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An evaluation of the social and economic impacts of the PPAEP on rural Philippines : the case of Luyong Bonbon and Pagalungan, Misamis Oriental, Philippines

Maria R. Hechanova
Edith Cowan University

Edith Cowan University

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AN EVALUATION OF THE SOCIAL AND ECONOMIC IMPACTS OF THE PPAEP ON RURAL PHILIPPINES

The Case of Luyong Bonbon and Pagalungan, Misamis Oriental, Philippines

By

Maria Rae L. Hechanova, BSBA

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DECLARATION

"I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text".

Date: December 1996

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Abstract

The purpose of this study is to evaluate the social, economic and other impacts of the Pilot Provincial Agricultural Extension Project (PPAEP), an Australian Agency for International Development (AusAID) project in the villages of Luyong Bonbon and Pagalungan, Misamis Oriental, Philippines.

This study has examined the literature related to technology transfer in agriculture, the notion of appropriate technology and Australia's current development program in the Philippines. This study utilises a multiple case study of qualitative methodology. The Group Ecology Model (GEM) is utilised as a conceptual framework of this study and the process/outcome matrix is utilised to analyse the data from a qualitative perspective.

This study reveals that Australia's development assistance program in the Philippines as reflected by the success of the PPAEP, has increased agricultural productivity and enhanced the social and economic conditions of marginal farmers and fishermen in the two villages. The key to the project's success is the transfer of appropriate technology. Appropriate technology is transferred through the project's participatory approach which involves a close coordination and cooperation of all sectors of government,

Rural Based Organisations (RBOs) and Non Government Organisations (NGOs).

Moreover, PPAEP has increased the awareness for environmental protection in both villages and enhanced the employment of women in its activities. The strategy of participatory approach adopted by PPAEP is effective in development activities of government. Skills development is equally as important are technological and financial inputs

This study reveals that the general concerns apparent in the two villages are financial and infrastructure. The study reveals that financial constraints can be a hindrance to the project's sustainability while infrastructure problems can cause delays in development. It is suggested that project implementors continue to replicate PPAEP's participatory approach to development in its future projects. Funding constraints and infrastructure problems can be resolved through close supervision and coordination of the governments of Australia and the Philippines in its current and future projects.

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List of Abbreviations & Acronyms

ADB	Asian Development Bank
AE	Agricultural Extension Worker
AIDAB	Australian International Development Assistance Bureau
ASEAN	Association of South East Asian Nations
AusAID	Australian Agency for International Development
DA	Department of Agriculture
DENR	Department of Environment and Natural Resources
DAR	Department of Agrarian Reform
DCR	Draft Completion Report
GEM	Group Ecology Model
GNP	Gross National Product
LGU	Local Government Unit
NGO	Non Government Organisation
NIEO	New International Economic Order
OECD	Organisation for Economic Cooperation and Development
ODA	Official Development Assistance
PAP	Philippine Assistance Program
PPAEP	Pilot Provincial Agricultural Extension Project
PTWG	Provincial Technical Working Group
RBO	Rural Based Organisations

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Chapter One

Introduction

1.0 Background of the Study

This is a study of the social and economic impacts of the Pilot Provincial Agricultural Extension Project (PPAEP) on two rural villages, Luyong Bonbon and Pagalungan, Misamis Oriental, in the Philippines. The PPAEP is a pilot project launched by the Australian Agency for International Development (AusAID)[1] and the Philippine Government in May 1991. This program is the result of cooperative efforts between the governments of Australia and the Philippines to promote rural development in the Philippines. The program aims to strengthen both the agricultural extension services delivered to rural Philippines and the efforts of Rural Based Organisations (RBO's).

This study is conducted following the termination of the program and the submission of the draft completion report, conducted and produced by AusAID in May 1996, which outlines the design, implementation and evaluation of the whole PPAEP project.

[1] The Australian International Development Assistance Bureau (AIDAB) was officially renamed as Australian Agency for International Development (AusAID) in March 1995.

Australia's involvement in international aid programs stems from the country's broad agenda to contribute to sustainable development across Asian economies in transition. The value of such efforts, lies in the humanitarian, political and commercial aspects of foreign aid programs. Australia's efforts in this regard are impressive. For example, Australian Official Development Assistance (ODA) expenditure in Asia in 1994 was A$1.145 million and in 1995-1996, the amount is expected to increase to A$ 1.563 million, a 33 percent ratio of the ODA to Gross National Product (GNP) making the country an important aid donor to the Asia-Pacific Region (Bilney Report, 1995). This level of foreign aid compares favourably with other much larger developed nations such as the United States and Japan with an ODA ratio of 15 and 26 percent.[2]

However, there is no shortage of scepticism about the value of international development assistance. Critics argue about the relevance of development programs claiming they prolong the dependence of South (developing economies) on the North (Western economies), and that foreign aid has become a bottomless pit from taxpayer's pockets (McCawley, 1993).

[2] The United Nations has set a target ODA/GNP ratio of 7 percent for developed countries and Australia maintains its ODA at highest level consistent with the needs of developing countries and its own economic circumstances and capacity to assist (Bilney Report, 1995)

These criticisms pose a challenge to policy makers who advocate foreign aid programs aimed at development assistance. Specifically, the development activities of governments are frequently subject to criticisms that question the *appropriateness*[3] of foreign aid programs. In response, the Australian government places considerable emphasis on the quality of it's development assistance programs. It does this by introducing a range of project monitoring, project appraisal, audits and reviews, utilising various *a priori* /cost benefit analyses and *ex post* evaluation methodologies (Bilney Report, 1995). However, there are cases where the direct social and economic impacts resulting from the program, remains questionable.

Against these introductory comments, the main objective of this study is to examine the social, economic and other factors[4] surrounding the PPAEP project in the villages of Luyong Bonbon and Pagalungan, Misamis Oriental, Philippines. A careful evaluation of these factors aims to establish the *appropriateness* of the PPAEP in the context of the target communities' social and economic landscape.

[3] Suitability of the project to the needs of the community.

[4] In this study, social factors refer to impacts on interaction, values and attitudes; economic factors refer to impacts on employment, income, yield. Other factors refer to environment, women and sustainability.

The objectives of this study are progressed using qualitative methodology involving a combination of secondary data, and face-to-face interviews with people directly associated with the design and implementation of the PPAEP, and representatives from the village communities. The findings in this study have important implications for Australian foreign aid policy formulation.

1.1 Objectives of the Study

The main objective of the study is to examine the social, economic and other impacts of the PPAEP in the villages of Luyong Bonbon and Pagalungan, Misamis Oriental, Philippines. Broadly speaking, social impacts relate to interaction, values and attitudes. In the same vein, economic impacts refer to income, employment, yield and other impacts relate to demography, housing, government, environment, the role of women and sustainability.

1.2 Significance of the Study

The significance of this study relates to the way in which it addresses the broad criticisms directed at foreign aid programs and specifically, the performance of one which was designed and implemented between

Australia and the Philippines. In attempting to assess the value of the PPAEP to the people of the communities targeted, important lessons flow regarding factors related to the design, strategies and implementation of the program. Hence, this study will be beneficial to both the Australian and Philippine policy makers, program administrators and implementors.

The significance of this study is grounded in the notion that post evaluation is critical in order to measure a project's performance against the project's aims and objectives. This study promotes the need to take into account the social and economic *milieu* of the project, in order to determine the broader factors for program performance. The information obtained has important implications for the design, administration and implementation of other programs.

1.3 Research Questions

1. How does the project affect the beneficiaries' employment, income, yield, demography, housing and government?
2. How does the project affect the beneficiaries' interaction, values and attitudes?
3. How does the project affect the environment, the women and its sustainable development?

1.4 Definition of Terms

Appropriate Technology - is technology that uses tools and machinery that are suitable to the needs of a community. Such technology can be easily repaired and maintained by the local people without imported supplies that may be expensive and difficult to obtain (AIDAB, 1989). It is technology that starts with existing traditional techniques and adapts to both local social and cultural environment (Schumacher, 1973; Ali, 1987, Karchu, 1994). In the context of this study, appropriate technology refers to the participatory approach of PPAEP to strengthen agricultural extension services and rural based organisations.

Development - is growth on a range of levels and scales from the personal to the global. Generally, this means economic development with a country taking on Western industrial techniques and technology (AIDAB, 1989).

North-South - "North" has become a label for rich countries and "South" for poor nations. Most of the poor nations are located in the tropics or sub tropics around and below the equator, while most of the rich nations lie in the northern hemisphere (AIDAB, 1989). In this study, the North and South refers to Australia and Philippines.

Participatory Approach - it is the key strategy of the PPAEP to forge partnership between Rural Based Organisations (RBOs), Non Government Organisations (NGOs), community organisers, AusAID, Filipino staff and Australian advisers throughout the life of the project.

Sustainable Development - is development that takes into account the impact of projects on the environment and natural resources (AIDAB, 1989).

Technology Transfer - is the acquisition, development and utilisation of technical knowledge by a country other than that in which this knowledge originated. It is a reciprocal process of product or skills transfer (Madu, 1989; Al-Ghalani & Moor, 1995).

1.5 Organisation of the Thesis

This chapter has set out the background to this study, its objectives and significance, as well as research questions, and has defined various terms used throughout this study. Chapter 2 reviews the literature related to technology transfer in agriculture, the notion of appropriate technology and Australia's current development program in the Philippines. This chapter specifically develops on the Group Ecology Model (GEM) which is used as the

conceptual framework of the thesis in evaluating the social, economic and other impacts. Chapter 3 discusses the multiple case method approach of qualitative methodology that is utilised in the study. Chapter 4 examines the *milieu* for Australian development assistance. Chapter 5 includes the analysis and discussion of the social, economic and other impacts of the PPAEP on the villages of Luyong Bonbon and Pagalungan in rural Philippines. Finally, Chapter 6 presents the overview of study, the implications for policy formulation, the implications for future research and the conclusion to the study.

Chapter 2

Literature Review

2.0 Introduction

The purpose of this chapter is to examine and criticise the literature related to technology transfer in agriculture, the notion of appropriate technology and Australia's current development program in the Philippines. In reviewing the literature related to technology transfer in agriculture, several themes are exposed. These include the meaning of technology transfer, its forms, its appropriateness, and a broad overview of the literature on technology transfer in agriculture through government development assistance. In the light of the foregoing, attention is then focused on the Group Ecology Model (GEM), which is used as a conceptual framework for this study in evaluating the social and economic impacts of the PPAEP.

2.1 Technology Transfer in Agriculture

The demand by Third World countries[5] on redressing the imbalance

[5] Countries are often divided in three worlds. The first world: Western industrialised, capitalist countries; second world: industrialised communist countries; third world: countries which are much poorer and less industrialised; and the fourth world: poorest people in both developing and developed countries (AIDAB, 1989). See also "North-South" in Chapter 1.

of wealth between North and South nations called for the establishment of the New International Economic Order (NIEO)[6] in 1973. The NIEO called for fundamental changes in international economic and financial structure in order to achieve equity in the distribution of wealth between rich and poor countries (Maasarani, 1980). These changes brought new perceptions of development that came into scrutiny as they relate to basic human needs[7] and the transfer of technology (Hope, 1983). The transfer of technology from the North to the South reveals that the appropriateness of the technology is frequently subject to criticisms (Cassen 1986).

Technology transfer has various meanings and mechanisms for implementation (Dawson, 1987). Technology transfer is defined as the acquisition, development and utilisation of technological knowledge by a country other than that in which this knowledge is produced (Derakshani, 1983). Technological knowledge means hardware (Woodward, 1985) or skills possessed by people (Rousseau & Cooke, 1984). It is also any tool or technique, any product or process, any physical equipment or method of

[6] New International Economic Order (NIEO) was established at the Fourth Heads of State Conference in 1973 and the United Nations (UN) General Assembly in 1974 as an answer to Third World demand for new economic relations. The objectives of the NIEO include control of natural resources, self-reliance and global management of resources (AIDAB Dictionary, 1989).

[7] The strategy of integrated development demanded by the Third World in the NIEO includes basic needs, the use of appropriate technology and the reduction of Third World dependence on developed nations. Basic human needs refer to the minimum requirements for food, shelter, clothing and household effects (Hope, 1983; AIDAB Dictionary, 1989).

doing or making, by which human capability is extended (Schon, 1967). This knowledge is diffused directly or indirectly through investments, joint ventures, licensing contracts, purchases, capital goods, foreign study, training, world trade and transfer of expertise (Dahlman, 1994).

Williams and Gibson (1990) on the other hand, defines technology transfer as a transformation of a technical concept of proven feasibility into a development state closer to its end use in the production of service or goods to the extent that this transformation is complete and enhances end users' process or output in some way.

Technology transfer is evident throughout human history especially in agriculture (Al-Ghalani & Moor, 1995). In addition, Swanson (1980) examines the technological transformation and impacts of Western agricultural technology on non-Western societies. The results of this study reveals that technology transfer is successful if Western economies explore the socio-economic environment of rural agricultural communities.

Technology transfer is also successful in the "Green Revolution" era in the sixties where South Asian agriculture programs were supplemented by agricultural research, credit facilities and infrastructure development (Burki & Ayres, 1986). The "Green Revolution" marks the agricultural

transition in Asian economies. It also lessens the gap between demand and production and enables Asian economies to become self sufficient in agriculture (Karchu, 1994). For example, Ueda (1983) examines the historical development of Japanese and Filipino rice farming during the "Green Revolution" era and the result of his study suggest that a combination of efficient agricultural systems will result in optimum yields in agriculture. In addition, the "Green Revolution" is also one of the most important technological changes in Philippine agriculture. The introduction of modern rice varieties, adoption of labour saving devices and investment in agriculture research for the development of rice technology suitable to production environments result to decrease in labour costs and the cost of production and an increase in productivity (Otsuka, Cordova & David, 1992).

The Green Revolution however, has also its drawbacks. Ueda (1983) further examines that the technology transfer of modern high rice variety face various constraints. Some of these constraints are due to environmental and institutional factors. The environmental factors are the unnecessary conversion of rice lands unsuitable for farming in order to take advantage of the high productivity of the land. For example, in the case of the Philippines, the transfer of modern rice variety through the Green Revolution results to changes in farming practices. Marginal farmers who were anxious of

experimenting with new technology were uncertain of changing their old farming practices. These farming practices involve changes in crop production from seed selection to milling and harvesting new rice varieties. The other constraint is due to institutional factors of government. These are inadequate credit and technical assistance, difficulty in marketing crop production and inappropriate marketing programs and the absence of extension services. In addition, a stable and effective local organisation is also necessary to support the transfer of new technology to marginal farmers.

Agriculture is the basic industry in developing nations where technological needs and opportunities range from simple improvements in farm implements to better use of seeds and fertilisers, insecticides, fungicides, animal feeds and mechanical equipment (Dawson, 1987). Ali (1987) examines the impact of complementary inputs in agriculture to farm productivity. The results are that inputs such as fertilisers and irrigation enhanced farm yield, income and employment. The recommendation of this study is to enhance agricultural credit facilties, extension services and agricultural research. In addition to such inputs, manipulation of soil through tillage, crop rotation and control of weeds through inter-cultivation and harvest of matured crops are as equally important (Karchu, 1994).

Hassal (1994) also evaluates the educational impact of an agriculture program in Sudan. His study reveals that the program enhanced the farmer's awareness of improved agricultural practices that results in increase agricultural productivity, income and ownership of farm animals. Chaves (1987) examines the effectiveness of technology transfer. His study examines the extent to which factors such as research and extension, credit and marketing, climate, and the adoption of crop technology affected productivity. His study also reveals that in order to accelerate agricultural productivity, the appropriate technology should adapt to local farming conditions, involves farmer's cooperation and must have technical support.

In addition, Carr (1988) investigates seven interesting case studies in agriculture and small scale industries. The results of the study indicate that the project is successful because it encouraged people's participation and the use of indigenous resources to enhance agricultural productivity and industry. Finally, Cao (1991) examines the theory and application of international agricultural technology transfer. His study reveals that the primary ingredient for the successful transfer of technology in agriculture is for the recipient country to have strong local research support in order to adapt the acquired technology to its local needs.

These mechanisms appear to take into account the definitions of technology transfer by Derakshani (1983), Woodward (1985), Rousseau & Cooke (1984), and Schon (1967). Previous studies reveal that the transfer of technology in agriculture has been investigated and researched for a number of years because of commercial, social, humanitarian and political interests. There are several forms of technology transfer in agriculture. First, agricultural technology is transferred by means of education through research and extension, training and policy assistance. Second, through hard technology such as roads, irrigation and integrated rural development projects. Third, through development of financial, marketing and management practices of farmers and fishermen (Karchu, 1984).

The dissemination of agricultural information and policy assistance through education is the most common means of transfering agricultural technology. Green (1981) evaluates a curriculum model for agricultural education to effectively improve the standard of living in an African village. His study suggests that a curriculum for appropriate technology in agriculture which is sensitive to the social-cultural African milieu be developed and applied to the African society.

The 'sensitivity' of appropriate technology in the African milieu is the ability of the technology to adapt to local prevailing conditions. For example, in Africa, technology must adapt to the local tropical and subtropical zones which have different climates. Green (1981) cites that the importance of climate among all problems besetting economic development has been grossly underestimated. The climate of a country, combined with factors of production are main attributes to a successful transfer of technology. The factors of production are equally as important to the success of technology transfer. The availability of local labour, long term credit facilities to marginal farmers, improvement of the living condition of the villages contributes to increase productivity.

Carr (1988) also examines the sensitivity of technology to the African society. There has been increase interest in finding ways of developing and diffusing technologies which are more appropriate to the needs and means of the masses of people in developing countries particularly in Africa. In most cases, a conscious effort has been made to encourage small-scale, decentralised self-employment, or cooperative group ownership. For example, the production of ceramic stoves in a rural women's group in Kenya and the small-scale decentralised grain milling project in Botswana has been promoted to

encourage people's participation over the means of production, marketing and distribution.

There are several factors which contributes to the success of technology transfer. Carr (1988) identifies these factors as identifying the real needs of potential users of technology and developing these technologies to the specific needs of the users. A second and related factor is the full involvement of the village affected by such technology. In a village set up, households composed of farmers, artisans, housewives, youth and village leaders actively participate in the implementation and continuance of small scale industry projects. A third factor is the significant funding provided by development agencies to enable research to be undertaken. The fourth factor is training to ensure that the technology acquired is efficiently produced, maintained and replicated. The importance of training at village level is significant to the sustainability of the project. The fifth contributing factor to success is the availability of cash or credit facilities which enables wants and needs to be translated into effective demand. For example, the availability of credit has enabled farmers in Kenya, mill owners in Bostwana to respond effectively to demand. The access to credit facilities has also encourage replication of similar projects to several villages. The sixth factor is the important role of implementing agencies in the

development and diffusion of technology appropriate for the village. In most cases, NGOs have taken a lead role in the diffusion of appropriate technology.

In summary, the sensitivity of technology in broad sense emphasizes the need for harmony of technology with the social, political, technical, economic, environment milieu of the target population. The sensitivity of technology also includes the pro-active involvement of people directly affected by the project from marginal farmers, artisans, and housewives in the project's implementation, maintenance, expansion and replication.

2.2. The Notion of Appropriate Technology

Technology transfer is not an instant answer to a developing country's pursuit of economic development. There is an increasing interest in finding ways to develop and diffuse technology that is appropriate to the needs of the masses of people in developing countries (Madu, 1989). The most important issue of technology transfer is its appropriateness. *Appropriate technology* is one that is relatively inexpensive, simple to build, maintain and operate; uses renewable sources and relies primarily on people's skills (Jequier & Blanc, 1983). Critically, it is also defined as the technology that adapts to the local social and cultural environment (Karchu, 1994).

Harrison (1980) sees *appropriate technology* as a dynamic and flexible technological mix of economic, social, environmental objectives suitable in each country. It is also recognised as a generic term for a wide range of technologies characterised by simplicity, low cost, adaptable to social, cultural and ecological environment with high potential for employment and manageable by small or individual groups.

The initial proponent of *appropriate technology*; Schumacher (1973) argues that development does not start with goods; rather, it starts with people and their education, organisation and discipline. One approach is to

start with existing techniques in traditional industry and to utilise knowledge of advanced techniques to transform it suitably to the needs of the community. The efficient diffusion of the appropriate agricultural technology also depends on the complex structure of the host country's government and its coordinating agencies. Jones (1971) examines that industry or technology will require the support of institutions, with qualified staff, to help in the selection of the most appropriate technology, its adaptation to suit local needs and conditions and the efficient diffusion of the resulting technologies.

In summary, technology transfer has been an essential ingredient to successful improvements in agriculture. Investments in agricultural extension services and agricultural research, knowledge and skills transfer are important tools which are less capital intensive and nevertheless effective. The success of technology transfer lies in the selection of the appropriate technology that considers people's participation, environment, social and cultural life.

2.3 Australia's Current Development Program in the Philippines

One of the important tools for social and economic development is the transfer of technology through development assistance programs.

Australia's foreign development assistance program has been a vital catalyst for economic development across the Asian region. In 1995 - 1996, Australia's ODA to the Philippines amounted to A$ 68.5 million; the second highest in Southeast Asia next to Indonesia (AIDAB, 1993). This level of development assistance compares favourably with other larger donors such as Japan and the United States[8]

As close geographic neighbours, Australia's concern is to assist in the development of an equitable, stable, and economically vigorous Philippines which can contribute constructively to regional and international affairs. Australia's development cooperation program in the Philippines aims to address two key areas on human resource development and poverty alleviation. The program specifically includes activities in education, natural resources and environmental management, social infrastructure, agricultural research, health and economic cooperation (AIDAB, 1994).

One of Australia's development cooperation objectives in the Philippines is aimed at community development in rural areas. The urgent

[8] The Philippine Assistance Program (PAP) is chaired by the World Bank, the major donor coordination forum for the Philippines. The total net ODA for the Philippines in 1990 was US 2,105 million. The largest donors are Japan and the United States which contributed US $ 904 million and US 365 million respectively. The World Bank and the Asian Development Bank provide the major share or multilateral aid (US $ 1,334 million in 1990 commitments). Australia, Germany, France and Canada are amongst the third major group of donors all of which have programs of comparable size. Australia's ODA/GNP ratio for 1995-1996 is 0.33 percent (AIDAB, 1993).

need to address this problem is demonstrated by the perpetuating increase in rural poverty as a consequence of poor yields in farming and alarming degradation of aquatic and natural resources. Agriculture continues to play a dominant role in many developing countries like the Philippines where the economic potential and well being of the country depends much on agricultural development.

In the Philippines, over half of the country's subsistence farmers depend on agriculture work as the only source of income. They make up the majority of the nation that live below the poverty line with an annual income of just around 24,000 pesos (A$ 1,300)[9]. A majority of the farmers do not own the land that they till and their growing concern for understanding deforestation, soil degradation and natural resources is limited.

The increasing concern of project implementors and beneficiaries in determining the benefits of development projects like the PPAEP and have encouraged the development of models used for social and economic impact analysis.

Public response and the ability to addresses the issue of accountability of Government is a growing concern of taxpayers (AIDAB, 1991). Sectoral

[9] currency converted rate as at May 1996: A$ 1.00 = 19.00 pesos (DCR, 1996).

concerns which impact on project and program effectiveness include those related to agriculture, education, and social development (AIDAB, 1994). In addition, Flynn (1982) argue that people want to know the effects and what the cost and benefits will be in local communities. The ability to deal with public response is extremely important for both proponents and opponents not only in terms of public relations, but also in terms of the economics of project development.

These concerns are challenges to Australia's development assistance efforts in its objectives to improve agricultural productivity to alleviate poverty. The overall concept of the social and economic impact of an Australian development assistance project in agriculture in the Philippines seems to be inadequately documented from the perspective of the people directly associated with project implementation and representatives from the village communities.

The critical lessons for project implementors in the transfer of the appropriate agricultural technology through development assistance activities, lies in the examination of the project's success, failures, social and economic impacts in the community.

Much of the evidence about the performance of development activities comes from the evaluation of completed projects. Problems ranging from the inability of development activities to create full employment and fuel economic growth has been compounded by a relative lack of policy measures aimed at increasing agricultural activity and sustaining the transferred technology. In a significant finding of the World Bank, development projects do aim to assist the poor directly. However, there is no reason to suspect that evaluations are in general complacent or self-serving; indeed there is frequently a negative bias: agencies commonly pick "problem" projects for evaluation, and fault finding is often the main preoccupation of evaluators (Cassen, 1986).

Against these criticism, it therefore imperative to evaluate the social and economic impact as a measure of project performance to assist implementors in future policy formulation. To help in this process, the Group Ecology Model (GEM) is used as a conceptual framework to evaluate the social and economic impacts of the PPAEP.

2.4 Conceptual Framework: The Group Ecology Model (GEM)

Socio-economic impact studies make use of many socio-economic indicators to determine the changes that the project creates in people's way of

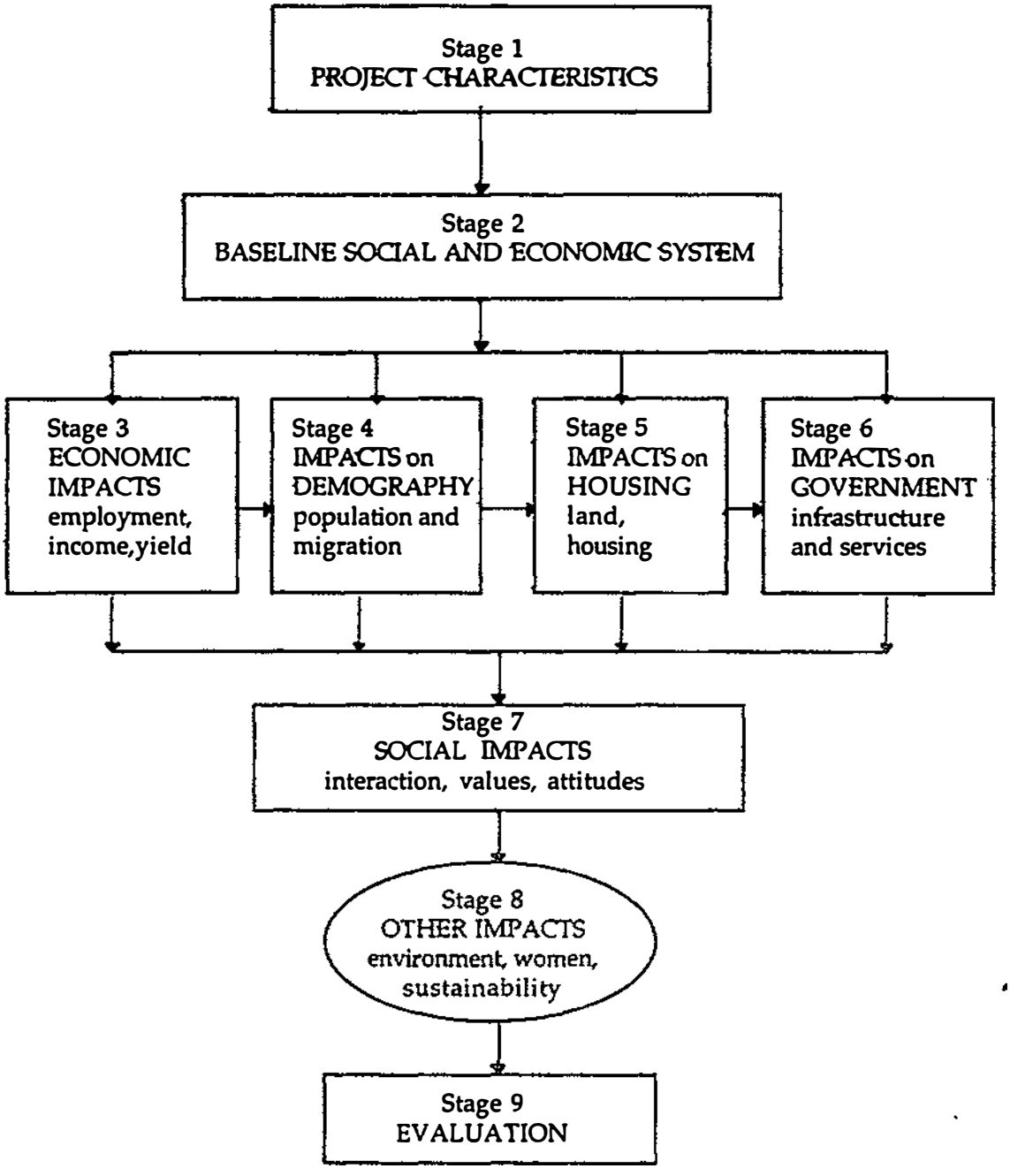
life. Finsterbusch (1993), argues that the most important use for socio - economic indicators is that they determine subjective alterations in people's perception of quality of life changes due to government activity.

The GEM for the assessment of social and economic change (Flynn, 1982) is used as a conceptual framework for this study as it provides a comprehensive perspective on impacts ranging across a wide array of domains, or subject areas, that influence quality of life assessments.

Flynn (1982) explains that an ideal conceptual framework for socio - economic impact assessments uses an integrated approach that covers not only the whole range of social and economic impacts but also public response. This is schematically shown in Figure 1.

The GEM framework represents a relatively simple cause and effect relationships. The first stage is to identify the basic characteristics of the project. This includes the proponents of the project, the design, its objectives and budget.

Figure 1. Group Ecology Model (GEM)



The second stage is to establish an accurate baseline description of the study area where the project is implemented. This includes the area's geographical location, boundaries and natural resources.

The third stage is to identify the economic impacts. This includes the economic impacts of the project on income, direct employment, yields or productivity.

The fourth stage is to identify the demographic impacts associated with the project. The model identifies two changes in population namely first, an increase in immigration of the workers and their household members and second, an increase from the diminished out-migration of local residents and their household members.

The fifth stage is to identify the impacts on land, housing and settlement pattern. The information on accommodation, housing type, land ownership affected by the project could influence a change in the pattern of housing needs of the residents.

The sixth stage is to identify the impact of the project on government. This includes the impact on infrastructure, local government expenditures and revenues, demand for public service areas as well as the quality of public services. The impact of the project on this area provides local government sectors a basis for mitigation and design of monitoring procedures what will be carried out in future projects. Other areas that are vulnerable to impacts

from large scale agricultural projects like the PPAEP also included school facilities, transportation networks, roads, bridges and public safety.

The seventh stage is to identify the social structure impact in the study area. These impacts are identified by describing the major functional social groups and the major relationship among these groups. The interaction and cohesion of the residents in the study are vital ingredients when assessing socio-economic impacts. This stage defines the various groups that comprises the community, its micro economic, political, and the social relationships within and among the groups.

The eight stage is to identify the impact of the project on environment, women and sustainability. This stage is not contained in the original model but is nevertheless vital to program management.

The ninth and final stage of the model is to evaluate the impact of the project based on total groups or communities and evaluating those impacts over time. The significance of both specific and overall effects is based on the size, magnitude, duration, extent and diffusion of the impacts on the groups and on the study area as a whole. In this study, this includes the overall impact of the project on neighbouring villages surrounding the study area.

In measuring the overall program performance of development activities of government, there is also a need to identify its impact on the role of women, environment, and the sustainability of the project. These are the three vital issues that are not contained in the conceptual framework nevertheless, is included in this study. This finds support in Cassen (1986) who argues that most development agencies have now adopted policies to involve women more adequately in development work - perhaps - in recognition of the fact that giving proper weight to women's roles is not only a matter of equity but often a necessary condition for the projects' success. In like manner, the guiding mission of Organisation for Economic Cooperation and Development (OECD, 1987) also proposes the "full account of gender composition of the population at all stages of the (aid) programming cycle."

In addition, there is clear evidence that concern on development activities taking steps to assure that effects on environment and ecology are also considered at relevant stages of project preparation and implementation (Cassen, 1986). There is an urgent need on all front and from all sectors to utilise natural resources more equitably and sustainably (Soliman, 1991).

Finally, a subject requiring much more attention than it receives in the life of projects beyond the time of the donor's involvement is sustainability. This incorporates the calibre of institutions managing the

project, the ability and commitment of recipients to ensure the payment of domestic costs and how projects will survive after agencies withdraw (Cassen, 1986).

In summary, the GEM framework that is utilised in this study highlights mainly the social and economic impacts of an activity or project in a study area and its corresponding impact on demographic, housing government. It is imperative that in any development activity, concern for impact on the role of women, environment, and sustainability issues be also considered in the overall measure of project performance.

2.5 Chapter Summary

The overall concept of technology transfer has various meanings and mechanism for implementation and the most important issue of technology transfer is its appropriateness. Appropriate technology is one that is relatively inexpensive, simple to build and primarily considers people's participation, environment and socio-economic life. The "Green Revolution" marks an era of technological transition in Asian economies that brought successful yields in agriculture.

One form of technology transfer in agriculture is through development assistance activities of government. Australia's development assistance activities in Asia particularly in the Philippines aims at community development to improve agricultural productivity and alleviate poverty.

The increasing concern of measuring the performance of development activities has encouraged the development of models for social and economic impact assessments. The Group Ecology Model is utilised as a conceptual framework to evaluate the PPAEP's social and economic impacts. It is also important that in any development activity, concern for impact on the role of women, environment, and sustainability issues be considered in the overall measure of project performance.

Chapter Three

Methodology

3.0 Introduction

This chapter sets out the methods and procedures utilised in the conduct of this study. It presents the research design and is followed by an outline of the research setting and subjects. Data collection methods, data analysis measures, study limitations and ethical considerations are also discussed.

3.1 Research Design

This is a multiple case study which utilises qualitative methodology involving a combination of secondary data and face to face interviews with people directly associated with the PPAEP project. This methodological approach finds support in Miles and Huberman (1984) that studies such as program evaluation, psychology, policy analysis and processes that preserves a chronological flow of events, assess local causality and derive fruitful explanations from experiences, adopt a qualitative research as this method facilitates a close understanding of the informant's perceptions and enables the researcher to discover the nature of phenomena as humanly experienced.

Qualitative research deals with the role that informant's play in the research process as informants are usually treated as subjects who supply the data based on actual and real life situations. Moreover, qualitative research also allows the researcher to gain access to the motives, meanings, actions and reactions of people in the context of their daily lives (Yin, 1989).

This finds support from Mininchiello (1995) that qualitative research is not primarily concerned with assigning numbers to certain observations but takes a different role of uncovering thoughts and experiences of informants with the use of methods such as in-depth interviewing and participant observation which will allow the researcher to gain access to this information.

Hamel (1993) argues that a case study, by definition, is in fact an in-depth investigation of a particular case or cases. In addition, case studies are utilised when investigating social realities and exploring personal experiences of individuals. This approach also considers the personal experience of the informants based on how he or she perceives the situation and thus, permits an understanding of the empirical properties of social relationships.

The case method approach is appropriate in an empirical inquiry that investigates a contemporary phenomenon (Yin, 1993). The case method approach is suitable in evaluating the social and economic impacts of the PPAEP. The reason for this is that in an empirical inquiry like the PPAEP that investigates a contemporary phenomenon within its real-life context, the case study approach addresses a situation when the boundaries between phenomenon and context are not clearly evident and utilises multiple sources of evidence.

Further support for the case study approach of this study is Yin (1993, p. 5) who argues that case studies are one of the research strategies used in conducting evaluations of public programs from policy areas such as justice, welfare, environment, education and foreign aid. He adds that when a study is conducted to determine the outcome of a new governmental program, the appropriate approach is to draw a wide array of documentary information from the participants by doing a survey or by examining economic data depending upon the type of program involved. He adds that if a study attempts to uncover "how" and "why" the program worked (or not), the approach is either a case study or a field experiment.

This is also supported by Patton (1990) who argues that the value of case studies is now recognised by such development agencies as the World

Bank and United States Agency for International Development (U.S.AID). The U.S. AID Evaluation Special Study has published over 60 project impact evaluation case studies showing how qualitative data and quantitative data can be combined, and how a team can combine secondary data, direct fieldwork, project documents, field interviews, and observations to draw policy-relevant conclusions from individual case studies. Likewise, Chew (1989) comments that a number of project case studies in a sector (e.g. agriculture or family planning) can then be synthesised to draw still larger conclusions about development processes and may generate concrete recommendations to managers, training plans and other practical results.

This study uses a multiple case study design and selected the villages of Luyong Bonbon and Pagalungan in rural Philippines. Yin (1989, p.43) argues that multiple case studies include two or more cases within the same study replicating each other - either by exact (direct replications) or predictably different (systematic) replications. The replication logic cited in this multiple case study addresses the test for *external validity.*

This approach is supported by Hamel (1993) that in villages (or tribes), homogeneity is clearly illustrated in a consolidated manner that proves to be an ideal observation site for changes in a development activity. The village is a favorite place for a monographic study. It offers a homogeneous social life,

combined with low population density which immediately provides many practical benefits for case studies. This is because the village is in itself, an "enlargement of all of the culture's traits and features".

Miles and Huberman (1984) suggest that there are no clear rules of thumb for selecting the number of cases. The widest accepted range seems to fall between two to four as the minimum and ten, twelve or fifteen as the upper limit.

This finds support in Patton (1990, p. 183) that the validity, meaningfulness and insights generated from qualitative inquiry have more to do with the information-richness of the cases selected and the observational/analytical capabilities of the researcher rather than with sample size. He adds if the purpose of the evaluation is to measure the effectiveness of the program in reaching lower socio-economic groups, one may learn a great deal more by focusing in-depth on understanding the needs, interests, and incentives of a small number of carefully selected poor families than by gathering standardised information from a large, statistically representative sample of the whole program. Information rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research.

In the light of the foregoing, this study utilises *typical case-purposeful sampling* [9] (Patton, 1990, p. 173) as it focuses in-depth on the villages of Luyong Bonbon and Pagalungan that are chosen based on a selection criteria[10] formulated by the Provincial Technical Working Group (PTWG) and discussions with Department of Agriculture personnel and the PPAEP project consultant.

Patton (1990, p. 184) cites that there are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what's at stake, what will be useful, what will have credibility, and what can be done with available time and resources. He adds that in-depth information from a small number of people can be very valuable, especially if the cases are information rich.

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[9] Typical Case-Purposeful Sampling - Patton (1990, p. 173) suggests that in describing a program or its participants it can be helpful to provide a qualitative profile of one or more "typical" cases. These cases are selected with the cooperation of key informant, such as program staff or knowledgable participants, who can help identify what is typical.When a typical site sampling strategy is used, the site is specifically selected because it is not in any major way atypical, extreme, deviant, or intensely usual. This strategy is often appropriate in sampling villages for community development studies in Third World countries. A study of typical village illuminates key issues that must be considered in any development project aimed at this kind of village.

[10] The Provincial Technical Working Group (PTWG) of the PPAEP is composed of provincial based government agencies, project implementors and NGOs operating in the province formulated the village selection criteria. The selection criteria includes peace and order, accessibility, geographical setting/location and presence of NGOs. This study adopted the selection criteria of the PTWG in selecting the two villages with assistance from the Department of Agriculture.

The issues of *construct validity* and *reliability* critical to the case study methodology are addressed in this study. Yin (1989, p. 41) defines *construct validity* as the establishment of correct operational measures for the concepts being studied. The measure for *construct validity* of this study is the selection of the different types of concepts which are the social, economic and other impacts of the PPAEP project. Yin (1989, p. 42) adds that to meet the test for *construct validity* the investigator must cover two steps. First, select the different types of changes that are to be studied (in relation to the original objectives of the study) and second; to demonstrate that the selected measures of these changes do indeed reflect the specific type of change that have been selected. In this study, the social, economic and other changes in demography, housing, government, and other effects are selected and the measures for these changes include traditions, values and interaction; income, yields and employment, housing, land, legislation, demands for services, environment, women and sustainability.

In addition, the criterion for *construct validity* is substantiated by the use of *multiple sources of evidence* (Yin, 1989 p. 42). The evidence for case studies may come from six sources: documents, archival records, interviews, direct observation, participant observation and physical artefacts (Yin, 1989 p. 84). This study utililises four sources of evidence which includes documents, archival records, interviews, and direct observation. The field work is the

central activity of this study and a trip to the project site is a means of having direct and personal contact with the people under study.

This study is also supported by a *chain of evidence* (Yin, 1989 p. 43) which includes demographic reports and information of changes in economic status before and after the project was implemented.

The measure for *reliability* of this study is strengthened by the use of case study protocols (Yin, 1989 p. 70) which includes an overview of the case study project (PPAEP's objectives, design, proponents and strategies), ; the field procedures (AusAID Canberra approval, introductory letters to project implementors, itinerary of field work, ethics committee approval, consent letters); case study questions (interview guides, demographic information sheets); and case study report guide (biographical data of interviewees and other data).

3.2 Research Setting: Rural Philippines

This study is conducted in two villages or *barangays* namely Luyong Bonbon and Pagalungan, in the province of Misamis Oriental, south of the Philippines. The primary and secondary data of this study are collected over a twelve week period between June to August 1996.

The primary data of this study is obtained through face to face interviews with various subjects including project implementors and representatives from village communities. A field visit is utilised as an opportunity for interview and direct observation. Yin (1989, p. 91) cites that observational evidence is often useful in providing additional information about the topic being studied. The study utilises a *focused interview* (Yin, 1989, p. 89) in which the subject is interviewed for a short period of time where the interview may remain open-ended in a conversational manner but the the interviewer follows a set of questions derived from the interview guide (Appendix B). In addition, interview attitudes are also conveyed to the subjects. Forrest (1989) comments on the importance of "the interview attitude" which includes being an interested and sensitive listener, and setting aside one's own judgements and preconceptions in order to focus on the subject's experience.

The interviews are recorded using a tape recorder and Yin (1989, p. 91) comments that tapes provide a more accurate rendition of any interview than any other method. Likewise, this study is supported by secondary data from related projects, evaluation reports, village profile reports and publications.

Patton (1990, p.371) comments that the purpose of qualitative inquiry is to produce findings and the culminating activities of qualitative inquiry are analysis, interpretation, and presentation of findings. It means attaching significance to what was found, offering explanations, drawing conclusions, extrapolating lessons, making inferences, building linkages, attaching meanings, imposing order and dealing with rival explanations, disconfirming cases, and data irregularities as part of testing the viability of an interpretation.

This study utilises Patton's data analysis technique which consists of examining, categorising, coding, tabulating, and recombining the evidence to address the initial propositions of a study. Patton (1990, p. 384) comments that the purpose of examining, categorising and coding qualitative data for analysis is to facilitate the search for patterns and themes within a particular setting or across cases.

The main purpose of interpreting the data is to be able to give an explanation as well as extrapolate lessons learned from the study. The data in this study is presented in narrative form and is organised according to the major themes or process outcomes which are the impacts of the project. Patton (1990, p. 425) notes that evaluators can synthesise lessons learned

from a number of case studies to generate factors that contribute to program effectiveness.

Patton (1990, p. 426) comments that the U.S. AID has supported lessons learned synthesis studies on such projects as irrigation (Steinberg, 1983), rural electrification (Wasserman & Davenport, 1983), agriculture policy and planning (Tilney & Riordan, 1988), and agro-forestry (Chew, 1989). In synthesising evaluations to identify lessons learned, evaluators build a store of knowledge for future program development, more effective program implementation, and enlightened policy-making.

3.3 Subjects of the Study

People's participation is seen as the key to sustainable development. PPAEP advocates full participation of all groups involved at all stages of the project. This study conducted face to face interviews with people directly associated with the design and implementation of the PPAEP, and the representatives from the village communities. These are:

- Non Government Organisations (NGOs) and Local Government Units involved in project planning, management and evaluation.

- Rural Based Organisations (RBOs) composed of farmers and fishermen involved in the project.
- project managers of AusAID, Australian team leader and project consultants.
- agricultural technicians, municipal agricultural officers, city agriculturist and the agricultural provincial adviser of the Department of Agriculture, Philippines.

The subjects of this study are composed of two PPAEP consultants, six agricultural extension workers, one NGO volunteer, one municipal mayor and ten RBO members from the two rural villages.

3.4 Data Collection Method

This study utilises a selection criteria adopted from the PPAEP project and *typical case-purposeful sampling* [11] for selecting the villages of Luyong Bonbon and Pagalungan. The following selection criteria is specified:

- first, a selection is made on a typical village
- second, the village's geographical location and accessibility

[11] See footnote on page 33 for a discussion on Typical Case Purposeful Sampling and Case Selection Criteria.

- third, the availability of NGOs, RBOs
- fourth, peace and order conditions

This study utilises four sources of evidence: documentation, interviews, direct observation and archival records.

- *Documentation*

The first stage of this study is to obtain a background information of the PPAEP project from AusAID Canberra. The background information contains the project's design, objectives, proponents and strategies for implementation. The second stage is to inform the project implementors of the proposed field work. A letter of introduction is sent to major interviewees and organisations which are the subject of the study and this includes the rationale of the study and the itinerary of the trip.

- *Interviews*

This study utilises in-depth interviews supported by secondary data as a tool to probe into people's experiences with an attempt to uncover how the project affected the people's lives.

A village forum is organised through the assistance of the Department of Agriculture personnel and the village chiefs. The subjects are informed about the study, its objectives and it significance. Prior to the commencement of the interview, the subjects are asked to sign the consent form (Appendix A) and are informed of their right to withdraw from the study at any stage of the proceedings.

The interviews of this study are conducted in a conversational manner in local dialect[12] to allow the subjects to express their experiences spontaneously and openly. The interviews range from 30 to 45 minutes, following a set of questions from the interview guide (Appendix B). The interview guide is utilised to obtain demographic data of each respondent and responses to questions pertaining to the social and economic impacts of the PPAEP. To eliminate bias and strengthen case credibility, the interviews are recorded using a tape recorder.

In addition, attention is conveyed to the subjects by maintaining eye contact, an open posture and responding to their comments with frequent nods and changes in facial expression.

[12] Ilonggo is widely spoken in the village and the researcher is familiar with the local dialect.

The observed behaviour of the subjects are described rather than evaluated in the form of field notes. Following each interview, observational notes are written to record non verbal cues and "off tape" comments of the subjects.

- ***Direct Observation***

A field observation is utilised in this study by visiting the different demonstration projects in the villages and by taking photographs at the project site (Appendix E). The photographs will help convey the important characteristics of the project to outside observers.

- ***Archival Records***

Archival records are also utilised as a source of evidence. These records include village profiles, demographic profiles, maps depicting the geographical characteristics of the villages and the PPAEP Draft Completion Report.

3.5 Data Analysis Measures

This study utilises Patton's (1990) *process outcome matrix* which is an effective tool to link "processes" and "outcomes" in many program

evaluations. The steps are identifying, coding, categorising, interpreting the primary patterns of the data.

The first step of data analysis is to identify and check the quality of the data before formal analysis begins. This step is to ensure that there is no missing data, and if missing data exist, a follow-up interview can be conducted to clarify and validate the data from the subject.

The second step is to code the subjects and the data obtained from the interview. In this study, the data for each subject is classified according to each village and coded in alpha-numeric form to provide facility in the translation and analysis of data.

In addition, audio tapes are also transcribed into written transcripts. The written transcripts are then examined several times to acquire the sense of its total content. The responses of the subjects are then compared with the notes on the interview guide to identify significant statements and extract contrasts in responses.

The third step is categorising. This study utilises Patton's *process/outcome matrix* to describe the linkages, patterns, themes, experiences, content, or actual activities that will help in understanding the

relationship between the major program processes and levels of program outcomes identified in this study. The matrix is schematically shown in Figure 2.

The types or levels of program outcomes are listed across the top (horizontal axis). These are the social, economic, and other impacts adopted from the GEM framework. The program processes are listed on the vertical side and these include the different projects of the PPAEP in the two rural villages. For example, the first project in the village is (a.) developing community capability. The corresponding impact of the project on "Stage 3" which is "Economic Effects" will be recorded on "cell a(3) " (or any other cell in the matrix). The cross-classification of the program process (a.) and the program outcomes "Stage 3" produces a cell in the matrix. The information that goes in "cell a(3)" are the themes, experiences, and actual quotations from the subjects derived from interview field notes and audio tapes. In addition, this information is 'coded' in "cell a(3)" in order to identify the subject.

This study identifies six program processes and six program outcomes. The program processes are obtained from the PPAEP Components and Design Document (Appendix F) and the program outcomes (impacts) are derived from the GEM Model.

Figure 2, Process /Outcomes Matrix

Program Outcomes (GEM Framework)

Program Processes / PPAEP project components	Stage 3 Economic Impacts Employment, Income Yield	Stage 4 Impacts on Demography Population, migration	Stage 5 Impacts on Housing Housing, Land	Stage 6 Impacts on Govt. infrastructure and services	Stage 7 Social Impacts interaction, values, attitudes	Stage 8 Other Impacts environment women sustainability	Stage 9 Evaluation total impacts over time
a. Enhancing Agricultural Extension Services							
b. Developing Community Capability							
c. Improving Farming Systems Research							
d. Enhancing Inter-agency coordination							
e. Improving Management Resources							
f. Strengthening RBOs							

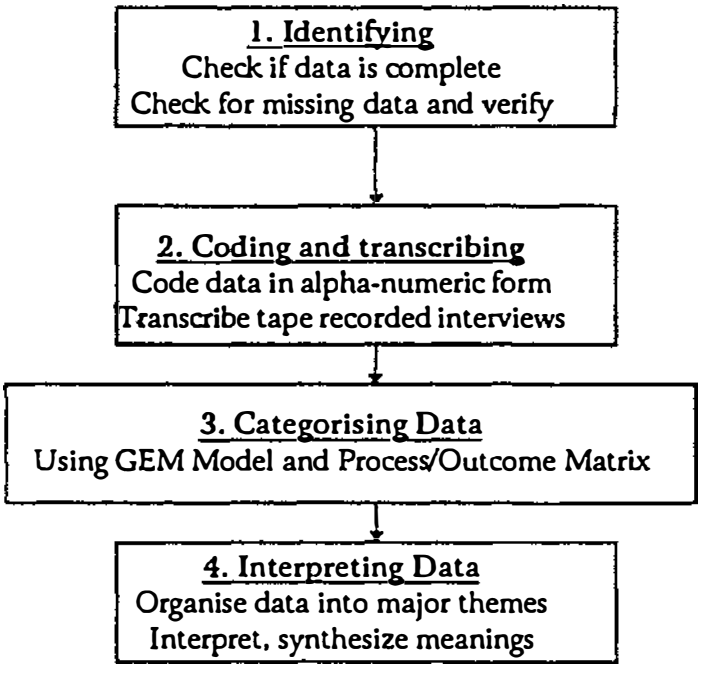
The program processes are enhancing agricultural extension services, developing community capability, improving farming systems research, enhancing inter-agency coordination, improving management of resources and strengthening the RBOs. The program outcomes are the economic, demographic, housing, government, social, and other impacts adopted from the GEM Model.

The *process outcome matrix* is an *organising tool* in qualitative methodology and the data from the subjects themselves and field observations provide the actual linkages between PPAEP program processes and social-economic impacts as the outcomes. The purpose of organising qualitative data is to classify and assess the quality of the subject's actual responses so that this can be interpreted and "quantified".

The main purpose of interpreting the data is to be able to give an explanation as well as extrapolate lessons learned from the study. The data of this study which consist of the actual responses of the subjects is presented in Chapter 5. This data is presented in narrative form and is organised according to the major themes which are the economic, demographic, housing, government, social and other impacts.

The data analysis measures of this study are summarised in Figure 3.

Figure 3. Data Analysis Flow Chart



In summary, the data analysis measures of this study sets out the procedures for identifying, coding, categorising and interpreting the primary patterns or recurring regularities of the data. The main purpose of data analysis is to be able to present and synthesize the evidence in order to address the initial propositions of the study.

3.6 Study Limitations

The limitation of the study addresses that with limited resources and limited time, this study may benefit more by adopting a typical case

purposeful sampling rather than random sampling; hence it may not permit generalisations to the whole program. In contrast to probability sampling which logically and statistically permits confident generalisation to a larger population, typical case purposeful sampling on the other hand permits a different approach of typically focusing in-depth on information-rich cases which are of central importance to the purpose of this study.

In addition, the point of this study is not to do a major evaluation of the whole PPAEP program because the whole program has already been subjected to an independent evaluation presented in the Draft Completion Report (DCR) conducted and produced by AusAID. Rather, the case study focuses in-depth on the lessons that could be learned from the cases presented and to provide insights on similarities and variations in program evaluation.

In synthesising separate evaluations to identify lessons learned, this study contributes to the store of knowledge for future program development, more effective program implementation and enlightened policy making.

This study is not an end in itself but a means of generating insights about effective program practices and processes across multiple experiences in the two villages.

3.7 Ethical Considerations

Permission to undertake this study is granted by the committee for conduct of ethical research at Edith Cowan University. Informed consent is also obtained from each respondent prior to commencement of the interview. Furthermore, the subjects are also informed of their right to withdraw from the study at any stage in the proceedings and the subjects are guaranteed of confidentiality and anonymity.

3.8 Chapter Summary

This chapter has discussed the methodology of this study which adopted a multiple case method approach of qualitative methodology. It involved a combination of secondary data and face to face interviews with people directly associated with the design and implementation of the PPAEP and representatives from the village communities. This study utilised Patton's (1990) *process outcome matrix* which is an effective tool to link "processes" and "outcomes" in many program evaluations. The study addressed that with limited resources and time, the use typical case-purposeful sampling is appropriate in this study. This sampling method allows an in-depth focus of understanding the needs, interests and incentives of a small number of families in the two rural villages. However,

in contrast to random sampling, it may not permit generalisations to the whole program. The purpose of the study is not to do a major evaluation of the whole program; but rather to focus in-depth on the lessons that could be learned from the two villages. Furthermore, this chapter also discusses the ethical considerations of the study and the guarantee to the subjects' confidentiality and anonymity .

Chapter Four

The Milieu for Australian Development Assistance

4.0 Introduction

The purpose of this chapter is first, to discuss the performance of the PPAEP program in the Philippines. Second, to discuss the geographical background of the project site. Third, to focus on the institutional environment for the PPAEP in the villages of Luyong Bonbon and Pagalungan, Philippines.

4.1 The PPAEP Program

In May 1991, AusAID, embarked on a major rural development project in the Philippines with a participatory strategy aimed to break the vicious cycle of poverty and improve the livelihoods of farming and fishing families.

AusAID launched the PPAEP[15] with the aim of improving the quality and accessibility of agricultural extension services to poor rural communities in four provinces in the Philippines (Figure 4).

The five year project which terminated in May 1996 costs a total of A$ 15 million (285 million pesos). The PPAEP is jointly implemented by the

[15] PPAEP 's components and design are discussed in Appendix F.

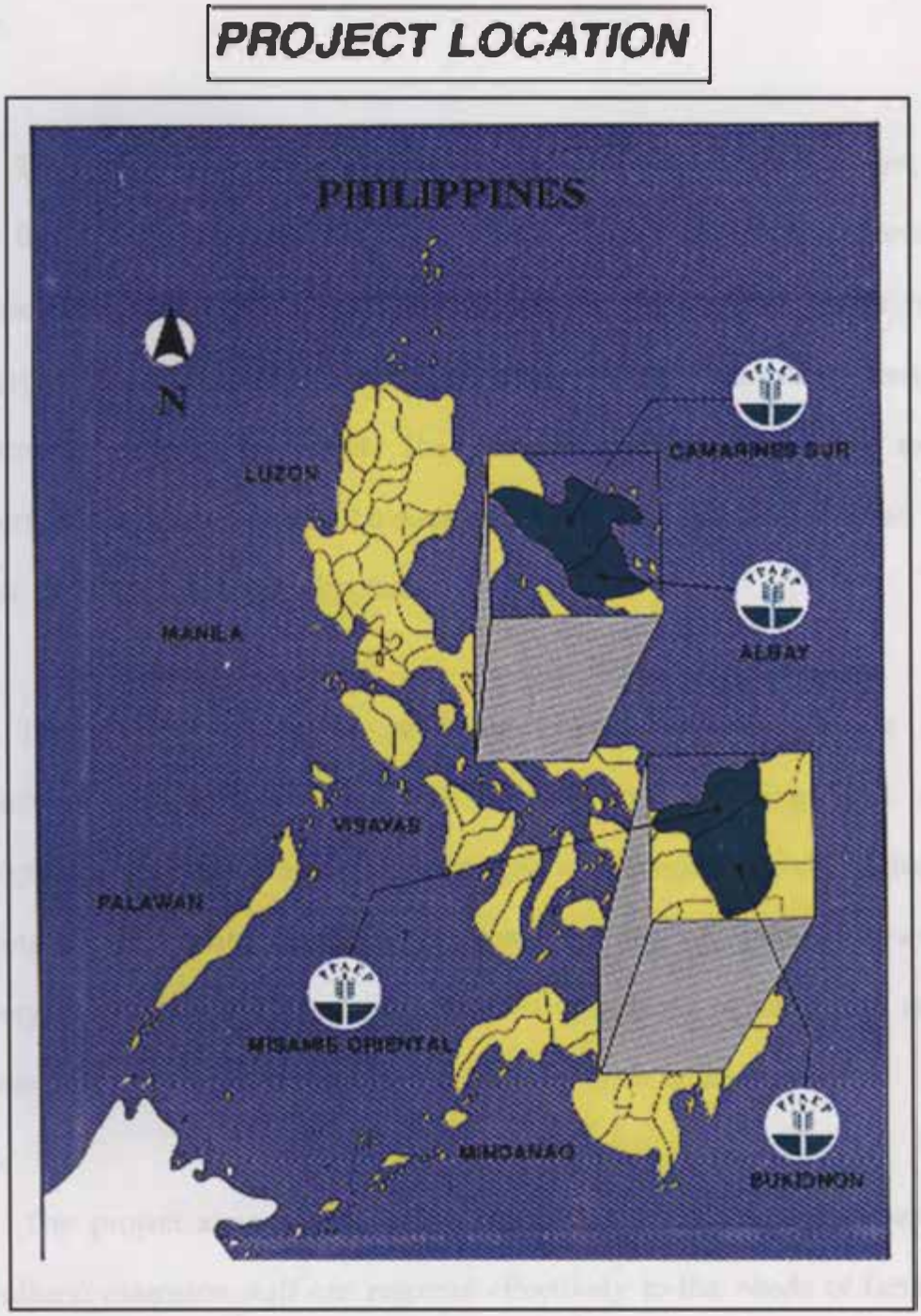


Figure 4. Map of PPAEP in the Philippines

Government of Australia (GOA) and the Government of the Philippines (GOP), the Department of Agriculture (Philippines), AusAID, and Australian NGOs.

The PPAEP is a pilot project which brings together Government, NGOs, Rural Based Organisations (RBOs), and farmers' knowledge to a participative approach towards development. The participatory approach of PPAEP involves the project implementors and beneficiaries in the planning, design and implementation of the project. The project involves agriculture extension advisers, 13 contracted NGOs, farmers and fishermen from 36 selected villages in four provinces in the Philippines.

The PPAEP advocates proactive participation of people towards sustainable development. The key strategy of involving full people's participation is manifested in the project's strategies which includes the building of community capability, the strengthening of agricultural extension delivery, involving NGOs, integrating farming systems research and extension services, and as well as linking the community with other agencies.

The project aims to strengthen agricultural extension services so that agricultural extension staff can respond effectively to the needs of farming and fishing communities as well as improve linkages between Government and

NGOs to enable communities to have better access to technical and financial assistance from appropriate agencies.

The key strategy of the project is to develop self reliant RBOs which have the capability to identify community problems and seek effective solutions. In addition, PPAEP aims to increase and sustain agricultural productivity through improved farming techniques, enhance the income of rural households and increase awareness on environmental protection and management necessary for sustainable agricultural development.

4.2 The Project Site

The fundamental stage for conducting a socio-economic impact assessment based on the GEM model is to construct an accurate baseline description of the project site.

The villages of Luyong Bonbon and Pagalungan are located in municipalities of Cagayan de Oro and Opol, Misamis Oriental, Philippines (Figure 5). The province of Misamis Oriental is devoted to agricultural crops such as rice, corn, coconut, banana and *cassava* (sweet potato). The City of Cagayan de Oro is the central trading area of the province. The industries

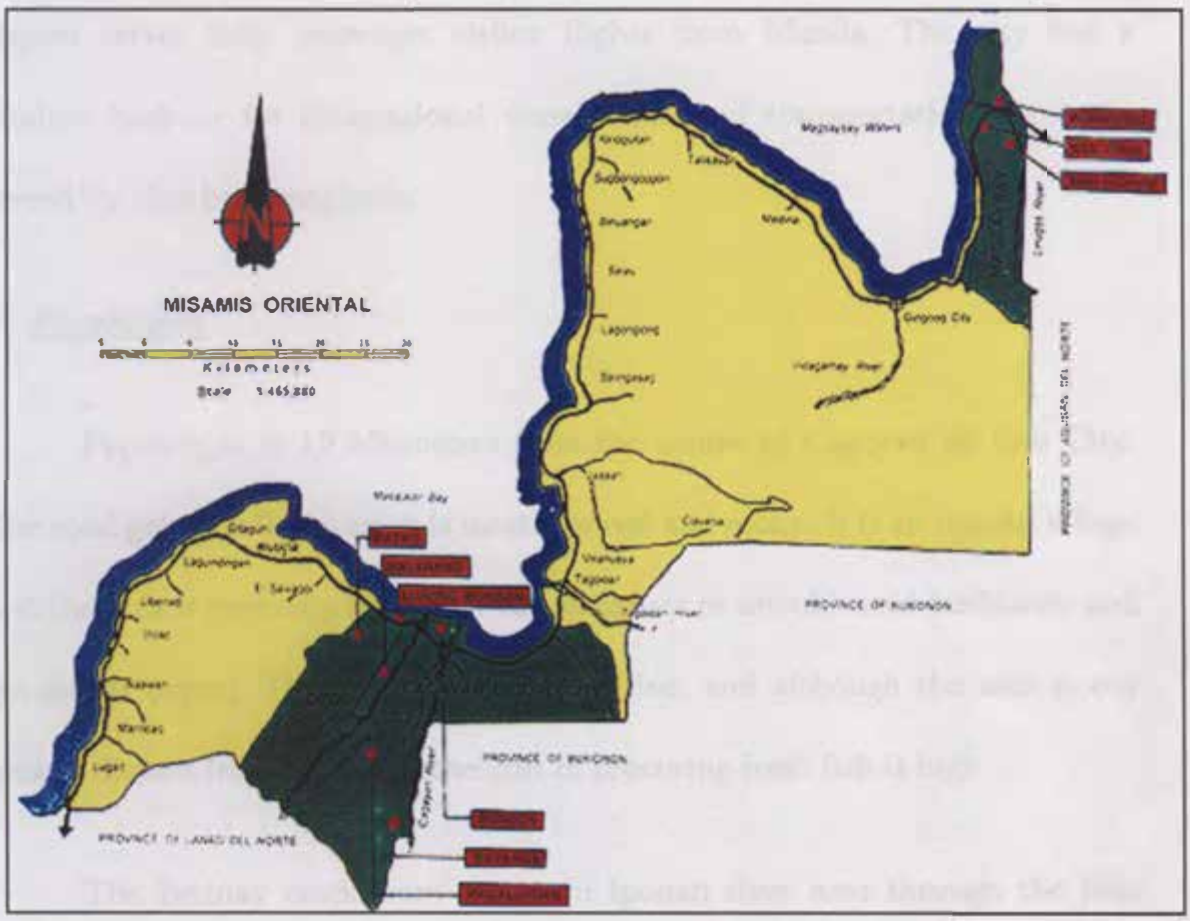


Figure 5. **Map of the Province of Misamis Oriental**

in the province include livestock and poultry products, as well as fishing and mining industries.

The province is accessible by land, air or sea. The Cagayan de Oro airport serves daily passenger airline flights from Manila. The city has a modern harbour for international vessels and land transportation needs are served by nine bus companies.

- ***Pagalungan***

Pagalungan is 19 kilometres from the centre of Cagayan de Oro City. The road going to Pagalungan is mostly gravel and rocky. It is an upland village and the area is generally hilly with vast expanses of uncultivated bushlands and grasslands (*cogon*). The village has no coastline, and although the area is not greatly distant from the coast, the cost of procuring fresh fish is high.

The Betinay creek from the main Iponan river runs through the hills towards the boundary of Cagayan de Oro and the Municipality of Opol. The land area is 1,004 hectares with 850 hectares of public timberland with only 192 hectares of alienable and disposable land.

Pagalungan has a population of 1,427 as at 1994 of which 728 (51%) are male and 699 (49%) female. The village has an average growth rate of 5%,

has 285 households with an average of 5 persons per household (Table 1). The majority of the residents are farmers and claimants of public land.

A majority of the work force are 31 years old and above. This is 69% of the total population of the village in 1994.

Table 1

Geographical Information & Population of Pagalungan

	Pre-PPAEP 1992	1994
Distance from Town Proper	19 kilometres	19 kilometres
Land Area	1,004 hectares	1,004 hectares
Cultivated	405 hectares	not available
Not Cultivated	300 hectares	n/a
Number of Zones	6	7
Population		
Male	687 (51%)	728 (51%)
Female	661 (49%)	699 (49%)
Total	1348	1427
Age Structure		
0-17	269 (20%)	256 (18 %)
18-30	202 (15%)	185 (13%)
31-45	405 (30%)	444 (31%)
46 - above	472 (35%)	542 (38%)
Number of Households	270	285

Note. Pagalungan Village Profile (1995)

The residents of Pagalungan are fairly scattered throughout the 7 zones in the village. As at 1994, the majority of the residents are Higaonon tribal people with a population of 813 (57%) followed by other ethnic groups such as Cebuanos 528 (36.5%), Ilocanos 43 (3.5%) and Boholanos 43 (3.5%) who emigrated from neighbouring islands and became accustomed to the place but are largely assimilated to lowland culture (Table 2).

Table 2

Ethnic Groups of Pagalungan

Ethnic Groups	Pre PPAEP 1992	1994
1. Higaonon/Misamisnon	769 (57%)	813 (57%)
2. Cebuano	485 (36%)	528 (36.5%)
3. Boholano	47 (3.5%)	43 (3.5%)
4. Ilonggo		
5. Ilocano	47 (3.5%)	43 (3.5%)
6. Others		
Total	1348	1427

Note. Pagalungan Village Profile (1995)

Pagalungan experiences an average rainfall of 27.42 millimetres. Over the year, the annual rainfall averages at 156 days with an average temperature of 27.1 celcius. The humidity is high at 80% with the dryest season from November to April. The wet season is from May to October and heaviest rainfall occurs during the months of June to October.

Majority of the residents are claimants of public lands (Table 3). Land tenure is one of the main problems of the residents of Pagalungan. Pagalungan was once declared as a "no man's land" during the Marcos era.[16] Recent information shows that there are large mining claims over the area - further inhibiting long term investment of the farmer claimants. This predicament has encouraged the people to rally on several occasions to support the cancellation of mining claims.

[16] Marcos era is from 1972-1986.

Table 3

Employment (Pagalungan)

Employment	Pre-PPAEP 1992	1994
Farm workers		36 (2.5%)
Tenants/ shareholders	135 (10%)	114 (8%)
Leaseholders	80 (5.9%)	71 (5%)
Owner cultivators	418 (31%)	485 (34%)
Claimants of public land	647 (48%)	700 (49%)
Landlords		
Fisherman	68 (5%)	21 (1.5%)
Total	1348	1427

Note. Pagalungan Village Profile (1995)

The majority of 280 (98%) households in Pagalungan earn an income of 2,000 pesos a month (Table 4). The average income of a household in Pagalungan is derived mostly from farm produce which is sold at the town market.

Table 4

Income (Pagalungan)

Income	Pre PPAEP 1992	1994
below - P 2,000	1,321 (98%)	not available (n/a)
P 2,000 - P 4,000	27 (2%)	
above P 4,000		

Note. Pagalungan Village Profile (1995)

Corn constitutes the main product of 222 (81%) households in Pagalungan. In addition, coconut is the second income source of 38 (14%) households. Other cash crops include peanuts, root crops and bananas.

The farming system in Pagalungan is manual labour and farmers utilise work animals such as carabao and cattle to cultivate the land. Carabao and cattle ownership is minimal to only 18% and 30% of households in the village.

Table 5

Agricultural Data (Pagalungan)

	Pre PPAEP 1992	1994
Farming system		n/a
Manual	6 HH	n/a
Use of work animals		n/a
Use of tractors,irrigation		n/a
Main crops		n/a
Corn	218 (78%) HH	222 (81%) HH
Rice	n/a	n/a
Coconut	36 (13%) HH	38 (14%) HH
Bananas	2 (.007%) HH	2 (.007%) HH
Root crops	2 (.007%) HH	2 (.007%) HH
Peanuts	n/a	9 (.03%) HH
Cattle/Carabao ownership	n/a	n/a
HH with carabao	50 (18%) HH	n/a
HH with cattle	83 (30%) HH	n/a
Total number of Carabaos	46 heads	n/a
Total number of Cattle	60 heads	n/a

Note. Pagalungan Village Profile (1995)

One feature that is peculiar of Pagalungan is several hectares of freshwater lake. This natural resource challenges the community to experiment with freshwater fish production utilising fish cages. In addition, Pagalungan's

rolling hillsides are also suitable for a variety of crops and pastures for cattle breeding.

The village infrastucture consists of a primary school, a village hall, a health clinic, a multi-purpose stage, and a home economics building. A village health care worker comes to the village at least once a week to attend to the needs of the residents. The Betinay Creek is the main water resource which is utilised by a majority of 227 (79.5%) households for drinking and laundry purposes. Other potable water facilities include artesian and bore water (Table 6).

Table 6

Government Infrastructure & Social Services (Pagalungan)

	Pre PPAEP 1992	1994
Infrastructure		
Village hall	1	1
Health clinic	1	1
Multi-purpose stage		1
Home economics building		1
Water system		
Ordinary well	17 HH (6.2 %)	16 HH (5.5%)
Spring (Betinay Creek)	215 HH(79.5%)	227 HH (79.5%)
Artesian well	162 HH (14.3%)	42 HH (15%)
Access to electricity	n/a	129 HH (45%)
Access to telephone	none	none

Note. Pagalungan Village Profile (1995)

There are 129 (45%) households who have access to electricity. The village has no access to a telephone system however; radio facilities from the city's seven radio stations have penetrated the village.

Concern for the environment is a clear priority of the farmers. This includes reforesting the hillsides and constructing nurseries for pasture, trees, forest and fruit with a view to start some vegetation on the hills. Likewise, improving the pasture is also a major concern for a number of households. The main purpose of pasture improvement is to breed and sell cattle to augment household income.

The institutional environment for Pagalungan consist of community organisations and local government agencies. There are five RBO's in the village with a to : of 123 members. In 1994, a 13% increase in RBO membership resulted to notable 75% increase in savings per member (Table 7).

Table 7

Community Organisations & Local Government Units (Pagalungan)

Organisations	Pre PPAEP 1992	1994
Number of RBOs/members	4/106 members	5/123 members
RBO savings program	2	3
Savings program member/total deposit	52/P 3,800	60/P 5,018/65
Village council members	7	9

Note. Pagalungan Village Profile (1995)

The residents of Pagalungan have expressed their concern of addressing the cycle of poverty through improvements in agriculture and sustenance of the environment. Agriculture is the sole provider of income for this village and agriculture development could enhance the living conditions of marginal farmers.

- ***Luyong Bonbon***

Luyong Bonbon is a coastal village located in the Municipality of Opol, two kilometres from Cagayan de Oro City. The village is accessible through the national highway by public or private transport. The total area of the village is 148 hectares of which 75 percent is suitable for agriculture.

The village has a population of 2,771 as at 1994 of which 1,440 (52%) are male and 1,331 (48%) female. The population of Luyong Bonbon is 51% higher than Pagalungan. A majority of the work force are 31 years old and above and this is 69% of the total population. The total number of household is 554 with an average of 5 persons per household (Table 8).

Luyong Bonbon has similar climate conditions as Pagalungan. The dry season commences from November to April and the wet season starts from May to October.

Table 8
Geographical Information and Population of Luyong Bonbon

	Pre PPAEP 1992	1994
Distance from Town	2.0 kilometres	2.0 kilometres
Land Area	148 hectares	148 hectares
Agricultural	119.4 hectares	119.4 hectares
Cultivated	90.8 hectares	90.8 hectares
Not cultivated	28.6 hectares	28.6 hectares
Timberland	394 hectares	462 hectares
No. of Zones	5 zones	5 zones
Population		
Male	1,090 (49%)	1,140 (52%)
Female	1,128 (51%)	1,331 (48%)
Total	2,218	2,771
Age Structure		
0-17	465 (21%)	443 (16%)
18-30	266 (12%)	415 (15%)
31-45	887 (40%)	1137 (41%)
46-above	600 (27%)	776 (28%)
Number of Households	444	554

Note: Luyong Bonbon Village Profile (1995)

The majority 1,385 (45%) of the residents of Luyong Bonbon are Higaonon tribal people. Similar to Pagalungan, they are native to the place but have largely absorbed the lowland culture. Other ethnic groups are Boholanos (25%) and Cebuanos (15%) who are mostly emigrants from neighbouring islands (Table 9).

Table 9

Ethnic Groups of Luyong Bonbon

Ethnic Groups	Pre PPAEP 1992	1994
Higaonon/Misamisnon	998 (45%)	1,385 (50%)
Cebuano	333 (15%)	415 (15%)
Boholano	554 (25%)	554 (20%)
Ilonggo	111 (5%)	140 (5%)
Others	222 (10%)	277 (10%)
Total	2,218	2,270

Note: Luyong Bonbon Village Profile (1995)

The land area of Luyong Bonbon consists of 30 hectares of rain-fed lowland rice and some upland areas where the traditional crops are monoculture of corn or tobacco. The majority of households in Luyong Bonbon are dependent on fishing but the area has a significant agricultural base. The farmers and fishermen of Luyong Bonbon are better off than their counterparts in Pagalungan and generally own their land but achieve low yields in agriculture. The major problems of the farmers and fishermen of this village are lack of working animals and post harvest facilities.

The majority 1,108 (40%) of the residents of Luyong Bonbon are fishermen of Macajalar Bay (Table 10). Macajalar Bay was once a rich fishing ground for aquatic resources until recently; industrial pollution, grave siltation, destructive fishing practices and heavy commercial fishing have caused havoc to this natural resource.

Table 10

Employment (Luyong Bonbon)

	Pre PPAEP 1992	1994
Farm workers	443 (20%)	554 (20%)
Tenants/shareholders	111 (5%)	138 (5%)
Leaseholders	133 (6%)	166 (6%)
Owners-cultivators	111 (5%)	138 (5%)
Landlords	111 (5%)	138 (5)
Fishermen	776 (35%)	1,108 (40%)
Industrial factory workers	222 (10%)	139 (5%)
Industrial factory owners	67 (3%)	85 (3%)
Commerce and trade	44 (2%)	55 (2%)
Employee - govt/ private	200 (9%)	249 (9%)
Total	2218	2771

Note. Luyong Bonbon Village Profile (1995)

The majority of 235 (42.4%) households in Luyong Bonbon earn an income of above 20,000 pesos as at 1994 (Table 11). This income is derived mostly from commercial fishing, farming, local employment and industrial factory employment. The majority of women in the village concentrate their efforts in fish and rice trading.

In contrast to Pagalungan, Luyong Bonbon is also a common site for local industries and factories that guarantees employment to its local residents. The village is also accessible to the town proper allowing more activities and opportunities for commerce and trade.

Table 11

Income (Luyong Bonbon)

Income	Pre PPAEP 1992	1994
Below - P 2,000		
2,000 - P 4,000		
4,001 - P 6,000	20 HH (4.5%)	17 HH (3.1%)
6,001 - P 8,000		
8,001 - P 10,000	51 HH (11.4%)	60 HH (10.8%)
10,001 - P 15,000	101 HH (22.7%)	84 HH (15.2%)
15,001 - P 20,000	101 HH (22.7%)	158 HH (28.5%)
above 20,000	172 HH (38.7%)	235 (42.4%)

Note. Luyong Bonbon Village Profile (1995)

The income of the residents of Luyong Bonbon is augmented by farm produce. The farming system in Luyong Bonbon is manual labour and the farmers also utilise work animals to cultivate the farm. The other sources of

income are cash crops such as bananas and coconuts which supplement the local fishing industry (Table 12).

Table 12

Agricultural Data (Luyong Bonbon)

	Pre PPAEP 1992	1994
Farming system		
Manual	25HH (5.6%)	25HH (4.5%)
Use of farm inputs	10HH (2.3%)	10 HH (1.8%)
Use of irrigation	10 HH (2.3%)	10 HH (1.8%)
Use of crop rotation/multicrop	55 HH (12.3%)	60 HH (10.8%)
Main crops		
Corn	27 has (3.3%)	27 has (3.3%)
Rice	10 has (2.3%)	10 has (2.7%)
Coconut	38.8 has (3.6%)	38.8 has (2.7%)
Bananas	36 has (3.6%)	36 has (2.7%)
Livestock		
Poultry	200 HH (45%)	250HH (45%)
Swine/goats	28 HH (6.4%)	72 HH (12.8%)
Fishing resources (units)		
Motorised boats	15	25
Non-motorised boats	5	8
Improved nets	15	25
Artificial reefs	2	4
Mangrove rehabilitations	2	16
Fishing net manufacturing	15	25

Note. Luyong Bonbon Village Profile (1995)

The village infrastructure in Luyong Bonbon consists of a primary school, a village hall, a health clinic, a multi-purpose stage, and a home economics building. The village's potable water resources come from the city's main water reservoir and from artesian wells. There are 463 (83%) households who have access to electricity and 166 (30%) households have minimal access to the telephone system (Table 13).

Table 13

Government Infrastructure & Social Services (Luyong Bonbon)

	Pre PPAEP 1992	1994
Infrastructure		
Village hall	1	1
Health clinic	1	1
Multi-purpose stage	1	1
Home economics building	1	1
Water system		
Artesian well	69 HH (15%)	193 HH (35%)
Main reservoir	375 (85%)	361 HH (65%)
Access to electricity	n/a	463 HH (83%)
Access to telephone	n/a	166 HH(30%)

Note. Luyong Bonbon Village Profile (1995)

The institutional environment for Luyong Bonbon consists of community organisations and local government agencies. The village has seven RBOs as at 1994 with a total of 1,850 members (Table 14). The notable contribution of RBOs in this village is the member's access to credit facilities to purchase agricultural inputs to enhance productivity.

Table 14

Community Organisations & Local Government Units (Luyong Bonbon)

Organisations	Pre PPAEP 1992	1994
Number of RBOs	6/1,140	7/1,850
RBO savings program	n/a	n/a
HH with access to credit	60 HH	275HH
HH with access to ag inputs	38 HH	77 HH
Village council members	7	30

Note. Luyong Bonbon Village Profile (1995)

The primary concern of the residents of Luyong Bonbon is to enhance the income of marginal fishermen and farmers through the development of agricultural crops, improved fishing practices and protection of fishing resources. The low income of marginal fishermen is due to degraded fishing resources caused mainly by dynamite fishing, the use of mesh nets, fish poisoning, the destruction of mangroves and the commercial harvesting of seaweeds. The residents of Luyong Bonbon also suffer from poaching from other villages and the incursion of large fishing vessels coupled by the lack of fishing gears. The residents of Luyong Bonbon have expressed these concerns with a view to alleviate poverty and protect the environment.

4.3 Institutional Environment of the PPAEP

There are two organisations contracted by the project implementors to implement the project in the villages of Pagalungan and Luyong Bonbon. The roles of these organisations are significant to the implementation of the PPAEP in the two villages.

The Centre for Alternative Rural Technology, Inc. (CART) is an NGO contracted by the PPAEP in 1992 to assist in the social preparation and community capability building component for the village of Luyong Bonbon. The projects of CART involve para-legal assistance, productivity and livelihood promotion. The organisation promotes alternative technology that

rejects the conventional notions of ecologically destructive farming practices. In addition, it continues to organise the peasants to practice sustainable agriculture and establish demonstration farms as well as promote integrated and diversified farming (CART Profile, 1995). The main activities of CART include:

- Community organising and consolidation of RBOs in Luyong Bonbon
- Enterprise development and provision of alternative livelihood resources for the village
- Facilitation of the villagers' access to control and manage its natural resources
- Development of linkages between RBOs and government agencies
- Cooperative development

The Association for Community Ecology and Social Services, Inc. (ACCESS) is an association of development workers contracted by PPAEP to help organise and strengthen communities of farmers, women and youth of Pagalungan in preparation for the PPAEP. ACCESS is concerned with ecology and farming systems development. It envisions that development and sustainability are mainly determined by the proper utilisation and productivity of local resources, anchored on the capability and management systems of organised groups (ACCESS Profile, 1995).

ACCESS is involved in the community development planning in Pagalugan and its activities embrace the following:

- Revision of the Pagalungan village profile
- Improvement of organisational systems and management of RBOs in Pagalungan
- Improvement of RBO livelihood capability through sustainable farming methods and proper utilisation of natural resources
- Development of linkages between RBOs and government agencies

Moreover, there are several government sectors involved in the PPAEP project. The Department of Agriculture (DA), Department of Environment and Natural Resources (DENR), Department of Agrarian Reform (DAR) and other Local Government Agencies are key participating organisations that have cooperated towards the implementation of the PPAEP.

4.4 Chapter Summary

This chapter has discussed the basic characteristics of the PPAEP program in the Philippines. This includes the project's proponents, its design and objectives. This chapter has set out an accurate baseline description of the project site in the villages of Pagalungan and Luyong Bonbon. The baseline information is significant to impact assessments. This includes the village's

geographical location, boundaries, natural resources, economic, social, and government structure. Likewise, the chapter has also identified the key organisations significant to the implementation of the PPAEP.

Chapter Five

Analysis and Discussion

5.0 Introduction

This chapter examines the social, economic and other impacts of the PPAEP in the villages of Luyong Bonbon and Pagalungan, Philippines. The impacts are examined following a discussion in Chapter 4 of the basic characteristics of the PPAEP program and an accurate baseline description of the project site.

The GEM and the Process/Outcomes Matrix are utilised to identify the program processes (PPAEP project components) against the program outcomes (social, economic and other impacts). The purpose of this chapter is to identify, quantify and interpret the common patterns, experiences, repetitive responses and actual quotations of the subjects in order to give an explanation to the research questions.

5.1 Data Analysis and Discussion

Chapter three has identified six program processes and six program outcomes. The program processes include the six project components of the

PPAEP and the program outcomes are the six impacts adopted from the GEM framework[17]. The data is obtained from twenty subjects who represent the villages of Luyong Bonbon and Pagalungan[18]. The data consists of the actual responses of the subjects and is organised according to the major themes or program outcomes which are the economic impacts, impacts on demography, impacts on housing, impacts on government, social impacts and other impacts.

- *Economic Impacts*

The first notable economic impact or program outcome of the PPAEP is the success of the first program process which is the enhancement of agricultural extension services. The economic impact of this process is measured in terms of acquired agricultural knowledge, skills, inputs and the performance of agricultural extension workers. This study reveals that the trainings and resource inputs provided by PPAEP has enhanced agricultural technologies and skills of the six agricultural extension workers. The

[17] The program processes are the six project components of the PPAEP which includes enhancing agricultural extension services, developing community capability, improving farming systems research, enhancing inter-agency coordination, improving management resources and strengthening the RBOs. These components are also discussed in Chapter 3 and in Appendix F.

[18] The subjects (16 male and 4 female) include two project consultants, six agricultural extension workers (AEs), one NGO volunteer, one municipal mayor and ten RBO members mainly farmers, fishermen, housewives from the villages of Pagalungan and Luyong Bonbon. The subject's profile is presented in Appendix G.

agricultural extension workers have shared their experiences with PPAEP.

> "PPAEP brought in new technologies which are beneficial to the village. I consider multi cropping a new technology and with financial help, we could enhance the income of the marginal farmers through new farming methods." (1m)

> "We never thought of "contra-banlas" (contour farming) as an effective means to enhance the income of the people in Pagalungan...this is an effective method which could be replicated to other villages." (2m)

> "It is hard to teach old dogs new tricks...we sometimes encounter resistance to change from traditional farming to new methods but the people have realised that they cannot survive on one source of livelihood so we tried the new technology and it worked." (3m)

> "Contour farming was never popular in this village until PPAEP came. Marginal farmers took advantage of it and it paid off." (4m)

The performance of agricultural extension workers are further enhanced by resource inputs provided by PPAEP. These inputs include training programs, training equipments, extension kits, motorbikes, and demonstration funds. The training programs include the enhancement of basic communication skills, resource management principles, gender development, farming systems approach and an orientation of participatory approach and community organising. Two of the agricultural extension workers have shared their experience on the PPAEP training program.

"The training program took some time...but it paid off. We learned a lot of skills which are important to the community and to the project." (5m)

"The training program took a long time...but it was good. It gave me more confidence to deal with the community and the basic skills needed to improve my work." (6m)

In addition, the agricultural extension worker's performance was enhanced through upgraded communication facilities and radio equipments. The agricultural extension workers have also benefited from the jeep and motorbike ownership scheme[19] to improve their mobility and enhance their services to rural communities. The agricultural extension workers have expressed their appreciation on these inputs.

"I got a loan from PPAEP funds and bought a jeep to help me in my trips to inspect the projects. PPAEP has also provided our office a computer to store our data, a two way radio and filing cabinets...our office is now concerned of records keeping ."(1m)

"Before PPAEP came, it was hard for me to travel from one village to another. Now, with my motorbike, I can do a lot of work and it saves my time." (2m)

"I can now go from one village to another using this motorbike. I got it as a loan from PPAEP and I pay it on reasonable terms. It is a big help in upland villages where transportation is the main problem."(3m)

[19]One of PPAEP's project of enhancing agricultural extension services is to upgrade the effectiveness of agricultural extension workers through a motorcycle and jeep ownership loan. A total of 176 motorbikes and 19 jeeps were purchased for the whole PPAEP program in the Philippines.

"The motorbike ownership scheme is a big help. I can easily visit remote areas that are unreachable by public transport."(4m)

"The AEs before had to travel using public transport. It is hard to penetrate the village...now its better" (5m)

"The vehicle scheme is an effective project where AEs can avail of a loan with reasonable terms." (6m)

The second economic impact of PPAEP is the success of the third and fifth program process of improving farming systems research and management of resources. The introduction of new farm technologies and inputs through multiple livelihood programs (Appendix C, D) have resulted to noticeable increases in household income, yields and employment of a the ten subjects.

The multiple livelihood programs have not only increased income and yield but have also enhanced farmers' awareness of new technologies and skills that are unfamiliar to them before the PPAEP came. The economic impact of livelihood programs have brought positive responses from a majority of the subjects. The general comments of eight RBO members (subjects) are summarised below.

"One of the new projects that PPAEP brought is swine fattening which was unknown before PPAEP came. If we have extra resources, we can build a chicken farm too. "(10m)

"The traditional method of farming is mono-cropping. Before, the village people only know how to plant corn. Now, the new technology introduced multi-cropping which includes principal crops such as mangoes, bananas and pineapple. The people at first were hesitant to plant mangoes because the land is sloping. They did not realised that this is the ideal terrain to plant mangoes. Now we have planted mangoes and have concentrated on varieties that are of export quality." (11m)

"In Pagalungan, the project has good effects. This village was declared a no man's land during the Marcos years. The people came to reside here recently when the project came. The multi-cropping technology is a very good idea and the good sloping terrain of Pagalungan is ideal for cattle breeding. We are sold to the idea and are supporting it." (12m)

"We lack knowledge of new technologies and financial assistance in farming. The people in the village never thought of multi-cropping. They traditionally plant corn. Now, they have realised that this new technology is effective. If they plant bananas, they receive an average income of 25 pesos (A$1.30) per plant. In a month, the more bananas they plant, the higher their income."(14m)

"The people of Luyong Bonbon never thought of multiple livelihood projects. We depend on fishing always. Now we realise that livelihood projects could help increase our income. This technology is effective, our income increased in two folds." (15m)

The livelihood programs have augmented the farmer's income in two folds. Increases in income is a product of skills training that PPAEP has transferred effectively in the two villages.

"There are many suggestions to me among the neighbouring villages if they could avail of multi-cropping techniques. They

have seen the benefits. Before, we harvest corn only every three months. Now, with multi-cropping, we harvest every two to three weeks. The pineapple that we plant could also fetch 3 pesos (A$ .15) each and earn twice in the market. In this new method, we harvest an average of 8,000 pineapples every three weeks, this is a lot of money, we could earn 40,000 pesos (A$2,000) for this."(13m)

One of the subject, a village elder and farmer, has restated his views on the multi-storey cropping project.

"They (PPAEP) started the multi storey cropping in my land, This is the first project that helped me in my livelihood. Before, I only plant corn. I am not aware of other methods. When PPAEP came, they helped me technically and financially. They lent me 6,500 pesos (A$ 344) for the project. We started with the demo farm by planting other crops. Bananas, pineapple...we had a good harvest in May. PPAEP has helped me a lot in terms of learning new methods of farming." (14m)

Likewise, the village secretary an RBO member and the wife of an RBO member have shared the same comment.

"The effect of the project on income has not affected my family yet. The effect is still on the whole organisation, on the RBOs. It is too early to tell as we just had our first harvest in May (1996) but I am sure that it will eventually increase my family's income in the future. I feel that not all the villagers will get the benefits right away. The federation will get the benefits first because they have worked for it, then after the federation, the members will benefit from it." (4f)

"We learned more skills. Skills are very important. We learned new technologies in planting like 'contra banlas' technology

(contour planting) and growing cow feeds (nappier plants) as well as managing a demo farm."(5f)

In Luyong Bonbon, the income from traditional fishing is augmented by crops and livestock production. The fishing activities in Luyong Bonbon is seasonal and the income of an average fisherman depends on his daily catch. The fishermen have realised that they cannot only earn a living from one livelihood but from other sources as well.

"The backyard project is very effective. Swine Fattening and crop production have helped my family when the fish catch is low. (15m)

"We have learned seaweed production and backyard gardening to supplement our income when the catch is low. The fish catch is seasonal. When typhoons come, our husbands cannot fish." (2f)

In addition, PPAEP has not only increased the income of the village but has improved the farmer and fishermen's financial and marketing practices as well. The RBO Revolving Fund (RBORF)[20] has strengthened the villagers skill to manage the funds equally and efficiently. Two of the subjects share their experience concerning the management of RBORF.

[20] PPAEP provided a seed capital of P88,000 (A$ 4,400) per village for RBO Revolving Fund (RBORFs). These funds are managed by the RBOs. The purpose of the RBORF is to give the RBO experience in managing credit to its members for income generating projects and to provide a track record for members to have access to formal loans (DCR, 1996).

'The RBORF is an effective way to have access to short term credit with low interest. I used the loan to extend the multi-cropping in my land."(11m)

"RBORF is a means to borrow money at low interest. It is also a way for members to avoid usurious loans and an provides experience to credit management. It is difficult for me to avail of a loan from the bank because I don't have a collateral. The RBORF is effective to small time farmers like us."(13m)

The RBORF scheme has benefited most of the subjects. However, two of the subjects, the village credit collector, and an agricultural extension worker have shared a different view concerning the management of RBORF funds.

"The amount of the loan is 20,000 or 30,000 (A$1,000 -1,500) for some members. On the average 5,000 pesos (A$250). In fish vending for example, 2,000 pesos (A$100). Some of the members did not return the money that was borrowed from the fund and they want to loan again. What they do is to hold the money, pay the interest and not return the initial capital of the loan. We told them that they have to return the initial loan because this will be used as a fund for other members." (4m)

"The RBORF is good but there are some members who have problems of paying the loan. We have to be strict and settle this problem." (12m)

The collection of the loan has been one of the pressing problems of RBOs in the two villages. The project implementors o. AusAID have recognised this weakness and during the interview, one of the subject has commented on this issue.

> "The purpose of the RBORF is to enable the participants to gain experience with credit and its management and to develop a track record sufficient to access the formal credit market. Time is needed to gain the track record and there may be losses while experience is being gained. RBORF serves better as a medium for credit experience."(1m)

In su ıary, the significant economic impacts of the PPAEP are the remarkable increases in income, yield and employment. These impacts stem from the efficient dissemination of the appropriate technology through a participatory approach to development.

- *Impacts on Demography*

The population of the village of Pagalungan has increased slightly with an average growth rate of 5%. In Luyong Bonbon, the population has increased to 19% from 1992 to 1994. The village chief, who represents Pagalungan, has shared his comments concerning demographic impacts of PPAEP.

> "The slight increase in population is a result of births and marriages in the village. It is too early at this stage to identify whether the project has an effect on our population as we have just started to feel its effects on our production. We just had our first field day in May (1996) and the neighbouring villages came to witness the affair." (13m)

In contrast to Pagalungan, Luyong Bonbon's increase in population is caused mainly by migration of workers from other villages to find work in the fishing industry. The fishing industry is known as an alternative seasonal livelihood for poor farmers when farm production is low. The chairman of the fishermen's group has made a comment on the demographic impact of PPAEP in Luyong Bonbon.

> "The fishing industry in Luyong Bonbon is an attractive source of income for most farmers when farm production is low. Some farmers would come seasonally to fish or to assist and work in fishing boats. This is an extra income for them. PPAEP's role was more of protecting the environment and enhancing our livelihood by introducing demo projects. I am still uncertain if PPAEP has attracted people from other villages. "(15m)

The impact of PPAEP on demographic factors in inconclusive. The subjects have expressed their views that increases in population is caused mainly by births, marriages and seasonal work in the fishing industry when farm production is minimal.

- *Impacts on Housing*

The program processes of enhancing inter-agency coordination and strengthening the RBOs have developed linkages between the RBOs and local government agencies. Through PPAEP, the linkages have provided

solutions to problems concerning land tenure[21] and ownership. This is significant particularly in Pagalungan where 700 (49%) residents are claimants of public lands. The RBOs have expressed their demands with relevant government agencies to facilitate the transfer of land titles.

The PPAEP has facilitated DAR to grant ownership of lands to the subjects through the government's Land Reform Act.[22] The grant gave the subjects a 'sense of ownership' to the land that they never thought they could own. An agricultural extension worker has shared his experience on land ownership.

> "The farmers' awareness to land tenure was enhanced. Before, they do not know how to access their problems to relevant government agencies. After PPAEP, they are now aware of the services that the government sector offers. They have undergone leadership training, They were empowered." (1m)

[21] The broad term, land tenure, refers to the relationships between individuals and groups in respect of land. The basic rights and ownership over land enjoyed by individuals involves the right to use, to lease, to alienate by gift, bequest or sale (Kuper, 1985).

[22] After the fall of the Marcos administration in 1986, the new Philippine government under Corazon Aquino embarked on a reform program which includes trade, foreign investment, foreign exchange liberalisation, and land reform. These programs aimed to restore investor confidence, halt economic decline, alleviate mass poverty and generate employment. However, these programs have not extended to all sections of society nor to all regions in the country. There is still substantial under and unemployment and income distribution and land ownership remain highly skewed. A significant number of people remain landless, living just above the poverty line (AIDAB,1995.)

Two of the subjects share their views on the impact of PPAEP on housing and land.

> "Before PPAEP came, I was hesitant to improve my landbecause I don't own it. The people of PPAEP helped me and my family to be aware of the land reform program of the government. We are now working on it."(11m)

> "PPAEP has increased the farmers' awareness to land reform program. I have organised a monthly meeting with the RBOs in my residence concerning land reform matters. A representative of DAR came to assist us with the paper work." (13m)

The project has no noticeable impact on housing. The subjects have expressed their views that their main priority is to improve their income and as income improves, the acquisition of material goods and refurbishment of housing facilities will follow.

- *Impacts on Government*

The projects' participatory approach has resulted in significant increases in the interaction of agricultural extension workers, RBOs, the municipal mayors of the two villages and the local government agencies. The impact of the project on government stems from two of the program processes which are improving farming systems research and enhancing inter-agency

coordination. Three of the subjects, have shared their comments concerning PPAEP's impact on government.

> "In terms of project management, PPAEP has enhanced interaction among government agencies. The management of PPAEP is a three tier which as a whole encompasses Local Government Units (LGUs), government sectors, consultants, RBOs and NGOs. The team gives advises, sets and implements policies and coordinates with other agencies. These consulting bodies have provided the criteria for the selection of the villages and have provided coordinating and consulting tasks toward the successful implementation of the project. A good management structure combined with extensive training is the key toward the project's success."(1m)

> Both villages have gained technical and financial support from government after PPAEP. In terms of technical support, the local government provided a vacant land for the fishermen's cooperative store and there has been some improvements in village infrastructure and school buildings. In terms of financial support the RBO received funding for fish cages worth 35,000 pesos (A$1,750)."(3m)

> "PPAEP has facilitated the construction of a fishermen RBO centre and cooperative store in a government donated public lot near the fishing wharf. This centre served as the venue for RBO meetings and interaction." (5m)

The impact of PPAEP on government has enhanced infrastructure and financial support in Luyong Bonbon. In Pagalungan, the mayor has set out plans to replicate and sustain PPAEP's projects. However, three of the

subjects from Pagalungan have expressed their concern on infrastructure support.

> "One problem here is water supply. The main source is Betinay Creek. The government could improve access to the creek through pipes or pumps. It will really help us a lot."(11m)

> "We have to transport our farm products from the village to the main road through carabao (water buffalo) or cattle drawn wagons. It is difficult but we have no choice. Unless they (government) improve the roads, we have no choice." (12m)

> "The main problem in Pagalungan is farm to market roads. It is difficult for us to bring our produce to the market when the roads are bad. We have to hire transport and this is additional cost. If roads are improved, we have better access to the market"(13m)

In the two villages, the municipal mayors have actively participated in the implementation of PPAEP projects. The four agricultural extension workers have shared their comments on working with the mayors.

> "At first, there was a slight problem concerning the involvement of the mayor in one of the village. The reason for this is the change in administration. The new mayor was not aware of PPAEP when he took over but after several briefings, he supported PPAEP. In Pagalungan, there is no problem concerning the involvement of the mayor. There are instances when he is unavailable for consultation due to prior commitments. In general, both mayors were supportive of the whole project."(1m)

"The mayors of Pagalungan and Luyong Bonbon were very excited. The mayor of Opol himself was the chairperson of the Municipal Technical Working Group (MTWG)[23]; while the city mayor of Cagayan de Oro was also the chairman of the regional council which oversees PPAEP projects. Both mayors highly recommend the expansion of PPAEP to neighbouring villages after its termination in May 1996." (2m)

"If the mayors are not involved in PPAEP, infrastructure support may not be possible and the lessons learned from PPAEP may not also extend to other villages." (3m)

"There is no problem with the local government. The project is supported by the mayors. The mayors also assigned a community health worker and the RBOs are active participants to PPAEP." (6m)

The mayor of Opol himself, has shared his own experience with PPAEP.

"The Australian Government sent me to a training/seminar in Australia concerning PPAEP. The good lessons learned from the PPAEP training are the skills to develop local management of resources, problem solving, needs identification, self sufficiency and working with NGOs. I personally consider PPAEP a successful project because it enhanced the services of agricultural extension workers and developed the skills of RBOs through the assistance of NGOs." (8m)

[23] Municipal Technical Working Group (MTWG) is composed of the municipal mayor, and a representative of DA. The MTWG acts as a coordinating and consulting body and works jointly with the PTWG (see also Chapter 3, p. 33).

The study reveals that the support of local government agencies and the involvement of municipal mayors are significant to the success of the PPAEP. The impact of PPAEP on government includes enhanced interaction between RBOs and government agencies and a substantial increase in local government expenditures on infrastructure development and financial support.

In addition, the impact of the project on government has provided the local government sectors a basis for design and implemention of future livelihood enhancement projects.

- *Social Impacts*

The social impact of the PPAEP stems from three program process of developing community capability, improving management of resources and strengthening the RBOs. The notable social impacts of the PPAEP have enhanced community interaction, developed positive values and attitudes among the RBOs. Community organising has improved the subjects' capability to identify their needs and seek solutions to their problems.

The community organising is one of the difficult task of PPAEP. Farmer's associations have been formed and have coordinated towards the

accomplishment of PPAEP's objectives. Two of the subjects have shared their experiences in PPAEP concerning community organising and interaction.

> "Community organising was at first difficult because of the proximity of the houses of the RBO members. We meet in the village centre and with the NGOs, we learned basic skills of identifying our problems and seeking solutions to these problems. It was hard. But we patiently attended the meetings. We learned a lot of skills in financial management of RBORFS, marketing skills as well." (10m)

> "We started working with the PPAEP when they came. They first started with interviews, people from the agriculture department, local government came. I called for a village assembly. It was a difficult task to organise the whole village. " (13m)

Similarly, the village chief also expressed the same views:

> "PPAEP had a hard time starting the project. We started with seminars for months. People are not used to this kind of training. They don't want to lose three days income by attending trainings. But later we realised that this is an important matter. Now, our Federation was formally organised and has a direction."(11m)

Social interaction and cohesion among the villagers has improved and this has been evident when the federation in Pagalungan organised a harvest festival in May 1996 to exhibit their farm products. The village captain of Pagalungan has narrated the events during the field day.

> "The field day was held in May 1996. The mayor came to our village and attended the harvest festival. It is the first time that all villagers gathered in one vacant lot and presented to the mayor the farm's produce after using multi-storey cropping. The harvest consist of pineapples, bananas and corn."(13m)

The project has brought a change in attitude among agricultural extension workers and RBO members. A PPAEP consultant has shared her views on changes in attitudes of RBOs.

> "The effect of participatory approach is a positive change in attitudes among RBOs. The project affected their outlook in life, sense of responsibility and interaction. For example, a strong interaction among RBOs could easily diffuse an information on a new technology. The Filipino attitude is that when adaptation of a new technology is strong, it spreads faster by word of mouth. However, they are still afraid to take risks unless there is assistance from NGOs and DA. When they see that one farmer is successul, others will join right away. They have a wait and see attitude." (1f)

Likewise, three agricultural extension workers and an NGO consultant have shared their experiences concerning a positive change in attitude while working PPAEP.

> "At first, we had apprehensions of working with the NGOs. This is our first time to work with them. Before, it is in my opinion that during the Martial Law years. NGO's are often linked with radical groups and it also involves the Church. With the PPAEP, we were able to experience working positively with them." (1m)

"The good thing of working with NGOs is that they concentrate on community development and technicians like us can work on technical matters....it took us a long time to be coordinated. Almost one year.. It was a "bloody interaction" ... then we had workshops, seminars. That made us realise that working hand in hand with the NGOs can make things work well and easily." (2m)

"While working with the NGOs, we realised that we need to compliment and that we can do things that we have not done before....The working relationship was good. The combination of two expertise was successful and we have learned how to compliment with each other."(4m)

"NGO support is essential to development programs like the PPAEP. The project has capitalised on our expertise in community organising and we have lessons learned from working with technical based agencies such as DA."(7m)

PPAEP has increased the RBOs sense of responsibility and confidence. The PPAEP consultants and an agricultural extension worker have reiterated their views concerning this matter.

"Before, the RBOs have no system of getting the right technology. They have no technical or management expertise. Now, they know what technology they will be getting and what they are going to do about it. Before, they would normally ask for funding without knowing what to do with it. Now is an issue of responsibility and its benefits. (1f)

"The level of community, household and personal aspirations increased giving the recipients a chance of a positive outlook for a brighter future, It was a lesson also of developing confidence among RBOs. The recipients are not just given the project and the funding but they are also given the chance to prove what they can do for the project."(2m)

"Participation in PPAEP is intense. The RBOs feel that they own the project and that they are responsible for its success or failure. Dedication, sense of ownership for the project increased the level of participation. Before, they would not join an RBO unless they see an improvement. Now, a participative approach to cooperate with others increased. "(9m)

The good rapport between NGOs, RBOs and DA extension workers has generated enthusiasm and enhanced cooperation among the subjects to achieve the project's aims. The project has also enhanced the responsibility of records keeping within the RBO.

"We never keep records before... as FA secretary involved with the PPAEP, I list the members of the organisation during the meeting. I take the minutes of the meeting, help with the budgeting of the project's funds, do records keeping... I also help in the monitoring of the land tenure problem...the biggest help we got from PPAEP is financially and technically."(4f)

"Records keeping is one of the lesson learned from PPAEP. It helps keep track of present and future projects."(11m)

Likewise, the PPAEP experience has enabled the subjects to realise the importance of projects which enhances livelihood rather than infrastructure projects that contravenes upliftment of the quality of life. One of the subject has shared his view on change of values.

"There are some projects of government and private organisations in this village before the PPAEP came. These are basketball courts, social halls, a concrete stage, all infrastructure. These projects cannot help in the livelihood of the people. We

have realised that what is important is helping the livelihood. The farm, not just infrastructure. These projects are visible probably to gain election votes but these projects have not uplifted our lives. PPAEP's approach is different."(13m)

The villagers call the PPAEP experience an 'awakening'. A significant turning point in their lives that gave them hope and pursuit for quality life.

- *Other Impacts*

PPAEP has brought awareness of marine resource management and environmental protection in the fishing and farming communities. In Luyong Bonbon, the villagers have constructed fish sanctuaries and have monitored municipality shores against commercial fishing boats. Four of the subjects have shared their experiences on environmental protection.

"We learned how to construct environmental friendly fish traps. Before, many of the residents practiced dynamite fishing. It destroyed a number of fish sanctuaries. We want to preserve Macajalar Bay and this is the best solution."(10m)

"Protecting the trees and the environment is one of our main concern. We realise that without environmental protection, our future generations will have nothing."(11m)

"In the upland areas, the federation came with a resolution that they can no longer hunt for birds or gather firewood. The people of the village have cooperated towards the preservation of the forest."(14m)

"Before the project, the fishermen of Luyong Bonbon would just hunt for fish. Now, they are aware of environmental fishing practices. They patrol municipal shores against commercial fishing boats and illegal fishing practices such as dynamite fishing. They would report intruders to the police and the police would warn them or they face severe penalties."(15m)

PPAEP has increased environmental awareness among the subjects and the whole village. The subjects have realised that the natural resources are limited and its preservation is necessary for the future generations to come. Thus, they cannot sacrifice the environment in their quest for quality life.

Another significant impact of PPAEP impact is the empowerment of the women in the village. A women's association in Pagalungan called Women in the Barangay (WAB) was formed. WAB has twenty two members and has managed projects from swine fattening, backyard gardening, food processing and cooking demonstrations. These projects have enhanced household income as a supplement to multi-cropping activities. Three of the subjects have shared their experiences with PPAEP.

"As a president of the federation, I am actively involved in mobilising the housewives to cooperate with livelihood projects of PPAEP." (2f)

"I am a member of WAB. I was involved in four women's projects; cattle breeding, swine breeding, bio-intensive backyard

gardening and poultry raising. We started growing vegetables to sell to the market and nappier plants to feed the cows and swine."(3f)

"I am also actively involved in PPAEP's projects for WAB. I am the secretary of the Farmer's Association and through PPAEP, we have established a village cooperative where we sell basic household items like rice and corn."(4f)

PPAEP has substantially increased employment and income of a majority of the households in the two villages by involving women in most of its activities.

The sustainability of the project's activities depends on the ability of government institutions represented by municipal mayors, DA and RBOs to utilise, understand and implement the pilot projects when PPAEP and NGO assistance is withdrawn. There has been potential indications that the projects can be sustained. Four of the subjects have expressed their views on the project's sustainability.

"Support and replication of the project's processes are very imminent in the case of Pagalungan where the city government has extended "PPAEP- like" assistance to other rural villages and the city agriculturists have employed similar methods in the delivery of agricultural extension services to these villiages."(1m)

"We tried to replicate the RBORF system to other villages who were non-PPAEP recipients utilising twenty percent of the government development fund of the province. It was

successful, however; we will need to prorate the resources of government so that every village will benefit from it. "(2m)

"Sustainability depends on a lot of things. Availability of funds, and support from RBOs , DA and government."(11m)

"Other villages wants to copy the technology. But funding is a big problem. They dont have enough money to purchase inputs and farm animals."(13m)

However, sustainability may be affected by factors such as funding constraints, government policy changes and unforseen natural calamities such as flood and typhoon.

"In terms of sustainability, it is conditional. There are specific projects that have potentials for replication in other neighbouring villages but financial constraints remain a primary factor. Funding is required to purchase inputs to commence multi cropping activities and this is a significant factor." (3m)

"The Mayor of Opol is very much supportive as a matter of fact, some villages were recommended for replication of some PPAEP activities, however, financial constraints is one of the problem." (4m)

"The issue of sustainability also depends on the availability of funds. Farmers in Pagalungan have expressed their apprehension that to maintain the multi-cropping project, additional funding is necessary to purchase fruit seedlings and fertilisers."(6m)

The total impact of the project on the neighbouring villages of Luyong Bonbon and Pagalungan is minimal. There has been some positive indications that other villages may adopt PPAEP's technology however; insufficient funding is one hindrance to its replication. The local government has provided minimal funding to replicate the technology in some areas but in regard to mass replication, the idea still remains undetermined.

In summary, the other significant impacts of PPAEP are enhanced awareness in environmental protection and the empowerment of women in the villages. The sustainability of the PPAEP mainly depends on the abilities of government agencies and RBOs to understand, sustain and replicate the project after its termination. Furthermore, factors such as financial constraints, government policy changes and natural calamities may impede the project's sustainability and replication.

5.2 Chapter Summary

This chapter has examined the social, economic and other impacts of PPAEP in the villages of Luyong Bonbon and Pagalungan. This study reveals that the economic impacts of PPAEP is measured in terms of acquired agricultural knowledge, skills and inputs of agricultural extension workers

and the notable increases in income, yield and employment of RBOs. These impacts stem from the program processes of enhancing the performance of agricultural extension workers and improving farming systems research through multiple livelihood programs.

The impact of PPAEP on demographic factors is inconclusive. The minimal increase in population is mainly caused by births, marriages and seasonal work. In regard to PPAEP's impact on housing, the project has strengthened linkages between RBOs and government agencies and has facilitated the transfer of land titles to a majority of the residents in Pagalungan.

The impact of PPAEP on government has resulted in a significant increase in interaction between the RBOs and government agencies. In addition, the project has enhanced government expenditures on financial support and infrastructure development.

The social impacts of the PPAEP have enhanced community interaction and have developed positive values and attitudes, a sense of responsibility and confidence among the RBOs. Likewise, community interaction has improved the subjects' capability to identify their needs and seek solutions to their problems.

PPAEP has brought awareness of marine resource management and environmental protection in the fishing and farming communities. A significant impact of PPAEP also includes the empowerment of women in the villages. PPAEP has substantially increased employment and income of households in the two villages by involving the women in most of its activities.

Finally, the impact of the project on sustainability depends on the ability of government institutions and RBOs to utilise, understand and sustain PPAEP projects. There are positive indications that the projects can be sustained however, project implementors and recipients should take into account factors such as funding constraints, government policy changes and unforseen natural calamities which may affect the project's sustainability.

Chapter Six

Conclusion

6.0 Introduction

This chapter presents the conclusion to the study. This chapter includes an overview of the study, the implications for future research, the implications for policy formulation and the significant conclusion.

6.1 Overview of the Study

This study has evaluated the social, economic and other impacts of the PPAEP on the villages of Luyong Bonbon and Pagalungan in rural Philippines. Chapter 1 has set out the background of the PPAEP program in the Philippines. This chapter presents the main objectives of the study, its significance, the research questions and the definitions of relevant terms used throughout the study.

Chapter 2 has examined the literature related to technology transfer in agriculture, the notion of appropriate technology and Australia's current development program in the Philippines. This chapter specifically develops

on the Group Ecology Model (GEM) which is used as a conceptual framework in evaluating the social, economic and other impacts of PPAEP.

Chapter 3 has discussed the methodology of this study which utilises a multiple case method approach of qualitative methodology. This method involves a combination of secondary data and interviews with people directly associated with the design and implementation of PPAEP and representatives from the two rural villages. This study has utilised the Process/Outcomes Matrix to link PPAEP's programs process and the its outcomes which are the economic, demographic, housing, government, social and other impacts adopted from the GEM framework.

Chapter 4 has presented the milieu for Australian development assistance. This chapter has discussed the basic characteristics of the PPAEP program and has set out an accurate description of the project site in the two villages selected in the study. Likewise, this chapter has identified the institutional environment for the PPAEP program in the two villages.

Chapter 5 has examined the social, economic and other impacts of PPAEP in the two villages. The impacts stem from the successful implementation of the program processes of PPAEP. This chapter has

identified, quantified and examined the experiences and actual quotations of the subjects in order to give an explanation to the research questions.

6.2 Implications for Policy Formulation

The strategy of participatory approach adopted by PPAEP is effective in development assistance activities of government. In participatory projects like the PPAEP, skills development is equally important as technological and financial inputs.

The general concerns apparent in the two villages are financial and infrastructure. The study reveals that financial constraints can be a hindrance to the project's replication and sustainability; while infrastructure problems like farm to market roads and water supply can cause delays in development.

It is suggested that project implementors continue to replicate PPAEP's participatory approach to development in its future projects. This includes expanding existing projects and replicating similar technologies in future projects of AusAID. In regard to funding constraints, financial management can be strengthened through close supervision of RBORF loans. Linkages can be established with other funding agencies to provide support to current and future development projects. It is also suggested that AusAID and the

Philippine Government continue to coordinate current and future projects, share project strategies and design and strengthen infrastructure support.

6.3 Implications for Future Research

This study has demonstrated the use of multiple case study as an appropriate methodology in evaluating the performance of development programs of government. It is suggested that in future research, a similar approach using case methodology be conducted on other development projects of government by increasing the sample size thereby incorporating more villages.

It is also suggested that future research examine the development program activities of several aid agencies in the Philippines. The evaluation and comparison of the programs, strategies and design from multiple aid donors can contribute to policy formulation and implementation of future development projects.

6.4 Conclusions to the Study

This study reveals that Australia's development assistance program in the Philippines as reflected by the success of PPAEP has increased agricultural

The involvement of women in development activities has facilitated skills training and education on methods of farm production, management and technologies. Government and Non-Government organisations should continue to promote trainings in village levels on farm management principles and facilitate linkages among women's groups from various neighbouring villages.

A genuinely concerned development agenda should also include the promotion of community or village based childcare programs and services and the reproductive health care education to farm women and house workers. In addition, this can also be strengthened through the promotion of adult education programs geared towards women's special needs and interests. The setting up of linkages and the networking with other women's groups and people's organisations would ensure that development agencies are conscious of including women's issues in its development agenda.

In addition, the organisations should also work toward the recognition of women as an agricultural productive workers and support efforts of women for collective actions on land ownership transfers. The facilitation of women's producers' access to market through the development of safe, efficient and low-cost land and water transport system and cooperatives and the elimination of usury and unfair trading practices such as the presence of "middlemen" and

productivity and enhanced the social and economic conditions of marginal farmers and fishermen in villages of Luyong Bonbon and Pagalungan in rural Philippines.

The success of PPAEP stems from the project's participatory approach to development by involving project implementors and beneficiaries in program design and implementation of the project. The significant economic impacts of PPAEP are the notable increases in income, yield and employment. These impacts stem from the enhancement of the performance of agricultural extension workers and improving farming technologies through multiple livelihood projects.

PPAEP has also strengthened linkages between RBOs and local government agencies. The project has facilitated the transfer of land titles to a majority of claimants of public lands and has enhanced government's support for infrastructure development.

In addition, the success of PPAEP has enhanced community interaction and developed positive values and attitudes among the RBOs. Moreover, it has increased awareness for environmental protection in both villages and enhanced the employment of women in its activities.

Finally, PPAEP's sustainability depends on several factors. This includes the ability of Philippine government institutions and RBOs to utilise, maintain, and sustain PPAEP's projects. Other factors which may impede sustainability includes funding constraints, policy changes and natural calamities.

References

ACCESS Profile (1995). Cagayan de Oro: Department of Agriculture.

Ahmed, Q. (1992). Phd: Foreign aid, domestic savings and economic growth: The experience of Bangladesh. Dissertation Abstracts International. (University Microfilms. No. 43 -11).

AIDAB (1989). Development dictionary. Canberra: AGPS.

AIDAB (1991). More dollars than sense? Papers presented at World Development Forum. (pp. 15-24). Canberra: AIDAB.

AIDAB (1993-1994). Australian overseas development cooperation statistical summary. Canberra: AGPS.

AIDAB (1994). Towards a sustainable future. Canberra: AGPS.

AIDAB (1995). Philippines program profile. Manila: AIDAB.

Al-Ghalani, H.& Moor, W. (1995). Technology transfer to developing countries. International Journal of Technology and Management, 10 (7/8), 687 - 703.

Ali, A. (1987). PhD: Impact and implications of new plant technology in agriculture - A case of selected crops in Bangladesh. Dissertation Abstracts International. (University Microfilms No. 49 - 03).

Alic, J. (1988). Japanese R & D and U.S. technology policy. Research Technology Management, 13 (5), 6-7.

Australia and the Philippines development cooperation. (1993 September). Country Strategy Paper (AIDAB). Canberra: Goanna Print.

Australia's Overseas Aid Program. (1995). Budget Related Paper No. 2. (Hon. Gordon Bilney, M.P., Minister for Development Cooperation and Pacific Affairs). Canberra: AGPS.

Becker, H. & Porter, A. (1986). Methods and experiences in impact assessment. Holland: Reidel Publishing Company.

Beder, S. (1993). The nature of sustainable development. Newham: Scribe Publications

Betz, F. (1994). Basic research and technology transfers. International Journal of Technology and Management. 9 (5,6,7), 784-796.

Bonner, J. (1982). PhD: The impact of the consolidation of agricultural holdings on village socio-economics in the fine foodgrains region of Harvana, India. Dissertation Abstracts International. (University Microfilms No. 43-11).

Burki, S. & Ayres, R. (1986). Finance and development, 23 (1), 6-10.

Cao, F. (1991) MS: International agricultural technology transfer: Theory and application. Dissertation Abstracts International. (University Microfilms No. 29-01).

Carley, M. (1981). Social measurements & social indicators: Issues of policy and theory. London: Allen and Unwin.

Carr, M. (ed). (1988). Sustainable industrial development: Seven case studies. New York: Intermediate Technology Development Group of North America.

CART Profile (1995). Cagayan de Oro: Department of Agriculture.

Cassen, R. (1986). The effectiveness of aid. Finance and Development. 23(1): 11-14.

Chaves, E. (1987). EDD: Some factors associated with the effectiveness of the agricultural production component in areas of integrated rural development in Colombia as perceived by farmers. Dissertation Abstracts International. (University Microfilms No. 47-09).

Chew, S. (1989). Agro-forestry projects for small farmers. Washington: U.S. AID.

Chibber, A. & Wilton, J. (1986). Macroeconomic policies and agricultural performance in developing countries. Finance and Development. 23 (3), 6-9.

Clifford, M. (1994). Selling the world to Asia. Far Eastern Economic Review. 157 (1), 37-8.

Dahlman, C. (1989). Technological change in industry in developing countries. Finance and Development. 26 (2), 13-15.

Dahlman, C. (1994). Technology strategy in East Asian nations. Journal of Asian Economics. 5 (4), 541-572.

Dawson, J. (1987). Transferring industrial technology to less developed countries. Industrial Marketing Management. 16 (4), 265-271.

Dearing, J. (1993). Rethinking technology transfer. International Journal of Technology Management. 8 (6/7/8), 478 - 485.

Derakhshani, S. (1983). Factors affecting success in international transfers of technology - A synthesis and a test of a new contingency model. The Developing Economies, 21, 27-45.

De Rosa, D. (1988). Agricultural trade and protection in Asia. Finance and Development, 25 (4), 50-52.

Draft Completion Report. (1996). The Pilot Provincial Agriculture Extension Project (PPAEP). Manila: AusAID.

Erickson, P. (1994). A practical guide to environmental impact assessment. New York: Academic Press.

Ferdows, K. & Rosenbloom, R. (1981). Technology policy and economic development: perspectives for Asia in the 1980's. Columbia Journal of World Business, 16 (2), 36-46.

Finsterbusch, K. (1983). Social impact assessment methods. Beverly Hills: Sage Publications.

Flynn, C. (1982). An integrated methodology for socio-economic impact assessment and planning. Seattle: Social Impact Research.

Forrest, D. (1989). The experience of caring. Journal of Advance Nursing, 14, 815-823.

Gementiza, R. (1992). Evaluation of IRRI's training and technology transfer program in Asia: The case of Bhutan. Dissertation Abstracts International, (University Microfilms No. 31- 04).

Gervais, B. (1988). Planning for technology transfer. International Journal of Technology Management, 3 (1/2), 216-223.

Godkin, L. (1988). Problems and practicalities of technology transfer: a survey of the literature. International Journal of Technology Management, 3 (5): 587-601.

Goodell, G. (1984). Bugs, banks and bottlenecks: Organisational contradictions in the new rice technology. Economic Development and Cultural Change, 33 (1): 23-41.

Grabowski, R. (1993). East Asian industrialisation and agriculture. Journal of Asian Economics, 4 (1): 41-58.

Green, R. (1981). PhD: The development and application of a culture sensitive model for curriculum development. Dissertation Abstracts International. (University Microfilms No. 2-6).

Gwynne, P. (1993). Directing technology in Asia's dragons. Research and Technology Management., 36 (2): 12-15.

Habibie, B. (1990). Sophisticated technologies:taking root in developing countries. International Journal of Technology Management. 5 (5) : 489 - 497.

Hamel, J. (1993). Case study methods. London: Sage Publications.

Harrison, P. (1980). Compact fusion: Small is beautiful. Science,4. 219.

Hassal, H. (1984). PhD: An evaluation of extension's educational program impact on farmers of the Blue Nile intergrated agricultural development project in Sudan. Dissertation Abstracts International. (University Microfilms No 46-05).

Hope, K. (1983). Basic needs and technology transfer issues in the New International Economic Order. American Journal of Economics & Sociology, 42 (4): 393-403.

Horn, R. (1993). Statistical indicators for the economic and social sciences. Hong Kong: Colorcraft.

Hughes, H. (1994). Spectators at the table. Asian Business Review, July 92-4.

Imeson, M. (1995). A phenomenological study of infertility: The couple's perspective. Unpublished Masters Dissertation, Edith Cowan University, Perth, Western Australia.

Jefferson, G. (1994). Technical progress and technological transfer in East Asia. Journal of Asian Economics, 5 (4), 537- 39.

Jequier, N. & G. Blanc (1983). The world of appropriate technology. Paris: Organisation for Economic Cooperation and Development.

Johnstone, B. (1988). Sowing the future. Far Eastern Economic Review, 142 (48), 72 - 75.

Jones, G. (1971). The role of science and technology in developing countries. London: Oxford University Press.

Karchu, R. (1994). Improving agricultural productivity through appropriate technology transfer. Marga Quarterly Journal, 13 (3), 5-34.

Klus, J. (1993). New and emerging technologies: a competitive edge for national success. International Journal of Technology Management, 8 (6/7/8), 454 - 463.

Komoda, J. (1986). Japanese studies on technology transfer to developing countries: A survey. The Developing Economies, 24 (4), 405-420.

Kuper, A. & J. Kuper (1985). The social science encyclopedia. London: Routledge.

Luyong Bonbon Village Profile (1995). Cagayan de Oro: Department of Agriculture.

Maasarani, A. (1980). Trade and the NIEO. Review of Business. 8, 11-14.

Madu, C. (1989). Transferring technology to developing countries - critical factors for success. Long Range Planning. 22, (4), 115-124.

McCawley, P. (1993). Development assistance in Asia: who benefits?. AIDAB Focus. 12, 10-11.

McCracken, G. (1988). The Long interview. Newbury Park: Sage Publications.

Miles, M. & Huberman, A.M. (1984). Qualitative data analysis. California: Sage Publications.

Minichiello, V. Aroni, R., Timewell, E. & Alexander, L. (1995). In-depth interviewing, 2nd ed., Malaysia: Longman.

Mou, L. (1993). MA: Socio-economic consequences of health impacts from water resources development project. Disssertation Abstracts International. (University Microfilms No. 31- 03).

National Committee on Science and Technology (1973). An Approach to the science and technology plan. New Delhi, India.

Norton, G., Ortiz, J. & Pardey, P. (1992). The impact of foreign assistance on agricultural growth. Economic Development and Cultural Change. 40 (4). 775-785.

OECD (1987). Evaluation of research. Paris: OECD.

Otsuka, K., Cordova, V.& David, C. (1992). Green revolution, land reform and household income distribution in the Philippines. Economic Development and Cultural Change. 40 (4): 719-741.

Pagalungan Village Profile (1995). Cagayan de Oro: Department of Agriculture.

Patton, M. (1990). Qualitative evaluation and research methods. California: Sage Publications.

Payaril, G. (1990). PhD: Conceptualizing technological change: technology transfer in the green revolution. Dissertation Abstracts International. (University Microfilms No. 51-06).

Perrow, C. (1967). A framework for the comparative analysis of organisations. American Sociological Review, 32, 194-208.

Porter, A. (1980). A guidebook for technology assessment and impact analysis. New York: North Holland Press

Reade, C. (1994). International agricultural research-a global success?. AIDAB Focus,9 21-3.

Rousseau, D.M. & Cooke, R.A. (1984). Technology and structure: The concrete, abstract, and activity systems of organisatins. Journal of Management, 10 (3), 345-361.

Salahaldeen, A. (1995). Developing countries and technology transfer. International Journal of Technology and Management, 10 (7/8), 704-713.

Schon, D.A. (1967). Technology and change: The new heraclitus. New York: Delacorte.

Schuh, G. & Barghouti, S. (1988). Agriculture diversification in Asia. Finance and Development, 25 (2), 41-44.

Schumacher, E. (1973). Small is Beautiful. London: Blond & Briggs, Ltd.

Sen, A. (1990).PhD: The Impact of INSAT-TV agricultural programs on the farmers in six indian villages. Disseration Abstracts International. (University Microfilms 52- 03).

Sinkala, Sontwa. (1991) PhD. Canadian development assistance to Zambia, with special emphasis on agricultural sector. Dissertation Abstracts International. (University Microfilms No. 52-05).

Soliman, C. (1991). Teaching people not to only to fish but also to fish sustainably: Reflections on the role of multilateral agencies in sustainable development. Paper presented at AIDAB's World Development Forum (pp. 53-60). Canberra: AIDAB.

Steinberg, D. (1983). Irrigation and AID's experience. Washington D.C.: U.S. AID.

Swanson, L. (1980). PhD: A study of socio-economic development: Changing farm structure and rural community decline in the context of the technological transformation of American agriculture. Dissertation Abstracts International. (University Microfilms No. 41- 09).

Tilney, J. & Riordan, J. (1988). Agricultural policy assistance and planning. Washington: U.S. AID.

Tolentino, P. (1993). Technological innovations and third world multinationals. London: Routledge.

Ueda, M. (1983). PhD. Agricultural systems eficiency: A case of Japanese and Filipino rice farming. Dissertation Abstracts International. (University Microfilms No. 45-02).

Wasserman, G. & Davenport, A. (1993). Power to the people. Washington: U.S. AID.

Wiboonchutikula, P. (1990). ASEAN & the EC: Technological trends and their impact on ASEAN industries. Singapore: South Wind Prod. Pty. Ltd.

Williams, F. & Gibson, D. (1990). Technology transfer: A communication perspective. London: Sage Publications.

Willoughby, K. (1990). Technology choice: A critique of the appropriate technology movement. London: Intermediate Technology Publications.

Woodward, J. (1985). Industrial organisation: Theory and practice. London: Oxford University Press.

Yin, R. (1989). Case study design and methods . California: Sage Publications.

Yin, R. (1993). Applications of case study research. California: Sage Publications.

Appendix A

Consent Form

Study Title: An Evaluation of the Social and Economic Impacts of the PPAEP on Rural Philippines
The Case of Luyong Bonbon and Pagalungan, Misamis Oriental

Researcher: Maria Rae L Hechanova

Ms. Hechanova is a Master of Business (Marketing) Student of Edith Cowan University in Perth, Western Australia.

The purpose of this study is to examine the socio-economic impact of an Australian Agency for International Development (AusAID) agricultural project in Misamis Oriental, Philippines. The information sought will be collected by tape recorded interviews of approximately 30 minutes duration. Similarly, information on demographic factors such as age, occupation, social, economic and other effects after the project was implemented will be collected from you through this interview. The information obtained during the interview will only be discussed with the thesis supervisor at Edith Cowan University.

All interviews will be coded in alpha-numeric form to maintain confidentiality. The final report will be available to all interested subjects and institutions. The information gained in this sudy will contribute to policy formulation and implementation of future development projects of AusAID.

THIS IS TO CERTIFY THAT I, _____

do voluntarily agree to participate I the above named study. I give permission for these interviews to be taped. I understand that these tapes will be erased when the study is completed. I hereby agree that the research data gathered for the study may be published provided that my name will not be used. I understand that I am free to refuse to answer any questions should I feel inclined. I also understand that I am free to terminate my participation at any time, without penalty. I know that Ms. Hechanova is available at the Australian Embassy, Manila, Philippines at tel: 817-7911 and if I have any concerns, I may contact AusAID Manila or the Head of School of Marketing at Edith Cowan University in Perth, Western Australia through Dr Marc G Saupin at 405 5604, if I am unhappy about any research procedures. All my questions have been answered to my satisfaction.

PARTICIPANT: _____

RESEARCHER: _____

DATE: _____

Appendix B

Interview Guide

- Introduction

I am Maria Rae Hechanova, a post graduate student of Edith Cowan University in Perth, Western Australia. I am conducting an study on the social and economic impacts of the PPAEP project in your village.

I am interested in learning more about your involvement in this project. What is it about you, your situation and what led you to become a part of this project.

The following set of questions is about your own personal background and work experience. The purpose of these background questions is to help me find out the different experiences of the people in the project.

- Personal Background

Name: _____
Office: _____
Usual Occupation _____
No. of years of experience in usual occupation_____

- The PPAEP Project

The next set of questions is about the PPAEP project in this village. I would like to get your insights on how the project operates in this village and how it affects you and your village.

1. Where there any agricultural projects in this village before the PPAEP? If yes, what are these projects? and how did these projects affect your village?

2. Can you describe to me your role in the PPAEP and your personal experiences with the project.

3. What are the major activities of the PPAEP in your village?

4. Your comments about the project's strengths and weaknesses are particularly essential because the identification of the kind of strengths and weaknesses you describe can assist future programs. From your point of view, what do you think are the basic strengths and weaknesses of this project,? Can you describe these strengths and weaknesses?

5. How did the project affect your occupation? How did it affect your yield and your income?

6. How did the project affect yourself; your family; your relationship with your neighbours; with the RBOs?

7. What was the local government's role and involvement in the project?

8. Can you describe to me the role of the women in the project?

9. How did the project affect the whole village and its environment?

10. The next question is particularly important to this study. How do you think can the project could be improved?

11. How do you think can the project be sustained?

12. What are the lessons that you have learned from the project?

13. You have been very helpful. Any other thoughts you might like to share to help me understand how the PPAEP affected your life?

Thank you for your time and cooperation.

Appendix C

Pagalungan Projects

A. Multi-storey Cropping Demo Project

1. Project Proposal and Specifications

Background	1. To show farmers the maximum utilisation of slope areas to increase production and sustainability 2. To help rejuvenate soils and minimise soil erosion.
Objectives	Pagalungan is 90% rolling hills and the cultivated areas where farmers practice mono-cropping with no erosion control. Farmers use corn as the main crop with no other intercropping. This traditional practice results in low income and massive top soil erosion.
Expected outcome	The project is expected to have an income of P 40,404 compared to a minimum of P 5,020. of the previous practice of growing only corn for two cycles over a 1.5 year period.
Dates	Actually started 24/11/94; Expected completion: 05/03/96.
Project design	To establish "Contra-Banlas" technologies planted with pineapple, grafted mango, bananas along the contours and using hedgerow strip planting of legumes for soil stabilisation and drainage canals.
No. of project areas	1
Size of each area	0.5 hectares
No. of beneficiaries	30 corn farmers-nearby farmers who could benefit from this technology.
Present status	The project was already planted with grafted mango, banana,pineapple along the strips and rensonii & ipil-ipil trees along the hedgerows.
Project costs (pesos) PPAEP Counterpart Total Cost	 P 18, 481.00 4, 140.00 P 22,621.00
Revolving procedure	As per RBO agreement, the loan will be paid after 2 years at 2% interest rate per month back to the RBO demo fund.

Note. Pagalungan Village Profile (1995)

2. Project Results

Item details/ Activity	Unit size	Unit cost (pesos)	No. of units	Total costs (pesos)	Particulars and Comments (dates, stage, problems etc...)
I. Income					
Pineapple					Still at vegetative stage
Banana					Still at vegetative stage
Gross income					
II. Variable Costs					
A. Materials					
Banana suckers	piece	2	200	400	Start planted 24/11/94 with grafted mango, pineapple, banana along the strips and ipil-ipil and rensonii on the hedgerows
Pineapple suck	piece	1	8000	8000	
Grafted mango	piece	15	50	750	
Fertilizer					
Chicken dung	bag	65	27	2405	
14-14-14	bag	380	65	2145	
46-0-0	bag	330	35	1155	
16-20-20	bag	330	35	1155	
0-0-60	bag	330	35	1155	
Baythroid	litre	1200	1/2	600	
Herbicide	litre	35	1	191	
Carbide	kilo	191	15	525	
Subtotal				18481	
B. Draft/labor					
Draft	MAD	80	10.5	840	
Labor	MD	40	63.75	2550	
Subtotal				3390	
Total Var. Cost				21871	

Note. Pagalungan Village Profile (1995)

3. Project Economics and Gross Margins

Item (pesos)	Farmer's practice	Project budgeted	Actual cost	Per HA/HH
Gross income	4500	66400	66400	132800
Variable cost	1990	26981	25996	51992
Gross margin	2510	39419	40404	80808
	(max for .5ha/hr)	by yr 1.5 (.5 ha)	by yr 1.5 (.5 ha)	by yr 1.5 (.5 ha)

Note. Pagalungan Village Profile (1995)

4. Discussion, Conclusion and Recommendation

The project is undertaken by the RBO members. This includes all the activities from land preparation to harvesting. The land is owned by the village captain but an official agreement has been drawn up for the RBO members to use the land for many years.

This technology is recommended to farmers and neighbouring villages. However, this project requires funding owing to high cost of planting materials, seedlings and inputs. Another concern is the kind of crops to be planted. Farmers should utilise high value crops which are easy to grow and are in demand. This project will be able to supply a considerable amount of planting materials to nearly all farmers in the village within one year of adoption should other farmers want to adopt the same technology.

The sustainability of the multistorey cropping system is much greater than growing corn alone for the following reasons:

1. Multiple cropping utilises contour planting which minimises soil erosion.
2. The crops provide continuous ground cover to minimise soil erosion.
3. Crops and fruits such as mango, bananas, pinapple have higher market valuc
4. The technology is easy and affordable to most farmers.

5. Adoption and Spin-off Effects of the Project

It is expected that up to 30 farmers with land involving 15 hectares, will adopt a part of the whole technology.

There are several components of the demonstration project which could be independently adopted or adopted en masse; for example contour planting, commercial planting of pineapples or bananas, intercropping long term crops such as mangoes (or even cashew nuts) in amongst medium or short term income generating crops.

B. Tilapia Floating Fish Cage Production Project

1. Project Proposal and Specifications

Project type	On Farm Demo
Location: Municipal, Barangay, RBO	Pagalungan, Cagayan de Oro FA & TRISA/Guinitan Lake
Background	Pagalungan, being an upland barangay, lacks supply of fresh fish thus depriving the community of much needed protein. The availability of a water resource (lake) can be utilised productively thereby increasing protein consumption and develop knowledge on fish cage culture and management skills.
Objectives	1.To utilise existing water resources for productive use of demonstrating alternative livelihood project through culture of T. Nicotica fish in water cages. 2.To study the effects of different fish stocking density and feeding consumption. 3. To supply fish in the community and neighbouring barangay.
Expected outcome	It is expected that the right stocking density and feed combination will be determined to attain maximum growing fish at the most economical feed ration. It will also try to train RBOs in the management of projects and impart knowledge on fish cage culture.
Dates	Actually started 24/08/94; Expected completion 24/08/96
Project design	Different cages stocked with varying numbers of fish and fed with 3 feed combinations
No of project site	1 site (Guinitan lake)/ 2 modules
No of cooperators	TRISA & FA
Size of each area	36 sq. metres; total 72 sq. metres.
No. of beneficiaries	95 farmers (FA = 38, WAB = 19, TRISA = 38)
Present status	On-going
Project cost (pesos)	
PPAEP	P 33,050. (P 14,378 for cages and 18,672 for stocking feeds)
Others	14,950.
Total in pesos	P 47,999.70 (initial estimate)
Revolving procedures	Repayment period is one year in 3 equal installments at 2% per month interest rate. Computation of interest rate is based on unpaid balance. Collection will be done by the Project Management Committee.

Note. Pagalungan Village Profile (1995)

2. Project Results

Item details/ Activity	Unit size	Unit cost(P)	No of units	Total cost (P)	Particulars and comments
Procurement of materials: 06 August					
transportation				750	
bamboo & plastic		1	2840	2840	22-23 August 1994
net		9	396	3384	12 August 1994
cement, rope		8	28.88	231	
weighing scale	piece	1	300	300	RBO counterpart
noodle making machine		1	1500	1500	
T. Nicotica fridge	piece	.30	18000	5400	27 October & 05 Nov. 1994
rice bran	kg	5	768	3840	
cassava	kg	1.5	1281	1921.5	
kuhol (shells)	kg	0.5	1534.8	767.40	
pollard	kg	4	1536	6144	
labour (construction)	MD	75	50	3750	
labour (care & maint)	mo	4	500	2000	RBO counterpart
procurement of fingerlings				1200	27 Oct & 05 Nov. 1994 of 8000 fingerlings stocked only 1699 pcs left because of forcemajeur It is now stock with more than 2,000 fingerlings, with an additional 3,000 about to be supplied for the expansion cages funded by the City Ag. Office

Note. Pagalungan Village Profile (1995)

3. Project Economics and Gross Margins

Item (pesos)	Farmer's practice	Project budgeted	Actual cost	Per HA/HH
Gross income		72,000	57,600	28,800
Variable cost		25,972.4	31,373	12,986.2
Gross margin		46,027.60	26,227	15,813.8

Note. Pagalungan Village Profile (1995)

4. Discussion, Conclusion and Recommendation

The project was established because the lake in Pagalungan is unutilised. The RBOs lacked the technology of raising fish that can be managed easily and economically. The RBOs don't have sufficient capital to venture into fish culture.

With PPAEP's vision of sustainability and enhancing the income of RBOs, the project was proposed and subsequently funded.

The City Government of Cagayan de Oro has funded 2 modules for expansion and replication of the technology. A request of additional nets have been made. The modules are now fully stocked for fish culture.

The cost of funding the cages is approximately P 14,000, total of P 7,000 per module. This could be depreciated over three years at 2 cycles per year, presenting an actual cost of approximately P 1,200 per cycle per module. The gross margin of P 5,300 per module per cycle is expected. The cages are now fully stocked and the project is successful.

5. Adoption and Spin-Off Effects of this Project

The technical viability and the success of the project has encouraged the City Government of Cagayan de Oro to fund two additional modules of the fish cages.

C. Swine Fattening Project

1. Project Proposal and Specifications

Project type	On farm demonstration project
Location	WAB RBO, Pagalungan, Cagayan de Oro
Background	Lack of HH income is always a problem and so is lack of working capital and know how on small animal enterprise like pigs and goats.
Objectives	To demonstrate how to raise pigs at the HH level using a mixture feeds available easily and readily locally.
Expected outcome	A successful demonstration of an economic IGP of raising swine
Dates	Actually started: 1993 December; Expected Completion 1994 July
Project design	3 trials of different rations with 3 piglets per trial - 1 piglet will be looked after by each household
No. of project sites	9 Households
Present status	Completed in 1994 July but now being revolved by the women's groups as an IGP themselves.
Project cost (pesos)	
PPAEP	P 9,972.00
Counterpart	labour for collection and dispersion of feeds
Total cost	P 9.972.00
Revolving procedures	The women repaid the money back to the funds. They are now revolving it on a P 500. borrowing to repay P 560. after six months.

Note. Pagalungan Village Profile (1995)

2. Project Results - WAB Pagalungan

Feeding Trial 1: Corn Bran + Camote/Banana Trunk

Beneficiaries	Init'l. weight (kg)	Final weight (kg)	Duration of feeding days	Ave. daily gain (kg)
1. Maribel Montelebon	5	28	193	.11
2. Editha Fernandez	8	21	197	.06
3. Paz Carangcarang	8.5	35	192	.13
Average ADG				.10

Note. Pagalungan Village Profile (1995)

Feeding Trial II: Corn Bran + Chicken Dung

Beneficiaries	Init'l weight (kg)	Final weight (kg)	Duration of feeding days	Ave. daily gain (kg)
1. Perlie Jevesano	8	28	192	.10
2. Rita Gaabon	8	34	193	.13
3. Gina Osip	12	45	193	.17
Average ADG				.133

Note. Pagalungan Village Profile (1995)

Feeding Trial III : Corn Bran + Copra Meal/freshly grated coconut

Beneficiaries	Init'l weight (kg)	Final weight (kg)	Duration of feeding days	Ave. daily gain (kg)
1. Dolores Edasco	8	30	197	.11
2. Elena Macahilos	6	20	192	.07
3. Corazon Ambo	9	43	151	.22
Average ADG				.133

Note. Pagalungan Village Profile (1995)

3. Discussion, Conclusion and Recommendations

The hogs did not reach the expected final weight. It was observed that the animals were not properly fed. The right amount of feed was not given. It seemed that the animals competed for food with the beneficiaries for survival.

Inspite of proper deworming, vaccination and swine raising seminar conducted, the animals were not properly cared maybe because of extreme poverty of the beneficiaries.

Trial I (Corn Bran and Camote/Banana Trunk) has a similar result with other trials. Trial II (Corn Bran + Chicken Dung) should not be replicated due to hazardous effect to the hogs. This feeding was tried for almost a month. As per observation by the beneficiaries, the animals experienced inappetence, sommolence and diarrhoea.

Recommendation:

The two feeding trials, Trial I and Trial III are recommended to be replicated depending on the locally available feedstuff. It was decided during their monthly meeting to replicate the project. The RBO members are interested to engaged again in swine raising inspite of a very low animal production.

4.Adoption and Spin-off Effects of this Project

The women group are now revolving the fund themselves as an IGP. In principle, members (who meet their selection criteria) can borrow P 500 to buy a piglet and when it is sold approximately six months later they repay P 560. From the profit each time, some members buy an additional piglet or two whilst others treat it an income and use it as normal living/housing expenses.

D. Plant Nursery Project

1. Project Proposal and Specifications

Project type	Demonstration - Plant Nursery
Location	Wahigan FA & Tubalon (TRISA) RBOs, Pagalungan, CDO
Background	This area is a poor, hilly, ex-forest area badly needing replanting by agro forest, forest trees, fruit trees and forage trees
Objectives	To provide training and facilities to the farmers association to allow them to grow the requirements of fruit , forest and fodder trees and properly establish their areas.
Expected outcome	See trees on hand and trees distributed
Dates	Actually started: 1993 January Expected Completion: on-going
Project design	Small nurseries at FA and TRISA locations
No. of project sites	2 areas (FA and TRISA Tubalon RBOs)
Size of each area	Approximately 50-100 sq m each
No. of beneficiaries	All members of the RBOs with land available for planting. Approx 30 total but also household with vegetable, herbs and medicinal plants.
Present status	On going but at a reduced level of activities

Project costs (Pesos)	FA Wahigan	TRISA
PPAEP	P 15, 199.00	P 18.175.00
Counterpart	labour	labour
Total	P 15,199.00	P 18,175.00

Revolving procedures	Any proceeds are revolved back into the RBO demo funds

Note. Pagalungan Village Profile (1995)

E. Cattle Breeding Project

1. Project Proposal and Specifications

Project type	Joint RF and Demo
Location	TRISA Tubalon RBO, Pagalungan, CDO
Background	Lack of working animals and capital to buy these animals is a major problem in this area. Until recently, there has been no institution willing to provide credit for cattle unless done on a very large scale.
Objectives	To provide cattle for working animals, breed cattle for sale and increase household income. As a result, the ability to work the land as well as the IGP factor of fattening and breeding cattle will occur.
Expected outcome	Provision of working animals for the needs of the RBOs plus a general raising of average HH once the excess cattle are sold.
Dates	Actually started: 1994 Sep. Expected Completion: 1998 Sep.
Project design	Targeted 14 head of cattle managed on a HH basis and using all for breeding
No. of project sites	1 central holding area; 13 household to date
No. of cooperators	Members of TRISA RBO
Size of each area	Each HH will eventually have access to at least 1/8 ha forage
No of beneficiaries	13 families- one animal per family
Present status	13 heads purchased all healthy and de-wormed - approximate price of P 5,000 per head. Small area (planting material nursery) of pastures already established with various improved grasses and legumes including D. Heterophyllum and Arachis pintoi. Cattle yards for routine health care have been jointly built by TRISA RBO.

Note. Pagalungan Village Profile (1995)

Cattle Breeding Project/contd.

Project Cost (Pesos)	
PPAEP	Approximately P 76,000
Counterpart	RBO members labour
Total	P 76,000
Revolving Procedures	A revolving fund project

Note. Pagalungan Village Profile (1995)

3. Discussion, Conclusion and Recommendations

Thirteen small cattle were purchased and given appropriate vaccination and treatment. The RBOs utilised an area of one eight hectare of land to improved forage and pasture plants for the cattle. The land area was planted with nappier plants to be utilised as cattle feed. The RBOs have also established a cattle holding yard for cattle health care and treatment.

4. Adoption and Spin-Off Effects of this Project

The concept of planting improved forage species has been fully adopted utilising dry season fodder trees of *Rensonii, ipil-ipil and madre de cacao.* In addition, the RBOs also received four livestocks from the City and Provincial Governments of Cagayan de Oro.

Appendix D

Luyong Bonbon Projects

A. IR-64 Rice Variety Demo 1 Project

1. Project Proposal and Specifications

Project type	On Farm Demonstration Project
Location:	Luyong Bonbon, Opol, Misamis Oriental
Background	The farmers in the area have low income because of low production. In order to increase their yield, a new rice variety suitable in the area was needed to increase production and income of marginal farmers.
Objectives	To increase rice production and increase farmers income by introducing a recommended high yielding rice variety.
Expected outcome	The project expected a significant increase in yield.
Dates	Actually started: 01/08/93 Completed: 31/12/93
Project design	To establish a varietal rice trial on IR-64 and to compare the previous varieties used by farmers (C-4, IR-36,IR-72) in the area.
No. of project sites	2
Size of each area	15,096 sq. m (total) 7,450 & 7,646 sq m
No. of beneficiaries	30 farmers
Present status	Terminated Dec. 1993 (replicated in 1994)
Project costs (Pesos)	
PPAEP	P 2, 856
Counterpart	4.096
Total	P 6,951
Revolving procedures	The rice seed will be returned to the RBO for replanting.

Note. Luyong Bonbon Village Profile (1995)

2. Project Results

Item details/ Activity	Unit size	Unit cost (pesos)	No of units	Total cost (pesos)	Particulars and Comments (dates, stage, problems,etc...)
I. Income					Production increase of 260%
palay	kg	6	7133	42798	
II. Variable Costs					The farmers replicated the project in 1995
A. Materials					
seed rice	kg	10	150	1500	
fertiliser					
14-14-14	bag	280	4	1120	
45-0-0	bag	213	2	426	
insecticides					
azodrin	litre	338	1	338	
cymbush	litre	855	1	855	
B. Draft/labor					
draft	MAD	100	10	1000	Six hectares were utilised in the adopted area and it produced the same successful results.
labor	MD	70	32	2240	
C. Others					
sacks	piece	5	159	795	20 % of the produce were received for planting materials and home consumption

Note. Luyong Bonbon Village Profile (1995)

3. Project Economics and Gross Margins

Item (pesos)	Farmer's practice	Project budgeted	Actual cost	Per Ha/HH
Gross income	29890	45096	42798	28350
Variable cost	4341	6951	8274	5565
Gross margin	25549 (for 1.5 ha)	(38,145) (for 1.5 ha)	(34,524) (for 1.5 ha)	(22,785) for 1 ha)

Note. Luyong Bonbon Village Profile (1995)

4. Discussion, Conclusion and Recommendations

IR-64 rice variety is found to be suitable in the area because of a production increase of 26%. The farmers have replicated the project in the next cropping season. It is recommended that IR-64 is suitable in the area however, to validate further the results, another replication is necessary.

The average yield of 75 cavans (44 kg. unprocessed rice) is used as a comparison with the existing varieties. The new rice variety has increased the average yield of the farmer in Pagalungan.

5. Adoption and Spin-off Effects of this Project

There are eight farmers who have adopted the technology. This involved 6 hectares of rice land. It is expected that more farmers will adopt the new technology because the rice variety is suitable and has enhanced productivity. The seeds of the new rice variety is readily available in the market and the market value of this rice variety is high.

B. IR-64 Rice Variety Demo II Project

1. Project Proposal and Specifications

Project type	On Farm Demo (a replication of a demo from the previous year)
Location	LBFMA/Cabio, Luyong Bonbon, Opol, Misamis Oriental
Background	In the area, the farmers have low income because they got low production. So, IR-64 was tried in the area and was found to be very suitable. Inorder to validate the first result, another demo should be established.
Objectives	1. To evaluate further the suitability of IR-64 in the area. 2. To increase farmer's income.
Expected outcome	Expected to harvest 120 sacks of palay/hectare on 5,280 kilos/ha using IR-64 compared to normal yield of about 75-80 sacks.
Dates	Actually started: 01/07/94 Expected completion: 31/09/94
Project design	To establish another varietal demo for IR-64 in 1.25 has.
No. of project sites	1
Size of each area	1.25 hectares
No. of beneficiaries	30 farmer in this area grow rice; many of these will adopt the practice.
Present Status	Terminated 05 October 1994
Project Costs (pesos) PPAEP Counterpart Total	 P 2, 580 3, 400 P 5, 980
Revolving procedures	Paid what has been revived

Note. Luyong Bonbon Village Profile (1995)

2. Project Results

Item details/ Activity	Unit size	Unit cost (pesos)	No. of units	Total costs (pesos)	Particulars and Comments (dates, stage,problems, etc...)
I. Income					
palay	kg	6	7350	44100	Replication from 1993 Rice production demonstration
A. Materials					
seeds	kg	10	62.5	625	
fertilizers:					
14-14-14	bag	280	3.3	924	
45-0-0	bag	213	1.6	340.8	
chemicals					
azodrin	litre	338	0.8	270.4	
cymbush	litre	855	0.8	684	
B. Draft/labour					
draft	MAD	100	8.5	850	
labour	MD	70	26.5	1855	
C. Other					
sacks	piece	5	164	820	

Note. Luyong Bonbon Village Profile (1995)

3.Project Economics and Gross Margins

Item (pesos)	Farmer's Practice	Project Budgeted	Actual Cost	Per HA/HH
Gross Income	24,750	39,660	44100	35280
Variable Cost	3,683	5,980	6,374.20	5,255.7
Gross Margin	21,067 (for 1.25 ha)	33,680 (for 1.25 ha)	37,725.80 (for 1.25 ha)	30,024 (for 1 ha)

Note. Luyong Bonbon Village Profile (1995)

4. Discussion, Conclusion and Recommendations

The rice technology trial has resulted to increase in production. In the first trial in 1993, the yield from fertilised IR-64 was approximately 108 cavans per hectare as compared to approximately 75 cavans. The second trial generated approximately 137 cavans. This trial has resulted to a 40% increase in yield.

The IR-64 rice variety has produced a higher yield and does not require fertiliser and inputs in contrast to the other rice varieties that were previously used. The new rice variety is now being adopted as one of the major varieties in Luyong Bonbon. It is also used as a source of planting material by the farmers.

5. Adoption and Spin-off Effects of this Project

The new rice technology has encouraged more farmers to adopt the technology. It is expected that more farmers will adopt the technology because of strong market demand for the rice variety and the market value is high.

C. C-4 Rice Fertiliser Trial Project

1. Project Proposal and Specifications

Project type	On Farm Demonstration Project
Location	LBFMA/Cabio, Luyong Bonbon, Opol, Misamis Oriental
Background	In the area, the farmers usually use C-4 rice variety using less than 1/2 of the recommended fertiliser requirement and observed that they got a low yield of only about 75 bags/hectare.
Objectives	1. To evaluate the profitbaility of C-4 if exact fertiliser requirement is used. 2. To increase farmer's income.
Expected outcome	Expected production of 120 sacks/hectare on 5400 kl/ha. (actual was 140 sacks)
Dates	Actually started: 01/07/94 Expected completion 05/10/94
Project design	To establish fertiliser trial/demo for C-4 rice variety
No. of project sites	1
Size of each area	0.75 hectares
No. of beneficiaries	30 farmers of various crops
Present status	Terminated 05 October 1994
Project costs	The farmers replicated this demo following a successful one in 1993. The farmer supplied the inputs. In 1993, the project supllied the inputs and the results were almost identical.
Revolving procedures	Return what has been revived.

Note. Luyong Bonbon Village Profile (1995)

2. Project Results

Item details/ Activity	Unit size	Unit cost (pesos)	No. of units	Total costs (pesos)	Particulars and Comments (dates, stage, problems etc.)
I. Income					
palay	kg	6	4620	27720	
II. Variable Cost					
A. Materials					
seeds	kilo	10	37.5	375	
fertilisers					
14-14-14	bag	280	2	560	
45-0-0	bag	213	1	213	
chemicals					
azodrin	litre	338	0.5	169	
cymbush	litre	855	0.5	427.5	
B. Draft/labour					
draft	MAD	100	5.5	550	
labour	MD	70	16	1120	
C. Other					
sacks	piece	5	156	780	

Note. Luyong Bonbon Village Profile (1995)

3. Project Economics and Gross Margins

Item (pesos)	Farmer's practice	Project budgeted	Actual cost	Per HA/HH
Gross income	14,850	23,760	27,720	36,960
Variable cost	2390	3695	3939.5	5200.2
Gross margin	12,460 (for 0.75 ha)	20,065 (for 0.75 ha)	23,780.5 (for 0.75 ha)	31,759.8 (for 1 ha)

Note. Luyong Bonbon Village Project (1995)

4. Discussion, Conclusion and Recommendations

This demo trial was conducted by the farmer cooperator himself after a very successful similar project last year. In fact, he and other families are already adopting the increased fertiliser produced.

Normal expected yield was taken at 75 cavans (44 kg) palay per hectare. The fertiliser demo was done to evaluate the yield increase of C-4 variety (one in common use). The yield increase, using the recommended amount of fertiliser, was dramatic. Additional proper trials will be needed also to evaluate different levels of fertiliser and comparing it with the other top variety of IR-64.

5. Adoption and Spin-off Effects of this Project

Most of the farmers in the area uses C-4 rice variety at present although now some are changing to IR-64 with fertiliser and others are using C-4 with fertiliser.

D. Corn + Peanut + Mongo Cropping System Project

1. Project Proposals and Specifications

Project type	On Farm Demonstration Project
Location	LMFMPC/Cabio, Luyong Bonbon, Opol, Misamis Oriental
Background	There was a low production of corn, peanut and mongo in the area which could not sustain the consumption requirement of the population in the barangay. Generally, farmers do not use inputs ofany type.
Objectives	To increase corn, peanut, and mongo production in the barangay using fertiliser and other inputs
Expected outcomes	Yield increase of: corn by 100%, peanut by 66%, mongo by 55%
Dates	Actually started: 15/08/93 completed 15/12/93
Project design	The project actually will demonstrate on intercropping system to plant 1/4 ha of corn + 1/4 ha peanut and 1/4 ha mongo using high technology inputs.
No. of project sites	1
Size of each area	0.75 hectare
No. of beneficiaries	30 nearby farmers of various crops, many of whom could adopt it.
Present status	Terminated
Project cost PPAEP Counterpart Total	 P 3,025 1,190 P 4,215
Revolving procedure	Payment will be seed equivalent to the total amount received.

Note. Luyong Bonbon Village Profile (1995)

2. Project Results

Item details/ Activity	Unit size	Unit cost (pesos)	No. of units	Total cost (pesos)	Particulars and Comments (dates,stage,problems,etc.)
I. Income					
peanut	kg	15	370	5550	The crops were planted on season however, due to less rain fall, the mongo crops did not grow. Mongo crops were planted on the third day when there was less moisture. The farmers replicated the project in 1994-1995 utilising peanuts and it resulted to a yield of 375 kilos.
corn	kg	4	400	1600	
mongo	kg				
II. Variable Costs					
A. Draft & labour					
plowing	MAD	80	3	240	
harrowing	MAD	80	2	160	
planting	MD	50	3	150	
weeding	MD	50	2	100	
fertilisation	MD	50	1	50	
spraying	MD	50	1	50	
sideressing	MD	50	1	50	
harvesting	MD	50			
hauling	MD		2	100	
drying	MD	50	2	100	
B. Materials					
corn seeds	kg	20	9	180	
mongo	kg	30	6	180	
peanut	kg	40	375	1500	
fertiliser	bag	280	1	280	
45-0-0 fertiliser	bag	213	1	213	
16-0-0 fertiliser	bag				
soil inoculant	pack	10	12	120	
insecticides	litre				
fungicides	kg				
sacks	piece	5	16	80	

Note. Luyong Bonbon Village Profile (1995)

3. Project Economics and Gross Margins

Item (pesos)	Farmer's practice	Project budgeted	Actual cost	Per HA/HH
Gross income	4750	8250	7150	14300
Variable cost	1550	3715	3553	7108
Gross margin	3,200	4,535	3,597	7,194
	(for .25 ha of ea)	(for .75 ha)	(for .5 ha)	(for 1 ha)

Note. Luyong Bonbon Village Profile (1995)

4. Discussion, Conclusion and Recommendations

The use of inputs (fertiliser & inoculants were appropriate) dramatically improved production over normal yields. The plants not only look better than normal but the yield was higher. The mongo was not harvested as the weather was so bad (dry) during its growth cycle. Even without the mongo yield, the actual income was considerably higher than the normal.

5. Adoption and Spin-off Effects of this Projects

There were already 2 adaptors (farmers) who have seen the benefits of using inputs. Nearly most farmers who previously did not grow peanuts have adopted the technology

E. Peanut Cropping System Project

1. Project Proposal and Specifications

Project type	On Farm Demonstration Project
Location	LBFMPC/Cabio, Luyong Bonbon, Opol, Misamis Oriental
Background	The project was proposed because of the peanut production could not sustain the consumption of the population in the barangay.
Objectives	To demonstrate how to achieve economic yield of peanuts using inputs and improved technology
Expected outcome	Increase peanut production by 25%
Dates	Actually started: 01/08/93 Completed 31/11/93
Project design	Simple block planting of peanuts using recommended inputs
No of project sites	1
Size of each area	0.25 hectare
No. of beneficiaries	30; mainly multiple cropping farmers in the nearby area.
Present status	The result from this project were not good (low yield) due to very dry season period during the growth cycle. However, the demo was repeated using carry over seeds and provided and fertilisers and the results were very good.
Project costs(pesos)	
PPAEP	P 1,500
Counterpart	550
Total	P 2,050
Revolving Procedures	The cooperator will pay peanut seed equivalent to the amount received.

Note. Luyong Bonbon Village Profile (1995)

2. Project Results

Item details/ Activity	Unit size	Unit cost (pesos)	No of units	Total costs (pesos)	Particulars and Comments (dates, stage,problems,etc)
I. Income					
peanut	kg	20	50	1000	low yield because there was low germination due to less rainfall
II. Variable Cost					
A. Materials					the produce were not sold
seeds	kg	40	37.5	1500	the cooperator reserved
soil inoculant	pack	10	1	10	the seed as materials for the next planting season
B. Draft/labour					
draft	MAD	80	3	240	the farmers planted
labour	MD	50	6	300	last year and got 700 kilos they paid 40 kilos to the RBO

Note. Luyong Bonbon Village Profile (1995)

3. Project Economics and Gross Margins

Item (pesos)	Farmer's practice	Project budgeted	Actual cost	Per HA/HH
Gross income	2000	3750	1000	4000
Variable cost	1128	1800	2055	8220
Gross margin	872	1950	1055	4220
	(per .25 ha)	(per .25 ha)	(per .25 ha)	(per ha)

Note. Luyong Bonbon Village Profile (1995)

4. Discussion, Conclusion and Recommendations

The technology was introduced in the area for the first cropping season. There was low yield because there was less rainfall. However, last year, the farmers planted the crops again and got good results. Inoculant was not needed for the second cropping and the farmers used a small quantity of fertiliser plus/disease control chemicals as needed. No yield or input records were recorded but the farmers were satisfied with the outcome.

5. Adoption and Spin-off Effects of this Project

This project aims to have six adoptors which will involved 6 hectares of land available for the peanut cropping project.

F. Swine Breeding Project

1. Project Proposal and Specifications

Project type	On Farm Demonstration Project
Location	RIC/ Cabio, Luyong Bonbon, Opol, Misamis Oriental
Background	Most of the pigs raised in the locality is of native breed. The traditional practice is due to the fact that the households cannot afford to secure high breed animals and high cost of feeds.
Objectives	To test and demonstrate that upgraded pigs can be raised and multiplied by improving the traditional method of feeding i.e. using home grown cassava, sweet potato, corn etc.
Expected outcome	The project is expected to sell 90 heads of piglets after six months as part of an IGP using home grown feeds.
Dates	Actually started: 01/08/93 Completed: 28/02/94
Project design	Raising upgraded piglets by improving the feeds with the use of cassava chips, corn brand and cow pea to 15 hds sows and 3 head boar
No. of project site	1
Size of each area	17 cooperators in the RIC, Luyong Bonbon (women)
No. of beneficiaries	23 housewives of farmers in various crops in the RBO
Present status	Terminated early 1994
Project Costs	
PPAEP	P 20,200
Counterpart	10.950
Total	P31,150
Revolving Procedures	One piglet will be returned to the fund, 50% of the service fee of the boar will be returned and when paid, the boar will go the cooperator.

Note. Luyong Bonbon Village Profile (1995)

2. Project Results

Item Details/ Activity	Unit size	Unit cost (pesos)	No of Units	Total costs (pesos)	Particulars and Comments (dates, problems,etc...)
I. Income					
piglet	hd				low production from corn because of less rainfall livestock, cassava and cowpea component were not implemented because it was not released.
sow and boar	hd				
cassava	kilo				
corn	kilo	4	200	800	
cowpea	kilo				
II Variable Costs					
A. Materials					
seeds	kilo	20	9	180	
fertiliser 14-14-14	bag	280	2	560	
sack	pc	5	4	20	
B. Draft/labour					
Draft	MAD	80	2	160	
Labour	MD	50	5	250	

Note. Luyong Bonbon Village Profile (1995)

3. Project Economics and Gross Margins

Item (pesos)	Farmer's practice	Project budgeted	Actual cost	Per HA/HH
Gross income	25200	117500	800	1600
Variable cost	14400	24300	1170	2340
Gross margin	10,800	93200	(370)	(740)

Note. Luyong Bonbon Village Profile (1995)

4. Discussion, Conclusion and Recommendations

This project did not go ahead as one of the conditions was that the animals/swine would not be purchased until locally grown feeds were available for use, i.e. grow the feeds first before the animal.

This demo showed that a progressive release of funds in such a project is necessary to ensure any chance of success.

5. Adoption and Spin Off Effects of the Project

Swine breeding was adopted in the area but using commercial feeds.

The housewives of the farmers started swine fattening using a large component of commercial feeds.

G. Cattle Fattening Using Supak Technology Project

1. Project Proposal and Specifications

Project type	On Farm Demonstration Project
Location	Luyong Bonbon, Opol, Misamis Oriental
Background	In Opol, farm animal numbers are now declining especially cattle. Forage and pasture areas are now diminishing due to utilisation of industrialisation. Inorder to maintain/increase the production of cattle, confinement methods such as the SUPAK technology is appropriate.
Objectives	1. To observe the effects of force feeding thru Supak Technology 2. To determine the rate of the growth of cattle. 3. To fatten large animals with intensive feeding management.
Expected outcome	1. Increase income of the farmer/ fisherman 2. Develop and enhance the capability of farmers/ fishrmen in cattle fattening using intensive feeding management.
Dates	Actually started: Mid Jan 1995 Expected completion: Mid Jul 1995
Project design	Demo - on a HH basis with one cattle per village
No. of project sites	3
Size of each area	400 sq metres
No of beneficiaries	90 RBO members
Present status	Established forage and pasture area, completion of cattle shed and procurement of stock. The cattle have recently been castrated and treated for worms and other parasites.
Project Cost	PPAEP = P 40,040; counterpart P 4,000, Total 44,040.

Note. Luyong Bonbon Village Profile (1995)

2. Project Results

Item Detail/ Activity	Unit size	Unit cost (pesos)	No of units	Total costs (pesos)	Particulars and Comments (dates, problems,timings,etc)
Land preparation of forage/pasture					
grasses	100	500	300 sm	1500	Dec 1994
seeds	100	100	300 sm	300	Planting wasDelayed due to bad weather condition
cattle shed const.		400	3	12,000	Completed 2nd week of Feb 95
purchase of mats	hd	8750	3	26,250	

Note. Luyong Bonbon Village Profile (1995)

3. Project Economics and Gross Margins

Item	Farmer's practice	Project budgeted	Actual cost	Per HA/HH
Gross income	36,225	42,840	47,940	15,980
Var. cost	29,910	34260	38010	12670
Gross margin	6,315 (3 bulls over 5 months)	8,580 (3 bulls over 5 months)	9,930 (3 bulls over 5 months)	3,310 per animal

Note. Luyong Bonbon Village Profile (1995)

4. Discussion, Conclusion and Recommendations

Cattle raising enhances farmers income. The Supak Technology has increased the body weight of 90 kg/cattle. If this project is successful, Supak Technology is recommended to be introduced to all PPAEP areas.

The Supak Tecnology of Batangas City (north of Manila) is a forced feeding and forage program which can incur problems concerning animal health and economics (using bran at a household level instead of the other feeds and forages). However one animal per barangay has been allocated, to allow for the proper evaluation of this technology before any expansion is considered.

It is recommended that farmers adopt the simple method of using improve forage and fodder to improve cattle weight using native forages and pastures.

5. Adoption and Spin-off Effects of this Project

If this technology is successful, PPAEP expects that eighty percent of the RBOs will adopt the technology.

H. Intertidal Fish Trap (Amatong) Project

1. Project proposal and Specifications

Project type	Demonstration Project
Location	LBFMA, Luyong Bonbon, Opol, Misamis Oriental
Background	The mangrove areas which have been traditionally used for breeding/ spawning/hatching fish are depreciating. A protected amatong (bamboo reefs) will serve as artificial reefs and assist in increasing fishermen's yield and income.
Objectives	To increase the fish catch in the intertidal mangrove area (of specialised species) and to provide a sheltering pond for small fishes.
Expected Outcome	To catch fish in the intertidal fish traps - to sell the large ones and to grow the smaller ones in fish cages
Dates	Actually Started: Sep. 1994 Expected Completion: 1995
Project Design	A series of holes dug in the mangrove swamp area approx 4m X 30m and up to 1m deep; filled with branches and coconut fronds.
No of Project Sites	1
Number of Cooperator	an RBO project involving all fishermen members total of 22
Size of each area	10 modules each 4m X 3m
No. of Beneficiaries	22 fishermen members of the LBFMPA
Present Status	Only 4 holes were completed and operating.
Project Cost	PPAEP P 6,480; Counterpart 6,630; Total P 13,110.

Note. Luyong Bonbon Village Profile (1995)

2. Discussion, Conclusion and Recommendations

RBO members constructed four pits on hard coral "substrate" in the mangrove area and constructed a guard house. One initial harvest was conducted where a good range of very small fish were collected. A series of mishaps have caused the project to be suspended by the members until the problems can be solved and the climactic/environmental conditions improve. These problems include:

- Rough seas have continually degraded the traps. A series of dikes were built to protect the traps but these were destroyed. Mangrove expansion, calm seas, good weather are necessary before the traps are reconstructed.

- A land use rights problem occurred where the shoreline owner has exercised control and rights over the mangrove area in question and this is presently under the legal consideration.

- A series of poaching occured as a result of the inability of the fishermen to use the guard house to protect the area. This is a spin off of the land rights issue.

- The expected mangrove "mud" turned out to be very hard coral limestone bed rock and has made digging and further expansion difficult and economically impractical.

3. Adoption and Spin-Off Effects of the Project

Inspite of the series of problems with the artificial reef project, other fishermen have constructed the reefs in their own areas after the RBO project. Awareness for environmental protection was enhanced.

Appendix E

Field Photographs

Note. Pagalungan (June 1996)

Note. Pagalungan (June 1996)

Note. Luyong Bonbon (June 1996)

Note. Luyong Bonbon (June 1996)

Appendix F

PPAEP Components and Design Document[24]

A. Project Description

The Pilot Provincial Agricultural Extension Project (PPAEP) was an activity within the Philippines-Australia development cooperation programme. The aim of the Project was to pilot an approach using participatory methods to strengthen the delivery capability of the agricultural extension services and the capacity of farmers and fisherfolk to express their agricultural extension needs.

The project commenced its design phase in 1988 resulting in a Project Design Document (PDD) in 1989 and in December 1990 a memorandum of Understanding to implement the agreed design. The design of PPAEP was undertaken in a traditional way using Filipino and Australian consultants with limited participation in its preparation by stakeholders. The project commenced implementation in May 1991 with the contracting by the Australian Agency for International Development (AusAID) of GRM International, Pty Limited (GRM)[25] to undertake the implementation of the Australian contribution. Implementation commenced with the preparation of a Project Implementation Document (PID). The draft PID was completed by December 1991 and was approved by the two Governments in May 1992. The participation by stakeholders or their representatives was a major feature of the PID preparation with the draft PID being endorsed by those involved in its preparation.

Implementation of the approved PID commenced in May 1992 with the implementation strategy being one of full participation by stakeholders. The project was reviewed in August 1993 as scheduled in the PDD with the purpose of assessing the findings of the pilot and recommending for its future expansion. The review recommended consolidation of the pilot project with extension for two years. The design for the extension was prepared by a joint Government and TAT[26] design team drawing on documentation from a participatory project design workshop in February

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[24] Draft Completion Report (1996).

[25] In March 1990, GRM International Pty Limited in Brisbane, Australia and the Australian Freedom From Hunger Campaign Inc., (AFFHC) entered into a joint venture agreement with AusAID to undertake the PPAEP project in the Philippines. The contract between AusAID and GRM was stipulated in Contract 3180 signed on 14 May 1991, with the last amendment on Sep. 1995.

[26] TAT-Technical Advisory Team working group

1994 and commenced its implementation in May 1994. The extension phase was reviewed in February 1995 concluding that there are indications of

> "real increase in household income arising from project activities...(and)...this should be increasingly evident over the next twelve months or so with greater adoption of project developed technologies".

The review recommended that the Project should be allowed to run its course with no major changes to its design. It also recommended subject to programming considerations a similar project be undertaken in a clearly defined geographic or political entity.

B. Project Goals and Purposes

1. May 1991 to May 1994

The goal for the duration of the Project was:

Goal: To increase and sustain agricultural productivity and income of rural households.

The six components for Phase 1 of the Project were:

Component 1: DA Extension Delivery

Purpose: To enhance the capability of agriculture sector extension workers to effectively respond to the needs of rural farming families.

Component 2: Community Capability

Purpose: To strengthen and organise RBOs to gain access to, control over, and management of resources to enhance community agricultural productivity.

Component 3: Farming Systems Research and Extension Integration

Purpose: To promote and strengthen a farming systems research approach to test and extend appropriate technologies on farm.

Component 4: Inter-Agency Coordination

Purpose: To develop and strengthen effective linkages between and among agricultural sector agencies and LGUs, NGOs, State Colleges and Universities (SCUs), Government Agencies and other institutions at community, municipal and provincial levels.

Component 5: Resource Management

Purpose: To increase awareness of provincial and municipal units within agriculture sector agencies of resource management principles to improve the quality of extension advice to communities.

Component 6: Program Management

Purpose: To effectively manage the planning and implementation of PPAEP

2. May 1994 to May 1996

The three components for Phase 2 of the Project and their objectives were:

Component 1: An effective Agricultural Extension System

Purpose: An effective agricultural extension system with upgraded technical skills of extension workers to provide viable farm management services based on financial, technical and marketing analysis and to strengthen links between research and extension.

Component 2: Strengthened RBOs

Purpose: RBOs strengthened to enable improved services to members with emphasis on access credit, marketing and technical services.

Component 3: Project Management

Purpose: Efficient and effective Project management and implementation.

Appendix G

Subject's Profile

Subject 1m

Subject 1m is a supervising agriculturist of the Provincial Agriculturist and Natural Resources Office (PANRO) of the Department of Agriculture, Philippines. He has been working with the Department for 19 years. He is the PPAEP provincial coordinator and chairman of the Project Management Team.

Subject 2m

Subject 2m is an agricultural extension worker of the Department of Agriculture specialising in livestock technology. He has been working with the Department for 12 years. He defines his role in PPAEP as a participant to the project's objective of strengthening agricultural extension services to be able to effectively respond to the needs of the community.

Subject 3m

Subject 3m is an agricultural extension worker of the Department of Agriculture specialising in crops, livestock and fisheries resources. He has been working with the Department for 19 years. His role in the PPAEP is a participant to the project's objectives of strengthening the fisheries resources of the community by enhancing the skills of agricultural extension services.

Subject 4m

Subject 4m is an agricultural extension worker (municipal level) of the Department of Agriculture. He has been working with the Department for 9 years. His role in PPAEP is to coordinate the municipal agricultural workers and to participate in PPAEP's projects of enhancing agricultural extension services.

Subject 5m

Subject 5m is a facilitator officer for development of the Department of Agrarian Reform (DAR), Philippines. He has been working with the Department for 33 years. His is the liaison officer of the farmers concerning land tenure problems.

Subject 6m

Subject 6m is the City Agriculturist. He has been working with the Department of Agriculture for 22 years. His role in PPAEP is coordinating municipal agricultural officers and agricultural extension workers in the implementation of PPAEP programs.

Subject 7m

Subject 7m is an NGO volunteer. He has been working with the organisation for 22 years. His role in PPAEP is to liaise with farmers concerning the transfer of new farming methods to improve farm productivity and develop community capability.

Subject 8m

Subject 8m is a municipal mayor. He has been in office for 8 years. His role in PPAEP is to coordinate local government sectors to cooperate with the implementation of PPAEP projects and to liaise with local government concerning the approval of municipal development funds.

Subject 9m

Subject 9m is the Australian Team Leader of PPAEP. He assists in the implementation and monitoring of the overall activities of PPAEP in Misamis Oriental.

Subject 10m

Subject 10m is a farmer for 35 years. He is the chairman of the Luyong Bonbon Farmer's Federation. His role is to coordinate farmer members to participate in the implementation of PPAEP's projects and to monitor the village RBORF's funds.

Subject 11m

Subject 11m is the village chief. His role in PPAEP is to coordinate the farmers to work towards the implementation of PPAEP projects. He helps establish Rural Based Organisations (RBOs)

Subject 12m

Subject 12m is a farmer for 53 years. He is the socio-credit manager of the Tribal Settlers' Association (TRISA). He is the credit collector of the village and monitors the village funds.

Subject 13m

Subject 13m is the village chief for 10 years. He is the manager of the village cooperative and the chairperson of village meetings. He also acts as liaison officer with local government sectors concerning project funding. His residence is used as a venue for village meetings of PPAEP.

Subject 14m

Subject 14m is a farmer for 20 years. He is the village treasurer of the Farmer's Association (FA). His role is to manage the village funds that is mainly used for PPAEP's projects. He is the president of the Farmer's Association (Leropan area) and his land is the site of PPAEP's multi storey cropping project.

Subject 15m

Subject 15m is a fishermen for 40 years. He is the chairman of the fisherman group and coordinates members towards the implementation of PPAEP projects in his village. He is a founding member of the first fishermen cooperative in the village and assists in safeguarding the municipal fishing areas against the intrusion of commercial fishermen and illegal fishing activities.

Subject 1f

Subject 1f is a consultant of the PPAEP. She is formerly a program officer of AusAID in Manila and she assists in the project planning and management of RBOs.

Subject 2f

Subject 2f is the president of the Women's Association of the Barangay (WAB). She is the chairperson of the organisation for 2 years. She assists in mobilising the housewives to implement PPAEP's projects for the women in the village.

Subject 3f

Subject 3f is a member of WAB. She has been a member since 1992. She actively participated in PPAEP's bio intensive gardening project and also acts as treasurer for the WAB.

Subject 4f

Subject 4f is the secretary of the Farmer's Association. Her role in PPAEP is to assist in budget preparation of the projects and attend to organisation meetings. She is also the treasurer of the village cooperative.

Subject 5f

Subject 5f is a member of the WAB. She assists in the implementation of PPAEP projects such as swine fattening and backyard gardening. She is also actively involved in community organising and implementation of marketing skills training for the wives of the fishermen.