 11. Body Weighing Worksheet.
12. BHW Form 12. Referral Slip
13. RHU Form: Municipal Consolidated Status Report. Used to consolidate data from BHW reports, mostly BHW Form 3, along with activities of RHM's, hilots, and other outreach personnel in the PUSH barangays.
14. Form PHO 2. Provincial Consolidated Status Report. Follows the same general format as RAU 1, and is utilized to consolidate the data from that form.
15. ESI Documentation. A set of forms, documents and procedures for community environmental sanitation project proposals.

ANNEX "C"

TABLE 21.2
HOUSEWIVES AND HOUSEHOLD HEADS' EDUCATION BY
TYPE OF TOILET FACILITY

a. Type of Toilet Facility	Housewives' Education				Total
	primary schooling	intermediate Level	High School Level	College Level	
none	26	18	21	6	20 (123)
flush toilets	0	0	3	8	1 (7)
water-sealed toilets	33	44	43	48	40 (244)
antipolo	26	28	23	26	26 (159)
open pit or pail system	16	9	10	11	12 (71)
Total	100	100	100	100	100 (604)
N	(196)	(256)	(117)	(35)	

Chi-square = 38.368 with df = 12 $p < .001$

b. Type of Toilet Facility	Household Heads' Education				Total
	primary schooling	intermediate Level	High School Level	College Level	
none	27	17	17	10	20 (123)
flush toilets	0	0	5	7	1 (7)
water-sealed toilets	34	44	46	40	40 (244)
antipolo	24	30	24	30	26 (159)
open pit or pail system	15	9	8	13	12 (71)
Total	100	100	100	100	100 (604)
N	(244)	(228)	(102)	(30)	

Chi-square = 44.597 with df = 12 $p < .001$

TABLE 21.22

HOUSEHOLD INCOME BY PRESENCE OF GARBAGE
AND ANIMAL WASTE

a. Presence of Garbage	Income Level					Total
	Below ₱500	₱500- 999	₱1000- 2000	₱2001- 5000	₱5001 & over	
yes	54	52	45	49	37	48 (280)
no	<u>46</u>	<u>48</u>	<u>55</u>	<u>51</u>	<u>63</u>	<u>52 (298)</u>
Total	100	100	100	100	100	100 (278)
N	(162)	(110)	(117)	(107)	(82)	

chi-square = 7.823 with df = 4 p .10

b. Presence of Animal
Waste

yes	28	38	25	31	15	28 (162)
no	<u>72</u>	<u>62</u>	<u>75</u>	<u>69</u>	<u>85</u>	<u>72 (417)</u>
Total	100	100	100	100	100	100 (579)
N	(162)	(110)	(119)	(107)	(82)	

chi-square - 13.750 with df = 4 p < .01

ANNEX "E"

TABLE 21.3

HOUSEWIVES' EDUCATION BY PRESENCE OF GARBAGE
AND ANIMAL WASTE

presence of garbage	Primary schooling	Intermediate Level	High school Level	College Level	Total
yes	56	47	45	34	49 (295)
no	<u>44</u>	<u>53</u>	<u>55</u>	<u>66</u>	<u>51 (308)</u>
Total	100	100	100	100	100 (603)
N	(196)	(255)	(117)	(35)	

chi-square = 8.036 with df = 3 p < .10

Presence of
Animal Waste

yes	29	31	26	14	28 (172)
no	<u>71</u>	<u>69</u>	<u>74</u>	<u>86</u>	<u>72 (432)</u>
Total	100	100	100	100	100 (604)
N	(196)	(256)	(117)	(35)	

chi-square = 4.924 with df = 3 p < .20

ANNEX "F"

TABLE 21.4

HUSBANDS' EDUCATION BY PRESENCE OF
GARBAGE AND ANIMAL WASTE

Presence of Garbage	Husbands' Education				Total
	Primary schooling	Intermediate Level	High School Level	College Level	
yes	54	49	41	37	49 (295)
no	<u>46</u>	<u>51</u>	<u>59</u>	<u>63</u>	<u>51 (308)</u>
Total	100	100	100	100	100 (603)
N	(244)	(227)	(102)	(30)	

chi-square = 6.471 with df = 3 p > .10

Presence of
Animal Waste

yes	30	31	24	10	28 (172)
no	<u>70</u>	<u>69</u>	<u>76</u>	<u>90</u>	<u>72 (432)</u>
Total	100	100	100	100	100 (604)
N	(244)	(229)	(102)	(30)	

chi-square = 7.459 with df = 3 p < .10

ANNEX "G"

TABLE 25

VARIABLES/INDICATORS INCLUDED IN THE REGRESSION ANALYSIS

Block 1: Environment

<u>Variable/Indicator</u>	<u>Definition</u>
1. Environmental Sanitation Level (ENVIRON)	
a) observed ENVIRON conditions	scored 0-4 for relative presence of stagnant water, garbage, etc.
b) perceived ENVIRON conditions	1 if improved; 0 otherwise
2. Use of ES output (USE-ES)	
a) received toilet facility	1 if received; 0 otherwise
b) whether HH has availed of BHW services	1 if availed; 0 otherwise
3. Level of BHW-services	
a) BHWs' assessment of time allocation for ES	1, too little; 2, enough; 3, too much
b) ratio of ES to total activity	scored from 1 to 10
c) quality of BHW services	1 to 3 point scale of activities mentioned
4. Environ-KAP	
a) type of toilet used	Scale of 0 (none) to 4 (flush type)
b) method of garbage disposal	Scale of 1 (dumping) to 3 (burning/compost)
c) type of pest control used	Scale of 1 (trapping) to 3 (spraying)
5. Level of ES outputs	Number of ESI projects implemented
6. Income	Total household income
7. Education	Wife's level of education
8. Duration	Batch 1 = 12 Batch 2 = 6 Batch 3 = 3

TABLE 26.1

MEANS AND STANDARD DEVIATIONS OF VARIABLES IN THE REGRESSION
Block 1: Environment

	<u>Batch 1</u>		<u>Batch 2</u>		<u>Batch 3</u>	
	Means	SD	Means	SD	Means	SD
Observed ENVIRON level	2.27	1.13	2.28	1.17	2.18	1.18
Perceived ENVIRON level	0.93	0.26	0.86	0.35	0.77	0.42
Receipt and use of ES materials	0.63	0.02	0.37	0.02	0.20	0.04
Availed of BHW services	0.73	0.02	0.56	0.02	0.44	0.04
Perceived level of BH services	2.10	0.54	2.13	0.56	2.38	0.52
Ratio of ES to total services	4.06	1.85	3.85	1.70	4.12	1.96
Quality of BHW services	1.56	0.58	1.50	0.60	1.75	0.70
Use of sanitary toilet facilities	2.07	0.38	1.96	0.41	1.59	0.24
Use of potable HH water supply	4.71	0.76	4.62	0.80	3.31	1.19
Use of sanitary garbage disposal	1.82	0.31	2.00	0.23	2.15	0.34
Use of pest control	1.03	0.22	1.14	0.28	1.31	0.30
Level of ES outputs	4.20	1.57	4.75	1.58	2.64	3.00
Distribution of ES outputs	2.46	0.83	3.00	1.06	1.71	1.75
Income	4.66	3.67	5.75	3.87	5.13	3.62
Wife's education	6.11	3.62	6.65	3.95	5.98	2.87

TABLE 29.1

REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF ENVIRONMENTAL SANITATION PRACTICE (ES-KAP)Indicators: a) use of sanitary toilet facility
b) use of potable HH water supply

Independent Variables	Regression Coefficients (T-values)					
	Indicator A			Indicator B		
	Batch 1	Batch 2	Batch 3	Batch 1	Batch 2	Batch 3
constant	2.23	0.04	2.45	0.98	5.32	7.56
ratio of BHW-ES activities	-0.08 (1.75)*	0.15 (2.84)**	-0.03 (0.35)	0.07 (0.77)	-0.38 (3.54)**	0.35 (1.83)*
quality of BHW services	-0.21 (1.33)	0.29 (1.68)*	0.00 (0.00)	1.19 (3.71)**	-0.59 (1.71)*	-1.18 (2.56)**
perceived level of BHW services	0.35 (2.28)**	-0.03 (0.20)	-0.28 (0.92)	-0.01 (0.02)	0.37 (1.20)	-1.80 (3.08)**
level of ES outputs	-0.10 (2.16)**	0.05 (0.96)	0.02 (0.24)	0.31 (3.23)**	0.26 (2.34)**	-0.03 (0.21)
income	0.01 (0.26)	0.05 (2.15)**	0.03 (0.76)	-0.00 (0.03)	-0.03 (0.56)	0.04 (0.42)
education	0.02 (0.96)	0.06 (2.91)**	-0.05 (0.77)	0.05 (1.24)	-0.04 (0.84)	0.09 (0.81)
R ²	0.12	0.11	0.04	0.12	0.10	0.24
F-ratio	5.14	4.22	0.42	5.14	4.15	2.81
N	241	223	61	241	223	61

*t-value significant at .10 level

**t-value significant at .05 level

TABLE 29.1
REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION
OF ENVIRONMENTAL SANITATION PRACTICE (ES-KAP)

Indicators: c) use of sanitary garbage disposal system
d) use of pest control methods

Independent Variables	Regression Coefficients (T-values)					
	Indicator C			Indicator D		
	Batch 1	Batch 2	Batch 3	Batch 1	Batch 2	Batch 3
constant	2.62	2.03	1.29	0.25	0.81	1.02
ratio of BHW-ES activities	-0.12 (3.74)**	0.03 (0.88)	0.03 (0.56)	0.01 (0.21)	0.02 (0.43)	0.13 (1.49)
quality of BHW services	0.00 (0.02)	-0.15 (1.27)	-0.26 (1.72)*	0.41 (2.55)**	-0.37 (2.34)**	-0.11 (0.52)
perceived level of BHW services	0.18 (1.55)	0.06 (0.54)	0.44 (2.33)**	0.15 (0.95)	0.18 (1.29)	0.18 (0.66)
level of ES outputs	-0.18 (5.42)**	0.08 (2.21)**	0.01 (0.38)	0.01 (0.12)	0.04 (0.71)	0.01 (0.25)
income	0.01 (0.47)	0.03 (1.67)*	0.07 (2.38)	0.03 (1.23)	-0.01 (0.22)	0.06 (1.32)
education	0.01 (0.54)	0.03 (2.06)**	0.05 (1.22)	0.03 (1.25)	0.04 (2.06)**	-0.01 (0.16)
R ²	0.15	0.08	0.20	0.05	0.06	0.08
F-ratio	6.60	3.05	2.18	2.21	2.44	0.77
N	241	223	61	241	223	61

*t-value significant at .10 level

** t-value significant at .05 level

ANNEX "J"

SCORING CODES FOR HOUSEHOLD MEAL PATTERN

Breakfast

- Score 1 - beverage only (either coffee,
choice milo, taho, tea or milk)
of: - fruit juice only
- beverage and fruit
- rice or bread only
- Score 2 - beverage or juice and pan
choice de sal (bread)
of: - beverage or juice and rice
- egg only
- rice and bagoong or salt
- Score 3 - rice or bread and eggs
choice - rice or bread and canned goods
of: - rice and soup
- beverage or juice and bread
fruit
- Score 4 - rice and any meat or fish
choice or chicken dish
of: - fruit juice and bread
with canned goods
- beverage, vegetable dish and
rice
- Score 5 - beverage, rice, fish or
choice meat or chicken dish and fruit
of: - beverage or fruit juice and
meat or fish or chicken dish
and rice or bread

Lunch/Dinner

- Score 1 - rice or lugao and bagoong
choice or salt
of: - rice or bread only
- Score 2 - rice and vegetables
choice - rice and fish or meat or
of: chicken dish
- Score 3 - rice, fish or meat or chicken
choice and fruit
of: - rice and canned goods
- Score 4 - rice and vegetable dish with
choice fish or meat or chicken
ingredient
of: - rice and soupy dish of
vegetable and dish or chicken
or meat
- Score 5 - light soup, rice, vegetable,
choice chicken or meat or fish
dish and fruit or fruit
of: juice

ANNEX "K"

TABLE 45.1

MEAL QUALITY, SATISFACTION WITH FOOD CONSUMPTION
BY INCOME AND EDUCATIONAL LEVEL
(Batch 3, N=117)

% with "High" Quality Meals	Income		Education	
	Low (Below ₱500)	High (₱5,000 or more)	Low (Primary)	High (Some College)
	in per cent			
Breakfast N=15	7	29	5	50
Lunch N=79	67	79	64	75
Dinner N=19	17	14	12	13
Satisfied with food consumption N=57	52	57	41	38

The chi-square (χ^2), degrees of freedom (df) and significance levels (p) are:

	χ^2	df	p
Breakfast x Income	9.01	8	N.S.
Breakfast x Educ. Level	18.96	6	<.01
Lunch x income	1.84	4	N.S.
Lunch x Educ. Level	0.44	3	N.S.
Dinner x Income	1.62	8	N.S.
Dinner x Educ. Level	3.96	6	N.S.
Satisfaction x Income	1.23	4	N.S.
Satisfaction x Educ. Level	5.19	3	N.S.

ANNEX "L"

TABLE 45.2

MEAL QUALITY, SATISFACTION WITH FOOD CONSUMPTION, BY INCOME/EDUCATIONAL LEVEL
(TOTAL SAMPLE 604)

% with "High" Quality Meals	Income		Wife's Education	
	Low (Below ₱500)	High (Above ₱5,000)	Low (Primary)	High (Some College)
Breakfast N=104	8	37	9	57
Lunch N=352	49	66	53	77
Dinner N=92	13.5	16.5	12	14
Satisfied with food consumption N=261	35	64	35	56

The chi-square (χ^2) values, degrees of freedom (df) and significance (p) levels are:

	χ^2	df	p
Breakfast x Income	48.70	8	<.001
Breakfast x Educ. Level	64.46	5	<.001
Lunch x Income	8.57	4	<.10
Lunch x Educ. Level	10.08	3	<.05
Dinner x Income	8.71	8	N.S.
Dinner x Educ. Level	6.30	6	N.S.
Satisfaction x Income	24.37	4	<.001
Satisfaction x Educ. Level	16.66	3	<.001

ANNEX "M"

TABLE 45.3
 MEAL QUALITY, SATISFACTION WITH FOOD CONSUMPTION
 BY INCOME AND EDUCATIONAL LEVEL
 (Batch 3, N=117)

% with "high" Quality Meals	Income		Education	
	Low Below (₱500)	High (₱5,000 or more)	Low (Primary)	High (Some College)
	in per cent			
Breakfast N=15	7	29	5	50
Lunch N=79	67	79	64	75
Dinner N=19	17	14	12	13
Satisfied with food consumption N=57	52	57	41	38

The chi-square (χ^2), degrees of freedom (df) and significance levels (p) are:

	χ^2	df	p
Breakfast x Income	9.01	8	N.S.
Breakfast x Educ. Level	13.96	6	<.01
Lunch x Income	1.84	4	N.S.
Lunch x Educ. Level	0.44	3	N.S.
Dinner x Income	3.96	6	N.S.
Satisfaction x Income	1.23	4	N.S.
Satisfaction x Educ. Level	5.19	3	N.S.

ANNEX "N"

TABLE 53
 FACTOR ANALYSIS ON PSYCHOLOGICAL MEASURES

Psychological measures	Factor Loadings			
	I	II	III	IV
R's self-evaluation of health status	-.65	.03	.06	.02
R's evaluation of childrens' health	-.54	.03	.02	-.03
R's satisfaction with health status	.73	-.06	-.10	-.10
R's satisfaction with family's health	.68	.04	.05	.12
Satisfaction with number of male children	.08	.52	.02	.12
Satisfaction with number of female children	-.08	.57	.06	.01
Satisfaction with total number of children	-.07	.99	-.01	.02
Perception of socioeconomic status	-.02	.04	.84	-.10
perception of income status	-.08	.02	.85	-.09
Satisfaction with educational opportunities for children	.07	.01	-.06	.71
Satisfaction with R.s level of education	.11	-.03	-.10	.37

"ANNEX O"

TABLE 54

VARIABLES AND INDICATORS INCLUDED IN THE REGRESSION ANALYSIS
(block 2: Health, Nutrition, Fertility)

<u>Variable</u>	<u>Definition</u>
Health: incidents of respiratory diseases in HH	-prevalence of the disease, based on symptoms reported
incidence of gastrointestinal diseases	
satisfaction with health	combination of 4 items, scored on a 5-point scale (for health evaluations) and 2 point scale for satisfaction
Environ observed ENVIRON	-scored 0 to 4
perceived ENVIRON	-1 if improved, 0 otherwise
Nutrition nutritional level (meal quality)	-5 point scale for quality of usual meals (breakfast + lunch + dinner)
satisfaction with food consumption	-1 satisfied 0 dissatisfied
BHW nutrition efforts	-time spent on nutrition 1 -- too little 2 -- enough, 3 -- too much
Quality of BHW nutrition activities	-Score of 1 to 2 points for each activity type
level of nutrition outputs	-number of nutrition projects by stage of accomplishment
nutrition KAP #1, #2 and #3	-Score on selected nutrition beliefs/practice
level of BHW-health activities	-1 point for each activity undertaken
ratio of health to total activities	-% of health to total activities
FP FP-use	-1 if practiced, 0 otherwise
Distribution of FP services	-percentage of barangay MCRAs who have availed of FP services
Age of wife	-actual age
Income	-HH income categorized
Wife's education	-Education categorized
Duration	-Batch 1, 2, 3
household composition	-Group into Households with members ages 0-6, 6-24 and 25 years and over

TABLE 55.1

MEANS AND STANDARD DEVIATIONS OF VARIABLES IN THE REGRESSION
 Block 2: Health, Nutrition and Fertility
 (Batch 1, 2 and 3)

	Batch 1		Batch 2		Batch 3	
	Means	SD	Means	SD	Means	SD
Incidence of respiratory diseases	0.72	0.73	0.71	0.66	0.80	0.80
Incidence of gastrointestinal diseases	0.27	0.54	0.21	0.50	0.27	0.54
Satisfaction with health	8.04	2.05	8.14	2.11	8.21	2.14
Observed ENVIRON level	1.98	0.93	1.96	0.99	1.95	1.05
Perceived ENVIRON level	0.89	0.31	0.85	0.36	0.59	0.49
Nutritional level (meat quality)	8.04	0.83	8.92	0.90	8.84	0.96
Satisfaction with nutritional level	0.37	0.15	0.47	0.12	0.43	0.18
FP use	0.35	0.16	0.41	0.17	0.39	0.23
Health KAP	11.47	1.91	12.56	2.98	10.79	3.36
Age of wife	37.59	11.78	38.92	11.61	39.56	11.68
Educational level (wife)	6.05	3.58	6.58	3.93	6.00	3.58
Income	4.63	3.68	5.73	3.85	5.03	3.58
Perceived level of nutrition efforts	1.83	0.38	2.20	1.57	2.06	0.71
Ratio of NHW nutrition activities	1.47	0.64	1.85	1.13	2.18	1.11
Quality of BHW nutrition activities	3.14	1.22	3.71	0.77	2.71	1.14
Level of nutritional efforts	3.29	1.20	3.15	1.21	3.03	0.64
Nutrition KAP #1	1.68	0.21	2.08	0.22	1.84	0.15
Nutrition KAP #2	1.47	0.44	1.12	0.26	0.71	0.35
Nutrition KAP #3	2.22	0.33	2.63	0.44	2.32	0.54
Distribution of FP services	3.73	2.60	3.38	1.90	1.74	1.47
Perceived level of BHW health efforts	3.91	0.41	4.16	1.65	4.13	0.61
Ratio of BHW health activities	4.25	1.76	4.00	1.31	3.29	1.36
level of BHW health activities	5.72	1.38	5.04	1.45	4.68	1.49
Number of HH members 0-5	1.21	1.05	1.31	1.17	1.08	1.12
Number of HH members 6-24	2.33	1.75	2.54	1.76	2.60	1.80
Number of HH members 25 and over	2.09	0.78	2.18	0.83	2.15	0.89

TABLE 62.1

REGRESSION COEFFICIENTS AND T-VALUES IN THE PREDICTION OF
NUTRITIONAL KAP

Indicators: Nutrition KAP no. 1
 Nutrition KAP no. 2
 Nutrition KAP no. 3

Independent Variables	Regression Coefficients (T-values)								
	Indicator A			Indicator B			Indicator C		
	Batch 1	Batch 2	Batch 3	Batch 1	Batch 2	Batch 3	Batch 1	Batch 2	Batch 3
constant	2.56	-0.67	1.98	0.94	-1.01	-0.51	2.18	-1.46	1.47
health KAP	-0.05 (0.81)	0.28 (2.54)**	-0.08 (1.51)	-0.03 (0.53)	0.31 (3.38)**	-0.03 (0.59)	-0.10 (0.79)	0.48 (2.68)**	-0.29 (2.28)**
perceived level of BHW nutrition efforts	-0.25 (1.88)**	0.07 (1.44)	0.09 (0.99)	0.18 (1.36)	0.05 (1.36)	0.44 (4.47)**	0.10 (0.35)	-0.03 (0.43)	0.50 (2.38)**
ratio of BHW nutrition activities	-0.24 (2.71)**	-0.06 (0.81)	-0.01 (0.23)	-0.21 (2.29)**	-0.01 (0.23)	-0.12 (1.96)*	-0.41 (2.17)**	-0.21 (1.76)*	-0.22 (1.65)*
quality of BHW nutrition activities	-0.01 (0.14)	0.21 (1.74)*	-0.05 (0.82)	-0.13 (2.80)**	-0.06 (0.63)	0.03 (0.38)	0.06 (0.62)	0.33 (1.71)*	0.37 (2.58)**
level of nutritional output	0.14 (3.17)**	0.01 (0.24)	0.11 (0.98)	0.17 (3.63)**	-0.08 (1.76)*	0.20 (1.77)*	0.21 (2.16)**	-0.21 (2.37)**	0.17 (0.71)
income	-0.00 (0.02)	-0.07 (2.34)**	0.02 (0.66)	0.02 (0.92)	-0.06 (2.44)**	0.00 (0.12)	0.06 (1.47)	-0.04 (0.91)	0.09 (1.79)**
wife's education	0.00 (0.15)	-0.20 (2.60)**	0.05 (1.27)	0.04 (1.81)*	-0.17 (2.65)**	0.06 (1.55)	0.07 (1.52)	-0.28 (2.35)**	0.21 (2.35)**
R ²	0.09	0.07	0.06	0.11	0.13	0.23	1.97	0.10	0.13
F-value	3.58	2.34	0.90	4.60	4.78	4.64	1.97	3.63	2.25
N	257	230	117	257	230	117	257	230	117

*t-value significant at .10 level

**t-value significant at .05 level

THE EIGHT "PUSH" CASE STUDY BARANGAYS

This section presents a detailed description of each of the four effective PUSH barangays and each of the four ineffective barangays. The write-up on each barangay focuses on:

1. The Barangay as a Community
2. PUSH Projects, Project Utilization and Recipients
3. The BHW
4. The PUSH Project Effects
5. PUSH in the Community: An Assessment

1. The Effective Barangays

BARANGAY MAGAYON

Magayon, one of the effective PUSH barangays, became a PUSH barangay in September 1979. It belongs to the municipality of New Lucena in Iloilo.

Magayon as a Community

Magayon is classified as economically depressed but it is not as depressed as other Iloilo barangays. Having a population of 664 living in 115 households as of March 1981, it covers a total land area of about 353 hectares. It has a population density of 1.9 persons per hectare.

Agriculture is the main source of livelihood for majority of the population who either farm their own land or work as tenants of absentee landlords. Main crops are rice, corn and sugar. To supplement farm incomes, some households raise hogs and other livestock.

The educational profile of the barangay is low. Only 26 per cent have completed their elementary schooling, 10 per cent, the secondary level and only 3 per cent have college degrees. Most of those

who graduated from college found employment outside of the barangay.

The houses are mostly lined along the two barangay roads while a few are scattered on the slopes of the hills adjacent to the farms. All the households built their own houses. Only 18 per cent claimed to be squatters.

Houses are mostly made of nipa and bamboo, with about 40 per cent made of mixed and more permanent materials. Majority of the houses do not have bathrooms. Residents bathe where the wells are located. Since the entry of PUSH into the barangays, 39 water sealed toilets with enclosures have been constructed. They also double up as bathrooms.

Magayon has 14 public wells, 5 of which were either constructed or improved by PUSH. Two private wells were noted by the Participant Observer (PO). The residents claimed that PUSH improved the water supply in the barangay.

Magayon has a Barangay Health Center strategically located at the center of the barangay together with a chapel, multi-purpose center and a school.

The Health Center had been there before PUSH. It serves as an Office of the Barangay Health Worker (BHW) and as a First Aid Clinic. Part of it is used as a Day Care Center.

The Rural Health Midwife (RHM) holds clinic in the Center once a week. During the rest of the week, services are rendered by the BHW who dispenses medicine on orders of the RHM. The Ministry of Health provides the medicines.

The barangay has a primary school with combined classes of grades 1 and 2, and grades 3 and 4. The teachers note high absenteeism during the planting and harvest seasons.

The PO notes that gambling is unknown to the place. The members are preoccupied with farm work, women with household chores and the younger population with sports.

The PO observes that Barangay Magayon is clean. There are no stray animals. Household owners clean their own yards and the road fronting their homes every morning. Refuse is burned in the compost pits. The barangay has no drainage problem, since water flows down following the natural contours of the land. Thirty-two families have installed blind drainages.

Barangay Magayon is exposed to government programs. PUSH used the barangay for its practicum for the training of Batch 1 BHWs. It has been a demonstration barangay for a number of government projects including PUSH.

PUSH Project Status, Utilization,
and Project Recipients

As of the time of observations were made in April-May 1981, Magayon had received ₱57,282 worth of PUSH projects - ₱50,282 from the Environmental Sanitation Infrastructure (ESI) funds and ₱7,000 from the PUSH Barangay Funds. On the projects, the following observation were made:

<u>Projects</u>	<u>Project Status & Utilization</u>	<u>Recipients</u>
1 improved open dug well in Purok 1	Adequate water for household use.	30 households or 170 residents
1 shallow driven well also in Purok 1	Adequate water for general household use.	13 households or 78 residents
1 improved open dug well in Purok II	Adequate water for general household use.	12 households or 58 residents
1 shallow driven well in Purok II	Adequate water for general household use	12 households or 78 residents
1 deep drilled well	Water is brackish and use for cleaning and feeding hogs.	20 households or 96 residents
20 units of water sealed toilet bowls	As of June 1980, all were installed. Barangay PUSH Funds were used to purchase installation materials.	20 households or 108 residents
19 units of water sealed toilets bowls	As of January 1981, ten (10) are still to be installed. Barangay PUSH Funds depleted. No materials for installation.	Given to 19 households when fully installed, will benefit 105 residents

Kitchen utensils	Nutrition's feeding Program	Malnourished children ages 0-6
Gardeon tools	Nutrition's Communal Garden	Community
Repair/improvement of the barangay Health Center	Office of the BHW and RHM	Community
Maintenance of wells	Repairs	Community
Maintenance of the Day Care Center	Repairs	Children ages 0-6
First aid supplies	Supplies for the clinic	Community

Barangay Magayon is also a recipient of PUSH health services.

<u>Health Services</u>	<u>Activity</u>	<u>Recipient</u>
Water sample	Water analysis by MOH	Community
Sanitation campaign	Proper waste disposal	32 households
Family planning	Information, referrals. BHW is also the BSPO. Coordinates activities with FPW.	21 couple acceptors in 1981 compared to 4 in 1979
Nutrition with the Day Care Center	Monthly weighing of children ages 0-6	208 children of 70 households
	Feeding program	60 children of 37 households
	Deworming	60 children of 33 households
Garden tools	Communal garden	Community
Immunization	Regular DPT and BCG shots in coordination with CHU	136 children
First aid cases	Treatment	76 cases

The PO notes that the barangay as a community is involved in planning, implementing and evaluating the various PUSH program activities. The BHW exerts extra effort in organizing and mobilizing the community using existing community organizations like the barangay council, the barangay assembly, the Kabataang Barangay (KB) and the New Lucena Sports League. The key informants point out to the BHW as a key factor in the success of PUSH in New Lucena. The BHW's leadership (she is also the president of the KB), her charm and good judgement, high credibility, sincerity and her acceptance by the community are some of the qualities which contributed to her success as BHW. She easily mobilizes the community through her personalized approach. The BHW gets along well with the people and is also well-liked by them.

As observed by the PO and confirmed by key informants, the BHW also gets well with local government personnel. The Rural Health Nurse and Midwife claim they enjoy working with the BHW whom they regard as active, responsible and a good worker. The BHW is described as highly committed to her work, systematic and gives her best to the people she serves. The PO commented that the BHW "exudes satisfaction with her work" and "seems to be happy" that she is contributing to improve her community.

The Barangay Health Worker (BHW)

The BHW is Imelda, 22 years old, BS nutrition graduate, eldest of 7 children and a native of New Lucena. Her father is the Barangay Council treasurer and her mother is also active in community activities. She belongs to a big clan in New Lucena and claims that her relatives help her in her community mobilization activity.

She enjoys the support of the Barangay Council. She was one among the five choices of the Barangay Captain, one of the three chosen and forwarded by the Mayor to the Provincial Screening Committee and chosen by the Committee as Magayon BHW. She assumed the position on 1 September 1979 after six weeks training in Iloilo City.

The PUSH Project Effects

During the two-week observation period, the PO reported the following on the use and possible effects of the PUSH projects.

<u>Projects</u>	<u>Project Use</u>	<u>Possible Effects</u>
Wells	Used day and night	PO observes that the surroundings and the people look clean.

		RHM observes the decline of gastro-cases since the operation of PUSH wells.
Water sealed toilets	Fully used and well-maintained in areas with water	PO observes the absence of human waste or its smell during her observation
Blind drainage	PUSH is the first to introduce them Recipients set them up at their own expense	Demonstration effects are observed. About 20 residents put up their own without PUSH assistance.
Sanitation Campaigns		Barangay is clean. PO observes the absence of stray animals and animal droppings. Households clean their surroundings everyday.
Health services	Residents readily accept immunization campaigns, deworming and weighing of children ages 0-6	Absence of noticeable changes as of time of observations.
Family Planning	Couples enroll in the program but only rhythm method is accepted.	Absence of noticeable changes as of time of observation.

PUSH in the Community: An Assessment

Magayon is judged as one of the successful PUSH barangays by the PUSH Program Staff in Iloilo City. This is corroborated

by both the empirical evidence, and the observations of the PO and key informants in New Lucena.

Magayon has an active set of barangay officials. The barangay captain has been the undisputed leader in the community for the last 32 years. During the last two (2) elections, it was the community who filed his candidacy. The six councilmen are persons of known integrity in the barangay. The local leaders are respected by the community and local government. The rural health physician, a member of the Sangguniang Bayan and the president of the Balikatan sa Kaunlaran are from Magayon.

Barrio Assembly meetings are usually well-attended. People's participation in community activities is rated as very enthusiastic by key informants. Decisions are made on what is good for the community.

Project success in Magayon did not exempt the program from problems. The key informants and the BHW raised the following problems during the study:

1. Delays in the release of program funds resulted in:
 - 1.1 delays in the payment of BHW salaries;
 - 1.2 delays in project implementations;
 - 1.3 delays in project completion and deliveries; and
 - 1.4 increase in project cost due to such delays.

2. The BHW complained about the low pay. BHWs get ₱240 per month, ₱75 allowance and government benefit of ₱13.25 or a total of ₱328.25 per month. Most BHW's salaries always come late.
3. Also mentioned was the lukewarm support of government bureaucrats to the BHW in getting project proposals approved or funds released after projects are approved for implementation.

On the whole, the PO observes that PUSH has improved community life by bringing about safer water supply, better sanitation and enhancing health consciousness. The success of PUSH in Magayon is attributable to the commitment and dedication of the BHW, the support of the barangay council leaders, Barangay Assembly and the municipal leaders and finally the cooperation and involvement of the people in the project. The fact that Magayon has always been a demonstration barangay for government projects may have contributed to the community's receptiveness to the PUSH program.

BARANGAY MADASIG

Madasig is one of the more effective PUSH barangays. Just like Magayon, it became a PUSH barangay in September 1979. It belongs to the municipality of Jamindan in Capiz.

Madasig as a Community

Though classified as depressed Madasig is not as depressed as the other Capiz barangays. Madasig has a population of 1,114 belonging to 182 households which are scattered in six sitios. Houses however are concentrated in the sitio proper.

The barangay's main crop is rice. The riceland is irrigated but the irrigation system has broken down and rice farmers had to depend on rain in the meantime. A sizeable portion of the farmland in Madasig is owned by four (4) families from the poblacion. About 65 per cent of the families are small landowners and 25 per cent are lessees.

Madasig has four (4) wells, a barangay health sub-station, a chapel and a day care center. Primary health care services are available in Jamindan, the poblacion. The nearest hospital is about 12 kilometers away, in Mambusao. In the barangay are three (3) hilot and one (1) herbulario serving the health needs of the barangay.

Of the 182 houses, only 2 are made of semi-permanent materials. The rest are made of light and temporary materials. Ten houses have electricity.

The PO observes that stray animals and animal droppings are common sites in the barangay. Sanitation is "far from satisfactory". Only 5 houses maintain compost pits. Open pits and antipolo systems are the common toilet facility. Drainage is equally poor and ill-maintained.

PUSH Projects, Project Utilization and Recipients

As of May 1981, Madasig has been a recipient of several PUSH projects which, the following observations were made:

<u>Projects</u>	<u>Project Status and Use(s)</u>	<u>Recipients</u>
1 deep drilled well in the sitio proper	Water is inadequate for general household use.	19 households or 114 residents
1 improved open dug well	Adequate water for general household use.	12 households or 72 residents
1 improved open dug well	Pump handle lost. Well is a subject of dispute	5 households or 30 residents
1 improved shallow driven well	Adequate water for general household use	12 households or 72 residents
20 water sealed toilet bowls	All installed with households providing for installations and enclosures	20 households or 120 residents

15 units of kitchen sinks	Not fully used and at various stages of disrepair.	15 households or 90 residents
Garden tools	Nutrition's communal gardens	Community
Kitchen utensils	Nutrition's Day Care	Children ages 3-6
Pest control program	Sprayers and insecticides	Community
Physical fitness program	Sports equipments	Community
First aid supplies	Supplies for the Barangay Health Center	Community

Barangay Madasig is also a recipient of PUSH health services.

<u>Health Services</u>	<u>Activity</u>	<u>Recipient</u>
Water samples	Water analysis by MOH	Community
Medical treatment	Referrals to RHU	Average of 20 persons per month
Immunization	DPT BCG	84 children 34 cases
Nutrition	Donated utensils for feeding program	Children ages 0-6
Family planning	In coordination with FTOW and BSPO	Couple of childbearing ages
Electrification program	Assisted households to get funding from the Barangay Infrastructure and Development Assistance (BIDA); the latter allocated ₱5,000 for electrical installations.	7 households or 48 persons

The Barangay Health Worker (BHW)

The Rural Health Unit personnel in the municipality of Jamindan rate the BHW of Madasig as the most effective compared to four others assigned to the municipality. The RHM describes her as one who exercises initiative in preparing project proposals. The Community key informants identify her with the improvement of water supply, sanitary toilet facilities as well as with the dispensing of health services and over the counter medicines. Barangay officials see her as diligent, and dedicated in her work. She is observed by the PO to work well with people especially with personnel from the different agencies of the government.

The BHW is Rosa, 36 years old, mother of six children and wife of a councilman. She herself is not a native of the place. The BHW was the personal choice of the Barangay Captain for the position. She completed only grade six.

The PUSH Project Effects

After two weeks of observations, the PO made the following comments on the use and possible effects of the PUSH Projects:

<u>Projects</u>	<u>Project Use(s)</u>	<u>Community Effects</u>
Wells	Wells are used to the maximum. People line up to fetch water as early as 4 to 9 am and again from 3 to 6 pm, the times that water is available.	The water is used only for drinking and cooking. Community has to use open dug wells for other household purposes.

Water sealed toilets	These are hardly used even if installed due to lack of water. The community continue to use the Antipolo and open systems.	Sanitation is poor.
Blind drainages	All are already destroyed by stray animals.	Since it was summer, there were no standing water near the houses.
Health services	Regular DPT and BCG immunization in cooperation with the RHU.	No noticeable effects yet. As of May 1982, the barangay recorded only 1 death for 1981 compared to 8 during the same period in 1978.
Nutrition program		No significant effects yet noticed or recorded
Family planning	Couples enroll in the program but problem is that the Center always runs out of condoms.	No noticeable effects yet
Electrification Project		Lighted 10 households nearest the poblacion.

PUSH in the Community: An Assessment

On the whole, the PUSH Program in the community is judged as a success. This is attributed to the BHW, the assistance of existing agencies and the effective mobilization of the people in helping set up the projects.

Utilization of the projects is selective. The people use only those which to them are "practical" and junk those that are not, e.g. the water sealed toilets and blind drainage.

PUSH projects have created some problems. The dispute over one PUSH improved well necessitated police intervention. The "owner" refused to share it with the neighborhood after PUSH had improved it. Political rivals of current barrio council officials have accused the BHW of favoring her "friends" in the distribution of PUSH materials. The BHW has also been criticized for using PUSH funds to improve the well in her backyard which she however claims she had already donated to the barangay (as a prerequisite to the use of PUSH funds) and shared with 12 households or 72 residents.

The presence of PUSH in Madasig created some demonstration effects to nearby barangays which are now clamoring for PUSH in their barangays. Project success in Madasig is not without problems. The BHW and key informants complain of delays in the release of PUSH Barangay Funds which hold up faster delivery of PUSH services. At the time of this observation, a check due for the PUSH Barangay Fund was missing and could not be traced.

BARANGAY MALIPAYON

Malipayon emerged as one of the more effective PUSH barangays in the second batch. It belongs to the province of Antique and the municipality of Barbaza. Malipayon is sandwiched between the national highway and the sea. Midpoint between the highway and the sea is a kilometer of barangay road. Houses are located along the barangay road the highway.

Malipayon as a Community

Malipayon has 516 residents belonging to 98 households. Farming is the primary occupation producing rice, corn and sugar with secondary crops of runngo, peanuts and beans. Farmlands are owned by the barangay residents. About 54 families own the lots where their houses are built. The 42 others are mostly renters or are allowed by the owners to build their homes in return for manual services.

Most of the houses are constructed of mixed materials -- strong and light. There are 17 houses made of permanent materials such as concrete, galvanized roofing and good quality wood. Bathrooms and toilets are usually separated from the main structure. The barangay is still without electricity. Better-off families use battery-operated flourescent malps and bulbs.

The permanent houses have individual water connections. Others share faucets within the neighborhood. The barangay still has six shallow wells but which are used only for cleaning, laundering and watering plants during the summer months when water becomes inadequate.

The barangay has a primary school established in 1958. There are 6 sari-sari stores to serve the needs of the barangay. There is no barangay health center. The BHW uses her residence as the barangay PUSH office as well as clinic.

The barangay is relatively clean, free of animal droppings. Households clean their own surroundings. There are 78 compost pits where trashes are burned. The PO observed that there are 12 PUSH trash cans in strategic places in the barangay but only 3 are used.

There are 46 houses surrounded by fences. The highway is lined with stones and the roadside planted to crotons. There are no blind drainages because the sandy soil absorbs water easily. A few water holes in the barangay where carabaos are allowed to wallow have become breeding places for flies and mosquitoes.

During the summer of 1981, the Barangay Assembly met three times. The first meeting discussed coming barrio fiesta and organized the people into different committees to take care of the event.

The second meeting was held to distribute the PUSH water-sealed toilets and orient the people on the toilet installations. The third meeting tackled the financial report of the fiesta, election of barangay secretary (the incumbent left for abroad) and some problems about PUSH projects.

The barangay has a number of community organizations: Catholic Parish Organization, Alay Kapwa, Happy Family Life, Purok Organization, D'Hikers, Balikatan sa Kaunlaran, Kabataang Barangay and Mothers' Club. These organizations have their own areas of responsibilities. The Happy Family Life campaigns for the rhythm method of birth control supported by a religious groups. The Purok Organization helps in the construction of community projects. The Catholic Parish Organization and the Alay Kapwa give financial support to indigent families. The Balikatan sa Kaunalaran members are active in community beautification. The Mothers' Club provides assistance in the implementation of nutrition programs. And D'Hikers assists the BHW in the tree and croton planting programs.

PUSH Projects, Project Utilization and Recipients

As of May 1981, the barangay has been a recipient of ₱36,582 worth of projects - ₱35,000 for ESI and ₱1,581.58 for the PBF. With these funds the barangay was able to undertake a number of projects on which the following observations were made:

<u>Projects</u>	<u>Project Status and Use(s)</u>	<u>Recipients</u>
1 spring development project	Provides adequate water for general household use. The only source of water for the barangay.	98 households or 516 residents
90 water sealed toilets	All installed, used and properly maintained	90 households or 450 residents.
48 kitchen sinks	All installed, used and well-maintained.	48 households or 240 residents
Garden tools	Backyard gardens for proper nutrition program	40 households or 200 residents
Trash cans	Placed in strategic places in the community. 3 are not being used.	Community
Kitchen utensils	Nutrition's Feeding Program	About 65 children ages 0-6 are enrolled in the program

Malipayon is also a recipient of health and health-related services.

<u>Health Services</u>	<u>Activity</u>	<u>Recipient</u>
Monthly Operation Timbang	To determine degree of malnutrition in coordination with the MSSD.	As of March 1981, 21 normal, 54 1st degree, 31 second degree and 4 third degree cases are under the program. Children ages 0-6 are recipients of the program.
TB Cases	Referrals to RHU	30 cases referred to RHU between December 1979 to December 1980.

Family Planning	To motivate acceptors	From 7 in December 1979 to 42 couples in January 1981.
Immunization	Coordinated with the RHU	Done regularly with the entire community as target.
Deworming	Coordinated with the RHU	All school children

The Barangay Health Worker (BHW)

The BHW is Cora, 26 years old, a B.S. Chemistry graduate and daughter of the Barangay Captain. The PO finds her very diligent in her work. She keeps a good record of the barangay and an updated logbook. She maintains a monthly program of work and accomplishes her monthly accomplishment forms regularly. She personally follow up the installation of water sealed toilets and kitchen sinks. She is observed to work very systematically.

The BHW belongs to a highly respected family in the barangay. Their good reputation is known even in the poblacion. She belongs to a family of professionals and the family is relatively well-off. Her being the daughter of the barangay captain facilitates coordination work between BHW (PUSH) and the barangay council. Her family being known to the town as well as provincial officials made the processing of PUSH project paper easier and the releases of funds faster. Her ability to write acceptable reports and to properly fill up required

forms substantially cut-down on delays in paper work, thus contributing to faster project delivery.

PUSH Project Effects

After two weeks of intensive observation, the PO filed this report on the projects:

<u>Projects</u>	<u>Project Use(s)</u>	<u>Community Effects</u>
Spring Development Project	System fully utilized by the community 8 houses have direct connection. The rest share a faucet with 5 to 10 other families. During summer months, pressure is low. Those at the end of the line do not have water during busy hours.	Community provided with potable water supply.
Water sealed toilets	90 out of 98 household have installed water sealed toilets. Antipolo and open pit systems have been retained for use at time when the water supply is low. All toilets are used and well maintained.	The seashore which has ceased to be used as toilets, became cleaner and more sanitary with the introduction of water sealed toilets.
Kitchen sinks and blind drainages	48 are installed and 19 families provided their own. All used and well maintained.	Absence of standing water under or around the house.

Health services	BHW finds it easy to organize the community for immunization and vaccination.	Difficult to assess impact.
Nutrition Program	Community is receptive	Difficult to assess impact.

PUSH in the Community: An Assessment

The key respondents in Malipayon assess the PUSH as an effective program. They now have running water supply unlike before when they had only open dug wells as water sources. This has freed them from fetching water from the wells. Washing and bathing have been transferred from the wells to the faucet sites. PUSH has set up a number of public faucets used by a neighborhood consisting of 5-10 houses. During the summer months, houses in the fringes of Malipayon do not get enough water. During hours when most households use the water, faucets in the fringes run dry. During these critical times the old wells are used to augment the water from the faucets.

The program's success in Malipayon is not without problems. The Barangay Council has not made any plans of maintaining the water system. For maintenance, they depend on PUSH. The BHW is not planning to stay long with PUSH. She plans only to serve her 2-year contract then seek greener pastures elsewhere. Medical supplies are inadequate. The RHU personnel are suspected of diverting the

supplies to their friends and relatives. The supplies for the feeding program always come late. Key informants notes that at times, supplies come when classes have already ended. They also complain about PUSH criteria in judging PUSH barangay effectiveness. In their view too much emphasis is being placed on beautification such that their barangay suffers in comparison with adjacent PUSH barangays that have uniform fences and painted roadside. They claim that adjacent barangays have plenty of bamboos, while Malipayon does not. Thus, their failure to provide uniform community fences.

BARANGAY MAISOG

Barangay Maisog classified as an effective PUSH barangay, became a PUSH barangay in December 1979. It belongs to the municipality of Ibayay in the province of Aklan.

Maisog as a Community

The participant observer notes that Maisog is relatively better-off economically compared to other Ibayay barangays. The Provincial Development Council chose Maisog because it is a potential pilot barangay which is accessible and can therefore be easily monitored by the provincial officials.

The main agricultural crop is rice, which is harvested twice a year. Each household maintains a vegetable garden mainly for home consumption. Each household also raises its own chickens and pigs. The barangay is more or less self-sufficient except for fish. All residents own small farms.

The barangay is seen by the residents as peaceful, where life is quite routinary. The center of social activity is the barangay park with a basketball court. Basketball is the barangay's favorite game. The court doubles up as the barangay's social hall where the younger population dance their hearts away during summer months.

Majority (110/118) of the houses are made of light materials of bamboo and nipa. Only 8 are made of permanent materials such as hallow-blocs, cement, wood and galvanized iron. Majority (95/118) of the houses have their own toilets and bathrooms and water pumps.

The barangay is generally clean. Each household takes care of maintaining its surroundings clean. Trashes are burned. Pigs are usually tied around the trees. Chickens, dogs and carabaos are left free to roam. There are hardly any animal droppings lying around.

Water was never a problem in the barangay. About 90 per cent of the houses have their own shallow driven wells and pumps. The barangay maintains an open drainage system. Water just flows into the open canals then to the creek. Maisog is located in a low plain and is easily flooded during the rainy seasons.

Its Barangay Health Center which was built with Philippine Sweepstakes Funds is manned by a Rural Health Midwife of the Rural Health Unit. A primary school with 4 teachers services the barangay. After the 4th grade, the school children go to the next barangay to complete their elementary schooling.

The barangay has a Catholic chapel. A priest from the nearby barangay comes to hold mass every first Saturday of the month. The Maisog population is 100 per cent Catholic.

PUSH Projects, Project Utilization and Recipients

As of May 1981, barangay Maisog received ₱46,381 worth of ESI projects and ₱4,267 from the PBF. The PO made the following observations on project utilization and recipients.

<u>Projects</u>	<u>Project Utilization</u>	<u>Recipients</u>
1 improved shallow drive well at the school grounds.	Adequate water for the school children.	All school children
10 shallow driven wells	Adequate water for general household use	69 households or 414 residents
90 water sealed toilet bowls	All installed, used and well maintained	90 households or 540 residents.
Kitchen and feeding utensils	Nutrition's feeding program for mal-nourished children ages 0-6.	Children belonging to 32 households
Pest control program	PUSH provided sprayers and insecticide	8 households or 48 residents
Nutrition's backyard gardening project	PUSH provided garden tools.	16 households or 96 residents.
Maintenance of wells	Repairs	Community
Maintenance of toilets	Repairs of school toilets	School children
Beautification Project	Provided materials	Community
Maintenance of the Barangay Health Center	Repairs	Community

The barangay is also a recipient of PUSH health services. The PO reported that the BHW renders medical treatment directly in times of emergency. When no Rural Health doctor, nurse or midwife is available, she or her mother who is the barangay's hilot as well as herbulario attends to the sick herself. She also maintains a herbal garden she and her mother use to cure sick people in the barangay.

Among the health and health-related services PUSH renders are the following:

<u>Services</u>	<u>Activity</u>	<u>Recipient</u>
Immunization	Assist the RHU in organizing the community for regular DPT and BCG shots.	Whole community
Nutrition	Coordinated this with MSSD and school teachers.	No problem of malnutrition in the barangay.
Family planning	Coordinate this with BSPO and FTOW	All couples of child-bearing ages.
Referrals	To the RHU doctor/nurses/midwife Barangay hilot or herbulario.	Community
Sanitary waste	Personal and house to house campaign	100% acceptance
Medical services	Prescription of herbal medicines Follow up patients	

Maisog PUSH
Project Org.

BHW organized this as
the implementing arm
of the PUSH in the
barangay.

Community

The Barangay Health Worker (BHW)

The BHW of Maisog is Alicia, 22 years old and a college drop out. Although born in Maisog, she grew up in Davao City with an aunt. In May 1979, she went back to Maisog and by December 1979, she was deployed as the BHW of Maisog.

Her appointment as BHW is quite unique. She got the position without the barangay captain's blessings. She was new to the place and she did not speak the dialect. She spoke Cebuano. However, among those who took the examination from Maisog, she was the only one who passed. Thus, the barrio official had no choice but to recommend her. Though the community knew her parents, they did not know her. Moreover, she had been known as a college drop out and an ex-drug addict.

However, in six months the BHW was able to prove herself to the community. Within this period, she picked up the dialect, and proved to be an effective community mobilizer. She was able to mobilize the entire community as well as bring into Maisog the personnel of the different government agencies to work on health

and health-related activities. She is hardworking, persistent as well as a go-getter. She exercises fairness and good judgment in the priorities of projects she sets for Maisog. In no time, she earned the respect and cooperation of the barangay captain and other influential members of the community. She was also able to maintain her independence in not being identified with any faction in the barangay. Instead she was able to unite the different factions into one community organization, the Maisog PUSH Project Organization (MPPO). This organization is now the working arm of the BHW in mobilizing the people on community projects as well as finding solutions to community problems. The organization even goes to the extent of raising resources for the community.

PUSH Project Effects

As to the effects of PUSH and PUSH projects on the community, the PO has made the following observations:

<u>Projects</u>	<u>Project Utilization</u>	<u>Community Effects</u>
Wells	Fully utilized by the recipients.	Potable water is accessible to 85% of the population.
Water sealed toilets	Properly used and maintained by recipients	90/118 households are served. By the end of 1981, all houses will have water sealed toilets.

Sanitation	All home owners keep surroundings clean. In general, people sweep surroundings twice a day.	Community is clean
Health Services	Community is a user of RHU services	People in the barangay are generally healthy

PUSH in the Community: An Assessment

PUSH effectiveness in Maisog is attributed by the key informants to the BHW. She is effective both within and outside of the barangay. Her mobilization power was tested with the organization of the MPPO which united the various factions in the barangay and channeled their efforts to constructive activities. The fairness of the barangay captain is also recognized by key informants and the BHW. Once the BHW proved to be an effective PUSH worker, the Barangay Captain set aside personal differences and supported the BHW in her community work. This, however, does not mean that they do not disagree on some important matters.

Ibajay is a priority area in the provincial government programs. Government agencies are noted as very cooperative by the BHW. Project papers are promptly processed and approved. Fundings are readily released. Thus, project implementation and execution are immediate.

Ibajay is a red alert area. Maisog residents, however, maintain that they have no problem with peace and order. Key informants claim that there is justice for all the barangay.

2. The Ineffective Barangays

BARANGAY BUKID

Using the criteria spelled out in the introduction, Bukid falls under the category of ineffective barangays. It became a PUSH barangay in September 1979. It belongs to the municipality of Nabas in the province of Aklan.

Bukid as a Community

Bukid is an economically depressed barangay compared to other barangays in Aklan. Located on top of a hill, it is about 3.7 kilometers from the poblacion. A gravel road connects it with the poblacion. Although the means of transportation is difficult, the barangay is not completely isolated.

Bukid has a population of 429 and a land area of 381 hectares. About 20 per cent of the land area is plains and planted to rice. The rest of the hill planted to coconut, root crops and pandan. The barangay households are distributed in 3 sitios -- the top of the hill with 65 per cent of the households, the foot of the hill with 30 per cent of the households and in between the top and foot of the hill with 5 per cent of the households. The total number of households in the barangay as of May 1981 is 33. About 65 per cent of the

residents are small landowners and 35 per cent are tenants. The main occupation is farming; some women are engaged in mat weaving as a secondary source of household income.

From the accounts of the key informants and the observations of the PO, one can deduce that life is poor and austere, with hardly any kind of amenities. The barangay has a chapel and plaza, the center of religious and social activities. It has a primary school with one teacher handling combined classes of grades I and II in the morning and grades III and IV in the afternoon with 33 pupils for 1981-1982.

Bukid has three springs from which households draw water. The people bathe, wash and clean right there in the springs. They also fetch water for drinking and cooking from these springs. Households at the foot of the hill use shallow open wells as sources of water.

The PO notes that the barangay is generally dirty. Trashes are scattered around. Animals roam freely and animal droppings are all around the place. Individual households are observed to clean once a week and dispose of their trashes by burning.

A number of organizations exist in the barangay. There is the Barrio Assembly which meets once a year to take up the annual fiesta celebration. The Barangay Council looks after the barangay rules.

A Catholic Action group raises funds for the chapel and coordinates activities for the fiesta celebration. The Kabataang Barangay with 16 members is inactive. The Samahang Nasyon is not functioning. The Barangay Tanod is not too active either. The Day Care Center Association takes care of Nutrition projects with the Ministry of Social Services and Development. Both the Barangay Assembly and Council have been supportive of PUSH activities.

PUSH Projects, Project Utilizations and Recipients

Barangay Bukid has been a recipient of a number of PUSH projects among which are:

<u>Projects</u>	<u>Project Status and Utilizations</u>	<u>Recipients</u>
1 shallow driven well between Buenavista and Bukid	Water is for general household use. However, water is not yet tested for potability.	Shared among the households in the 2 barangays. Seven households from Bukid use the well.
1 spring development project	Project completed but no water	None
33 water sealed toilet	Hardly used by recipients due to lack of water	33 households
10 blind drainages	Destroyed by stray animals	10 households or a population of 60
Pest control	PUSH donated 1 sprayer	Community

Family Planning Program	Done in coordination with FTOW, RHM and ESPO	Original 21 acceptors down to 31
Feeding Program	Nutrition education of mothers, monthly weighing of children ages 0-6	Children ages 0-6
Immunization	Referrals to RHU	RHU complained of low turnouts

The Barangay Health Worker (BHW)

The BHW is Rudy, 28 years old, married to the daughter of the barangay captain and a resident of Bukid for 2 1/2 years. He was born and reared in Buenavista, the adjacent barangay. He is a farmer and copra buyer. Before he was appointed BHW, he worked in Manila as a security guard for about 2 years. He completed a vocational course while working in Manila.

The BHW views his relationship with the barangay captain as contributing to his ineffectiveness as BHW. As a son-in-law, he is automatically identified with the barangay captain's political faction. Thus, his ability to mobilize and unite the barangay for community programs/projects is hampered. And in his activities like the distribution of water sealed toilets and sinks, his father-in-law's opponent immediately impute partiality towards his father-in-law's faction. The community is indifferent to the BHW. The failure of the spring development project to provide water to the barangay after PUSH had poured in ₱35,000 to the project plus the inability to produce

the PUSH Barangay Fund reinforced the people's perception of him as failure.

As a person, the BHW is well-liked by barangay people especially the youth, and even the RHU personnel in town. However, when it comes to his performance as a BHW, they complain that his reports are always late, that he is not open to suggestions and does not coordinated his PUSH activities with relevant local government agencies.

PUSH Project Effects

As to the effect of the PUSH projects on the Community, the following observations were made by the PO:

<u>Projects</u>	<u>Project Use(s)</u>	<u>Community Effects</u>
Shallow driven well	Only source of drinking water shared with Buenavista. Its location make it available only to few households near the well.	Though potability of water is not yet tested, users of the well feel safer in drinking the water.
Spring development project	Completed but does not pump water to the barangay. Reservoir is farm from the nearest cluster of houses.	Because of this, PUSH and the BHW lost credibility of the barangay.
Water sealed toilets	Installed but not used because of lack of water	Continued use of the open pit system
Blind drainage	Useless because there is no water.	No effect

Community garden	No plants. Few are destroyed by stray pigs and chickens.	No effect
Family planning	Only condoms are accepted by acceptors	No visible effect yet
Immunization	Reception of the people is poor	No effect

PUSH in the Community: An Assessment

Key respondents and the PO assessed the program to be a failure in Bukid mainly because of the failure of the spring development project to bring water to the barangay. As a result of this the community withdrew their support for the other PUSH projects. The BHW, himself, is disillusioned by the failure of the water project.

The other major projects of the BHW are both water dependent -- water sealed toilets and blind drainages. The inability to bring in water also spelled the failure of these two projects.

Furthermore, the BHW describe the community as uncooperative, difficult to mobilize and cynical about government programs like PUSH. Although, the people like the BHW as a person, they are suspicious of him. Being the son-in-law of the barangay captain, a significant segment of the population are observed to be wary of him. They manifest this by not cooperating in his projects.

The BHW also encountered problems regarding the Barangay PUSH Funds. Replenishments are always late. This, plus the failure of

the water work project made the BHW cynical about his job. According to him, he is just waiting for his term to expire.

BARANGAY BUSAY

Busay is one of the four barangays judged as ineffective. It became a PUSH barangay in September 1979. It belongs to the municipality of Valderrama in the province of Antique.

Busay as a Community

Busay, just like the municipality and province it is located, is economically depressed. It has a population of 1069 living in 145 households. Busay is an isolated barangay, located about 4 1/2 kilometers from the town proper and 18 kilometers away from the nearest decent road. To reach the barangay, one has to traverse the Valderrama river in a jeepney or by foot when the river is dry or shallow. There is a semblance of a road up to Barangay Bunsod which is about 1 1/2 kilometers away from Busay.

The PO notes that 65 per cent of the houses are made of semi-permanent materials, 30 per cent of temporary and only 5 per cent of permanent materials. The barangay has not yet been reached by electricity. The main sources of household water are springs, brooks and shallow open wells.

The PO also observes the poor sanitation. Garbage was scattered around and none bothered to sweep and clean their surroundings,

at least during the duration of the two-week observation. None of the houses have compost pits. Garbage is dumped into the dried brook, under the trees or burned in the middle of the barrio road. Pigs, chickens, carabaos, cows and dogs are left free to roam around. Animal droppings are all over the place. The residents seem not to be bothered at all by them. Flies and mosquitoes are in abundance.

Busay has an elementary school with seven (7) teachers who are all residents of the barangay. Their barangay Health Center which is manned by a Rural Health Midwife, serves three other adjacent barangays.

The barangay has a plaza with a basketball court where farm produce is dried up during the harvest seasons.

The PO observes that the favorite pastime is gambling. Residents of all ages gamble. All barangay organizations are inactive. The Assembly meets only before the fiesta, the Council has never met. The Kabataang Barangay met only when it was organized and the president has already left the barangay. The PTA meets only when there are school problems.

PUSH Projects, Project Utilization and Recipients

The PO made the following observations on project status and utilization during her two weeks stay in the barangay:

<u>Projects</u>	<u>Project Status & Utilization</u>	<u>Recipients</u>
1 spring development project	This is the only source of potable water in the barangay. PUSH improved the old system. It built a second reservoir, changed the old pipes and put up public faucets. Pressure is very low and water is very inadequate.	Community
62 water sealed toilets	34 are installed but are already in various stages of disrepair. 28 are not yet installed and recipients seem not to be interested in installing them. Those installed are not used due to lack of water.	62 households or 372 residents
60 garbage cans	Recipients use them to keep rice, water and as feed containers but not for garbage.	60 households or 360 residents
Health Services	These are rendered by the RHU without assistance from the BHW.	

The BHW in Bukid does not have any health and health-related services. The family planning program in the barangay is carried out by BSPO and FTOW. Health services and projects are carried out by the Rural Health Midwife stationed in the barangay.

The Barangay Health Worker (BHW)

The BHW is Beth, 22 years old, and a high school graduate. She is a native of the barangay and a sister of the barangay captain. The BHW is married to the son of the mayor of Valderrama and they have two children. Since her marriage she has been residing in Valderrama and commutes to her Bukid station to work.

Key informants in Bukid informed the PO that the BHW is seldom seen in the barangay. She stays most of the time in the poblacion. Barangay key informants have a low regard to the BHW -- that she is lazy, cannot write reports, does not do her job and that she got her job because of her father-in-law.

The PO notes that culverts are being installed and the barangay road and canals are being improved. Inquiries indicated that ₱7,000 was allocated from the Barangay Fund for the project. The workers are recruited by the barangay captain among his men and paid ₱10 a day each for their labor. The barangay captain also acts as barangay secretary, treasurer and auditor. The barangay respondents claim that the barangay captain and BHW work by themselves. There is no community involvement.

The brother and sister are also being criticized as very partial in their choices of PUSH recipients. In the toilet bowl and kitchen

sink projects, distribution preferences were given to the KBL and BHW relatives.

PUSH Project Effects

The PO made the following observations on PUSH projects and their community effects during their two-week stay in the barangay.

<u>Projects</u>	<u>Project Use(s)</u>	<u>Community Effects</u>
Improved spring development project	Residents line up the whole day to fetch water.	The community does not feel its impact.
Water sealed	Those installed are not used because there is no water.	Barangay is dirty. Residents continue to use the open system of waste disposal.
Kitchen sinks	Those installed are without blind drainages. Waters are left to accumulate under the kitchen.	Presence of stagnant water is a common site.

PUSH in the Community: An Assessment

Key respondents assess the PUSH project as ineffective. They attribute this to the absence of effective leaders in the barangay. They do not consider the barangay captain and BHW as community leaders but view them as impositions from above: the Barangay Captain was meant to look after the political interest of the mayor and the mayor was merely giving a job to his daughter-in-law.

The community is also to be blamed, according to the key informants. The people are lazy, they do not get involved in community activities, they engage in petty quarrels with one another. The people are not unified and organized. The school is inactive. Teachers, because they were indifferent, failed to serve as models in the community.

The BHW has failed not only to motivate and mobilize the people to work for a better community but also to produce change in the community. The volume and quality of water from the improved spring is not any better inspire of the improvements. The toilets and sinks are unused. The BHW hardly produced any impact on the life of the people in Bukid. She failed to use her connections with the mayor to bring in more services to the community.

Of course, there is also the inaccessibility of Bukid to reckon with. During rainy seasons, the community is completely isolated. Transportation is difficult all year round. However, the BHW's being the daughter-in-law of the mayor could have been turned into an advantage, had she been more active and diligent in her job as BHW.

BARANGAY BATO

Bato is one of the PUSH ineffective barangays. It is a second batch barangay that started operations on December 1979. It is located in the municipality of Anilao in the province of Iloilo.

Bato as a Community

Bato is located along the national highway and is accessible throughout the year. The highway is under construction and is due for expansion. The barangay is located between the sea and the mountain.

Farming has been the primary occupation of the residents up to 1972. They are tenants of landlords living either in the poblacion or in Iloilo City. After 1972 however the landlords started planting sugar instead of rice and converted those farms along the coast into fish ponds. Thus, former rice tenants lost their farmlands and became either fishermen or farm laborers in the sugar farms. With this change in their status, they suddenly found themselves squatters in their former homelots.

Bato has a total population of 373 belonging to 66 households at the time of observation. The barangay has a total land area of 126 hectares and a population density of 4.15 hectare.

Houses are lined up along the highway. Only six of the 66 houses in the barangay are made of semi-permanent material. All others are made of temporary and light materials.

The entire barangay has a total of 7 wells. Four were dug up by PUSH in 1980, two are privately owned and one was constructed by the PACD in 1959.

The state of cleanliness of the barangay vary from sitio to sitio. The sitio proper is generally clean. Residents of the 13 houses clean their own surroundings and have their own compost pits. Drainage is adequate; used water are left to flow freely to the open canals nearby. Majority of the houses have kitchen sinks. Few animals roam around and there is hardly any animal droppings. Sitio Bigaaa, the biggest sitio with 35 houses is dirty. Garbage is littered around inspite of the presence of compost pits within the sitio. Few households have kitchen sinks but have no blind drainages. Water accumulates under the kitchen and are left to dry. Sanitation of the place is categorized as unsatisfactory by the PO. Sitio Alicia is the smallest with only 5 houses and the cleanest. Yards are cleaned and well-kept. Garbage is piled and burned in 2 compost pits. Kitchen sinks are constructed together with blind drainages. Water flows to the canals and to the rice fields.

Bato has a chapel, 2 basketball courts and a social hall cum-market. Gambling is a favorite community pastime; mahjong, binggo,

cards, and dice are usually played.

PUSH Projects, Project Utilization and Recipients

Since the coming of PUSH to the barangay in December 1979, Bato has been a recipient of a number of PUSH projects, with their status and recipients shown as follows:

<u>Projects</u>	<u>Project Status & Utilization</u>	<u>Recipients</u>
1 shallow driven well	Project completed in January 1980 costing ₱1,600. Water is for general household use.	Benefits 21 households or a population of 126
2 improved open dug wells	The project was completed in January 1980 costing ₱1,400 each. Water is for general household use.	Benefits 8 households or a population of 48
1 deep drilled well	The project was completed in April 1980 costing ₱35,000. The water is for general household use.	Benefits 11 households and the nearby barangay Urian
13 kitchen sinks and blind drainages	Completed in April 1980	Benefits 13 households or 78 residents
2 garbage cans	1 used as garbage can 1 used as water container	
20 water sealed toilets	Installed in March 1980	20 households or 60 residents
Nutrition	Weighing of children ages 0-6	34 second degree and 14 first degree cases
Health	Cases referred to RHU	10 cases but only 3 are under regular treatment

Family planning	Referred to BSPO	
Vermin and Pest Control	PUSH provided the sprayers	Community

The Barangay Health Worker (BHW)

The BHW is male, 24 years old, second year vocational student and a native of Bato. His civil status is cause for talk in the community because he is allegedly living-in with a girl but not yet legally married. They are staying with the BHW's parents.

The BHW was selected among 3 other applicants from the barangay. It is a known fact that the incumbent BHW is the personal choice of the barangay captain. The BHW was the president of his batch during their six-week training in Iloilo City.

Records show that the BHW did well during this first few months. In about a month's time he had one (1) shallow driven well constructed and one (1) open dug well improved. In another three months, he had a deep drilled well installed in the community. He campaigned and motivated a number of households to put up water sealed toilets, kitchen sinks and blind drainages.

The BHW tended to keep off activities and programs, for which other agencies were responsible. Then, the wells started breaking down (one pump handle got lost and the neighborhood opened up the

well to draw water), the jetmatic pump of the deep well conked out and took sometime before it could be repaired. Then summer season came and the well partially dried up.

The BHW started complaining of the difficulty of motivating and mobilizing people to adopt better health habits and practices. He also complained about the reception of the community to PUSH project especially when this involved counterpart funds and labor. Then personal reasons surfaced. The BHW complained that his job was too demanding, that salary was meager and always delayed, that the community was very uncooperative. He said that he was ready to resign from his job anytime.

The community finds him ineffective, lacking seriousness in his job and given easily to fights. He is accused of favoring his relatives in the distribution of toilets and kitchen sinks. The midwife, his immediate supervisor, claim that he is always late in submitting reports, lacks dedication in his job and his health projects have much to be desired.

On the other hand, the menfolks in the community are more sympathetic with him. The BHW brought win water to the barangay, a task not even the local government was able to provide in the past. They regard him as a born leader. Besides being a BHW, he is also the Kabataang Barangay Chairman of Bato. He was able to put up a number

of projects in a short time. They in turn blame the people of Bato as hard to please, lazy, uncooperative, and resistant to change. The Barangay captain and the Barangay Council have only positive comments about the BHW.

PUSH Project Effects

On the impact of PUSH projects in the community, the PO made the following observations:

<u>Projects</u>	<u>Project Use</u>	<u>Community Effects</u>
Shallow driven wells	Only source of drinking water in Sitio Bigaa. Well partially dried up during summer.	Relieved residents from buying drinking water from the nearby barangay.
Deep drilled well	Only well in sitio proper. Partially dried up during summer. Residents have to line up from 6-9 in the morning and then 3 p.m. until the evening. During observation the pump broke down and remained unrepaired when observation ended.	Even if the water has not yet been tested, residents felt safer to drink the water
Improved open dug well	Fully utilized by residents in Sitio Alicia and Bigaa. The pump is lost. Residents opened up the well to fetch water	Water not tested but residents felt safer to get drinking water from the well.
Water sealed	13 are installed but used only when there is water. The rest are not installed due to lack of materials.	Effects difficult to assess at the moment.
Blind drainages	Used when water is available	Effects difficult to assess

Nutrition Program	Parents are receptive but program is always running out of supply	Effects difficult to assess
Medical services	Community receptive but RHU resources are very limited.	Effects difficult to assess

PUSH in the Community: An assessment

Problems have been indicated by the key respondents with regard to the PUSH projects. First is the absence of maintenance after the projects are installed. Of the three wells put up by PUSH, only one was functioning at the time of observation. Two have dried up and the other one lost its pump handle. Second is the difficulty of obtaining land donations. The landlords refuse to donate small portions of their land. The community deep drilled well is constructed on a public land away from the nearest clusters of houses. A third problem is the difficulty in getting the community to put in their counterpart share of labor and materials. They either do not have the time, do not have the funds or both. Fourth, there is the outright refusal to put up a water sealed toilet because they say that they are just staying temporarily in the place, and as squatters, can be relocated any time. Fifth, when utilities like toilets and blind drainages are set up, the people lack knowledge on their proper use and maintenance. Lastly, the interaction between the BHW and the community is poor. Whether the breakdown of the PUSH wells is a contributing factor, is not clear. Key informants keep referring to the BHW's personal life

as the main cause of the community's low regard of him, contributing to his failure to elicit their cooperation in PUSH-initiated community activities.

BARANGAY BAYBAY

Baybay is a PUSH ineffective barangay. It belongs to the Batch 2 of PUSH barangays fielded in December 1979. It is located in the province of Iloilo, in the municipality of Banate

Baybay as a Community

Baybay does not look economically depressed as Bukid and Busay. It is located along the national highway and is almost a part of the poblacion of Banate. It is accessible by all means of transportation. The highway is under construction and improvement. The barangay lies along the sea coast.

Baybay had a total population of 1,004 belonging to 182 households as of December 1979. It has a land area of 15.7 hectares and a population density of 61.25 per hectare. The principal occupation of the people is fishing. A few are engaged in farming. Hog raising supplements households incomes.

Houses are lined up along the highway. Majority are made of light and temporary materials. Only a few are made of semi-permanent materials. Most residents rent the lots where their houses are built; thirty-two families are squatters. Recently, the families had to relocate their houses because of the expansion of the highway. Electricity is available in the barangay where there are 15 refrigerators, 20 television sets and 9 stereos.

There is no school in the barangay. School children have to go to the poblacion's elementary school. The barangay has a Barangay Health Center and an Aglipayan Church.

There are 15 wells in the barangay - 3 constructed by PUSH, 5 privately owned and the rest (7) set up with the assistance of the MLGCD. Water is salty. The wells, so far have failed to provide quality water for drinking and household use.

The PO notes the barangay as generally clean. There is no standing water, mainly due to the topography of the place and its sandy soil which easily absorbs water. Garbage is burned in the compost pits. Only a few animals roam around.

PUSH Project, Project Utilization and Recipients

Since the inception of PUSH in December 1979, Baybay has been a recipient of a number of PUSH projects. The status and recipients of these projects are as follows:

<u>Projects</u>	<u>Project Status & Utilization</u>	<u>Recipients</u>
1 deep drilled well	The project cost ₱35,000; completed within three months from project conception; water is for general household use. Only well that provides drinking water. After 3 months of use, the well dried up.	Initially benefited 20 households or a population of 137

1 shallow driven well	The Project cost ₦1,600. Project completed in September 1980. Water for general household use including drinking. The well dried up. Pump is lost.	Initially benefited 12 households or a population of 67.
1 improved open dug well	Project costs ₦1,400. Completed in September 1980. Water is for general household use including drinking. The only PUSH well still functioning.	Benefitted 10 households or a population of 90
38 water sealed toilets	20 are already installed 18 are still to be distributed and installed. Those already installed are observed to be fully used and well-maintained.	Benefitted 20 households or a population of 60.
40 kitchen sinks	Together with the sinks, blind drainages are constructed. They are fully utilized.	Benefitted 40 households or a population of 240.
Family planning	BHW coordinates this with FTOW and BSPO. Refers acceptors to the RHM	53 acceptors
Nutrition	Regularly weigh children ages 0-6.	Serviced 154 children.
	Assist MSSD in the feeding program for second and third degree malnourished children.	Serviced 33 second degree and 11 third degree cases.
Health services	Deworming, immunization/ vaccination and referrals to the RHUs are done regularly.	Total residents serviced are 42 for deworming, 339 for immunization and vaccination of various kinds and a dozen referrals.

The Barangay Health Worker (BHW)

The BHW is Alma, 24 years old, a native of Baybay and a Marine Engineering graduate. She claims that 85 per cent of the population of Baybay are her relatives. The barangay captain is her uncle. She got the job of BHW by passing all the tests and screenings from the barangay to the provincial levels, outdoing four other candidates to the position.

The BHW had a very good start. Shortly after her employment as BHW in Baybay she launched a number of projects. She had set up three PUSH wells, distributed water sealed toilets, kitchen sinks and mobilized households to set up blind drainages. She mobilized the youth to put up a communal garden. However, after a while her enthusiasm died down. It should be noted that two of the PUSH wells she initiated dried up, water sealed toilets became non-functional during the rainy season (septic tanks caved-in or were filled up with water), and project fundings were always late. She considers her pay very low, she is not paid on time. To collect her salary, she has to personally follow it up in Iloilo City.

The RHM who is her immediate supervisor, assesses her performance as poor- always late in submitting reports, doesn't follow up health and medical cases, doesnot exert effort to mobilize people into community work. The RHM finds it difficult to work with the BHW.

Key informants judged her as bored and apathetic to her work. On her part, the BHW admit that she is just waiting for her contract to expire and she is ready to change job.

PUSH Project Effects

On the impact of PUSH in the community, the PO had made the following observations:

<u>Projects</u>	<u>Project Use</u>	<u>Community Effects</u>
Deep drilled well	Already dried up. Not serviceable during time of observation.	Main source of drinking water for 3 months. Effects difficult to assess, except that when functioning, residents did not have to buy drinking water from the next barangay.
Shallow driven well	Also dried up. Not serviceable during time of observation.	Though water not tested, it was the only source of drinking water in the sitio. Relieved residents from travelling to the next barangay to fetch water.
Improved open	Only PUSH well functioning. Well is used the whole day. People line up to fetch water. There are always women washing and people taking a bath right beside the well.	Makes water available to the community. Sitio is relatively cleaner compared to the others. Whether this is the effect of the well is difficult to tell.

Water sealed toilets	All installed, used and well-maintained when there is water.	Effects still difficult to assess.
Kitchen sink and blind drainages	All installed and used.	No stagnant water is observed. Whether it is because of the drainages or the season is difficult to tell.
Health and Medical services	People are receptive to immunization, vaccination and deworming.	Effects are yet difficult to assess.

PUSH in the Community: An Assessment

The BHW actually did her job quite well. Later, when she lost interest, PUSH activities in the barangay also deteriorated. Among the wells, only 1 is still functioning, 2 are already out of operation. Households maintain the old system together with the water sealed toilets. They shift to the old system when water becomes a problem. The communal garden is still under the care of the barangay youths. Health services are left to the PHU and the RHM. The BHW is only waiting for her PUSH contract to expire before looking for a better-paying job. The failure of the 2 PUSH wells, delays in the release of PUSH Barangay Funds, delayed arrivals of ESI materials and constant delay of BHW salaries are some of the factors that contributed to the BHW's loss of initial enthusiasm in her job as BHW.