An Impact Evaluation Study of the Diversified Farm Income and Market Development Project (DFIMDP)

Final Report

Prepared by the

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NATIONAL ECONOMIC AND DEVELOPMENT AUTHORITY
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LIST OF ABBREVIATIONS

AMAD	Agribusiness and Marketing Assistance Service Division
ASCEND	All-Asian Centre for Enterprise Development
ATI	Agricultural Training Institute
AFMIS	Agriculture and Fisheries Market Information System
AFMA	Agriculture and Fisheries Modernization Act
AMAS	Agriculture Marketing Assistance Service
B	Beneficiaries
BAR	Bureau of Agricultural Research
BAFPS	Bureau of Agriculture and Fisheries Product Standards
DTI	Department of Trade and Industry
DA	Department of Agriculture
DA-RFU VI	Department of Agriculture-Regional Field Unit VI
DD	Difference-in-difference approach
DFIMDP	Diversified Farm Income and Market Development Program
FFS	Farm Field School
FMR	Farm to Market Road
FGD	Focus Group Discussion
IE	Impact Evaluation
IES	Impact Evaluation Study
IR	Inception Report
KII	Key Informant Interview
LGU	Local Government Unit
MfDR	Managing for Development Results
MM	Mixed Methods Approach
M&E	Monitoring and evaluation
NATTCO	National Confederation of Cooperatives
NEDA	National Economic and Development Authority
NB	Non-Beneficiaries
NGO	Non-government organization
OECD	Organization for Economic Co-operation Development
PDP	Philippine Development Plan
PSA	Philippine Statistics Authority
RFU	Regional Field Unit
R&D	Research and Development
SMS	Short Message Services
TOR	Terms of Reference
WB	World Bank

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I. EXECUTIVE SUMMARY

A. Background of the study

The Department of Agriculture (DA) is the lead agency of the agriculture sector that is mandated to find alternative ways and means in creating the modern Filipino farmer and fisher folk (IES of DFIMDP Terms of Reference[1], 2016).

The Diversified Farm Income and Market Development Project (DFIMDP) was implemented by DA in four (4) focus areas in the Philippines from October 1, 2004 to June 30, 2009. This was in line with the Agriculture and Fisheries Modernization Act (AFMA) of 1997 which has two objectives:

a) transform the DA into a more service and market-oriented agency, and
b) arrest and reverse the declining competitiveness of the agriculture and fisheries sector by creating better conditions for agribusiness diversification and productivity-enhancing investments through the private sector (World Bank, 2010).

The DFIMDP has five (5) components:

1. Support for market development services;
2. Market development investments;
3. Strengthening of safety and quality assurance systems for market development;
4. Market-linked technology development and dissemination; and
5. Enhancing budget resource allocation and planning.

To determine whether the interventions implemented by the project proponent were able to deliver the intended socio-economic changes in target communities in Region VI, the National Economic Development Authority-Region VI (NEDA VI) commissioned The All-Asian Centre for Enterprise Development (ASCEND) Inc. to conduct an Impact Evaluation Study (IES) of the DFIMDP.

The impact evaluation study (IES) focuses on the implementation of the five Components of the DFIMDP in Aklan, Antique, Capiz, and Iloilo.

B. Research process

The IES process started with a) desk research or gathering of relevant secondary data related to the DFIMDP, b) conduct of 16 key informant interviews (KIIs) with DA officials, officers from the local government unit (LGU), and community leaders who were involved during the project implementation, and c) conduct of surveys (450 respondents) and focus group discussions (4 groups, 6 participants each) among beneficiaries and non-beneficiaries of the

[1] The Terms of Reference for DFIMDP is attached in Annex E of this report.

project (see Table 1 for the total number of households surveyed, key informants interviewed, and focus group discussions conducted per component).

Table 1. Households surveyed, key informants interviewed, and focus group discussions conducted per component

Component	Survey	Key Informants	Focus Groups
Component 1: Support for Market Development Services	0 beneficiary* 22 non-beneficiaries	1 DA official 2 LGU officials	No FGD was done for this component*
Component 2: Market Development Investments	82 beneficiaries 113 non-beneficiaries	2 DA officials 1 LGU official 1 Community Leader	1 group
Component 3: Strengthening Safety and Quality Assurance Systems for Market Development	23 beneficiaries 53 non-beneficiaries	1 DA official 1 LGU official 1 Community Leader	1 group
Component 4: Market-linked Technology Development and Dissemination	42 beneficiaries 40 non-beneficiaries	1 DA official 1 LGU official 1 Community leader	1 group
Component 5: Enhancing Budget Resource Allocation and Planning	45 beneficiaries 30 non-beneficiaries	1 DA official 1 LGU official 1 Community leader	1 group
Total	450 farmers/ households	16 key informants	4 groups with 6 participants each

** IES field team confirmed on-site and through the key informants that there was no list of Component 1 beneficiaries*

All research data were encoded, coded, validated, and measured through statistical tests in order to craft a comprehensive analysis and interpretation of results. This study's expected output is a final report composed of "before and after" and "with and without" comparisons.

For "with and without" comparisons, tests on proportions and test on means were conducted. Specifically, the characteristics of the beneficiaries and non-beneficiaries were tested if statistically significant differences exist.

Although baseline data was the most crucial information needed for the conduct of the study, it was not made available during ASCEND's data gathering. Hence, World Bank (WB) recommended to reconstruct the baseline data.

Reconstruction of the baseline data was used to fulfill "before and after" comparisons. Since no baseline information on DFIMDP was available, results from Family Income and Expenditure Survey (FIES) and Crop Statistics of the Philippines, which were accessed via the Philippine Statistics Authority (PSA) and Bureau of Agriculture Statistics (BAS) websites, were used as the main data.

Finally, regression analysis was done on the IES survey data to know which variables contribute to the increase and decrease of the respondents' income. Information gathered from the KIIs, FGDs, and desk research were used to support the IES survey data analysis and interpretation.

C. Findings and analysis: Beneficiaries versus Non-Beneficiaries

Component 1: Support for Market Development Services

Objective: To strengthen the capacity of the Agriculture Marketing Assistance (AMAS) of the DA in order by providing more effective market promotion, trade fairs, etc., in conjunction with the private sector; To establish an Agriculture and Fisheries Market Information System (AFMIS).

Main finding: DA was able to achieve the objective of this component since they were able to operationalize the AFMIS. However, only one respondent mentioned this as one of his sources of market information.

Unfortunately, the design of AFMIS was not achieved due to two factors: a) farmers had easier access to spot market trading practices at trade centers and b) farmers were unfamiliar with the technology. According to the LGUs, the farmers who used the AFMIS would access it with the assistance of their staff. Consequently, it was the LGU staff who developed the skill on the use of the web-based system.

Component 2: Market Development Investments

Objective: To ensure a more demand-driven and market-oriented investment through LGUs and producer groups; To enable investment and cost-sharing among LGUs and associations that will lead to expansion of markets and increase of employment opportunities.

Main finding: According to the 2010 project completion report, the objectives of this component was achieved. Compared to the non-beneficiaries of the IES survey, more beneficiaries stated that they were involved in trainings and seminars, and benefited from

farming inputs, equipment and machineries. However, there were more non-beneficiaries than beneficiaries who stated that they benefited from rural infrastructures.

In addition, the impact of the irrigation canals on the farmer's income was more evident as compared to the road infrastructures built under this component.

Component 3: Strengthening Safety and Quality Assurance Systems for Market Development

Objective: To improve the implementation capacity of DA's regulatory services, in particular to meet international standards through DA's services.

Main finding: According to the Completion Report published by World Bank, this component was able to revise some regulatory procedures of DA. However, this component was unable to reach its full potential since an executive order was released to remove charges in the accreditation process of agriculture products for export.

It was also observed that due to lack of awareness of the regulations, the quality assurance processes implemented were deemed as a restriction rather than a tool for better trade and market prices. The survey data also revealed that neither samples benefited from the established quality assurance process.

Component 4: Market-linked Technology Development and Dissemination

Objective: To improve the DA's R&D and training outreach through the strengthening of the Bureau of Agricultural Research (BAR) and Bureau of Post-Harvest Research and Extension (BPRE), using a Competitive Grants, and the DA's Agricultural Training Institute (ATI).

Main finding: Farmers were satisfied with how they were trained on crop management through the Farmers Field School (FFS). They also commended the FFS on how it helped them understand and improve some of their marketing procedures.

Component 5: Enhancing Budget Resource Allocation and Planning

Objective: To support the government-wide initiative that aims to improve public expenditure management through strategic allocation of DA's scarce budgetary resources; To give more emphasis on the funding of DA's core functions related to market development.

Main finding: Survey data shows that beneficiaries have less cash income compared to that of the non-beneficiaries. Furthermore, there are significantly more non-beneficiaries who own businesses compared to beneficiaries who usually work in family farms.

D. Findings and Analysis: Before and after

Comparison of Household income from 2003 through 2015: Family Income and Expenditure Survey

Looking at the income classes from 2003 to 2015 from FIES, there was a decreasing trend in the number of families belonging to the two lowest income classes (under Php40,000.00 and Php40,000.00 to Php59,999.00) but an increasing trend in the number of families belonging to the two highest income classes (Php100,000.00 to 249,999.00 and Php250,000.00 and over) from 2003 through 2015.

Comparison of Crop Production from 2003 through 2014: Crop Statistics

At all levels of significance, there was no notable difference between the proportions of crops produced in 2003 as compared to those in 2014. On the other hand, sugarcane production decreased while rice production increased in 2006 and 2009.

Looking at the status of crop production in Region VI before, during and after the implementation of DFIMDP (2003 to 2014), the distribution of the production of different crops (in proportions) did not differ significantly over the years. Sugarcane and rice remained as the major crops planted in the region.

According to PSA, Region VI is considered as the top sugarcane producer. With this, it can be assumed that the largest agricultural area in the region is allocated for sugarcane. In the event of a natural disaster or weather disturbance, sugarcane production will be greatly affected. In the same manner, agricultural projects being implemented in the region may impact the same production.

Analysis of Agricultural Employment in Region VI from 2003 to 2015

There was a decreasing trend in the agricultural employment from 2003 to 2015 in Region VI. Moreover, when a test on proportions was conducted to compare the agricultural employment for years 2003 and 2015, there is a significant difference between the two proportions. Agricultural employment for 2003 was significantly higher than the employment in 2015.

On the other hand, Gross Value Added (GVA) for Agriculture sector from 2009 to 2016 was evidently higher than the GVA from 2003 to 2008. Beginning year 2011, the GVA for agriculture started to decline. The sudden shift of the distribution of GVA (2008 to 2009) cannot be directly evaluated.

E. Conclusions

Regression analysis were done to determine which factors contributed to the increase or decrease of income among the farmer beneficiaries and non-beneficiaries.

General Findings

- Non-beneficiaries were observed to be near the market, bank, hospital, central, and reservoir or pond compared with the beneficiaries.[2]
- Non-beneficiaries get to the market, bank, hospital, central, and reservoir or pond for a shorter time and they use paved roads.[3]
- Beneficiaries have higher consumption of food and other basic necessities.[4]
- Beneficiaries usually get farming information from the government and acquaintances, while the non-beneficiaries from the private companies.[5]
- Both analysis for the beneficiary and non-beneficiary groups resulted to the conclusion that if they have benefited from irrigation and farming inputs, most likely, they had higher monthly income. It was also observed that having benefited from information system had a significant effect on the beneficiaries only—this resulted to an increase in income of households.
- At all levels of significance, there is no significant difference on the income of beneficiaries and non-beneficiaries who have benefited from irrigation and farming inputs.

Component 1 findings:

- Regression results reveal that out of 318 variables, none of the variables have a significant and logical effect to income for the Component 1 survey respondents.

Component 2 findings:

- After analyzing the data for the Component 2 respondents, four out of 318 variables resulted to have significant effects on income. These variables were: number of crops and/or fish species sold, total amount (in kilograms) of harvested crops and fish species sold, number of types of crops and/or fish species, and number of harvested crops.

Component 3 findings:

- Out of 318 variables, only two had significant effects to income. Specifically, the two variables were the total amount (in kilograms) of: 1) harvested crops and fish species sold and 2) number of types of crops and/or fish species.

[2] This is not applicable to Component 1.
[3] This is not applicable to Component 1.
[4] This is not applicable to Component 1.
[5] This is not applicable to Component 1.

Component 4 findings:

- Among the variables, only types of crops and fish species sold had an effect on income. Specifically, if the number of types of crops and fish sold increased, it is likely that the income will also increase.

Component 5 findings:

- The significant variables were as follows: total amount (in kilograms) of harvested crops and fish species sold and number of harvested crops.

F. Recommendations

Component	Recommendations
1	➢ Capacitate LGUs and staff by providing hands-on experience on operating a web-based information system ➢ Set-up more realistic beginnings for farm technology. For instance, farmers can register online using their cellphones to receive information coming from an AFMIS center on a set schedule. Since children nowadays are more technology savvy, farmers may opt to register their children's cell number, and in turn, the child will pass on the data to his or her parent.
2	➢ To aid decision-making on how to allocate infrastructure funds, a longitudinal case study among selected DFIMDP irrigation project beneficiaries may be conducted. ➢ In planning, a similar cost-benefit analysis at the farmer level may be done for a complete value chain (from water source to farm to market). ➢ After the natural calamities that affected Iloilo, it is essential to determine the status of the 34 sub projects through mapping.
3	➢ The content of the web-based system especially on updates on regulation could be sent via e-mail to cooperatives or farmers with e-mail accounts. ➢ Since many farmers and even their children have Facebook accounts, the use of social media in popularizing regulations and QAP must be explored.
4	➢ With the increasing number of female household heads, women should explore agricultural resource management. ➢ Livelihood programs for both male and female farmers should be promoted to conserve quality labor and shared management for farming. ➢ Both men and women should be encouraged to participate in farming organizations or seminars and trainings.

5	➢ Increased budget allocation for infrastructures would generate an inclusive effect at the community level although differentiation of impact at the household level would be difficult to assess in the long run. ➢ Promote crop insurance having been identified as a significant indicator of market-driven agricultural programs.

I. INTRODUCTION

A. *The Role of Agriculture in the Philippines*

Poverty incidence[6] is high in rural areas where most farmers and fishermen live. They are solely dependent on agriculture as their main source of income. Thirty-six percent (36%) of the country's total workforce belong to the agriculture sector, the highest among all employment sectors (ADB, 2010). Given this figure, the role of agriculture in poverty reduction through improving livelihoods and market access, establishing efficient value chains, and developing skills among employees is essential (Briones & Felipe, 2013).

The World Bank (2011) also acknowledged that promoting the increase of farm income and productivity is a key factor in achieving sustainable development among developing countries like the Philippines. On this account, interventions are focused on assisting and improving livelihoods among the poorest sectors, which are the farmers and fishermen (PSA, 2014).

B. *State of the Philippine Agriculture Industry*

Agriculture is important to Filipinos because it provides them with food, and vital raw materials, and acts as a market for products such as fertilizers, tractors, etc. (Habito & Briones, 2005). Despite its role and potential in the Philippine economy, the agriculture sector has been declining over the years. Three major constraints that hinder the sector's growth were identified. These are: (a) low productivity from land degradation and natural phenomena, (b) limited connectivity due to lack of rural transport or farm-to-market roads, and (c) weak resilience because of climate change risks (ADB, 2010).

The challenge is to shift from the traditional public sector-led focus on production and supply-driven incentives, to a more private and market-oriented approach (World Bank, 2011). To assist this shift, the DA, along with private organizations and other government agencies, have initiated policies and programs to modernize agriculture and fisheries practices.

C. *The Agriculture and Fisheries Modernization Act of 1997*

Enacted on December 22, 1997, the Agriculture and Fisheries Modernization Act of 1997 (AFMA 1997; Republic Act 8435) is a policy created to refine the lives of farmers and fisher folks, and improve their productivity by introducing and campaigning modernized agriculture.

"*In general, it aims to transform the agriculture and fisheries sectors to technology-based, advanced and competitive industry; ensure that the small farmers and fisher folk have equal access to assets, resources and services; guarantee food security; encourage farmer and fisher folk groups to bond together for more bargaining power; strengthen people's organizations,*

[6] Poverty incidence is the proportion of population whose annual per capita income falls below annual per capita poverty threshold to the total number of population (NCSB, n.d.)

cooperatives and non-government organizations by enhancing their participation in decision-making; pursue an aggressive market-driven approach to make the products more competitive in the market; stimulate further processing of agricultural products and make it more marketable; and implement policies that will invite more investors to establish business in the country (Republic Act 8435, 1997)."

The AFMA 1997 acknowledges that improved access to assets, income, basic and support services, and infrastructure must be made available to agriculture and fisheries' farmers for their sector to flourish. It is in this aspect that the DFIMDP was implemented with two major objectives: (1) transform the DA into a more service and market-oriented agency, and (2) arrest and reverse the declining competitiveness of the agriculture and fisheries sector by creating better conditions for agribusiness diversification and productivity-enhancing investments through the private sector (World Bank, 2010).

D. The Diversified Farm Income and Market Development Project (DFIMDP)

The DFIMDP is implemented by DA in four (4) focus areas in the Philippines from October 1, 2004 to June 30, 2009.World Bank provided project funding through a loan which amounted to US$60 million. The DFIMDP has five (5) components:

1. Support for market development services
2. Market development investments
3. Strengthening of safety and quality assurance systems for market development
4. Market-linked technology development and dissemination
5. Enhancing budget resource allocation and planning

All five components were geared towards providing an avenue for DA to initiate the process of change, which in turn is expected to increase the competitiveness of the agriculture sector (World Bank, 2004). Consequently, it is essential to conduct monitoring and evaluation activities to identify best practices and areas for improvement during project implementation, and to assess its short-term and/or long-term impacts.

The Philippine Development Plan (PDP) 2011-2016 used Managing for Development Results (MfDR) as a strategy to focus on the documentation of the development performance and improvements of the country based on specified indicators of development interventions (PDPRM, 2011). Government agencies are involved in this process, specifically, the National Economic and Development Authority (NEDA) which is in charge of assessing societal and sector outcomes in the planning, monitoring, and evaluation stages.

E. Context of the Project

This section serves as one of the starting points of this impact evaluation study. The presence of other projects and occurrence of crises in the area after the implementation of DFIMDP show that attribution of effects to the DFIMDP cannot be done accurately.

Several projects and interventions designed for the agriculture industry have been implemented in the region. To date, almost all agencies of the government, as well as private firms, have projects that focus on different concerns of the said industry -- all of which are geared towards reducing poverty, increasing agricultural productivity and improving sustainability, among others.

Unforeseen events such as calamities and crises also significantly affect not just the agricultural livelihood of Filipino farmers, but the day-to-day activities of the country's citizens as well.

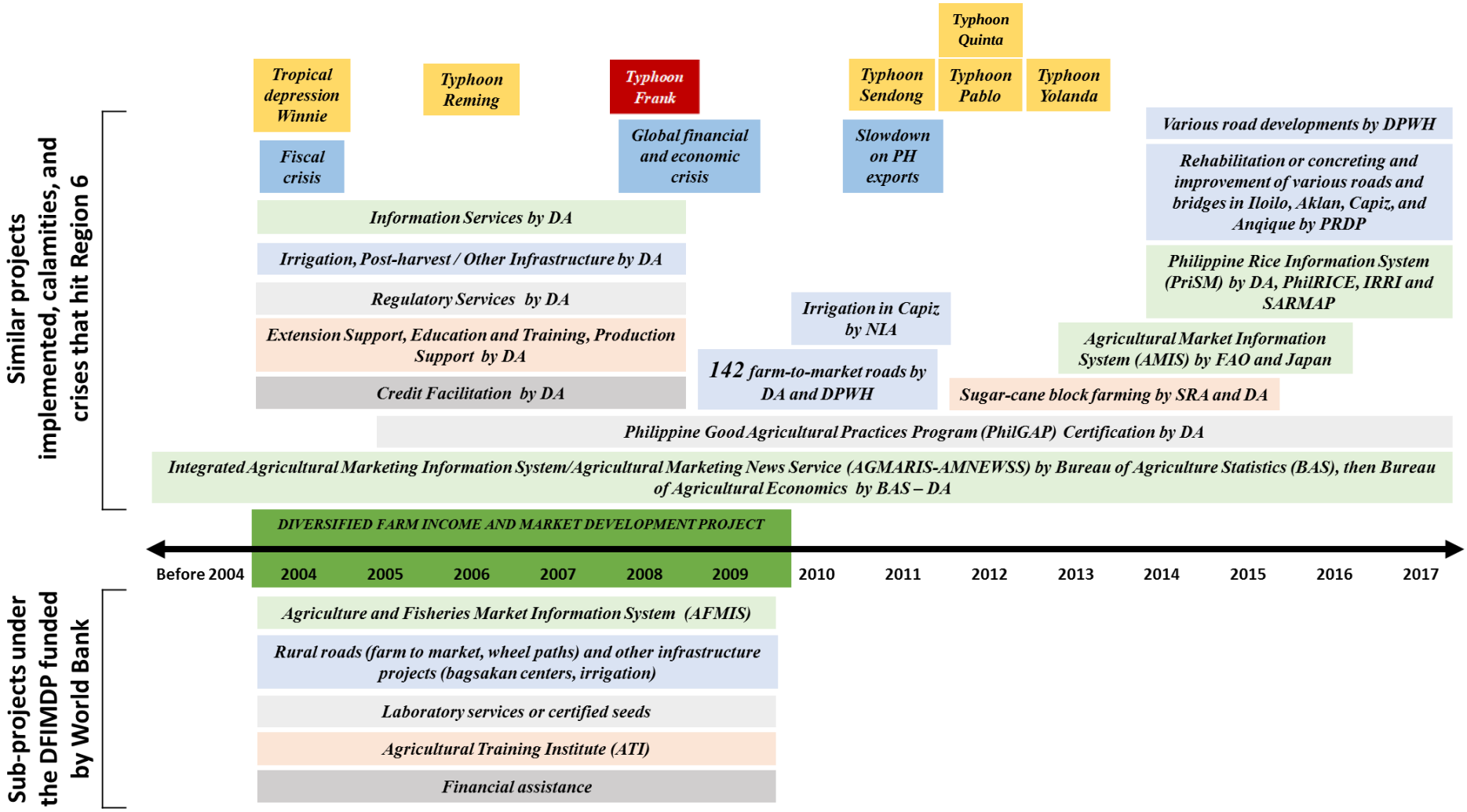
Figure 1 illustrates some of the projects implemented in Region VI, as well as calamities and crises that directly and indirectly affected the region vis-à-vis the DFIMD project timeline.

It is notable that several other projects were implemented in Region 6 before, during, and after the implementation of the DFIMDP. Farm-to-market roads (FMRs), which is under rural roads and infrastructures, is one of the sub-projects under the Market Development Investment of the DFIMDP in 2004 to 2009. Meanwhile, DA had its own version of infrastructure projects implemented from 2004 to 2008, and FMR interventions in collaboration with DPWH in 2009.

The presence of several similar projects at a particular time or for a specific period poses a difficulty in impact attribution especially if an intervention has been superseded by newer versions of a similar project. Discussions in the following component sections were written given this context – that there have been several interventions conducted in the project area.

The overlaps are also observable within DA-implemented projects. The SEPO Policy Brief, a publication of the Senate Economic Planning Office, authored a report entitled Financing Agriculture Modernization: Risks & Opportunities in 2009. The said report focused on the DA and its interventions under the AFMA.

Prior to the start of DFIMDP implementation, calamities such as typhoons, flooding, tsunamis, etc. have been terrorizing the agriculture industry, wiping out income-generating farm lands in an instant. Global and domestic economic, financial, or fiscal crises, among others, also wildly affect the country as a whole, limiting citizens of their daily transactions. These phenomena are mentioned in this report because of the indirect effects they might have caused the target communities during the project implementation. Touching on these points in the IES makes the analysis more comprehensive and fact-based.



Sources: Senate of the Philippines, Department of Agriculture, Department of Public Works and Highways, Agricultural Training Institute, National Irrigation Administration, Rappler, PIDS, CNN

Figure 1. List of Projects implemented, calamities and crises that affection Region VI from 2004 to 2017

II. RESEARCH OBJECTIVES

This impact evaluation study (IES) focuses on the DFIMDP implemented in Aklan, Antique, Capiz, and Iloilo. DFIMDP produced different projects and activities under the Major Final Outputs of DA: (1) Marketing and Development Services, (2) Irrigation Development Services, (3) Post-harvest Development Services and Other Infrastructure, (4) Extension Support, Education and Training Services, (5) Information Support Services, and (6) Policy Formulation, Planning, and Advocacy Services.

As indicated in the TOR between NEDA Region VI and ASCEND, the objective of this IES is to examine DFIMDP in relation to the following expected outcomes:

- Affected rural household income;
- Improved marketing of agriculture and fisheries products through various market-oriented products;
- Supported market development and competitiveness of farmers and fishermen; and
- Capacitated DA-RFU VI in the delivery of market-oriented and productivity-enhancing services.

Specifically, this study will measure the following conditions to form part of the impact evaluation:

- The attainment of project development objectives, result components, and major final outputs;
- Economic, social, and development impact on the focus areas or project sites;
- Production and market development of the agriculture and fisheries sector in the project sites;
- Status of adoption and/or modification of service delivery and implementation of the DFIMDP by the DA-RFU VI; and
- Effectiveness of DA-RFU VI in undertaking joint investments, market-oriented infrastructure, and upgraded farm and fishery technology projects with LGUs and private companies.

III. FRAMEWORK AND DETAILED METHODOLOGY

A. Impact Evaluation Theory

Impact Evaluation (IE) is essential in the decision-making process and in good public-sector management (Blomquist, 2003). It is an *"assessment of changes in outcome indicators that can be attributed to a particular intervention"* (IEG, 2011). It also looks at the "complete effects" and the operations of the program both to the intended and unintended audience (Blomquist, 2003).

The distinction of an IE from any other assessments is that it focuses on the latter stages in the Monitoring and Evaluation Framework (see Figure 2), it measures the outcomes and impacts of an intervention.

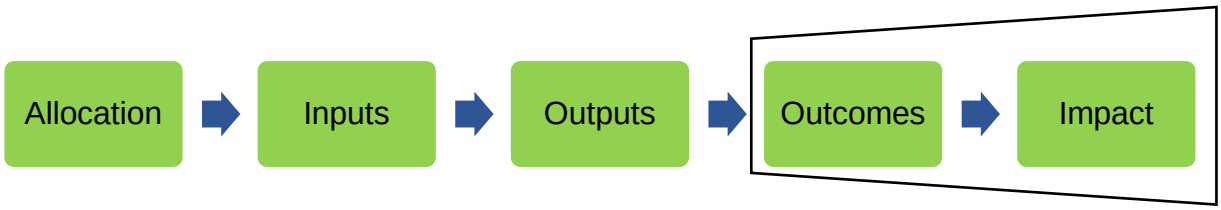


Figure 2. Monitoring and Evaluation Framework.
Adapted from Khandker et al. (2010), World Bank Publication

OECD (2002) explains the difference between *outcomes* and *impacts.* **Outcomes** refer to *"the likely or achieved short-term and medium-term effects of an interventions' outputs"* while **impact** refers to *"positive or negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended."*

B. Rationale for Conducting an IES

WB emphasized the major reasons for conducting an IES: (1) Help policy makers gauge if a program is reaching its target goals, (2) Promote accountability in resource allocation, and (3) Fill gaps in understanding what works, what does not, and how measured changes in well-being are attributable to a particular project or policy intervention (Khandker et al., 2010). The single most critical question in any IES is whether the program *truly* helped its target beneficiaries (Blomquist, 2003).

There are two major methods in conducting a reliable and accurate IE: causal inference and counterfactuals (Gertler, et al., 2011). Causal inference is the method of examining the cause-and-effect relationships of the intervention towards its target recipients. Meanwhile, most IE studies use counterfactual analysis wherein a treatment group is compared to a control group. The treatment group refers to those who received the intervention, while the control group refers to those who have the same characteristics as that of the treatment group but did not receive the intervention (OECD, n.d.).

Consequently, the conduct of an IE might be purely quantitative or qualitative, or both. Bamberger (2012) strongly suggests the use of Mixed-Methods Approach (MM) because of the following reasons:

- Results from different sources can be triangulated
- Results from one source can assist the development of another's instrument
- Results from different sources can provide a more comprehensive data that can deepen understanding about the topic
- Different and new insights could emerge from different sources of data
- Results from different sources can widen scope to cover for diversity of values

C. The Three Technical Ingredients

Components needed for an IE plan are summarized into "three technical ingredients:" (1) selection of impact method, (2) sampling and data collection plan, and (3) the choice of indicators (Winters et al., 2010).

Planning for an IE method is a critical part in the development of project design and policies. IE study planners should choose a combination of methods and designs that are appropriate for the situation (Rogers et al., 2015). There are three considerations that must be made: available resources and constraints, the nature of what is being evaluated, and the intended use of the evaluation.

Determining sample sizes and planning the data collection method come after the selection of an impact evaluation method as respondent selection bias is an issue with IES (Winters et al., 2010). Furthermore, sample sizes and data collection should ensure that the effects studied are attributable to the intervention.

Finally, the choice of indicators to assess the effectiveness of the program must be done. Indicators are specific, observable, and measurable evidences that show if certain outcomes are achieved or not (Horsch, 1997). These will guide evaluators on what to look for to arrive at specific conclusions and recommendations.

D. Evaluation Design

Given these objectives, ASCEND used the following Logical Framework in conducting this *"Impact Evaluation Study of the Diversified Farm Income and Market Development Project (DFIMDP)"*. (Refer to Figure 3)

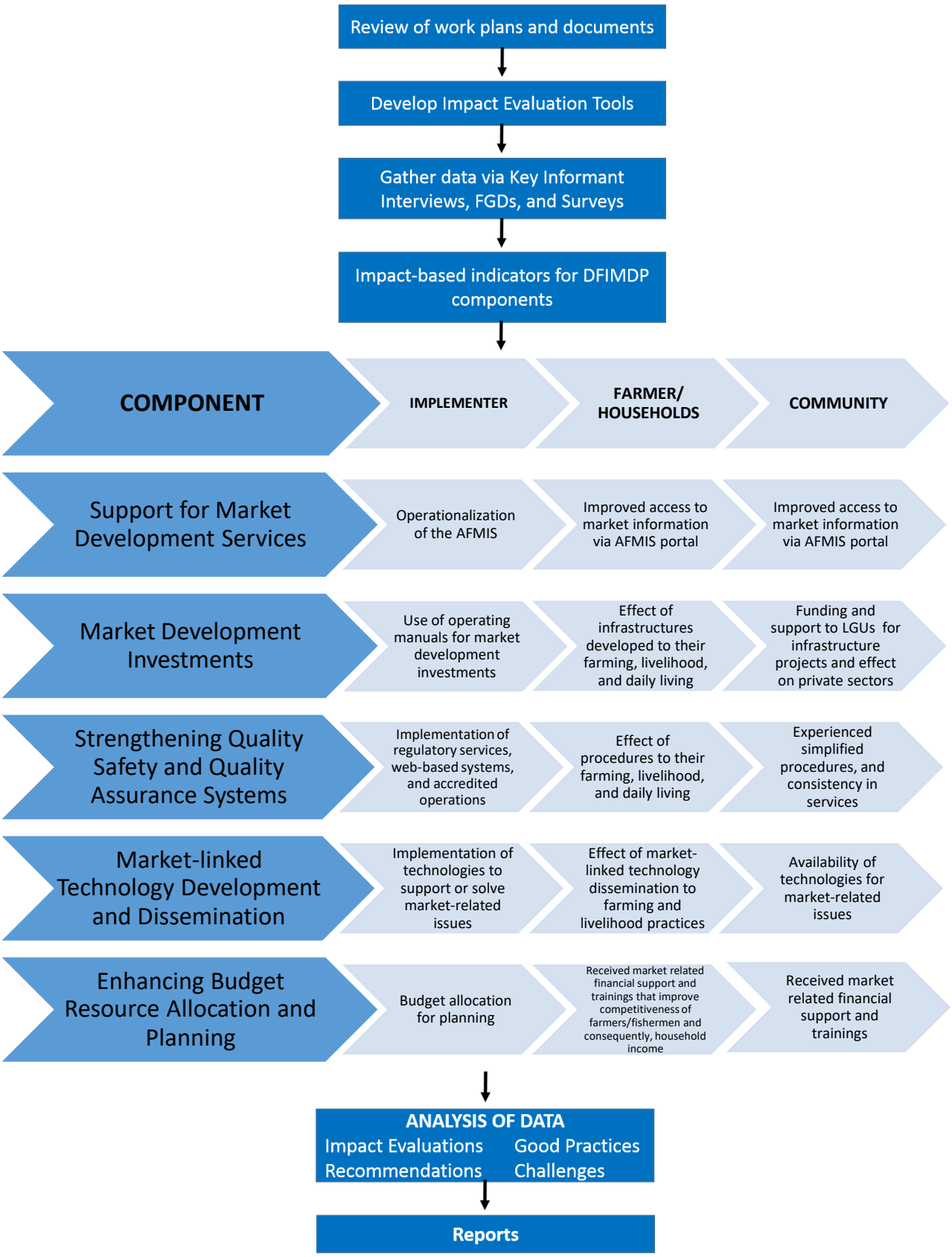


Figure 3. ASCEND Research's Logical Framework for the Project

Review of Work Plans and Documents. ASCEND gathered related information on the IES and the DFIMDP through desk research and conduct of interviews with DA. Interview questions covered implementers' experiences, challenges, and recommendations as well as baseline survey results, details of sub projects per component, coordinators, per sub project, other activities implemented, and expected outputs. Pertinent project related documents were also requested from the respondents. They were asked to provide details about their respective sub-projects per component, list of the beneficiaries under the said sub-projects, and most importantly, the baseline survey of the DFIMDP.

Extensive desk review of existing data on the subject matter was conducted to lay down all available information, which was later used as reference in conducting the impact evaluation. This phase involved coordination with NEDA, which firmed up the methodology to be implemented.

Summary of Secondary Data Gathered:

Secondary data gathering period:	January to April 2017
Agencies contacted: Department of Agriculture (DA) Main Office and Region 6 National Economic and Development Authority (NEDA) Main office and Region 6 The World Bank in the Philippines	
Information needed as stated in the Inception Report of this IES	**Actual information acquired**
Documents, data or studies that the NEDA currently has on the DFIMDP	• List of stakeholders • List of subprojects implemented • Memorandum, DFIMDP Action Plan and Milestones, 2004-2007 • Memorandum and Project Evaluation Report, 2003
List of names of NEDA staff who will be part of the study, and the corresponding DA regional and provincial counterparts with complete, and updated contact details to ensure quick and efficient data gathering in the duration of the study. Ideally, the DA counterparts should be directly involved in the conduct of the DFIMDP in Region VI or one who can readily provide ASCEND with project-related documents.	• List of municipal agriculturists • Directory of local chief executives and agricultural officials

Assistance in taking other documentary requirements like government permits, endorsement letters, and permissions to gather documents, reports, or information related to the DFIMDP for smooth implementation of this study.	Endorsement letters addressed to: • DA main • DA-RFU-VI • NEDA Main
Other documents or existing studies necessary for ASCEND to understand the scope of work and to form part of the study's secondary information	• Project Completion Report by the World Bank • Project Appraisal Document by the World Bank • Project Approved by the ICC and NEDA Board, 2004 • ICR Review by the Independent Evaluation Group
Other documents/information that might be needed as the study progresses	• List of names to be interviewed for the KIIs • List of names for potential participants in the FGDs
List of sub-projects per component, updated contact details of people involved for each sub-project, activities, and outputs	List of subprojects for Component 2. List of subprojects for other components was not made available by DA
Baseline information, if any, of the beneficiaries of the DFIMDP. The baseline information pertains to the status of the beneficiaries *before* the DFIMDP started.	No data was gathered from DA; waiting for access to DFIMDP documents of WB.
Monitoring and evaluation forms or tools used, if any or whenever possible, by DA to assess the progress of DFIMDP from their end	Monitoring and evaluation manual for AFMIS (obtained document from DA on August 14, 2017). ASCEND is currently waiting for access to DFIMDP documents of WB.
Other information and/or documents about DFIMDP that DA currently has	• Project Completion Report by the Department of Agriculture • Inception Report of the DFIMDP, 2003 • Sample Project Contract, BAFPS • Competitive Research Grants Manual • Final Report on Streamlining of Quarantine Services of the Department of Agriculture • Institutional and Physical Strengthening of the Bureau of Agriculture and Fisheries Product

	Standards (BAFPS) by Dr. Cecil H. Murray • Physical and financial accomplishment report, 2008 • Highlights of accomplishments • Project feasibility study and project proposals for FMRs • Procurement contract • Subproject profile for component 2 • Performance update for component 2 • 2008 DFIMDP annual report • Environmental and social safeguards • Draft midterm review • DFIMDP midterm report for component 2 only • Environmental management plan • Performance monitoring plan • Project brief of FMR • 2007 highlights of accomplishment • DFIMDP NEDA presentation • Pictures of project implementation • Terminal report presentation notes • AFMIS Operations Manual (obtained document from DA on August 14, 2017)

Note: Inception Report of this IES was submitted to NEDA6 on January 23, 2017

Pending Secondary Data from DA, WB and the LGU:

Document/Data Needed	Status* (as of September 19, 2017)
Baseline Information from the WB	No feedback yet from the archives division of WB
DA Budget Allocation from 2004-2017	No feedback yet from the finance department of DA-Main
List of AFMIS beneficiaries	No feedback yet from the contact person of Tubungan, Iloilo LGU

**Full report on the additional data gathering of secondary information is found in the 4th Quarter Progress Report of this IES*

According to World Bank, "baseline data is critical for performance evaluation, as it is impossible to measure changes without reliable data on the situation before an intervention began." For this impact evaluation study (IES), baseline information refers to the beneficiaries'

and non-beneficiaries' income, livelihood, household, and agriculture and aquaculture profiles that were affected by the projects implemented under DFIMDP.

The needed baseline information was requested by ASCEND from the main and region 6 offices of the DA and NEDA as part of the methodology contained in the IR. While documents were provided by the agencies, the information was limited to financial and budgetary matters during the project implementation. It was also mentioned by key people from the DA who handled the project that they have no copy of any baseline data or report for DFIMDP. In addition, the ICR Review document published by the Independent Review Group (page 5, item No. 10 – M&E Design, Implementation and Utilization) mentioned that "no baseline information was established."

Development of Impact Evaluation Tools. Information gathered from this stage was supposed to be used for the development of impact evaluation tools. Unfortunately, the absence of the baseline data caused a significant change in the said development.

The Mixed-Method approach (both qualitative and quantitative methods) of gathering information was used to ensure extensive and comprehensive results. The impact evaluation tools included a structured questionnaire for the survey, interview guides for the conduct of key informant interviews (KII), and discussion guides for the focus group discussions (FGD).

For the structured questionnaire, it is ideal to have the same type and format of questions in the baseline evaluation and the impact evaluation. Since baseline data was not available, ASCEND created the IES survey tool independently. The absence of the baseline data also affected the proposed analysis of this IES, which will be discussed further in a separate section of this document (see Measuring the Impact).

The interview and discussion guide contained questions on topics to be answered by the key informants and the group respondents, respectively. These guide questions or topics varied in order and depth depending on the actual discussion.

Gathering data through KIIs, Surveys, and FGDs. Following the Logical Framework to effectively evaluate the impact of the study, triangulation methods in gathering data were employed [e.g. data gathering through KIIs (from the implementer's perspectives), surveys (from the beneficiaries and non-beneficiaries or the farmer households' perspectives), and FGDs (from the community's perspectives)].

The project components were used as stratification variables to ensure that all components were well represented during the conduct of the IES. However, due to the limited budget of the IES, only selected sub-projects per component were covered during the conduct of data gathering. (Refer to Table 2).

Table 2. DFIMDP components by number of sub-project, survey respondents, key informants, and group discussions to be conducted for this IES

Methodology	As indicated in the Inception Report	As indicated in the IE Method Report	Actual data gathering
Support for Market Development Services			
Key informants	1 DA official 1 LGU	1 DA official 1 LGU official 1 Community leader	1 DA official 2 LGU officials
Survey respondents	50 beneficiaries 50 non-beneficiaries	40 beneficiaries 40 non-beneficiaries	0 beneficiary* 22 non-beneficiaries
FGD	1 group	1 group	No FGD was done for this component*
Market Development Investments			
Key informants	1 DA official 1 LGU	1 DA official 1 LGU official 1 Community leader	2 DA officials 1 LGU official 1 Community Leader
Survey respondents	50 beneficiaries 50 non-beneficiaries	50 beneficiaries 50 non-beneficiaries	82 beneficiaries 113 non-beneficiaries
FGD	1 group	1 group	1 group
Strengthening Safety and Quality Assurance Systems for Market Development			
Key informants	1 DA official 1 LGU	1 DA official 1 LGU official 1 Private company	1 DA official 1 LGU official 1 Community Leader
Survey respondents	50 beneficiaries 50 non-beneficiaries	40 beneficiaries 40 non-beneficiaries	23 beneficiaries 53 non-beneficiaries
FGD	1 group	1 group	1 group
Market-linked Technology Development and Dissemination			
Key informants	1 DA official 1 LGU	1 DA official 1 LGU official 1 Community leader	1 DA official 1 LGU official 1 Community leader
Survey respondents	50 beneficiaries 50 non-beneficiaries	40 beneficiaries 40 non-beneficiaries	42 beneficiaries 40 non-beneficiaries
FGD	1 group	1 group	1 group
Enhancing Budget Resource Allocation and Planning			
Key informants	1 DA official 1 LGU	1 DA official 1 LGU official 1 Community leader	1 DA official 1 LGU official 1 Community leader
Survey respondents	50 beneficiaries 50 non-beneficiaries	30 beneficiaries 30 non-beneficiaries	45 beneficiaries 30 non-beneficiaries

FGD	1 group	1 group	1 group
The DFIMFP IES			
Key informants	10 key informants	16 key informants	16 key informants
Survey respondents	500 farmers/ households	340 farmers/ households	450 farmers/ households
FGD	5 groups or 30 participants	5 groups or 30 participants	4 groups with 6 participants each

Note: The IE Method Report was submitted to NEDA 6 on April 21, 2017, while the Final Inception Report of the DFIMDP was submitted on January 23, 2017. Interviews with the DA key informants started in March 2017. Bulk of the data gathering for the non-DA key informants, farmers, and communities happened between April to May 2017.
**There were no listed beneficiaries under Component 1 according to the IES field team and key informants*

DA staff or LGU officers, regional and provincial, were interviewed on specific project components to know how the interventions affected their regional and provincial offices' planning, budgeting, and implementation.

Farmer households were surveyed to assess the impact of the interventions on their farming and on their respective households. The general objectives of this survey were to measure whether the interventions affected the rural household's income, and if they have improved marketing of their agriculture and fishery livelihood.

During the bidding stage of the IES project, ASCEND suggested that the farmer survey of this study follows an equal stratification across the five components (n=100 per component) that would yield at most ± 10% margin of error per component. In the absence of the listing of farmer beneficiaries even prior to data gathering of the IES (April 2017), the sample sizes were adjusted (see Table 1) to be more conservative and to give way to the other stakeholders of the DFIMDP such as the LGUs, private sectors, and DA as recipients of some benefits of the project. Adjustments to the numbers of interviews ensured that the IES budget for data gathering was maximized.

During data gathering, ASCEND attempted to gather the lists of respondents from local government units, but the logs available did not attribute the farmer to any specific sub-project. Specifically, the list only stated that a farmer was a beneficiary of the DFIMDP. NEDA 6 managed to provide a list of stakeholders (government and private officials) at the beginning of the IES implementation, however, only a few from the list responded to ASCEND's inquiries notwithstanding NEDA6's diligent endorsement. Furthermore, NEDA6 provided a list of farmers during the latter part of the data gathering in response to the difficulty experienced in tracking down beneficiaries of the project conducted some 13 years ago.

The details of how the beneficiaries and non-beneficiaries were selected are discussed in the respective component's section in this document.

Focus group discussions (FGDs) among farmers and additional KIIs were conducted to understand the impact of the interventions at the community level. The KIIs under this section were done to understand how the interventions affected the socio-economic situation of their community in terms of farming, marketing, sales, tourism, and other changes due to the interventions, whether the effect is direct or indirect. The FGDs were set in mini-groups of six (6) participants each and was used as an avenue to assess the community effect of the interventions, and of DA. The FGDs were the channels used to gather the farmer's, who are the main beneficiaries of the DFIMDP, satisfaction on the performance of DA.

Other IES data gathering protocols. Quality control measures were employed during the conduct of the evaluation study, especially during the data gathering stage. For the survey, pilot runs were conducted due to the structured nature of its data. In addition, a two-day extensive training session was conducted among the enumerators prior to data gathering. These sessions included lectures discussing the background of the evaluation and how to administer the instrument. ASCEND also conducted at least two runs of pilot testing among the interviewers, which involved internal test interviews with farmers to allow the interviewers to fully understand the evaluation tool and make clarifications before they conduct the actual field interviews. Enumerators who were able to satisfactorily conduct the test interviews, after the training, proceeded to conduct the fieldwork, but those who did not pass the standards were removed from the list of enumerators for this project.

The general flow of how the data was gathered is summarized in Figure 4.

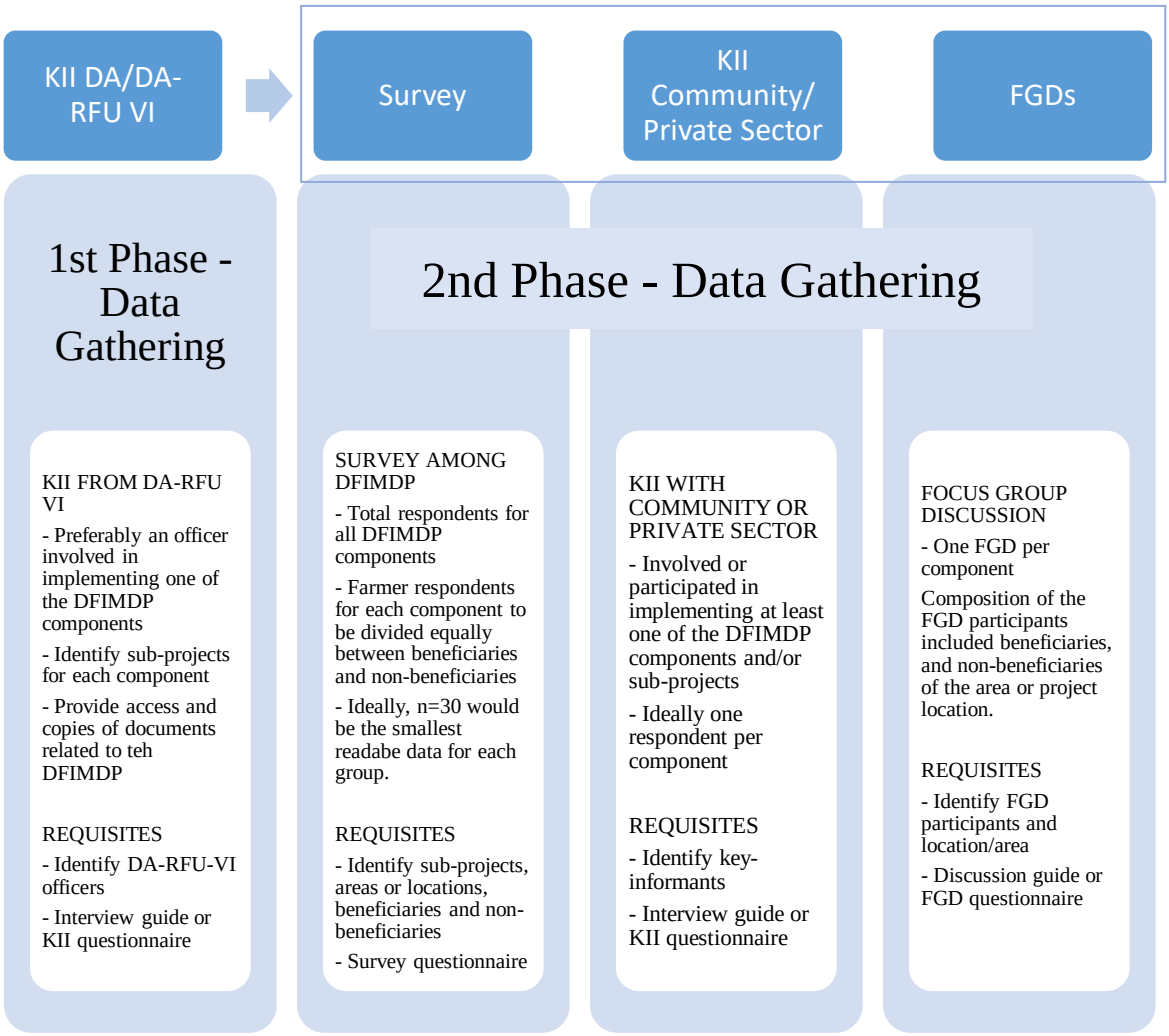


Figure 4. Phases of Data Gathering for this Impact Evaluation Study (IES)

E. Measuring the Impact

The conduct of the IES required the comparison between the "with or without", "before and after", and "target vs. actuals".

The measurement of impact given the "with or without" comparison was done using the IES survey data, which underwent statistical tests to find out which variables from the data of beneficiaries and non-beneficiaries are significantly different from each other. The analysis of the IES survey results focused on significant variables only and used KII and FGD data as support to the findings.

To measure the impact given the "before and after" and "target vs. actuals" comparisons, ASCEND proposed the use of the Difference-in-Difference (DD) approach. The DD approach would be ideal if 1) the baseline information is available, and 2) the baseline and current data are comparable. However, as mentioned, the baseline survey data or information specific to DFIMDP was unavailable.

Given this, ASCEND followed World Bank's recommendation on doing a "reconstruction" of baseline data using practical strategies. The said strategies included 1) gathering of secondary data, including administrative data, or 2) utilizing recall techniques by asking individuals or groups to provide information on their social and economic conditions, their access to services, or the conditions of their community through interview of key informants and focus group discussions. ASCEND adhered to the former as the latter poses the likelihood of inaccuracy since the recall timeframe would be 13 years ago.

The information used as baseline for this project were data from the Philippine Statistics Authority (PSA), specifically 1) Family Income and Expenditure Survey (FIES), and 2) Crop Statistics of the Philippines. These data were available online through the PSA official government website. It is assumed that some data will not be subjected to the DD approach.

Table 3 below lists the impact-based indicators which were used for this IES.

Table 3. Impact-based indicators for DFIMDP components

Intervention implementer

- A list of projects or interventions implemented, an overview of the work done, and the objectives and targets of each component
- Targets outcomes for the farmers, the LGUs and private sector, and the community
- Observations and opinions on the implementation of the projects and interventions, meeting of targets, practice of regulatory procedures, maximization and appropriation of investment, usage of management information systems
- Other parameters, variables, and measures they used to monitor the execution and establish success of the DFIMDP

Household Level

- Socio-economic and demographic information
- Schooling and education
- Land parcels (owned and purchase details, rented, borrowed)
- Inputs for agricultural seasons and permanent crops: crops and seeds, fungicides, labor, production, commercialization or marketing, other inputs
- Livestock (general accounting, inputs and output products)
- Economic activities (housework, jobs and occupations, microenterprise, self-employment)
- Migration (OFWs, and remittances)
- Credits, savings and loans
- Household expenditures (food and non-food consumption, food security, assets)
- Other income (Government and NGO)
- Social capital (cultural and regional activities)
- Dwelling conditions (type and make of house, distance to important places such as schools, hospitals or health centers, public services, and farming/fishing area)
- Efficiency of access to market information

Community

- Prevailing socio-economic, political, and environmental condition of the community
- Observations and opinions on the implementation of the interventions
- Parameters, variables and measures considered in the area to monitor implementation and establish success
- Changes or improvements observed
- Other interventions implemented in the area that may have caused the change

IV. LIMITATIONS

A. Scope of the Study

The scope of this IES was indicated in the TOR as follows:

1. Undertake assessment of all DFIMDP projects in Aklan, Antique, Capiz, and Iloilo covering its implementation and completion; a comparative assessment of the projects "before/after" and "with/without" conditions on the focus areas; assess the performance, including its economic, social and developmental impact on the immediate community, barangays and LGUs; and its relevance in achieving market access and competitiveness.

2. Identify and evaluate the factors which affected the implementation of the DFIMDP, including but not limited to: the policy, institutional, governance, staffing, capacity building, private sector factors or conditions, etc.; as well as, the implementation of the AFMA Act of 1997; and evaluation of components' results and compliance with the implementation covenants listed in DFIMDP program.

3. Conduct surveys using purposive sampling covering the results components of the DFIMDP.

4. Conduct focus group discussions using the triangulation method involving three (3) stakeholders in every province particularly the project target beneficiaries, LGU and private sector partners of DA-RFU VI, and DA regional and field implementers.

5. Provide analyses, recommendations and alternatives resulting from the impact evaluation, including but not limited to the following specific areas: a) increasing or improving the rural household incomes and agriculture and fishery competitiveness; b) capacities of DA-RFU VI on market-oriented and productivity-enhancing services; and c) effectiveness of DA-RFU VI in undertaking joint investments with LGUs and the private sector. This shall also include an assessment of the DFIMDP as implemented by DA-RFU VI on its effectiveness or lack thereof in improving the market- and production- delivery services by providing recommendations and/or alternatives that can be integrated in its current programs/projects.

6. During the contract duration, conduct coordination meetings with NEDA, the DA-RFU VI, and LGUs in the barangay, municipal and provincial levels covered by the project site to: a) discuss the progress of work and preliminary output; b) give comments and suggestions on a timely basis to improve delivery of agriculture and fisheries market and production services; and c) resolve issues and problems that may be encountered.

B. Timeline of this IES

Table 4 shows the timeline of the conduct of this IES and the actual dates of implementation.

Table 4. Detailed schedule of activities and actual dates of implementation

Activity (Work)	Inclusive dates as indicated in the Inception Report	Actual dates of implementation
Notice to Proceed	November 7, 2016	November 7, 2016
Writing of inception report	November 14 to December 14, 2016	November 14 to January 23, 2017
Comments and finalization of Inception report	December 15, 2016 to January 16, 2017	
Gathering of information for the development of IE Tools	January 17 to March 17, 2017	January to March 2017
Submission of 1st quarter progress report	January 23, 2017	January 23, 2017
Data gathering (Surveys, IDIs, FGDs)	March 20 to May 17, 2017	April to May 2017
Submission of 2nd quarter progress report	April 14, 2017	April 14, 2017
Data processing and analysis	May 18 to July 11, 2017	May 18 to July 11, 2017
Submission of 3rd quarter progress report	July 4, 2017	July 4, 2017
Submission of draft impact evaluation report	July 18, 2017	July 19, 2017 September 1, 2017 (2nd Draft)
Submission of 4th quarter progress report	September 19, 2017	September 19, 2017
Comments and finalization of impact evaluation report	July 19 to September 12, 2017	September 6 to September 19, 2017
Submission of final impact evaluation report	September 19, 2017	September 19, 2017
Conduct of impact evaluation capacity building training to 25 NEDA Staff	September 19, 2017	Pending

V. IMPACT EVALUATION FINDINGS

The Impact Evaluation Findings section would have four different sub-sections:

1. **Beneficiaries vs. non-beneficiaries.** This subsection is segregated per component. Whenever relevant, the significant differences between beneficiaries and non-beneficiaries of DFIMDP will be explained.

2. **Analysis of Before and After.** Available secondary data and analysis of the same were presented in this section in order to show the before and after comparison required by impact evaluations.

Beneficiaries vs. Non-Beneficiaries

Component 1: Support for Market Development Services

Basic information about the component

- **Objective:** To strengthen the capacity of the Agriculture Marketing Assistance Service (AMAS) to provide more effective market promotion, trade fairs, etc., in conjunction with the private sector.
- **Expected output:** Establish an Agriculture and Fisheries Market Information System (AFMIS)
- **Budget:** $17.16 Million allocated; $8.75 Million actual spent by the end of project implementation; 51% utilization rate
- **Reported number of beneficiaries:** N/A target; 71% actual (across all project areas); 71% accomplishment rate

Background of the component

The AFMIS is a web-based information system that provides information on the selling and buying prices of market goods such as rice, list of buyers and traders, and even trade fairs. The system consists of an integrated (national) and cluster-based (local) market information. Market data comes from the Market Development Center of the Department of Agriculture. The site's online portal is http://www.afmis.da.gov.ph, and has average visits of approximately 10,000 per month.

AFMIS follows a general principle of the AFMA Act of 1997 that is to improve the living conditions of farmers and fisher folks and increase their productivity by providing market support services. It served as a National Information Market. AFMIS linked the various research institutions for easy access to data on agriculture and fisheries, research and technology. All department, agencies, bureaus, research institutions, and local RA 8435 Agriculture & Fisheries Modernization Act (AFMA) Philippine Department of Agriculture

government units consolidated all relevant information and data on a periodic basis and make such data available on the Internet.

It is being used by the local government unit. The LGU designates at least 3 staff members to assist farmers who visit the AFMIS center. The staff assists the farmers in gathering the information they need including problems and solutions on farm production and marketing. Based on the manual, each AFMIS center has to keep a record or log-book of potential clients and actual users.

The AFMIS is intended to make market information available to farmers. It targeted to build a more robust agri-business and trade since market information allows farmers and traders to negotiate in a more transparent market where the farmer seller has a range of options on where to trade market products.

The program targeted to set up AFMIS in December 31, 2004 initially in nine provinces of the four focus areas. At the end of the program in 2009, concerned partakers can update or operate in centers where AFMIS were reported to have been established.

Field findings

A. Survey Results

Profile of the respondents[7]

The sample was composed of 22 respondents, all of which were not listed as beneficiaries of AFMIS. The proportion of male non-beneficiary respondents was higher than that of female non-beneficiaries. Nearly half of the respondents (46%) own a farm and tend it themselves. Additionally, all households own their place of residence including amenities such as a cellphone, an electric fan, and a colored TV. However, not all households have basic amenities such as electricity (95%), running water (50%), and flush toilet (27%).

All respondents were farmers. It is noticeable that a plurality of the farmer-respondents (32%) planted rice in the last six months.

[7] During the data gathering stage of this IES, none among the farmers interviewed claimed to have used the AFMIS during the implementation of DFIMDP in 2004-2009. Although there was a claim that there are AFMIS beneficiaries in Iloilo, when ASCEND investigated this, the contact person from Iloilo mentioned that farmers were trained to use the AFMIS in 2012, three (3) years after the project implementation, and under a different agency.

Table 1- 1F2. Crops cultivated in the last six months

Crop	Non-beneficiary	
	#	%
Total	50	100%
Palay	16	32%
Corn	8	16%
Others (Fruits, vegetables and legumes)	26	52%

Question F2. What crops did you farm/take care of in the last 12 months?
Base: 50 total number of crops cultivated

As for the total household income, it can be seen that the sources of farm income contributed 94.26% to the total income while 5.74% came from non-farm income sources (i.e. remittances from abroad and monthly pension).

Table 1- 2D13. Total Income and Expenditure

Item	Non-Beneficiaries		
	Total Income	Farm Income	Non-farm Income
Mean	50,936.67 (100%)	48,013.03 (94.26%)	2,923.64 (5.74%)

Question D13. TOTAL INCOME
Base: 22 respondents

Based on the gathered data, expenses for dishes/*sangkap/sahog sa ulam*, and alcoholic beverages took up a large portion in the total monthly household expenses of respondents.

Table 1- 3A7. Total Monthly Household Expenses

Total Monthly Household Expenses	Non-beneficiaries
Mean	Php 7,018.68

Question D13. TOTAL EXPENDITURE
Base: 22 respondents

Production expenses included wage of laborers, fertilizers, pesticides applied, seeds, and other inputs. Subtracting the production costs per cropping season from the average farm income, the net income obtained by farmers in Region VI for the previous cropping period was PhP 19,083.38.

Table 1- 4I22.5-I35.5 Production Expense

Production Expenses	Non-beneficiary
N	22
Sum	636,459
Mean	28,929.95
Standard Deviation	88,885.07
Question I22.5-I35.5. PER FARMING PROCEDURE: how much do you usually spend per cropping season? Base: 22 respondents	

Awareness of AFMIS

In general, farmers' savings served as the main consideration when making a decision on the selling price, which commodity to buy, and to/from whom to sell/buy. Only one respondent consulted the AFMIS for the selling and buying prices of his goods.

Aside from that, farmers also take into account the counsel they received from the cooperative and from the information provided by DA and the Agribusiness and Marketing Assistance Service Division (AMAD). They were also influenced by the information from suppliers and fellow traders.

Nearly half of the farmers bring their products to the DA (i.e. trading post, AMAD), while 23% sell their products to LGUs. Other buyers are fellow traders and NGOs mostly from Tubungan, Iloilo. Most of the farmers reported that they rely on NGOs to determine who their prospective buyers and dealers are. They also obtain this information from the government, traders or middlemen, cooperatives, and private companies. Through these varied sources, at least 50% were able to gain information on the market prices, while 37% were able to get information on which products are trending in the market. Furthermore, they were able to receive other information such as methods on cultivating crops or fisheries, new technologies, and new variety of seeds.

B. Key Informant Interview/s

The AFMIS is a web-based information system that contains information on the selling and buying prices of market goods such as rice, list of buyers and traders, and even trade fairs. The AFMIS is intended to make market information available to farmers. It targeted to build a strong agri-business and trade since market information allows farmers and traders to negotiate in a more transparent market where the farmer-seller has a range of options on where to trade or market their products.

According to a key informant from the Agribusiness and Marketing Assistance Service (AMAS) of the DA, AFMIS is a market information system which disseminates information about the market collected by the Bureau of Agricultural Statistics (BAS). She added that AFMIS in 2003 was helpful in monitoring trends. The site contained lists of commodities being

produced in a specific area and information about their buying and selling prices. This was also observed by the other two key informants from the LGU.

In addition, according to all key informants for Component 1, the task of implementing AFMIS as an integrated system was delegated to different agencies. The BAS was responsible in collecting all the information to be uploaded in the site. The Provincial Agriculture Offices, on the other hand, were responsible for updating the site. Lastly, the LGUs were responsible for the dissemination of market information to farmers through brochures or flyers. However, during the implementation phase, according to an informant, there were no coordinators at the municipal level to cascade the project to the farmers and it was not their priority. Later on, AFMIS was temporarily not available and the information made available online were not updated.

A Municipal Agriculturist of the LGU of Tubungan, stated that the importance of the DFIMDP was to help the farmers gain access to services and information that will lead to an increase of income. AFMIS is accessible at any time of the day and anytime of the week. This platform, according to her, provided monitoring of products and regulation of prices of products for each town. The monitoring and regulation of prices were made possible through the uploading of the prices and sending them to the AMAD.

AFMIS: Planning to Implementation

According to a key informant, AFMIS was indeed a great help to farmers in monitoring prices. She added that it was easy and convenient to use. However, because farmers neither had knowledge nor had access to the internet, the design of AFMIS was not fully achieved. Instead of visiting AFMIS for price monitoring, farmers resorted to LGU offices and consulted "internet experts". At least one to two agricultural workers, or "junior technicians" for every barangay were hired to disseminate information on the AFMIS to farmers. This made AFMIS more popular and more accessible to the masses.

In contrast, survey results stated that only two farmers knew about the AFMIS, and only one was currently using it. Another key informant added that during the implementation phase of the AFMIS, there were no municipal coordinators available to cascade the project to the farmers because it was not their top priority.

Later on, AFMIS was temporarily not available or not updated.

However, she identified that only few farmers had knowledge on using the internet. They needed to go to the LGUs to access AFMIS. The farmers were assisted by junior technicians when using the AFMIS. These junior technicians attended regular meetings and trainings so that when they are deployed to their assigned barangays, they would be capable of assisting the farmers in using the system.

According to the key informant, the component reached all the *intended beneficiaries* because of the orientations and briefings they conducted. Distribution of promotional materials or training guides such as flyers and/or brochures was one of the ways that promoted this component. The respondent learned to input and access relevant data because of this system.

However, despite the efforts from the implementing agencies, AFMIS faced a lot of challenges. The informants stated that the target beneficiaries of the project were farmers and fisher folks. These people neither had a knowledge nor had access to the internet, thus, the objective of AFMIS to make market information available to farmers was not fully achieved. Nonetheless,

agencies involved in the implementation came up with a contingency plan to make AFMIS accessible to the masses. Regional and municipal offices permitted farmers to consult them regarding the information contained in AFMIS that they want to know. In conclusion, AFMIS was made available in the municipal offices but failed to reach all of its target beneficiaries.

The AFMIS Project in Iloilo

One informant said that in 2004, the DA conducted a training about DFIMDP specifically about "data updating" and AFMIS. The said training involved 48 barangay leaders who were also farmers. She added that during that time, there was no internet connection and android phones. It was only during 2006 when these items were made available and when the "Farmers Information and Technology Service (FITS) Center" was established in the Municipal Agriculture Office.

The said center was under the Department of Science and Technology (DOST). The FITS center contained all supply and demand data, and other market information. The center is still operational and is still assisting farmers on their need for information on their farming activities. Furthermore, according to the informant, there were four (4) farmer-researchers (*magsasakang siyentista*) from the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCARRD), which is under the DOST, who were able to use AFMIS.

In light of these experiences, the key informants recommended the following:

1. **Improve user interface**: One informant said that AFMIS' user interface was disorganized. According to the key informant from DA-AMAS, some information were misplaced and, some were mixed-up. One example is that buyer/seller information is found in the section of buying/selling prices of commodities. For users, i.e. farmers who were mostly computer illiterate, the initial encounter with the web-based system probably led to confusion and loss of interest in using the said platform.

2. Update information regularly and cascade it to farmers through trainings/seminars

3. Conduct seminars or trainings to farmers in using computers and accessing the site, and;

4. Coordinate with farmers to keep the concerned departments/offices posted about their harvests

C. Focus Group Discussion

FGD was not conducted for Component 1 because none of the farmers surveyed claimed to have used AFMIS during the DFIMDP implementation.

Analysis and Recommendations

AFMIS 2.0

AFMIS was unable to funnel the information to farmers due to 2 factors: a) farmers had easier access to spot market trading practices at trade centers because as far as the farmer is concerned, a trader is more credible than a computer, and b) farmers are less familiar with the technology. One unintended effect of the implementation of this system is that the skill of the LGU staff was developed more (than the farmers), in so far as using the web-based system is concerned. The LGU's innovation to make the AFMIS center-based was the only available and logical

solution given the absence of appropriate infrastructure e.g. power and connectivity. Because of this, the target clientele was not reached.

The implementation of AFMIS, although intended to reach farmers in general, led to two things: a) capacitated the LGUs by providing hands-on experience to their staff in operating a web-based information system, and b) established a platform for a farm technology that may be more realistic now than it was in 2004 (i.e. data that 100% of the farmers have cellphones that may provide a link to an operational AFMIS although it was not indicated if the phones were web-capable).

Component 2: Market Development Investments

Basic information about the component

- **Objective:** To ensure more demand-driven and market- oriented investments through LGUs and producer groups. Investment or cost-sharing will be implemented among LGUs and associations to expand markets and employment opportunities. The specific objectives are:
  - Provide sub-grants to eligible beneficiaries for the implementation of market development sub-projects in the focus areas (Loan Agreement, 2004, pg. 21).
  - Strengthen selection, approval, and implementation criteria and procedures for resource allocation in building of rural roads and other infrastructure projects.

- **Expected output:** 1) Building of rural roads and infrastructures, and 2) development of Operations Manual. The operations manual was for the standardization and upgrading of procedures of market-related investments that are undertaken by the DA.
- **Budget:** $22.25 Million allocated; $2.33 Million actual spent by the end of project implementation; 10.47% utilization rate
- **Reported number of beneficiaries:** N/A target; N/A actual; N/A accomplishment rate

Background of the component

A total of 34 sub-projects were implemented in Region VI. The sub-projects included rural infrastructure projects, irrigation projects, and provision of farming equipment (see Table 5. List of Sub-Projects of Component 2 in Region VI).

Table 5. List of Sub-Projects of Component 2 in Region VI

Project	Sub-Project	Area/Beneficiaries/Partners
Rural Infrastructure	Rehabilitation of Poblacion – Tubuc-Pawa-Buntod Rd.	• Panay, Capiz
	Improvement of FMR (farm to market road) – Tubungan, Iloilo (wheelpath)	• Brgy. Badiang A and B • Brgy. Jona • Brgy. Batga • Brgy. Bikil-Molina • Brgy. Lanag Norte • Brgy. Nagba • Brgy. Ten Benito • Brgy. Cadabdab • Brgy. Desposorio • Brgy. Navillan • Brgy. Morcillas • Brgy. Bato
	Rehabilitation of FMR	• Brgy. Utod, San Miguel, Dumalag, Capiz

		• Jamindan, Capiz
	Rehabilitation of Cabug-Cabug (Boak) Sitio Matinog	• Brgy. Carmencita Road, Pres. Roxas, Capiz
	Construction of Bagsakan Center	• Iloilo Mango Growers Coop, Leganes, Iloilo
	Construction of Packaging House	• Capiz Multi-Purpose Coop. Inc., Roxas City
	Rehabilitation of Tigum-Lapayon Footpath	• Pavia, Iloilo
	Trading post	• Libertad, Antique
	Foothpath/FMR Rehab	• Bingawan, Iloilo • Dumalag, Capiz
Irrigation Projects	Water system	• Capiz Multi-purpose Coop. Inc., Roxas City
	Rehab of small farm reservoir	• Bingawan, Iloilo
	Rehabilitation of irrigation system (floating irrigation pumps) – 3 units	• Pangpang Irrigators' Ass'n., Mambusao, Capiz
Equipment	Refrigerated van	• Capiz Multi-purpose Coop. Inc., Roxas City
	Procurement of mechanical dryers (2 units)	• Zarraga MPC, Iloilo • TQB MPC, Maayon, Capiz
	Flatbed Dryer	• Pototan MPC, Pototan, Iloilo
	Banana Chippers (4 units)	• WOMB, Mambusao, Capiz • Municipal Federation of RIC, Tubungan, Iloilo • Gines Viejo Rural Development Club, Passi City • Guinpatagan RIC, Bingawan, Iloilo • Barangay Bagsakan, Mambusao, Capiz
	Hauling trucks (6 units)	• Sta. Barbara FACOMA, Sta. Barbara, Iloilo • Mambusao Federation of Farmers'Coop, Mambusao, Capiz • Antique Muscovado Sugar Producers Marketing Coop, Patnogon, Antique • Duran TALAOMA MPC, Dumalag, Capiz • Aklan Seed Growers Coop, Kalibo, Aklan

The report of WB in 2010 commended the accomplishment of Region 6. The report commended that "notwithstanding the difficulties due to the "cost-sharing" issue and feedback from the IL-ICR review indicates the market-related infrastructure provided under the project. Successful implementation of this component was achieved in Region 6, where there were apparently very limited alternative sources of funding, and where there was dynamic leadership on the part of the DA."

Also, WB (2010) reported the growing adoption of the operations manual on investment procedures.

It must be noted that from 2009 to 2015, there were other infrastructure projects implemented under the different government programs (refer to Figure 1. List of projects implemented, calamities occurred, and crises that hit Region VI before 2004 to year 2017). Therefore, caution is needed in making attributions as the respondents (beneficiaries and non-beneficiaries) may be referring (knowingly or unknowingly) to another infrastructure project e.g. road, when giving their responses. Nonetheless, as noted in the WB report, infrastructure projects are greatly appreciated and key informants observed the increase in economic activities due to better roads and irrigation facilities.

Field findings

A. Survey Results

Profile of the respondents

The succeeding findings are based on a sample survey of 195 households of which 42% are beneficiaries. All beneficiaries are farmers; and 91% for non-beneficiaries. For both beneficiaries and non-beneficiaries, 6 out of every 10 respondents are males.

Table 2- 1S3. Occupation of the respondent

Occupation	Total		Beneficiary		Non-Beneficiary		p-value
	n=195	100%	n=82	100%	n=113	100%	
Farmer (whether land is owned, rented or hired by land owner)	185	95%	82	100%	103	91%	0.00528***
Laborer or non-permanent profession (skilled or unskilled)	4	2%	0	0%	4	4%	0.06724*
Others	2	1%	0	0%	2	2%	0.19706
Trades or permanent profession (ex. carpenter, welder, painter, logger, etc.)	1	1%	0	0%	1	1%	0.36282

Question: S3. SA. Ano ang iyong trabaho? What is your occupation?
Base: 195 respondents
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

The sample represents a statistically significant higher proportion of beneficiaries who are part of the farmers' association and cooperatives. Among the non-beneficiaries though, barely three out every ten were not part of any organization. This indicated a proliferation of community organizations as can be seen in Table 2-2S5. The degree of involvement was not captured in the study.

Table 2- 2S5. Affiliated organizations

Affiliated organizations	Total		Beneficiary		Non-Beneficiary		p-value
	n=195	100%	n=82	100%	n=113	100%	
Farmers Association	120	62%	61	74%	59	52%	0.00188***
Cooperative	39	20%	26	32%	13	12%	0.00062***
No organization	39	20%	2	2%	37	33%	<0.00001***
Others	15	8%	9	11%	6	5%	0.11642
Livelihood	7	4%	3	4%	4	4%	1.00000
Religious	5	3%	2	2%	3	3%	0.66720
Women/men's group	4	2%	3	4%	1	1%	0.16452
Socio-civic	2	1%	2	2%	0	0%	0.13104
Driver's Association	2	1%	1	1%	1	1%	1.00000
Government	0	0%	0	0%	0	0%	1.00000
Financial	0	0%	0	0%	0	0%	1.00000

Question: S5. MA. Saang organisasyon ka kabilang? What organizations do you belong to?
Base: 195 respondents
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

There are also statistically significant differences in lifestyle and indicators that point to better living and economic conditions for beneficiaries.

The beneficiary respondents under this component spend more for fuel used for cooking be it LPG, wood and charcoal and, even electricity and water, as more of them have more appliances. The non-beneficiary respondents spend and consume more rice and alcoholic beverages than the beneficiaries.

An apparent indicator of poverty is the presence of significantly more non-beneficiaries living in (mixed) small houses and, mostly in slum areas. Moreover, when the houses are observed from the outside, there is a significantly higher proportion of non-beneficiaries living in unpainted or dilapidated houses.

Impact of Component 2

Table 2-3S6 presents a picture of a program that managed to provide multiple and expanded benefits to farming households whether beneficiary or non-beneficiary. For example, in general, the proportion of beneficiary household members that benefited from rural infrastructures is significantly lower than the proportion of non-beneficiary household members. However, the proportions of beneficiary household members involved in trainings

and seminars and those who benefited from farming inputs, equipment and machineries are significantly higher than those of the non-beneficiary household members (refer to Table 2-3S6). Beneficiaries are farmers who were listed as beneficiaries of the DFIMDP.

This data is not surprising as roads and other public facilities cannot be exclusive goods unlike trainings and project goods that are given to farmers who enlist themselves as members or are qualified (recipients) by investing time in attending project trainings.

Table 2- 3S6. Projects they are involved in/benefited from

Projects they are involved in/benefited from	Total		Beneficiary		Non-Beneficiary		p-value
	n=195	100%	n=82	100%	n=113	100%	
Rural infrastructure	164	84%	59	72%	105	93%	0.00008***
Training/seminars	67	34%	36	44%	31	27%	0.01352**
Farming inputs	64	33%	38	46%	26	23%	0.00072***
Irrigation	52	27%	25	30%	27	24%	0.34722
Equipment and machineries	40	21%	34	41%	6	5%	<0.00001***
Information system	5	3%	2	2%	3	3%	0.66720
Other development programs	5	3%	4	5%	1	1%	0.08726*
Fishing inputs	1	1%	0	0%	1	1%	0.36282

Question: S5. MA. Anong mga proyekto sa inyong komunidad ang kinabibilangan o pinapakinabangan ng miyembro ng iyong pamilya? What are the project/s in the community that you and your households members are involved in/benefited from?
Base: 195 respondents
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

A closer look however shows that beneficiaries have more access to specific infrastructure projects. In terms of irrigation, there is a difference, both statistically and in simple proportion between non-beneficiaries who have rain-fed farms or rely on natural water sources and beneficiaries who are served by irrigation systems (man-made). (refer to Table 2-4K7). The specific irrigation systems mentioned were CFR, NIA, Senora Guadalupe Irrigation, Bati Irrigation, and Irrigation from the DA.

Table 2- 4K7. Type/s of irrigation used

Type/s of irrigation used	Total		Beneficiary		Non-Beneficiary		p-value
	#	%	#	%	#	%	
Total	105	100%	43	100%	62	100%	
Dam	4	4%	1	2%	3	5%	0.50926
Spring, lake, river, etc.	39	37%	14	33%	25	40%	0.4654
Irrigated big systems	18	17%	10	23%	8	13%	0.18024
Irrigated small systems	12	11%	4	9%	8	13%	0.52218
Rainfed	8	8%	0	0%	8	13%	0.0139**
Others	24	23%	14	33%	10	16%	0.04136**

Question: K7. SA PER LAND WITH IRRIGATION. UNAIDED. For irrigated land/reservoir, what type of irrigation do you use?
Base: 105 respondents with irrigated land
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

This condition of the benefits of roads is supported further in Table 2-5I1s4g showing that the proportion of beneficiaries who have access to water reservoir all year long is significantly higher than that of the non-beneficiaries.

Table 2- 5I1s4g. Whether Road is Accessible All Year Long – Reservoir/Pond

Whether Road is Accessible All Year Long – Reservoir/Pond	Total		Beneficiary		Non-Beneficiary		p-value
	#	%	#	%	#	%	
Total	120	100%	48	100%	72	100%	
All year long	102	85%	44	92%	58	81%	0.03078**
Only during certain seasons	15	13%	4	8%	11	15%	0.13888
Never easily accessible	3	3%	0	0%	3	4%	0.06724*

Question: I1s4g (reservoir/pond). SA PER PLACE. UNAIDED. Are these places easily accessible by road, paved or not, all year long or only during certain seasons?
Base: 120 respondents
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

As for the type of road used when going to the nearest market, nearest school, and town center or *poblacion*, a significantly higher proportion of non-beneficiaries uses unpaved roads compared to the beneficiaries.

On the other hand, there is higher proportion of beneficiaries who pass through rough roads and a combination of paved and unpaved roads when going to the nearest hospital and town center or *poblacion* (refer to Table 2-6I1s3a). In the case of the beneficiaries, despite having their own transportation, they still spend more time in travel when going to the market (table 2-6I1s2a). The shorter travel time for non-beneficiaries corroborates the data (see above) that the non-beneficiaries are probably those living in "slum areas" are already situated near *poblacions* or town centers.

Table 2- 6I1s2a. Time Travel to Market from Home

Time	Total		Beneficiary		Non-Beneficiary		p-value
	n=195	100%	n=82	100%	n=113	100%	
Less than 15 minutes	107	55%	37	45%	70	62%	0.01878**
15-30 minutes	81	42%	40	49%	41	36%	0.06876*
31-60 minutes	7	4%	5	6%	2	2%	0.1443
More than 1 hour	0	0%	0	0%	0	0%	1.00000
Do not know	0	0%	0	0%	0	0%	1.00000

Question: I1s2a (market). SA PER PLACE. UNAIDED. How long does it usually take you to reach the nearest market/palengke from your house?
Base: 195 respondents
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

B. Key Informant Interview/s

According to the report of DA-RFU-VI, Status of Sub-Projects as of December 31, 2009, all sub-projects implemented in Region VI were 100% completed, procured, and operational. The farm-to-market road projects were said to have helped in:

- Improving access to basic service such as health and education
- Improving the peace and order condition
- Expanding the plantation areas of farmers
- Increased economic activities (non-farm)
- Making marketing of the produce easier, among others.

These infrastructure projects provided jobs and additional sources of revenue for cooperatives and the LGU. Irrigation projects became the main source of water, enabled the farmers to plant during the 3rd cropping season, and addressed climate change concerns such as drought. Specifically, the equipment provided under the project became a source of additional income for women, and helped in delivering products for their *palay* trading and muscovado businesses.

According to a key informant from the DA, infrastructure projects such as farm to market roads and programs in the coastal area of the region were implemented successfully. According to the monthly and quarterly reports released by the project proponents and the DA back then, the funds were utilized properly, and considered the activities as implemented.

Convenient Transportation and Less Post-Harvest Losses

According to an informant, farmers were satisfied with how the project made the transportation of their produce more convenient and how it helped in reducing their post-harvest losses. In addition, she mentioned that many farmers expressed their delight for having the road constructed in their area because it significantly increased their income.

There were about 20 members of the farm associations who were hired as laborers in constructing the wheel path. It served as an additional source of income for them. The construction lasted for two (2) weeks.

Farmer associations and barangay officials handled the monitoring of the project in spite of the peace and order condition in the project site. Evaluation was also conducted in the project areas. According to the informant, the project was regarded as effective and sustainable.

Also, according to an LGU informant, the project was deemed important because it allowed the farmers to transport their produce from their farms faster and easier.

The community leader interviewed for this IES said that the farmers were happy and satisfied with how their farming activities improved because of the farm-to-market roads. Transporting of their produce is now easier and hassle-free as compared to when the roads were not cemented. Percentage of post-harvest loss due to delivery was also reduced as claimed by the community leader.

Before the project was implemented, the vegetables rotted in the barangay halls of Holason, L.S and L.N. As a result, the farm gate prices of the produce increased such as the sweet pepper crop. It was supposed to be sold for PhP100.00/kilo only but when the sweet pepper reached the market, it was priced PhP250.00/ kilo to recover post-harvest cost.

C. Focus Group Discussion

Employment was one of the major concerns of the beneficiaries and non-beneficiaries interviewed for this component. Respondents mentioned during the focus group discussion that there was no stable employment since there were limited to no employment opportunities in their respective communities. They strongly stated that the government was not implementing programs, saying, *"Wala pa masyadong programa yung government para maka-trabaho ang mga taga amin [The government does not have much livelihood programs for the people in our community]"*.

On the other hand, beneficiaries and non-beneficiaries helped in providing employment opportunities in the community by means of hiring people to work on their respective farms. This result surfaced when respondents were asked on the number of laborers they hire in one cropping season.

Missing Accountability

No agency was particularly assigned to fix cracks once the road was built. Another concern was that only one car at a time can pass by the road, while suggestions were to convert the wheel path into a fully paved road. The informant added that they had no sufficient budget to sustain the quality of the said road.

In spite of the limited budget, the key informant highlighted the success in the ease of coordination among agencies. He also deemed the project as successful as it was a big help to farmers when they transport their goods.

With regard to sustainability, collaboration among agencies is key in ensuring that infrastructures built are maintained or improved given the changing needs in the area.

It must be noted that employment referred to by the respondents does not include the use of rural roads. Most of the respondents hire laborers for farming and/or fishing procedures under the planting to growing stage—plowing, harrowing, furrowing, planting, harvesting. Hauling, transportation of goods and delivery of products from their respective farms to the nearest market or trade area are mostly done by themselves and their family members.

Government interventions implemented to address employment issues in Region 6 were in the form of livelihood programs for gardening and livestock activities. The program for livestock, which included hog raising, was unsuccessful, and therefore, was discontinued.

Analysis and recommendations

Case Documentation of irrigation projects

Among the infrastructure projects, the impact of irrigation canals on the productivity of farms and economic conditions of farming household is more direct compared to a road network. The conduct of a case study (longitudinal) among specific farmers that benefited directly from a DFIMDP irrigation project will help in the allocation of funds of future infrastructure projects. The WB 2010 report did a cost-benefit analysis of a road in Region 6 and noted savings in hauling and other transport expenses. To complete the value chain (from water source to farm to market), a similar cost-benefit analysis, at the farmer level, is a worthwhile exercise to help in the period after.

Mapping of sub-components

A mapping of the 34 sub projects was recommended to determine the status of these projects most especially those that were affected by natural calamities. The mapping will also determine if the DIFMDP opened up the possibility for more LGU-initiated infrastructure projects, i.e. road extensions and similar interventions. The mapping may be done via geographic information system (GIS) to overlay different data (road length, quality, and total depreciated cost) on the conditions of a particular infrastructure facility before, after the project and after the calamity.

Component 3: Strengthening Safety and Quality Assurance Systems for Market Development

Basic information about the component

- **Objective:** To strengthen the regulatory services of the DA which are designed to improve safety and quality of products for consumers and in conformity with international standards. Specifically:
  - Institutional and physical strengthening of BAFPS.
  - Strengthening of laboratory capacity
  - Streamlining of quarantine and inspection processes
  - Increased grower access to improved (certified) seeds and horticultural planting material

- **Expected outputs:**
  - Establishment of user friendly web-based system providing full disclosure of regulatory procedures, charges, etc.
  - Increase by 20% the number of accredited private sector operations
  - Full cost charge out rates applied for regulatory services

- **Budget:** $17.33 Million allocated; $8.57 Million actual spent by the end of project implementation; 49.45% utilization rate
- **Reported number of beneficiaries:** N/A target; N/A actual; N/A accomplishment rate

Background on the component

Based on WB's assessment, there is a need to improve regulatory services expressed in various reports and even during the consultative process of project preparation. According to WB, the regulatory functions of the DA were noted as lacking in transparency, possessing cumbersome procedures and demonstrating inconsistent implementation. The project provided budgetary support for the core functions of DA regulatory agencies, i.e. Bureau of Plant Industry (BPI), Bureau of Animal Industry (BAI), Bureau of Fisheries and Aquatic Resources (BFAR), National Meat Inspection Council (NMIC), Fertilizer and Pesticide Authority (FPA), and Bureau of Agriculture and Fisheries Product Standards (BAFPS). This included support for the accreditation of private sector providers of laboratory services, certified seeds, etc.

In line with the provisions of AFMA, BAFPS needs to be strengthened for two reasons, 1) to carry out its mandate of coordinating with the other regulatory agencies, and 2) to complete a review and action plan aimed at rationalizing the technical, physical and financial needs for the strengthening of the laboratories needed to service the DA's overall regulatory system. The project's emphasis on the capacity of DA's regulatory services is to ensure that international standards for safety and quality was met.

The plan to implement the cost for services connected with provision of clearances, certification, provision of improved genetic material etc. was not pursued. As contained in the WB report, non-delivery of this output was primarily beyond the control of the program due to Executive Order (EO) No. 554[8], issued by the President in 2006, eliminating fees and charges imposed on export clearances, inspections, permits, certificates and other documentation requirements.

According also to the World Bank, the web-based system is hosted at the da.gov.ph website through the "Export Help Desk." This is being maintained by the DA, specifically the BAFPS. The system provides information on the requirements, process and the ability to download forms needed to obtain clearances.

Field findings

A. Survey Results

Profile of the Respondents

The sample size for Component 3 was 76, composed of 23 beneficiaries and 53 non-beneficiaries. The sample was taken purposively from a community engaged in horticulture.

The average number of household members in each household from the non-beneficiary group (5) is higher than that of the beneficiary group (3). Children make up most of the residents in each household. The typical household would have an average of six children.

Of the 339 total household members of Component 3 respondents, 238 are currently not presently enrolled in any school/grade level. A large proportion mentioned that it was due to the need to look for work in order to earn money. Meanwhile, results of comparative analysis showed that household members who already finished schooling was higher in proportion among beneficiaries compared to that of non-beneficiaries. Among household members who are still in school, there is a significantly higher proportion among beneficiary households who are currently attending senior high school (29%) compared to non-beneficiaries; while there is a significantly higher proportion of household members among non-beneficiaries (37%) who are currently attending junior high school compared to that of the beneficiaries. A higher proportion of students from beneficiary households are currently enrolled in private schools.

According to survey results, beneficiaries had a higher proportion of members who visited a health facility during the last six months, while non-beneficiaries had a higher proportion of members who did not. Some of the main reasons why they visit health facilities were for checkup of colds and coughs for both beneficiaries and non-beneficiaries. More beneficiaries visit rural health clinics, while more non-beneficiaries visit government hospitals.

[8] A copy of the EO No. 554 of 2006 is attached in Annex D of this report.

Household Consumption

In terms of their household consumption, beneficiaries registered a higher average weekly food consumption which were either bought through cash or paid through credit for dishes paired with rice or *ulam*, and ingredients used in cooking the dishes. Also, beneficiaries have a higher incidence for food bought outside as compared to non-beneficiaries (see Table 3-1A8).

On the other hand, non-beneficiaries have a higher average weekly consumption of rice or *bigas* using income from their own produce (see Table 3-2A9). Non-beneficiaries, compared to non-beneficiaries, also have a higher average weekly consumption of tobacco or *sigarilyo* (Table 3-A8) and of alcoholic beverages (Table 3-A8) which were either bought using their own cash or paid through credit.

Table 3- 1A8. Average total weekly household consumption bought by cash or paid through credit

Item	Total	Beneficiary	Non-Beneficiary	p-value
Bigas/Rice	PhP 175.63	PhP 122.39	PhP 53.24	0.29200
Ulam/Sangkap/Sahog/ Dishes	PhP 1,168.30	PhP 986.96	PhP 181.35	0.04420**
Food regularly consumed outside the home	PhP 556.71	PhP 456.52	PhP 100.19	0.05000*
Alcoholic Beverages	PhP 25.23	PhP 4.35	PhP 20.88	0.07540*
Sigarilyo/Tobacco	PhP 34.84	PhP 0.43	PhP 30.49	0.00860***
Total	PhP 1,947.94	PhP 1,570.65	PhP 377.28	--

Question A8: How much was bought by cash or paid through credit?
Base: 76 households (23 - beneficiary, 53 - non-beneficiary)
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

Table 3- 2A9. Average total weekly household consumption from own produce.

Item	Total	Beneficiary	Non-Beneficiary	p-value
Bigas/Rice	PhP 480.11	PhP 128.82	PhP 351.29	0.03820**
Ulam/Sangkap/Sahog/ Dishes	PhP 1,440.04	PhP 741.74	PhP 698.30	0.80160
Food regularly consumed outside the home	PhP 334.49	PhP 202.17	PhP 132.32	0.32700
Alcoholic Beverages	PhP 91.39	PhP 39.70	PhP 51.70	0.72260
Sigarilyo/Tobacco	PhP 17.55	PhP 2.17	PhP 15.38	0.18780
Total	PhP 2,188.94	PhP 1,059.26	PhP 1,129.68	--

Question A9: How much was acquired from own produce such as planted and harvested on your own, etc.?
Base: 76 households (23 - beneficiary, 53 - non-beneficiary)
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

In terms of their fuel consumption (i.e. LPG, kerosene, electricity), beneficiaries have a significantly higher average monthly expense compared to non-beneficiaries. The same is true for the average monthly expense of light source or electricity (see Table 3-3A11a).

The monthly expenditure of beneficiaries is four times more (PhP 21,486.00) than that of non-beneficiaries (PhP 5,087.22).

Table 3- 3A11a. Average monthly expenses on utilities in pesos.

Utility	N	Beneficiary	N	Non-Beneficiary	p-value
Fuel (charcoal, firewood)	17	PhP 208.24	42	PhP 200.12	0.93280
Fuel (LPG, kerosene, electricity)	23	PhP 388.70	53	PhP 182.91	0.04540**
Light/electricity	23	PhP 2,326.22	53	PhP 564.87	0.02340**
Water	19	PhP 1,665.26	44	PhP 220.45	0.17760
Total	23	PhP 4,344.48	53	PhP 1,092.58	--

Question A11: In the past 6 months, looking at the consumption/expenses of the household on utilities such as water, electricity, how much is spent monthly on [ITEMS]?
Base: 76 households (23 - beneficiary, 53 - non-beneficiary)
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

Employment and Income

Beneficiaries have a higher proportion of household members working as businessmen and higher proportion of farm ownership with paid labor. On the other hand, more non-beneficiaries have their own farm to use for their agricultural business but do not hire laborers.

Survey results also showed that the farming income of beneficiaries is significantly higher in amount compared to that of the non-beneficiaries (see Table 3-4D13a). This signifies that beneficiaries are able to pay for farm labor more than non-beneficiaries can. On the other hand, income of non-beneficiaries from non-farm activities is relatively higher compared to beneficiaries—the amounts, however, are not significantly different from each other. Overall, the total monthly household income of beneficiaries is PhP 32,935.08 and PhP 18,485.15 for non-beneficiaries.

Table 3- 4D13a. Farm and Non-Farm Income

	Beneficiaries	Non-Beneficiaries	p-value
N	23	53	0.0568*
Sum	PhP 675,960.83	PhP 542,779.92	
Mean	PhP 29,389.60	PhP 10,241.13	
SD	PhP 45,034.37	PhP 11,072.88	

****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

Certified Planting Materials Received and Quality Assurance Procedures

Component 3 respondents are farmers engaged in horticulture. The products and materials they use have to be subjected to rigid quality assurance procedures since the products are exported. Table 3-6L2 shows the list of plants cultivated by beneficiaries and non-beneficiaries of Component 3.

Table 3- 5L2. Plants cultivated

Plants cultivated	Total		Bene		Non-bene	
	#	%	#	%	#	%
Total	124	100%	60	100%	64	100%
Flowering plants	78	63%	36	60%	42	66%
Shrub	17	14%	8	13%	9	14%
Trees	11	9%	5	8%	6	9%
Fern	7	6%	3	5%	4	6%
Foliage	3	2%	2	3%	1	2%
Grass	3	2%	2	3%	1	2%
Cactus	2	2%	2	3%	0	0%
Carnivorous plant	1	1%	1	2%	0	0%
Fortune plant	1	1%	1	2%	0	0%
Herbs	1	1%	0	0%	1	2%

Question: MA. UNAIDED. What type of plants do you cultivate?
Base: 76 beneficiaries and non-beneficiaries

The survey reported a higher cost of planting materials or production expenses among beneficiaries, or approximately twice as much as that of non-beneficiaries (PhP 3,569.43 – Beneficiaries; PhP 1,966.90 – Non-beneficiaries).

Non-beneficiaries have significantly higher proportions of buying seeds using their own funds (savings) (5%) as compared to beneficiaries.

On the other hand, beneficiaries, compared to non-beneficiaries, have a significantly higher proportion of sourcing seeds and planting materials from friends, co-gardeners, and sometimes from government agencies such as the DA, and other organizations, i.e. OWA ecotourism from a cooperative, CPU, and Daba City Garden (90%). In addition, the information where seeds and planting materials can be sourced from were provided by non-government organizations (17%) and cooperatives (5%) to beneficiaries.

Given these results on seeds and planting materials source, it cannot be ascertained that one group has a better material than the other. Finally, both samples reported that planting materials did not pass through a quality assurance process except one beneficiary who reported to have undergone quality assurance procedure in the sourcing of material. However, the respondent was unable to elaborate on the procedure.

B. Key Informant Interview/s

This evaluation looked into the regulatory procedures for horticulture based on the joint project of the Department of Trade and Industry (DTI) and DA. The DTI and DA organized a training on foliage production for the cooperative members of Capiz Multi-Purpose Cooperative (CMCPI). The program created avenues for some members to export their plants specifically to the Japanese market. The non-exporters of the cooperative also benefited from the program because 3% of the payment received from exported products go directly to the cooperative. In addition, these monetary proceeds from exported goods serve as additional funds for upcoming activities and events of the cooperatives where both exporters and non-exporters can participate in.

According to the community leader of CMCPI, DTI played an important role in providing assistance related to marketing and exports and establishing connections between prospect buyers and farmers.

Quality Assurance of Cut Foliage in Capiz

The Department of Trade and industry (DTI) has been the active partner of the beneficiaries both in local and international trades. According to the informant, DTI assisted the beneficiaries in looking for cut-foliage buyers in Japan and provided trainings on how to strengthen their cooperatives.

The DA also implemented third-party inspections to assure that the beneficiaries were complying with the quarantine rules on exportation. There were protocols set for the growers to follow. For a cut-foliage to be qualified for export, Certification of Inspection by the Quarantine Officer had to be issued to the beneficiaries.

The DA, with the help of the Provincial Agriculturist, assisted the beneficiaries on how to formulate or craft the project proposal. The agency was in-charge with the coordination, technicalities and on the inspection, and monitoring of the status of the on-going project.

The main objective of this component, as claimed by the informant, was attained. Quality of cut-foliage product in Capiz was observed as excellent. It was also thought to be a good investment for the farmers in the area due to its competitiveness not just in the Philippines, but also in Asia.

Meanwhile, the DA was responsible for ensuring that the products to be exported by the beneficiaries of the cut foliage program are compliant with the quarantine rules on exporting. The DA also facilitated the drafting of project proposals with the help of the Provincial Agriculture Office (PAO). Furthermore, the DA was also responsible for coordination, inspection, and other undertakings such as monitoring the status of on-going projects. Alternatively, the PAO conducted an on-site monitoring of the project while making sure that the packing facilities are properly used by the cooperative members.

Role of Cooperatives in Quality Assurance

The direct beneficiaries of this project were the members of cooperatives. The refrigerated van and packing house indeed helped them and the exporters in preserving and providing cut foliage with good quality to the target consumers, local or abroad. For members who were not exporters, they benefited from the project through the 3% share of the cooperatives. The said amount was used by the members on different events they joined.

The beneficiaries who were planning to export their cut foliage initially coordinated with cooperatives, who were the direct contacts of the Japanese importers. Members of the cooperatives did not directly participate in the design and planning of the project. Their role was to assist and observe these tasks being done by the personnel assigned by the cooperatives.

Cooperatives received a partial-initial grant (no amount specified) which was insufficient to support the requirement for the cut-foliage project to succeed. The promised second release was supposed to be used for the deep well project of the community. Unfortunately, due to the severe destruction brought by typhoon Yolanda, several packing houses and other equipment for the project were destroyed.

A key informant from the DA imparted some personal perspectives on what happened within their agency during the implementation of DFIMDP. He explained the accreditation process and qualification of goods for exportation: goods are first subjected to inspection in the laboratory, based on the results a decision will be made whether or not to release a permit to proceed with the production for export. The DA oversees the quality assurance of inputs (i.e., seeds, fertilizer, pesticides, etc.) to harvest, as well as quality checking of the outputs.

As for the web-page, which is one of the key indicators of the success of the component, DA provides and uploads the data to the web-page. The information about the private sector that maintains the website was not disclosed. As far as enforcing quality assurance measures and procedures are concerned, it is but alarming to note that no information about this private sector was given and that this same organization handles documents on behalf of the government involving transactions. Although this may have a problem with data confidentiality, the web-page is mostly used for transactions of paperless applications to ensure quality assurance. The respondent also mentioned delays in the release of funds from the WB and cited as hindrance of DFIMDP's implementation. As a result, the Bureau of Fisheries and Aquatic Resources (BFAR) pulled out from the project because they have no funds to continue working on their responsibility in the program. In spite of the delays, the key informant was still satisfied with the outcome of the project.

C. Focus Group Discussion

Communities outside the cooperative also gained interest in the program as more income is generated within the cooperative by those who participated in the program. The members were not only trained, but were also provided with the necessary equipment for cut foliage

production like refrigerated vans which are used to preserve the quality of cut foliage plants. Funding was also provided to build and operate packing house facilities. Packing houses or packing facilities served as the members' processing facility and training center for interested organic farming practitioners. However, production of cut foliage plants has been stopped since Typhoon Yolanda badly hit the packing houses, destroying the entire facility including their equipment.

Analysis and recommendations

Restore the Idea of Regulatory Systems

Regulatory systems both provide a barrier or access to market development. As a barrier, regulatory systems are complicated especially among small producers or even organized groups who still have limited experience in regulation-based trading systems. As an avenue to improve market access, the government implements "one stop shops" that allows market participants to trade at the least transaction cost brought about by the regulation.

The survey data revealed that neither beneficiaries nor non-beneficiaries benefited from the established quality assurance process. This web-based system displays the regulations and translates regulations to be understandable on the level of the farmer and/or farmer organization.

These regulations, as stated by the key informants interviewed, were viewed more as a restriction than a tool for better trade and market prices. Without knowledge of regulations, the perception would always be that the transaction cost is high.

Maximize Platforms

Based on the survey results, quality assurance processes were not observed by both beneficiaries and non-beneficiaries as they relied on informal sources for buying quality planting materials. An improvement in accessing regulations in the web-based system can be done by sending the documents or reports or regulatory procedure via e-mail to cooperatives and farmers, along with text notifications on updates. These regulations and steps for compliance must be accessible immediately in soft copy format (if an email was sent to the target client rather than waiting for the client to access the site and download the form). As many farmers and their children now have Facebook accounts, the use of social media in disseminating regulations and QAP can also be explored.

As reported, the practice of regulation-based trading did not materialize with the government's decision to remove fees and charges and other regulatory requirements. The review of the regulatory system in farm production and marketing, and the capacity of the government to implement the policy direction behind the regulation is more important than ever with the AFTA.

The DA and agricultural state colleges and universities also have trainings and have established certification process on good farming practices and organic production. These current initiatives need to be pursued as farmer-based regulations, i.e. accessible and simple, will provide continuity and encourage compliance of agri-business to international standards. Self-regulation may also be encouraged as many farm cooperatives are now developing more mature management and participatory systems. For example, there is a growing market for flower products and even "pesticide free" flowers. Japan is a major market for white chrysanthemum, while the event management industry, e.g. weddings, conferences is creating a demand for flowers and foliage.

Component 4: Market-Linked Technology Development and Dissemination

Basic information about the component

- **Objective:** To improve the DA's Research and Development (R&D) and training outreach through the strengthening of the Bureau of Agricultural Research (BAR) using Competitive Grants, and the DA's Agricultural Training Institute (ATI).
- **Expected output:** Technologies with market demand and opportunities linkages
- **Budget:** $9.66 Million allocated; $5.73 Million actual spent by the end of project implementation; 59.32% utilization rate
- **Reported number of beneficiaries:** N/A target; N/A actual; N/A accomplishment rate

Background on the component

The budget allocation of the DA for the extension services and R&D averaged at only about 10 percent and 5 percent, respectively (Francisco and Bordey, 2013). This is despite the fact that technology development and dissemination continue to play a significant role in improving the agriculture sector. Moreover, expenditures have focused almost entirely on expanding production, with less efforts focusing on market-driven and post-harvest research in commodities with recognized market potential. Although better levels of funding have been provided for training, this has been largely supply-driven.

The project wanted to modify and strengthen the implementation of the DA's Competitive Research Grants scheme (World Bank, 2004). Competitive research grants are the main funding instruments for public sector research (BAR, 2005). They influence all the activities and outcomes associated with public sector research (e.g. strategic orientation of research, scientific publications, R&D collaboration, and technology transfer and knowledge diffusion). Most OECD countries such as the Philippines use several types of competitive research grants (e.g. grants based on broad calls for bottom-up proposals, grants targeting predefined areas, and grants funding predefined research projects). According to the Bureau of Agricultural Research (2005), actors to be taken into consideration when implementing competitive R&D project grants include: (1) the span of the project; (2) proposed budgetary requirement; (3) R&D need of the commodity; (4) span and budgetary requirements of project implementation; and lastly, (5) impact. These grants were able to support agricultural research under this component, with priority given to developing technology that would contribute to the marketability of products.

Information about the trainings were made available even to the non-members of growers or farmers associations. The said trainings have also encouraged the participation of both men and women. The Department of Agriculture tracked and assessed the reach and success of these trainings. Furthermore, technical assistance was provided to help the Bureau of Agricultural Research (BAR) implement Intellectual Property Rights provisions (IPR) more effectively, an important area in promoting better information dissemination on technology and greater

involvement of the private sector as certified outlets who are seen to improve seed and vegetative materials.

Field findings

A. Survey Results

Profile of the respondents

The survey was composed of 82 respondents, 51% of which were beneficiaries. The proportion of female beneficiaries (66%) was significantly higher than the male beneficiaries (33%). Moreover, the proportion of beneficiaries (79%) who belong to farmer associations was significantly greater than those of the non-beneficiaries (55%).

During the field interview, respondents were asked to identify the project/s in their community that they or their household members were involved in/benefited from. A high number of beneficiaries (88%) stated that they benefited most from the trainings and seminars conducted in their areas. However, the proportion of non-beneficiaries who attended and benefited from the trainings was still higher compared to that of the beneficiaries.

Table 4- 1S6. Project/s in the community that the respondents and his household members are involved in/benefited from?

Project	Total		Beneficiary		Non-beneficiary		p-value
	#	%	#	%	#	%	
Total	82	100%	42	100%	40	100%	
Rural infrastructure	63	77%	28	67%	35	88%	0.02574**
Irrigation	16	20%	11	26%	5	13 %	0.11876
Farming inputs	36	44%	24	57%	12	30%	0.01314**
Fishing inputs	2	2%	0	0%	2	5 %	0.14156
Equipment and machineries	13	16%	7	17%	6	15 %	0.83366
Information system	4	5%	2	5%	2	5%	0.96012
Training/seminars	75	91%	37	88%	38	95%	0.26272
Other development programs	2	2%	1	2%	1	3%	0.96810
Others, specify verbatim	2	2%	2	5%	0	0%	0.16152

Question: S5. MA. Anong mga proyekto sa inyong komunidad ang kinabibilangan o pinapakinabangan ng miyembro ng iyong pamilya? What are the project/s in the community that you and your households members are involved in/benefited from?
Base: 195 respondents
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

Table 4- 2F2. Crops cultivated by households in the last six months

Crop	Total		Beneficiary		Non-beneficiary	
	#	%	#	%	#	%
Total	130	100.00%	73	100.00%	57	100.00%
Palay	64	49.23%	32	43.84%	32	56.14%
Others	66	50.77	41	56.16	25	43.86

Question F2. What crops did you farm/take care of in the last 12 months?
Base: 130 total number of crops cultivated

While both beneficiaries and non-beneficiaries were from farming households where crop diversity was prevalent, it was apparent that both were still predominantly rice farmers. The proportion of non-beneficiaries that are into rice was higher compared to that of beneficiaries. That is, 56% of non-beneficiaries cultivated rice, while only about 44% from the beneficiaries cultivated the same crop.

In terms of their total household income, beneficiaries' average farming income was 18% higher compared to the farming income of non-beneficiaries. Furthermore, in terms of their average non-farming income, the beneficiaries still had a higher income (higher by 55%) than the non-beneficiaries.

Table 4- 3D13a. Farm and Non-Farm Income

	Beneficiaries	Non-Beneficiaries	p-value
N	42	40	0.37560
Sum	PhP 560,432.00	PhP 436,316.75	
Mean	PhP 13,343.62	PhP 10,907.91875	
SD	PhP 15,995.40	PhP 7,601.241303	

Question D13a. TOTAL INCOME
Base: 82 respondents

Table 4- 4D13b. Farm and Non-Farm Income

	Beneficiaries	Non-Beneficiaries	p-value
N	42	40	0.11160
Sum	PhP 175,392.00	PhP 74,600.00	
Mean	PhP 4,176.00	PhP 1,865.00	
SD	PhP 6,630.34	PhP 6,375.50	

Question D13b. TOTAL INCOME
Base: 82 respondents

In terms of household consumption, *Ulam/Sangkap/Sahog sa ulam* took up the largest portion of the expenses of both beneficiaries and non-beneficiaries. Expenses for this item averaged at Php1,139.05 for beneficiaries and P938.50 for non-beneficiaries per week. Most of these *ulam/sangkap/sahog sa ulam* were produced by the household themselves.

Table 4- 5A7. Household Consumption

Item	Ave. Consumed Value (Pesos)		Cash/Credit (Pesos)		Own Produce (Pesos)	
	B	NB	B	NB	B	NB
Bigas (Rice)	PhP 260.79	PhP 288.40	PhP 0.00	PhP 17.95	PhP 235.28	PhP 288.40
Ulam/ Sangkap/ Sahog sa ulam	PhP 1139.05	PhP 938.50	PhP 173.81	PhP 174.36	PhP 987.56	PhP 774.75
Pagkain sa labas kasama sa carinderia, canteen, fastfood *atbp.*	PhP 198.45	PhP 146.38	PhP 23.81	PhP 32.05	PhP 177.44	PhP 130.90
Alak o iba pang nakakalasing na inumin (alcoholic beverages)	PhP 84.45	PhP 53.73	PhP 14.67	PhP 10.79	PhP 59.29	PhP 39.18
Sigarilyo, tabako (Tobacco)	PhP 62.58	PhP 29.95	PhP 1.31	PhP 5.13	PhP 62.77	PhP 30.21

Question A7. How much/many does the entire family/household consume in a month?
Base: 82 respondents

Production expenses included labor wage, fertilizers and pesticides applied, seeds, and other inputs used in their farming livelihood. Comparing the production costs per cropping season, it can be seen that the beneficiaries had a production expense PhP 544,146 higher than the non-beneficiaries. This may be attributed to the beneficiaries' use of more inputs that are more expensive.

Table 4- 6I22.5-I35.5. Production Expenses

Production Expenses	Beneficiary	Non-beneficiary	p-value
N	252	219	0.84000
Sum	PhP 1,190,078	PhP 645,892	
Mean	PhP 4,722.52976	PhP 2,949.276712	
Standard Deviation	PhP 125,731	PhP 56,121.1	

Question I22.5-I35.5. PER FARMING PROCEDURE: how much do you usually spend per cropping season?
Base: 82 respondents

Trainings/seminars attended

Ninety-seven percent (97%) of beneficiaries and 95% of non-beneficiaries have attended training/s related to marketing, enterprises, and product development, among others, in the past 13 years.

Table 4- 7M1 Number of respondents who attended trainings

Participation	Total N=82	Beneficiary N=42	Non-Beneficiary N=40
Yes	96%	98%	95%
No	4%	2%	5%

Question M1. Have you attended training related to marketing, enterprise, product development, knowledge management development, etc. in the past 13 years?
Base: 82 respondents

Generally, the trainings they attended were conducted from 2010 to 2017 with the following topics: land preparation, pest management, paddy check system, and organic farming. Aside from the topics mentioned, nine (9) beneficiaries participated in the Farmers Field School (FFS) where they gained basic knowledge and skills in farming such as transplanting, composting, gardening, pest management and vegetable production. Four (4) out of the nine (9) participants were informed about FFS by the Farmers' Association, while the others knew about the project through their respective barangay officials.

Based on the survey results, there was no significant difference between the number of trainings on marketing, enterprises, and product development attended by the beneficiaries and non-beneficiaries in the past 13 years.

B. Key Informant Interview/s

A key informant stated that before they held trainings, they, as trainers to the farmers, also underwent a series of trainings and seminars spearheaded by the Agricultural Training institute (ATI). The ATI is an organization under the Department of Agriculture (DA) that leads in the provision of extension services in collaboration with the various agencies, bureaus and other organizational units. One of the functions of the ATI is to team up with the state universities and colleges (SUCs) of agriculture/fisheries as key partners in the implementation of the national programs specifically in the areas of extension innovation, national training, and monitoring and evaluation of extension institutions and programs; and provide

Role of ATI

Agri-entrepreneurship was the focus of the DFIMDP-funded trainings. From the lessons learned from DFIMDP trainings, ATI was able to establish Farm and Advisory Services which provided the additional trainings to the farmers that were related to the commodities they were producing. Since individualism was observed among farmers, Community of Practice was the approach used. This involved openness and sharing of lessons and experiences among farmers who cultivated the same commodities. It was also mentioned that if a farmer is alone, s/he will have less command in the pricing of the commodity.

The overall impact of the DFIMDP to ATI is in the innovation of trainings. As per the key informant, DFIMDP is the precursor of new ATI programs and policies now such as Farm Tourism Law and Farm Business School.

leadership in developing and implementing a national system of strengthening institutional extension capacities at all levels of implementation. The trainings were mainly about management and accounting and project proposal development, where they learned to develop a business proposal. The said proposal included the cost, financial forecasting, sourcing of materials, and targeting markets and areas where they can sell their products.

The key informant from the Agriculture Office in Iloilo shared that most of the trainings being conducted in their area tackled how to make production processes more efficient. Also, she pinpointed that ATI, aside from training LGU officials, guides researchers in any way possible. Most researches were focused on identifying the most high-yielding varieties of corn and other major crops being produced in the region.

Trainings Provided

Marketing was given emphasis in the trainings as an essential element in improving the livelihood of farmers. Topic on diversification of commodities was also covered in the trainings with the objective of improving their resilience against climate and loss. This was different from the usual thrust of ATI which is training for production alone.

One project provided to the farmers was the Farmer Field School (FFS). According to a DA officer, a typical "school" consists of a class with 25-40 farmers who undergo a season long (a half-day meeting each week over a 10-week period) experiential group learning program focused on teaching farmers agri-entrepreneurship.

Banana chips and handicraft merchandises are some examples. Learning manuals or booklets provided by the Department of Agriculture (DA) include topics on plant varieties, methods of seed selection, nutrient requirements and delivery, insect and disease management, field sanitation, and water and weed management. Attendees were said to be satisfied with the type of trainings provided to them. Furthermore, this project/training was open to all farmers who were interested and willing to gain knowledge. In rural areas, it prioritized women.

Knowledge and skills gained from the trainings were executed through participation in exhibits. Their products, banana chips for example, were displayed and sold to customers. Last 2013, DA established a food depot where farm products from the beneficiaries can be purchased. There were demo farms that were used during fieldworks as part of the training process. Planting to harvesting trainings were done on the said demo farms. Owner of demo farm must also be a participant or beneficiary and the location must be near the training venue.

One problem encountered by the trainees in FFs is the lack of meat processing materials which caused unsustainable production of processed meat in the area. Also, some participants, including women participants from rural areas, lost their interest after some weeks of trainings. Some of them had other priorities like their families and their own farms.

Furthermore, according to a key informant from DA, linkages among concerned agencies were "weak" as there were no standards of performance and regulatory mechanisms. In addition, while the training program (model) should ideally reach out to different audiences, a deviation usually happens during the actual implementation. High-level government officials do not want to be interviewed by ATI, and supervisors do not want to send out their extension workers for week-long trainings as their work is loaded. In actual practice, almost all these centers are training farmers.

There was also a change in the organizational chart among ATI training centers. Training centers were reduced to only one training center per region. A key informant also expressed that the rationale of having ATI regional offices (separate from DA regional offices) is for ATI to supervise the training and extension services of DA agencies per region. Aside from ATI, other DA agencies (like PhilRice) are also conducting training programs. According

to him, this supervisory role of ATI is not completely fulfilled as the moment. If this role materializes, overlapping of training programs will be avoided.

C. Focus Groups Discussion

One respondent during the FGD shared that these trainings are precedents to enterprise developments, honing their skills and knowledge on different income-generating activities or additional livelihood that eventually resulted in increase in income.

Farmers Field School. The Farmers Field School (FFS) was a four-month training program conducted annually in different barangays, with farmers and barangay officials as participants. Training topics included planting of seedlings and harvesting of *palay* and other vegetables. Number of participants ranged from 25 to 40 farmers per training session. The set-up included a projector and laptop for the visuals. At the start of the training sessions, questions on the subject matter were given to the participants to measure their initial knowledge about farming. Manual booklets provided by DA were used by the trainers during lectures and activities. In the FFS, aside from planting-to-harvesting skills, participants were also trained to create additional products from their produce. These trainings include:

- Food processing
- Banana chips making
- Packaging and labelling (facilitated by DTI)
- Handicraft making

Analysis and recommendations

Shifting of ATI's role

The DA adopted a Competitive Grants Manual describing the evaluation and implementation criteria which was used in making research sub-grants, as a condition of disbursement for this component (World Bank, 2010). The project also supported a shift in the role of the DA's ATI, by phasing out its role as a direct provider of training, except for LGU extension workers, while strengthening its role in strategic planning, coordination and funding of training. This shift was formalized on March 31, 2005 through a Special Order or similar instruction from the Secretary of Agriculture.

Mirroring training activities conducted for other Project Areas

The nature of training activities supported was based on the experience of the FAO-assisted technical assistance project in one of the Focus Areas (Region 10). The said technical assistance project demonstrated benefits from training such as bringing producers and buyers in direct contact to assess market needs and facilitate forward contracts. The training emphasized the proper use of chemicals and their disposal, to help mitigate the pesticide residues that continue to be pervasive in Philippine agricultural products and cause of rejections on export markets.

Component 5: Enhancing Budget Resource Allocation and Planning

Basic information about the component

- **Objective:** To support government-wide initiative to improve public expenditure management—a process that seeks to improve efficiencies in public resource allocation and utilization and better linkages between planning and budgeting.
- **Expected output:** Assist the DA in making the transition to MFO-based budgeting designed to assist DA Management in providing more strategic allocations of scarce budgetary resources. It was envisioned that this reconfiguration of the budget would pave the way for the DA to overcome the chronic disconnect between its annual plans and actual expenditures
- **Budget:** $2.72 Million allocated; $3.29 Million actual spent by the end of project implementation; 121% utilization rate
- **Reported number of beneficiaries:** N/A target; N/A actual; N/A accomplishment rate

Background on the component

The component was designed so that the DA will allocate more budget[9] on programs and projects related to market development. At the end of 2009, the WB 2010 evaluation report indicated that the DFIMDP's target of increasing budget allocation from 25% to 47% was not achieved. However, an increase in volume (rather than percentage) of funds for market oriented investments was observed.

A related accomplishment was that ATIs training included "marketing related aspects in 50% of its training activities" (World Bank, 2010). The same report noted that actual market related fund doubled from 4.6B in 2005 to 11B in 2009. Nonetheless, this increase in volume was still below the 47% target given the understanding that the "indicative target should be kept as a proportion of the budget, as an indicator of DAs commitment to adjust the balance of priorities in line with the goals of AFMA."

The Department of Agriculture Regional Field Office 6 in Iloilo City had banner programs under the Agri-Pinoy Framework. The banner programs, with market-related components, were the following: a) Rice Programs, b) Corn Programs, c) Livestock Programs, d) High Value Commercial and Development Programs, and e) National Organic Agriculture Programs.

The data below is based on the premise that the budget increase in programs with market-related components such as those abovementioned will yield benefits in favor of farming households.

[9] One critical input to measuring this component's impact is the review of the budget allocation of DA from DFIMDP's inception to project closing. Internet sources and published records were not able to provide this information. The same information was requested from the DA in August 2017, however, the information remained unavailable to date.

Field findings

A. Survey Results

Profile of the respondents

The survey was composed of 75 respondents, 60% of which are beneficiaries. Respondents were almost equally divided between male and female (47% vs 53%) for both beneficiaries and non-beneficiaries. Nine (9) out of 10 respondents are farmers; the proportion of non-farmer respondents belonging to non-beneficiaries is also significantly lesser than the beneficiaries.

While both beneficiaries and non-beneficiaries are from farming households, crop diversity is prevalent among beneficiaries. The proportion of non-beneficiaries that are into rice and corn is greater compared to that of the beneficiaries. For example, 69% of non-beneficiaries are cultivating rice compared to 45% of beneficiaries. Meanwhile, beneficiaries are cultivating backyard crops like banana, cassava and legumes.

Table 5- 1F2. Crops cultivated (only those with significant values reflected)

Crops cultivated	**Total**		**Beneficiary**		**Non-beneficiary**		**p-value**
	#	%	#	%	#	%	
Cassava	7	6%	7	10%	0	0%	0.04550**
Corn/ *Mais*	15	13%	13	18%	2	5%	0.06010*
Rice/ *Palay*	60	54%	33	45%	27	69%	0.01510**
Banana/ *Saging*	5	4%	5	7%	0	0%	0.09492*
Green beans/*sitaw*	4	4%	1	1%	3	8%	0.08544*

**other crops include abaca, camote, munggo, okra, eggplant.*
Question F2. What crops did you farm/take care of in the last 12 months?
Base: 112 respondents who cultivated crops in the last 12 months
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

Assistance Received

As part of the DFIMDP, beneficiaries and non-beneficiaries received assistance on the following: a) monetary assistance, b) free crops/seeds, c) free crop insurance, d) free fertilizers, e) free pesticides, and f) others like farming tools (T.5N2). The proportion of beneficiaries and non-beneficiaries that received *palay* seedlings were almost equal at 65% and 67%. Financial/monetary assistance was given mostly (65%) to beneficiaries. However, statistical significance is observed only in the case of fertilizers as almost twice the number of non-beneficiaries compared to beneficiaries who received fertilizers.

Table 5- 2N2. Kind of assistance received from the government.

Kind of Assistance	Total		Beneficiaries		Non-beneficiaries		p-value
	#	%	#	%	#	%	
Total	70	100%	43	100%	27	100%	
Financial Assistance	13	19.%	11	26%	2	7%	0.05614
Free crops/seeds	46	66%	28	65%	18	67%	0.88866
Free crop insurance	1	1%	0	-	1	4%	--
Free fertilizers	16	23%	6	14%	10	37%	0.02574**
Others	18	26%	12	28%	6	22%	0.59612

Question N2. For those who received assistance from the government: What kind of assistance did/do they provide?
Base: 70 farmer respondents interviewed who received assistance from the government
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

All respondents were asked how they used the assistance given to them which was expected to be used for the household's agricultural livelihood.

For those who received financial assistance, five out of 10 beneficiaries and non-beneficiaries used the cash to buy groceries and additional inputs needed such as fertilizer and pay the utility bills. Meanwhile, the variance in the proportion of beneficiaries and non-beneficiaries in the use of crop seeds was small. At least eight out of 10 recipients used seeds in their own farms; while for those who did not use the seeds, mentioned that they were given to others.

Economic Well-being

A little over half (53%) of all the respondents have other sources of income but the diversity is more statistically pronounced among non-beneficiaries; thus, supporting the non-farming character of the selected non-beneficiary respondents. The beneficiaries reported a lower total monthly household income (PhP 14,000.00) compared to non-beneficiaries (PhP 18,000.00), and still a lower level of expenditure at Php4.2/month vs PhP 6.3/month. The difference in income level was not statistically significant but the higher expenditure of non-beneficiaries was recorded as significant.

Table 5- 3D14. Monthly Income and Expenditure

Pesos/month for total household and Expenditure	Beneficiary (B)	Non-beneficiary (NB)
Income	PhP 13,761	PhP 18,433
Expenditure (significant at 5%)	PhP 4,205	PhP 6,342

Proxy Indicators

The economic well-being of the beneficiaries and non-beneficiaries portray a sharper picture of the beneficiaries based on food consumption patterns.

The non-beneficiaries, using the table above as a basis, had more cash income, spends more on condiments and even basic utilities like water and electricity except for fuel and wood. The higher expenditure of non-beneficiaries on condiments is reported as statistically significant.

Table 5- 4A8. Average total weekly household consumption bought by cash or paid through credit

Item	Total	Beneficiary	Non-Beneficiary	p-value
Bigas/Rice	PhP 43.22	PhP 42.86	PhP 0.36	0.32720
Ulam/Sangkap/Sahog/Dishes	PhP 285.00	PhP 75.00	PhP 210.00	0.09240*
Food regularly consumed outside the home	PhP 150.92	PhP 74.42	PhP 76.50	0.96220
Alcoholic Beverages	PhP 34.44	PhP 12.27	PhP 22.17	0.52680
Sigarilyo/Tobacco	PhP 47.94	PhP 20.11	PhP 27.83	0.67740
Total	PhP 599.61	PhP 216.11	PhP 383.50	0.03420**

Question A8: How much was bought by cash or paid through credit?
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

Data shows that the mean monthly expenditure of non-beneficiaries is higher at PhP 6,342.00/month compared to beneficiaries at PhP 4,205.00. Although the difference is statistically significant, this may also be a reporting discrepancy. The trend in surveys is that some people tend to over-report expenditures especially in the hope of getting assistance while the beneficiaries of the project under-report to camouflage increased in income.

An interesting information is that for both respondent beneficiaries and non-beneficiaries, 1 out of 5 households has a member, typically a son or a daughter, remits PhP 2,594.00/month. Other household members receive remittances as well (local and abroad) worth PhP 3,200.00/month for beneficiaries and double for non-beneficiaries at PhP 7,071.00/month.

This data on income from remittances is important as improvements or positive economic changes in living conditions of both the beneficiaries and non-beneficiaries in the latter period or post 2009, may be attributed more to the cash contributions of the other household members, than receipts from farming activities. However, there is no data regarding the time when the households started receiving remittances.

Free Riders and Public Goods

Though the participation of non-beneficiaries is not statistically significant, the reality of the "free rider" is visible. The non-beneficiaries availed of the free inputs even if only 1 out 3 non-beneficiaries actually attended project related trainings.

Similarly, the proportion of beneficiaries and non-beneficiaries who benefited from rural infrastructure and irrigation, is not statistically significant. This confirms that public goods like roads and irrigation, cannot differentiate and discriminate among farmer-beneficiaries and non-beneficiaries.

At the individual level, more (90% of sample) non-beneficiaries claimed to have received farming inputs like fertilizers and seeds. However, with regard to capital expenditures like equipment, the program managed to distribute only to the selected beneficiaries. The World Bank 2010 report observed a similar finding that there were more non-beneficiaries that received benefits in general. This survey, while confirming the World Bank finding, differentiated the benefits received by non-beneficiaries and beneficiaries.

The data below, with statistical significance between beneficiaries and non-beneficiaries further provides additional insights on who benefited more from the DFIMDP. What is notable is the non-discriminatory effect of the project and the possibility that in some instances the project may have reached out to other poor households who are non-beneficiaries. Capital outlays however were limited to direct beneficiaries.

Table 5- 5S6. Project participation of respondents

Project	Total		Beneficiary		Non-Beneficiary		p-value
	#	%	#	%	#	%	
Total	75	100%	45	100%	30	100%	
Rural Infrastructure	66	88%	39	87%	27	90%	0.66720
Irrigation	21	28%	12	27%	9	30%	0.75656
Farming inputs	58	77%	31	69%	27	90%	0.03236**
Fishing inputs	1	1%	1	2%	0	-	--
Equipment and machineries	10	13%	9	20%	1	3.3	0.03662**
Trainings/ seminars	33	44%	24	53%	9	30%	0.04660**
Other development programs	1	1%	0	-	1	3%	--
Others, specify verbatim	10	13%	9	20%	1	3%	0.03662**

Question: S6. What are the project/s in the community that you and your household members are involved in/benefited from?
Base: 75 respondents
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

B. Key Informant Interview/s

Monitoring and evaluation activities were conducted on a quarterly basis. The Monitoring and Evaluation System, a program under the DFIMDP, was implemented in four pilot regions: CAR, Region VI, Region VII and Region X. The goal of this program was to monitor the indicators of Market Development Services such as efficiency of production units but it was unsuccessful due to lack of cooperation on the farmers' side. The Provincial Government has undergone trainings and was supposed to be the officers in charge of data collection and analysis. Unfortunately, it was not given priority at that time.

The Department of Agriculture Regional Field Office 6 in Iloilo City had banner programs under the Agri-Pinoy Framework which was launched in 2014 and were grouped based on the commodity. The banner programs were the following:

1. Rice Programs
2. Corn Programs
3. Livestock Programs
4. High Value Commercial and Development Programs
5. National Organic Agriculture Programs

Budget allocation and the authority on projects were given to the officers-in-charge per banner program. It was different from how the DFIMDP's budget was allocated wherein it was distributed per component regardless of which commodities belong to each component. According to some respondents, the local government was focused on its own projects and agricultural programs were not on its list of priorities. It was also mentioned that some LGUs whose project exceeded its budget acquired funds directly from the budget allocated for agricultural programs. No specific name of project was disclosed by the informant.

C. Focus Group Discussion

Participants of the FGD confirmed that they were given one sack of crop seed annually. However, one issue that was raised was that the land area of each farmer was not taken into consideration. Even farmers with less than a hectare of land were given the same amount of seeds. Some farmers mentioned that they were not given assistance by the government. They only felt the support of the government after typhoon Yolanda.

Issues on Budget Allocation

According to the informant, the DFIMDP had an unsatisfactory rating. She said that it was because of the "resistance" of some regulatory agencies. She also mentioned that they struggled to change the process of budget allocation from commodity-based to functional. Banner program coordinators existed, however, the said coordinators did not support the proposed reforms.

In addition, according to the report of World Bank, the appraised amount for DFIMDP Component 5 was 2.7M US Dollars; nonetheless, reported amount spent was 3.29M US Dollars. Thus, there was an apparent overspending of funds. In spite of this, the objective, that is to strengthen its budget allocation, according to the informant, was not fully achieved.

For the groups or cooperatives who wished to receive machineries grant, the members should undergo an interview and submit all the required documents for the application. Aside from government assistance, the farmer participants in the FGD mentioned that their respective cooperatives provided machineries and equipment. They also conducted trainings and provided financial assistance. NATTCO was one of the cooperatives who gave financial assistance to the farmers.

Analysis and recommendations

<u>Increase budget allocation</u>

There is no clear pattern which establishes that the listed beneficiaries are better off than the non-beneficiaries of the project. In fact, data shows that beneficiaries have lesser cash income compared to non-beneficiaries who do not have "modern flush" toilets. Non-beneficiaries also have members of households that sent higher remittance receipts. The number of non-beneficiaries with own businesses is significantly higher than beneficiaries as most beneficiaries worked in family farms.

As mentioned earlier, the increase in budget allocation especially for infrastructures would generate an inclusive effect at the community level and differentiation of impact at the

household level would be difficult in the long run. In terms of distribution of specific inputs, the DA thought it is wise (and it is proper and developmentally humane) to include NB as recipients of a basic farm input such as fertilizer. As reported, statistical significance was observed in the case of fertilizers as there was almost twice the number of NB that received fertilizers as compared to B.

Special recommendation is however made about crop insurance as a clear significant indicator of market driven agri-programs.

Analysis of Before-and-After

The IES conducted for DFIMDP aimed to compare the project's beneficiaries and non-beneficiaries in terms of their household profile and farming activities before and after the implementation of the DFIMDP in Region VI[10]. Data and analysis below utilized proxy indicators to compare farmers' income and crop production before and after the intervention. Note that the secondary data gathered did not contain information on the beneficiaries and non-beneficiaries of the DFIMDP. Moreover, most of the secondary data gathered in the report had no corresponding data in the survey conducted by ASCEND. The main purpose of gathering secondary data is to reconstruct the baseline information. This can be used to look at possible trends that could help explain the condition and status of the beneficiaries and non-beneficiaries before the intervention and also to assess impacts after the intervention.

1. **Comparison of Household income from 2003 through 2015**

Family Income and Expenditure Survey

Data. Family Income and Expenditure Survey (FIES) uses the Census of Population and Housing (CPH) as its sampling frame. This means that the livelihoods of the households sampled for FIES can be of different industries. For the survey conducted by ASCEND in Region VI, the sampled respondents were mostly farmers. Thus, it should be noted that interpretation and comparison of the income data of FIES with the survey data gathered by ASCEND should be made with caution.

Data processing. The prices for 2006, 2009, 2012, and 2015 were recomputed to exclude inflation rates and to have values that were constant prices in 2003. This was done so that comparison of total receipts and approximate receipts per family across years was possible. Inflation rates used were the rates published in the Bangko Sentral ng Pilipinas' (BSP) website whose data source is the PSA. Statistical tests such as comparison of means for the data available in Table BA-412 cannot be performed due to the lack of data published (i.e., standard deviation or variance of the values are not available).

Analysis. Looking at the income classes from 2003 to 2015 from FIES, there was a decreasing trend in the number of families belonging to the two lowest income classes (under Php40,000.00 and Php40,000.00 to Php59,999.00) but an increasing trend in the number of families belonging to the two highest income classes (Php100,000.00 to 249,999.00 and Php250,000.00 and over) from 2003 through 2015.

The income of respondents from the survey conducted by ASCEND supported the statement that there were more families now belonging to the two highest income classes than those

[10] Note that for this IES, ASCEND reconstructed the baseline information as recommended by WB for Impact Evaluation Studies with absent baseline data. ASCEND is still waiting for access to DFIMDP documents, which may include the baseline data, of WB as of this report.

belonging to the two lowest classes (refer Table BA-1). However, this cannot be an indication that lives of families have progressed over the years because it is possible and logical to assume that as their income increases, their expenses and consumption also increase. Moreover, this increase of income of farmers cannot be directly attributed to the DFIMDP.

The succeeding analysis below are based on other FIES data gathered as baseline information: There was a decreasing trend in the total receipts in Region VI and approximate receipts per family in the two lowest income classes (under Php40,000.00 and Php40,000.00 to Php59,999.00), but an increasing trend in the two highest income classes (Php100,000.00 to 249,999.00 and Php250,000.00 and over) from 2003 through 2015 (refer to Table BA-2).

There is a higher incidence of families in 2003 who spends money on alcoholic beverages, tobacco, transportation and communication, education, and special occasions when compared to incidence of families in 2015 who purchase the same commodities (refer to Table BA-311). The difference in 2003 and 2015 can be attributed to the changes on priorities and interests of people with regards to how they want to spend their money.

Table BA- 1. Number and percent of families by income class for 2003, 2006, 2009, 2012, and 2015.

INCOME CLASS	2003		2006		2009		2012		2015	
	Number of families	Percent of families	Number of families	Percent of families	Number of families	Percent of families	Number of families	Percent of families	Number of families	Percent of families
Under 40,000	197	16	128	10	75	5	70	4	22	1
40,000 to 59,999	285	23	283	22	166	11	138	9	82	5
60,000 to 99,999	377	30	402	32	412	28	410	26	306	18
100,000 to 249,999	295	23	393	31	584	40	623	39	871	51
250,000 and over	112	9	163	13	215	15	363	23	418	25
Total Region VI	1,266	100	1370	108	1452	100	1604	100	1,699	100

Source: PSA,2003, 2006, 2009, 2012 and 2015 Family Income and Expenditure Survey

Table BA- 2. Total receipts (in millions) and approximate receipts per family by income class for 2003, 2006, 2009, 2012, and 2015.

INCOME CLASS	2003		2006		2009		2012		2015	
	Total receipts (in millions)	Approx. receipts per family	Total receipts (in millions)	Approx. receipts per family	Total receipts (in millions)	Approx. receipts per family	Total receipts (in millions)	Approx. receipts per family	Total receipts (in millions)	Approx. receipts per family
Under 40,000	6,529	33,142.13	3,653.91	28,546.17	1,866.80	24,890.69	1,449.24	20,703.44	241.48	10,976.49
40,000 to 59,999	15,117	53,042.11	13365.85	47,229.14	6886.91	41,487.38	5003.53	36,257.49	1556.90	18,986.64
60,000 to 99,999	30,585	81,127.32	29004.44	72,150.34	25545.24	62,003.01	22618.95	55,168.17	9381.09	30,657.14
100,000 to 249,999	46,972	159,227.12	54949.65	139,820.99	70675.51	121,019.72	65422.58	105,012.16	50719.26	58,231.06
250,000 and over	51,170	456,875.00	64577.51	396,181.02	78204.55	363,742.10	132040.89	363,749.01	80844.67	193,408.31
Total Region VI	150,373	118,778.04	165,551.00	120,840.40	183,179.00	126,156.34	226,535.00	141,231.42	142,743.00	84,016.13

Source: PSA,2003, 2006, 2009, 2012 and 2015 Family Income and Expenditure Survey

Total receipts are in constant prices in 2003.

Table BA- 311. Number and percent of families by type of disbursements for 2003 and 2015 with statistical analysis.

DISBURSEMENTS	2003		2015		p-value
	Number of families	Percent of families	Number of families	Percent of families	
Total Food Expenditure	1266	100	1699	100	0.83366
Total Food Consumed at Home	1266	100	1699	100	0.83366
Bread and Cereals*	1266	100	1699	100	0.83366
Roots and tubers	1193	94	-	-	
Fruits and Vegetables	1266	100	1697	100	0.83366
Meat *	1257	99	1693	100	<0.00001***
Milk, cheese and eggs *	1259	99	1698	100	<0.00001***
Fish and seafood *	1262	100	1698	100	0.83366
Coffee, Cocoa and Tea	1257	99	1689	99	1.00000
Mineral water, softdrinks, fruit and vegetable juices*	1207	95	1680	99	<0.00001***
Food Not Elsewhere Classified	1266	100	1697	100	0.83366
Oils and Fats	-	-	1699	100	
Sugar, Jam, Honey, chocolate and confectionery	-	-	1698	100	
Total Food Consumed Outside Home	779	62	1489	88	<0.00001***
Alcoholic Beverages	1020	81	1152	68	<0.00001***
Tobacco	934	74	949	56	<0.00001***
Fuel, Light and Water	1266	100	-	-	
Transportation and Communication	1252	99	1699	100	<0.00001***
Household operations	1266	100	-	-	
Personal care and effects	1266	100	-	-	
Clothing and footwear	1248	99	1677	99	1.00000
Education	896	71	1153	68	0.08012*
Recreation and culture *	606	48	1303	77	<0.00001***

Health *	1234	97	1636	96	0.14706
Non-durable furnishings	699	55	-	-	
Durable furniture and equipment	369	29	561	33	0.02034**
Taxes	961	76	-	-	
Rental/imputed rent of occupied dweller	1266	100	-	-	
Furnishings and routine household maintenance *	369	29	1699	100	<0.00001***
Special Occasions *	880	70	1128	66	0.02144**
Gifts and contribution to others	910	72	-	-	
Other Vegetables-based products	-	-	43	3	
Accommodation services	-	-	79	5	
Housing, water, electricity, gas and other fuels	-	-	1699	100	
Miscellaneous Goods and Services	-	-	1699	100	
Other Expenditure	1110	88	1373	81	<0.00001***
Other Disbursements	751	59	896	53	0.00116***
Total Family Expenditure in Region VI	1266	100	1699	100	

Source: PSA,2003 and 2015 Family Income and Expenditure Survey

* Cereal and Cereal preparations in 2003 (indicate difference in labels)
*** *significant at 1%, 5%, and 10%*
** *significant at 5% and 10%*
* *significant at 10% only*

Table BA- 412. Total receipts (in millions) and approximate receipts per family by type of disbursements for 2003 and 2015 with statistical test.

DISBURSEMENTS	2003		2015	
	Total receipts (in millions)	Approx. expenditure per family	Total receipts (in millions)	Approx. expenditure per family
Total Food Expenditure	54527	43.07	81334.88	47.87
Total Food Consumed at Home	50455	39.85	71532.63	42.10
Bread and Cereals*	18176	14.36	26750.43	15.74
Roots and tubers	676	0.57	-	-
Fruits and Vegetables	5278	4.17	3335.85	1.97
Meat *	6388	5.08	8971.55	5.30
Milk, cheese and eggs *	3872	3.08	4890.11	2.88
Fish and seafood *	7796	6.18	12141.38	7.15
Coffee, Cocoa and Tea	1572	1.25	3214.46	1.90
Mineral water, softdrinks, fruit and vegetable juices*	1770	1.47	2640.23	1.57
Food Not Elsewhere Classified	4928	3.89	1964.26	1.16
Oils and Fats	-	-	1135.35	0.67
Sugar, Jam, Honey, chocolate and confectionery	-	-	1728.02	1.02
Total Food Consumed Outside Home	4072	5.23	9802.24	6.58
Alcoholic Beverages	1712	1.68	1632.22	1.42
Tobacco	1600	1.71	2311.17	2.44
Fuel, Light and Water	7545	5.96	-	-
Transportation and Communication	8054	6.43	13126.78	7.73
Household operations	2753	2.17	-	-
Personal care and effects	4710	3.72	-	-

Clothing and footwear	4063	3.26	4920.46	2.93
Education	4933	5.51	6121.27	5.31
Recreation and culture *	663	1.09	1303.75	1.00
Health *	3723	3.02	7018.60	4.29
Non-durable furnishings	424	0.61	-	-
Durable furniture and equipment	4253	11.53	4015.99	7.16
Taxes	1593	1.66	-	-
Rental/imputed rent of occupied dweller	12710	10.04	-	-
Furnishings and routine household maintenance *	1078	2.92	4229.01	2.49
Special Occasions *	3676	4.18	5788.04	5.13
Gifts and contribution to others	1344	1.48	-	-
Other Vegetables-based products	-	-	12.50	0.29
Accommodation services	-	-	314.78	3.98
Housing, water, electricity, gas and other fuels	-	-	31148.44	18.33
Miscellaneous Goods and Services	-	-	10959.61	6.45
Other Expenditure	4362	3.93	4162.96	3.03
Other Disbursements	19607	26.11	27407.36	30.59
Total Family Expenditure in Region VI	248313	196.14	353914.36	208.31

2. Comparison of Crop Production for 2003 to 2014

Major Crop Statistics

Data processing. Aside from using the total production (in metric tons) of the crops in Region VI, the proportions were calculated for each crop using the following formula:

$$Proportion\ of\ crop\ production\ of\ i = \frac{Crop\ Production\ of\ i\ (mt)}{Sum\ of\ All\ Crops\ Produced\ in\ region\ VI\ (mt)}$$

$$where\ i\ is\ a\ specific\ crop$$

Only the crops mentioned in the survey conducted by ASCEND were selected among the list of crops included in the Crops Statistics data. There were some crops that had no available data in the 1990-2003 and 2010-2014 Crop Statistics of the Philippines and in the Major Crops Statistics of the Philippines 2002-2007 and 2007-2011 (Regional and Provincial). Most of the crops mentioned in the survey conducted by ASCEND have very small to negligible proportions when divided by the total volume of production in Region VI. Majority of the volume of production of all crops in Region VI were from Sugarcane (*Tubo*) and Rice (*Palay*).

Analysis on the volume of production. Z test was used to test if the two proportions of crop production between 2003 and 2014 were statistically different. The null hypothesis was that the two proportions were equal while the alternative hypothesis was that the two proportions were not equal. The decision rule was if the p-value was less than the desired significance level (1%, 5%, 10%), then the alternative hypothesis is considered to be true.

At all levels of significance, there was no notable difference between the proportions of crops produced in 2003 and 2014 (refer to Table BA-1). Figure BA-1 illustrates that there has been no dramatic change in the proportion of crops produced to the total crops produced in the region from 2003 to 2014. Figure BA-2, on the other hand, presents the trend of the volume of production from 2003 to 2014. Based on the trend, sugarcane and rice had the most drastic changes in terms of volume of production over the years.

Looking at the status of crop production in Region VI before, during and after the implementation of DFIMDP (2003 to 2014), the distribution of the production of different crops (in proportions) did not differ significantly over the years. Sugarcane and rice remained as the major crops planted in the region (refer to Figure BA-1).

However, it can be observed that from 2003 to 2009, the proportion of sugarcane production was declining and the proportion of rice production was increasing. In 2009, proportions of sugarcane and rice productions reached their lowest and highest points, respectively. Direct causes for the said phenomenon cannot exactly be determined. However, for sugarcane, disasters or natural calamities that hit the region, i.e. tropical depression Winnie in 2004, typhoon Reming in 2006, and Typhoon Frank in 2008 might have contributed to the decline in proportion and production. According to Philippine Statistics Authority, Region VI is considered as the top sugarcane producer. It can be assumed that the largest agricultural area in this region was allocated for sugarcane so when unexpected events occur like natural disasters, the production of this crop will be affected the most.

For rice, on the other hand, it is illogical to assume that the increase in the proportion of production of rice was caused by disasters and natural calamities because rice is highly affected and devastated during typhoons, flash floods, etc. Thus, one possible and maybe logical explanation behind the increase of the proportion of production of rice was the effect of DA projects and other farming projects, one of which was the DFIMDP, for the farmers.

The goal of DFIMDP was to help farmers to be market-oriented. If the project had an impact to the farmers, then one explanation for the trend in 2003 to 2009 would be that farmers were given information during seminars and trainings that rice was more marketable than sugarcane. Thus, the production of rice should have been increased. According to the report of USAID on the economic profile of Western Visayas in 1982, rice is the staple food in the region, which translates to the demand for rice as high. High demand for rice would mean higher number of consumers and would also mean more market opportunities for farmers. More market opportunities can lead to higher income. Another aspect to consider that could be an explanation to the said increase and decline incidence in crop productions would be where to find the major producers of rice and sugarcane. The major producer of rice in the region is Iloilo. For sugarcane, it is Negros Occidental. There could be some specific interventions (projects and disasters) that have hit or affected these provinces that resulted to that certain trend.

However, this trend of sugarcane and rice stopped in 2009 which was also the end of implementation of DFIMDP. It can be inferred with the assumptions given that DFIMDP had an effect on the crop production of farmers in Region VI. Yet, based on the figures and statistics on the status of agriculture from 2003 to 2014, it is suggested that the project was not sustained up to the present.

It can also be observed in the graph that among all crops, the slow but continuous increase in the volume of corn production was simulated by the result of the survey conducted in DFIMDP areas. Corn was planted as a typical crop by both beneficiaries and non-beneficiaries. Moreover, the volumes of production of banana and cassava also increased gradually from 2003 to 2012.

Table BA- 513. Production of crops for 2003 and 2014

Crop	Production				p-value
	2003		2014		
	Percent	Volume (in mt)	Percent	Volume (in mt)	
Sugarcane (*Tubo*)	81.59982%	12,755,236	81.19555%	14,523,886	0.9601200
Rice (*Palay*)	11.30752%	1,767,530	11.47488%	2,052,574	0.9840400
Coconut (*Niyog*)	3.15554%	493,256	2.01160%	359,826	0.7278600
Banana (*Saging*)	1.62584%	254,143	1.56718%	280,330	0.9840400
Corn (*Mais*)	0.82352%	128,728	2.05956%	368,404	0.6170800
Mango (*Mangga*)	0.38555%	60,267	0.24882%	44,507	0.9124000
Cassava (*Camoteng kahoy)*	0.32273%	50,448	0.34235%	61,238	0.9840400
Watermelon (*Pakwan*)	0.17816%	27,849	0.39981%	71,516	0.8414800
Eggplant (*Talong*)	0.07127%	11,141	0.09516%	17,022	0.9681000
Tomato (*Kamatis*)	0.06275%	9,809	0.05442%	9,734	0.9840400
Papaya (*Papaya)*	0.04639%	7,252	0.02938%	5,256	0.9681000
Gabi (*Gabi*)	0.02123%	3,319	0.02700%	4,829	0.9840400
Mungbean (*Mongo*)	0.00953%	1,490	0.01507%	2,696	0.9840400
Peanut (*Mani*)	0.00642%	1,004	0.01220%	2,183	0.9760600
Ginger (*Luya*)	0.00584%	913	0.00776%	1,388	0.9920200
Abaca (*Abaka*)	0.00545%	852	0.00894%	1,599	0.9840400
Okra (*Okra*)	0.00329%	514	0.00939%	1,679	0.9681000
Tobacco (*Tabako*)	0.00221%	346	0.00154%	275	0.9920200
Onion (*Sibuyas*)	0.00049%	77	0.00095%	170	0.9920200
Carrot (*Carrot*)	0.00029%	45	0.00081%	144	0.9920200
Lettuce (*Letsugas*)	0.00003%	4	0.00020%	35	0.9920200

Source: 1990-2003 and 2010-2014 Crop Statistics of the Philippines
Unit of measurement of production was in metric tons.
Percentage was measured by capturing the production of the specific crop, and dividing it by the total produce of all crop in Region VI.
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

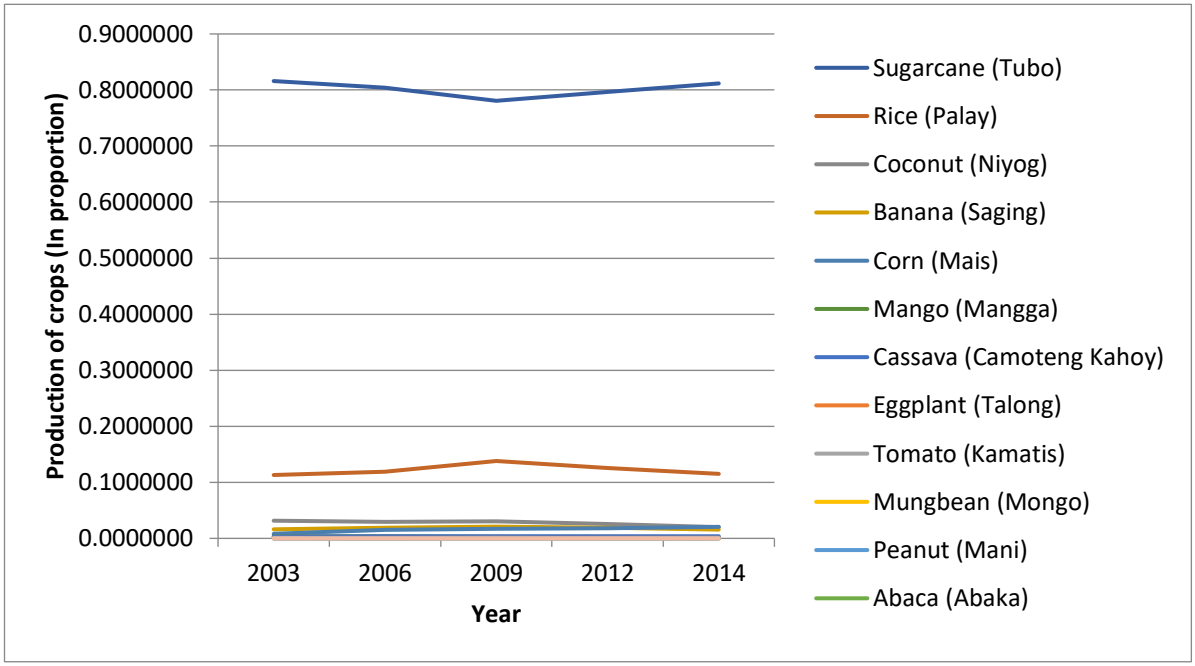


Figure BA 1. Production of major crops for 2003 to 2014 (in proportion).

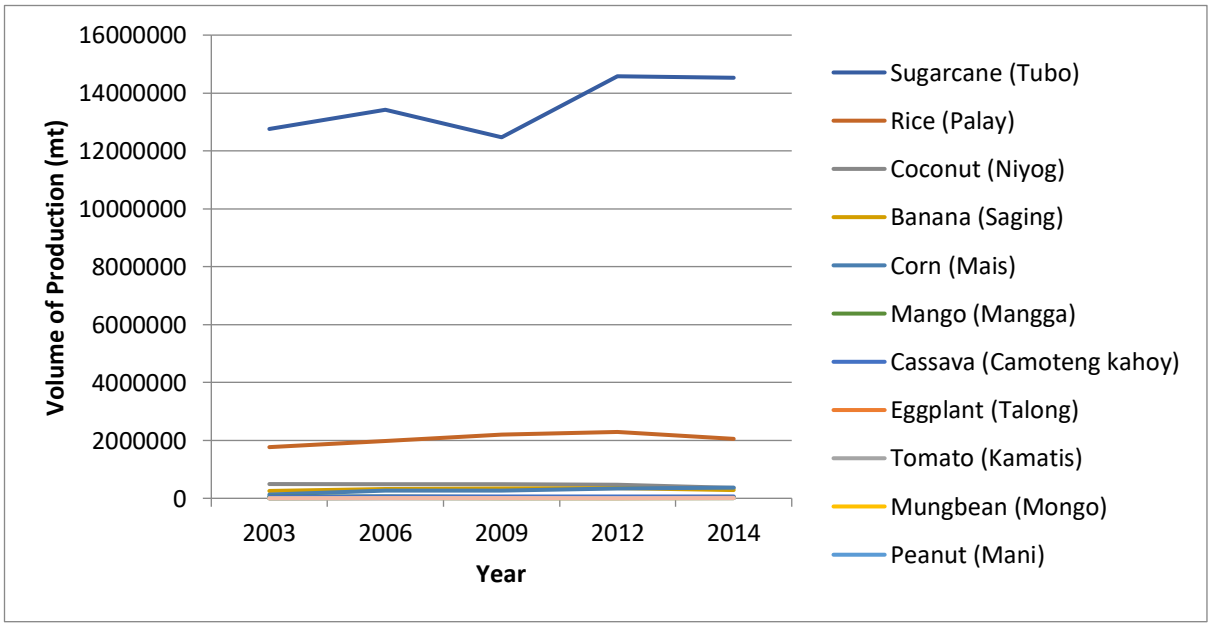


Figure BA 2. Volume production of major crops for 2003 to 2014 (in metric tons).

3. Comparison of Agricultural Employment and Gross Value Added in the Agriculture Sector from 2003 to 2016

Data Processing. The data used to compare agricultural employment before and after the DFIMDP intervention was from the Labor Force Survey. Gross Value Added (GVA) and Gross Regional Domestic Product (GRDP) were from the CountrySTAT database of PSA. Both GVA and GRDP were in constant price in 2000. Using Z test on two proportions, the Employment in Agriculture for years 2003 and 2015 were compared if there is any significant difference. The null hypothesis was that the two proportions were equal versus the alternative hypothesis that the proportions were not equal. The decision rule was if the p-value is less than the significance level (1%, 5%, 10%), then the alternative hypothesis is followed.

Analysis on the Agricultural Employment. Figure BA 3 shows a decreasing trend in the Agricultural Employment from 2003 to 2015 in Region VI. Moreover, when a test on proportions was conducted to compare the agricultural employment for years 2003 and 2015, there is a significant difference between the two proportions. Agricultural employment for 2003 was significantly higher than the employment in 2015.

One possible reason why the agricultural employment declined through the years is the change of preference of work of those people in the labor force of the region and the country. Change of preference may be due to the fact that disasters and natural calamities, particularly weather-related events, increase in frequency and intensity over the years as stated by PAG-ASA. It was also stated by NEDA that the most recent decrease in the agricultural employment in 2017 was partly due to the recent typhoons. When disasters happen, it can be expected that the farm land and products of the agricultural sector are the ones that are always critically affected and devastated among other sectors. One example would be Typhoon Frank, which hit the Western Visayas in 2008. The damage of this cyclone to the agriculture sector, mainly in Aklan and Iloilo, was greater than the damages to other sectors. Therefore, people tend to not make agriculture as their primary livelihood.

Another reasoning could be that younger generations today believe that farming is not a way out of poverty and they no longer want to continue the farming tradition of their parents and grandparents. What they prefer now is to proceed to urban areas to seek employment opportunities in companies or just migrate abroad. According to the annual Labor and Employment Report of PSA (2016), national employment data shows that more than half of the total employed persons in the Philippines is from the service sector.

Lastly, the decline in the agricultural employment could be because of the mechanization of agricultural process leading to lesser requirement for manual labor. This mechanization of agricultural process could be brought by policies and initiatives of the government and private sector. As reported in Iloilo Metropolitan Times (2013), the regional government allocated 20 percent of its budget for farm mechanization program. This included purchase and provision of various production or on-farm and post-harvest machinery and equipment. These kinds of

projects could have led to lesser employment of farmers in the region, hence, the decreasing trend.

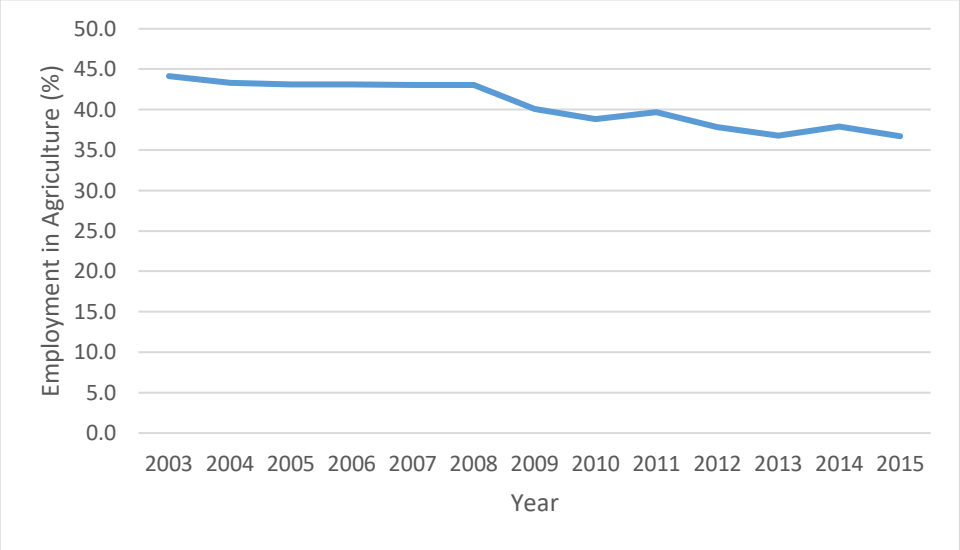


Figure BA 3. Agricultural Employment from 2003 to 2015 in Region VI

Table BA- 6. Test in proportions for employment in agriculture between 2003 and 2015.

Year	Total Employment	Employment in Agriculture (in percent)	p-value
2003	2596	44.1	<0.00001***
2015	3195	36.7	
****Significant at 1%, 5%, and 10%***			
***Significant at 5% and 10%*			
**Significant at 10%*			

Analysis on the Gross Value Added of Agriculture sector. Gross Value Added (GVA) for Agriculture sector from 2009 to 2016 is evidently higher than the GVA from 2003 to 2008 as shown in Figure BA 4. The sudden increase in 2009 might have been due to the agriculture-related efforts implemented in the region until 2009. This included the DFIMDP which was implemented in 2004 to 2009. Other plausible reasons for the increase was the mechanization or technologies introduced for farming and the increasing farm production support of the government and private institutions.

In spite of the upward trend from 2003 to 2010, a slow decline started in 2011 through 2016. This shift in direction may be due to the lack of sustainability of the programs implemented.

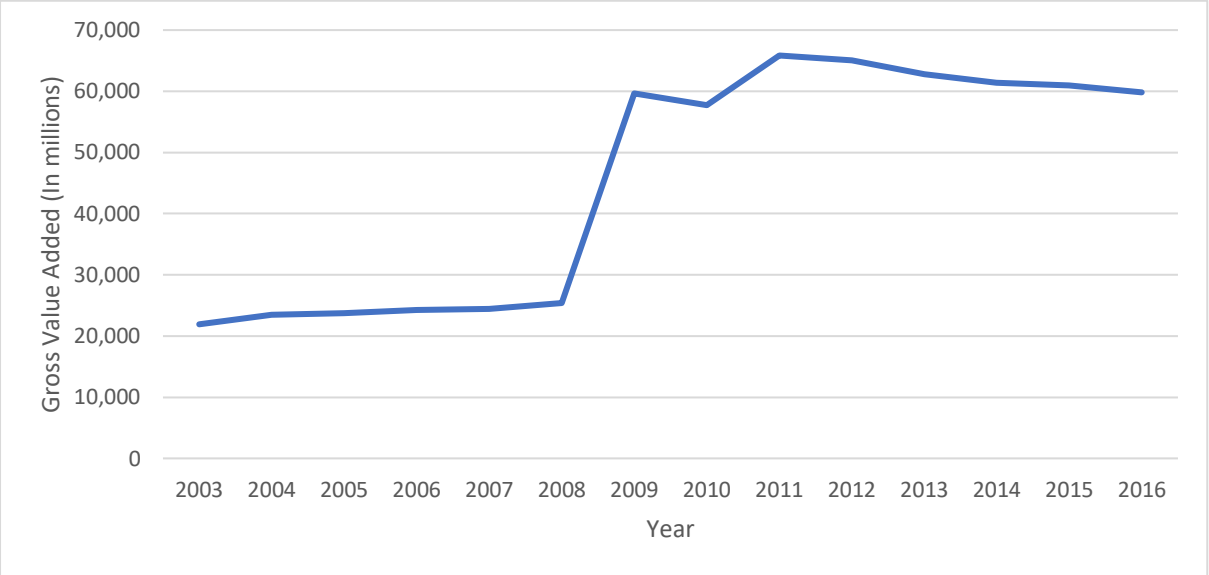


Figure BA 4. Gross Value Added (in millions) for Agriculture, Fishery and Forestry sector

Over-all Analysis. According to the report of World Bank in 2010, the AFMA 1997 and the implementation of DFIMDP wanted to monitor, prevent, and reverse the declining competitiveness of the agriculture and fisheries sector among the three major sectors of economy by initiating ways to improve the status of agribusiness diversification and productivity-enhancing investments. To quantify and assess the condition of economy in Region VI, specifically for the agriculture sector, the Gross Regional Domestic Product (GRDP) was considered. Based on Figure BA 5, the GRDP for Agriculture sector was declining. GRDP is computed using the formula:

$$GRDP = GVA + taxes\ on\ products - subsidies\ on\ products$$

GRDP for the agriculture sector followed a declining trend from 2011 to 2016 (refer to Figure BA 5). This change can be caused by the change in the values of its components in the formula above. One of the components, the GVA declined as well for the same years (refer to Figure BA 4) that may have caused the decline of the GRDP in return. Another component of the GRDP is the subsidies on agricultural procedures and produce which have also increased (refer to Figure 1) increased through the years. The increase of the subsidies alongside the decline of the GVA definitely yielded a decline in the GRDP.

Putting DFIMDP on the equation, the project may have initiated development of agricultural sector in Western Visayas. However, the expected outcome was not attained which may be due to the inefficiency in the planning and implementation stages of the project. Moreover, sustainability of the effect of the interventions in the region must be well assessed to ensure continuous effects or improved conditions in the target beneficiaries. In general, the decrease

in the GRDP for the agricultural sector, the sudden shift for higher GVA but not maintained, and the decrease in the agricultural employment all show that the objective of the DA of having a long-term development for the agricultural sector was not yet fully achieved.

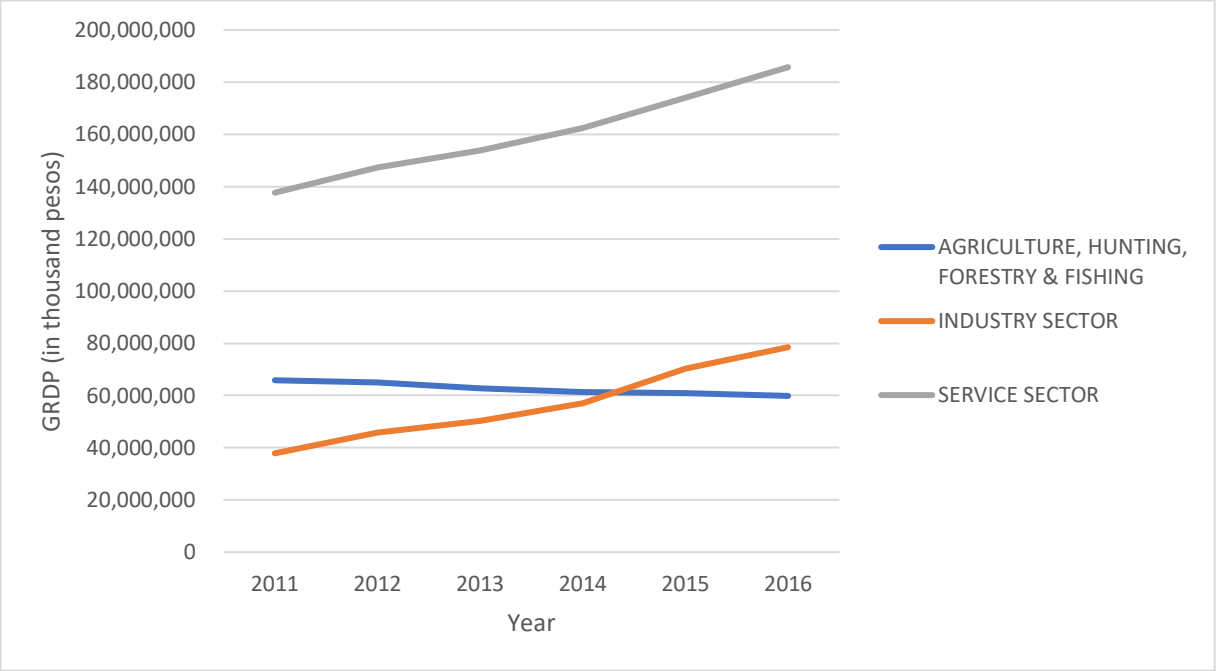


Figure BA 5. Breakdown of GRDP for the major sectors of economy in Region VI from 2011 to 2016

VI. CONCLUSIONS

Finally, to answer the question of "What contributed to the increase/decrease of income of beneficiaries and non-beneficiaries" Regression Analysis was done.

Regression Analysis

Regression analysis was done to determine the effect or the relationship of independent variables to the dependent variable. Three types of regression analysis were done. For all analysis, the independent variables were statistically tested before considering them to enter into the model. The p-value of each independent variable was measured and check to determine its significance. This p-value was compared at three significance levels (1%, 5%, 10%).

1. **Binary Logistic Regression: Beneficiaries vs. Non-beneficiaries**

Binary logistic regression is used to estimate the probability that a characteristic is present given a value of independent variable. For this analysis, the probability of being a beneficiary given an independent variable was estimated. The list of the main independent variables for each component can be seen in Table R-1.

General Findings for all components (except Component 1):

- Non-beneficiaries were observed to be near the market, bank, hospital, central, and reservoir or pond compared with the beneficiaries.
- Non-beneficiaries get to the market, bank, hospital, central, and reservoir or pond for a shorter time and they use paved roads
- Beneficiaries have higher consumption of food and other basic necessities
- Beneficiaries usually get farming information from the government and acquaintances and then the non-beneficiaries from the private companies.

The characteristics of beneficiaries and non-beneficiaries per component after performing the logistic regression is tabulated in Annex C-6 of this report.

2. **Simple Linear Regression: Income**

For this subsection of analysis, the independent variables were the respondent profile, household profile, and farming and non-farming variables, while the dependent variable was the household's monthly income. From the survey, a total of 318 independent variables were identified. The dependent variable is the total monthly household income and was computed by adding the household's livelihood income, remittances, and pension. Simple regression analysis was done per component. The list of the main independent variables for each component can be seen in Table R-1.

Table R- 1. List of the main independent variables.

List of Variables	
Information source for which	*Ulam/sangkap/sahog sa ulam* consumption
Crop/fish species/products should be sold	Food consumed outside home
Number of crops/fish species sold	Alcoholic beverages consumption
Number of crops/fish species bought	Cigarette/tobacco consumption
Information source for selling price	Fuel (charcoal, firewood) consumption
Information source for buying price	Fuel (LPG, kerosene, electricity) consumption
Source for sellers	Light/electricity consumption
Source for buyers	Water consumption
Mode of transportation	Expenditure--utility bills
Time duration of travel	Expenditure--consumables
Type of road	Expenditure--transportation
Accessibility	Expenditure--communication
Pay to laborers	Expenditure--education
Number of laborers	Expenditure--housing
Number of type of crops and fish species	Expenditure--durables
Availability of Irrigation	Expenditure--medical care
Type of irrigation	Expenditure--furniture
Amount of harvested crops	Expenditure--credit or loan
Amount (in kilograms) of harvested crops sold	Expenditure--cigarettes and alcoholic drinks
Amount (in kilograms) of harvested crops consumed	Number of facilities
Involvement to horticultural activities	Type of neighborhood
Attendance to seminars and trainings	Durability of materials of house
Assistance from the government, non-profit organizations, or private companies	Appearance of house inside
Provider of equipment	Appearance of house outside
Source of technology	Main source of water
Kind of assistance from the government, NGOs, or private companies	Water project
Gender of respondent	Distance of water source from house
Age	Source of drinking water
Occupation	Distance of drinking water source from house
Affiliated Organization	Availability of electricity
Main livelihood	Source of electricity
Benefited or involved projects	Total hectares of land
Rice Consumption	

The goal of the regression analysis in this study was to identify which factors contributed to the change in income of the farmers. Factors that contribute to an increase in the income are success indicators, while factors that contribute to a decrease in the farmer's income are situations that should be eliminated or avoided.

It can be said that the implementation of DFIMDP improved the lives of the farmers if their income increased because of the independent variables related to the five pre-determined components of the project. If the independent variables from sections H to N of the survey's questionnaire were found to have positive or negative significant effect to income, then it can be concluded that the DFIMDP was able to attain its goal.

Results of the regression analysis showed that most of the variables with significant effects to income were from the household profile. These results imply that income was not affected by the agriculture-related practices which was the focus of the DFIMDP. Since attribution cannot be limited to the DFIMDP due to the presence of other interventions done in Region VI, these results would also mean that if the farmer's income increased or decreased, then it cannot automatically be declared that the increase or decrease was caused by the DFIMDP.

Component 1 aimed to develop a market information service accessible via the internet to address the issues related to the waning agricultural sector by promoting agri-businesses and providing producers, traders, and farmers access to market and production information. In effect, this component should have increased rural incomes. Based on the regression results, out of 318 variables, no variable has a significant effect to income.

Component 2 focused on market development investments specifically infrastructures, equipment, and irrigation. This component aimed to improve the livelihood of farmers by providing equipment and irrigation, and developing roads for easier access to the market. These interventions were expected to increase crop productivity and decrease labor inputs that could lead to an increase in income.

After analyzing the data for Component 2 respondents, four out of 318 variables resulted to have significant effects to income. These variables were: number of crops and/or fish species sold, total amount (in kilograms) of harvested crops and fish species sold, number of types of crops and/or fish species, and number of harvested crops. All these variables had a positive effect on income. For instance, an increase in the amount of harvested crops, increases income.

However, it must be noted that while these variables are not those that are directly related to component 2, it cannot be conclusively stated that the interventions pertaining to infrastructure led directly to an increase in income. This means that access to roads or irrigation did not show effect on income. Although, beneficiaries had more access to irrigation than non-beneficiaries. The World Bank 2010 report mentioned decrease in hauling expenses ergo higher net profit.

Component 3 aimed to ensure safety and quality of products. After analyzing the data, only two out of 318 variables resulted to have significant effects to income. These variables were

total amount (in kilograms) of harvested crops and fish species sold and number of types of crops and/or fish species. These two variables also had positive effects on income. Similar to Component 2's significant factors, it can also be observed that these variables were not the focus of Component 3, hence, the efforts for strengthening safety and quality assurance for market development did not have a direct impact on the income of the farmers.

Component 4 focused on market-related training activities. The only variable that resulted to have an effect on income was the number of types of crops and fish species sold. That is, if the number of types of crops and fish sold increased, then the income increased as well. Again, this variable is not directly related to Component 4's efforts, and based on the R market related trainings, it did not manifest an increase in income. Thus, there is no evidence to say that market-related training activities have helped farmers in improving their livelihood and increasing income.

Lastly, Component 5 aimed to enhance budget resource allocation and planning. However, the variables that can support the project's effectiveness were not those that resulted to be significant. The significant variables were: total amount (in kilograms) of harvested crops and fish species sold and amount of harvested crops. But then again, these variables that resulted to be significant were not the focus of Component 5. Therefore, long term impacts from the efforts in enhancing budget resource allocation and planning were not evident.

Since the project was implemented years ago, its direct impact to its target beneficiaries cannot be completely assessed. Consequently, there could have been other factors and events that affected the farmers' lives, thus, looking at these statistics would not be enough.

3. Multinomial Logistic Regression: Income Class

Since there were no significant findings found in the linear regression analysis, further analysis was conducted to find similarities and differences between beneficiaries and non-beneficiaries. Multinomial Logistic Regression was done among the two groups to know the effect of having benefited from or being involved in projects (independent variables) of DFIMDP with the income of the household (dependent variable). Separate multinomial logistic regression for beneficiaries and non-beneficiaries were done to see if there were differences within the groups.

This type of regression is also used to determine the effect or the relationship of independent variables to the dependent variable. However, the dependent variable in a multinomial logistic model is a categorical variable with more than two levels. Hence, for this analysis, income of households was categorized into income classes (based on the categorization used in FIES). The income data used was also from the survey data gathered by ASCEND. It was computed by adding the household's livelihood income, remittances, and pension. Independent variables came from the S6 question of the questionnaire of the survey. The categorization of the income is shown below along with the list of the independent variables used.

Table R- 2. List of dependent and independent variables used in the multinomial logistic regression.

Dependent Variable	Independent Variable
Income	Rural Infrastructure
1 – income is less than 3333 *2 – income is greater than or equal to 3333 and less than 5000* *3 – income is greater than or equal to 5000 and less than 8333* *4 – income is greater than or equal to 8333 and less than 20834* *5 – income is more than or equal to 20834*	Irrigation
	Farming Inputs
	Equipment and machineries
	Information system
	Training/seminars

Multinomial Logistic Regression analysis were done for both the beneficiary data and the non-beneficiary data. In both cases, the reference/base group was the households belonging to the lowest class (and all other factors were held constant). All interpretations were based on the reference point.

Table R- 3. Significant Results of the multinomial logistic analysis.

Among beneficiaries	Among non-beneficiaries
Those who benefited from **irrigation**, more likely, they had higher monthly income.	Those who benefited from **irrigation**, more likely, they had higher monthly income.
Those who benefited from **farming inputs**, more likely, they had higher monthly income.	Those who benefited from **farming inputs**, more likely, they had higher monthly income.
Those who benefited from **information system**, more likely, they had higher monthly income.	

Both analysis for the beneficiary and non-beneficiary groups resulted to the conclusion that if they have benefited from irrigation and farming inputs, most likely, they had higher monthly income. It was also observed that having benefited from information system had a significant effect on the beneficiaries only—this resulted to an increase in income of households.

It was deduced from the analysis that having benefited from irrigation and farming inputs had significant effects on income. Therefore, to know if the income of beneficiaries and non-beneficiaries who have benefited from irrigation and farming inputs have significant difference, t-test on two means was performed. The null hypothesis was that the two means were equal versus the alternative hypothesis that the means were not equal. The decision rule was if the p-value is less than the significance level (1%, 5%, 10%), then the alternative hypothesis is followed.

Table R- 4. T-test on two means for Irrigation and farming inputs.

	Irrigation			Farming inputs		
	Beneficiary	**Non-beneficiary**	**p-value**	**Beneficiary**	**Non-beneficiary**	**p-value**
Mean	19298	24418	0.4236	21136	20137	0.7986
SD	25109.2661	41772.647		22967.6572	34996.04892	
N	51	62		102	121	
****Significant at 1%, 5%, and 10%* ***Significant at 5% and 10%* **Significant at 10% only*						

At all levels of significance, there is no significant difference on the income of beneficiaries and non-beneficiaries who have benefited from irrigation and farming inputs. The beneficiaries and non-beneficiaries both benefited from farming inputs and irrigation leading to a positive effect on their income. However, it cannot be established that the beneficiaries had benefited more than the non-beneficiaries because there was no significant difference between their incomes. In conclusion, the performed analysis suggests that the impact of DFIMDP was at the community level not at the household level because both beneficiaries and non-beneficiaries had benefited from the two aforementioned projects.

Other Objectives of the IES

This sub-section answers the other objectives of this IES as indicated in the TOR.

Other objectives as per the TOR	How the IES answers each objective
Improved marketing of agriculture/fish products	DFIMDP helped in improving the marketing of farmers of their products, initially because 1) it made more market information available via the AFMIS under Component 1 and the web-based system under Component 3, 2) it linked farmers to the market through farm-to-market roads under Component 2, and 3) because of market-oriented trainings conducted under Components 4 and 5. The effect of the project to the farmers can be measured by looking at their income in general. There were more families now belonging to the two highest income classes than those belonging to the two lowest classes (refer Table BA-1). However, increase of income of farmers cannot be directly attributed to the DFIMDP.

Support market development and competitiveness	This is well covered by Components 4 and 5, such that DA and ATI have supported market development and competitiveness by providing market-oriented and productivity services.
Capacitated DA-RFU in delivery of market-oriented and productivity enhancing services	Specifically, the ATI capacitated people from the LGU and conducted trainings among farmers about management, accounting and project proposal development. They also trained farmers on how to develop a project proposal that included financial forecasting, sourcing of materials, and targeting markets and areas where they can sell their products. The effect of these to the lives farmers can also be measured by looking at their income. There were more families now belonging to the two highest income classes than those belonging to the two lowest classes (refer Table BA-1). However, increase of income of farmers cannot be directly attributed to the DFIMDP.
Economic, social, development impact	1. Economic impact. This IES looked at the incomes of families in Region VI in 2003 and compared it with that of 2015. Included also in the main body of the report is the assessment on commerce and employment on the household and community level. It was mentioned that beneficiaries and non-beneficiaries of Component 2 helped in providing employment opportunities in the community by means of hiring people to work on their respective farms. Moreover, agricultural employment in Region VI in 2003 was compared with that of 2015. 2. Social and development impact. This IES assessed the improvement of the situation of beneficiaries as compared with that of the non-beneficiaries by looking at their socio-economic conditions. One finding was that there is a significantly higher proportion of beneficiaries who are part of the farmers' association and cooperatives. This indicated a proliferation of community organizations, and possibly an avenue for social change in the community. Assessment of the social and development conditions of the beneficiaries and non-beneficiaries can be found in the Beneficiaries versus Non-Beneficiaries sub-section of the Impact Evaluation Findings.

VII. RECOMMENDATIONS

In summary, the key recommendations are the following:

Component 1: Support for Market Development Services

- The AFMIS, its content and data and information deployment strategy, has to be reviewed based on the technology currently available. In cooperation with tele-communication companies, current technologies allow SMS or transfer of information to cellphones through information blast. Farmers can register online using their cellphone or their children's cell number to receive a scheduled blast of information coming from an AFMIS center. The children, who are more technology savvy, can then pass on the data to the parent.

- Overall, AFMIS failed to gain acceptance and had limited use because conditions were not ripe from 2004-2009. An AFMIS2 would probably have a higher level of use to reach its goal of supporting a robust trading system. Finally, the observation that savings, not return on investment, is the basis of trading is an intriguing data that demands more discussion.

Component 2: Market Development Investments

<u>Pursue and Strengthen</u>

- A case study (longitudinal) of specific farmers that benefited directly on the existing DIFMDP irrigation project will help in deciding how to allocate funds for infrastructure projects.

- To complete the value chain (from water source to farm to market), a similar cost-benefit analysis at the farmer level is a worthwhile exercise that can help in planning.

- A mapping of the 34 sub projects was recommended to determine the status of these projects most especially after the natural calamities affected Iloilo, The mapping may be done via GIS to overlay different data (road length, quality, total depreciated cost) on the conditions of a particular infrastructure facility before, after the project, and after the calamity.

Component 3: Strengthening Safety and Quality Assurance Systems for Market Development

<u>Pursue and Strengthen</u>

- The content of the web, especially the updates on regulation, can be sent directly to cooperatives or farmers with email accounts.

- As many farmers and their children now have Facebook accounts, the use of social media in disseminating information on regulation and QAP can be explored.

Component 4: Market-Linked Technology Development and Dissemination

Pursue and Strengthen

- Women should be involved in other agricultural resource management because there is an already increasing number of female household heads in these communities. With their active involvement and participation, they can address their constraints not only in rice production, but the agricultural production as a whole

  Family labor, as related to household size, is a major factor in farming in Region VI, where most of the farming activities are done manually. Hence, livelihood programs for both male and female farmers should also be promoted to conserve quality labor and shared management for farming of both male and female household heads. This is important to female-headed rice parcels since they are employing high family labor. Moreover, the observance of laws, especially regarding child labor should be revisited and examined carefully especially when dealing with different cultures. It should be noted that participation of children to farming activities, while prohibited by law, is relevant to the continuation of agriculture production in Region VI.

Review and Learn for re-entry

- Modern practices such as the seminars on organic fertilizer and integrated pest management attended by some of the respondents, are needed to enhance productivity. Thus, farming organizations or seminars and trainings should be provided and both men and women should be encouraged to participate. These may also include upland farming mechanization and adoption of different crop varieties for upland and cold areas.

- In light of the facts shared by the key informants and the results revealed by this study, it can be concluded that the Department of Agriculture, specifically the Agricultural Training Institute, fulfilled its mandate to lead in the provision of extension services in collaboration with the various agencies, bureaus, and organizational units of the Philippine Department of Agriculture.

Component 5: Enhancing Budget Resource Allocation and Planning

Pursue and strengthen

- Natural hazards like typhoons or prolonged rains are primary risks that all farmers face. Market driven programs need to be complemented by interventions that will allow

farmers to bounce back in case of calamities. The "free crop insurance" was one assistance provided by the program*

Field records showed that more non-beneficiaries have their crops insured compared to beneficiaries. About 80% of farmers do not have farm insurance. This large market of un-insured farmers, in this time of climate change, provides an opportunity to advocate for a higher budget allocation for programs on crop and livestock insurance.

Insurance programs are worth pursuing. While Component 5 was about increasing government budget, the decrease in subsidy will be the measure of success in the case of insurance. Currently, the insurance coverage nationwide ranges between 10-30% depending on location, e.g. higher in Luzon for rice crops. Iloilo, being a major rice producer, must aim for a higher number of farmers covered by insurance. And this time, insurance must be for all farmers since climate-related calamities do not discriminate. A system of graduated subsidy or support may however be developed.

Table 5- 6F11. Crop Insurance

Crop Insurance	Total		Beneficiary		Non-beneficiary		p-value
	#	%	#	%	#	%	
Total	74	100%	45	100%	29	100%	
Yes	19	26%	10	22%	9	31%	0.39532
No	55	74%	35	78%	20	69%	0.39532

Question F11. Was there crop insurance in the last crop period?
Base: 74 respondents who cultivated crops
****Significant at 1%, 5%, and 10%*
***Significant at 5% and 10%*
**Significant at 10% only*

**in the sample survey of N=70, no B reported to have received crop insurance. The result of the of crop insurance availed by farmers on the recent calamities need to be assessed.*

Review and learn for re-entry

- Household income is the typical focus of analysis in farm survey. The data on income from remittances require some attention especially for programs that seek to encourage both income and savings. Farmers all too often allocate little for savings or even risk protection like crop insurance. The 25% insurance coverage must be expanded with clear counterpart, on an increasing basis, from farmer beneficiaries.

- In terms of program implementation, the study also noted that the banner programs provided a focus and highlighted the priorities and strategic directions of agri-programs. However, based on key informant interviews, the different programs and officers assigned were not always with each other. Moreover, the DA regional office was given a small part of the total budget for the DFIMDP but was expected to implement a drastic change in respective departments and over-all organization.

Document expenses on M&E

- Monitoring and evaluation is important for strategic planning and resource allocation. Key informants reported that M & E, while important, was not in the priority of the assigned staff at the provincial level. It could also be a question of lack of funds for M & E; a typical logistical problem among government agencies. The M & E system, if fully established, would provide substantive (and less expensive data) in the conduct of impact evaluation. Attribution of benefits would be sharper since baseline conditions have been established and intended programmatic changes, e.g. on farm income, could be accurately tracked.

- Programs tend to allocate less for M & E budget (for staff and logistics). Staff time is often listed as a counterpart or part of regular functions (as if current staff are not already loaded). M & E and external impact evaluation expenditures are often at the tail end. Good baseline data gathering and especially storage need to be done at the start.

- M & E, being an expensive part of transaction cost (in development work), must push through with the consciousness of reducing its final cost. Farmer based monitoring with the assistance of academic institutions, in sentinel areas, i,e, among selected communities, may reduce the cost of standard M & E of government programs.