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GLOSSARY OF KEY TERMS

ABC	*Association of Barangay Captains*
ADN	*Agusan del Norte*
ADN-EMP	*Agusan del Norte Environmental Management Plan*
AGS	*Agricultural Grade Salt*
ARC	*Agrarian Reform Community*
BFAR	*Bureau of Fisheries and Aquatic Resources*
BSG	*Baseline Study Group*
CBMS	*Community-Based Monitoring System*
DA	*Department of Agriculture*
DENR	*Department of Environment and Natural Resources*
DOH	*Department of Health*
DOLE	*Department of Labor and Employment*
DTI	*Department of Trade and Industry*
EDCADS	*Educational Discipline in Culture and Area-based Development Services*
FGD	*Focus Group Discussion*
GO	*Government Organization*
HVCC	*High Value Commercial Crop*
ILO	*International Labour Organization*
KI	*Key Informant*
LBP	*Land Bank of the Philippines*
LGU	*Local Government Unit(s)*
LRED	*Local and Regional Economic Development*
MARO	*Municipal Agrarian Reform Office/r*
MDG-F	*Millennium Development Goal-Fund*
MENRO	*Municipal Environment and Natural Resource Office/r*
MHO	*Municipal Health Office/r*
MLGU	*Municipal Local Government Unit*
MPDC	*Municipal Planning and Development Coordinator*
MSWDO	*Municipal Social Welfare and Development Office/r*
NGO	*Non-Government Organization*
NSO	*National Statistics Office*
OTOP	*One Town One Product*
PACAP	*Philippines-Australia Community Assistance Program*
PCA	*Philippine Coconut Authority*
PCPP	*Philippine Coconut Productivity Program*
PFI	*Propegemus Foundation, Incorporate*
PPFP	*Provincial Physical Framework Plan*
TESDA	*Technical Education Skills Development Authority*
TOR	*Terms of Reference*
TWG	*Technical Working Group*

EXECUTIVE SUMMARY

The baseline study of the farming communities of Agusan del Norte is anchored on the perspective that community development and initiatives should start at the local level where the local perceptions and judgment of the local populace are hatched and inspired towards crafting informed policy decisions for possible interventions by any development agencies and organizations.

The baseline study is in line with the implementation of the Millennium Development Goals-Fund (MDG-F) Climate Change Adaptation Project, Climate Resilient Farming Communities in Agusan del Norte through Innovative Risk Transfer Mechanism implemented in the province of Agusan del Norte by the International Labour Organization (ILO) as its pilot area with possible up-scaling and replication in other areas in the country. The project aims to attain two major objectives and that is to develop and test financial safety nets for vulnerable populations, especially women, and to develop the capacities of vulnerable populations to participate and avail of the benefits under economic diversification and a democratized governance system.

The baseline study aims to achieve the following objectives: to identify and map farming communities in Agusan del Norte according to crop/sector and by municipality and to identify the players in the major farming value chains in relation to their respective crops in these farming communities; to establish and validate the ecological profile of the province and these farming communities to include social, economic, environmental, political and peace and order condition; to identify the general environmental conditions and climate risk exposure including but not limited to extreme events or disasters along with coping strategies employed; to identify GO, LGU, NGO/PO and/or collaborative initiatives, projects and programmes relating to agri-business as well as climate or disaster risk reduction and enhanced coping mechanisms; to identify support institutions pertaining to training, markets and technology; to identify financial institutions, structures and schemes including existing informal financing schemes; to identify existing insurance schemes and other risk transfer mechanisms; to be able to assess the knowledge and skills as well as training needs of farmers, especially women farmers, in existing and/or alternative lines of work and/or business; and to be able to draw up conclusions and recommendations on priority communities, areas and/or sectors taking into consideration the interplay of the above factors as well as on priority training needs vis-à-vis thrust for economic diversification.

Agricultural production per municipality

As indicated in the value chain mapping and analyses conducted in the eleven municipalities of the province, the farming communities in Agusan del Norte are dependent largely on major crops such as coconut, rice, corn, mango, banana and on fishing activities. Coconut farmers are spread in all the municipalities of the province while rice-producing activities can be found largely in the municipalities of Remedios T. Romualdez, Buenavista, Kitcharao, Cabadbaran, and Kitcharao. Corn farming activities are located largely in Las Nieves, Remedios T. Romualdez, Nasipit, Tubay, Santiago, and Jabonga. The production of mango is concentrated in the municipalities of Carmen, Nasipit, Buenavista and Tubay; while banana production activities and banana farmers are located in the municipalities of Jabonga, Kitcharao, Santiago, Cabadbaran, and Buenavista. Fishing production and

activities are located in the coastal municipalities of Magallanes, Buenavista, Nasipit, Carmen, Tubay and in lakeshore communities of Jabonga and Kitcharao.

The households engaged in farming have a total of 18% in Buenavista while there has a total of 18.5% in Cabadbaran; 3.9% in Carmen; 10.1% in Jabonga; 5.3% in the municipality of Kitcharao; 12.7% in Las Nieves; 1.3% in Magallanes; 11.4% in Nasipit while a total of 6.1% in Remedios T. Romualdez. A total of 5.7% and 6.6% are the farming households engaged in farming in the municipalities of Santiago and Tubay. Most of the farms, as indicated 76% of the informants, are irrigated by the irrigation system provided by the National Irrigation Authority (NIA); other 15% have self-help irrigation system while 9% have water impounding. The major sources of irrigation water come from major rivers existing across the province.

On the other hand, the households engaged in fishing have a total of 12% in the municipality of Buenavista; 17.8% in Cabadbaran; 12.0% in Carmen; 2.7% in Jabonga1.4% in Kitcharao while there are no households reported to have engaged in fishing activities in the municipalities of Las Nieves Remedios T. Romualdez and Santiago. The highest number of households engaged in fishing is located in Magallanes with 30.1%; while there has a total of 16.4% in Nasipit and 6.8% in the municipality of Tubay.

In terms of agricultural landownership of the farming households in the province, 56% of the key informants interviewed indicated that they are owners of the lands they are tilling while 44% indicated that they are non-owners. The non-owners of the lands generally have tenurial arrangements of leaseholds with 45.5% of the KI responses; 19.8% have fixed rental; 13.9% borrowed the lands without rent; and 21.8% are tenants. The average farm size of the key informants is indicated to be about 2.43 hectares per household.

The farming households' sources of income

Additionally, the farming households in the province derived income from farming as indicated by the key informants across the sampled rural barangays in the province with a total of 75.6% of the key informants' responses while the other 24.4% derived their main source of income from fishing. Other sources of income of the farming households in the province come generally from wages of doing non-domestic work within their respective municipalities as indicated by 48.0% of the key informants' responses; and from small business with 29.0%. Others farming households indicated that they derived other sources of income from farm labor with 22.6% of the responses; 15.3% indicated that they have income from other fishing activities; while 3.6% and 4.3% indicated they have additional income out of doing domestic work and from pension, respectively. Moreover, the farming households in the province have an average income of at least P200.00 a day as indicated by 63.3% of the key informants' responses and some 25.3% have at least P300.00 daily income while the remaining 11.2% have income from P300.00 to P500.00 and above. On the other hand, 66.6% of the key informants reported to be spending at least P200.00 daily and 24.6% reported to be spending up to P300.00. The key informants show indicators that they are living within their means.

Production trend

In terms of agricultural production and trend of major crops, the farming households, as indicated by 54% of the KI responses, have observed a decrease in production in the past five years while 39% indicated that the production trend is fluctuating. Another 6% observed that there has an increase in the production while the

other 1% observed that there was neither decrease nor increase in the production trend in the past five years. Moreover, the production trend for fish catches in the past five years has decreased as indicated by 44% of the key informants involved in fishing activities across the province. The other 28% indicated that they have observed a fluctuating trend and 10% have observed an increase in fish catches in the past five years. The other 17% have observed that there was neither increase nor decrease in fish catches trend over the past five years.

There are factors that led to the production trend of major crops and fish catch. As indicated in the KI results, a total of 73% of the key informants indicated that climate change greatly affected their production; 46% indicated that lack of financial or capital also affected their production; 19% attributed that production was affected by lack of markets and 11% due to technology. Some 6% indicated that agricultural production was affected by inputs. Other factors include

Observed Climatic Changes

In terms of the observed climatic changes across the province, an increase in temperature was one of the most resoundingly felt changes by the farming households as indicated by 85% of the KI and GP responses; 64% have observed drought; 47% have observed flooding and 44% have observed heavy rainfall. Some 38% have observed pest infestation on crops while the other 7% have observed salt intrusion in water and another 5% have observed siltation.

Observed effects of climatic changes

The observed effects of climatic changes have led generally to decrease in production with 77%; 51% indicated that it led to cropping failure; 45% indicated that it led to incidence of crops and fish diseases while 34% indicated that it led to illness of family members. Other 23% indicated that it led to decrease in fish catch.

In order to cope with the effects of climatic changes, 72% of the farming households in the province have engaged generally in paid labor mostly doing non-domestic work. Some 71% have engaged in production activities while 37% have engaged in organic farming. Some 32% indicated that they have accessed loans and other coping mechanisms with 78%.

Access to Assistance and Support Providers

Access to support assistance from support providers is relatively adequate as indicated in the KI results. The informants across all the 11 municipalities in the province provided that they have received production assistance mostly from the government while some others from NGOs. The production assistance include trainings mostly coming from the government as indicated by 34.09% of the informants and 9.55% indicated that they have received it from NGOs operating in their respective municipalities; 34.36% of the informants indicated that they have received inputs in kind from the government and 5.27% from NGOs. Some 18.73% of the informants indicated that they have received technology assistance from the government while 2.91% indicated that it was provided by NGOs. Financing assistance was mostly provided by the government as indicated by 18.55% of the informants while only about 0.18% of all the informants indicated that they have received it from NGOs. A total of only 1.82% of all the informants indicated that they

have received equipment assistance coming from the government while 0.82% indicated that the government provided marketing assistance while 1.27% indicated that they have received it from NGOs.

The informants also provided that they have received assistance related to their basic needs such as food, medical, housing, educational assistance, water and other assistance. Food assistance was generally provided by NGOs and LGUs as indicated by 29.9% of the informants across the province. A total of 8.4% of the informants indicated that they have received water assistance coming from the government while 1.8% indicated that they have received it from NGOs operating in their respective municipalities. Some 1.6% of the informants indicated that they have received educational assistance from the government while 0.4% from NGOs and 1.0% indicated that they also have received housing assistance from the government. Another 1% indicated that they have received medical assistance from the government. Other assistance as indicated by 3.2% of the informants in the province includes animal dispersal and clothing.

Availability and access to financial support providers

Availability and access to financial support providers is relatively adequate as indicated in the KI and GP responses. The farming households across the province have wanting attitude on savings and its schemes wherein a proportion of only 34% were able to save generally for their retirement age and for medical and emergency needs. Another 40% of the farming households have saved for capital for business and faming while 33.91% of the informants have saved for their children's education; 6.09% of the responses indicated that their savings is for house repair. Other purposes of having savings include family consumption.

The informants and poll respondents indicated that they generally put their savings in their respective houses with 53% of the responses while some others indicated that they put their savings in the banks with 32% of the responses. Some 7% of the responses from KI and GP indicated that the informants and poll respondents in the cooperative while 4% in the paluwagan. Others have savings in the MFIs as part of its loan savings scheme.

The consolidated KI and GP results show that more than half of the key informants and poll respondents indicated that they could not saved because of income enough only for subsistence and another 53% of the responses attributed it to income insufficiency. Another 2% of the informants and poll respondents indicated that they could not saved due to no available institutions operating in their respective municipalities. Other reasons include that their income is prioritized for their children's education, still have loans yet to be paid and that their income is enough for farming and fishing expenses.

There is an open attitude of the farming households towards loan as indicated by the KI results wherein it shows that more than half or a proportion of 57% of the farming households have incurred loans in the past five years. The KI results further show that most of the informants across the sampled rural barangays in the province have accessed loans from the banks with 55% of the responses; 16% of the responses indicated that the informants have accessed loans from credit cooperatives; 15% from MFIs and 10% from individual lenders. Other 4% indicated that they have accessed loans from the government. Other sources with 6% of the responses include barangays loans and loans from NGOs.

Those who reported to have a choice in their sources of loans indicated that they have chosen their respective sources because of its easy access with 62% of the total responses while the other 43% of the responses indicated that it was because of its low interest rates. Other informants indicated that their membership let them have the access to loan with 23% of the responses and 5% of the responses indicated that the informants have accessed loans because of personal connections.

The terms of the incurred loans by the farming households as indicated in the KI results show that 38% have 3-6 months amortized term while 36% of the informants have term of monthly interest rate and monthly collection of interest. The other 17% have 1 year and above amortized payment while 7% have 3-6 months lump sum payment term. The other 2% of the responses indicated that the informants have annual interest rate and annual collection of interest.

Availability and access to insurance

Availability and access of the farming households to insurance is relatively adequate. Access towards personal insurance is adequate while there is a wanting awareness of the farming households towards crop insurance.

A proportion of 58% of the farming households across the province have accessed insurance generally personal type of insurance such as medical and life insurance. Most of the identified sources of insurance were indicated to be coming from PhilHealth with 68% of the KI responses while the other 37% from SSS. Another 10% of the farmers have accessed insurance from mortuary and 5% from GSIS. Another 4% of the responses indicated that the informants have accessed insurance from cooperatives operating in their respective municipalities while another 5% from Pag-Ibig. Other sources include other private insurance agencies such as Standard Insurance, Eye Care Insurance, and St. Peter Life Plans.

Most of those key informants who reported to have insurance indicated that they have chosen their respective sources because of its easy access with 49% of the responses while 39% of the responses indicated that their membership have made them availed of the insurance. Some 22% of the responses indicated the informants have chosen their sources because of its low interest rates while 6% of the responses indicated that it was because of personal connections.

Additionally, most of those key informants who reported to have insurance indicated that they have chosen their respective sources because of its easy access with 49% of the responses while 39% of the responses indicated that their membership have made them availed of the insurance. Some 22% of the responses indicated the informants have chosen their sources because of its low interest rates while 6% of the responses indicated that it was because of personal connections.

The KI and GP results indicated that more than half of those informants who have not enrolled in any insurance coverage are constrained to do so because of insufficient income with 53% while 39% of the KI and GP responses indicated that the informants were not able to access insurance because of income enough for subsistence only. Some of the informants with 6% of the responses indicated that they have no insurance because of no available institutions while other responses include that enrolling in insurance is not in their priorities.

A proportion of 51% of the informants who have not yet enrolled in any insurance scheme across the 11 municipalities in the province are willing to obtain insurance while the other 49% are not willing.

Most of the informants who are willing to obtain insurance wish to enroll in personal insurance with 82% of the responses while the other 27% of the responses wish to enroll in crop insurance.

The KI results also show that only the key informants in the municipalities of Buenavista, Cabadbaran, RTR and Santiago have indicated that they have enrolled to crop insurance coming from the Philippine Crop Insurance Corporation (PCIC).

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

I. BACKGROUND

A. BACKGROUND AND RATIONALE

A Climate Change Adaptation Project under Outcome 3: Coping Mechanisms improved through pilot schemes with national up-scaling potential of the "Millennium Development Goal –Fund (MDG-F) 1656 Joint Programme on Strengthening the Philippines' Institutional Capacity to Adapt to Climate Change" is implemented by the International Labour Organization (ILO), a specialized agency of the United Nations in partnership with the Department of Labor and Employment (DOLE) and the Department of Trade and Industry (DTI) to support vulnerable farming communities in Agusan del Norte.

A key premise of the project is that economic condition of population, whether in terms of economic assets, capital resources, financial means, etc. is a very important determinant factor of the adaptive capacity to climate change impacts. Poor people are at a disadvantage situation while the wealthy ones are better equipped to deal with the costs of adaptation.

Besides, access to, and not only availability of resources is also another important determinant factor which could spell the difference in a population's capacity to adapt to climate change and other similar phenomena. These resources include not only financial resources but also access to productive resources such as training, markets and technology. It is recognized that adaptive capacity of vulnerable communities will be greater if social institutions and arrangements governing the allocation of power and access to resources is more equitably distributed. A more integrated and comprehensive approach is required to ensure long-term preparedness for climate change.

The project aims to showcase these determinants at work, where target disadvantage communities are provided access to financial and productive resources for purposes not only of helping them cope in the event of climate change triggered disasters but of improving their socio-economic lot, especially through diversified livelihood schemes. Risk transfer mechanisms like revolving funds and innovative insurance schemes are expected to help develop resiliency through flexible financial mechanisms. Providing the enabling conditions for livelihood diversification is critical as new types of livelihoods are often required to effectively adapt to climate change.

It aims to attain the following objectives: 1.) To develop and test financial safety nets for vulnerable populations, especially women; and 2.) To develop the capacities of vulnerable populations to participate and avail of the benefits under economic diversification and a democratized governance system.

It is on this context that ILO is conducting a baseline study in the selected pilot province of Agusan del Norte with primary focus on its farming communities. The purpose of the study is basically to present a general profile of the farming communities of Agusan del Norte which will provide the basis for the selection of priority vulnerable areas and/or sectors for the project.

II. THE BASELINE STUDY

2.1. OBJECTIVES OF THE BASELINE STUDY

The general purpose of the baseline study is to present a comprehensive profile of the farming communities of Agusan del Norte which will provide the basis for the selection of priority vulnerable areas and/or sectors for the project.

The final output is the ***Baseline Study Report of Agusan del Norte Farming Communities*** pursuant to the basic structure stipulated in the Terms of Reference (TOR) provided by the ILO Project Manager.

To secure the minimum information requirements pursuant to the basic structure of the Baseline Study Report, the following objectives are required to be accomplished by the contracted Baseline Study Group:

1. To identify and map farming communities in Agusan del Norte according to crop/sector and by municipality;
2. To establish and validate the ecological profile of the province and these farming communities to include social, economic, environmental, political and peace and order condition;
3. To identify the general environmental conditions and climate risk exposure including but not limited to extreme events or disasters along with coping strategies employed;
4. To identify GO, LGU, NGO/PO and/or collaborative initiatives, projects and programmes relating to agri-business as well as climate or disaster risk reduction and enhanced coping mechanisms;
5. To identify the players in the major farming value chains in these farming communities;
6. To identify support institutions pertaining to training, markets and technology;
7. To identify financial institutions, structures and schemes including existing informal financing schemes;
8. To identify existing insurance schemes and other risk transfer mechanisms;
9. To be able to assess the knowledge and skills as well as training needs of farmers, especially women farmers, in existing and/or alternative lines of work and/or business;
10. To be able to draw up conclusions and recommendations on priority communities, areas and/or sectors taking into consideration the interplay of the above factors as well as on priority training needs vis-à-vis thrust for economic diversification.

2.2. STUDY METHODOLOGY AND APPROACHES

2.2.1. THE INTERNATIONAL LABOUR ORGANIZATION (ILO) AND THE TECHNICAL WORKING GROUP (TWG) COMPOSITION

The MDG-F Climate Change Adaptation Project that is being implemented by the International Labour Organization (ILO) in the province of Agusan del Norte is represented by its Project Manager, who exercises all decision-making actions and supervision in all of the activities pursuant to the conduct and delivery of the baseline study.

Additionally, the ILO organized a Technical Working Group (TWG) that is composed of selected senior technical personnel of partners – the Department of Labor and Employment (DOLE - Agusan del Norte), Department of Trade and Industry (DTI-Agusan del Norte) and the Provincial Office of Agusan del Norte. The TWG also included representatives from selected institutions in the field of environment, micro-finance and/or insurance.

The TWG worked closely with the ILO Project Manager to carry out the following tasks:

- Establishing the minimum information requirements and guidelines for the conduct of the study as well as the final structure of the Baseline Study Report;
- Participation in the technical orientation/briefing to be conducted by the ILO with the contracted Baseline Study Group to share insights on the methodology for the Focus Group Discussions (FGDs), Key Informant Interviews (KIs) as well as on its subsequent analysis;
- Review and validation of outputs of the Baseline Study Group
- Facilitation of the provincial validation workshop to discuss the results of the study and draw general conclusions and recommendations for a priority community, area and/or sector as well as priority training needs.

2.2.2. THE BASELINE STUDY GROUP COMPOSITION

Propegemus Foundation, Inc. (PFI) has been engaged to undertake the Baseline Study of the Farming Communities of Agusan del Norte pursuant to the Service Contract entered into with the International Labour Organization effective August 12, 2009 to December 10, 2009. PFI was recommended to execute the work and/or services pertaining to the conduct of **"Baseline Study on Agusan del Norte Farming Communities"** of the MDG-F Climate Change Adaptation Project.

PFI is a non-stock, non-profit non-governmental organization committed to the two-fold task of preserving the environment and promoting social equity. Since its establishment in 1994, it has been engaged in services geared towards addressing the twin problems of rural poverty and ecological destruction, specifically of rainforests and watersheds. It has been a partner of the Australian Agency for International Development (AusAID), Save the Children, Department of Agrarian Reform/International Fund for Agricultural Development-Northerm Mindanao Communities and Resource Management Project (DAR/IFAD-NMCIREMP), Heifer Philippines International among others, in several projects in the Caraga Region in undertaking focused in assessments, monitoring and

evaluation, capacity-building for rural populations and on environment and natural resources management.

PFI is also affiliated with the Caraga Learning Service Providers Network (LSPN) and has a large pool of in-house and accredited consultants necessary for the conduct of the baseline study.

1.2.1 THE BASELINE STUDY GROUP COMPOSITION

Propegemus Foundation, Inc. as the Baseline Study Group (BSG) has created an interim Research Team from its in-house and accredited consultants that worked and carried out the research tasks as stipulated in the Terms of Reference (TORs) contracted and signed between the Foundation and the International Labour Organization (ILO).

The following people and their respective functions are responsible for the over-all delivery of the research output, as follows:

1. *The Research Core Group –this is composed of One (1) Over-all Team Leader and (5) Cluster Heads*
   - Exercises over-all supervision over the study and acts as the policy-making body of the Baseline Study Group;
   - Plans activities and evaluates the implementation of the whole research;
   - Provides analyses on the results of the research;
   - Reviews and finalizes the Baseline Study Report

2. *Over-all Team Leader (1)*
   - Exercises over-all supervision of field work
   - Undertakes local networking and coordination
   - Coordinates training of survey team
   - Participates in the conduct of analysis of project results
   - Hires the required personnel of the study
   - Mobilizes financial resources based on the approved budget

3. *Cluster Heads (5)*
   - Provide technical guidance and expertise to his/her research members;
   - Facilitate the conduct of the research tools to his/her area of responsibility;
   - Assist in the formulation of the research guide questions;
   - Lead the research team in the conduct and over-all delivery of the research in his/her assigned area;
   - Submit periodic report to the Over-all Team Leader;
   - Attend consultation meetings with the Over-all Team Leader

4. *Technical Writers (2)*
   - Take the lead in the analyses and writing of the Baseline Study Report;
   - Assist in the preparation of the research instruments;
   - Do other functions as may be required by the Over-all Team Leader

5. *Researchers (15)*
   - Gather data from LGUs, NGOs and Pos;
   - Coordinate with local offices and key informants;
   - Document/record proceedings of the Focus Group Discussions;

- Perform other functions as may be directed by the Cluster Head and the Over-all Team Leader;
- Submits periodic report to the Over-all Team Leader

6. *Data Encoders/ Collators (7)*
   - Encode gathered data from the field researchers and data from, secondary sources;
   - Coordinate with the Technical Writers on the data needed for the Baseline Study Report;
   - Attend meetings called by the Over-all Team Leader;
   - Perform other functions as required by the Over-all Team Leader

7. *Map Preparer (1)*
   - Prepares thematic maps per crop and per municipality of the province;
   - Coordinates with the Local Assessors to get needed maps of the study;
   - Performs other functions required by the Over-all Team Leader

To facilitate research activities for the whole province of Agusan del Norte, the Baseline Study Group employs clustering of the municipalities based on their geographical contiguity, similar ecosystems and common crops.

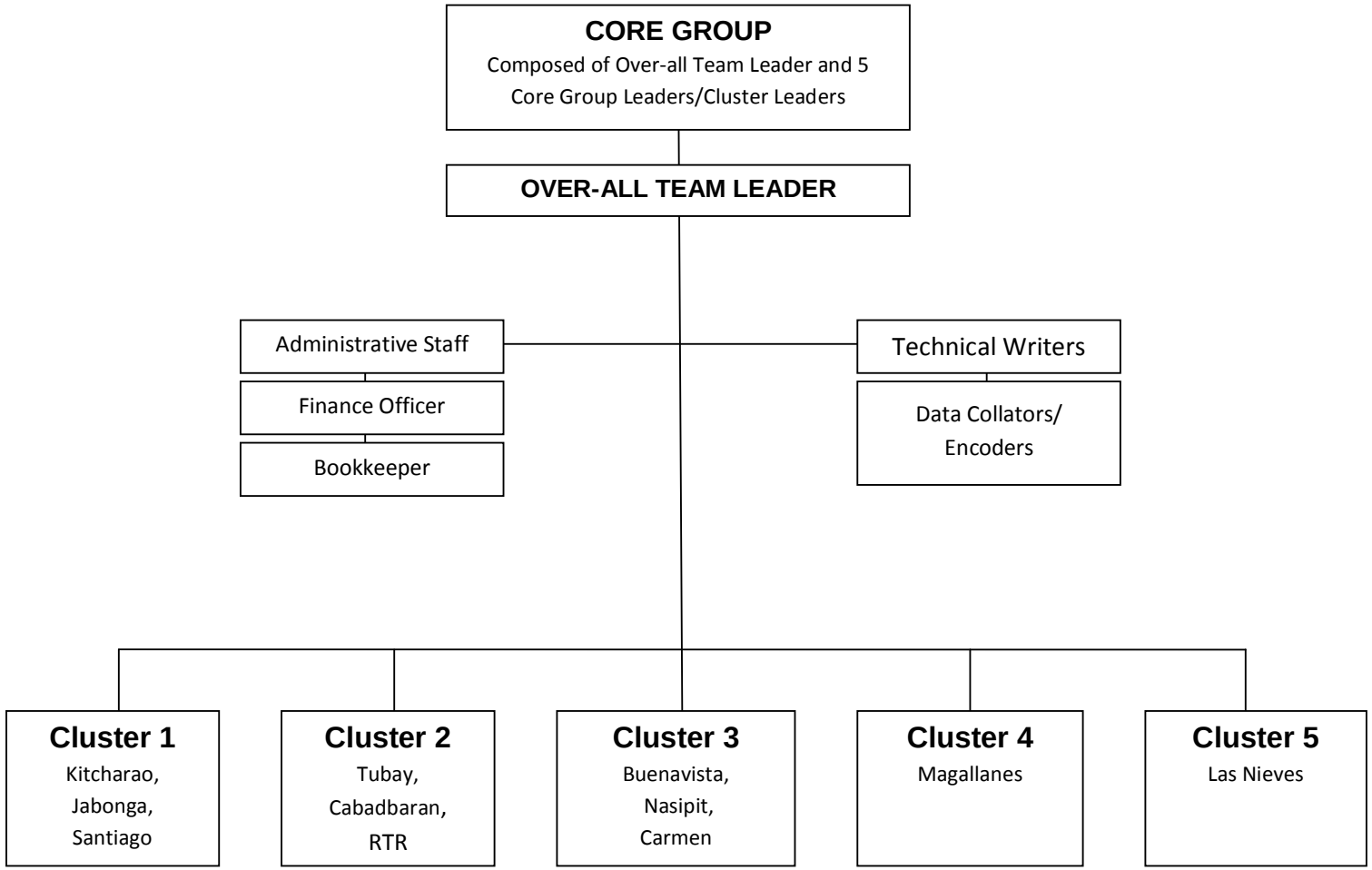
Clustered Areas are the following:

Cluster 1: Kitcharao, Jabonga, Santiago
Located along the immediate Lake Mainit Basin
Cluster 2: Tubay, Cabadbaran, RTR
Influenced by the rich and well-watered Cabadbaran plain
Cluster 3: Buenavista, Nasipit, Carmen
Characterized by a narrow coastline and hills of western Butuan Bay
Cluster 4: Magallanes*
Situated on the deltaic wetland at the estuary of Agusan River
Cluster 5: Las Nieves*
An alluvial valley at the lower end of the middle basin of Agusan River

Based on the created clusters, five (5) Research Teams are created and assigned on each of it. Each Research Team is composed of the following:

- One (1) Experienced Cluster Head/Facilitator,
- One (1) Co-Facilitator,
- Two (2) Researchers with skills in field data gathering that would work also as Documenter and Logistics in-charge.

1.2.2. THE BASELINE STUDY GROUP STRUCTURE



1. PROCESS FLOW AND INSTRUMENTS

The research tools and methodologies were jointly prepared by the ILO Project Manager with the technical assistance from the Baseline Study Technical Working Group and the Baseline Study Group. The tools are designed to get the necessary and relevant secondary and primary data at a rapid time and at a reasonable cost. The tools, methods and processes that were employed provided the baseline information of the farming communities of Agusan del Norte province necessary in the delivery of analysis of its socio-economic conditions and environmental constraints brought about by climatic changes and to showcase the coping mechanisms they have been employing to cope with these challenges.

The research methods, processes and samples included the following: Secondary data collection and summation of data gaps, Key Informant Interviews (KIs), Focus Group Discussions (FGDs), and the General Poll.

1. SECONDARY DATA GATHERING

Secondary data is crucial in establishing a legitimate view of a certain locality since these come from official sources that are authoritative to dispose the information. Secondary data gathering is a research tool that aids in the analysis of the current and prevailing status of a certain locality which also further aid in polishing plans and interventions to address the needs of the people.

Thus, the structure of the Baseline Study started with the compilation of available written materials or secondary data from target sources in the province that were used in zooming in the needed information vis-à-vis the minimum information requirements and guidelines as well as the required structure as stipulated in the TOR. Secondary data were gathered from official sources such as, Provincial Offices, Government Line Agencies, NGO offices, and other relevant data that are available in the Internet.

The Baseline Study Group, with the technical assistance of the TWG and the ILO Project Manager, set a system in the collection and gathering of the secondary data. Collection and compilation of available written materials from official sources were signed and certified upon release by the ones preparing and releasing the data thus made it official vis-à-vis the source data and respective offices. The data are then segregated into folders according to the source offices for easy retrieval.

The Baseline Study Group then reviewed and analyzed the collected written materials and then identified information gaps vis-à-vis the minimum information requirements set in the TOR. The information gaps were sought in the FGDs, KIs and General Poll/Survey for the final presentation of the Baseline Study Report.

Secondary data process flow:

1.1. Collection and compilation of available written materials (segregated into folders per source/office)
1.2. Sorting of relevant and irrelevant data according to the required structure
1.3. Follow-up collection of secondary data that apparently are gaps
1.4. Compilation of relevant data according to the required structure
1.5. Processing/Tabulation of relevant data according to the required structure
   - *Encoding and/or scanning of relevant data*
   - *Consolidation of relevant data*
   - *Proofreading of the encoded/processed data vis-à-vis the sources of the secondary data*

- *Final consolidation of secondary data*

1.6. Storage of data

- *Print hard copy*
- *Back up and storage of electronic copy*

2. KEY INFORMANT INTERVIEWS

The Key Informant (KI) Interview is another research tool that was employed by the Baseline Study Group in the gathering of quantitative and qualitative information on specific subject of the study. It has a focus on topics indicative contingent on the results of secondary data analysis as they are able to shed light on certain critical issues on account of their direct contacts or on-the-ground experience related to the subject. Key Informant interviews also served to validate identified data gaps in the secondary data analysis.

The Baseline Study Group utilized the population of rural barangays in the entire province as its base point in the computation for its selection of key informants. The selection of rural barangays is based on the perception that farming communities are generally seated in these areas. Generally, it is in the rural barangays where agricultural areas are located and where the presence of farmers and fisherfolk are pronounced. The concentrations of agricultural farms are also situated in these areas wherein households are most dependent on farming and fishing activities as major sources of income.

The sampling method used by the Baseline Study Group to come up with the subscribed number of key informants is based on the sampling method employed by the Germany Technical Cooperation (GTZ) on the Local and Regional Economic Development (LRED) approach that used a representative sampling of 60-80 key informants in a locality of 50, 000 inhabitants for them to have come up with a representative sample that reflects the economic situation of local areas.

Thus, in the case of getting representative sample of the farming communities in Agusan del Norte, the Baseline Study Group employed the same sampling as used by the GTZ in its LRED approach and has thus identify 300 individuals as key informants for the Baseline Study duly distributed according to the computed weighted mean of the total population of rural barangays of every municipality against the total population of the rural barangays of the province.

Moreover, the key informant interviews were complemented by a General Poll of 1,200 farming households from around the province.

2.1 The Key Informants

The key informants were identified and selected with the help of the Municipal Agriculture Offices (MAOs) from the eleven (11) municipalities of the province. The MAOs furnished the Baseline Study Group with the master lists of land-based farmers and fishers. From the master lists, the Baseline Study Group carefully selected the key informants based on their personal knowledge on the condition and/or situation of farming households; direct or indirect involvement in the activities and/or provision of support to activities of farming households; roles and responsibilities with regard the policy environment and/or governance structure affecting farming households and as such concerned LGU officials.

Detailed distribution of sample size of the KIs per municipality is shown in Annex: Conceptual Framework Tables 2-13.

2.2. The Instrument

The KI Instrument is an eleven-page questionnaire which covers (a) personal and household profile of the key informant; (b) main source of income/livelihood; (c) nature/type of livelihood activity(ies); (d) ownership of land, equipment and other related assets; (e) observed climatic changes and felt impacts; (f) coping mechanisms employed; (g) assistance received from government/non-government organizations; (h) practice of savings and existence of related institutions; (i) availment of loans and existence of related institutions; (j) availment of insurance and existence of institutions related thereto. The questions and choice of responses contained in the instrument are presented in both English and Visayan.

The key informant interviews were generally conducted in the Visayan dialect. Furthermore, the instrument for the KI was administered, by the interviewer and not by the key informant/respondent.

2.3. Steps in the Processing of Accomplished Key Informant Interview Instruments

2.3.1. Compilation of the fully-accomplished KI answer sheets/forms
2.3.2. Processing/Tabulation of data according to required structure *(to ensure correctness of the processed data according to the accomplished answer sheets, the Research Management shall see to it that data processors/encoders will have an accompanying reader of the answer sheets who will also serve as second eye or checker of the encoders)*
2.3.3. Proofreading
2.3.4. Synthesis of the data according to the required structure
2.3.5. Analysis of the data
2.3.6. Presentation of the final data according to the required structure

For the full guide of the Key Informant Instrument please see Annex: Guide for the Actual Conduct of Key Informant Interview

3. FOCUS GROUP DISCUSSIONS (FGD)

Focus Group Discussion or FGD is a social tool that was used by the BSG to gather qualitative information from primary sources. Discussants from the farming communities identified for the study were gathered in a workshop or round table discussion to share their experiences, perceptions, and knowledge on the issues/topics in focus indicative contingent on the results of the secondary data review done previously by the research group. The tool served to validate information in the secondary data.

The BSG strategized to conduct two (2) simultaneous FGDs to every two municipalities to ascertain utmost attention and maximization of the resources and staff at the same time to ascertain the quality of the data that will be getting from the discussants. Research staff composition in the actual conduct of the FGDs were composed of a Facilitator who led the discussion, a Co-Facilitator who assisted the facilitator, a Documenter who took charge of the documentation of the proceedings at the same time who kept watch of the time spent for every activity of the FGD tools and, a Logistics in-Charge who took charge of the preparation and delivery of the materials needed for the discussion.

Tabular FGD distribution per municipality is shown in Annex: Conceptual Framework Table 13.

3.1. Participants

The participants of the Focus Group Discussions are selected on the bases of the following representation:

A. Government Representation that were composed of the: Barangay Captain or Barangay Kagawad on Agriculture; ABC President; the Municipal Agrarian Reform Officer (MARO); THE Municipal Agriculture Officer (MAO); the Municipal Planning and Development Coordinator (MPDC); the Municipal Health Officer (MHO); the Municipal Social Welfare and Development Officer (MSWDO) and the, Municipal Environment and Natural Resources Officer (MENRO).

B. Non-Government Organizations Representatives that were represented by the NGOs working with farmers with at least 3 years in the area; representative(s) from the academe; and geographical representation from associations of farmers, fisherfolk and women.

C. FGD Value Chain Participants involved were the Barangay Captain or Barangay Kagawad on Agriculture; ABC President; MARO; MAO; MPDO; MENRO, NGOs working with farmers with at least 3 years in the area; representative from the academe; geographical representation of Farmers, Fisherfolk and Women Associations; entrepreneurs / industry leaders and cooperative leaders.

3.2. FGD Tools:

The FGD tools that were employed by the BSG included Resource/Access Mapping, Trend Diagram, Production Cycle Calendar and Value Chain Mapping.

3.2.1. Resource / Access Mapping

Resource and Access Maps helped in the identification of local resources and its accessibility to the farming communities. These included but not limited to agricultural resources and facilities, agri-business related establishments, financial institutions, technology and marketing support agencies and projects.

3.2.2. Trend Diagram

The Trend Diagram covered periodic changes in the yields of crops per harvest that included its corresponding income per harvest per area of production and also the reason for such changes such as technology, climatic condition and changes, etc.

Trend diagram was useful in the plotting of increases or decreases in production yield of crops or catch (fish) within a certain length of time e.g. per year or per harvest period. It helped the researchers in the analysis of production trends and the factors contributing to such trends.

3.2.3. Production Cycle Calendar

The Production Cycle Calendar assisted the FGD participants in identifying specific crops and the activities required from planting to harvesting indicating the months of the year when each production activity is done by farmers.

The tool facilitated in the gathering of the data re: type of crops grown in the farming communities; production activities of farmers / crop; months of the year with the highest production activities / months with the least or no production

activities; other activities for livelihood engaged in during no production months; other skills available in the farming communities and the training needs of farmers.

3.2.4. Value Chain Mapping

VC Mapping facilitated discussions in the identification of sequences of related activities or functions of a certain agricultural activity and the operators performing these functions from the provision of specific inputs to production and to the transformation of the product; then, to trading and to the final consumption of a particular crop or product.

It helped in analyzing relationships of related activities and functions and the operators performing these functions in a chain from the provision of inputs to the final consumption of a specific product or commodity.

The value chain map aided the BSG in identifying the business activities and actors involved in the different functions of producing the major products of a particular community.

The analyses of these functions & actors then will help to pinpoint areas for intervention or support depending on the situation as seen from the value chains that were established.

For the full guide of the FGD Workshop Guide please see Annex: Guide for the Actual Conduct of Focus Group Discussion

4. GENERAL POLL/SURVEY

The General Poll covered a total of 1,200 respondents from around the province and carefully selected representatives of farming households including those households where fishing is the main activity. The results of the poll complemented the information obtained from the KIs, the FGDs and secondary sources.

The questionnaire is a one-page instrument which deals with questions on observed climate change and felt impacts; practice of savings and existence of related institutions as well as of availment of insurance and related institutions thereto.

The results of the General Poll aided in the validation of the results of the FGDs and the Kis and provided a complementing source in the general analysis of the farming situation of the farming communities of the province.

4.1. Steps in the Processing of Accomplished General Poll Questionnaires

4.1.1 Compilation of Poll results
4.1.2 Processing/Tabulation of data according to required structure *(to ensure correctness of the processed data according to the accomplished answer sheets, the BSG saw to it that data processors/encoders have an accompanying reader of the answer sheets who served as second eye or checker of the encoders)*
4.1.3 Proofreading
4.1.4 Synthesis of the data according to the required structure
4.1.5 Analysis of the data
4.1.6 Presentation of the final data according to the required structure

For the full guide of the General Poll Instrument please see Annex: Guide for the Actual Conduct General Poll

PROFILES OF THE KEY INFORMANTS

In the context of having a narrower perspective on the farming communities of Agusan del Norte province, the rural barangays are selected in the study.

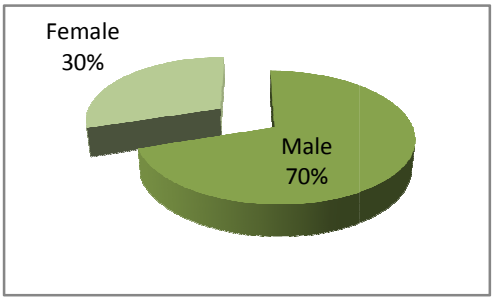
Total Number of Key Informants

A total of 300 key informants carefully selected on the bases of the criteria as discussed in the study methodology represented the farming population of the 126 sampled rural barangays in the province.

Percentage Distribution of Key Informants by Sex

There are 211 males and 89 females that are actually interviewed in the baseline study of the farming population in the province.

Fig.
Percentage Distribution of the Key Informants by Sex



Source: BSG KI Results

Mean Age

The mean age of the key informants as indicated in the KI consolidate results is 47 years old for the male farmer-informants and 43 years old for the female informants.

Average Household Size

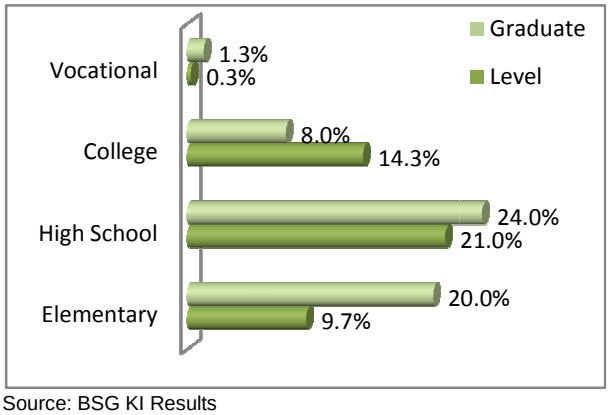
The average household size of the key informants is 6 members per household.

EDUCATION, KNOWLEDGE AND SKILLS

Key informants' Educational Attainment

The highest percentage of informants, with 24%, per educational attainment is indicated to be high school graduates while some 21% are high school level. Some 14.3% are college level and 8% are college graduates. Some 1.3% of the informants have graduated vocational courses thus, have trade skills.

Fig.
Percentage Distribution of the Key Informants' Educational Attainment



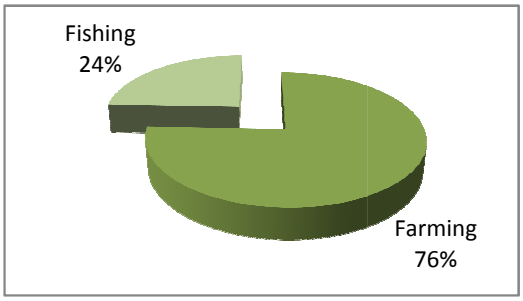
Source: BSG KI Results

EMPLOYMENT, LIVELIHOOD AND INCOME SOURCES

Main Source of Income of the Key Informants

A total of 76% of the key informants across all the sampled rural barangays in the province are engaged in farming as their major source of income while the other 24% are into fishing.

Fig.
Percentage Distribution of the Key Informants' Major Source of Income



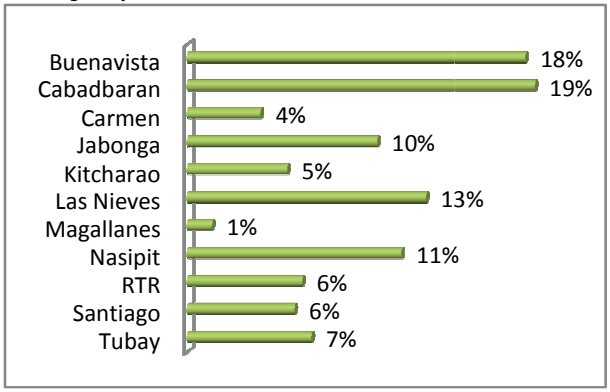
Source: BSG KI Results

Key informants Involved in Farming (crop and livestock)

As indicated in the consolidated KI results from the 11 municipalities, the largest proportions of farmers engaged in crop and livestock come from Cabadbaran and Buenavista with 19% and 18%, respectively; while there were only 1% of the informants engaged in crop and livestock in Magallanes.

Along lakeshore communities, Jabonga has the largest proportions of informants engaged in farming and livestock.

Fig.
Percentage Distribution of the Key Informants' Involved in Farming Crop and Livestock



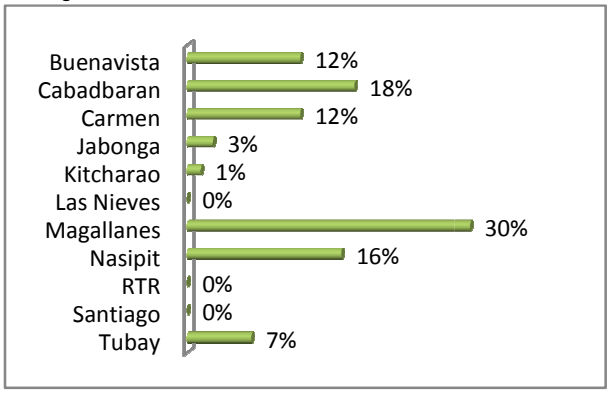
Source: BSG KI Results

Key informants Involved in Fishing

Magallanes has the largest proportion of informants engaged in fishing activities with 30% followed by Cabadbaran with 18% and Nasipit with 16%.

There were no informants identified to have engaged in fishing in the inland municipalities of Las Nieves, RTR and Santiago.

Fig.
Percentage Distribution of the Key Informants' Involved in Fishing

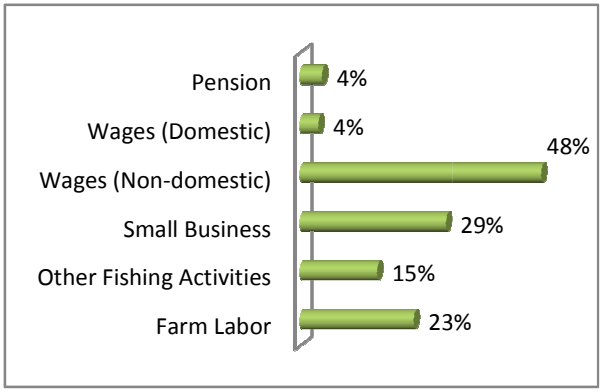


Source: BSG KI Results

Key informants' Other Sources of Income

The informants' other sources of income as indicated by 48% of the KI responses come from wages of doing non-domestic work; others 29% from small business and 23% derived income from farm labor contracting. The other 15% derived income from other fishing activities; 4% from wages of doing domestic work while 4% indicated that they derived income from pension.

Fig.
Percentage Distribution of the Key Informants' Other Sources of Income

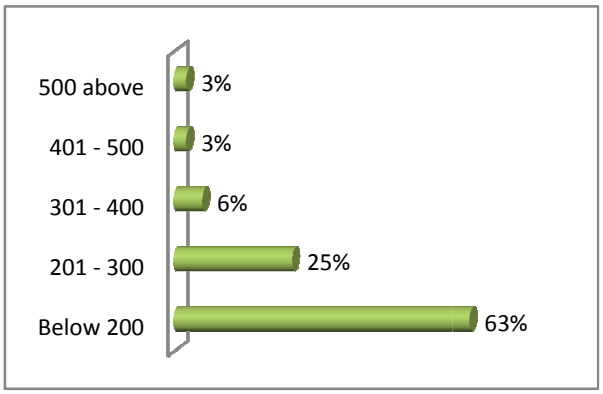


Source: BSG KI Results

3.1.4.3.1. *Key informants' Average Daily Household Income*

More than half of the key informants or 63% have daily estimated household income of P200.00 and below; while 25% have daily income of up to P300.00. Other 6% of the KIs have income of up to P400.00 per day while another 6% have income of P500.00 and above per day.

Fig.
Percentage Distribution of the Key Informants' Daily Household Income

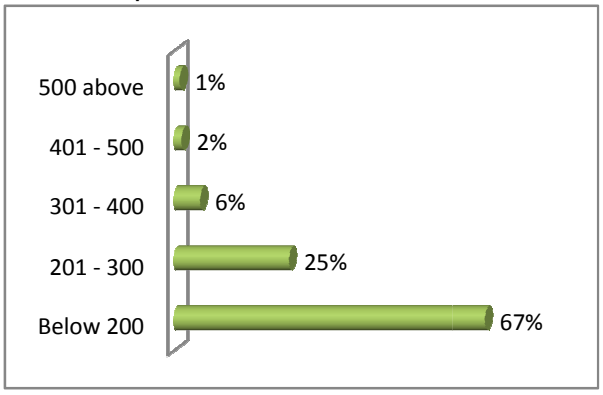


Source: BSG KI Results

3.1.4.3.2. *Key informants' Average Daily Household Expenses*

A total of 67% of the KIs have incurred daily expenses of P200.00 and below while the other 25% indicated to have been spending of up to P300.00 per day; 6% are spending of up to P400.00 while 3% have daily expenses of P500.00 and above.

Fig.
Percentage Distribution of the Key Informants' Daily Household Expenses



Source: BSG KI Results

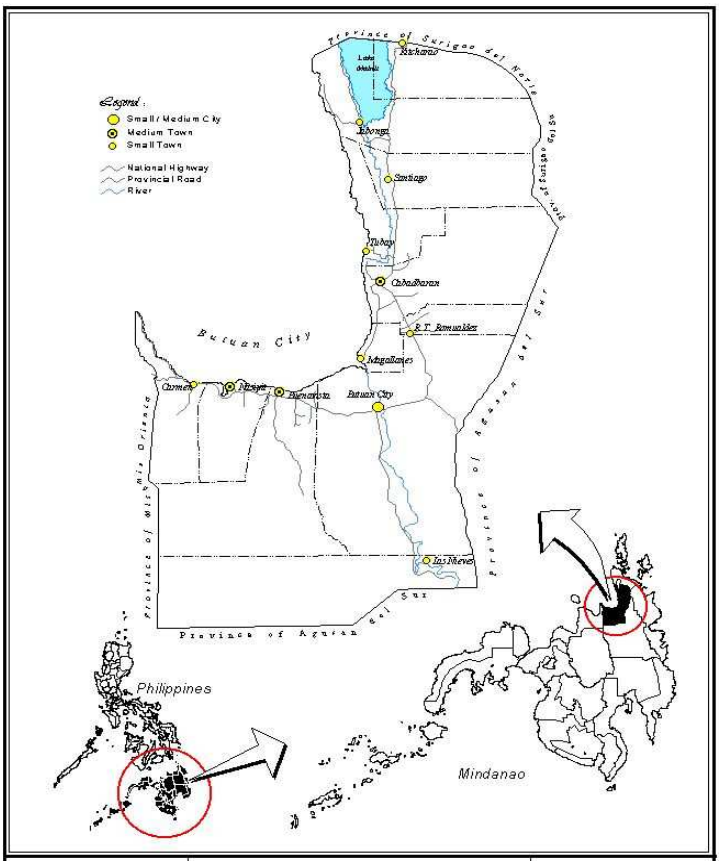
3.1. GENERAL PROFILE

3.1.1. LOCATION AND HISTORY

3.1.1.1. Location

Agusan del Norte is located 9 degrees north latitude and 125 degrees and 30 minutes east longitude on the northeastern part of Mindanao. It is bounded on the north by Butuan Bay and Surigao del Norte; on the east by Surigao del Sur; on the south by Agusan del Sur and on the west by Misamis Oriental. It is one of the four (4) provinces of Northeastern Mindanao (Region 13).

Fig. 3.1.1 Location Map of Agusan Del Norte



Source: PPFP, 2003-2012

3.1.1.2. Location of the Municipalities

Buenavista lies 9 degrees 55 minutes north latitude and 125 degrees 25 minutes east longitude of the northeastern part of Agusan del Norte. Its boundaries are Butuan Bay to the north; Nasipit to the west; Las Nieves to the south; and Butuan City to the east. The area is made up of plains and rolling lands. The northern portion is hilly while the southern part is flat. The Poblacion and most of the barangays are located along the plain. In its eastern boundary with Butuan City lies Mt. Mayapay.

Cabadbaran City is generally flat with rolling hills and lies 9 degrees north latitude and 125 degrees and 30 minutes east longitude on the northeastern part of Mindanao. Its boundaries are Tubay and Santiago to the north; Butuan Bay to the west; Magallanes to the south; Madrid and Cantilan, Surigao del Sur to the east. It is 28.70 kilometers from Butuan City. Located within the jurisdiction of the municipality is Mt. Hilong-hilong, which at 2,012 meters above sea level, is the highest elevation in the region.

Carmen is located at the western part of Agusan del Norte. Its boundaries are Butuan Bay to the north; Magsaysay, Misamis Oriental to the west; Nasipit and Buenavista to the south; and Nasipit to the east. It is 31.80 kilometers from Butuan City. The terrain of the municipality has both flat lands and mountainous features. It is a boundary

municipality between Misamis Oriental and Agusan del Norte, and on its territory rises Mt. Piglagahan with an elevation of 810 meters above sea level.

Jabonga lies within the grid of 9 degrees 18 minutes to 9 degrees 23 minutes north latitude and 125 degrees 24 minutes to 125 degrees 43 minutes east longitude. Its boundaries are Kitcharao and Surigao del Norte to the north; Butuan Bay to the west; Tubay and Santiago to the south; Surigao del Sur to the east. It is 59.70 kilometers from Butuan City. The topography of the municipality is generally plain to rolling and hilly lands.

Kitcharao is generally made up of rolling hills wherein Mt. Cabatuan, which rises 918 m above sea level, is situated within its boundary. It is bordered by Alegria, Surigao del Norte to the north; Gigaquit, Surigao del Norte to the west; Jabonga to the south and Claver, Surigao del Norte to the east. It is 73.90 kilometers away from Butuan City.

Las Nieves is generally composed of rolling hills and some flat lands. It lies 9 degrees north latitude and 125 degrees 30 minutes east longitude of the southern part of Agusan del Norte. Its boundaries are Butuan City to the north; Buenavista to the west; Esperanza, Agusan del Sur to the south; Sibagat, Agusan del Sur to the east. It is 40 kilometers to Butuan City.

Magallanes is a coastal area and generally composed of flat lands. It lies 9 degrees and 1 minute north latitude and 125 degrees 31 minutes east longitude. Its boundaries are Butuan Bay to the north; Butuan Bay to the south; mouth of Agusan River to the west; and RTR to the east. It is 35.90 kilometers away from Butuan City via the national highway.

Nasipit is generally made up of rolling hills. it lies 8 degrees 59 minutes north latitude and 125 degrees 24 minutes to 125 degrees 15 minutes east longitude of the northwestern section of Agusan del Norte. Its boundaries are Butuan Bay in the north; Carmen in the south and west; and Buenavista in the east. It is 25.40 kilometers from Butuan City.

Remedios T. Romualdez (RTR) is 18.80 kilometers from Butuan City. Its boundaries are Cabadbaran to the north; Magallanes to the west; Butuan City to the south; Sibagat, Agusan del Sur to the east. The municipality is composed mainly of a plain with the hilly part on the east and west.

Santiago lies in the northeastern part of Agusan del Norte and has rolling and rugged mountains. Its boundaries are Jabonga to the north; Tubay to the east. It is 49.10 kilometers from Butuan City. Mt. Mabaho that rises 1,823 meters above sea level is among its mountains.

Tubay is composed of flat lands and rolling hills and lies 9 degrees 18 minutes north latitude and 125 degrees and 37 minutes east longitude. Its boundaries are Jabonga and Santiago to the north; Butuan Bay to the west; Cabadbaran to the south, and; Santiago to the east. It is 39.10 kilometers from Butuan City.

3.1.1.3. Historical Development

The province was created on 17 June 1967 by virtue of Republic Act 4979, a legislative action authored by the late Congressman Jose C. Aquino.

The Agusan province was created by the Special Provincial Government Act of 1907 during the American colonial era. This territory was split into two, and Agusan del Sur was also created as Agusan del Norte became one of the provinces of the country.

Butuan City, which used to be a component city of Agusan del Norte, was named as capital and seat of government. When Republic Act 8811 was enacted in the year 2000, Cabadbaran became the new capital and administrative center of the province.

Until 1907, Agusan, then named Butuan, was under the jurisdiction of Surigao. It was separated from Surigao with the passage of the Special Provincial Government Act of 1907. That separation gave birth to Agusan as a province.

Agasan (where the water flows), an allusion to the mighty river (Agusan River) that cuts through the area is widely believed to be the origin of the name Agusan.

The ancestors of the present-day *Mamanwas* were the aborigines of the place. The first wave of Malay immigrants from Borneo and the Celebes drove them to the hinterlands.

The Spaniards, the Americans and the Japanese occupied the province in the historical wars that also saw the rising up in arms by the *Agusanons*.

Gumersindo Flores led the *Agusanons* in the war against the Americans at the turn of the 19th century. The short-lived First Philippine Republic under Pres. Emilio Aguinaldo was snapped by the invading Americans.

The province was under direct American military control until 1914. In that year, the first Filipino governor was appointed in the person of Teofisto Guingona.

In 1923, an election was held and Apolonio D. Curato became the first elected governor. He served a three-year term. Jose Rosales was elected next for two terms. In 1936, Mariano Atega got elected and governed the Province. Agustin Casinas succeeded Atega but his term was cut short by the Japanese occupation. A certain General Aguirre took the post.

When liberation came, Curato once again got the governorship for a year. Servando Jongko won in the election that was held in 1947.

Felixberto Dagani served as governor in 1950-1959, then Democrito Plaza in 1960-63. Jose Aquino got the post in 1964 but gave up the position in 1966 when he ran for congress. His vice governor, Consuelo V. Calo, took over and got elected in 1967. Calo held the position through the martial law years until 1986 when the revolutionary government of President Corazon Aquino that booted out then President Ferdinand Marcos through people power took over. Jose T. Gonzales served as OIC Governor of the province as the country reconstituted the foundations of democracy following years of martial rule. Death, however, limited his stewardship to only a year. Jesus Delfin finished Gonzales' watch. Eduardo L. Rama won in the first elections conducted after the ouster of Marcos. He held the position for two terms. Maria Angelica Rosedell M. Amante got elected as governor in 1995 and served until June 2004.

Erlpe John M. Amante got the post in the 2004 elections and now steers the province to its desired development.

Source: Provincial Physical Framework Plan, 2003-2012

3.1.2. GENERAL ADMINISTRATIVE, POLITICAL, INSTITUTIONAL PROFILE AND PEACE AND ORDER

3.1.2.1. GENERAL ADMINISTRATIVE

3.1.2.1.1. Vision, Mission, Goals and Objectives

Vision

A life enhancing agri-forest and industry haven managed by modern communities of God-loving and empowered people

Mission

Serve as reliable partner in realizing sustainable agri-based industry clusters and actualizing special economic zones by leading the drive for a highly productive populace and the standardization of community facilities

General Goal

The ultimate goal of the province growing into agri-industrialized center is the attainment of a decent and sustainable standard of well-being and general welfare of the populace.

Development Goal

To attain self-sufficiency in its total needs, provide adequate and efficient social services, alleviate poverty and narrow down the disparity in family incomes, arrest environmental degradation and grow along the course of rational and efficient utilization of resources.

3.1.2.1.2. Organization

*Office of the Provincial Governor***:** Acts as the Chief Executive Office of the Province and exercises over-all supervision over the offices and activities in the province among other functions;

*Office of the Vice Governor***:** Presiding Officer of the Sangguniang Panlalawigan and the Vice Governor is heir-apparent if and when permanent or temporary vacancy occurs at the Office of the Governor, among other functions;

*Sangguniang Panlalawigan***:** As a legislative body, it shall enact ordinances; approve resolutions and appropriate funds for the general welfare of the province and its inhabitants pursuant to the code.

Provincial Administrative Bodies and Offices: responsible for the over-all delivery of services to the population in the province. These include the office of the secretary to the Sangguniang Panlalawigan, Office of the Provincial Administrator; Provincial Planning & Development Office; Provincial Budget Office; Provincial Accountant Office; Office of the Provincial Treasurer; Office of Provincial Assessor; Provincial Administrative Services Officer; Office of the Provincial Engineer; Office of the Provincial Agriculturist; Office of Provincial Legal Officer; Office of the Provincial Social Welfare Development, Population & Nutrition; Provincial Health Office; Provincial Veterinary Office.

3.1.2.1.3. Special Bodies

The provincial administrative bodies include Provincial Development Council; Provincial Peace and Order Council; Local School Board; Investment Promotion Board; Local Health Board; Personnel Selection Board; Information and Communications Technology Committee and Bids and Awards Committee.

3.1.2.2. INSTITUTIONAL PROFILE

3.1.2.2.1. Hospitals and Clinics

All the municipalities as a standard rule have health stations distributed to its respective barangays or what are called Barangay Health Stations (BHS). There are 104 Barangay Health Stations that are distributed in the province.

On secondary and tertiary health facilities, the Jabonga and Kitcharao District Hospitals are serving the medical needs of the easternmost municipalities of the province while the Cabadbaran City District Hospital serve for the central towns. The Nasipit District Hospital is serving the populace of the western towns and the Las Nieves Municipal Hospital for the residents in this interior area. The Provincial Hospital that is located in Butuan City serves as the tertiary health facility of the province. These said public hospitals are complemented by a number of private hospitals. Some private clinics namely Ramirez, Udarbe and Rodriguez Clinics in Cabadbaran City; St. Joseph Medical Clinic in Nasipit; Clinica Nazareth in Magallanes: all these also serve the population of the said municipalities. Accordingly, the equipment and facilities of these said geographically dispersed hospital units are adequate to serve the provincial population, while the hospitals in Butuan City are complementing the hospital needs of the provincial populace, especially those of emergency cases or those that need specialized care and immediate treatment. (*PPFP, 2003-2012)*.

The provincial health office reports that medical and para-medical personnel in the province totaled to 405 in year 2005 wherein 45% of them are employed in the government while the remaining fraction are in private establishments and field service.

3.1.2.2.2. Fire Stations

There are eight fire stations that are spread in the municipalities of Buenavista, Cabadbaran City, Jabonga, Kitcharao, Magallanes and Nasipit, while there are two fire stations in Butuan City and one in Ampayon.

3.1.2.3. PEACE AND ORDER

The province is relatively peaceful with crime solution efficiency of 91.45% or 257 crimes solved out of the recorded 281 crimes as of the latest PNP Report (Dec.31, 2009). All 10 municipalities and 1 city have their own police stations.

3.1.3. ENVIRONMENT AND CLIMATE

3.1.3.1. TOPOGRAPHY AND GEOLOGIC CHARACTERISTICS

3.1.3.1.1. Topography of Agusan del Norte

The province is made up predominantly of flat and rolling lands (0-18% slope) bounded by mountain ranges on its eastern and western parts, and Lake Mainit in the northeastern part. The eastern mountain range, composed of Mt. Mabaho (1,823 meters above sea level) and Mt. Hilonghilong (2,012 m asl), straddle the Agusan del Norte-Surigao del Sur-Agusan del Sur boundary. Another mountain range serves as the boundary with the province of Misamis Oriental on the west. The most prominent peaks in this mountain range are Mt. Indocay (1,243 m asl), Mt. Piglagahan (810 m asl) and Mt. Camagong (576 m asl). Found between the municipality of Buenavista and Butuan City is Mt. Mayapay which has an elevation of 675 m asl.

Very steep slopes (i.e., > 50% slope) in these mountain ranges are estimated to cover 16,140.14 hectares. Lake Mainit, which Agusan del Norte shares with Surigao del Norte is one of the largest lakes in Mindanao and is the country's deepest and fourth largest lake.

The 105 km coastline is generally rocky with occasional stretches of sandy or gravel beaches. Several embankments are gradually being filled up with alluvial materials which tend to produce small tracts of coastal plains *(ADN-EMP).*

3.1.3.1.2. Land Area by Municipality

The total land area of the province is 273,024 hectares wherein the largest land proportion is located in the municipality of Las Nieves with 58,269 hectares or 21.34% to the total land area of the province followed by the municipality of Buenavista with 47,561 hectares or 17.42% to the total land area of the province.

The municipality of Magallanes has the smallest land area with 4,431 hectares or 1.62% to the land area of the province.

Table 3.1.3.1.2
Land Area by Municipality

Municipality	Area (hectares)	% to total
Buenavista	47,561	17.42%
Cabadbaran	31,102	11.39%
Carmen	21,444	7.85%
Jabonga	29,300	10.73%
Kitcharao	17,192	6.30%
Las Nieves	58,269	21.34%
Magallanes	4,431	1.62%
Nasipit	14,440	5.29%
RTR	7,915	2.90%
Santiago	27,561	10.09%
Tubay	13,809	5.06
TOTAL	273,024	100%

Source: PPDO-ADN, 2009

3.1.3.1.3. Land Use
3.1.3.1.3.1. Land Classification

The proportion of land classified as alienable and disposable has the total of 61,938 hectares or 22.69% to the total land area of the

Table 3.1.3.1.3.1
Land Classification

Classification	Hectare	Percentage
Alienable and Disposable	61,938.00	22.69%
Forestland	211,086.00	77.31%
Total	**273,024.00**	**100%**

Source: PPDO-ADN, 2009

province while the remaining 211,086 hectares are classified as forestlands.

3.1.3.1.3.2. Existing Land Use

The existing land use of the alienable & disposable area is classified into Built-up Area with a total of 4,416.61 hectares wherein 2,611 hectares are Settlements Area that is composed of residential, institutional, commercial, industrial and open spaces; Special Economic Zone with 1,187.48 hectares and; 1,277.61 hectares are classified as infrastructure and utilities area.

The land area devoted for agricultural use has a total of 69,422.35 hectares or 25.43% to the total land area of the province; while a total of 199.185.04 hectares are classified as forestlands, wherein 117,188.76 hectares are production forests and 81,785.14 hectares are protection forests; and 211.14 hectares are classified as water bodies. The land that is used for quarrying and mining has a total of 374.13 hectares and 201.59 hectares are tourism areas.

Table 3.1.3.1.3.2
Existing Land Use

Land Use Category	Area (Has.)	% to Total
Built-up	**4,416.61**	**1.62%**
Settlement	2,611.00	0.96%
Residential	1,057.85	0.39%
Institutional	251.28	0.09%
Commercial	48.15	0.02%
Industrial	66.24	0.02%
Open Spaces	1,187.48	0.43%
Special Economic Zone	528.00	0.19%
Infrastructure & utilities	1,277.61	0.47%
Agriculture	**69,422.35**	**25.43%**
Crops	57,840.75	21.19%
Uncultivated	7,468.25	2.74%
Fishpond	1,607.74	0.59%
Water bodies	2,505.62	0.92%
Forestland	**199,185.04**	**72.96%**
Production	117,188.76	42.92%
Protection	81,785.14	29.96%
Water Bodies	211.14	0.08%
Special Uses	*575.72*	*0.21%*
Quarrying/Mining	374.13	0.11%
Tourism	201.59	0.06%

Source: PPDO-ADN, 2009

3.1.3.1.3.3. Slope Classification

The land area which has a slope of below 18% has a total of 80,693.35 hectares while there is a total of 116,783.65 hectares with slope of 18% to 50%. The land area with slope of above 50% has a total of 75,547.0 hectares.

Table 3.1.3.1.3.3
Slope Classification and Area Distribution

Slope	% to total	Estimated area(hectare)
0-3%	17.31%	47,269.21
3-8%	3.08%	8,403.07
8-18%	9.16%	25,021.07
18-30%	25.24%	68,904.08
30-50%	17.54%	47,879.57
Above 50%	27.67%	75,547.00
Total	**100%**	**273,024.00**

Source: PPDO, ADN, 2009

3.1.3.1.4. Soil Type

By its abundance of soil types identified to be present in the province, the place is suitable for growing food and commercial crops.

A total of 83,627.25 hectares or 30.63% of the land area in the province is highly suitable for growing food crops while a total of 80,016.40 hectares or 30.04% is suitable for commercial crops including tree plantations. The other 99,926.78 hectares or 36.66% of the land area is suitable for maintaining protection of forest species.

Table 3.1.3.1.4
Soil Types

Types	% to total	Estimated Area (has)	Suitability use
San Manuel Loam	3.77	10,293.00	Rice, Corn, Sugarcane, Vegetable, Camote, Tobacco, Abaca, Banana
San Manuel Clay	0.48	1,310.51	Corn, Banana, Rice, Vegetable, Coconut
San Manuel Clay Loam	2.75	7,508.16	Corn, Rice, Rootcrops, Peanuts, Vegetable
Isabela Clay	0.32	873.76	Rice
Isabela Clay Loam	0.90	2,457.22	Rice, Corn, Sugarcane
Bolinao Silt Loam	5.53	15,098.23	Banana, Corn, Abaca, Rootcrops, Falcata
Camansa Clay Loam	22.36	61,048.17	Banana, Corn, Rice, Abaca, Rootcrops, Falcata
Umingan Clay Loam	5.95	16,244.93	Rice, Corn, Rootcrops
Alimodian Clay Loam	0.71	1,938.47	Banana, Rootcrops, Abaca
Malalag Silt Loam	12.55	34,291.81	Banana, Rootcrops, Abaca, Coconut, Corn, Rice
Butuan Loam	6.90	18,838.65	Rice, Vegetable
Kitcharao Clay Loam	0.25	682.56	Rice, Coconut, Abaca, Ramie, Fruit Trees
Kitcharao Silt Loam	1.19	3,248.98	Rice, Rootcrops, Coconut, Tobacco
Hydrosol	2.13	5,815.41	Fish Pond and Wildlife
Rubble Land	0.11	300.36	Forest
Mountain Soils	34.09	93,073.88	Forest
TOTAL	**100%**	**273,024.10**	

Source: PPFP, 2003-2012

3.1.3.1.5. Climate Type

The province is categorized under Climatic Type II which means that there is no definite dry season but with a very pronounced rain that normally occurs during the months of November to February. The average annual temperature is 26.5°C and the average annual humidity is 84.6%.

3.1.3.2. LAND, MINERALS, FRESHWATER AND COASTAL RESOURCES

The province is replete with natural resources distributed all across the eleven municipalities, evidenced by its many fresh water bodies like rivers and lakes, land resources like forest and agricultural lands, coastal resources, and also mineral resources.

3.1.3.2.1. FRESH WATER BODIES

The Environmental Management Report of Agusan del Norte shows that the province has a good number of rivers and lakes of which the most important are: (1) Agusan River that starts from Compostela Valley and Davao Oriental and cuts through Agusan del Sur and Agusan del Norte and empties into Butuan Bay, and; (2) Lake Mainit that is being shared by the province of Agusan del Norte and Surigao del Norte, and which has a total area of 17,060 hectares; about 55% of the lake belongs to Agusan del Norte province.

Agusan River has several rivers and creeks within the province that serve as its tributaries. Other rivers that are geographically distributed all across the province and are equally important are: Cabadbaran River, Magallanes/Baug River, Taguibo River (tributary of Magallanes River), Kalinawan/Tubay River, Asiga River (tributary of Kalinawan River), Puyo River (tributary of Kalinawan River), Manapa River and Guihao-an River in Buenavista, and Kinabjangan River in the municipality of Nasipit *(ADN-EMP).*

Whereas, the waters in Lake Mainit come from 21 rivers and creeks in the northeastern part of Agusan del Norte and Surigao del Norte, Kalinawan River serves as its outlet. Another lake, the Lake Pagusi, is found along the route of the Kalinawan River, about 7 km from Lake Mainit. It is a backwater area of the Kalinawan River and is covered by "pagusi" (thus its name). It is considered an integral part of the Kalinawan river system. Lake Pagusi has a total area of 2,431 hectares *(ADN-EMP).*

3.1.3.2.2. LAND RESOURCES

The province is identified with a wide range of agricultural crops courtesy of a varied soil types suitable for agricultural farming. There are 16 soil types found in the province. The most dominant of which is the undifferentiated mountain soil found mainly in the mountainous parts of the province which is about 34% of the 265,488 hectares covered by the soil survey and deemed suitable for forest and fruit trees. .

According to the Provincial Environmental Management Plan, the province has some 19,400 hectares of irrigated and irrigable areas and these are considered as protected areas for agriculture. The report also provides that the province has 61,707 hectares of residual or second growth forests and 31,371 hectares of plantation forests which serve as the timber and non-timber sources of the province. There are 13,266 hectares of brush lands and open lands of 43,822 hectares.

Furthermore, protection areas for forest lands are located in Cabadbaran City, RTR and Santiago which have an aggregate of 16,025 hectares; mossy forests in Kitcharao, Cabadbaran City and Santiago; areas above 1,000 meters above sea level also are protected in the municipalities of Kitcharao, Santiago, RTR and Cabadbaran City; areas with slope greater than 50% in Carmen, Jabonga, Las Nieves, Kitcharao, Cabadbaran City, Nasipit,

RTR and Santiago, and; some 400 hectares in Manoligao, Carmen for the Higaonon civil reservations.

Accordingly, of the second growth forests distributed in the province can be found narra, molave, kaong, banaba, red and white lauan, yakal, tangile and tan-age, but only in patches. Some part in Kitcharao is characterized as limestone forest with natural vegetation consisting of balete, dumayaka, kaong, *Ficus gigantifolia,* bikal baboy, molave, hawili, tibig *(ADN-EMP).*

3.1.3.2.3. COASTAL RESOURCES

It is indicated in the EMP report that the province has a total shoreline of 105 kilometers extending from the municipality of Carmen to the coastal barangays of Jabonga. Accordingly, Butuan Bay is home to fish species such as sardines, hairtail, garfish, yellow fin tuna, slipmouth, skipjack, tiny shrimps, and mudcrabs. About 300 meters from the shoreline of Carmen and some portion of Nasipit and Jabonga are areas matted with seagrasses that has an estimated area of 1,560 hectares. The shoreline of barangays Vinapor, Gosoon, San Agustin, Cahayagan and Tagcatong of the municipality of Carmen are also matted with different kinds of corals. At an estimated average width of 220 meters from the shoreline, the corals cover about 633.8 hectares, including patches found from Rojales, Carmen down to Buenavista. The provinces' coral reefs consist of massive branching and lettuce-like corals. The coral reefs found in Carmen (about 255 hectares) is a potential marine park *(ADN-EMP).*

Fish sanctuaries were also established in Manapa, Buenavista in 1995 covering 25 hectares; Calibunan, Cabadbaran in 1997 covering 29 hectares; Amontay and Aclan, Nasipit with a total of 30.20 hectares, and; in the barangays of Binuangan with two identified fish sanctuaries, in Tagpangahoy, Tinigbasan and Barangay Lawigan in the municipality of Tubay which has a total area of 167.50 hectares established in 1998.

Additionally, the once vast mangrove resources of the province have diminished significantly. The remaining mangrove-swamp forests of the province are now only found in patches or narrow strips along the tidal mud flats of Magallanes, Nasipit and Buenavista. It is only in Taod-oy, Magallanes where a contiguous mangrove area of 50 hectares can still be found as reported in the provincial EMP.

3.1.3.2.4. MINERAL RESOURCES

It is also contained in the EMP report indicating that the province's mineral resources are located mainly in the municipalities of Nasipit, RTR, Kitcharao, Cabadbaran City, Jabonga, Tubay and Santiago. It is reported that an area of 10.5 hectares in Nasipit has bauxite ore; 112.9 hectares in R.T.R have manganese; and 178.9 hectares in Kitcharao have marbleized limestone. The DENR also pointed to gold deposits of about 1,566.14 MT in Tubay and 75,000 MT in Cabadbaran City. Copper deposits are also said to exist in Cabadbaran City, Jabonga, Santiago and Tubay. The city of Cabadbaran has also manganese deposits.

Furthermore, non-metallic resources such as limestone, marble, guano, sand, gravel and construction materials are also abundant. The Marapot and Cabadbaran Rivers are the best-known sources of Class A sand and gravel. Possibilities for hydrocarbon or natural gas deposits can be found in the coastal plains of Magallanes. Low pressure natural gas

seepages have been found in the Magallanes Poblacion while low pressure natural gas utilization has been established at Barangay Caloc-an. Methaniferous gas emanations occur up to the mouth of Agusan River due perhaps to the faults that release the gas from underground deposits as reported in the provincial EMP.

3.1.3.3. CLIMATE AND NATURAL HAZARDS

As has been the typical condition, the province is categorized under Climatic Type II which means that there is no definite dry season but with a very pronounced rain that normally occurs during the months of November to February. The average annual temperature is 26.5°C and the average annual humidity is 84.6%.

But the province, just as the rest of the provinces in the country, has been always subjected not only to natural climate- and weather-related hazards, like typhoons and droughts; geophysical hazards like earthquakes, volcanic eruptions and tsunamis, but also anthropogenic or man-made hazards like the results of deforestation, mining, improper wastes disposal/poor waste management and the adverse effects of climate change.

3.1.3.3.1. NATURAL HAZARDS

3.1.3.3.1.1. Earthquake Prone Areas

Based on the provincial environmental management plan, the province is prone to earthquake hazard with the identification of a fault line west of Lake Mainit area which is an extension of the Philippine Fault Zone that starts from northern Luzon through the Bondoc Peninsula, Camarines, Masbate, Leyte, Surigao and ends in Davao Gulf. The fault is reported to be running in parallel of Agusan River and following the river upstream to Agusan del Sur province. Moreover, the earthquakes recorded in the province have epicenters located along the tract of the major fault zones. Kitcharao is reported to have been within the seismic epicenter. The city of Cabadbaran and the municipalities of Tubay, Santiago and Jabonga are also reported to be within the active or probable active fault zones. The settlements near these fault zones and the roads near or traversing the faultlines (e.g., national highway in Tubay, RTR, Nasipit and Ampayon) are considered to be high-risk areas *(ADN-EMP).*

3.1.3.3.1.2. Flood Prone Areas

Flooding has been a perennial occurrence in the province. Flash floods occur due to heavy rainfalls that normally pour during the months of November to January. Floods do not only cause severe damage on land and properties like agricultural farm lands and crops but also endanger the lives of the people directly hit by them. Statistics of major floods as reported in the EMP of Agusan del Norte show that major floods occurred in the years 1956, 1962, 1974, 1975 and on March 1981. The flood that occurred in 1981, accordingly, was the most severe with a total damage cost of about P57 million.

Accordingly, the physical locations of rivers and lakes of the province allowed flooding to happen. The big rivers of Agusan, Cabadbaran City and Tubay and some other rivers are often reported to be affected by seasonal flooding. The low physiography of the rivers in the province, poor vegetative cover in the headwaters of these rivers and the inability of it to cope with high flood discharge are all attributed to the occurrence of flooding. Additionally, the silted rivers all contributed to the occurrence of flooding to the

flood-prone areas. Lake Mainit also overflow during heavy rains, thus bringing damage to surrounding lands and communities. According to the EMP report, the municipalities usually subjected to flooding are Buenavista, Cabadbaran City, Jabonga, Magallanes, Nasipit, RTR, Santiago and Tubay.

Reports from the Office of Civil Defense in the region show that for the last five years, flooding had been the leading natural disaster incident in the province based on its profile of natural disaster incidents. On its report of the continuous heavy rains in the province on January 10-18, 2009 it yielded a total damage cost of about P27.5 million to agricultural crops, fisheries and livestock and an additional P39.3 million damage cost to infrastructure, where it also affected a total of 11,069 families or 50,641 individuals in 8 municipalities. The municipalities of Jabonga and Carmen had the highest number of affected families and persons. Jabonga had a total of 3,926 families and 16,698 persons affected by the flood. The municipality of Carmen had almost the same number of affected families and persons with 3,980 families and 18,176, respectively. If measured against irreparable damage it brought to agriculture, the municipalities of RTR and Buenavista had the highest figure with a total estimated cost of P10,974,600.00 and P9,747,207.00, respectively. In March 2008, a three-day flood due to monsoon rains had affected a total of 12,800 persons or 2,558 families from the municipalities of Jabonga and Las Nieves. On January 2007, another flood resulted to a total damage on agriculture of about P7.3 million, where large fractions of it came from the municipalities of Jabonga and Las Nieves of about P2.07 million and P2.28 million, respectively. Another flood was recorded in February 2006 that had affected a total of 154,412 individuals or 29,799 families and a total damage cost of about P30.5 million all across the province, including Butuan City.

3.1.3.3.1.3. Landslide-Prone Areas

There are 4 barangays across the province that are identified to have a high susceptibility to landslides namely Barangay Sto. Niño in the municipality of Jabonga; Barangay Jaguimitan in Nasipit; Barangay Tagpangahoy and Barangay Tinigbasan in Tubay (Mines and Geosciences Bureau).

3.1.3.3.1.3. Other Hazard-Prone Areas

Additionally, the western and eastern shores of Lake Mainit are highly erodible primarily due to very steep to mountainous slopes and kaingin areas that remain without sufficient land cover. The local soils are susceptible to erosion, made more so by the practice of kaingin. As reported in EMP, landslides have already been observed in these areas.

The province is generally out of the typhoon belt. Only the northernmost towns of Kitcharao and Jabonga are affected by typhoons that hit the Pacific coast. Nasipit, Magallanes, and Cabadbaran are identified as areas threatened by saltwater intrusion *(EMP-ADN).*

3.1.3.3.2. ANTHROPOGENIC-INDUCED HAZARDS

Anthropogenic activities have also led to environmental destruction all across the province. The provincial Environmental Management Plan enumerated the key factors that endanger the quality of air, groundwater sources, productivity of rivers and lakes, productivity of agricultural and forestland areas, as well as socio-ecologically significant areas of the province.

Accordingly, the key factors that affected the air quality in the province are the existence of wood-based industries particularly in the municipalities of Magallanes and Buenavista and the sawmills and furniture-makers found in other municipalities in the province. Additionally, the power barge based in Bgy. Sta Ana, Nasipit fronting the Nasipit port, the marble processing industry in Kitcharao, and the rice/corn mills found all across the municipalities in the province are seen to be potentially hazardous to the health of the populace where these establishments are located. Other potentially damaging to the air quality of the province is the periodic spraying of insecticides and pesticides to agricultural plantations like mango in Carmen and worst, the banana in barangay Soriano, Cabadbaran City where aerial spraying is applied which has been done periodically the whole year round. The threat to air quality includes the open dumpsites and open burning of garbage.

As also contained in the EMP report, the actual and potential contributors that affect the quality of rivers include; illegal logging and kaingin practices in the upland that caused forest damage and trees loss that resulted to soil erosion and siltation of the rivers; small scale mining operations in Santiago and Kitcharao where the wastewater are drained to Kalinawan and Lambug rivers; industries that dispose their solid wastes and wastewaters into rivers; sewage and other wastes from the urban centers. All the above activities are posing actual and potential damage to the rivers of Kinabjangan, Guihao-an, Manapa, and Masao; also to Agusan River, Magallanes River, Taguibo River, Cabadbaran River, Kalinawan, Asiga and Puyo Rivers.

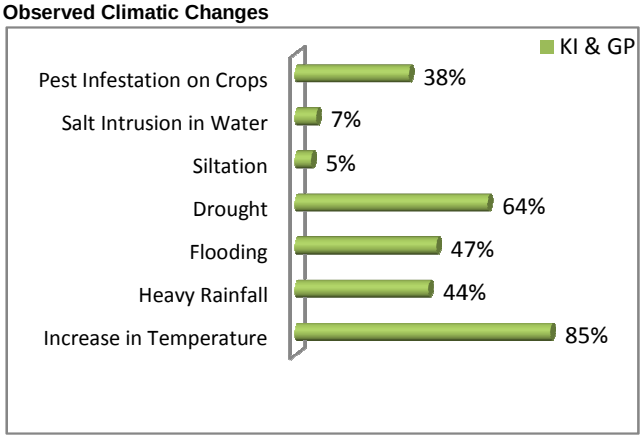
Moreover, the productivity and water quality in the Lake Mainit may be potentially destroyed with the massive deforestation in the uplands and small-scale mining operations in Santiago and Alegria in the province of Surigao del Norte. The agricultural run-off from adjacent rice fields and the use illegal fishing method can be actual and potential threats to the quality of Lake Mainit.

The report also shows that the groundwater quality of the province may be also at risk with the insufficient forest cover in the uplands due to continuous deforestation and illegal farming practices like kaingin; from the agro-chemicals used in banana and mango plantations that are absorbed by the soil and reached the aquifers; garbage and other wastes from urban centers; wastes from slaughterhouses and even hospitals and funeral parlors when no proper disposal systems are in place.

3.1.3.3.3.1. Observed Climatic Changes

In terms of climatic changes, the baseline study results show that 85% of the farming households in the province have observed an increase in temperature; 64% have observed drought; 47% have observed flooding and 44% have observed heavy rainfall. Some 38% have observed pest infestation on crops while the other 7% have observed salt intrusion in water and another 5% have observed siltation.

Table 3.1.3.3.3.1
Observed Climatic Changes



Source: BSG Consolidated KI and GP Results

3.1.4. SOCIO-ECONOMIC PROFILE

3.1.4.1. POPULATION: SIZE, GROWTH RATE, DENSITY, AGE-SEX DISTRIBUTION, URBAN-RURAL DISTRIBUTION

The province of Agusan del Norte is composed of a total population of 314,027 wherein 160,154 or 51% are male and 153,873 or 49% female (NSO 2007). Cabadbaran City is the most populated area of the province with 19.60% or 61,564 populace followed by the municipality of Buenavista with 16.90% while the municipality of Remedios T. Romualdez (RTR) is the least populated municipality of the 11 municipalities of the province with 4.77% or 14,976. The average household size of the province is pegged from 5.59 in year 1990 to 5.40 in 2005 while total number of households in year 2010 is projected to reach 60,771.

The total urban population is 77,575 individuals while a total of 236,452 rural populations for the whole province.

Table 3.1.4.1A
Population Size

Municipality	Population	% to total
Cabadbaran	61,564	19.60%
Nasipit	38,096	12.13%
Buenavista	53,059	16.90%
Magallanes	20,930	6.67%
Santiago	18,931	6.03%
Kitcharao	21,426	6.82%
Tubay	18,674	5.95%
Carmen	18,116	5.77%
RTR	14,976	4.77%
Jabonga	23,052	7.34%
Las Nieves	25,203	8.03%
TOTAL	**314,027**	**100.00%**

SOURCE: National Statistics Office, 2007

Table 3.1.4.1B
Population of Rural Barangays

Municipality	Urban population	Rural population
Cabadbaran	16,371	45,193
Nasipit	8,446	29,650
Buenavista	17,036	36,023
Magallanes	2,048	18,882
Santiago	8,770	10,161
Kitcharao	7,072	14,354
Tubay	3,712	14,962
Carmen	4,758	13,358
RTR	4,482	10,494
Jabonga	3,638	19,414
Las Nieves	1,241	23,961
TOTAL	**77,575**	**236,452**

SOURCE: National Statistics Office, 2007

Population Density

The province has a population density of 1 person per hectare or around 105 per square kilometer. The municipality of Magallanes has the highest population density of 4.82 per hectare while the agricultural municipality of Las Nieves is the least densely populated with 0.40 or 1 person per 2.5 hectares.

Population Growth Trend

The population growth trend, with a 5-year interval from year 1990 to 2005, declines from a growth rate of 2.44% in year 1990 down to 1.42% in year 2005 but a continuous increase in population size from 285,570 in year 2000 (where 49% are females and 51% males) to 306,429 in year 2005 . The projected population of the province for the year 2009 will reach up to 324,207.

3.1.4.2. ETHNICITY, LANGUAGES AND DIALECTS, RELIGION

The populations in the province are generally Roman Catholics with a total of 214,640 or 75.30% out of the 285,065 in 2000 who expressed religious affiliation while 999 of them have no known religion. A quarter of the population belong to other religious denominations.

The dialects spoken are generally Cebuano-Visayan, while the ethnic minority are mostly Manobo.

IP GROUPS	RELIGIONS	LANGUAGES/ DIALECTS SPOKEN
Lapaknon Manobo Mamanwa Higaonon	Roman Catholic Iglesia Filipina Independiente Iglesia ni Kristo United Church of Christ in the Philippines (UCCP) Seventh Day Adventist Bible Baptist Free Methodist Born Again Christian Islam	Butuanon Manobo Cebuano Surigaonon Waray Boholano Tagalog Illonggo Ilocano Mamanwa

Source: SEP-ADN, 2005

Other members of the Indigenous People (IP) include Lapaknon, Mamanwa, Higaonon.

3.1.4.4. POVERTY INCIDENCE

The poverty incidence in the province was gauged and presented in the technical output provided by the Provincial Planning and Development Office through its Community-Based Monitoring System (CBMS) which yielded a rather comprehensive survey on the poverty situation of the farming households in the province.

3.1.4.4.1. Income and Livelihood

The CBMS data shows that the provincial average of households with income below the poverty threshold is 55.6% which is twice higher than the national average of 24.4%. This translates to a total of 31,913 households below the poverty line, from the 56,248 total households surveyed.

Households with income below the food threshold all across the province have a total of 24,314 out of the 56,248 total households. Households who experienced food shortage have a provincial total of 3,038 or a provincial average of 5.05%.

3.1.4.4.2. Health and Nutrition

Cases of malnourished children aged 0-5 years old have a provincial average of 2.9% which is much lower against 27.6% national average.

The number of children 0-4 years old who died has a provincial average of 0.85% wherein the highest proportion of 1.8% is in the municipality of Las Nieves. Provincial average of women deaths due to pregnancy-related causes is 0.3% with a high incidence located in Buenavista with a proportion of 1.0% or 10 deaths.

3.1.4.4.3. Housing, Water and Sanitation

The number of households in the province who live in makeshift houses has a total of 2,694 or a provincial average of 4.5% which is much lower than the national average of 29.5%.

Households who are identified as informal settlers or squatters all across the province have a total of 2,553 or a provincial average of 4.5%.

For households who have no access to safe water supply, the CBMS data provides a total of 8,312 all across the 11 municipalities of the province or a provincial average of 16.2%.

Access to sanitary toilet facilities may be a problem with most of the rural areas as it is recorded that a provincial average of 15.1% or a total of 9,035 households all across the 11 municipalities have no access to sanitary toilet facilities.

3.1.4.4.4. Education

The number of children aged 6-16 years old who are not attending school all across the 11 municipalities of the province has a total of 11,349 out of the 75,037 total number of children aged 6-16 years old in the province or a provincial average of 14.1%.

The provincial average of children aged 6-12 years old who are not attending elementary school is 20.4% that is twice higher than the national average of 9.4%. Children not attending secondary schools that aged from 13 to 16 years old all across the province has a total of 11,344 against 26,686 the total number of children of that age or a provincial average of 39.4%.

3.1.4.6. GENERAL OVERVIEW OF THE ECONOMIC SECTORS

According to the physical framework plan of the province, economic dynamics revolve around utilization of available and advantageous resources of each of the municipalities of the province. This further outlined the interventions from small agricultural processing and services to convenience shops and entertainment facilities in municipalities classified as small towns, and a larger scope for medium and large towns. The idea accordingly is to enable the municipalities to create economic settings that supplement provincial agricultural activities with other services that would augment the household income of the provincial populace.

Accordingly, the municipalities did keep track on the outlined economic dynamics and did their fair share. The municipality of Nasipit, for instance, which is a medium town, is becoming an agri-industrial center and is assumed to be producing value-added products out of the agricultural produce and would thus create jobs for its constituents. Cabadbaran is also expected to create job opportunities and wealth out of its commercial activities and services. Carmen has risen to become a major producer of quality mango and become one of the tourist centers of the province. The agricultural lands of Las Nieves have produced more agricultural produce, so with the municipality of Buenavista. The adjoining municipalities of Santiago and Kitcharao have produced more root crops and quality marble, respectively. The agricultural plain of Remedios T. Romualdez has become the rice granary of the province; and Magallanes and Jabonga have been the principal sources of aquatic products.

Additionally, investment areas in the province include the NANIE or Nasipit Agusan del Norte Industrial Estate and TAPCEN or Tubay Agricultural Processing Center; Capitol Business Park, Integrated Coconut Processing Center, Integrated Agro-Forestry and Dairy Stock Farm Project, Lake Mainit Integrated Area Development Project and Las Nievesb-Buenavista-Nasipit-Carmen (LASBUENASCAR) Sustainable Agro-Forestry Development Project. Furthermore, investment opportunities include mining, integrated rice milling, sugar cane and banana plantations, cassava production and processing, and tourism.

3.1.5. INFRASTRUCTURE, FACILITIES, AND SUPPORT INSTITUTIONS

Water

A total of 53,531 or 98% of the households are served by either Level I and II or III water supply facilities. The dominant water supply system is Level II with 39.17% of households served. Level I water systems serve 30.37% of the household, and Level III with 28.47%. There are two water districts operating in the province, namely; Buenavista Water District and Nasipit Water District. These two water districts serve 3,693 households and 5,260 households respectively.

The 1,084 or 2% of the households do not have access to potable water supply.

For irrigation, only 3,239 hectares or 14.82% of the 21,868 hectares rice farms is covered by the system. The coverage is even much smaller since only 1,743 hectares of those covered by irrigation are operational.

Power

There is one major power substation in the province operated by the Transmission Corporation (TRANSCO) District IV Northeastern Mindanao Area. Its capacity is 1 x 50MVA located in Lawis, Sta. Ana, Nasipit, Agusan del Norte. The province has also four substations namely: Soriano substation, Santiago substation, Manapa substation and Kinabjangan substation. The capacity of each substation is 5MVA. The Santiago substation has the highest service area coverage of four municipalities: Kitcharao, Jabonga, Santiago and Tubay.

A total of 166 out 166, or 100%, of the barangays are served by power facilities as of 2005, but 42,281 households or 74.65% have electric connections.

Cabadbaran City has the most number of household connections with 96.71% as of 2005. Tubay has the lowest with 50.31%.

In terms of type of use, industrial consumption is the highest with 52.21% of the 77,457,687 kilowatt hour consumed in 2005. Residential use is next with 39.38%, including the 0.36% classified as BAPA (Barangay Power Association) consumption of 276,281 KWH.

Magallanes, the location of most industrial firms in the province, has also the highest kilowatt hour consumption at 42.53% of the total. Santiago has the lowest at 1.44%.

By the type of use, residential consumption has the highest annual growth at 10.43% from 2001-2005. Institutional consumption is next at 9.80%. Both the indicators of growth in economic activities, industrial and commercial consumptions are at the bottom at 3.94% and 4.04% respectively. This could be because of the considerable power support programs launched by the government, including direct support for households to have electric connection during the period.

Environmental Support Facilities

The dike system of the province secures several coastal zones, rivers and some portion in the Lake Mainit area. The areas they cover, however are generally short compared to the expanse of settlements uncontrollably created in danger zones. Vast agricultural areas in the Lake Mainit town also need protection from overflows, both from the lake and its tributaries.

3.1.6. TELECOMUNICATIONS, TRASPORTATION AND BANKING INSTITUTIONS

Telecommunications

All the municipalities, and roughly 50% of the barangays in the province, have access to telecommunication services, wherein the ten municipalities and one city in the province have cell sites. Only eight of the municipalities have landline telephone systems, but all have public calling offices. There are four (4) telephone companies serving Agusan del Norte; BAYAN Telecommunications, Philcom, Cruz Telephone Company and Department of Transportation and Communication. BAYAN Telecommunication has the most number of connected lines.

Other than the existence of telephones facilities, all municipalities also have postal and telecom services. They also have radio communication networks. Eight have telegraph/telex services.

Cabadbaran and the municipality of Kitcharao have radio stations while the rest of the municipalities have broadcast signals from radio stations in Butuan and Cebu. All the municipalities also have television signal and at least six have cable television services.

None of the municipalities is host to a publishing entity but local and national newspapers and magazines are circulated in all these places.

Transportation

The province is adequately linked to neighboring provinces in Mindanao by the land transport artery. It is also just within a few minutes from the regional airport in Butuan City for travels to Manila and other destinations in the country. By sea, it is billed as a premier entry-and-exit point owing to its being host to the Nasipit Port, a facility of international standard.

Land Transport

The 1,090-kilometer road system of the province is still short by 167.00 kilometers when compared to HLURB standards. The shortage is about 36.00 kilometers in the rural areas and 131 kilometers in the urban areas.

The road adequacy level of Agusan del Norte is 86.71% While having a 96.45% adequacy in length in the agricultural areas, the urban areas have only 45.64%. Of the municipalities, Las Nieves has the highest lack of rural roads. Nasipit and Magallanes lack urban roads. Based on the materials with which these roads are made of, the reliability level of the system is 26.00%. Only 281.00 kilometers of the roads are cemented.

There are 67 bridges, a total of 2,734 lineal meters, that connect both national and provincial roads. These bridges are variously made of reinforced concrete girder, steel, bailey, and footbridge.

Marine Transport

The province has a seaport of international standard. It has facilities that are more than adequate to cope with current passengers and cargo volumes and it is now embarking on a major expansion program to meet future demands. Needing attention is the river transport system for its two municipalities, Las Nieves and Magallanes. What these towns have are still sub-standard wharves. At least 37 pump boats and other river transport are serving the Magallanes area. River transport has not been serving the Las Nieves route at the moment. It can be reached by two road links whose conditions badly need improvement.

Air Transport

A regional airport is serving the province through Butuan City. Two air transport outfits – Philippine Airlines and Cebu Pacific – serve the place with two daily flight each to Manila and five times a week flight to Cebu.

Banking Institutions

The banking institutions that are identified to be operating in Agusan del Norte include Land Bank of the Philippines (LPB), Enterprise Bank, and Cooperative Bank that have satellite offices in Cabadbaran City; Green Bank of Caraga which has satellite offices in Cabadbaran, Kitcharao and Nasipit; and Development Bank of the Philippines, Banco Buenavista, United Coconut Planters Bank, and Butuan City Rural Bank.

The services offered by these banking institutions include savings and loans through its satellite offices, through community-based organizations and cooperatives, client calls or agents and walk-in clients.

Insurance Providers

According to the report from the Philippine Crop Insurance Corporation (PCIC), availment of crop insurance were enjoyed by the One Town One Product (OTOP) rice farmers in the municipality of Remedios T. Romualdez and the members of Avanceña ARBA Multi-Purpose Cooperative in Cabadbaran City. Non-crop insurance such as the Agricultural Producers Compensation Plan/ Term Insurance was likewise availed by the abovestated farmers. Livestock insurances were also availed by the Avanceña ARBA Multi-Purpose Cooperative and the LGUs of Carmen, Nasipit, Jabonga, Kitcharao and Santiago.

The risks covered by those mentioned insurance services include natural calamities, and pest and diseases; services are offered through the Land Bank of the Philippines and selected rural banks and can be accessed by farmers, provided that they satisfy the application requirements.

3.2. THE FARMING COMMUNITIES PROFILE

3.2.1. THE MAJOR FARMING VALUE CHAINS

3.2.2. PRODUCTION YIELD, INCOME AND TRENDS

3.2.2.1. Production Yield and Income from Major Crops

Fig. 3.2.2.1
Production Yield and Income from Major Crops in the Province

Crops	Average Production (kilograms/hectare/harvest)			
	Frequency Of Harvest	Average Expenses (Php)	Average Production (kgs)	Average Income (Php)
Rice	2 x / year	11,797.00	2,475.64	55,202.00
Coconut	4 x / year	1597.49	1,406	5,342.90
Banana	20 x / year	2,066.00	1,566	4,200.00
Corn	2 x / year	523.00	375	5,250.00
Vegetable	70 x / year	2,892.00	1,871	7,894.00
Root Crops	48 / year	734.38	883.75	2,221.25
Coffee	2 x / year	2,000.00	50	2,500.00
Mango	1 x / year	28,334.00	1541.66	15,500.00
Abaca	2x / year	800.00	100	3,000.00
Falcata	1x / 8 years	20,000.00	80 pcs.(logs)	60,000.00
Nipa*	3x / year	1,000.00	200/100 pcs	2,800.00

Source: BSG KI Consolidated Results

As indicated by the KI results, the agricultural production of the province comes largely from rice, with an average production of 2,475.64 kilograms per harvest or an average income of about P55,202.00, while average expenses come up to P11,797.00. The average production for coconut as indicated by the KI responses is about 1,406 kilograms or an average income of about P5,342.00 per harvest with a frequency of 4 harvests per year. Moreover, the average production yield for banana is about 1,566 kilograms or an average income of P4,200.00 with a frequency of harvest of 20 harvests per year. The average production of corn is about 375 kilograms or an average income of about P5,250.00 per harvest wherein the corn farmers can harvest twice a year. The average production for vegetables is about 1,871 kilograms or an average income of about P7,894.00 per harvest with a frequency of as many as 70 harvests per year.

The production of high-value commercial crops can be found in Las Nieves for coffee, and Carmen, Nasipit and Buenavista for mango. The average production of mango is about 1,541.66 kilograms or an average income of P15,500.00 per harvest while the average production yield for coffee is 50 kilograms or an average income of about P2,500.00. Other crops, such abaca, have an average production of about 100 kilograms per harvest or an average income of about P3,000.00 per harvest.

3.2.2.2. Production Yield and Income from Fish Catch

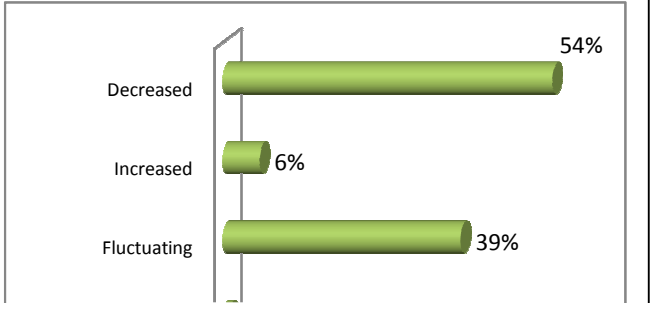
Fig. 3.2.2.2
Production Yield and Income from Major Fish Catch in the Province

Kinds of Fish Catch	Average Production (kilograms/hectare/harvest)			
	Frequency (FishingActivity/Month)	Mean Catch (kgs)	Mean Expenses (Php)	Mean Income (Php)
Sardines	30	101.55	556.17	1,700.98
Katambak	30	6.41	27.78	633.61
Molmol	30	10.65	101.39	670.83
Panit	18	31.83	1,850.00	4,830.00
Pawayan	15	424.22	31,336.67	33,908.33
Kutob	30	2.38	105.56	522.22
Bilong-bilong	3	1.11	16.67	55.56
Budloy	30	0.67	17.78	41.66
Shrimp	5	1.09	38.52	188.89
Patika	1	10	300.00	600.00
Barak	1	10	200.00	300.00
Bangsi	3	95	5,750.00	10,500.00
Bugwan	30	5	50.00	150.00
Pijanga	30	4	50.00	150.00
Tilapia	1	3.5	25.00	137.5.
Punaw	1	6	50.00	200.00
Sail	1	2	30.00	150.00
Gisaw	2	24.16	50.00	583.33
Bansidol	1	40	100.00	500.00
Sapsap	2	27.5	75.00	500.00
Crab	6	2	12.00	200.00
Lobster	2	1.25	0.00	89.00
Kikilo	2	1	38.00	200.00
Mangko	1	4	0.00	280.00
Dewet	30	25	0.00	2,000.00
Octopus	20	8.33	0.00	1,666.66
Shell	4	33.33	0.00	333.33
Tuna	21	100	550.00	4,700.00
Sari-sari	20	48.33	75.00	3,925.00
Squid	30	31.67	266.67	750.00
Samin/Tabangko	30	40	200.00	3,600.00
Budlis	30	2,500	16,666.67	20,000.00
Liplipan	15	1,666.66	125,000.00	100,000.00
Adlo	5	2.3	50.00	240.00

Source: BSG KI Consolidated Results

3.2.2.3. Income and Production Trend on Major Crops

Fig. 3.2.2.3
Percentage of Responses on Production Trend on Major Crops



More than half of the key informants from all the sampled rural barangays in the province, with 54% of the responses, have observed that the production trend for major crops in the past five years has decreased. Another 39% indicated that it has a fluctuating trend while 6% indicated that the production trend has increased. The other 1% indicated that there was neither increase nor decrease in the production trend on major crops.

On the other hand, data from the Bureau of Agricultural Statistics, Caraga Regional Office, show a fluctuating trend in the production of major crops in the province from 2004 to 2008 (except for mango that has been consistently increasing in its yield) as shown in the table below. But, abaca and coffee also showed a potential growth because of its increasing trend from year 2006 or 2007 to year 2008.

Fig.3.2.2.3-A

CROPS (Metric Tons)	2004	2005	2006	2007	2008
Rice	83,766	82,215	85,800	96,385	90,515
Corn	16,352	13,645	13,184	2,179	17,991
Coconut	141,508.9	139,528.7	148,697	161,786.2	164,823.8
Mango	12,964.14	13,630.32	14,917	15,800	16,097
Banana	99,794.53	98,278.96	98,599	103,967	103,284.3
Abaca	191.11	424.73	420	502	550.53
Coffee	548.9	510.74	530	610	626.5

Source: BAS, 2009 Caraga Regional Office 13

Results of the Focus Group Discussions using Trend Diagram on production of crops conducted in the 10 municipalities and one city show the following trends of major crop production from 2004 to 2008 as indicated in the table below.

Fig.3.2.2.3-B

Municipality/City	Crop/Product	Trend
Buenavista	Banana	Decreasing
	Rice	Decreasing
Carmen	Mango	Increasing
	Banana	Decreasing
Cabadbaran City	Coconut	No increase, no Decrease
	Rice	Decreasing
Jabonga	Coconut	Increasing (slight)
	Fish	Decreasing
Kitcharao	Coconut	Decreasing
	Rice	Decreasing
Las Nieves	Rice	Decreasing
Magallanes	Fish	Decreasing
Nasipit	Coconut	Decreasing
Santiago	Coconut	Fluctuating
Tubay	Fish (Tamban)	Fluctuating
RTR	Rice	Fluctuating
	Coconut	Decreasing

General observation presents a decreasing trend in production of crops except for mango that has a consistent increasing production trend in Carmen. For coconut, there is a slight

increase in production trend in Jabonga, but the trend in Cabadbaran City is in a no increase - no decrease pattern, and a generally decreasing trend in all other areas of the province. Production trend for rice is also decreasing, but in RTR, it is fluctuating.

There are at least a total of 29,056 families based from the Socio-Economic Profile of Agusan del Norte 2005, who are dependent on farming as a means of living which are distributed as follows:

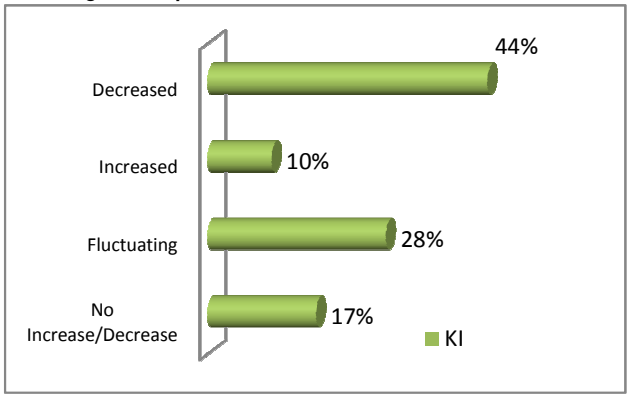
MUNICIPALITY/CITY	NUMBER OF FAMILIES DEPENDENT ON FARMING
Buenavista	4,768
Cabadbaran City	3,808
Carmen	2,141
Jabonga	3,527
Kitcharao	2,520
Las Nieves	3,669
Magallanes	242
Nasipit	2,128
RTR	1,946
Santiago	1,369
Tubay	2,938
TOTAL	29,056

Source: SEP 2005

3.2.2.4. Income and Production Trend on Fish Catch

The production trend on fish catch for the past five years has decreased as observed by 44% of the key informants who have engaged in fishing activities, while 28% have observed that it has a fluctuating trend. Another 10% indicated that the trend has increased while 17% indicated that there was neither increase nor decrease in the production trend of fish catch in the past years.

Fig. 3.2.2.4
Percentage of Responses on Production Trend on Fish Catch



Source: BSG KI Consolidated Results

Fig. 3.2.2.3-B above shows a decreasing trend in fish catch in Jabonga and Magallanes, while there is a fluctuating trend in Tubay.

BAS data on Marine Municipal Fisheries Production in the province indicated in the table below show a fluctuating trend:

Fig.3.2.2.4-A

Year	Production (Metric Tons)
2004	6,230.34

2005	6,803.52
2006	6,811.56
2007	6,703.3
2008	6,595.92

Source: Bureau of Agricultural Statistics, 2009
Caraga, Regional Office 13

A total of at least 3,710 families across the province who are dependent on fishing as their main source of livelihood distributed as follows:

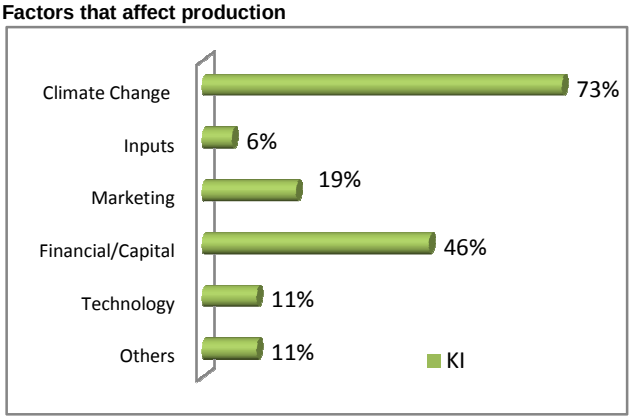
MUNICIPALITY/CITY	NUMBER OF FAMILIES DEPENDENT ON FISHING
Buenavista	220
Cabadbaran City	657
Carmen	290
Jabonga	1,135
Kitcharao	370
Las Nieves	155
Magallanes	211
Nasipit	302
RTR	
Santiago	111
Tubay	259
TOTAL	3,710

Source: SEP 2005

3.2.2.5. Factors that affect production

A total of 73% of the key informants indicated that climate change greatly affected their production; 46% indicated that lack of financial or capital also affected their production; 19% attributed that production was affected by lack of markets, and 11% due to obsolete technology. Some 6% indicated that agricultural production was affected by inputs.

Fig. 3.2.2.5a
Factors that affect production



Source: BSG KI Consolidated Results

Focus Group Discussions conducted in the 10 municipalities and 1 city using tools on Resource and Access Mapping, Value Chain Analysis and Production Calendar also show the following factors that cause the decrease of production:

1. Defective or lack of irrigation systems for rice farming areas
2. Climatic changes brought by heavy rains causing landslides and flooding; and drought
3. Lack of financing for capitalization of inputs and for farm labor expenses
4. Lack of technology on pest control
5. Lack of pre- and post-harvest facilities
6. Lack of training for organic farming technology

7. Lack of regulation of fishpond/fish cage operation
8. Lack of training on the proper use of chemicals and its disposal
9. Lack of laboratory facilities to examine feasible water quality for fishponds

Other important points raised during the conduct of FGDs are the following:

1. Lack of industrial facilities to process raw materials into useful finished products like coco product processors, fruit juice processors, etc.
2. Lack of insurance on important products like coconut and mango
3. Farmers do not have control on price of their products
4. Lack of access on low-interest loan scheme for farm financing
5. Lack of organizational capacity to sustain farmers organizations/cooperatives

Although, it was raised during the FGDs of the different municipalities as mentioned earlier on the lack of pre and post harvest facilities, considering the extent of farmlands and the number of farmers across the province, farmers say, they still lack the needed facilities compared to those available.

Across the 10 municipalities and 1 city, based from the Post Harvest Facilities Development Plan 2006 of Agusan del Norte, there are around 477 agricultural facilities supporting the farmers in their farming livelihood distributed as follows:

Table 3.2.2.5b

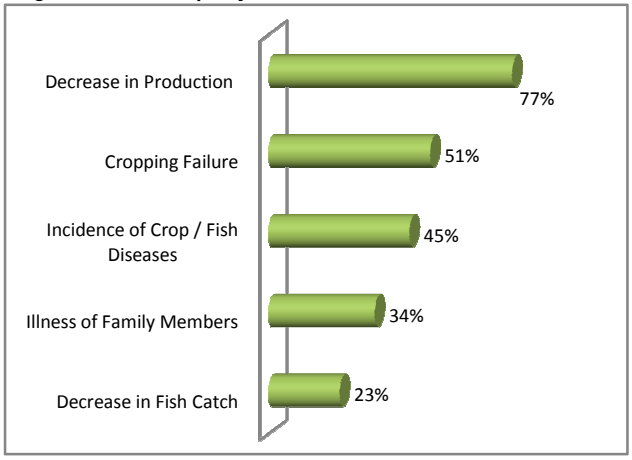
Municipality	Types of Facilities				
	Threshing / Shelling	Drying	Milling	Warehouse / Storage	**Total**
Buenavista	49	29	13	11	**102**
Cabadbaran	33	32	8	-	**73**
Carmen	-	5	-	-	**5**
Jabonga	4	28	5	3	**40**
Kitcharao	49	35	6	9	**99**
Las Nieves	54	21	13	-	**88**
Magallanes	-	16	-	-	**16**
Nasipit	3	3	-	-	**6**
R.T. Romualdes	2	19	6	1	**28**
Santiago	2	6	-	-	**8**
Tubay	-	12	-	-	**12**
Total	**196**	**206**	**51**	**24**	**477**

Source: Post Harvest Facilities Development Plan 2006

From the given data above, it appears that Carmen has no milling facility but, in actual survey, there is one corn mill operating in Carmen privately operated for several years already. It also appears that Nasipit has no milling facilities, but in actual survey, there are at least two rice millers and two corn millers in the said town also privately operated for more than twenty years already.

3.2.2.6. Impact of Climate Change and Natural Hazards to Production

Fig. 3.2.2.6
Percentage of Responses on the Observed Effects of Climatic Changes in the Municipality



Source: BSG Consolidated KI & General Poll Results

3.2.2.6.1. Percentage of Responses on the Observed Effects of Climatic Changes

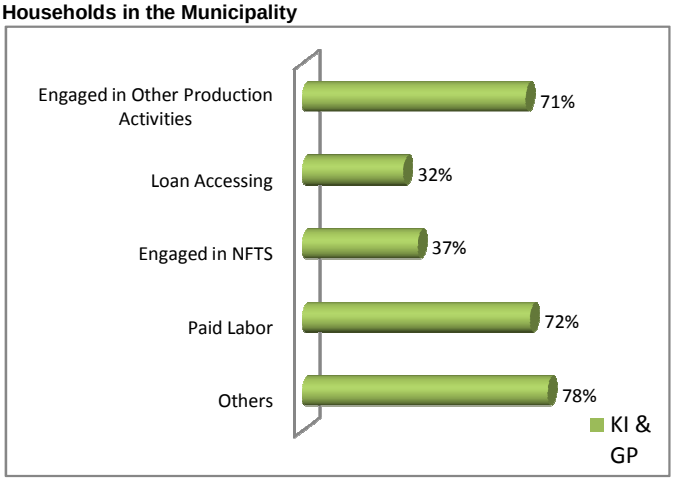
The observed effects of climatic changes have led generally to decrease in production with 77%; 51% indicated that it led to cropping failure; 45% indicated that it led to incidence of crops and fish diseases, while 34% indicated that it led to illness of family members. Other 23% indicated that it led to decrease in fish catch.

Farmers' experience in the province validated this observation. Data from the Provincial Planning and Development Office/Provincial Disaster and Coordinating Council of Agusan del Norte show that for the last four years (2006-2009), at least 10,625.26 hectares across the province are affected by climatic changes brought by flooding that led to cropping failure. 8,576.53 hectares of which are rice farms, and 5,364.30 hectares of which belong to the rice farms of RTR; 1,290.73 hectares are corn farms, 407 hectares are farms planted to Root Crops, 11.30 hectares, fruit tree farms, 14.65 hectares, coconut farms, 7.50 hectares, cut flower farms, 177.05 hectares, planted with assorted vegetables, 98.30 hectares planted with banana and 42 hectares planted with squash.

3.2.2.7. Coping Mechanisms

In order to cope with the effects of climatic changes, the farming households in the province as indicated in the KI and GP results have engaged generally in paid labor mostly doing non-domestic work, at 72%. Some others have engaged in production activities with 71%, while 37% have engaged in organic farming. Some 32% indicated that they have accessed

Fig. 3.2.2.7
Percentage of Responses on the Coping Mechanisms Employed by Households in the Municipality



Source: BSG Consolidated KI & General Poll Results

loans, and 78% with other coping mechanisms.

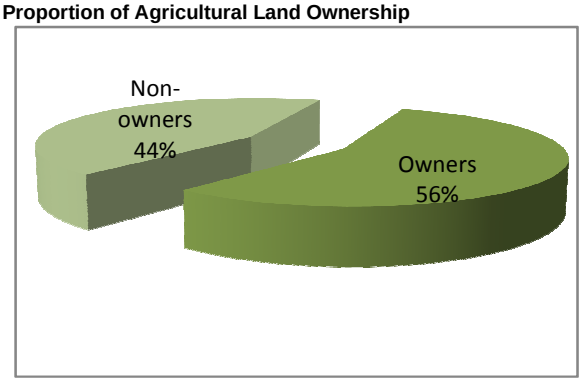
3.2.3. AVAILABILITY AND ACCESS TO SUPPORT AND PRODUCTIVE RESOURCES

3.2.3.1. LAND OWNERSHIP AND TENURIAL ARRANGEMENTS

3.2.3.1.1. Proportion of Agricultural Land Ownership

A proportion of 56% of the key informants who reported to have engaged in farming indicated that they owned the lands they are tilling, while the remaining 44% are non-owners.

Fig. 3.2.3.1.1
Proportion of Agricultural Land Ownership

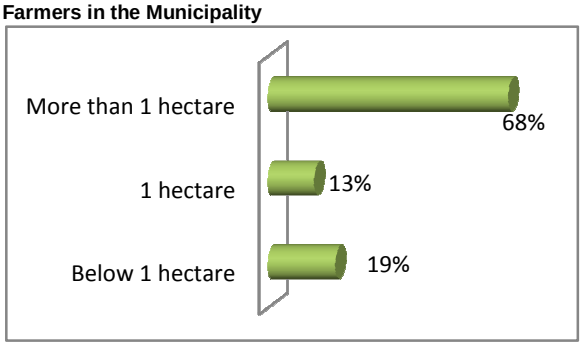


Source: BSG KI Consolidated Results

3.2.3.1.2. Proportion of Agricultural Land holdings of Identified Farmers

A total of 68% of the key informants all across the sampled rural barangays in the province have more than one hectare of land while 13% indicated that they have 1 hectare of land. The other 19% indicated that they have below a hectare of land.

Fig. 3.2.3.1.2
Proportion of Agricultural Land holdings of Identified Farmers in the Municipality

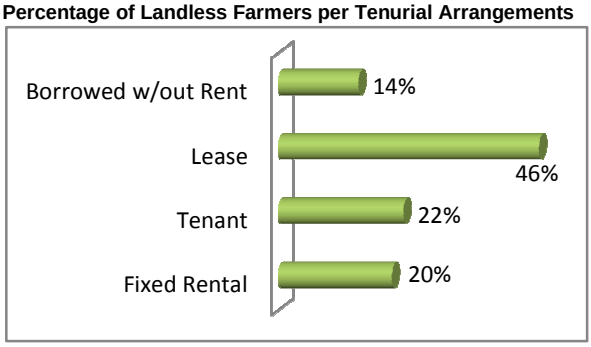


Source: BSG KI Consolidated Results

3.2.3.1.3. Percentage of Landless Farmers per Tenurial Arrangements

Most of the key informants who reported to have not owned the lands they are tilling are leaseholders with 46%; other 22% of KIs are tenants while 20% have fixed rental. The other 14% borrowed the lands without rent.

Fig. 3.2.3.1.3
Percentage of Landless Farmers per Tenurial Arrangements



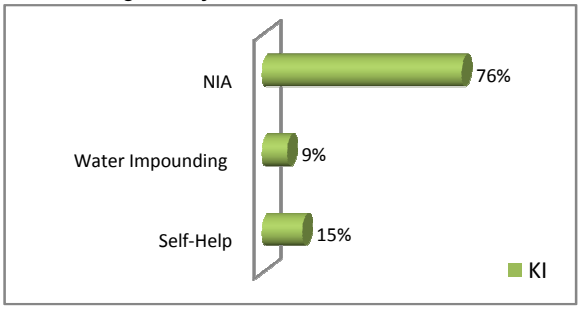
Source: BSG KI Consolidated Results

3.2.3.2. ACCESS TO IRRIGATION FACILITIES

3.2.3.2.1 Major Type of Irrigation

Most of the farms are irrigated by the irrigation system provided by the National Irrigation Authority (NIA) with 76%; others with 15% have self-help irrigation system while 9% have water impounding.

Fig. 3.2.3.2.1
Source of Irrigation System



Source: BSG Consolidated KI Results

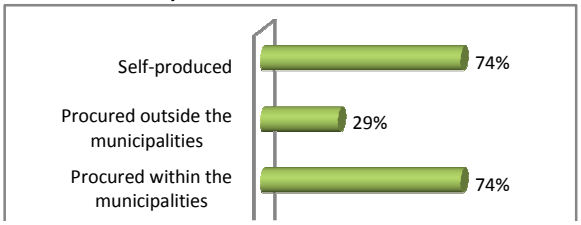
3.2.3.2.2. Major Sources of Irrigation Water:

- Cabalalahan River
- Pijanga River
- Gihao-an River
- Bucas Grande
- Kalayagon River
- Canaway River
- Kiagta River
- Sangay River
- Sanghan River
- Cabadjangan River
- Pandanon River
- Jaliobong River
- Sarmiento River
- Mamcas River
- Buntalid Creek
- Magos River
- Baleguian River
- Lingayao River
- Lake Mainit
- Los Angeles River
- Macalang River
- Camagong River
- Aclan River
- Amontay River
- Cabadbaran River
- Dalichan River
- Magdagunot River

3.2.3.3. ACCESS TO FARM INPUT PROVIDERS

Most of the farm inputs are self-produced by the farmers themselves and

Fig. 3.2.3.3
Access to Farm Inputs Providers



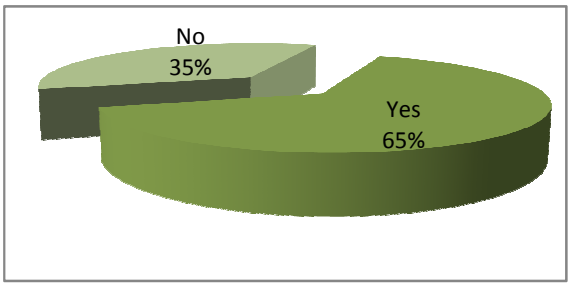
are procured within the municipalities with 74%. Some inputs are given free as indicated by 28% of the key informants while 29% indicated that the inputs are procured outside the municipalities.

3.2.3.4. ACCESS TO TRAINING, TECHNOLOGY AND MARKET SUPPORT PROVIDERS

3.2.3.4.1. Proportion of informants who have received assistance related to their livelihood

A proportion of 65% of the key informants have received assistance related to their livelihood and basic needs while the other 35% have not received any.

Fig. 3.2.3.4
Proportion of Informants who have received assistance related to their livelihood and basic needs

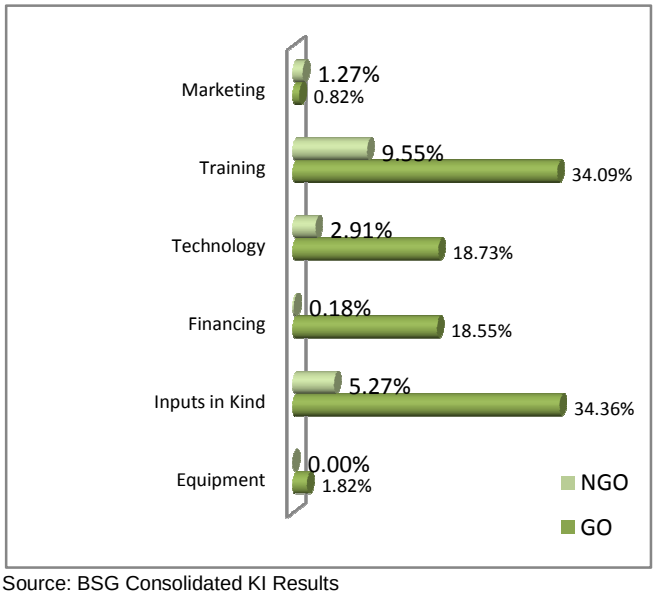


Source: BSG Consolidated KI and GP Results

3.2.3.4.2. Access to Production Assistance

Indicative of the KI results, the informants across all the 11 municipalities in the province provided that they have received production assistance mostly from the government while some others from NGOs. The production assistance include trainings mostly coming from the government with 34.09% of the informants and 9.55% indicated that they have received it from NGOs operating in their respective municipalities; 34.36% of the informants indicated that they have received inputs in kind from the government and

Table 3.2.3.4.2
Access to Production Assistance



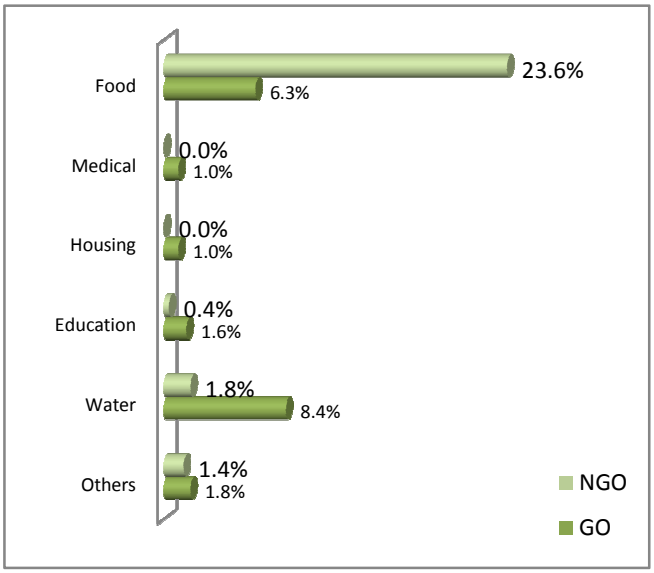
Source: BSG Consolidated KI Results

5.27% from NGOs. Some 18.73% of the informants indicated that they have received technology assistance from the government while 2.91% indicated that it was provided by NGOs. Financing assistance was mostly provided by the government as indicated by 18.55% of the informants while only about 0.18% of all the informants indicated that they have received it from NGOs. A total of only 1.82% of all the informants indicated that they have received equipment assistance coming from the government while 0.82% indicated that the government provided marketing assistance while 1.27% indicated that they have received it from NGOs.

3.2.3.5. ACCESS TO BASIC NEEDS PROVIDERS

3.2.3.5.1. Basic Needs Assistance

Table 3.2.3.5.1
Access to Basic Assistance



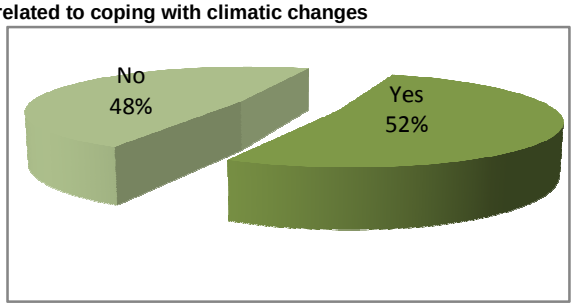
Source: BSG Consolidated KI Results

The informants provided data that they have also received assistance related to their basic needs such as food, medical, housing, educational assistance, water and other assistance. Food assistance was generally provided by NGOs and LGUs as indicated by 29.9% of the informants across the province. A total of 8.4% of the informants indicated that they have received water assistance coming from the government while 1.8% indicated that they have received it from NGOs operating in their respective municipalities. Some 1.6% of the informants indicated that they have received educational assistance from the government while 0.4% from NGOs and 1.0% indicated that they also have received housing assistance from the government. Another 1% indicated that they have received medical assistance from the government. Other assistance as indicated by 3.2% of the informants in the province includes animal dispersal and clothing.

3.2.3.6. ACCESS TO ASSISTANCE RELATED TO COPING WITH CLIMATIC CHANGES

3.2.3.6.1. Proportion of informants who have received assistance related to coping with climatic changes

Fig. 3.2.3.6.1
Proportion of Informants who have received assistance related to coping with climatic changes



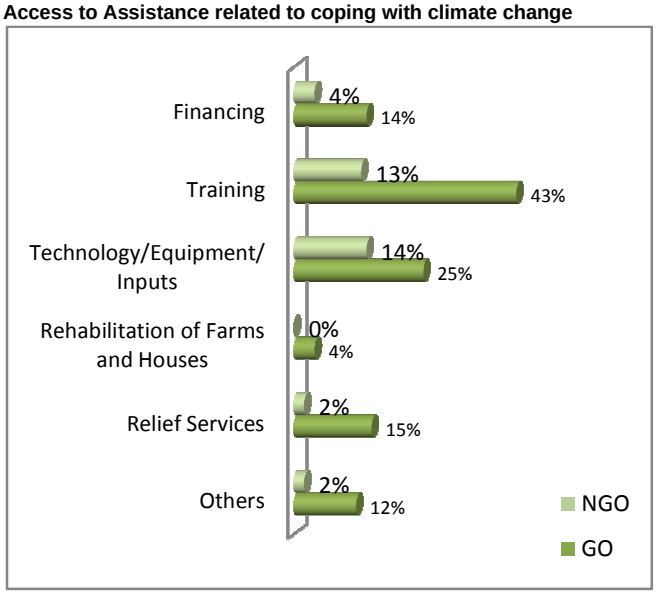
Source: BSG Consolidated KI and GP Results

A proportion of 52% of the informants and poll respondents have received assistance related to coping with climate change while the other 48% have not received any.

3.2.3.6.2. Access to assistance related to coping with climate change

As indicated in the KI results, the type of assistance that the informants have received related to coping with climate change includes financing, training, technology/ inputs/equipment, relief services and assistance for rehabilitation of farms and houses. A total of 43% of the informants across the province indicated that they have received training assistance from the government while 13% from NGOs. Some 25% of the informants have received technology and equipment assistance from the government while 14% indicated that it came from NGOs. Some other 15% of the informants have received relief services from the government and other 2% indicated that it came from NGOs. Financing assistance have come mostly from the government as indicated by 14% of the informants while the other 4% indicated that they have received it from NGOs. Other assistance includes fertilizers and seeds and other farm inputs.

Table 3.2.3.6.2
Access to Assistance related to coping with climate change



Source: BSG Consolidated KI Results

3.2.4. AVAILABILITY AND ACCESS TO FINANCIAL SUPPORT PROVIDERS

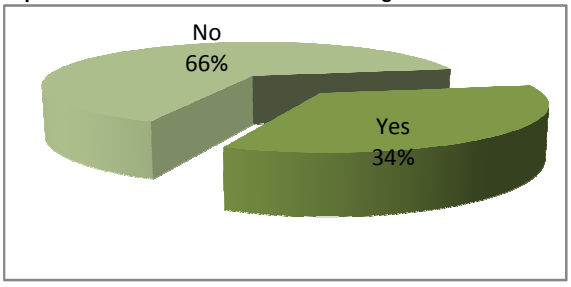
3.2.4.1. FORMAL AND INFORMAL STRUCTURES AND SCHEMES

3.2.4.2. SAVINGS AND ATTITUDE OF FARMERS TOWARDS SAVINGS

3.2.4.2.1. Proportion of Key Informants and Poll Respondents with Savings

A proportion of 34% of the key informants and poll respondents across all the sampled rural barangays in the province reported to have savings while the other 66% indicated that they have no savings.

Fig. 3.2.4.2.1
Proportion of Informants who have savings

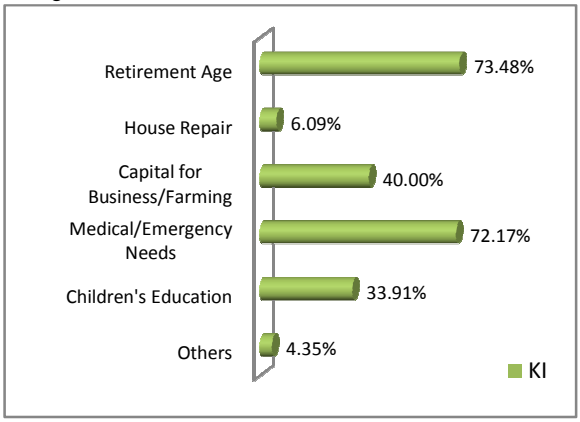


Source: BSG Consolidated KI and GP Results

3.2.4.2.2. Usage of Savings

The KI results show that most of the informants in the province have saved for their retirement age with 73.48% of the responses; some others have saved intended for medical and emergency needs with 72.17% of the responses while 40% of the responses indicated it for capital for business and faming. Another 33.91% of the responses indicated that the informants have saved for their children's education while some others indicated their savings is for house repair as indicated by 6.09% of the responses. Other purposes of having savings include for family consumption and others.

Fig. 3.2.4.2.2
Percentage of Informants' Responses to the Purpose of Savings

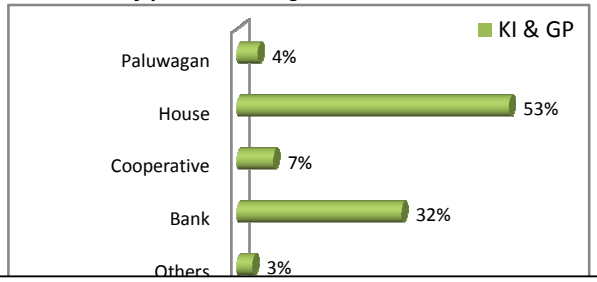


Source: BSG Consolidated KI Results

3.2.4.2.3. Place of savings (where the informants put their savings)

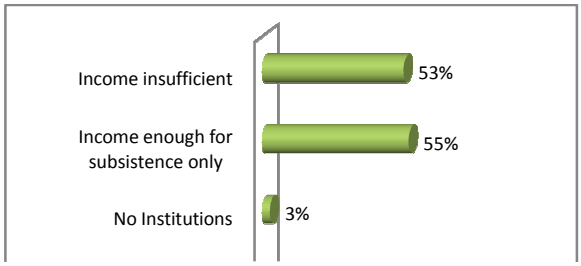
The informants and poll respondents indicated that they generally put their savings in their respective houses with 53% of the responses while some others indicated that they put their savings in the banks with 32% of the responses. Some 7% of the responses from KI and GP indicated that the informants and poll respondents in the cooperative while 4% in the paluwagan. Others have savings in the MFIs as part of its loan savings scheme.

Fig. 3.2.4.2.3
Percentage of Informants' Responses on where did they put their savings



3.2.4.2.4. Percentage of Responses for reasons of not having savings

Fig. 3.2.4.2.4
Percentage of Responses for reasons of not having Insurance



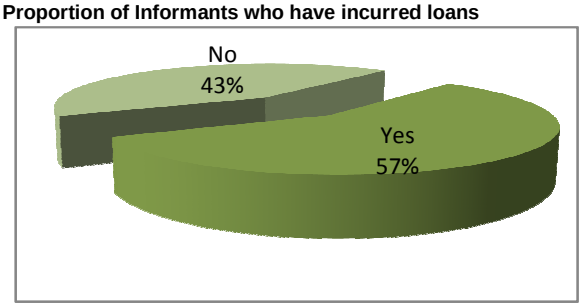
The consolidated KI and GP results show that more than half of the key informants and poll respondents indicated that they could not save because their income is enough only for subsistence and another 53% of the responses attributed it to income insufficiency. Another 2% of the responses indicated that the informants and poll respondents could not saved due to no available institutions operating in their respective municipalities. Other reasons include that their income is prioritized for their children's education, still have loans yet to be paid, and that their income is enough for farming and fishing expenses.

3.2.4.3. LOAN SERVICES AND ATTITUDE OF FARMERS TOWARDS LOANS

3.2.4.3.1. Proportion of Key Informants who have incurred loans

As indicated in the consolidated KI and GP results, it shows that a proportion of 57% of the key informants and poll respondents have incurred loans in the past years while the other 43% of them have not availed of loans.

Fig. 3.2.4.3.1
Proportion of Informants who have incurred loans

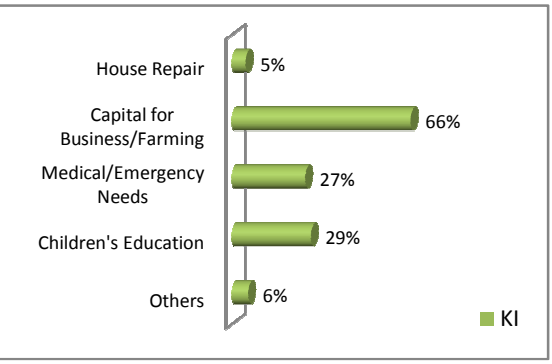


Source: BSG Consolidated KI and GP Results

3.2.4.3.2. Percentage of Informants' Responses to the Purpose of Loans

Those who reported to have incurred loans in the past five years have used their respective loans mostly as capital for business and farming with 66% of the responses; 29% of the consolidated responses indicated that their loans were used in their children's education and another 27% in medical and emergency needs. Some others with 5% of the responses indicated that their loans were used in house repair. Other uses of the loans include loan payments, purchase of farm animals, purchase of trisikad, and acquisition of fishing gear and fishing boats and family consumption.

Fig. 3.2.4.3.2
Percentage of Informants' Responses to the Purpose of Loans

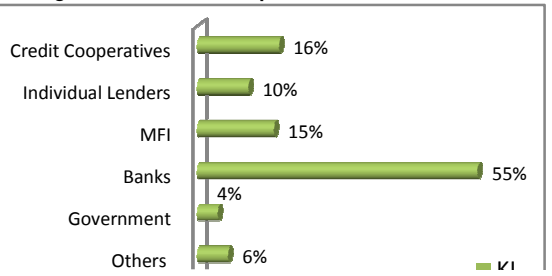


Source: BSG Consolidated KI Results

3.2.4.3.3. Percentage of Informants' Responses to Sources of Loans

The KI results show that most of the informants across the sampled rural barangays in the province have accessed loans from the banks with 55% of the responses; 16% of the

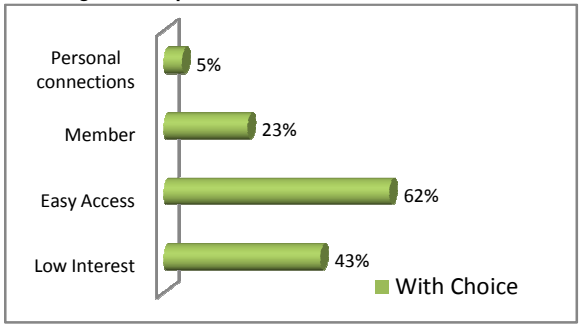
Fig. 3.2.4.3.3
Percentage of Informants' Responses to Sources of Loans



responses indicated that the informants have accessed loans from credit cooperatives; 15% from MFIs and 10% from individual lenders. Other 4% of the respondents said that they have accessed loans form government. Other sources with 6% of the responses include barangays loans and from NGOs.

3.2.4.3.4. Percentage of Informants' Responses to reasons for choosing their respective sources of loans

Table 3.2.4.3.4
Percentage of Informants' Responses to reasons for choosing their respective sources of insurance

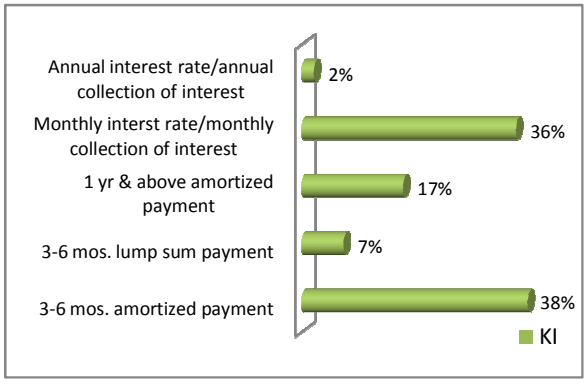


Source: BSG Consolidated KI Results

Those who reported to have a choice in their sources of loans indicated that they have chosen their respective sources because of its easy access with 62% of the total responses while the other 43% of the responses indicated that it was because of its low interest rates. Other informants indicated that their membership let them have the access to loan with 23% of the responses and 5% of the responses indicated that the informants have accessed loans because of personal connections.

3.2.4.3.5. Percentage of Informants' Responses to Terms of their Incurred Loans

Fig. 3.2.4.3.4
Percentage of Informants' Responses to Terms of their Incurred Loans

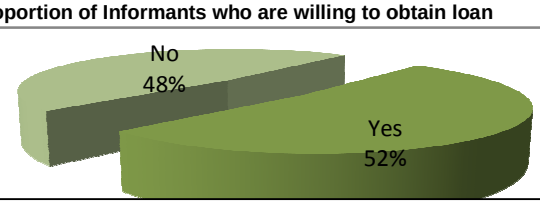


Source: BSG KI Consolidated Results

The KI results show that those who have incurred loans in the past years mostly have 3-6 months amortized term with 38% of the responses while 36% of the responses indicated that the informants have term of monthly interest rate and monthly collection of interest. The other 17% of the responses indicated that the informants have 1 year and above amortized payment while 7% have 3-6 months lump sum payment term. The other 2% of the responses indicated that the informants have annual interest rate and annual collection of interest.

3.2.4.3.6. Proportion of Informants who are willing to obtain loan

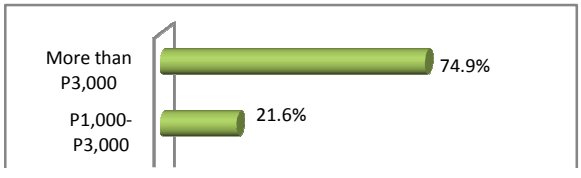
Fig. 3.2.4.3.6
Proportion of Informants who are willing to obtain loan



A proportion of 52% of the informants who have not yet availed loans in the past years across the province indicated that they are willing to obtain loans while the other 48% are not willing.

3.2.4.3.7. Percentage of Informants' Responses to Preferred Amount of Loan

Fig. 3.2.4.3.7
Percentage of Informants' Responses to Preferred Amount of Loan

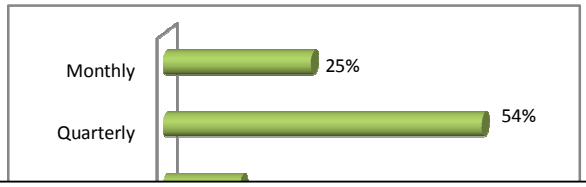


Moreover, those informants who expressed willingness to obtain loans generally preferred to obtain an amount of more than P3,000.00 with 74.9% of the responses. The other 21.6% of the responses indicated that the informants are willing to obtain from P1,000.00 but not more than P3,000.00. Another 3.5% indicated that the informants preferred to loan an amount of less than P1,000.00

3.2.4.3.8. Percentage of Informants' Responses to Preferred Terms of Loan

More than half of the responses from the KIs across the province preferred quarterly term of paying the loans.

Fig. 3.2.4.3.8
Percentage of Informants' Responses to Preferred Terms of Loan



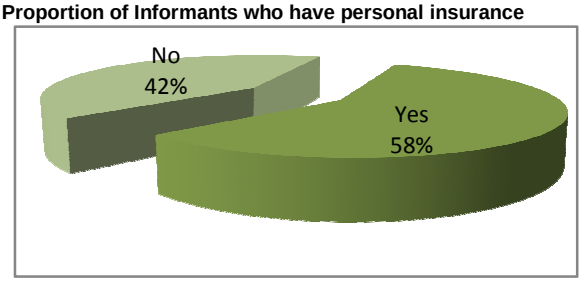
3.2.5. AVAILABILITY AND ACCESS TO INSURANCE

3.2.5.1. FORMAL AND INFORMAL SCHEME

3.2.5.1. Proportion of Informants who have insurance

A proportion of 58% of the total key informants and poll respondents reported that they have insurance while 42% indicated that they have no insurance.

Fig. 3.2.5.1
Proportion of Informants who have personal insurance



Source: BSG Consolidated KI and GP Results

3.2.5.2. CROP INSURANCE AND ATTITUDE OF FARMERS TOWARDS CROP INSURANCE

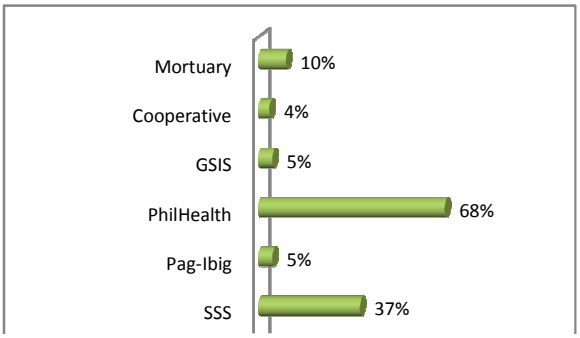
The KI results show that only the key informants in the municipalities of Buenavista, Cabadbaran, RTR and Santiago have indicated that they have enrolled in crop insurance coming from the Philippine Crop Insurance Corporation (PCIC).

3.2.5.2. PERSONAL INSURANCE AND ATTITUDE OF FARMERS TOWARDS PERSONAL INSURANCE

3.2.5.2.1. Percentage of Informants' Responses to Sources of Insurance

Most of the identified sources of insurance were indicated to be coming from PhilHealth with 68% of the KI responses while the other 37% from SSS. Another 10% of the responses indicated that the farmers have accessed insurance from mortuary and 5% from GSIS. Another 4% of the responses indicated that the

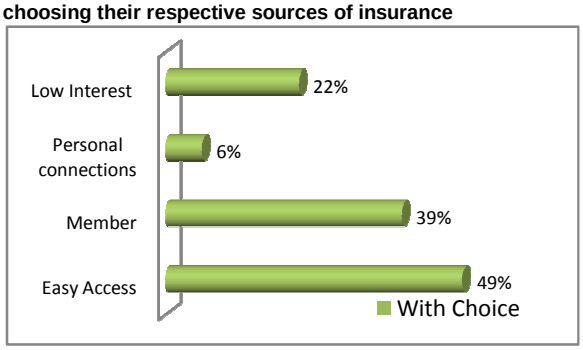
Fig. 3.2.5.2.1
Frequency of Informants' Responses to Sources of Insurance



informants have accessed insurance from cooperatives operating their respective municipalities while another 5% from Pag-Ibig. Other sources include other private insurance agencies such as Standard Insurance, Eye Care Insurance, and St. Peter Life Plans.

3.2.5.2.2. Percentage of Informants' Responses to reasons for choosing their respective sources of insurance

Table 3.2.5.2.2
Percentage of Informants' Responses to reasons for choosing their respective sources of insurance

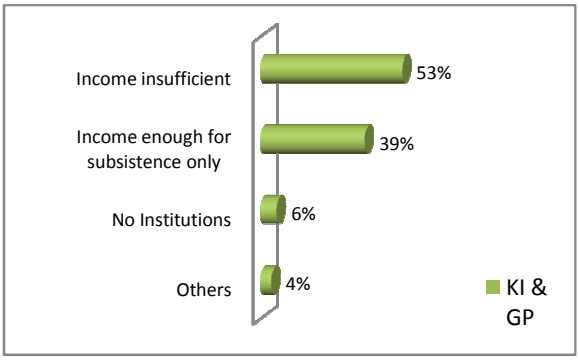


Source: BSG Consolidated KI Results

Most of those key informants who reported to have insurance indicated that they have chosen their respective sources because of its easy access with 49% of the responses while 39% of the responses indicated that their membership made them avail of the insurance. Some 22% of the responses indicated the informants have chosen their sources because of its low interest rates while 6% of the responses indicated that it was because of personal connections.

3.2.5.2.3. Percentage of Responses for reasons of not having insurance

Fig. 3.2.5.2.3
Percentage of Responses for reasons of not having Insurance

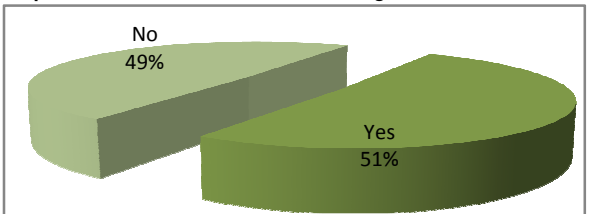


Source: BSG Consolidated KI and GP Results

The KI and GP results indicated that more than half of those informants who have not enrolled in any insurance coverage are constrained to do so because of insufficient income with 53% while 39% of the KI and GP responses indicated that the informants were not able to access insurance because of income enough for subsistence only. Some of the informants with 6% of the responses indicated that they have no insurance because of no available institutions while other responses include that enrolling in insurance is not in their priorities.

3.2.5.2.4. Proportion of Informants who are willing to obtain Insurance

Fig. 3.2.5.2.4
Proportion of Informants who are willing to obtain Insurance



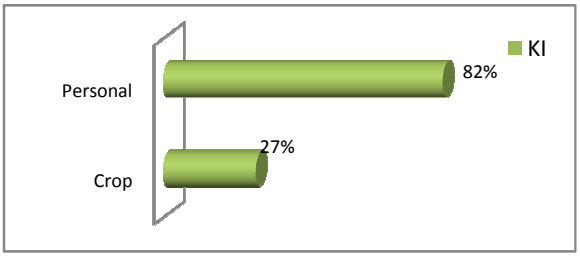
A proportion of 51% of the informants who have not yet enrolled in any insurance scheme across the 11

municipalities in the province are willing to obtain insurance while the other 49% are not willing.

3.2.5.2.5. Percentage of Informants' Responses to type of insurance to be enrolled in

Most of the informants who are willing to obtain insurance wish to enroll in personal insurance with 82% of the responses while the other 27% of the responses wish to enroll in crop insurance.

Fig. 3.2.5.2.5
Percentage of Informants' Responses to type of insurance to be enrolled I n

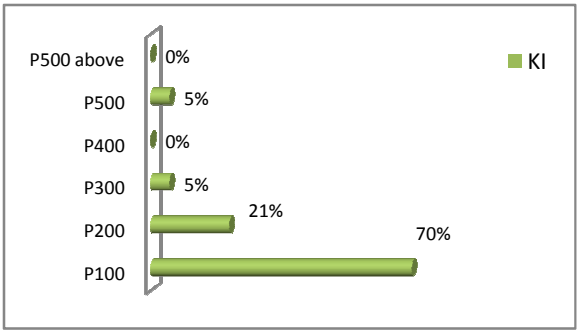


Source: BSG KI Consolidated Results

3.2.5.2.6. Percentage of Informants' Responses to Preferred Amount of Insurance Premium

Most of the informants, with 70% of the responses, who expressed willingness to obtain insurance preferred to pay an amount of P100.00 as insurance premium while the others with 21% of the responses indicated that they are willing to pay P200.00 as insurance premium while 5% of the informants across the province preferred to pay P300.00 while another 5% indicated that the informants are willing to pay as much as P500.00 as insurance premium.

Fig. 3.2.5.2.6
Percentage of Informants' Responses to Preferred Amount of Insurance Premium

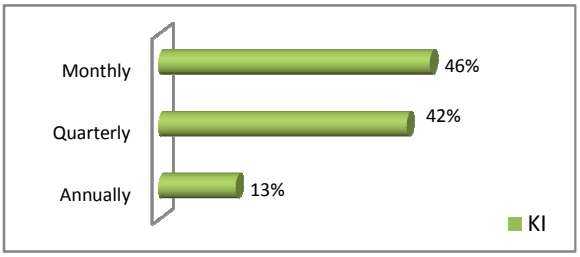


Source: BSG KI Consolidated Results

3.2.5.2.7. Percentage of Informants' Responses to Preferred Terms of Insurance

Moreover, most of the willing informants preferred to have monthly term of paying the insurance premium as indicated by 46% of the responses while the other 42% preferred quarterly term of insurance payment. The other informants as indicated by 13% of the responses preferred to have annual term of insurance payment.

Fig. 3.2.5.2.7
Percentage of Informants' Responses to Preferred Terms of Insurance



Source: BSG KI Consolidated Results