NATIONAL IRRIGATION ADMINISTRATION

Consulting Services for the Feasibility Study of the Proposed Ilocos Sur Irrigation Projects (Ilocos Sur Transbasin Project & Upper Banaoang Irrigation Project)

PROJECT DESCRIPTION FOR SCOPING (UPPER BANAOANG PROJECT)

January 2019

WOODFIELDS CONSULTANTS, INC.
A Planning and Engineering Consulting Firm
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0	22 June 2018	Project Description for Scoping for Upper Banaoang	Dr. Kristine Ann S. Martinez	Previously signed
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CHAPTER 1
BASIC PROJECT INFORMATION

1.1 Project Information

Name of Project	:	Feasibility Study of the Proposed Ilocos Sur Irrigation Projects (Ilocos Sur Transbasin Project &Upper Banaoang Irrigation Project)
Location	:	Provinces of Abra and Ilocos Sur (Upper Banaoang) • Proposed Malapaao River Dam – Brgy. Malapaao, Municipality of Langiden, Province of Abra • Tunnel Outlet and Powerhouse – Brgy. Laoingen, Municipality of Sto. Domingo, Province of Ilocos Sur • Proposed Diversion Dam – Brgy. Laoingen, Municipality of Sto. Domingo, Province of Ilocos Sur • Tunnel – Brgy. Lingsat, Municipality of Bantay, Province of Ilocos Sur
Nature of Project	:	Dam, Irrigation and Hydropower Facilities Project, Feasibility Study
Size / Scale	:	• Inundated area of 322 hectares at maximum water elevation • Water storage of 50 million cubic meters • Service area of about 5,000 hectares • Hydropower plant rated capacity of 2x1.5MW

1.2 Proponent Profile

Name of Proponent	:	National Irrigation Administration (NIA) Regional Office 1
Address	:	Ambrosio Street, Brgy. Bayaoas, Urdaneta City, 2428, Pangasinan
Authorized Representative	:	Engr. Vicente R. Vicmudo, Ph.D./ Leonila G. Fernandez Regional Irrigation Manager/ Principal Engineer C
Contact Details	:	Telephone No. : (075) 568-2308 Mobile No.: (+63) 922-867-9689 Email Address: leonilafernandez16@yahoo.com; niarinoffice@yahoo.com;niaregion1pso@gmail.com

CHAPTER 2
PROJECT DESCRIPTION

2.1 Project Location and Area

The proposed Ilocos Sur Irrigation Project (ISIP) will be located in Ilocos Sur and Abra, two of the provinces comprising Region I in Luzon Island. It has two sub-projects: the Ilocos Transbasin Irrigation Project and Upper Banaoang Irrigation Project.

Under this heading, the sub-project of concern is the Upper Banaoang Irrigation Project. The source of water for the proposed Upper Banaoang Irrigation Project is the Malapaao River in Brgy. Malapaao, Langiden, Abra. The outlet will be located in Brgy. Laoingen, Municipality of Sto. Domingo and will supply water to the river downstream.

The total existing service areas of the Banaoang Pump Irrigation Project and combined irrigation systems is 2,275 hectares, as per the December 2015 inventory done by NIA Ilocos Sur Irrigation Management Office. This area includes the City of Vigan, Caoayan, Bantay, San Ildefonso, San Vicente, Sto. Domingo and Magsingal. With the proposed Upper Banaoang Project, the potential service area is estimated at 5,000 hectares. The additional potential irrigable areas will include portions of the Municipalities of Sta. Catalina, Vigan, Sto. Domingo, Magsingal, San Juan and Cabugao.

The location of the project, its service areas and components are shown in **Figure 2.1-1**.

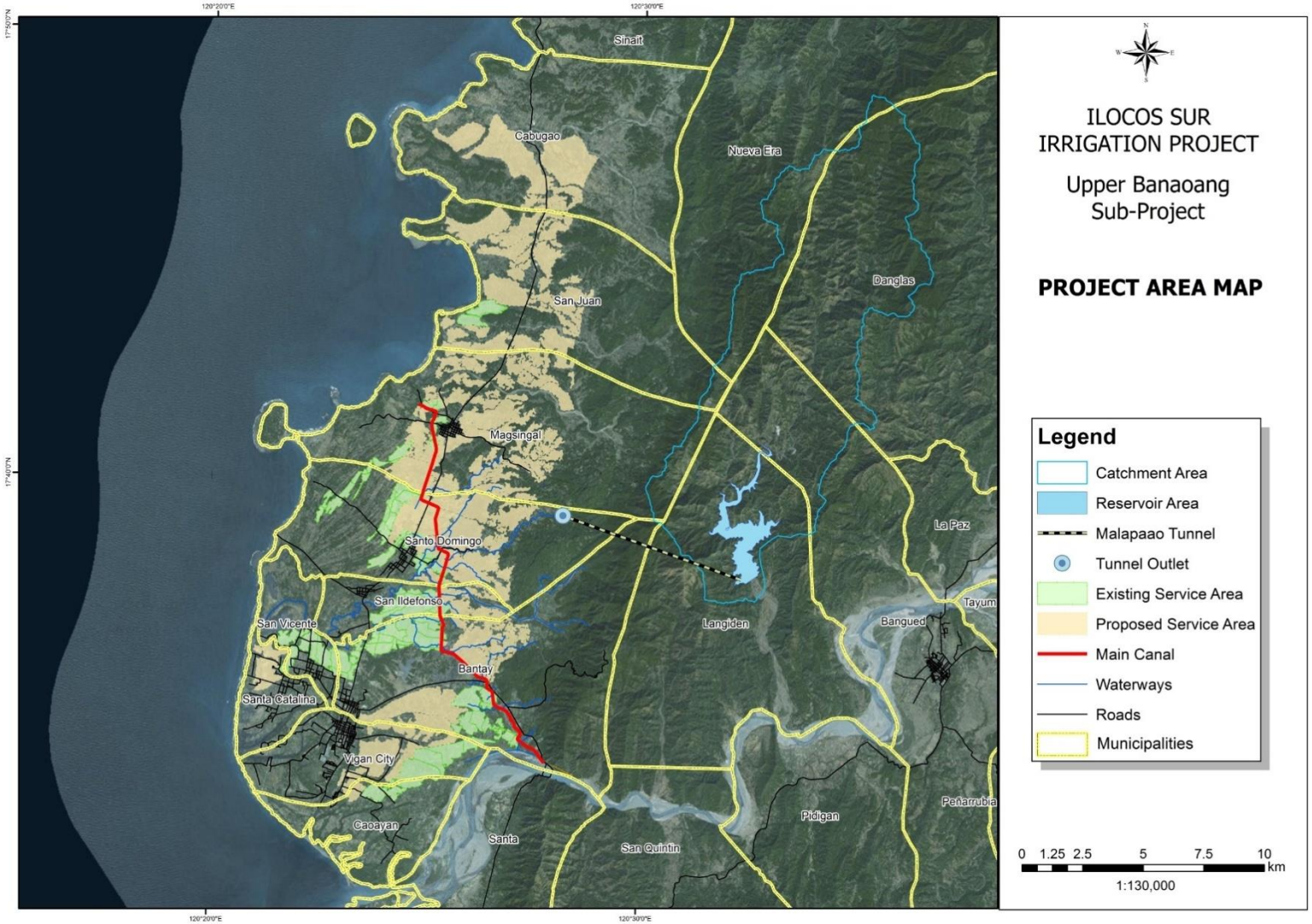


Figure 2.1-1
Project Location of Upper Banaoang Project

2.2 Project Rationale

Agriculture is one of the major sectors of economy that contributes to gross domestic product (GDP) and one of the primary objectives of the Government is to increase self-sufficiency in rice. In order to attain this, there is a need to increase in rice production through the expansion of irrigated areas.

The Updated Philippine Development Plan (PDP) 2011-2016 under the Competitive and Sustainable Agriculture and Fisheries Sector spells out Ilocos Sur Irrigation Project (ISIP) as one of the thrusts of improving food security and increasing rural income by enhancing farm productivity. The project focus on rice production is expected to complement the Government's Food Staples Self-Sufficiency Program (FSSP).

ISIP is also in line with the Sector outcomes of PDF's Accelerating Infrastructure Development by enhancing the performance of irrigation sector and enabling development in energy sector. The power generation component of the project will also help in meeting the demand in the Luzon power grid.

The Feasibility Studies for the Ilocos Sur Transbasin Project and Upper Banaoang Irrigation Project integrated into one project entitled "Ilocos Sur Irrigation Project (ISIP)" has been conducted through the General Appropriations Act (GAA) for FY 2015. This shall be implemented by the National Irrigation Administration (NIA) Regional Office 1, which is in accordance with the current Delegation of Authorities.

The general objective of the project is to conduct feasibility study on the proposed ISIP. It shall cover technical, financial aspects of proposed irrigation project, including environmental study, vulnerability assessment, preparation of sustainability plans, and analysis of alternative financing schemes. The Feasibility Study (FS) shall ensure that Value Analysis/Value Engineering (VA/VE) is undertaken for best possible options.

2.3 Project Components

The Upper Banaoang Irrigation Project consists of four (4) main components. **Table 2.3-1** shows the project components and its corresponding descriptions.

Table 2.3-1
Components of the Upper Banaoang Irrigation Sub-Projects

No.	Component	Description
1	Storage Dam at Malapaao River	It is located about one (1) kilometer upstream from Barangay Malapaao, Municipality of Langiden in the Province of Abra. The riverbed elevation at the dam site is about 55 meters above sea level (masl) and the drainage area is about 109.0 square kilometers (km^2). The storage dam is intended to impound water from Malapaao River, which is approximately 560 meters long standing at 53 meters height.The dam is designed for a flood flow of 2,856 cubic meter per second (cms) having a probable frequency of 100 years and a corresponding freeboard of 9.67 m. The proposed embankment dam is a zoned-type earth fill dam consisting of impervious core in the middle enveloped by the pervious shell upstream and downstream with slopes of 3.0H:1.0V and 2.75H:1.0V respectively. The impervious core will interact with a core trenching which is intended to extend up to the the rock foundation.

No.	Component	Description
		An emergency spillway is located at the right abutment stretching up to 400 meters. The top of the ogee crest for the spillway is located 40 meters above the riverbed given that the spillway will rest on firm foundation, which is expected since the left and right abutment consists of exposed rocks. During construction, the water will be diverted with a 3.8m x 3.8m barrel box type culvert accompanied by a cofferdam with its crest set at elevation 76.0 masl.
2	Malapaao Tunnel	The Malapaaotunnel is a free-flow conduit designed to carry a designed discharge of7.5cms diverted from the Malapaao River. The tunnel is meant to stretch up to 8-km to divert water and be used for irrigation. The tunnel section is concrete lined for an average thickness of 25 centimeters (cm). The diameter of the modified horseshoe section is 2.4 m.
3	Tunnel Outlet and Power Plant	The tunnel outlet is expected to terminate at Sto. Tomas River inside the municipality of Santo Domingo. Similar to the design discharge power plant is 7.5cms since the primary objective of the project is to supply irrigation water to the proposed service area. The headpond is a concrete structure which conveys the water from the transbasin tunnel to the penstock. The penstock, which is a 375 m long single steel with a diameter of about 1.80 m, connects the headpond to the powerhouse. This will be controlled by a butterfly valve to provide automatic closure in case of turbine runaway or penstock failure. Before entering the powerhouse, the penstock terminates in two branches, the first one feeding the turbine and the second the irrigation bypass. The powerhouse includes the machine hall housing the equipment and the control and service area. A three-phase synchronous generator will be directly coupled to the horizontal shaft Francis Type Turbine. The unit will be connected to the step-up power transformer 13.8/69 kilovolts (KV) located in the adjacent switchyard. The irrigation bypass will be controlled by a butterfly valve. The powerhouse will be equipped with an overhead travelling crane and a small diesel generating set for the station service.
4	Irrigation and Drainage Systems	The existing irrigation systems for BPIS (Banaoang Pump Irrigation System)will be considered as part the Upper Banaoang Irrigation Project. Those areas of the BPIS that are currently not included in the 800has serviced by BPIS will be prioritized while new canals will be erected to service additional service areas. Not including the 800 has (BPIS), the Upper Banaoang Sub-Project will be able to supply water to 5,000 has in the municipalities of Magsingal, Santo Domingo.

2.4 Present Condition of the Project Sites

2.4.1 Water Quality

Based on DENR Memorandum Circular 1993-07, Abra River in Ilocos Sur is currently classified by Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB) as Class A (Public Water Supply Class II, intended for

sources of water supply requiring conventional treatment (coagulation, sedimentation, filtration, and disinfection) to meet the latest Philippine National Standards for Drinking Water (PNSDW 2017).

According to Dulay (2005) in a study entitled “The Abra River System Water Quality Monitoring”, the water quality of Abra River has deteriorated over the years due to human-related activities such as mining, effluents from domestic and industrial sources and deforestation in the upland area. This study shows that the concentration of nitrates, cyanides and heavy metals including mercury, lead and chromium are higher than the acceptable standards. Due to pollution, Abra River is no longer suited for domestic use.

2.4.2 Freshwater Ecology

The Abra River and its tributaries are said to be rich in aquatic resources wherein some species are considered endemic. Fish species present in the river include 'bunog', 'karpa', 'palilleng', 'igat', 'kampa' and the endemic fish called ‘ludong’. Other aquatic organisms identified are common shells 'Agurong', 'bennek', 'bisukol', 'leddeg' and 'suso'), crustaceans ('Kuros' and crabs) and aquatic plants (‘pakko’ and ‘baktel’) (Food and Agriculture Organization, 2009).

In the publication of the Save the Abra River Movement (STARM) in 2004, there are 13 endemic and four introduced species that are present in the river ecosystem as shown in **Table 2.4-1**.

Table 2.4-1
Aquatic Species Present in Abra River

Local/Common Name	Scientific Name	Species Composition
Carpa/Milkfish	*Cayprinus carpio*	Introduced
Crabs	*Carcinus maenas*	Endemic
Damselflies	*Argia sp.*	Endemic
Diving beetle	*Scarabaeus sp.*	Endemic
Dragonflies	*Anax junius*	Endemic
Eel	*Anguila rostrata*	Endemic
Fishflies	*Corydaluz sp.*	Endemic
Frog	*Rana sp.*	Endemic
Goby	*Globius sp.*	Endemic
Leech	*Glossiphonia sp.*	Endemic
Mayflies	*Leptophlebia sp.*	Endemic
Shrimp	*Penaeus sp.*	Introduced
Snail (Golden)	*Kelisome sp.*	Introduced
Stoneflies	*Brachyptera sp.*	Endemic
Tilapia	*Tilapia nilotica*	Introduced
Turtle	*Chaelydra serpentine*	Endemic
Water scavenger beetle	*Hydrophilus triangularis*	Endemic

The existing structures and the surrounding environment of the project site are presented in the **Table 2.4-2**.

Table 2.4-2
Present Condition of the Project Site

Description	Picture
River at the dam site	

Description	Picture
Downstream of dam site	

Description	Picture
Tunnel outlet location	
Service Area	

2.5 Project Phases, Key Environmental Aspects, Wastes, Issues, Built-In Measures

Table 2.5-1 summarizes the key environmental aspects, anticipated wastes and proposed mitigating measures during the different project phases.

Table 2.5-1
Key Environmental Aspects during the Different Project Phases

Activities/Areas of Concern	General Issues/Impacts	Generalized Mitigation Measures/Controls
Pre-Construction Phase		
Acquisition of necessary documents/permits prior to construction and operation of the project. Among these are Environmental Compliance Certificate (ECC), construction permits, tree cutting permit and other required permits/documents before construction	• Fears and apprehensions of the community about the project	• Structured Information, Education and Communication (IEC) Campaign • Regular meetings and coordination with project stakeholders
Land acquisition for the proposed irrigation dam project	• Compensation issues and concerns	• Identification of ownership status • Agreement between the owner and proponent will be made • In case of displacement, compensation package based on existing laws and regulations will be provided
Construction Phase		
Construction of the Project components	• Possible impact on rivers from sedimentation and erosion • Potential effects on aquatic biota associated with water quality impacts • Possible erosion along disturbed slopes and exposed soil surfaces • Possible impact on soils from vehicle and machine fuel spills • Solid and liquid waste management issues • Possible increase of vehicle exhaust emissions in roadways and dust suspension in disturbed and exposed soil surfaces • Noise and vibration generation from vehicle during earth-moving activities • Increase in traffic flow	• Proper housekeeping • Provision of hygiene and sanitary facilities • Enforcement of a solid and liquid waste management plan • Employment of appropriate soil erosion control measures • Suppression of road dust with water, as necessary on a regular basis. Drivers will be educated on the effects of vehicular speed on dust generation. Speed limits will be enforced by the company. • Enforcement of proper management practices for the handling of fuels and oils • Heavy equipment will be appropriately muffled. Workers operating heavyequipment will be

Activities/Areas of Concern	General Issues/Impacts	Generalized Mitigation Measures/Controls
	• Potential removal of wildlife habitat covered by the project • Employment opportunities, influx of migrants • Workers' health and safety	provided with appropriate PPE, as necessary. • Development activities shall be limited to the proposed project area • Preferential local hiring policy • Implementation of health and safety standards • IEC regarding social hygiene and community health
Operation Phase		
Operation of the hydropower plant	• Injuries or death of fish and other aquatic organisms from the turbine • Reservoir water becomes more stagnant and may contain higher levels of sediments and nutrients leading to increase in algae and weeds	• Installation of intake screen • Manual harvesting or introduction of fish to minimize proliferation of algae and weeds
Irrigated farmlands	• Increase in production and yield • Alleviation of poverty/increase of quality of life	
Closure and Decommissioning Phase		
Rehabilitation of the area	• Non-completion of the rehabilitation/inappropriate land-use	• Progressive rehabilitation strategy

2.6 Project Cost and Duration

The cost of the Upper Banaoang Irrigation Project is shown at **Table 2.6-1**along with the work plan schedule for its implementation which is expected to be accomplished three (3) years after the completion of the pre-construction activities as shown in **Table 2.6-2**.

The total construction cots sums up to PhP 5.89B. However, the figures indicated for cost may still vary upon changes on the design as the project proceeds.

Table 2.6-1
Project Cost

ITEM NO.	DESCRIPTION	TOTAL COST
1	**1. GENERAL REQUIREMENTS**	
	Temporary Works and Facilities	
	Provision of furnishings and equipment	
	Service Vehicles for the Engineer	
	Maintenance of Service Vehicle	
	Health and Safety Plan	

ITEM NO.	DESCRIPTION	TOTAL COST
	Mobilization & Demobilization	
	Sub-Total of Item 1 (5% of Total Civil Work Cost)	**280,574,826.95**
2.0	**2. CIVIL WORKS**	
	A. DIVERSION AND CARE OF RIVER	
	Diversion and Care of River during Construction and Unwatering Foundation	20,000,000.00
	Sub-Total of Item A	**20,000,000.00**
	B. CONSTRUCTION OF STORAGE DAM AT MALAPAAO	
	Structural Excavation	19,841,052.24
	Random Fill	437,693,664.99
	Gravel	108,712,530.00
	Impervious Clay Core	232,526,403.22
	Clay Core Trenching	40,833,907.54
	Toe Drain	596,269.44
	Boulder Riprap (Handlaid)	90,798,082.42
	Sub-Total of Item B	**931,001,909.85**
	C. CONSTRUCTION OF EMERGENCY SPILLWAY	
	Structural Excavation	9,089,988.00
	Concrete Class "A"	33,775,243.20
	Reinforcing Steel Bar	10,611,244.80
	Lean Concrete	7,758,660.00
	Boulder Riprap (Handlaid)	363,373.92
	Waterstops	3,078,144.00
	Dowel Bars, 16mm dia.	67,380.42
	Joint Sealant	126,844.09
	Joint Filler	1,931.57
	Sub-Total of Item C	**64,872,810.01**
	D. CONSTRUCTION OF DIVERSION CONDUIT	
	Excavation	3,028,877.04
	Reinforcing Steel Bar	17,319,361.88
	Concrete Class "A"	50,743,598.49
	Lean Concrete	3,433,716.00
	Waterstops	1,756,359.04
	Joint Sealant	198,996.00
	Joint Filler	1,912.45
	Sub-Total of Item D	**76,482,820.90**
	E. CONSTRUCTION OF 2.5-M TUNNEL OUTLET (11-KM LONG)	
	Structural Excavation	21,893,231.98
	Reinforcing Steel Bar	472,375,907.95
	Controlled Blasting for Excavation of horseshoe tunnel	1,026,751,225.50
	Lean Concrete	20,481,584.37
	Waterstops	45,531,280.80
	Shotcrete	29,717,988.00
	Concrete Class "A"	460,952,396.42
	Sub-Total of Item E	**2,077,703,615.01**
	F. ROAD NETWORK	
	Gravel, 6.0 m wide (33,300 m)	
	Gravel, 4.0 m wide (25,700 m)	
	Gravel Surface Course (Road Surfacing Materials)	28,855,960.00
	Clearing and Grubbing	1,080,000.00
	Sub-Total of Item F	**29,935,960.00**
	G. IRRIGATION NETWORK	
	Development Cost per hectare	1,496,250,000.00
	Sub-Total of Item G	**1,496,250,000.00**
	H. MINOR WORKS (10%)	***467,624,711.58***
	I. PHYSICAL CONTINGENCY (10%)	***467,624,711.58***

ITEM NO.	DESCRIPTION	TOTAL COST
	Sub-Total of Item 2	**5,611,496,538.92**
	TOTAL CONSTRUCTION COST	**5,892,071,365.87**

Table 2.6-2
Work Plan and Implementation Schedule

WORK ITEM	CONSTRUCTION YEAR			
	0	1	2	3
Pre-Construction Activities				
Mobilization and Demobilization				
Diversion and Care of River During Construction and Unwatering Foundation				
Construction of Storage Dam				
Foundation Treatment (Curtain Grouting)				
Construction of Diversion Conduit				
Construction of Spillway				
Construction of Tunnel				
Construction of Irrigation Canal And Service Road				
Conduct of Environmental Activities				

CHAPTER 3
SOCIAL PREPARATION ACTIVITIES

This chapter summarizes the social preparatory activities conducted for the proposed ISIP Upper Banaoang Irrigation Project in accordance with the DAO 2017-15 (Guidelines on Public Participation under the PEISS).

3.1 Information, Education, and Communication Activity

As part of the social preparation activities, a series of IEC activities in the form of Focus Group Discussions (FGDs) and courtesy meetings have been conducted to inform the stakeholders and the LGU officials about the project. The timeline of the LGU visits for the IEC activities is summarized in **Table 3.1-1**. The proceedings during each FGDs are presented in **Annex 1**. Prior to the scheduled IEC activity, set of request letters were delivered to the respective LGUs of which the received copies are presented in **Annex 2**. To further the information dissemination about the project to the people, IEC materials were distributed (**Annex 3**). Lastly, **Annex 4** presents the attendance sheets and the signatures of some of stakeholders who received the IEC materials.

Table 3.1-1
Timeline of IEC Activities

Date	Time	Venue	Photo
03 April 2018	10:00am – 12:00 nn	Langiden Municipal Hall	
04 April 2018	10:00am – 12:00nn	Bantay Municipal Hall	

Date	Time	Venue	Photo
05 April 2018	10:00am – 12:00nn	Sto. Domingo Municipal Hall	
05 April 2018	2:00pm – 4:00pm	NIA-BPIS, San Ildefonso, Ilocos Sur	

3.2 Perception Survey

As part of the Information, Education, and Communication (IEC) Campaign under the Ilocos Sur Upper Banaoang Irrigation Project, a perception survey was conducted in Barangay Malapaao for the Municipality of Langiden, Barangay Laoingen for the Municipality of Sto. Domingo and Barangay Lingsat for the Municipality of Bantay. This survey was delivered to a sample size of 99, with the distribution for each barangay shown in **Table 3.2-1** for the purpose of gauging the baseline knowledge of the respondents regarding the project.

This section contains the results from the survey conducted by a perception survey team.

Table 3.2-1
Sample Size for Perception Survey

Survey Dates	Province	Municipality	Barangay	Sample Size
03 September – 03 August 2018	Ilocos Sur	Bantay	Lingsat	35
01 September 2018	Ilocos Sur	Sto. Domingo	Laoingen	40
17 November 2018	Abra	Langiden	Malapaao	24
		TOTAL		**99**

3.2.1 Demographic Profile of Respondents

Among the respondents in the municipalities of Bantay, Langiden, and Sto. Domingo, majority are aged from 41 to 60 years old. As seen in **Figure 3.2-1,** individuals within the age range of 18 to 40 years old follow at 32% while senior citizens form the least portion of the sample population at 11%.

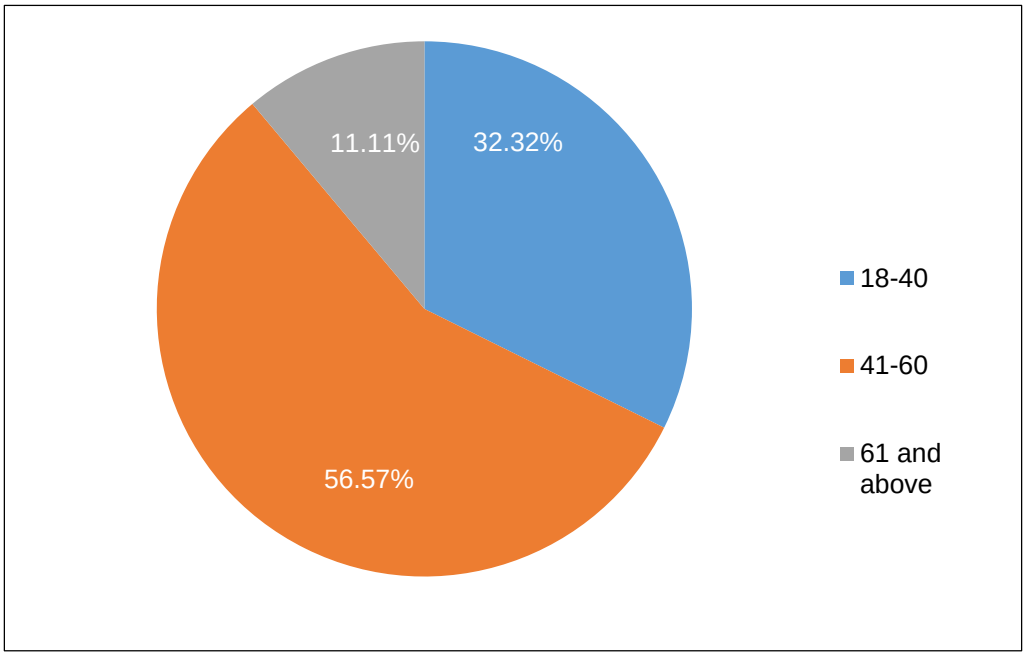


Figure 3.2-1
Age of Respondents

Regarding the gender of the respondents, 57% of the participants are female while the rest (43%) are male **(Figure 3.2-2)**.This could be attributed to the observation that majority of the females were in the houses and their male companions are working at the time of the survey.

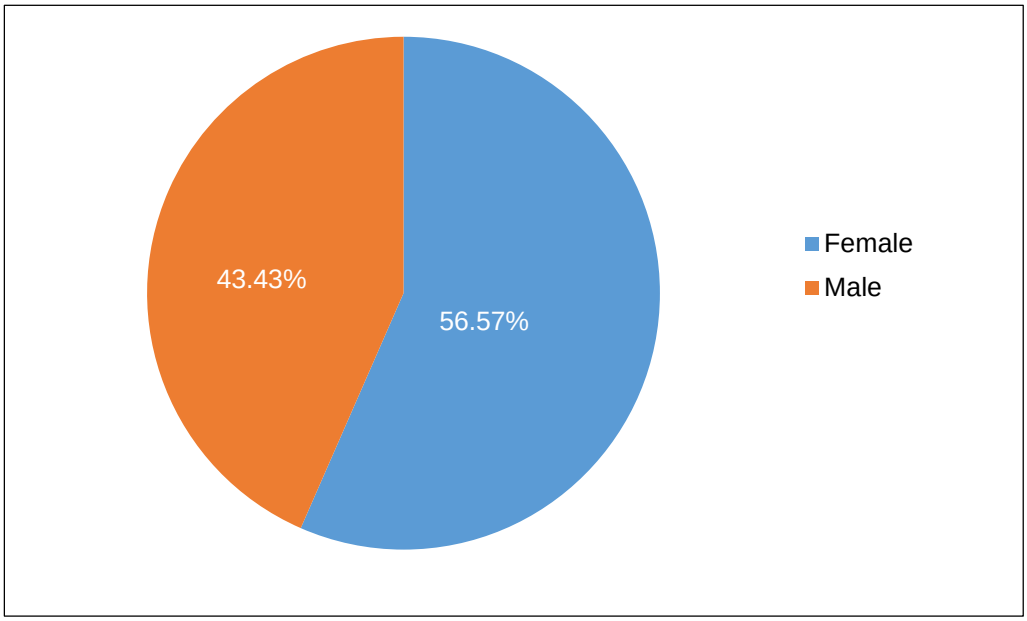


Figure 3.2-2
Gender of Respondents

Meanwhile, results from the perception survey **(Figure 3.2-3)** reveal that 68% of the respondents are married while 25% are single. About 6% of the sample size has been widowed, and 1% are live-in.

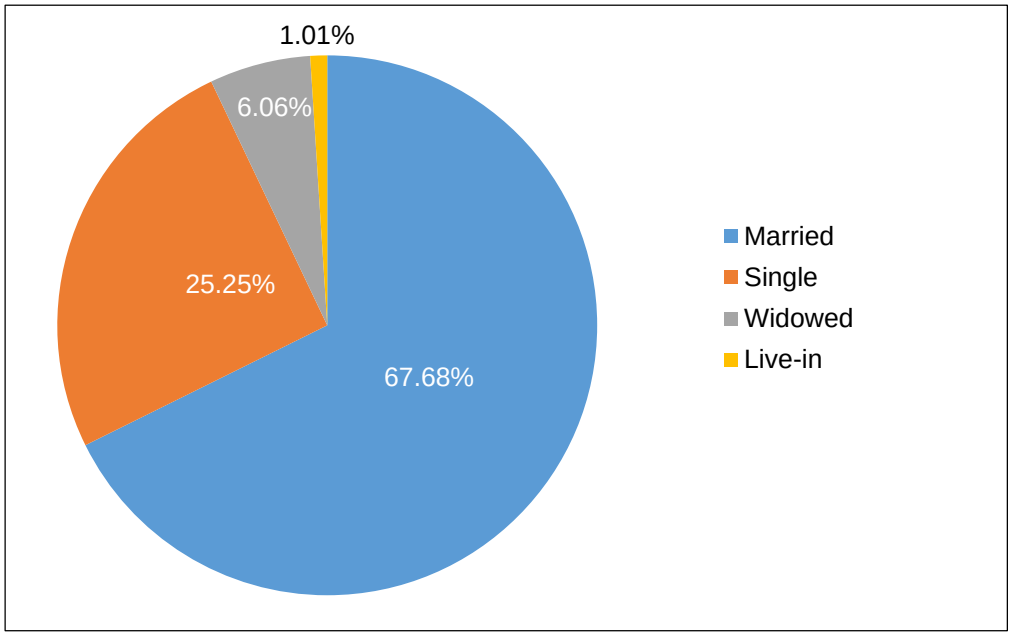


Figure 3.2-3
Civil Status of Respondents

The Province of Ilocos Sur is the main place of birth of the respondents for the perception survey **(Figure 3.2-4)**, with 69% of the sample size originating in the area. Meanwhile, 23% originated from the Province of Abra and 5% from other parts of Luzon. The rest either moved from Mindanao or Visayas. None of the participants were born in foreign countries.

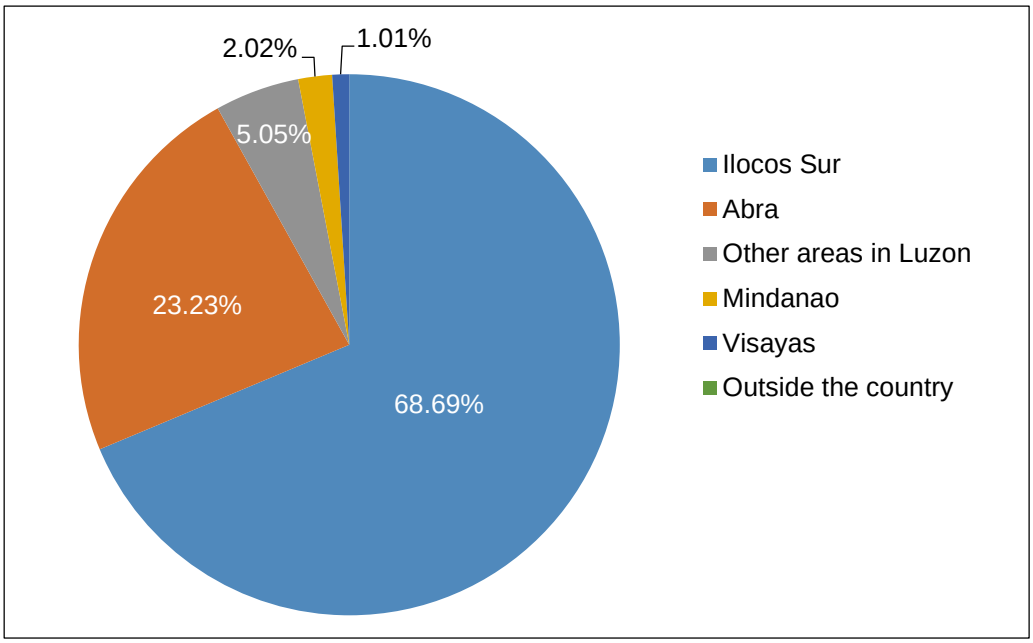


Figure 3.2-4
Place of Birth of Respondents

As shown in **Figure 3.2-5,** Roman Catholicism is prevalently practiced among the respondents from the municipalities of Bantay, Langiden and Sto. Domingo. Other than the Roman Catholics, 3% of the respondents are Born Again Christians, 2% are from Iglesia ni Cristo (INC), and at 1% are either from the Iglesia Filipina Independiente (IFI) or the Crusaders of the Divine Church of Christ (CDCC).

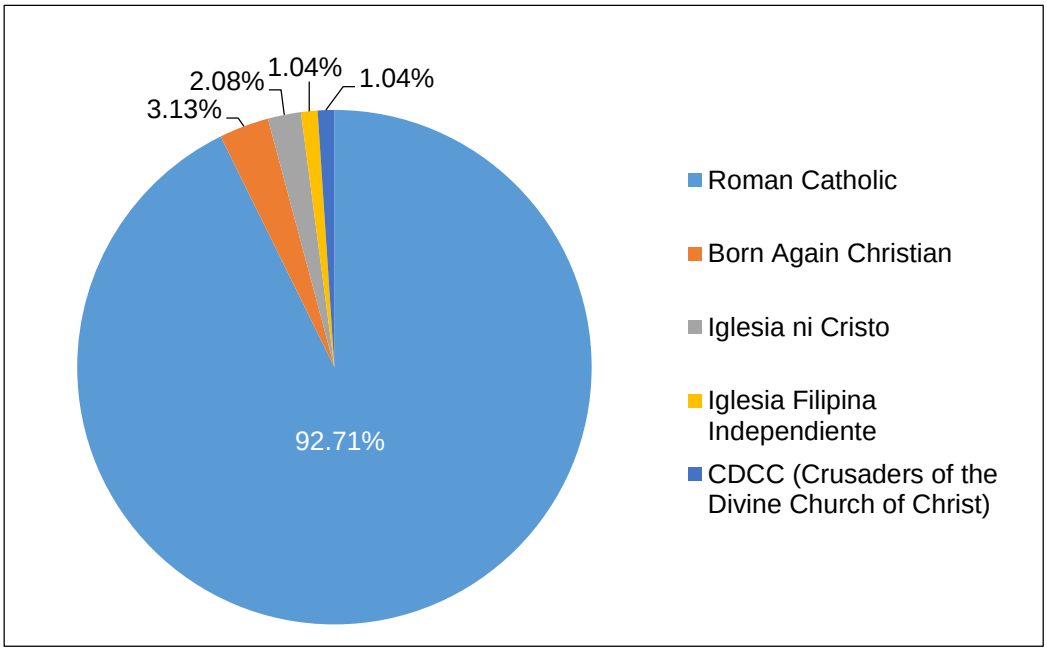


Figure 3.2-5
Religion of Respondents

In **Figure 3.2-6**, the notable major ethnic group are the Ilocanos (56%). Around 22% of the interviewees do not consider themselves to be affiliated with any ethnic group. Mangyans comprise 7% of those interviewed, followed by those from the Inland ethnic group (4%) and the Subanen (3%). Those identifying themselves as Bagobo, Bicolano, Ilonggo and Itneg make up 1% of the sample size. Likewise, a blend of Ilocano, Mangyan and Subanen are also at 1% of the respondent population.

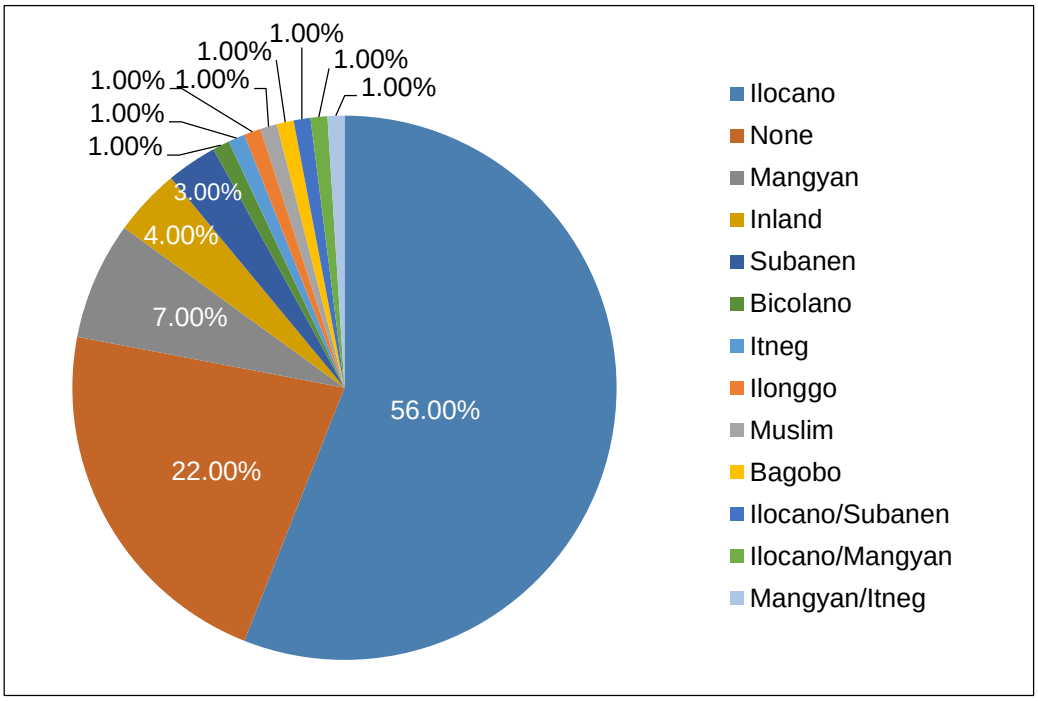


Figure 3.2-6
Ethnic Affiliation of Respondents

Most of the residents that were included in the survey have inhabited their lands for more than ten years. Also seen in **Figure 3.2-7,** respondents residing in the area for one to five years form 5% of the sample size compared to those residing for five to ten years at 3%. Those living for the shortest term form 1%.

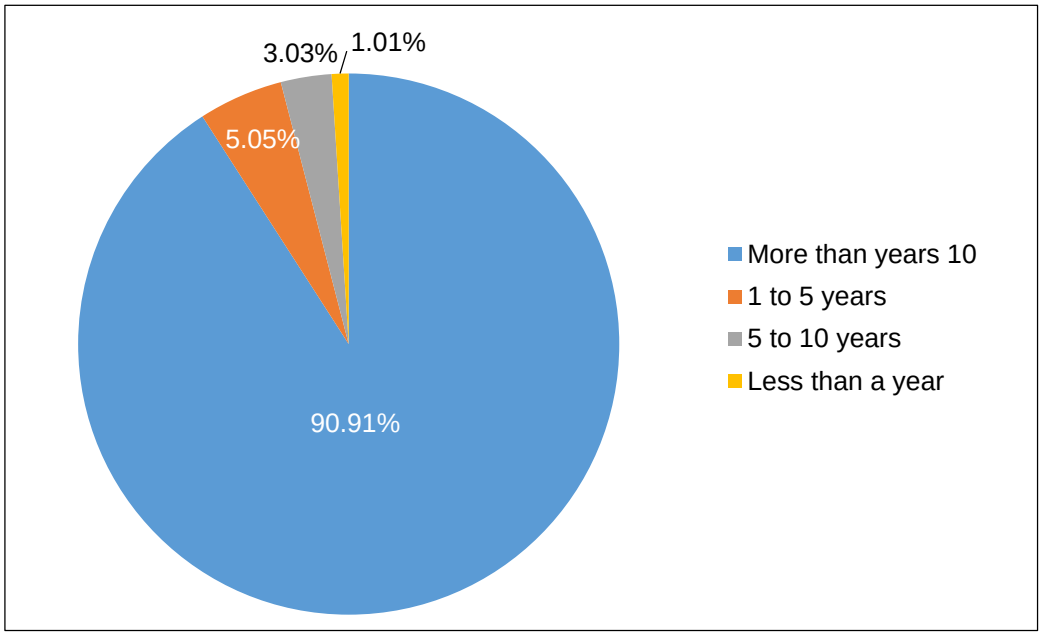


Figure 3.2-7
Years of Residence of Respondents

High school is the most accessible level of education to the respondents **(Figure 3.2-8)**, as it has been reached by 38% of the respondents. Compared to this, 35% have entered elementary and 19% have studied in college. Vocational courses have been taken by 6% of the interviewees while 1% did not have access to education.

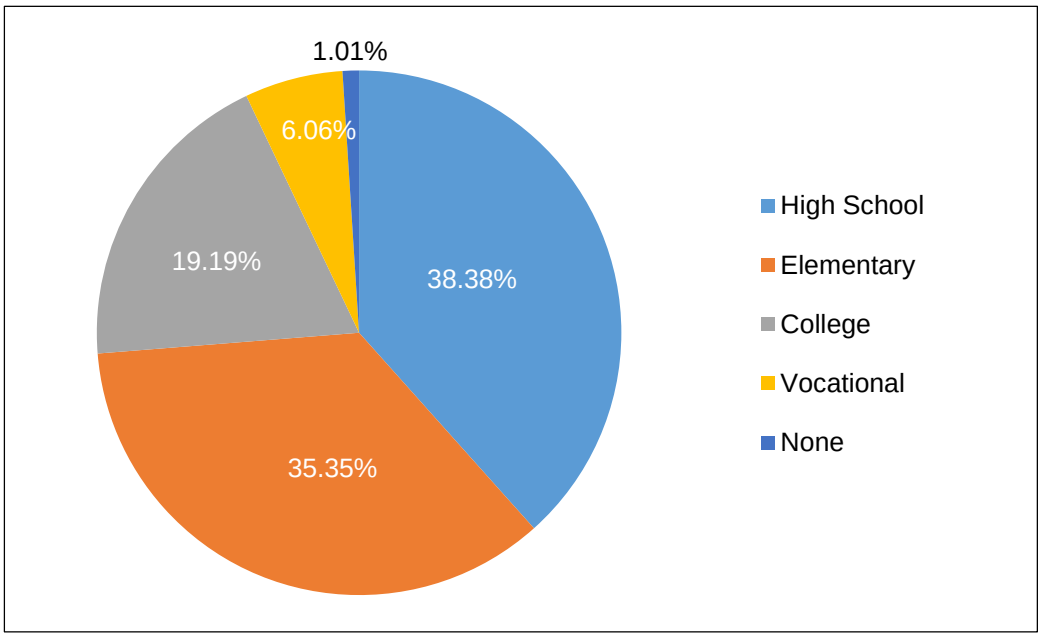


Figure 3.2-8
Educational Attainment of Respondents

More than half (55%) of the respondents are currently unemployed as compared to that of those employed. This could be attributed to the absence of job opportunities in the survey area (**Figure 3.2-9**).

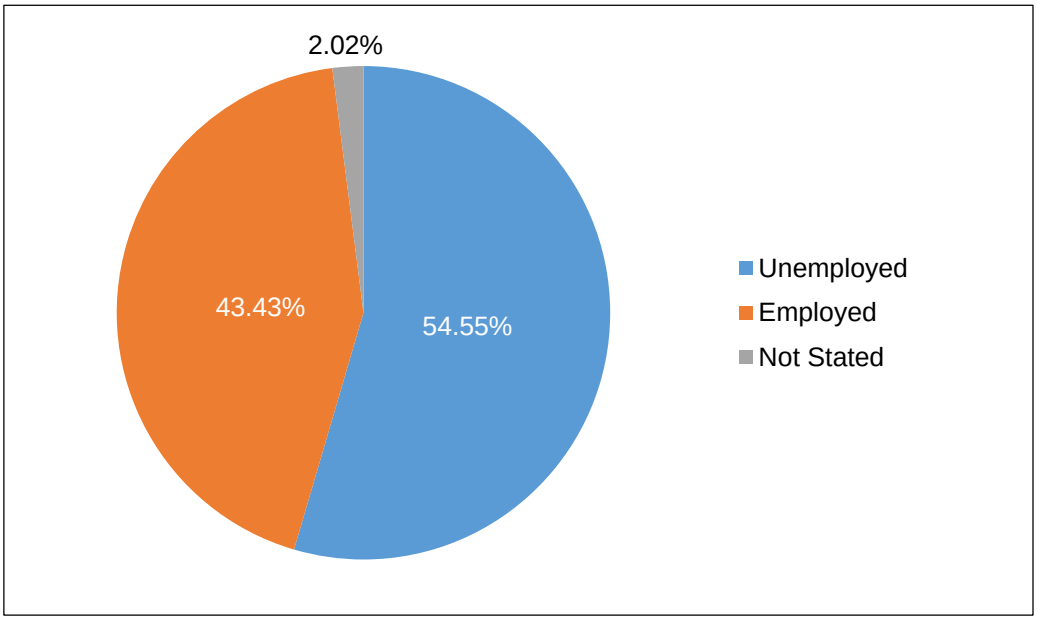


Figure 3.2-9
Employment Status of Respondents

In relation to the employment of the interviewees for the perception survey, more than half of the respondents are unemployed. Farming is the common work among the employed respondents in the survey area **(Figure 3.2-10)**. Aside from government offices (8%), other sources of occupation include businesses set up by the respondent (3%) and employment through private companies (2%).

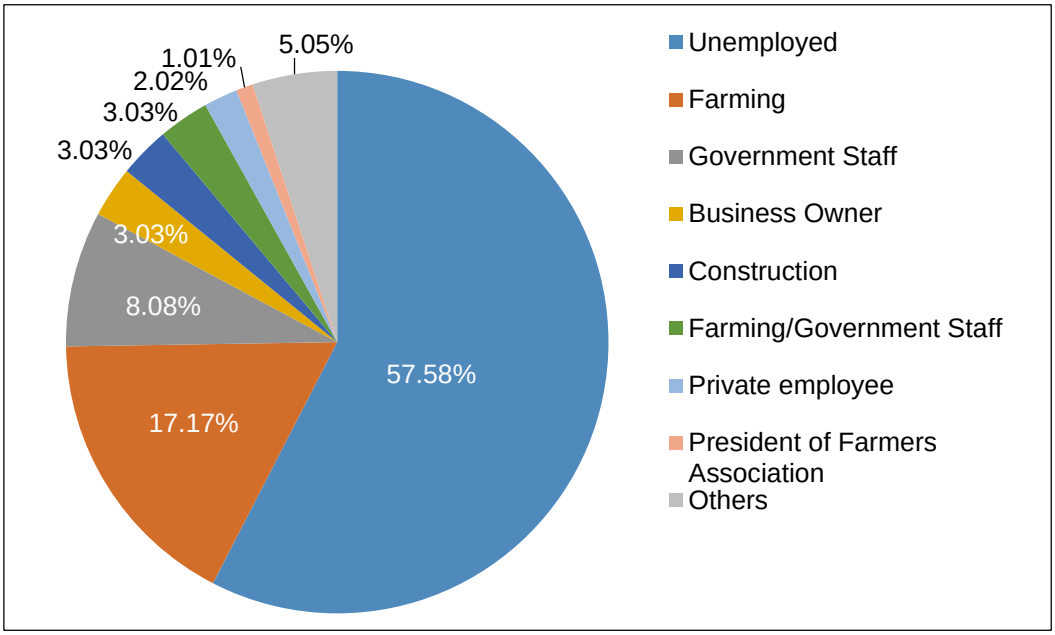


Figure 3.2-10
Nature of Work of Respondents

For those employed **(Figure 3.2-11),** the most common location of their workplace is within the affected barangays. Aside from this, the location of their work is either outside the barangay but within the municipality or outside the municipality but within the province. If not within the locations mentioned, the rest work in other areas in Luzon.

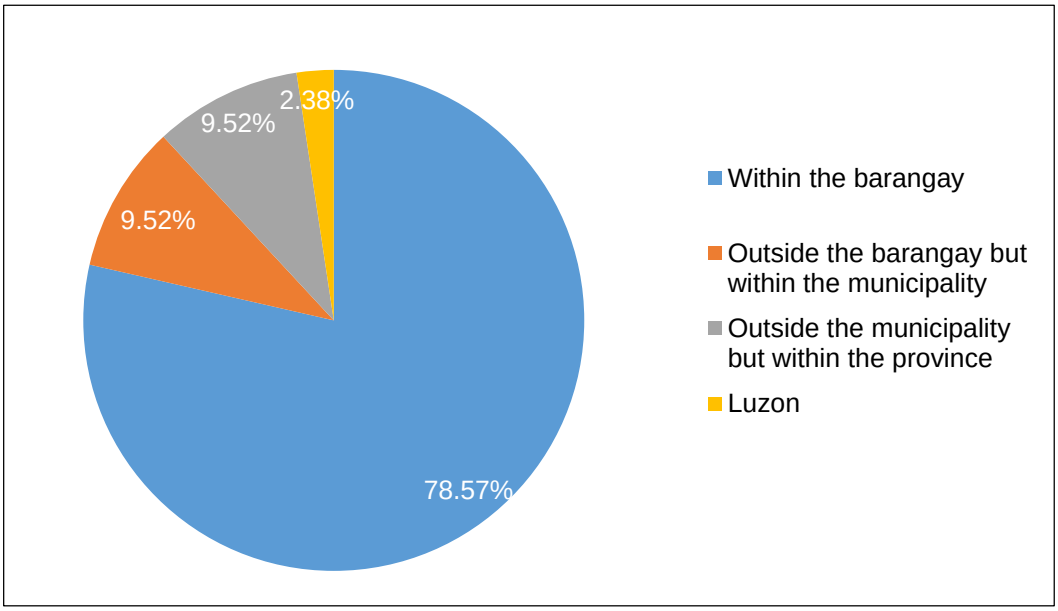


Figure 3.2-11
Location of Employment

Majority of the respondents have no income or about 62% of the respondents. For those who have a source of income, about 13% earning around PhP 1,000.00 to PhP 4,999.00 while 9% of the respondents earn an income around PhP 5,000.00 to PhP 9,999.00 (**Figure 3.2-12**). Alternately, 6% of the respondents earn less than PhP1,000.00 and 4% earn PhP10,000.00 to P14,999.00. Lastly, those gaining PhP15,000.00 to PhP19,000.00 and those with non-continuous income make up 2% of the sample size. For those with an income of over PhP20,000.00 make up 1% of the interviewee population.

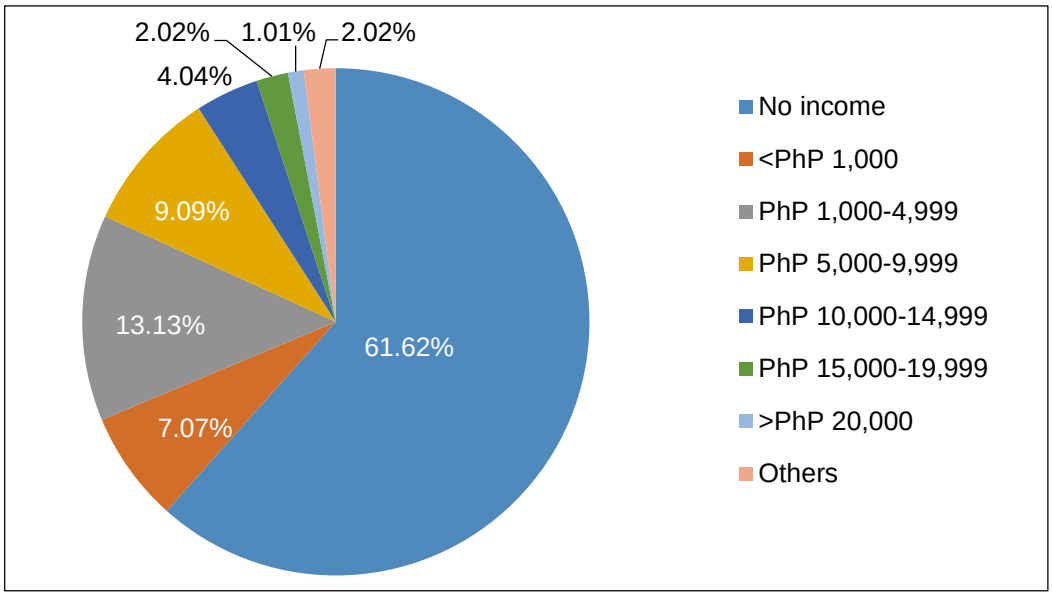


Figure 3.2-12
Income of Respondents

3.2.2 Household Profile of Respondents

This section discusses the household profile of the respondents in terms of household size, landholding and structure ownership, available toilet facilities, common illnesses of the household and sources of domestic water. These parameters are important to establish the household living condition.

Concerning the head of the household **(Figure 3.2-13)**, the responses of the interviewees show that the setup is primarily patriarchal. Following this, 21% of the cases manifest that the mother is the head of the household. At 4% each of the sample size are either households managed by other male relatives or the respondents themselves. Sons comprise 3% of these cases, followed by daughters (2%) or other female relatives (1%).

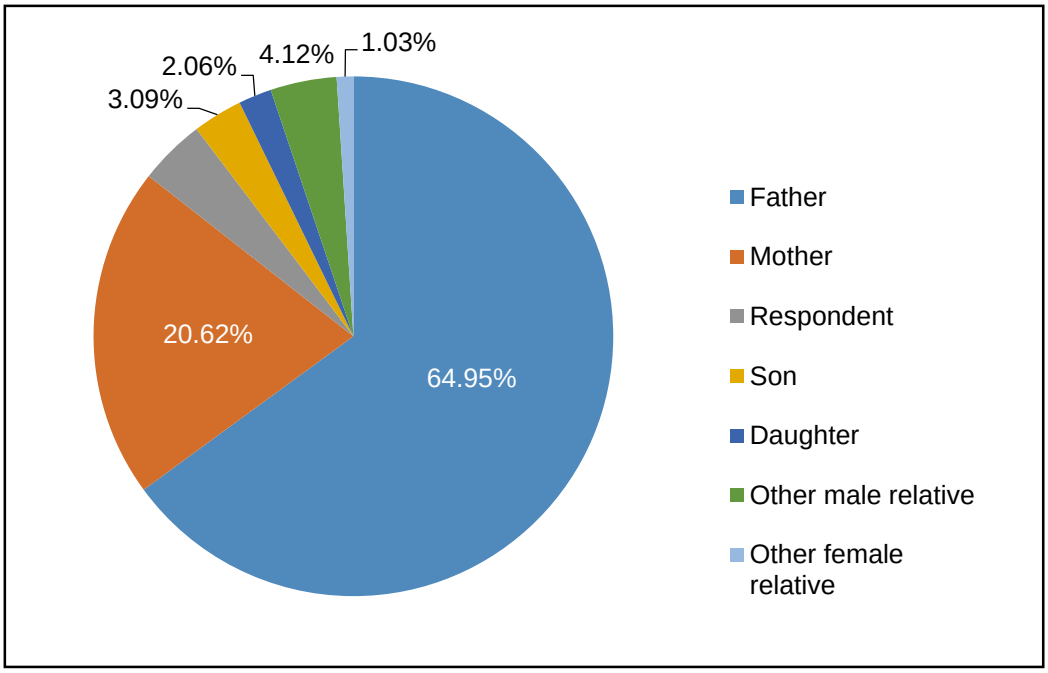


Figure 3.2-13
Head of Household Respondents

Furthermore, results from the perception survey manifest that 41% of the respondents belong to households composed of five (5) to six (6) members. Also seen in **Figure 3.2-14,** 36% of the respondents belong to a household of three (3) to four (4) people in comparison to those from a household of one to two members at 12%. A household size of seven (7) to eight (8) members comprise 5% of the sample size, with the least respondents from households of more than 10 (3%) and with nine to ten members (2%).

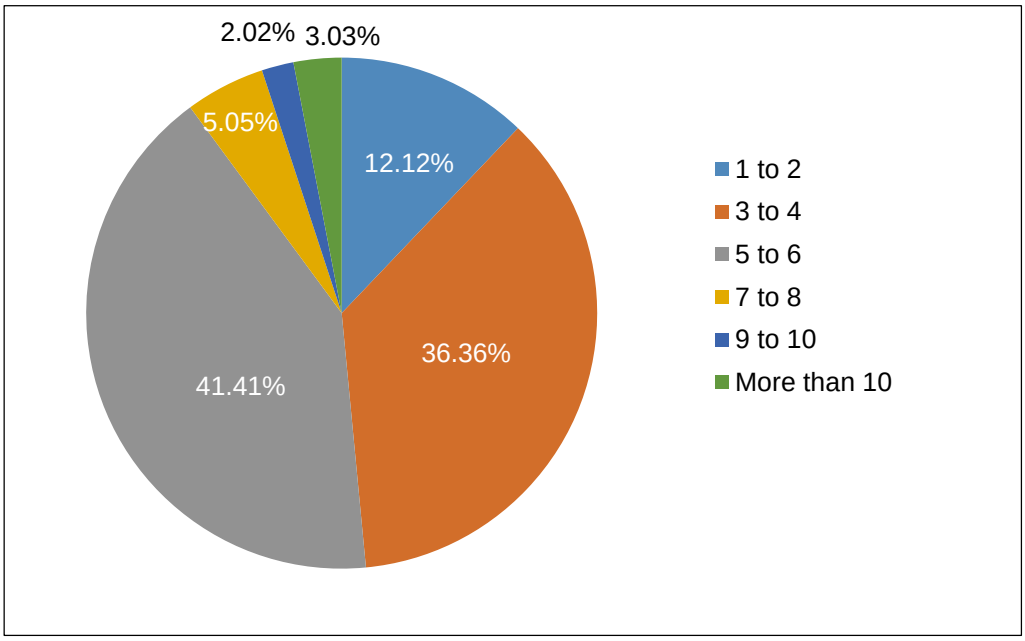


Figure 3.2-14
Household Size of the Respondents

About 76% of the respondents claimed that they own the lot that they currently occupy while about 17% said that they are caretakers of the lot that they occupy at the time of the survey. About 6% indicated that they are rent-free, live with their relatives, and said that they haven't transferred the property to their names. **Figure 3.2-15** shows the landholding status of the respondents.

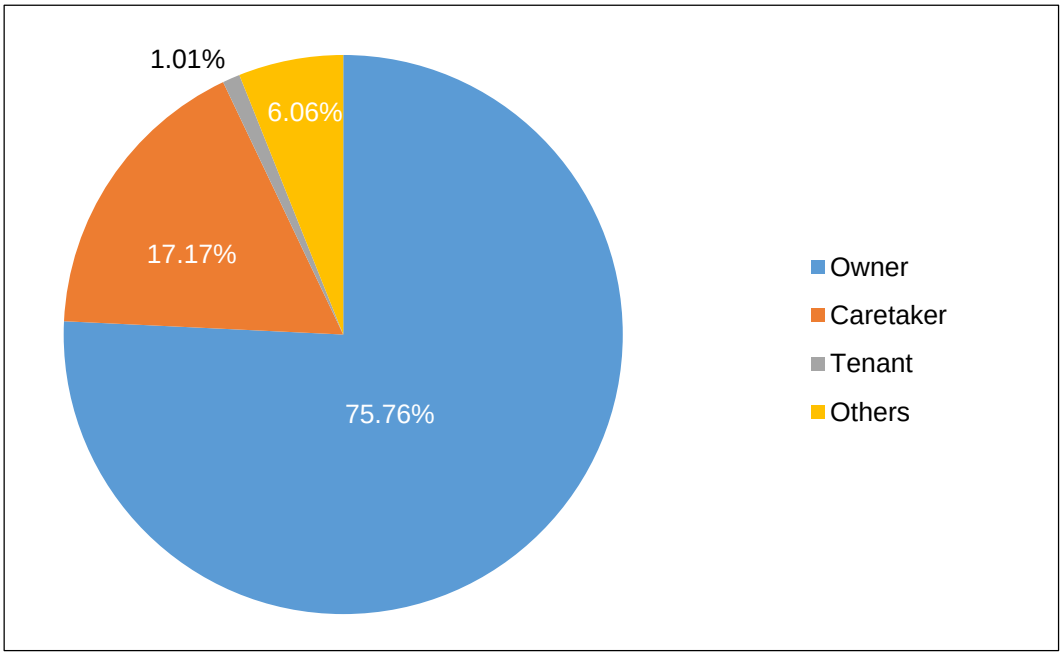


Figure 3.2-15
Landholding Status of Respondents

A large portion (78%) of the respondents do not know the owner of the lot that they occupy as shown in **Figure 3.2-16**. About 16% of the respondents act as caretakers of the land for other relatives. Also shown in the chart below, there are instances that the lot which is occupied by the respondent actually belongs to a sister (2%) or a cousin (2%). Other than this, the land owner could be an aunt or uncle (1%) or a non-relative (1%). For other cases, the land is rent-free (1%).

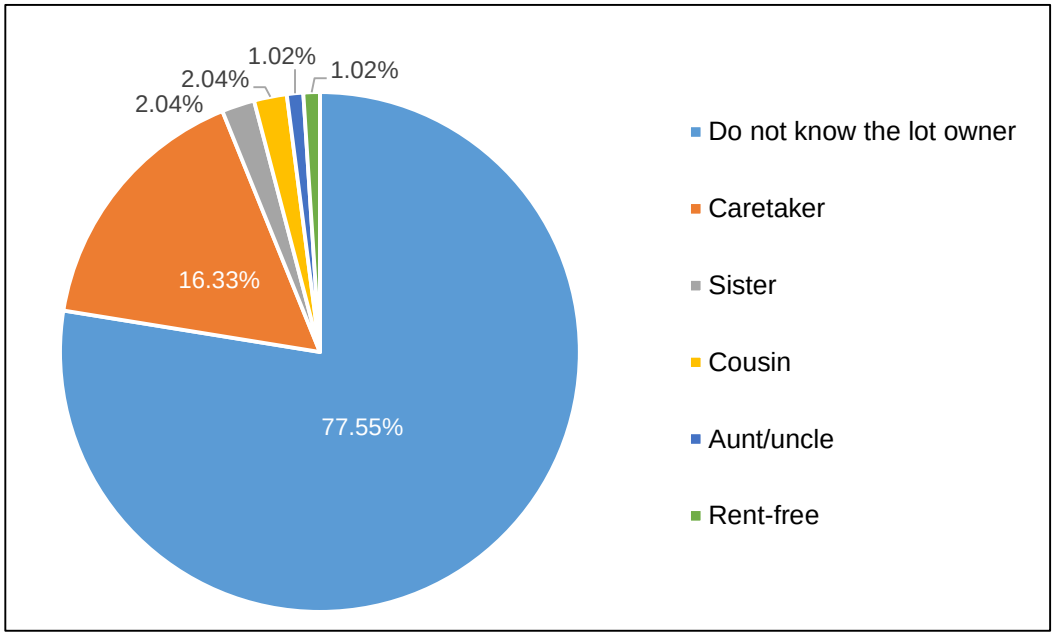


Figure 3.2-16
Land Owners

Similar to the status of landownership of respondents in the Municipalities of Langiden, Sto. Domingo and Bantay, **Figure 3.2-17** shows that almost all of the interviewees own the structures they are presently occupying. Caretakers are fewer at 8%, while other cases of arrangements with regard to structural ownership amount to 4% of the total respondents. There are no tenants of structures among the respondents.

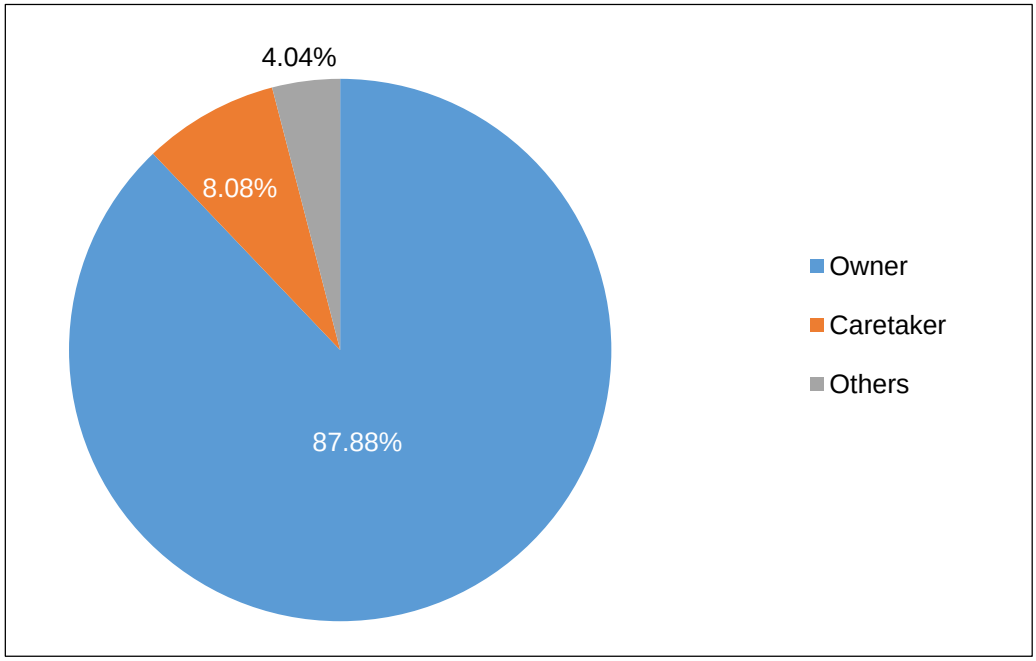


Figure 3.2-17
Structure Ownership of Respondents

With relation to this, 89% of the structures are wholly owned by those occupying them **(Figure 3.2-18)**. About 7% of the respondents stated that the structure that they occupy is owned by other relative while 3% of the respondents said that the structure that they live on is owned by their aunt or uncle.

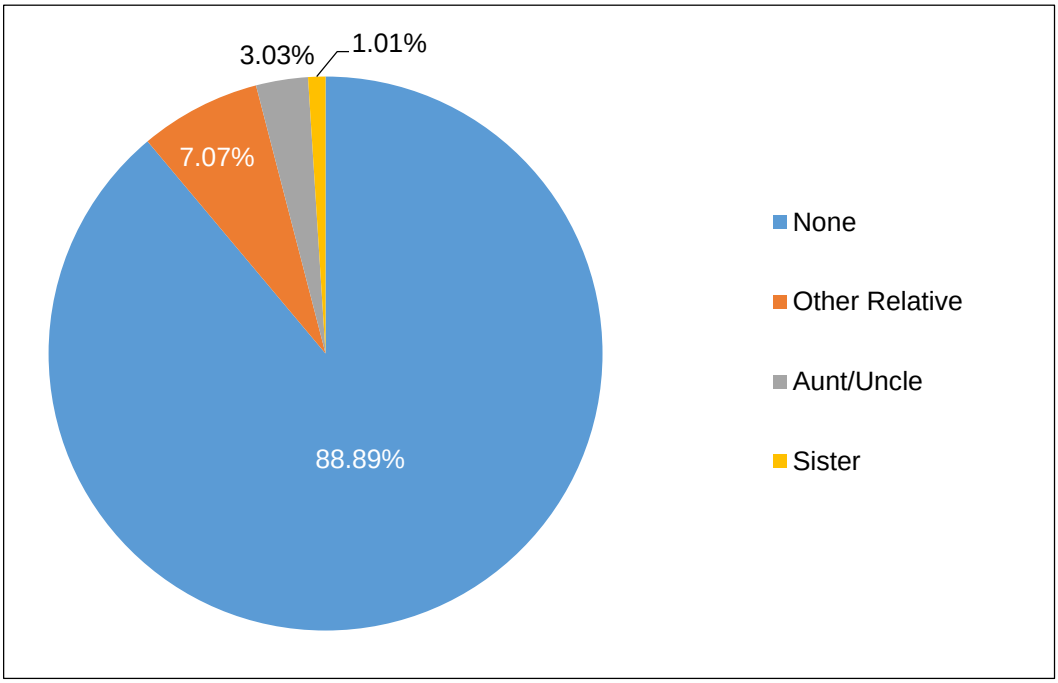


Figure 3.2-18
Structure Owners

With regard to the category of toilet facility used in the household of the respondent, 73% of the interviewees replied that they use water-sealed toilets **(Figure 3.2-19)**. On the other hand, 20% answered that they have flushed toilets in their homes. Pit latrines are also used (6%) in less instances.

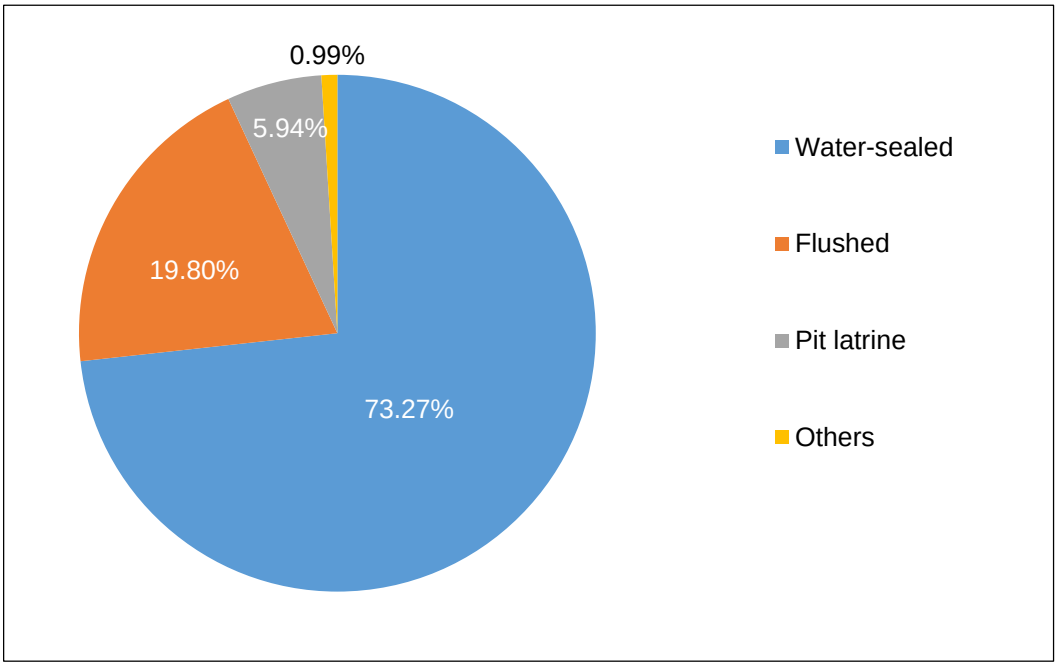


Figure 3.2-19
Type of Toilet Facility of Respondents

Survey results in **Figure 3.2-20** shows that the respondents mostly experience cough (28%), fever (26%), high blood (10%), and diarrhea (8%). Others include headache (6%), colds (5%), arthritis (4%), and respiratory ailments (3%).

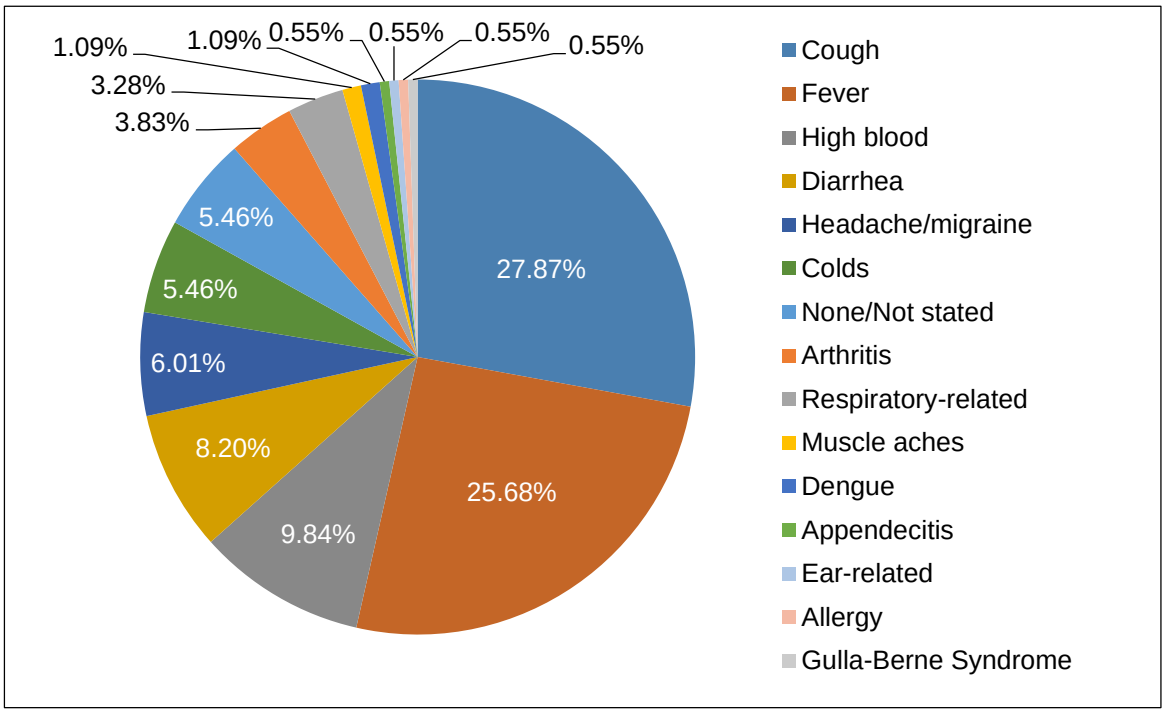


Figure 3.2-20
Common Illnesses in Household Respondents

In **Figure 3.2-21,** the water source that is most accessible to the residents is from the Level II category, wherein the community obtains water at a single area or point via pipe. This means residents all go to a certain site to collect water for domestic use. Only 4% of the respondents have a Level III connection.

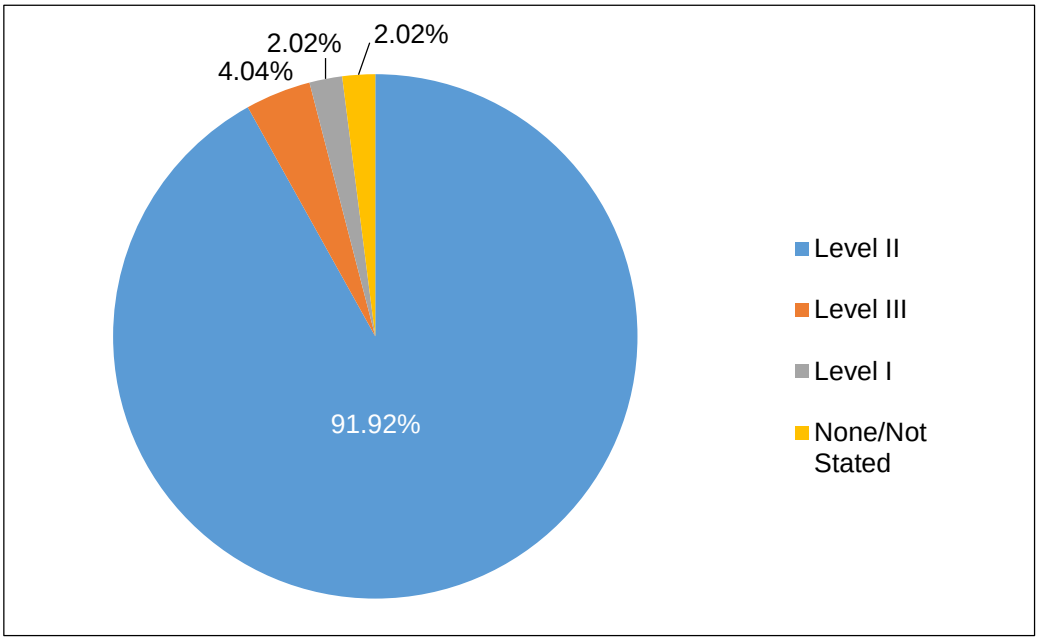


Figure 3.2-21
Source of Domestic Water Supply of Respondents

3.2.3 Perception of the Respondents on the Project

This section discusses the part of the survey which includes the perception of the interviewees with regard to the project, and which is structured with the objective of outlining or understanding the perception of the respondent.

Figure 3.2-22 displays the distribution of the respondents that determined their awareness regarding the Ilocos Sur Irrigation Project. Almost three-fourths of the sample size had been informed of the project and were familiar with it, while the remaining respondents were not aware of its existence. The rest of the respondents (1%) did not give any reply.

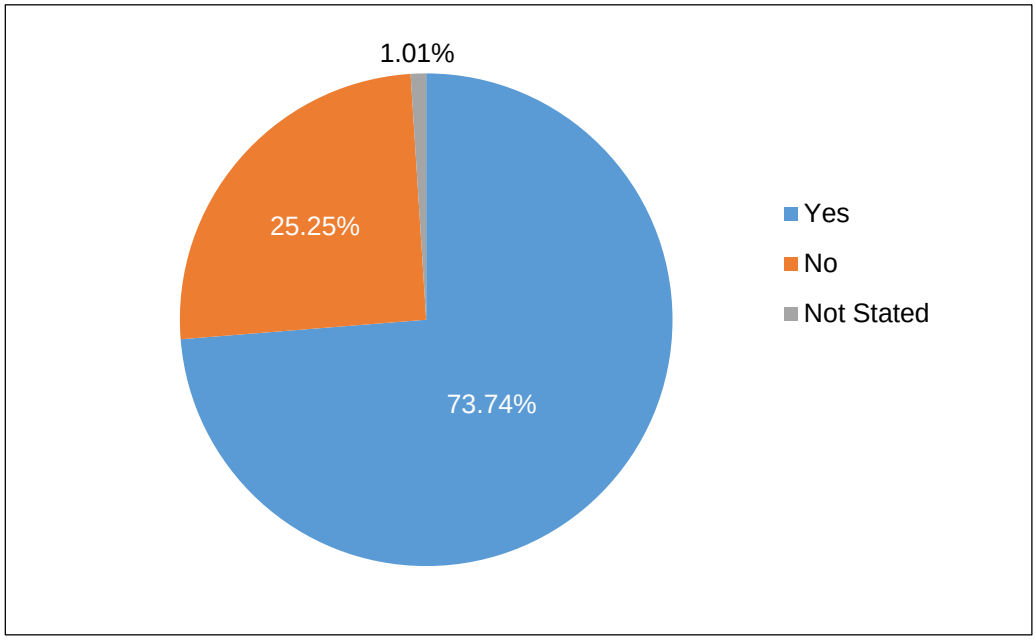


Figure 3.2-22
Awareness of Respondents on the Project

Meanwhile, about 70% of the respondents were informed of the involvement of the National Irrigation Administration and its role for the project **(Figure 3.2-23)**.

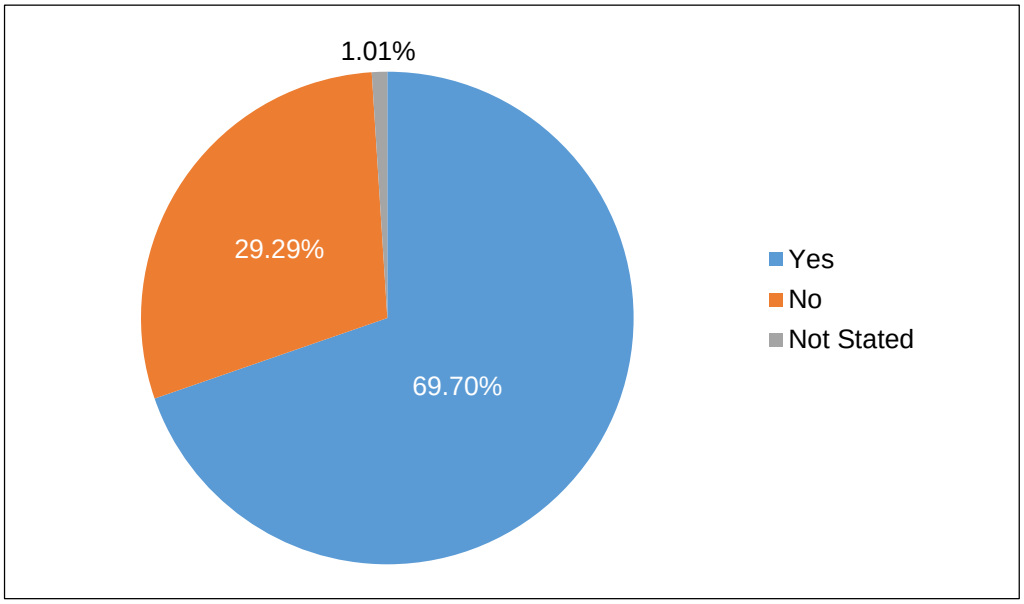


Figure 3.2-23
Awareness of NIA's Responsibility

Following this, 68% of the sample population has been informed with regard to the implementation of the Ilocos Sur Irrigation Project particularly the Upper Banaoang Irrigation Project in their respective barangays or areas **(Figure 3.2-24)**.

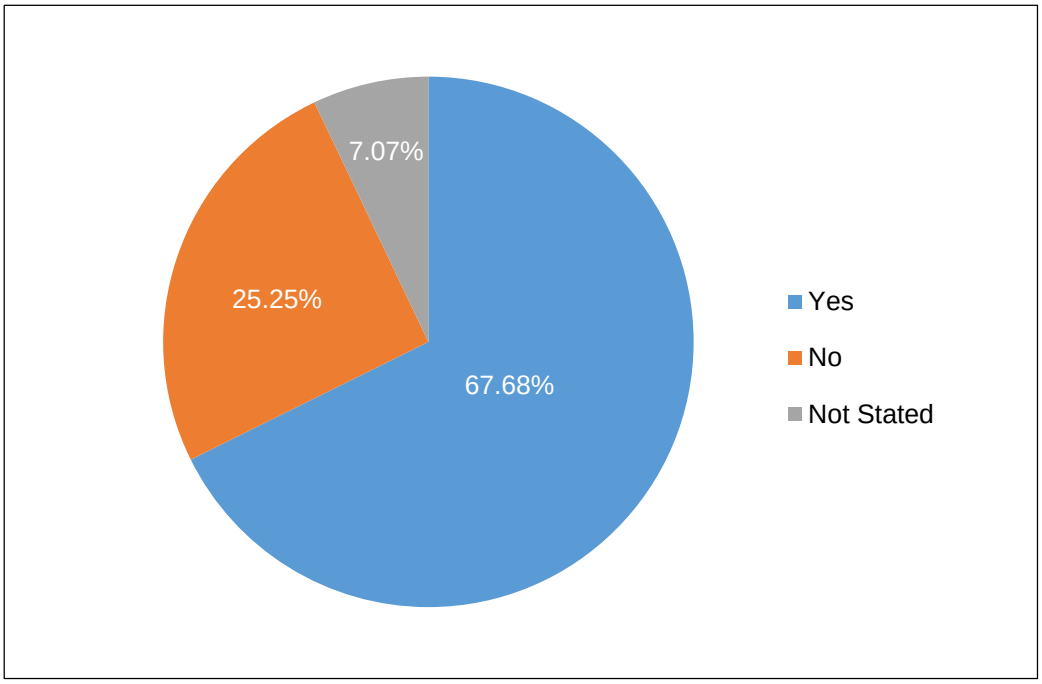


Figure 3.2-24
Awareness of ISIP by Respondents

The means of information dissemination concerning the project relayed to the respondents are mostly via news from people they know (24%), or by barangay meetings or public consultations held by the local government unit (15%) or from media of information such as the radio, television or news articles **(Figure 3.2-25)**. The least opportunity for sharing or learning about the project is limited when it comes to research (1%) or the information, education, communication(IEC) campaign conducted by the project proponent (1%). It should be additionally noted that the IEC was done through a FGD.

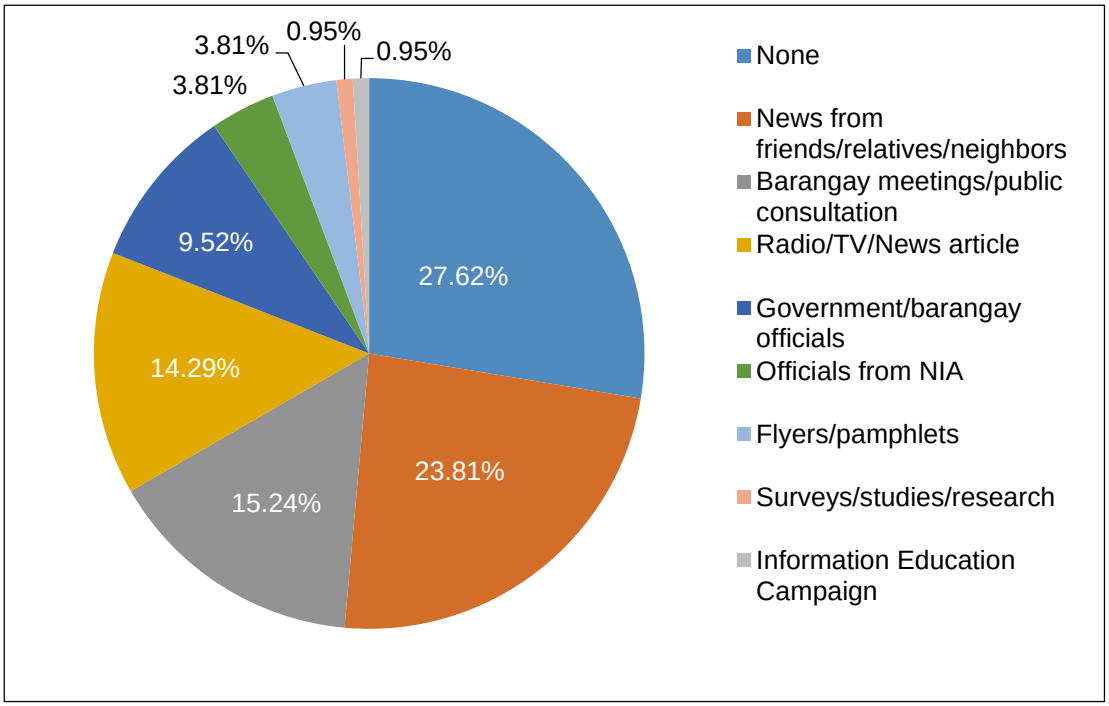


Figure 3.2-25
Ways the Respondent Heard of the Project

According to the responses gathered from the perception survey, the major benefit of the program to the community would be farmers gaining easier access to water for irrigation or agricultural use (in **Figure 3.2-26**). Other than this, about 22% of the respondents had no input. Further, enhanced business with crops (9%), the advantages from the project included more income (8%), less tedious work (3%) and the influx of more farmers (1%).

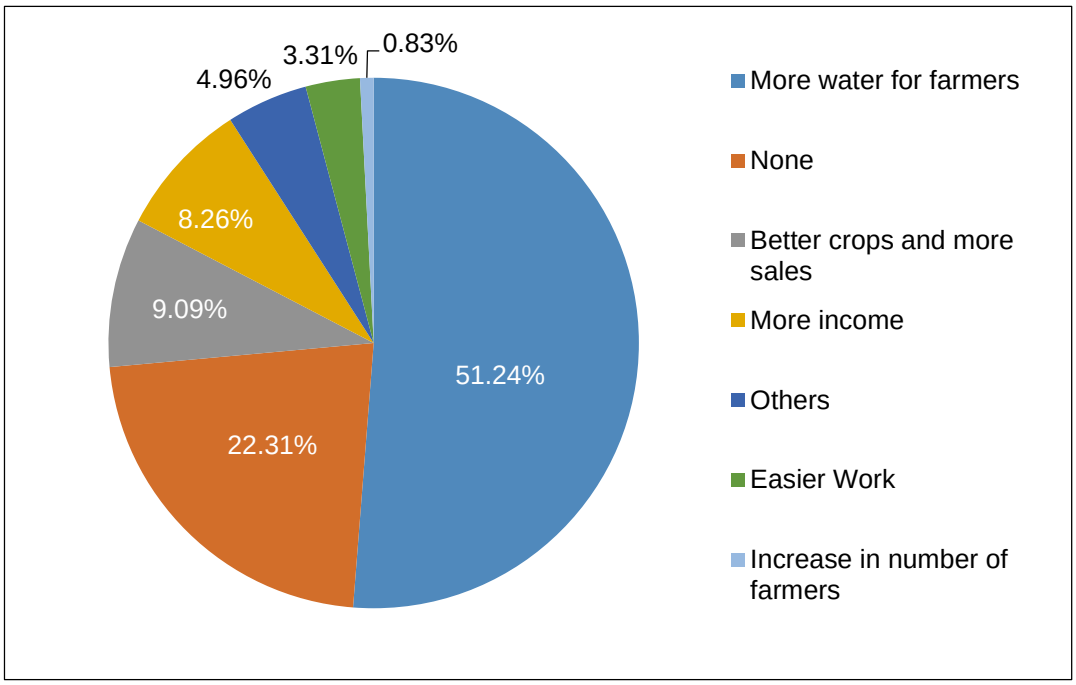


Figure 3.2-26
Positive Impacts of the Project as Perceived by Respondents

Contrary to this, **Figure 3.2-27** shows that 27% of the respondents answered that the project may cause flooding or erosion or that other accidents may happen (24%). While 23% gave no answer, the rest of the sample size included loss of income and livelihood and detriment to the environment as negative effects of the project.

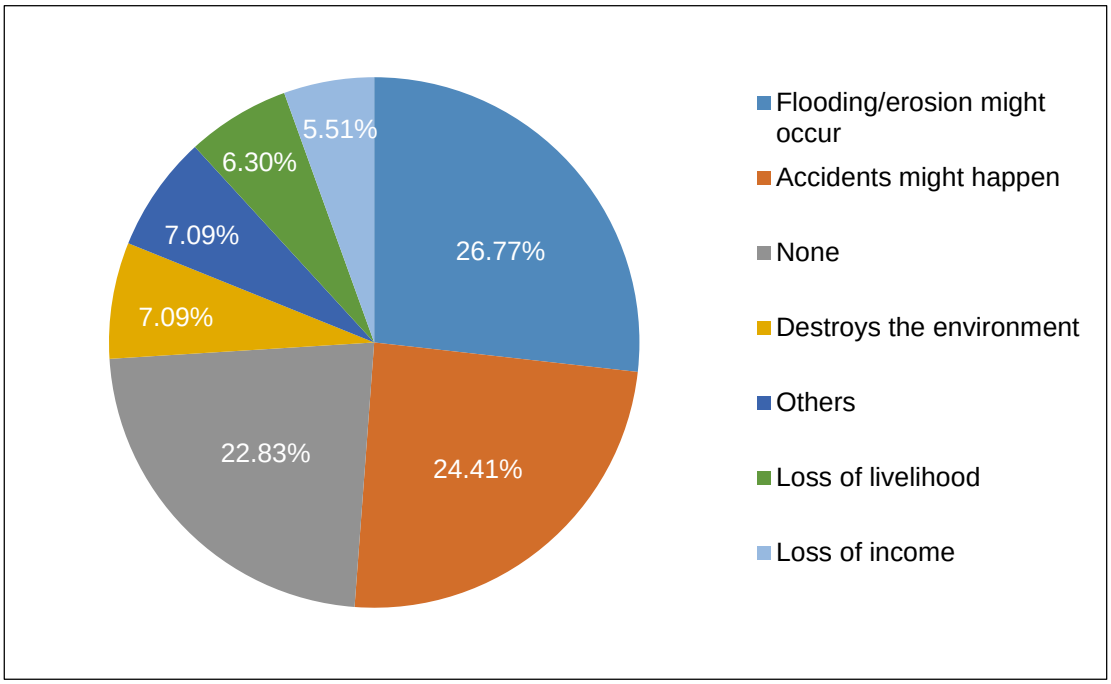


Figure 3.2-27
Negative Impacts of the Project as Perceived by Respondents

When inquired about how the mentioned negative effects could be mitigated, 35% directly suggested the discontinuation of the project while 19% said to strengthen the structures. Some 10% said that they do not have suggestions, 8% said to include monitoring and maintenance of the projects and 6% recommended to provide flood control structures. About 8% said that the project should provide drinking water supply while 4% said that planting trees or crops could mitigate the negative effects. Some 2% said to avoid rice fields, 2% stated to conduct more public consultations, and another 2% said to follow local guidelines as seen in **Figure 3.2-28.**

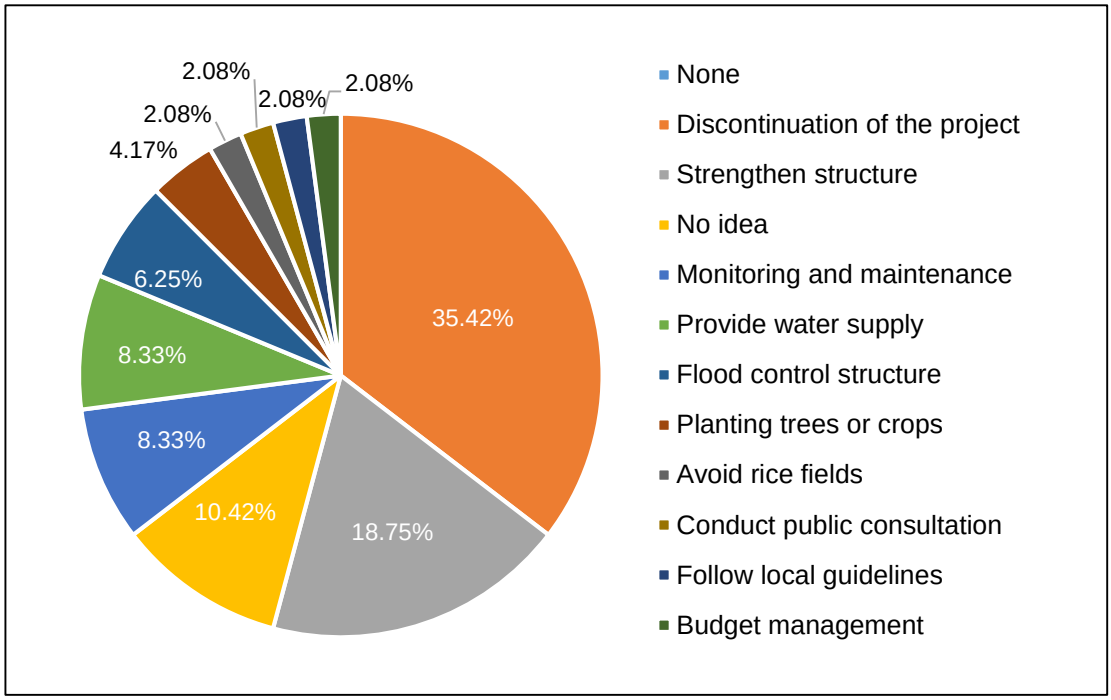


Figure 3.2-28
Ways to Address Negative Impact of the Project as Perceived by Respondents

3.2.4 Acceptability of the Project by the Respondents

Consequently, this section contains data on the respondents and their influences on accepting or rejecting the project. The present survey showed that 51% are willing to have the project carried out in their communities, while 40% disagree with this **(Figure 3.2-29)**.

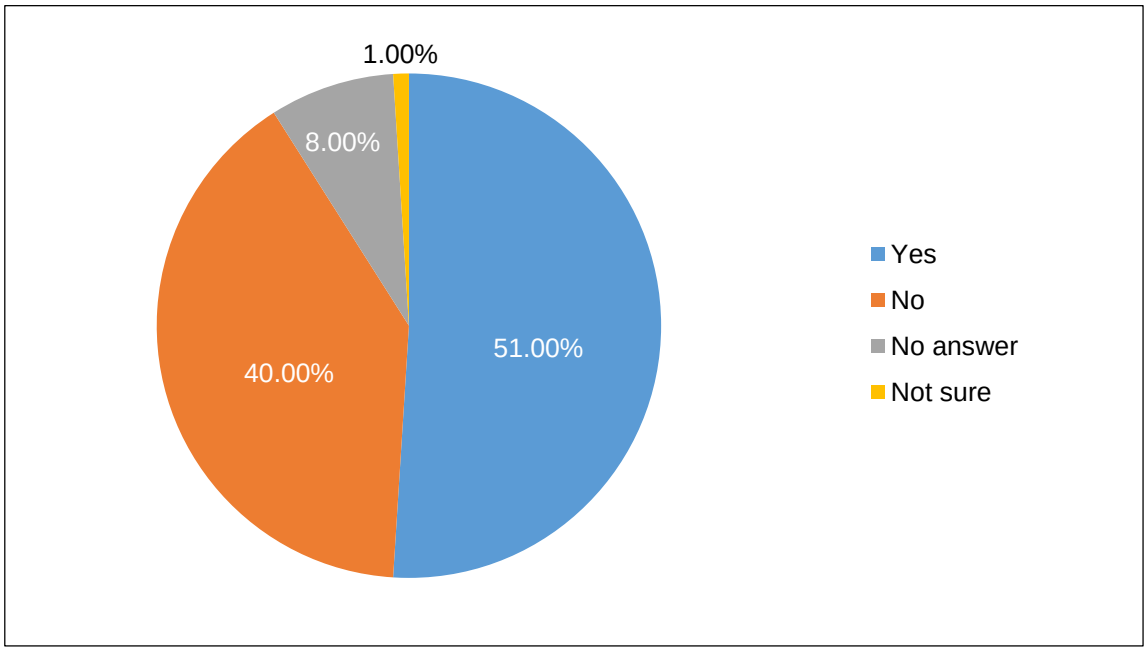


Figure 3.2-29
Acceptance of the Project

Findings from the ISIP Perception Survey conducted also manifest that 43% of the respondents perceived the project to be beneficial to farmers and to improve agriculture and irrigation **(Figure 3.2-30)**. However, 20% of the respondents stated in the surveys that the construction of the project could trigger accidents such as floods and landslides. About 7% of the interviewees did not explain their stand on the project. A portion of the sample size (5%) conveyed that their acceptance would depend on the status of the majority while others (4%) said that they would decide after more information on the project and consultation with their elders is done.

Moreover, claims that the project could affect the water supply (2%) were raised. Respondents manifested uncertainty as the project was not needed yet (2%) and that there was already a pervious project similar to the proposed dam (1%).

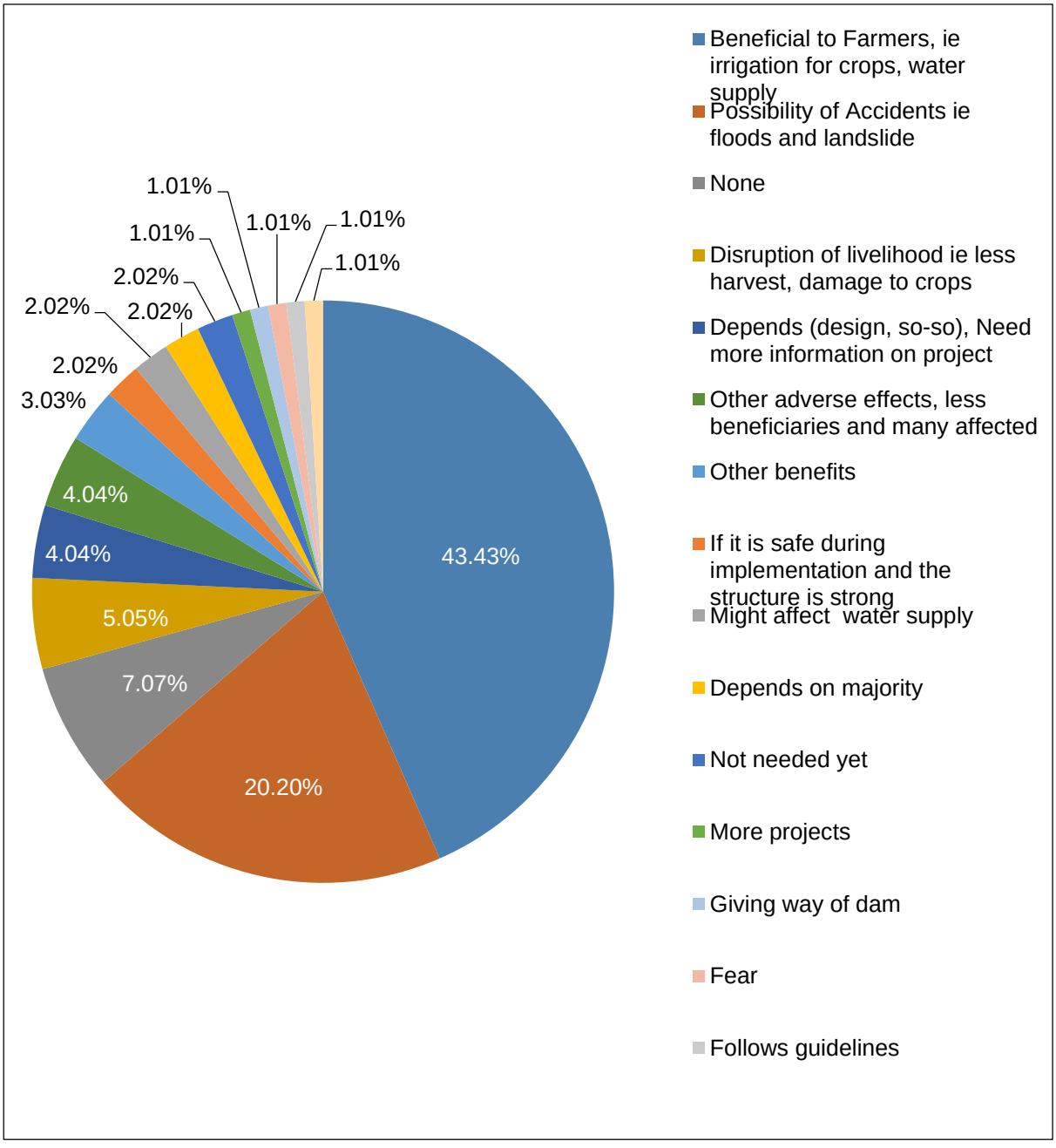


Figure 3.2-30
Reasons on Stand of the Respondents on the Project Implementation

Indigenous People (IPs) are critical stakeholders for projects, hence the survey queried on the ethnic affiliations of the residents. According to the results gathered, 17% of the sample size identify themselves as part of indigenous groups. The Itneg form most of the surveyed population (33%), followed by Inland members (27%), Tingguian (27%), Ilonggo (7%), and Ilocano (7%). **(Figure 3.2-21 and Figure 3.2-32)**.

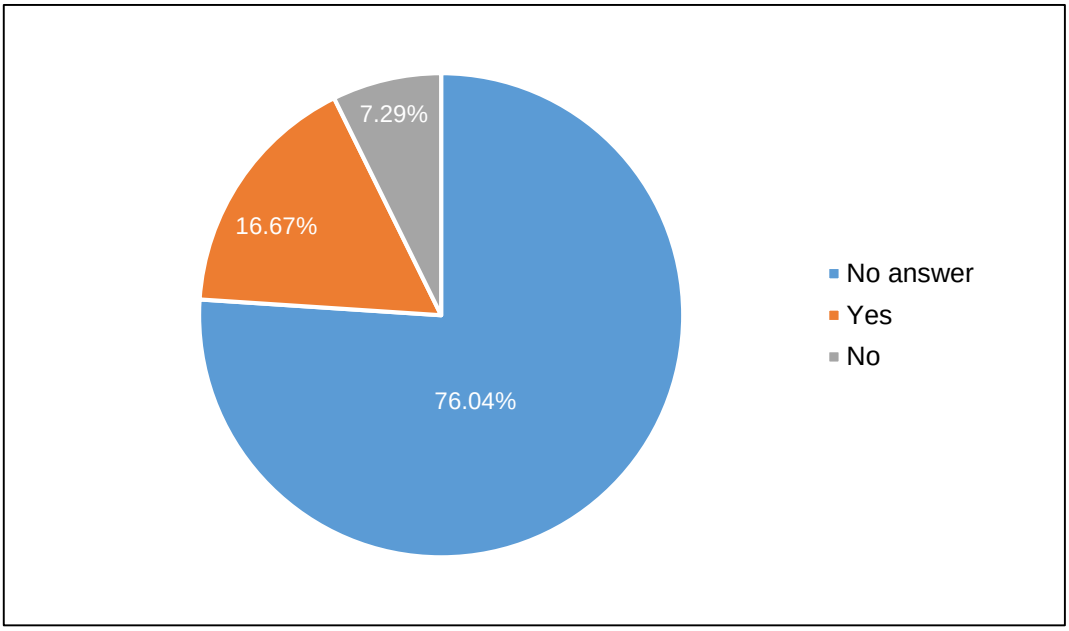


Figure 3.2-31
Membership in IP Groups

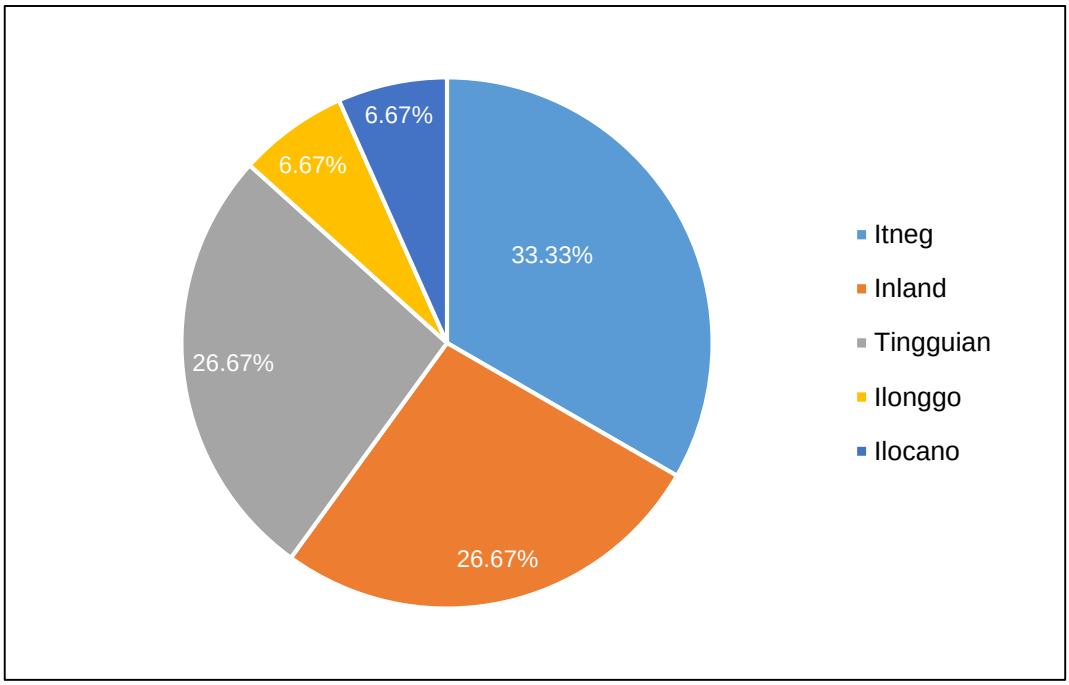


Figure 3.2-32
IP Groups

From the responses in the survey, 90% manifested that the project is not advantageous to the indigenous people upon implementation **(Figure 3.2-33)**. Meanwhile, other means of positive

impact to indigenous groups include mitigation of accidents, benefits to farmers and new sources of water.

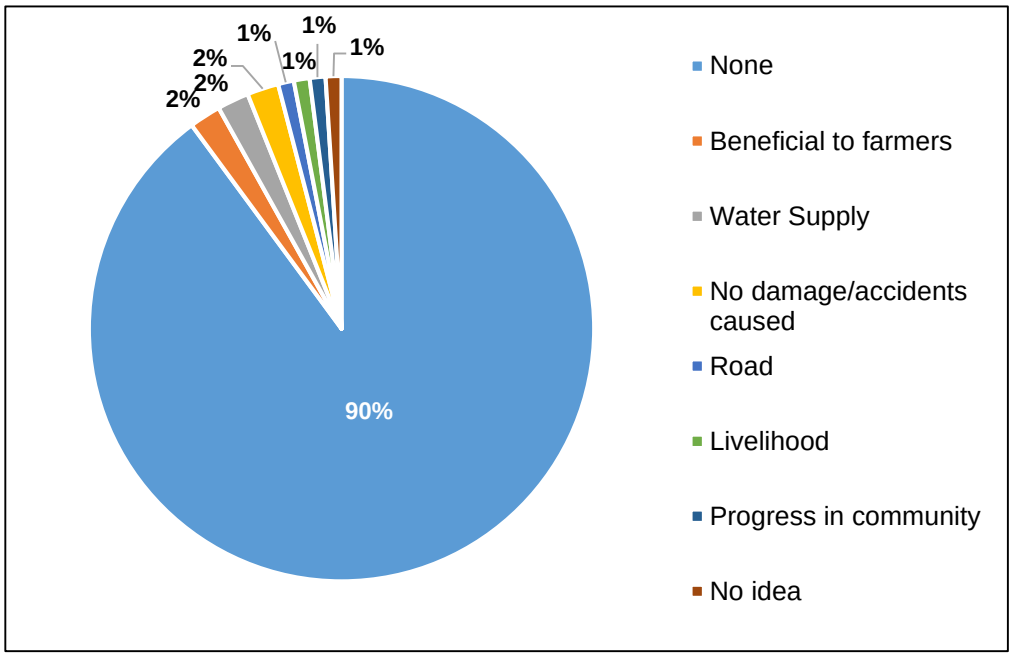


Figure 3.2-33
Ways the Project Helps IP Groups

On how the ethnic groups would contribute to the project, 93% of the respondents did not give answers as shown in **Figure 3.2-34**. Support and participation of the people towards the project (3%), spreading of news regarding the project (1%) and provision of manpower (1%) were options for this concern.

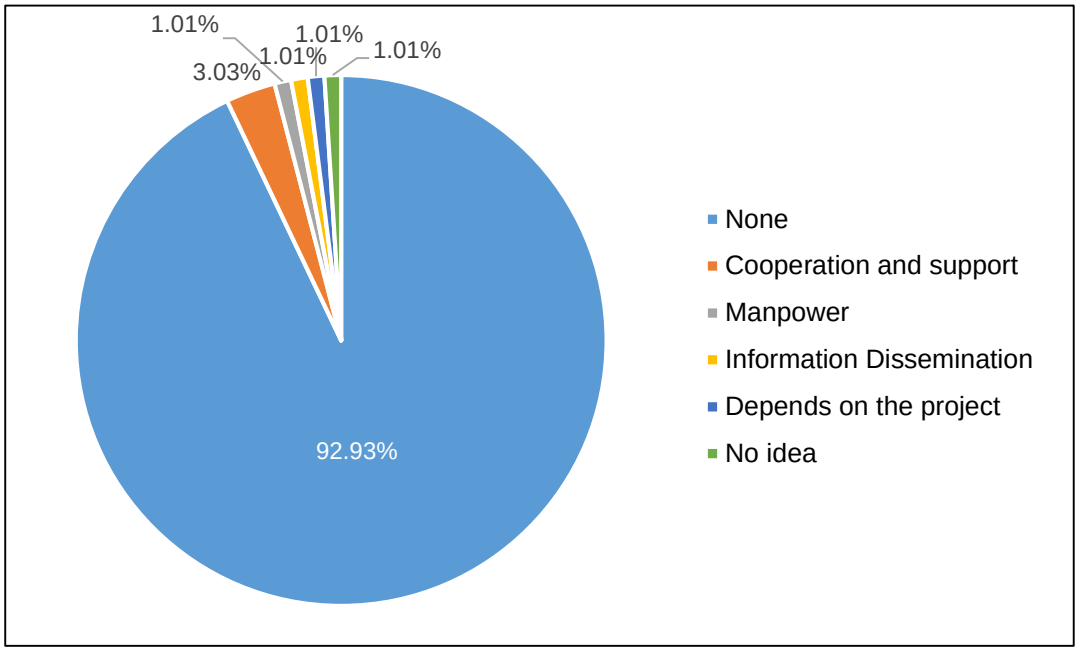


Figure 3.2-34
Ways IP Groups Help in the Project

Subsequently, about 10% of the sample size stated that delays in the project are most likely to occur **(Figure 3.2-35)** while about 3% of the respondents believe that the project will not be delayed. About 87% of the respondents did not provide any information on the question.

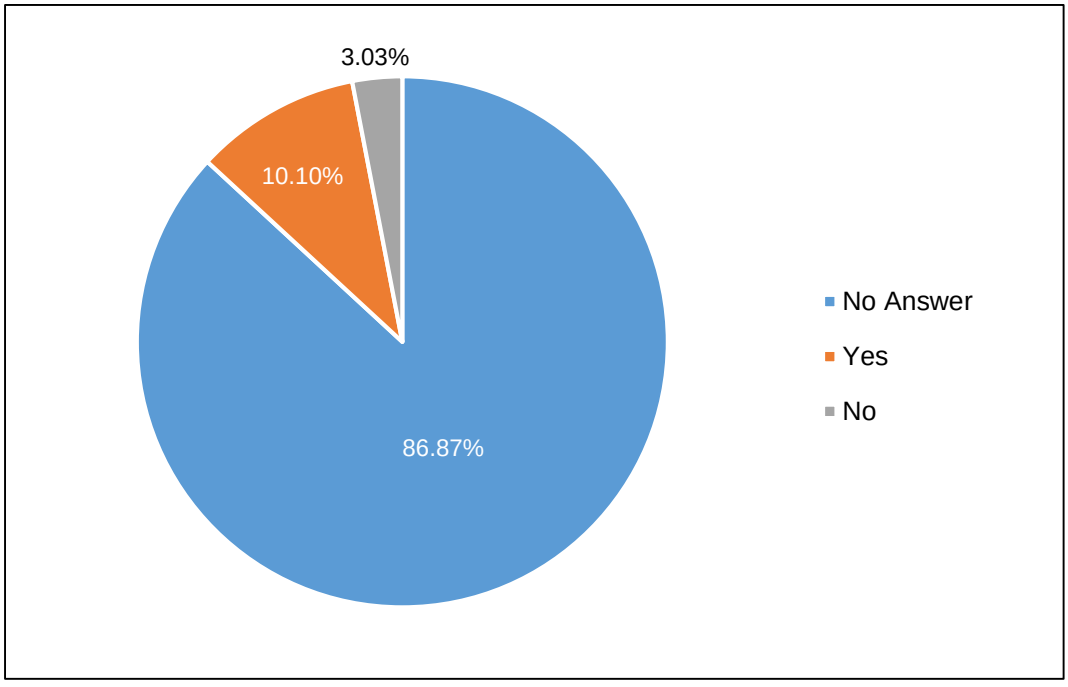


Figure 3.2-35
Possible IP Group Hindrance

With relation to addressing potential factors that would delay the project implementation, about 87% of the respondents did not convey their answers **(Figure 3.2-36)**. A portion (4%) replied that dialogues and meetings, settlement with landowners (1%), information dissemination

(1%) and proper explanation of the project (1%) would contribute in resolving hindrances about the project.

However, changing the location of the project (2%), disapproval of the stakeholders (1%), and loss of livelihood of the concerned population (1%) were responses for possible factors to oppose the project.

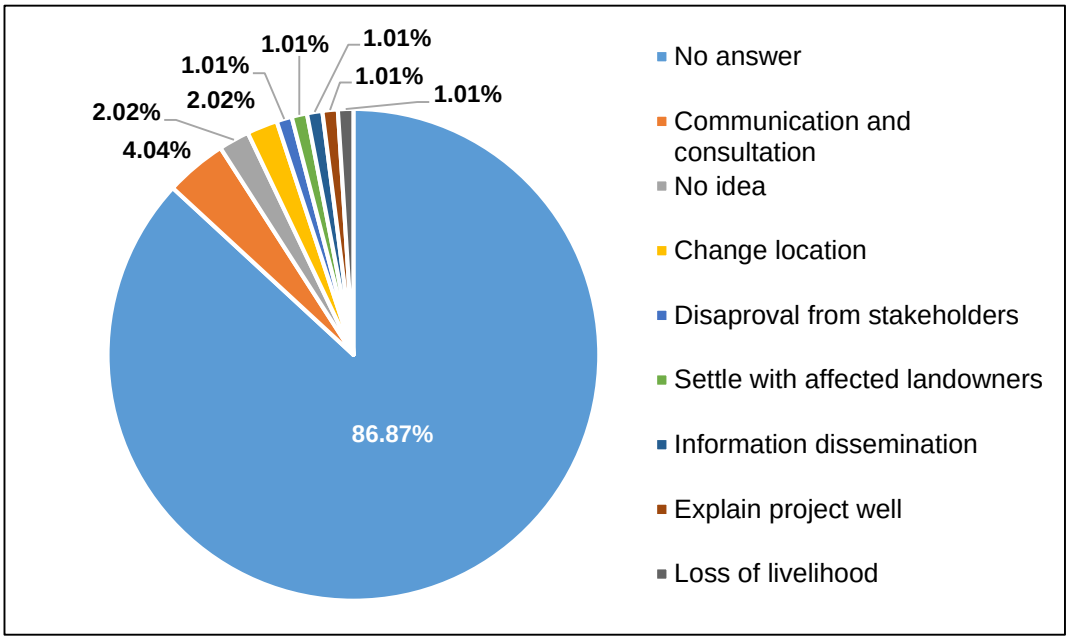


Figure 3.2-36
Ways to Resolve Hindrance

Annexes

Annex 1

Minutes of Meetings of IEC

Annex 1-A
Minutes of Meeting of the IEC for the Municipality of Langiden

Feasibility Study of the Proposed Ilocos Sur Irrigation Projects (Upper Banaoang) Project
Minutes of Meeting

Date:	**Started:**	**Adjourned:**	**Venue:**
03 April 2018	10:00am	12:00nn	Langiden Municipal Hall, Abra
Attendees:		**Topic:**	
Please see attached attendance sheet		Information, Education and Communication (IEC) / Focus Group Discussion (FGD)	

Topic	Session Highlights and Discussion	Person Responsible
1. Introduction	The program was officially opened by Mr. Matias. He greeted and acknowledged the FGD participants. Ms. Florendo led the prayer.	Mr. Leonard Matias, Environmental Specialist, WCI Ms. Erika May D. Florendo, Environmental Specialist, WCI
2. Opening Remarks	Engr. Bustanera endorsed WCI and the project to the Local Government Unit (LGU) of Langiden. He introduced Engr. Bermudez who will be presenting the project details, its benefits and the pros and cons of the project.	Engr. Manuel Bustanera, head of NIA Abra
3. Project Presentation	Engr. Bermudez explained that there are two (2) sub-projects of the Ilocos Sur Irrigation Project (ISIP): the Transbasin Sub-Project and the Upper Banaoang Sub-Project. He focused his discussion on the Upper Banaoang since this Sub-Project will be situated in their area. There are three (3) options for the Upper Banaoang Sub-Project. The first scheme involves the construction of a 25-km Intake and High Density Polyethylene (HDPE) Pipe Conveyance along the right bank of Abra River. This pipe shall convey water to the existing main canal of the Banaoang Pump Irrigation System (PIS) and to the expansion area. The total service area is 3,000 has. The second option, on the other hand, is the Intake and Concrete Cut and Cover conveyance. This scheme proposes concrete cut and cover line of 25 km along the right bank of Abra River to convey water to the existing main canal of the Banaoang PIS and to the expansion area, which has the same alignment as Option 1. However, the most appropriate option is the construction of an earthdam and reservoir to impound water in Barangay Malapaao in Langiden, Abra. An 11-km tunnel running from Malapaao, Langiden, Abra, to	Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI

Topic	Session Highlights and Discussion	Person Responsible
	Laoingen, Sto. Domingo, Ilocos Sur to convey the impounded water to the proposed area. A powerhouse shall be found at the outlet in Sto. Domingo. This scheme is deemed as the most pragmatic among the three due to its viability, effectivity, and cost-efficiency.	
4. Forum (Concerns / Issues raised)	One participant raised his concern regarding the relocation of project affected people as well as the payment for the houses and lots.	Participant, Municipality of Sto. Domingo
	Engr. Bustanera clarified that relocation will undergo several processes and it will not happen abruptly. Just compensation will also be provided.	Engr. Manuel Bustanera, head of NIA Abra
	Engr. Bermudez explained that planning for a project considers all aspects and concerns before its implementation.	Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	Mr. Matias added that the DENR has procedures wherein the Consultant is required to comply to, such as relocation. A thorough survey shall be conducted for the Resettlement Action Plan (RAP) in order to formulate the rightful monetary compensation to the project affected people. Moreover, he stated that the Department of Labor and Employment (DOLE) enables a policy that employment opportunities shall prioritize the project affected people in the hiring process during construction.	Mr. Leonard Matias, Environmental Specialist, WCI
	One participant raised his concern that the project might increase the flooding incidences in their area.	Participant, Municipaliy of Sto. Domingo
	Engr. Bermudez explained that in the design of the reservoir, flood mitigation will be considered. For the protection of the riverbanks downstream of the proposed dam, it will be coordinated with DPWH. He added that the environmental team shall assess the environmental and social conditions of the area which will be incorporated into the study.	Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	Engr. Bustanera explained that the project is still being studied and to let the team conduct their surveys to retrieve better information for the project.	Engr. Manuel Bustanera, head of NIA Abra
5. Focus Group Discussion (FGD)	Following the presentation about the project and its components, the FGD activity was done in the context of the participatory approach, which was led by Mr. Matias.The insights of the13 participants who attended the FGD were captured during the process.	Mr. Leonard Matias, Environmental Specialist, WCI

Topic	Session Highlights and Discussion	Person Responsible
	The participants were asked to write down on the provided metacards the positive and negative impacts of the project in environment, social, economy, gender sensitivity, and health and safety aspects. Additional concerns were also written down in the metacards. The result of the FGD is presented in **Table 1**.	
6. Closing Remarks	Mr. Matias ended the program by thanking everyone for the fruitful and participative group discussion. All the comments, concerns, and suggestions were noted.	Mr. Leonard Matias, Environmental Specialist, WCI
7. Adjournment	The FGD ended at 12:00NN.	WCI

REVIEW AND CONFIRMATION:	
Prepared by:	**Reviewed by:**
 **ERIKA MAY D. FLORENDO**	 **ENGR. HELSY BERMUDEZ**
Environmental Specialist I	Irrigation and Drainage Engineer

Table 1
Results of the Focus Group Discussion

Aspect	Positive Impacts	Negative Impacts
Environment		• Grazing land may be submerged in floodwater • Flooding • Agricultural land may be submerged in floodwater • Cutting of hardwood trees • Deforestation in Malapaao • Flood, erosion hazards
Social	• Enhance livelihood of the locals	• Potable water source may be submerged in water • Existing water system may be affected during construction • No relocation site for the project affected families
Economy	• With more accessible water supply, businesses may start up in Langiden • More employment opportunities • Increase tourism potential of Langiden	• Source of income will lessen
Health and Safety		• Possible drowning
Gender Sensitivity		

Plate 41
Distribution of IEC Materials

Plate 42
Engr. Helsy Bermudez
Discussing the Project Details

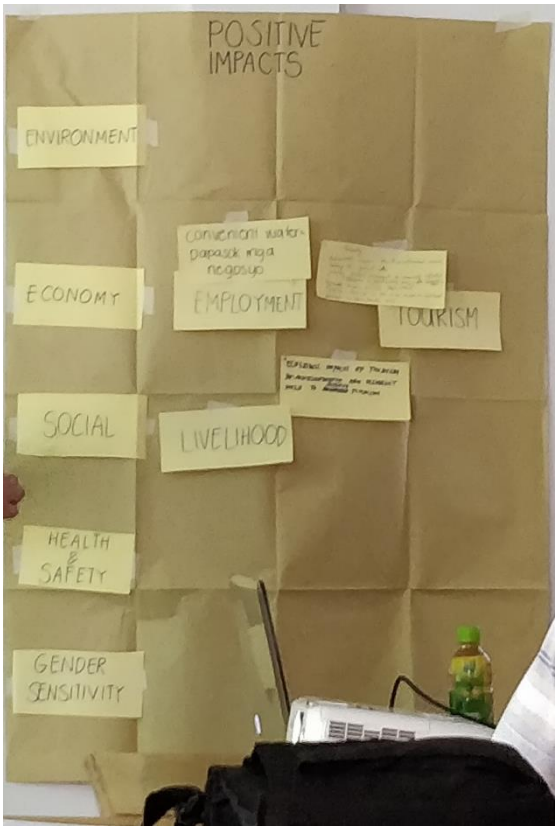


Plate 45
Output of the Participants of the Municipality of Langiden on the Positive Impacts of the Project

Plate 44
Output of the Participants of the Municipality of Langiden on the Negative Impacts of the Project

Plate 43
Participants of the FGD with their Outputs

Annex 1-B
Minutes of Meeting of the IEC for the Municipality of Bantay

Feasibility Study of the Proposed Ilocos Sur Irrigation Projects (Upper Banaoang) Project
Minutes of Meeting

Date:	**Started:**	**Adjourned:**	**Venue:**
04 April 2018	10:00am	12:00nn	Municipal Hall, Bantay, Ilocos Sur
Attendees:		**Topic:**	
Please see attached attendance sheet		Information, Education and Communication (IEC) / Focus Group Discussion (FGD)	

Topic	Session Highlights and Discussion	Person Responsible
1. Opening Statement	The program was officially opened by Ms. Florendo. She greeted and acknowledged the FGD participants.	Ms. Erika May D. Florendo, Environmental Specialist, WCI
2. Introduction	Engr. Palomares endorsed WCI and the project to the Local Government Unit (LGU) of Bantay. She introduced Engr. Helsy Bermudez who will be presenting the project details, the benefits Bantay shall be receiving, and the pros and cons of the project.	Engr. Teresita Palomares, head of NIA Abra
3. Project Presentation	Engr. Bermudez explained the two (2) sub-projects of the Ilocos Sur Irrigation Project (ISIP): the Transbasin Sub-Project and the Upper Banaoang Sub-Project. He focused his discussion on the Upper Banaoang since this Sub-Project will be situated in their area. There are three (3) options for the Upper Banaoang Sub-Project. The first scheme involves the construction of a 25-km Intake and High Density Polyethylene (HDPE) Pipe Conveyance along the right bank of Abra River. This pipe shall convey water to the existing main canal of the Banaoang Pump Irrigation System (PIS) and to the expansion area. The total service area is 3,000 has. The second option, on the other hand, is the Intake and Concrete Cut and Cover conveyance. This scheme proposes concrete cut and cover line of 25 km along the right bank of Abra River to convey water to the existing main canal of the Banaoang PIS and to the expansion area, which has the same alignment as Option 1. However, the most appropriate option is the construction of an earthdam and reservoir to impound water in Barangay Malapaao in Langiden, Abra. An 11-km tunnel running from Malapaao, Langiden, Abra, to Laoingen, Sto. Domingo, Ilocos Sur to convey the impounded water to the proposed area. A powerhouse shall be found at the outlet in Sto. Domingo. This scheme is deemed as the most pragmatic	Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI

Topic	Session Highlights and Discussion	Person Responsible
	among the three due to its viability, effectivity, and cost-efficiency.	
4. Forum (Concerns / Issues raised)	Mr. Gorospe asked if the Consultant has applied for an Environmental Compliance Certificate (ECC) because the proposed site location is said to be a protected area. The project site for ISIP is also the proposed site for their future tree-planting project. Mr. Matias answered that the project is currently undertaking the EIA process to obtain the ECC. This IEC activity is the first step in the process.	Mr. Jonathan Gorospe, Assessor Office, Municipality of Bantay Mr. Leonard Matias, Environmental Specialist, WCI
	Mr. Gorospe asked whether the Municipality of Langiden approves the implementation of the project since the said municipality will not receive any benefit. Engr. Bermudez replied that Langiden understands the need for the project; thus, no strong opposition of the project from this municipality. Additionally, the access road that will be built in the project area will greatly benefit the residents.	Mr. Jonathan Gorospe, Assessor Office, Municipality of Bantay Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	Mr. Gorospe asked whether there will be a shortage in the water supply of the Langiden reservoir since there will be diversion of water flow to the tunnel. Engr. Bermudez said that this will not happen with the engineering designs and plans of the project.	Mr. Jonathan Gorospe, Assessor Office, Municipality of Bantay Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	One participant made a comparison between the Upper Banaoang Project and the Banaoang Pump Irrigation Project (BPIP) as the participants fear that the mistakes of the BPIP may be repeated in the Upper Banaoang Project. The mistake of the BPIP made their Shallow Tube Well (STW) deeper than it should have been. Engr. Bermudez emphasized that the Upper Banaoang Irrigation Project will supplement the Banaoang PIS by providing irrigation services to areas that are not covered by BPIS. And if the Banaoang PIS reaches the time that it will deteriorate, the Upper Banaoang Irrigation Project will be helpful in immediately mitigating the effects of its deterioration.	Participant, Municipality of Bantay Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	One participant asked where the canal will run through. Engr. Palomares answered that it will be located in Barangay Lingsat.	Participant, Municipality of Bantay Engr. Teresita Palomares, NIA

Topic	Session Highlights and Discussion	Person Responsible
	The Barangay Captain Lopez expressed his concern over their water source stating that the Upper Banaoang Project might affect their drinking water found in Bantaoay River, Nagbettedan River, and Maungungor River. He also stated his desire for another Public Consultation wherein the participants will come from Barangay Lingsat. Lastly, he raised the issue that the project might also affect the water source of NAWASA. Engr. Bermudez answered the issue by saying that the tunnel will not pass through Barangay Lingsat; thus, the water sources in the area will not be affected.	Roberto Lopez, Barangay Captain, Barangay Lingsat Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
5. Focus Group Discussion (FGD)	Following the presentation about the project and its components, the FGD activity was done in the context of the participatory approach, which was led by Ms. Florendo.The insights of the11 participants who attended the FGD were captured during the process. The participants were asked to write down on the provided metacards the positive and negative impacts of the project to the environment, social, economy, gender sensitivity, and health and safety aspects. Additional concerns were also written down in the metacards. The result of the FGD is presented in **Table 1**.	Ms. Erika May D. Florendo, Environmental Specialist, WCI
6. Closing Remarks	Ms. Florendo ended the program by thanking everyone for the fruitful and participative group discussion. All the comments, concerns, and suggestions were noted.	Ms. Erika May D. Florendo, Environmental Specialist, WCI
7. Adjournment	The FGD ended at 12:00NN.	WCI

REVIEW AND CONFIRMATION:	
Prepared by:	**Reviewed by:**
	
ERIKA MAY D. FLORENDO	**ENGR. HELSY BERMUDEZ**
Environmental Specialist I	Irrigation and Drainage Engineer

Table 1
Results of the Focus Group Discussion

Aspect	Positive Impacts	Negative Impacts
Environment		• May affect potential reforestation site • Possible degradation of groundwater/spring • Destroy animal habitat • Cause of flooding
Social	• Helps the farmers	
Economy		
Health and Safety		
Gender Sensitivity		
Other concerns: • Request for another public consultation but will be held in the affected barangay • Request for more services areas		

Plate 42
Distribution of IEC Materials

Plate 43
Engr. Helsy Bermudez Discussing Project Details

Plate 44
Output of the Participants of the Municipality of Bantay on the Positive Impacts of the Project

Plate 45
Output of the Participants of the Municipality of Bantay on Negative Impacts of the Project

Plate 46
Participants of the FGD with their Outputs

Annex 1-C
Minutes of Meeting of the IEC for the Municipality of Sto. Domingo

Feasibility Study of the Proposed Ilocos Sur Irrigation Projects (Upper Banaoang) Project
Minutes of Meeting

Date:	**Started:**	**Adjourned:**	**Venue:**
05 April 2018	10:00am	12:00nn	Sto. Domingo, Ilocos Sur
Attendees:		**Topic:**	
Please see attached attendance sheet		Information, Education and Communication (IEC) / Focus Group Discussion (FGD)	

Topic	**Session Highlights and Discussion**	**Person Responsible**
1. Opening Statement	The program was officially opened by Ms. Florendo. She greeted and acknowledged the FGD participants.	Ms. Erika May D. Florendo, Environmental Specialist, WCI
2. Introduction	Engr. Palomares endorsed WCI and the project to the Local Government Unit (LGU) of Sto. Domingo. She introduced Engr. Bermudez who will be presenting the project details, its benefits and the pros and cons of the project.	Engr. Teresita Palomares, head of NIA Abra
3. Presentation	Engr. Bermudez explained the two (2) sub-projects of the Ilocos Sur Irrigation Project (ISIP): the Transbasin Sub-Project and the Upper Banaoang Sub-Project. He focused his discussion on the Upper Banaoang since this Sub-Project will be situated in their area. There are three (3) options for the Upper Banaoang Sub-Project. The first scheme involves the construction of a 25-km Intake and High Density Polyethylene (HDPE) Pipe Conveyance along the right bank of Abra River. This pipe shall convey water to the existing main canal of the Banaoang Pump Irrigation System (PIS) and to the expansion area. The total service area is 3,000 has. The second option, on the other hand, is the Intake and Concrete Cut and Cover conveyance. This scheme proposes concrete cut and cover line of 25 km along the right bank of Abra River to convey water to the existing main canal of the Banaoang PIS and to the expansion area, which has the same alignment as Option 1. However, the most appropriate option is the construction of an earthdam and reservoir to impound water in Barangay Malapaao in Langiden, Abra. An 11-km tunnel running from Malapaao, Langiden, Abra, to Laoingen, Sto. Domingo, Ilocos Sur to convey the impounded water to the proposed area. A powerhouse shall be found at the outlet in Sto. Domingo. This scheme is deemed as the most pragmatic among the three due to its viability, effectivity, and cost-efficiency.	Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
4. Forum (Concerns / Issues raised)	The participants depicted their enthusiasm for the project by requesting that it may be constructed soon. However, they showed concern that the project might induce calamities	Participants, Municipality of Sto. Domingo

Topic	Session Highlights and Discussion	Person Responsible
	on the flood and erosion prone areas. In addition to this, respiratory health problems may arise due to dust generation during construction; thus, may lead to health expenses of the affected people. Engr. Bermudez stated that the team inspected the site to assess and consider the environmental and social conditions in the study.	
	One participant asked about the funding of the flood mitigating infrastructures. Engr. Bermudez stated that it shall be discussed in the Detailed Engineering and Design stage. He said that the stakeholders should not worry about the negative impacts of the project because all aspects will be considered in the project.	Participant, Municipality of Sto. Domingo Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	A participant asked if the construction of project components will affect the existing dam project in the area. Engr. Bermudez clarified that the outlet will be in Barangay Laoingen and the project will not affect the existing dam project there.	Participant, Municipality of Sto. Domingo Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
5. Focus Group Discussion (FGD)	Following the presentation about the project and its components, the FGD activity was done in the context of the participatory approach, which was led by Ms. Florendo.The insights of the14 participants who attended the FGD were captured during the process. The participants were asked to write down on the provided metacards the positive and negative impacts of the project to the environment, social, economy, gender sensitivity, and health and safety aspects. Additional concerns were also written down in the metacards. The result of the FGD is presented in **Table 1**.	Ms. Erika May D. Florendo, Environmental Specialist, WCI
6. Closing remarks	Ms. Florendo ended the program by thanking everyone for the fruitful and participative group discussion. All the comments, concerns, and suggestions were noted.	Ms. Erika May D. Florendo, Environmental Specialist, WCI
7. Adjournment	The FGD ended at 12:00NN.	WCI

REVIEW AND CONFIRMATION:	
Prepared by:	**Reviewed by:**
	
ERIKA MAY D. FLORENDO	**ENGR. HELSY BERMUDEZ**
Environmental Specialist I	Irrigation and Drainage Engineer

Table 1
Results of the Focus Group Discussion

Aspect	Positive Impacts	Negative Impacts
Environment	• Improved quality of agricultural products • Plants and flowers may be watered	• Possible loss of habitats for animals • Deforestation • Landslide • Flooding • Increase groundwater level in irrigated areas • Decrease water flow downstream of sourced river and stream
Social	• For non-farmers, water for domestic use may benefit them • Enhanced livelihood • Improved agriculture and agricultural lands • Provides an additional tourist spot to the municipality	• Degradation/loss of ancestral domain
Economy	• More employment opportunities for locals • Increase in profit for farmers • Easy access for water irrigation • No need to use water pumps	• Possible accidents • Increase of casualties during natural disasters • Increase in water-borne diseases • Increase in respiratory diseases during construction • Increased incidence in water-related diseases
Health and Safety	• Increase in family income will provide more opportunities for people to afford health expenditures • Increase in overall productivity may lead to more funds for preventive health projects	• Increase in work-related accidents during construction • Drowning • Increased incidences in water-related diseases
Gender Sensitivity	• More employment opportunities for women	

Plate 47
Distribution of IEC Materials

Plate 48
Engr. Helsy Bermudez Discussing the Project Details

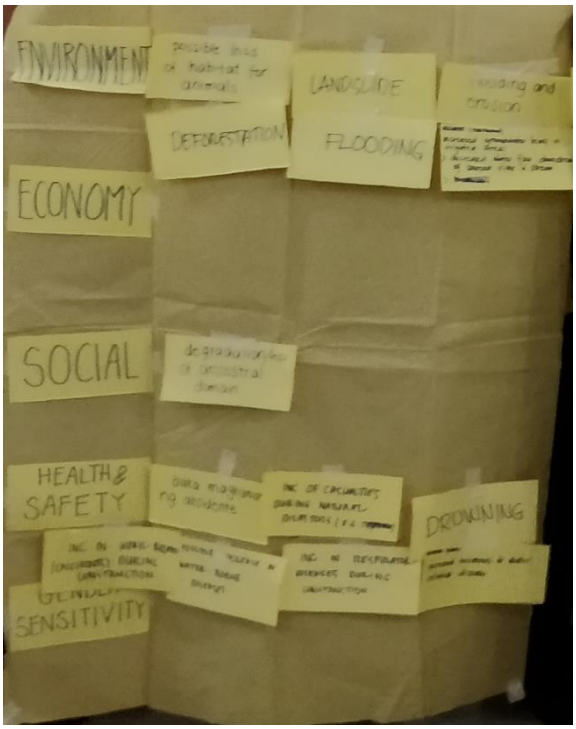


Plate 49
Output of the Participants of the Municipality of Sto. Domingo on the Positive Impacts of the Project

Plate 50
Output of the Participants of the Municipality of Sto. Domingo on the Negative Impacts of the Project

Plate 51
Participants of the FGD with their Outputs

Annex 1-D
Minutes of Meeting of the IEC for the Irrigation's Association

Feasibility Study of the Proposed Ilocos Sur Irrigation Projects (Upper Banaoang) Project
Minutes of Meeting

Date:	**Started:**	**Adjourned:**	**Venue:**
05 April 2018	2:00pm	4:00pm	NIA-BPIS, San Ildefonso, Ilocos Sur
Attendees:		**Topic:**	
Please see attached attendance sheet		Information, Education and Communication (IEC) / Focus Group Discussion (FGD)	

Topic	Session Highlights and Discussion	Person Responsible
1. Introduction	The program was officially opened by Mr. Matias. He greeted and acknowledged the FGD participants from the presidents of the Irrigation Associations of Ilocos Sur.	Mr. Leonard Matias, Environmental Specialist, WCI
2. Opening Remarks	Engr. Palomares endorsed WCI and the project to the presidents of the Irrigation Associations of Ilocos Sur. She introduced Engr. Helsy Bermudez who will be presenting the project details, the benefits and the pros and cons of the project.	Engr. Teresita Palomares, head of NIA Abra
3. Project Presentation	Engr. Bermudez explained the two (2) sub-projects of the Ilocos Sur Irrigation Project (ISIP): the Transbasin Sub-Project and the Upper Banaoang Sub-Project. He focused his discussion on the Upper Banaoang since this Sub-Project will be situated in their area. There are three (3) options for the Upper Banaoang Sub-Project. The first scheme involves the construction of a 25-km Intake and High Density Polyethylene (HDPE) Pipe Conveyance along the right bank of Abra River. This pipe shall convey water to the existing main canal of the Banaoang Pump Irrigation System (PIS) and to the expansion area. The total service area is 3,000 has. The second option, on the other hand, is the Intake and Concrete Cut and Cover conveyance. This scheme proposes concrete cut and cover line of 25 km along the right bank of Abra River to convey water to the existing main canal of the Banaoang PIS and to the expansion area, which has the same alignment as Option 1. However, the most appropriate option is the construction of an earthdam and reservoir to impound water in Barangay Malapaao in Langiden, Abra. An 11-km tunnel running from Malapaao, Langiden, Abra, to Laoingen, Sto. Domingo, Ilocos Sur to convey the impounded water to the proposed area. A powerhouse shall be found at the outlet in Sto. Domingo. This scheme is deemed as the most pragmatic	Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI

Topic	Session Highlights and Discussion	Person Responsible
	among the three due to its viability, effectivity, and cost-efficiency.	
4. Forum (Concerns / Issues raised)	With regards to the 11-km tunnel, the presidents highly insisted that it should not be built on any of the springs. Engr. Bermudez answered that the existing springs in the area will be considered in the design of the tunnel.	Participant, Presidents of the Irrigation Associations of Ilocos Sur Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	Engr. Palomares asked if the team has visited the site. She stated that the Mayor of Bantay said that the BPIS destroyed the land. This is the reason why the outlet of the tunnel was transferred to Sto. Domingo. Engr. Bermudez replied that there is more focus on the environmental and social conditions of the area to eliminate the possibility of mistakes. Moreover, Engr. Bermudez emphasized that the Upper Banaoang Irrigation Project will supplement the Banaoang PIS by providing irrigation services to areas that are not covered by BPIS. And if the Banaoang PIS reaches the time that it will deteriorate, the Upper Banaoang Irrigation Project will be helpful in immediately mitigating the effects of its deterioration.	Engr. Teresa Palomares, NIA Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	One participant asked if the mayor of Langiden gave his approval on the project. Engr. Bermudez answered that the mayor gave his approval to the feasibility of the project.	Presidents of the Ilocos Sur Irrigation Associations Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	The participants discussed among themselves that the project might trigger landslides and the volcano in Bantay. Engr. Bermudez answered that the existing condition in the area will be considered in the design.	Presidents of the Ilocos Sur Irrigation Associations Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	The participants discussed among themselves that this project might lead to pollution since the locals threw trash in the BPIS canals. Engr. Bermudez answered that NIA will closely coordinate with the local government to address this issue.	Presidents of the Ilocos Sur Irrigation Associations Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI
	Engr. Palomares said that the project might lead to crimes such as murders since there have been incidences of homicide in the BPIS Project. The BPIS caused disputes among people. Engr. Bermudez answered that NIA will closely coordinate with the local government to address this issue.	Engr. Teresa Palomares, NIA Engr. Helsy Bermudez, Irrigation and Drainage Engineer, WCI

Topic	Session Highlights and Discussion	Person Responsible
5. Focus Group Discussion (FGD)	Following the presentation about the project and its components, the FGD activity was done in the context of the participatory approach, which was led by Mr. Matias.The insights of the14 participants who attended the FGD were captured during the process. The participants were asked to write down on the provided metacards the positive and negative impacts of the project to the environment, social, economy, gender sensitivity, and health and safety aspects. Additional concerns were also written down in the metacards. The result of the FGD is presented in **Table 1**.	Mr. Leonard Matias, Environmental Specialist, WCI
6. Closing Remarks	Mr. Matias ended the program by thanking everyone for the fruitful and participative group discussion. All the comments, concerns, and suggestions were noted.	Mr. Leonard Matias, Environmental Specialist, WCI
7. Adjournment	The FGD ended at 4:00pm.	WCI

REVIEW AND CONFIRMATION:	
Prepared by:	**Reviewed by:**
	
ERIKA MAY D. FLORENDO	**ENGR. HELSY BERMUDEZ**
Environmental Specialist I	Irrigation and Drainage Engineer

Table 1
Results of the Focus Group Discussion

Aspects	Positive Impacts	Negative Impacts
Environment	• Potential tourist destination • Increase water supply in areas that are deficient in water supply • Brighter surroundings • Plants become healthier	• Flooding • Destruction of virgin forests
Social	• More jobs • Source of income because of the tourism potential • Better standards of living of the farmers	• People may engage in vices
Economy	• Boost agricultural production • Increase rice production to at least double the current rate, thereby decreasing rice importation • Less expenses on irrigation • More areas will be benefited • Cheaper rice prices • Importation of rice may be stopped • Increase the volume of rice lands to at least 50% • Water can be accessible to areas that were scarce on water supply • Increase food production such as rice, corn, etc.	• Decrease land area for tobacco thereby lessening the share for RA 7171 for the affected municipalities • Decrease land area for high value crops
Health and Safety		• Exposure to insect-carrying diseases because of the presence of water in canals • Drowning in the canals • Safety measures when flooding occur
Gender Sensitivity	• More work is created for women	

Plate 52
Distribution of IEC Materials

Plate 53
Engr. Hesly Bermudez Discussing the Project Details

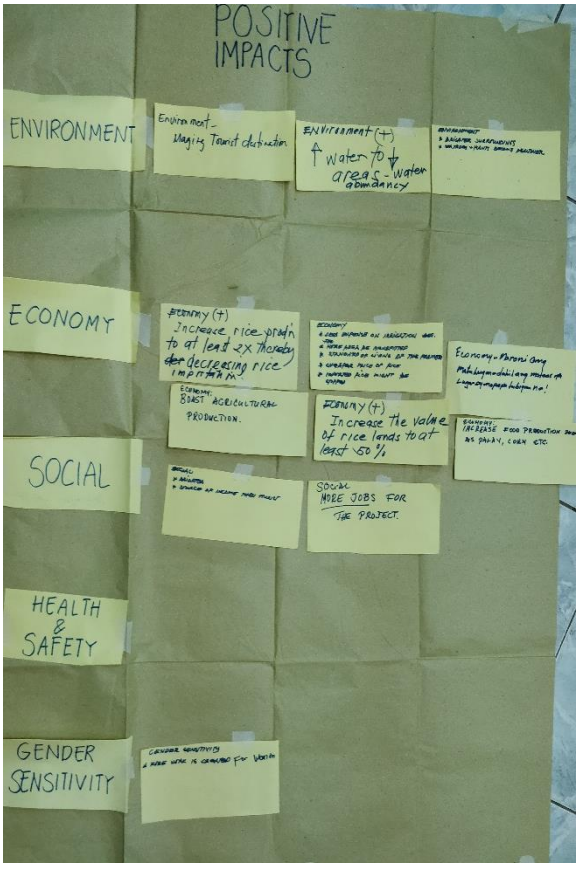


Plate 58
Output of the Participants of the NIA Ilocos Sur on the Positive Impacts of the Project

Plate 59
Output of the Participants of the NIA Ilocos Sur on the Negative Impacts of the Project

Plate 60
Participants of the FGD with their Outputs

Annex 2

Letters Requesting for IEC

WOODFIELDS CONSULTANTS, INC.
A Planning and Engineering Consulting Firm

153 Kamias Road Exte
Kamias, Quezon City, 1102 Philip
wci.co
(632)436-7360/436-7365/925
(632)436-

16-004-LTR-18-012

19 March 2018

HON. ARTEMIO DONATO, JR.
Mayor
Municipality of Langiden
Province of Abra

Subject: **Request for Focus Group Discussion (FGD) with the representatives from the Municipality of Langiden and People's Organizations from Barangay Malapaao**

Dear Sir:

Greetings!

This letter refers to the Conduct of the Feasibility Study on the Proposed Ilocos Sur Irrigation Project (ISIP), which is being implemented by the National Irrigation Administration (NIA)-Regional Office I with Woodfields Consultants, Inc. as the Consultant of the project.

In compliance to the requirements of the Department of Environmental and Natural Resources (DENR) Administrative Order (DAO) 2003–30, our team was requested to conduct a FGD and Key Informant Interview (KII) with the representatives of the project affected LGUs and project affected families. Having said that, we humbly ask to schedule the **FGD and KII for Barangay Malapaao on April 3, 2018, 10:00 am at Municipality of Langiden, Abra**.

Moreover, we would like to request your assistance in inviting the following:

- Vice Mayor of Municipality of Langiden
- Agricultural Engineer
- Municipal Environment and Natural Resources Officer
- Barangay Captain of Barangay Malapaao
- Municipal Engineer
- Health Officer/ Representative
- Disaster Risk Reduction Officer
- Municipal Planning and Development Officer
- Representatives from the organizations in Barangay Malapaao (if any):
  - Women's organization
  - Youth Organization
  - Farmer's Organization
  - Homeowners near the river
  - Land owners near the river
  - Senior Citizens
  - Irrigation Organizations

We are looking forward to your valuable support and assistance in this project.

Thank you very much.

Very truly yours,

KRISTINE ANN S. MARTINEZ
Vice President- Environment Management and Engineering Department
Woodfields Consultants, Inc.
Contact Number: 0927-638-9054
Email: kmartinez@wci.com.ph

RECEIVED
25 MAR 2018

WOODFIELDS CONSULTANTS, INC.
A Planning and Engineering Consulting Firm

153 Kamias Road Extension
Kamias, Quezon City, 1102 Philippines
wci.com.ph
(632)436-7360/436-7365/925-3621
(632)436-7372

16-004-LTR-18-013

19 March 2018

OFFICE OF THE MAYOR
RECEIVED BY: cha
DATE: 04-04-2018

HON. SAMMY BOY PARILLA
Mayor
Municipality of Bantay
Province of Ilocos Sur

Subject: **Request for Focus Group Discussion (FGD) with the representatives from the Municipality of Bantay and People's Organizations from Barangay Lingsat**

Dear Sir:

Greetings!

This letter refers to the Conduct of the Feasibility Study on the Proposed Ilocos Sur Irrigation Project (ISIP), which is being implemented by the National Irrigation Administration (NIA)-Regional Office I with Woodfields Consultants, Inc. as the Consultant of the project.

In compliance to the requirements of the Department of Environmental and Natural Resources (DENR) Administrative Order (DAO) 2003–30, our team was requested to conduct a FGD and Key Informant Interview (KII) with the representatives of the project affected LGUs and project affected families. Having said that, we humbly ask to schedule the **FGD and KII for Barangay Lingsat on April 4, 2018, 10:00 am at Municipality of Bantay, Ilocos Sur**.

Moreover, we would like to request your assistance in inviting the following:

- Vice Mayor of Municipality of Bantay
- Agricultural Engineer
- Municipal Environment and Natural Resources Officer
- Barangay Captain **Barangay Lingsat**
- Municipal Engineer
- Health Officer/ Representative
- Disaster Risk Reduction Officer
- Municipal Planning and Development Officer
- Representatives from the organizations in **Barangay Lingsat** (if any):
  - Women's organization
  - Youth Organization
  - Farmer's Organization
  - Homeowners near the river
  - Land owners near the river
  - Senior Citizens
  - Irrigation Organizations

We are looking forward to your valuable support and assistance in this project.

Thank you very much.

Very truly yours,

KRISTINE ANN S. MARTINEZ
Vice President- Environment Management and Engineering Department
Woodfields Consultants, Inc.
Contact Number: 0927-638-9054
Email: kmartinez@wci.com.ph

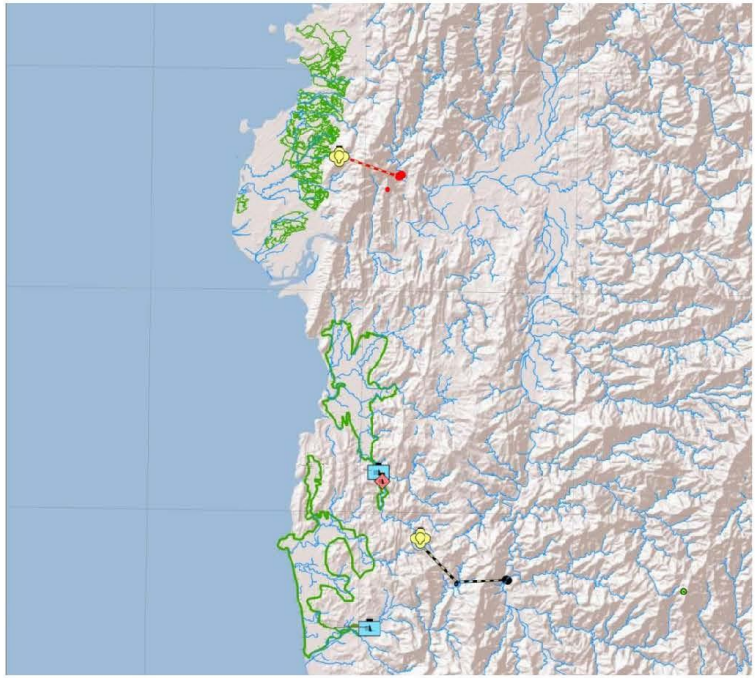
Annex 3

IEC Materials

Woodfields Consultants, Inc.

(back page)

NATIONAL IRRIGATION ADMINISTRATION



Feasibility Study of the Proposed Ilocos Sur Irrigation Projects (Ilocos Sur Transbasin Project & Upper Banaoang Irrigation Project)

(front page)

CONSULTING SERVICES FOR THE FEASIBILITY STUDY OF THE PROPOSED ILOCOS SUR IRRIGATION PROJECTS (ILOCOS SUR TRANSBASIN PROJECT & UPPER BANAOANG IRRIGATION PROJECT)

Background of the Project

Agriculture is one of the major sectors of economy that contributes to gross domestic product (GDP) and one of the primary objectives of the Government is to increase self-sufficiency in rice. In order to attain this, there is a need to increase in rice production through the expansion of irrigated areas.

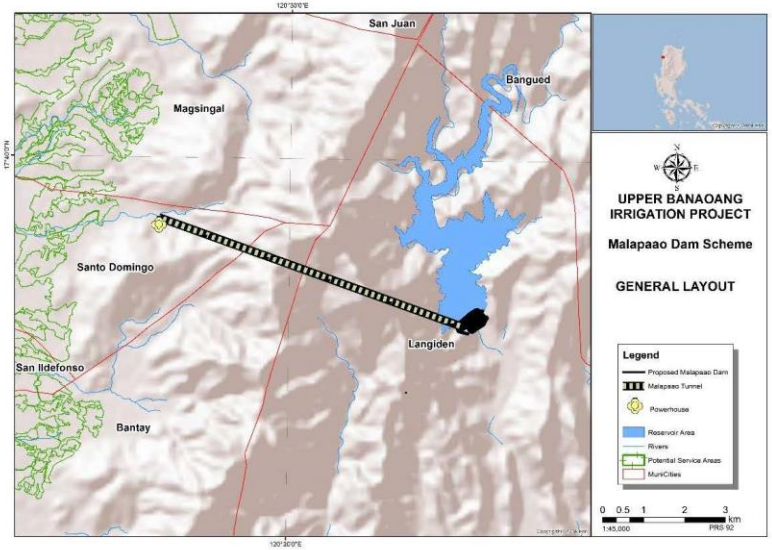
The Updated Philippine Development Plan (PDP) 2011-2016 spells out Ilocos Sur Irrigation Project (ISIP) as one of the thrusts of improving food security and increasing rural income by enhancing farm productivity. The project focus on rice production is expected to complement the Government's Food Staples Self-Sufficiency Program (FSSP).

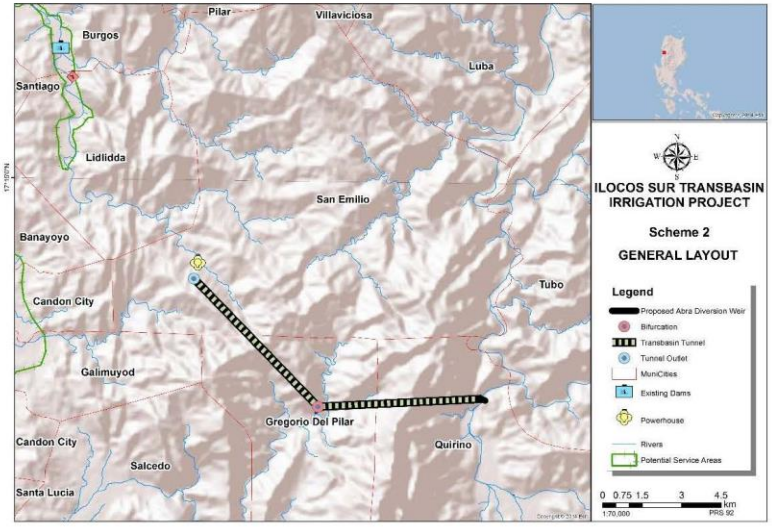
The conduct of Feasibility Study (FS) of the proposed ISIP is being implemented by the National Irrigation Administration (NIA) - Regional Office 1 with Woodfields Consultants, Inc. (WCI), as the Consultants of the Project.

ISIP has two (2) sub-projects: the Transbasin Project and the Upper Banaoang Irrigation Project. The components of the 2 sub-projects are shown below:

Ilocos Sur Transbasin	Location
Diversion works at Abra River;	Sitio Eteb, Brgy. Malideg, Quirino
Transbasin Tunnel;	Brgy. Malideg and Cayus, Quirino Brgy. Poblacion Norte and Alfonso, Gregorio Del Pilar San Miliano and Paltoc, San Emilio
Power Plant at the Dayouan River;	Brgy. Paltoc, San Emilio
Diversion works at the Santa Maria River;	Brgy. Begui-Walin, Lidlidda
Bifurcation and Tunnel Outlet	Brgy. Alfonso, Gregorio Del Pilar
Irrigation and drainage systems.	Municipalities of Lidlidda, Burgos, Sta. Maria, Narvacan and Nagbukel
Upper Banaoang Irrigation	
Impounding dam	Brgy. Malapaao, Langiden
Diversion tunnel	Malapaao, Langiden Lingsat, Bantay Laoingen, Sto. Domingo
Power plant	Laoingen, Sto. Domingo
Irrigation and drainage systems.	Municipalities of Domingo, San Ildefonso Bantay, Magsingal and San Juan

The Feasibility Study shall cover the technical and financial aspects of the proposed irrigation project, including environmental study, vulnerability assessment, preparation of sustainability plans, and analysis of alternative financing schemes.





Annex 4

Attendance Sheets of IEC

Feasibility Study of Proposed Ilocos Sur Irriagtion Projects
(Ilocos Sur Transbasin Sub-Project)
PUBLIC SCOPING

Venue: Brgy Alfonso Covered court
Date: 13 November 2018
Time: 10:00am - 12:02 pm

No	Name	Age	Gender	Address	Agency/Organization	Contact Number	e-mail	Signature
1	Mariona B. Dumahis	43	F	ALFONSO G. del pilar		09357849269		
2	Martina Sumao-i	50	F	〃				
3	Lorengo Gagarin	59	M	〃				
4	Eulalio Bifeng	100	M	〃				
5	Jazze Pangesban	37	M	〃		09064788529		
6	Nestor Cawaling	39	M	〃				
7	Marcelo Bintor	60	M	〃				
8	Zaldy Gallardo	49	M	〃				
9	Gina Managuey	42	F	〃		09064919723		
10	Bickson Boldan	45	M	〃		09656581083		
11	Gerald Managuey	36	M	〃		09272990410		
12	Annie Balilling	62	F	〃		09168728607		
13	Raquel Dumal-ip	45	M	〃		09153318590		
14	SILVINO MANINGAN	57	M	ALFONSO G. del Pilar				
15	Nolio Matbagan.	49	M	Tangagan, Alfonso		09971752171		
16	EDUARDO PALASIW JR	36	M	NCIP - ILOCOS SUR		09177799[illegible]99		
17	ARMANDO BORROMEO	47	M	ALFONSO		09273922141		
18	MORRIS SOLIMAN	28	M	Alfonso G. del Pilar Ilocos				
19	Maribelle Planas	40	F	ALFONSO G. del Pilar I. Sur				
20	Jimie Managuey	31	M	Alfonso G. del Pilar I. Sur		09487387961		
21	GILBERT ALLEN CARIAGO	37	M	ALFONSO G. DEL PILAR I. SUR		09055028700		
22	LARRY BISOY	53	M	TANGADAN G. DEL PILAR, I. SUR		09177999369		
23	MERNA MANINGAN	50	F	ALFONSO G. DEL PILAR		09561158057		
24	ROSITA SAYAAN	50	F	ALFONSO G. DEL PILAR		09154080299		
25	PABLO GUZMAN	60		Alfonso				

Feasibility Study of Proposed Ilocos Sur Irriagtion Projects
(Ilocos Sur Transbasin Sub-Project)
PUBLIC SCOPING

Venue: Brgy Alfonso Court
Date: 13 November 2018
Time: 10:00am - 12:32pm

No	Name	Age	Gender	Address	Agency/Organization	Contact Number	e-mail	Signature
26	Florinda Anacay	58		ALFONSO				
27	DIONESIO MANAGUEY	66		ALFONSO				
28	ROSITA BINTOR	58		ALFONSO				
29	NARCISA BATAO-EY	52		ALFONSO				
30	Gilbert M. CIRIACO	53		ALFONSO				
31	Dominador CAWAING	47		Alfonso				
32	Tirso Dausen			Alfonso				
33	Loeve C. Aduca	28	M	Quezon City	WCI	09173094242	laduca@wci.com.ph	
34	Dayanara S. Tambog	24	F	ARINGAY, L.U.	EMB R01	09164865769	dayanarastambog@y.com.ph	
35	Julius-Rome Estella	29	M	SAN FDO LU	EMB R1	—		
36	Erika Florendo	22	F	QC	WCI	0995 911 1934	eflorendo@wci.com.ph	
37	Gianne Lacuesta	27	M	QC	WCI	09217662742	glacuesta@wci.com.ph	
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Feasibility Study of Proposed Ilocos Sur Irriagtion Projects
(Ilocos Sur Transbasin Sub-Project)
PUBLIC SCOPING

Venue: Bequi - Walin Covered Court
Date: 14 November 2018
Time: 11:00am - 1:10 pm

No	Name	Age	Gender	Address	Agency/Organization	Contact Number	e-mail	Signature
1	HENRY ANTOLIN	49	M	BEQUI WALIN LIDLIDDAN	NAMATIWA ERC			
2	Antonio S. Antolin	48	M	Bequi-walin "	IPMR	09453552090		
3	EFREN B. SANTIAGO	41	M	BEQUI-WALIN LIDLIDDA I. SUR				
4	JOWELL JOAQUIN	42	M	BEQUI-WALIN LIDLIDDA I. SUR	KGBAWAD			
5	Florencio Joaquin	63	M	"				
6	Evelyn Tamayo	49	F	"				
7	ABRAHAM B. KACKALI	66	M	" NCIP-CANDON CITY	NCIP	09177214649		
8	BERNARDO BALIMBA	58	M	"	"			
9	ATTY. MARLYN BILIGAN		M	"	"			
10	ROSEMARIE C. DAGDAG	50	F	BEQUI-WALIN.	MCCT (PL)	09063785082		
11	Nelson Orpilla	66	M	" "				
12	Corazon Joaquin	63	F	"				
13	Mariano Dark iayo			"				
14	NICASIO BUIS	45	M	"	CALABA	09554568485		
15	Manolo Buis	52	M	Bequi-Walin	MCCT	09279004469		
16	JIMMY B. ANCHETA	45	M	" "	SBM	09274598579		
17	Loeve C. Adwoa	28	M	Quezon City	WCI	09173094242	loadwoa@wci.com.ph	
18	Dayanara V. Tambot	24	F	Anngay, L.U.	EMB R01	09164885769	dayanaratambot@gmail.com	
19	Erika May D. Florendo	22	F	QC	WCI	0995 911 1934	eflorendo@wci.com.ph	
20	Gianne Lauresta	27	M	QC	WCI	09217662742	glauresta@wci.com.ph	
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25								

Feasibility Study of Proposed Ilocos Sur Irriagtion Projects
(Ilocos Sur Transbasin Sub-Project)
PUBLIC SCOPING

Venue: Quirino Session Hall
Date: 15 November 2018
Time: 10:00 am - 11:30 am

No	Name	Age	Gender	Address	Agency/Organization	Contact Number	e-mail	Signature
1	Fortunato Batacan							
2	George Fernandez	75	M	Malideg, Q.I.S.				
3	Milecias D. Bumitling Sr.	73	M	"	IP Sec.			
4	Marcelino Spiritu	79	M	"	Elder			
5	Jaime Langas	72	M	"	Elder			
6	Tomas L. Bangui Sr.	71	M	"	Elder			
7	Gregorio Galla	76	M		Elder			
8	Leopaldo Quines	61		"	Elder			
9	Bet Daproza	63		"	Kagawad			
10	Primo Daproza	69		"	Lupon			
11	MARVIN GALLA	40	M	MALIDEG, Q.I.S.	BRGY KAGAWAD			
12	CONSTANTE GRACIA	55	M	MALIDEG Q.I.S.	BRGY "			
13	Alberto Sloval		M	Malideg	Elder			
14	JERRY G. GALLA	52	M	Malideg, Quirino, I. Sur	Brgy. Kag.	09487070699		
15	LIBBY GALLA	57	M	CAYUS		09997021874		
16	Agustina D. Balbino	55		NCIP- Tagudin	Tagudin Community SC	09178926417		
17	ALDA PABLO	75	F	MALIDEG	Brgy Kagawad	09291771159		
18	ROCKY Castaneda	50	M.	Cayus				
19	Manuel Daproza	53	"	Malideg	BRGY Kagawad			
20	[illegible]	61	M	Banoen	Barangay Capt.			
21	MYRNA G. BOYOHOH	48	F	CAYUS	LGU, QUIRINO, I. Sur	09104864170		
22	ALVIN J. ENAGERI	54	M	BAHIDEN QUIRINO	[illegible]	09964932C092		
23	Dayanara S. Tambot	24	F	Aringay, L.U.	EMB R01	09164885769	dayanaratamb@y.com.ph	
24	Jikmero-Rom Estoles	29	M	SAN FDO	EMB R1	—		
25	Loeve C. Aduca	28	M	Quezon City	WCI	09178094242	ladwca@wci.com.ph	
	Erika May D. Florendo	22	F	QC	WCI	0995 911 1934	eflorendo@wci.com.ph	
	Gianne Lacuesta	27	M	QC	WCI	09217642742	glacuesta@wci.com.ph	

Feasibility Study of Proposed Ilocos Sur Irriagtion Projects
(Ilocos Sur Transbasin Sub-Project)
PUBLIC SCOPING

Venue: Brgy. Paltoc, San Emilio
Date: 16 November 2018
Time: 10:00 am - 11:45 am

No	Name / NAGAN	Age	Gender	Address	Agency/Organization	Contact Number	e-mail	Signature
1	MEDILVA A. TABIOS	53	F	PALTOC SAN EMILIO		09271400810		
2	EMILIO S. Andres Jr.	65	M	San Miliano, San Emilio		09167[illegible]		
3	Elizabeth Gallao	53	F	Paltoc San Emilio				
4	NARCISO Sallong	76	M	PALTOC, S.E. I. SUR		09061032708		
5	Pres Gallardo	45	M	Paltoc				
6	MARCELA A. OMNAS	46	F	PALTOC, SN. EMILIO, I SUR		09973054360		
7	GILBERT R. RACELIS	40	M	PALTOC, SN EMILIO, I. SUR		09174139888		
8	Arcadio BALAO-AS	47	M	Paltoc San Emilio I. Sur		09272539684		
9	Emilia Ballador	64	F	Paltoc, San Emilio I. Sur				
10	Elena Garnatcha	67	F	"				
11	Eugenia G. Gabor	59	F	paltoc San Emilio I. Sur		09279001340		
12	DIZON BAGNI	60	M	Paltoc, San Emilio, I Sur				
13	Consolacion Tomac	60	F	PALTOC San Emilio		09975500614		
14	Benedicto CARVAJAL VA	52	M	- do - Kagawad				
15	Bernardino B. Ballada	49	M	-do-		09268[illegible]653		
16	Jovencio Hallar			Paltoc				
17	Pedro Trovero			"				
18	Ernesto Saguindo			"				
19	SHARON F. GARDENAS	00	F	PALTOC		0918 884626		
20	PITAS ANDRES		F	PALTOC, SN. EMILIO				
21	Natividad Joseph	61	F	PALTOC San Emilio				
22	Susan Tabios			do				
23	Agapito Gallardo	79	M	Paltoc				
24	MARCIANO DANGGALAN	88	M	PALTOC				
25	Antonio Galanza	87						

Feasibility Study of Proposed Ilocos Sur Irriagtion Projects
(Ilocos Sur Transbasin Sub-Project)
PUBLIC SCOPING

Venue: Brgy Paltoc San Emilio
Date: 16 November 2018
Time: 10:00am - 11:45am

No	Name	Age	Gender	Address	Agency/Organization	Contact Number	e-mail	Signature
26	Lolita Lingbaoan	77	F	PALTOC, SN EMILIO				[signature]
27	Conchita Dacao	57	F	Paltoc San Emilio		09656888658		[signature]
28	Rudy Balladeo	70	M	Paltoc, Sn. Emilio				[signature]
29	ROWEN DACAO	29	M	PALTOC, Sn Emilio				[signature]
30	MELVIN SEGUNDO	35	M	"				[signature]
31	BENJIE GALLAO	42	M	PALTOC, SN EMILIO				[signature]
32	Rommel Joseph	42	M	" "				[signature]
33	Dayanara Tambot	24	F	ARINGAY, L.U.	EMB-RO1	09164885769	dayanaracitamse@y.com.ph	[signature]
34	Junero-Rome Estolas	2?	M	EMB SAN FDO	EMB	072-6073377		[signature]
35	Louie C. Adung	28	M	Quezon City	WCI	09173094252	ladunca@wci.com.ph	[signature]
36	Erika Florendo	22	F	QC	WCI	0995 911 1934	eflorendo@wci.com.ph	[signature]
37	Gianne Lacuesta	27	M	QC	WCI	09217662742	gelacuesta@wci.com.ph	[signature]
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Annex 5

Stakeholder Matrix

Potential Impact Areas[1]			Basis for selection of sector as a stakeholder of the project	Sectors/Sub-sectors Identified by Proponent to be Likely Stakeholders of the Project	Specific Organizations/Entities Likely to be Invited to IEC/Site Scoping as Representing the Sectoral Stakeholders
A.		Affected Barangays			
	1	Barangay Malapaao	a) The source of water is Malapaao River in Barangay Malapaao b) Entities will be physically displaced by project construction and operations c) Inundated area is on the upstream of the river d) The barangay has a direct political jurisdiction over the area	Barangay Local Government Unit (LGU) Irrigation Organizations IP Barangay-Level Non-Governmental Organization (NGO) Residents near the river Women's Organization Youth Organizations Farmer's Organizations Homeowners near the river	President and board members of Irrigation Organization Barangay Captain of Barangay Malapaao Representatives of Barangay Level-NGOs Representatives of Indigenous Peoples (IPs) Representatives of residents near the river Representatives of Women's Organization Representatives of Youth Organizations Representatives of Farmer's Organizations Representatives of Homeowners near the river
	2	Barangay Lingsat	e) Passage way of tunnel f) The barangay has a direct political jurisdiction over the area g) Entities will be physically displaced by project construction and operations	Farmers Barangay LGU Residents of barangay Lingsat Women's Organization Youth Organizations Farmer's Organizations Homeowners near the river Irrigation Organizations IP Barangay Level-NGO	President and board members of Irrigation Organization Barangay Captain of Barangay Lingsat Representatives of Barangay Level-NGOs Representatives of Women's Organization Representatives of Youth Organizations Representatives of Farmer's Organizations Representatives of Homeowners near the river Representatives of the Farmers
	3	Barangay Laoingen	h) e) Location of tunnel outlet and proposed powerhouse i) The barangay has a direct political jurisdiction over the area j) Entities will be physically displaced by project construction and operations	Farmers Barangay LGU Residents of barangay Laoingen Representatives of Women's Organization Representatives of Youth Organizations Representatives of Farmer's Organizations Representatives of Homeowners near the river Irrigation Organizations IP Barangay Level-NGO	President and board members of Irrigation Organization Barangay Captain of Barangay Laoingen Representatives of Barangay Level-NGOs Representatives of Women's Organization Representatives of Youth Organizations Representatives of Farmer's Organizations Representatives of Homeowners near the river Representatives of the Farmers
B.		Municipality LGUs with political jurisdiction over the project area (other than the barangays listed in A)			
	1	Municipality of Langiden	a) LGU with political jurisdiction over the project	Mayor Vice Mayor Agricultural Office Municipal Environment and Natural Resources Office	Mayor/Representative Vice Mayor/Representative Municipal Environment and Natural Resources Officer Municipal Engineer Officer

Potential Impact Areas[1]			Basis for selection of sector as a stakeholder of the project	Sectors/Sub-sectors Identified by Proponent to be Likely Stakeholders of the Project	Specific Organizations/Entities Likely to be Invited to IEC/Site Scoping as Representing the Sectoral Stakeholders
				Municipal Engineer's Office Health Office Disaster Risk Reduction Office Municipal Planning and Development Office	Health Officer Disaster Risk Reduction Officer Municipal Planning and Development Officer
	2	Municipality of Bantay	a) LGU with political jurisdiction over the project	Mayor Vice Mayor Agricultural Office Municipal Environment and Natural Resources Office Municipal Engineer's Office Health Office Disaster Risk Reduction Office Municipal Planning and Development Office	Mayor/Representative Vice Mayor/Representative Municipal Environment and Natural Resources Officer Municipal Engineer Officer Health Officer Disaster Risk Reduction Officer Municipal Planning and Development Officer
	3	Municipality of Sto. Domingo	a) LGU with political jurisdiction over the project	Mayor Vice Mayor Agricultural Office Municipal Environment and Natural Resources Office Municipal Engineer's Office Health Office Disaster Risk Reduction Office Municipal Planning and Development Office	Mayor/Representative Vice Mayor/Representative Municipal Environment and Natural Resources Officer Municipal Engineer Officer Health Officer Disaster Risk Reduction Officer Municipal Planning and Development Officer
	4	Vigan City	a) Beneficiary LGU that will have access to the irrigation system		
	5	Municipality of Caoayan	a) Beneficiary LGU that will have access to the irrigation system		
	6	Municipality of Bantay	a) Beneficiary LGU that will have access to the irrigation system		
	7	Municipality of San Ildefonso	a) Beneficiary LGU that will have access to the irrigation system		
	8	Municipality of San Vicente	a) Beneficiary LGU that will have access to the irrigation system		
	9	Municipality of Sto. Domingo	a) Beneficiary LGU that will have access to the irrigation system		
	10	Municipality of Magsingal	a) Beneficiary LGU that will have access to the irrigation system		
	11	Municipality of Sta. Catalina	a) Potential beneficiary LGU that will have access to the irrigation system		
	12	Municipality of San Juan	a) Potential beneficiary LGU that will have access to the irrigation system		

Potential Impact Areas[1]			Basis for selection of sector as a stakeholder of the project	Sectors/Sub-sectors Identified by Proponent to be Likely Stakeholders of the Project	Specific Organizations/Entities Likely to be Invited to IEC/Site Scoping as Representing the Sectoral Stakeholders
	13	Municipality of Cabugao	a) Potential beneficiary LGU that will have access to the irrigation system		
C		Provincial LGUs with political jurisdiction over the project area (other than the barangays listed in A)			
	1	Provincial LGU of Abra	a) Provincial LGU with political jurisdiction over the project	Governor Office of the Provincial Governor Vice Governor Office of the Vice Governor Office of the Provincial Agriculturist Office of the Provincial Engineer Provincial Disaster Risk Reduction Management Office Provincial Environment and Natural Resources Office Provincial Gender and Development Office	Governor and/or representatives Vice Governor and/or representatives Provincial Agriculturist Provincial Engineer Provincial Disaster Risk Reduction and Management Officer Provincial Environment and Natural Resources Officer Provincial Gender and Development Officer
	2	Provincial LGU of Ilocos Sur	a) Provincial LGU with political jurisdiction over the project	Governor Office of the Provincial Governor Vice Governor Office of the Vice Governor Office of the Provincial Agriculturist Office of the Provincial Engineer Provincial Disaster Risk Reduction Management Office Provincial Environment and Natural Resources Office Provincial Gender and Development Office Provincial Planning and Development Office	Governor and/or representatives Vice Governor and/or representatives Provincial Agriculturist Provincial Engineer Provincial Disaster Risk Reduction and Management Officer Provincial Environment and Natural Resources Officer Provincial Gender and Development Officer Provincial Planning and Development Officer
D		Other evident pre-identified areas of potential impact (may be candidates for Indirect Impact Areas , subject to EIA Findings)			
	1	National Commission on Indigenous Peoples (NCIP)- Region I	a) Support the affected IPs in the project (specifically in Brgy. Malapaao, Lingsat, and Laoingen)		
	2	Department of Agriculture- Region I	a) The irrigation project ultimately aims to improve the agriculture in the region	Regional Executive Director	Regional Executive Director or representative
	3	Department of Interior and Local Government	a) The irrigation system affects majority of the Ilocos Sur Province		

No.	OFFICE	FOCAL PERSON	POSITION	ADDRESS
National Government Agencies and Offices				
1	National Commission on Indigenous Peoples (NCIP)-Region I	ATTY. JONATHAN T. BANSIGAN	OIC-Regional Director	Martinez Bldg. Sevilla Norte, Quezon Ave., City of San Fernando, La Union 2500
2	Department of Agriculture-Region I	Lucrecio R. Alviar, Jr. CESO III	Regional Executive Director	DA RFO-I, Aguila Road, Sevilla Norte, City of San Fernando, La Union
3	Department of Interior and Local Government	James F. Fadrilan, CESO IV	Regional Director	Aguila Rd., Sevilla, San Fernando City, La Union
Provincial Level				
1	Provincial LGU of Abra	Maria Jocelyn Valera Bernos	Governor	Rizal Street, Bangued, Abra
2	Provincial LGU of Ilocos Sur	Ryan Luis V. Singson	Governor	Quezon Ave, Vigan City, Ilocos Sur, Philippines
Municipal Level (including Barangay)				
1	Municipality of Langiden	Artemio Donato, Jr.	Mayor	LGU Langiden, Abra
2		Ronald Madriaga	Barangay Captain of Malapaao	
3	Municipality of Bantay	Sammy Boy Parilla	Mayor	National Highway, Barangay V, Bantay, Ilocos Sur
4		Roberto Lopez	Barangay Captain of Lingsat	
5	Municipality of Sto. Domingo	Amado T. Tadena	Mayor	Poblacion Area, LGU Sto. Domingo, Ilocos Sur
6		Emiterio Tibuc	Barangay Captain of Laoingen	

Annex 6

Draft Letter for Public Scoping

03 January 2018

HON. _____
(Position)
(Organization)
(Address)

ATTENTION: [Office/Person]

SUBJECT: Request for Public Scoping for the Proposed Ilocos Sur Irrigation Project (Transbasin Project)

Dear Mayor/Dir. _____:

The National Irrigation Administration (NIA) is conducting a Feasibility Study for the Proposed Ilocos Sur Irrigation Project (ISIP) - Upper Banaoang Sub-Project, through its project consultant — Woodfields Consultants, Inc. Once implemented, NIA expects the proposed project to increase the Province's access to irrigation thereby improvingthe farming productivity, food security, and rural income. This project focuses on rice production and is expected to complement the Government's Food Staples Self-Sufficiency Program (FSSP).

In compliance withthe Philippine Environmental Impact Statement (EIS) System and the new guidelines on the public participation under the Philippine EIS System (DAO 2017-15), NIA will undergo the environmental impact assessment (EIA) process to acquire an Environmental Compliance Certificate (ECC) for the proposed project. As part of the undertaking, a Public Scoping has to be conducted prior to the environmental and social studies within the project area. This Public Scoping is the stage where information and project impact assessment requirements are established to provide the scope of work and terms of reference for the EIS

In view thereof, we would like to ask your good office's assistance to conduct the Public Scoping Activity in _____ on _____ from _____ to _____. Further, we would like to seek your assistance to invite the project stakeholders and other concerned constituents listed below:

- Municipal Planning and Development Office (MPDO)
- Municipal Engineering Office (MEO)
- Municipal Agricultural Office (MAO)
- Municipal Environment and Natural Resources Officer (MENRO)
- Barangay Captain of Barangays _____
- Municipal Health Office (MHO)
- Disaster Risk Reduction Management Office (DRRMO)
- Representatives from the Peoples' Organizations and other Associations within the Municipality (if any):
    - Women's organization
    - Youth Organization
    - Farmer's Organization
    - Senior Citizens
    - Irrigation Associations (IA)
- Other concerned citizens

We are looking forward to your valuable support and assistance in this project.

Thank you!

Respectfully yours,

ENGR. ESPERANZA A. SAJUL
Chief
Environmental Impact Assessment and Management Division (EIAMD)
Department of Environment and Natural Resources (DENR)

Annex 7
Presentation for Public Scoping

Public Scoping for

THE PROPOSED ILOCOS SUR IRRIGATION PROJECT

Upper Banaoang Sub-project

NATIONAL IRRIGATION ADMINISTRATION

Woodfields Consultants, Inc.

PROGRAM FLOW

1. Prayer
2. Opening remarks
3. Presentation by DENR-EMB
4. Presentation by NIA-Region I
5. Open forum

National Anthem

Prayer

Opening Remarks

Presentation By EMB

Presentation by NIA-Region I

PRESENTATION OUTLINE

1. Project Profile
2. Introduction
3. Project Schemes
4. Project Components
5. Timeframe
6. Preliminary Identified Environmental Impacts

PROJECT PROFILE

Project Proponent
- National Irrigation Administration

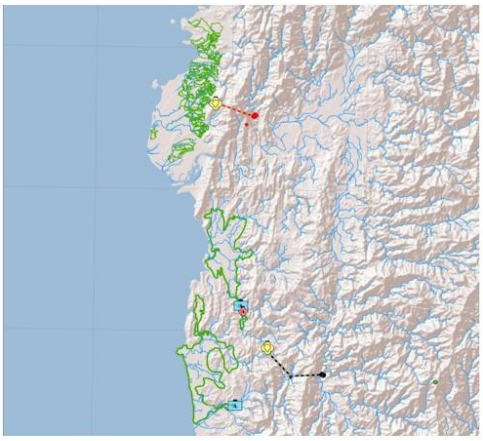
Project Type
- Irrigation Project

Sub-Projects and Their Locations
- Ilocos Sur Transbasin Project– Lidlidda, Quirino, San Emilio, Gregorio del Pilar
- Upper Banaoang Project– Langiden, Sto. Domingo, Bantay

INTRODUCTION

- One of the objectives of the government is to **increase self-sufficiency in rice.** An increase in rice production is therefore needed through **expansion of irrigated areas**
- According to the Philippine Development Plan (2011-2016), the **Ilocos Sur Irrigation Project (ISIP)** is one of the thrusts in improving food security and rural income by **enhancing farm activity** through **irrigation**

INTRODUCTION

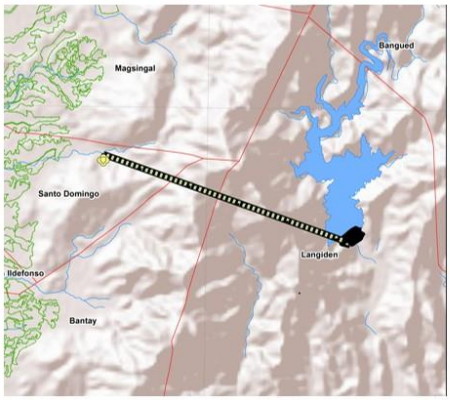


- The goal of the ISIP is to expand irrigated areas in the province of Ilocos Sur

The Ilocos Sur Irrigation Project (ISIP) has two sub-projects:

- Ilocos Sur Transbasin Project
- Upper Banaoang Irrigation Project

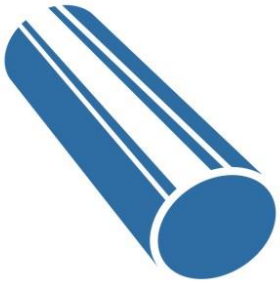
INTRODUCTION



Upper Banaoang Irrigation Project

- Aims to find an alternative scheme to irrigate higher areas not served by Banaoang Pump Irrigation System
- The study considered three (3) different schemes

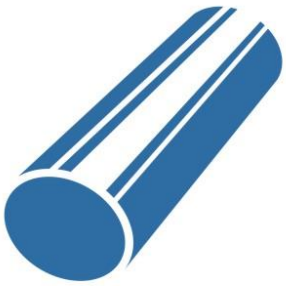
PROJECT SCHEMES



Scheme 1

- Intake and High Density Polyethylene (HDPE) Pipe conveyance
- Proposed HDPE line of 25 km along the right bank of Abra River to convey water to the existing main canal of the Banaoang Pump Irrigation System and to the expansion area.
- Total service area = 3,000 has.

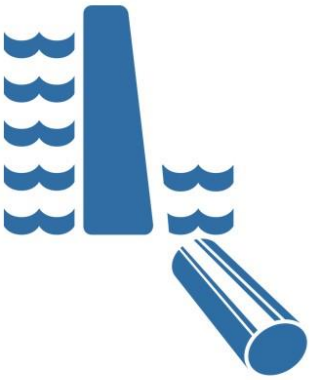
PROJECT SCHEMES



Scheme 2

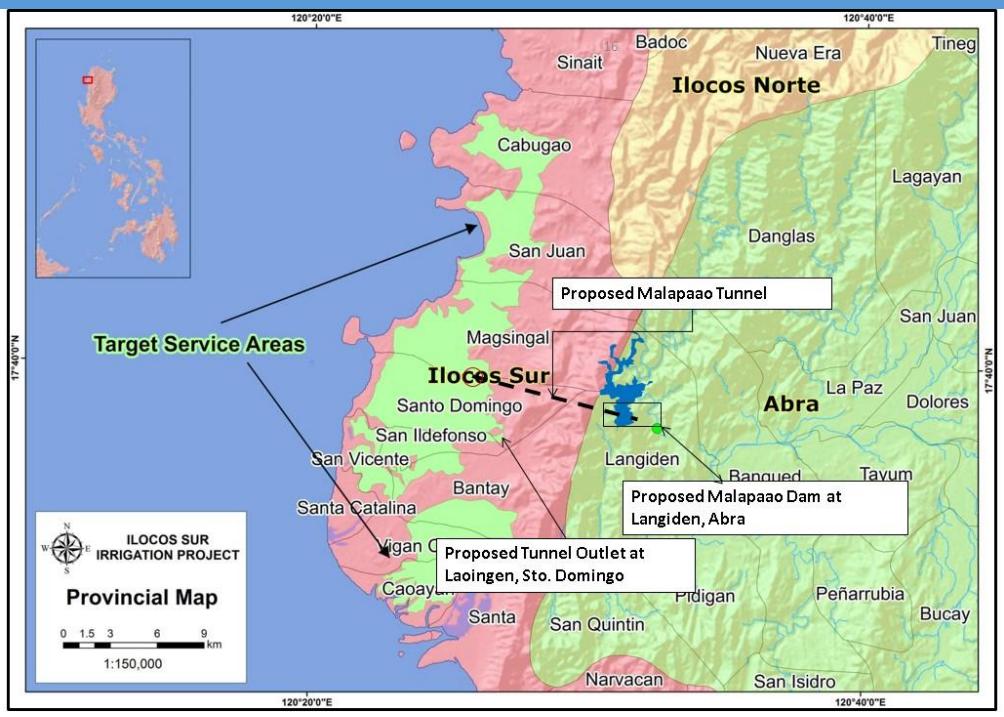
- Intake and Concrete Cut and Cover conveyance
- Proposed concrete cut and cover line of 25 km along the right bank of Abra River to convey water to the existing main canal of the Banaoang Pump Irrigation System and to the expansion area
- Same alignment as Scheme 1, the difference is the type of pipe used

PROJECT SCHEMES

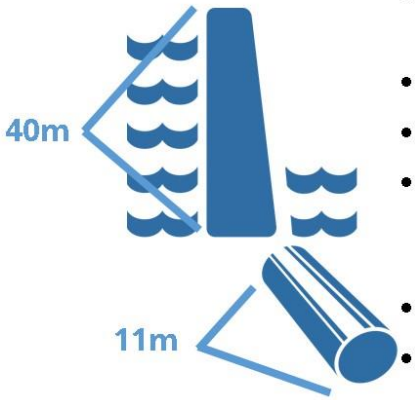


Scheme 3

- Malapaao River Multipurpose Irrigation Project (MRMIP)
- Construct an earthdam across the Malapaao River located in Barangay Malapaao, Langiden, Abra.
- Divert the flow of the river through an 11 km-long tunnel from the reservoir to the irrigable area.
- Least expensive of the three (3) Schemes

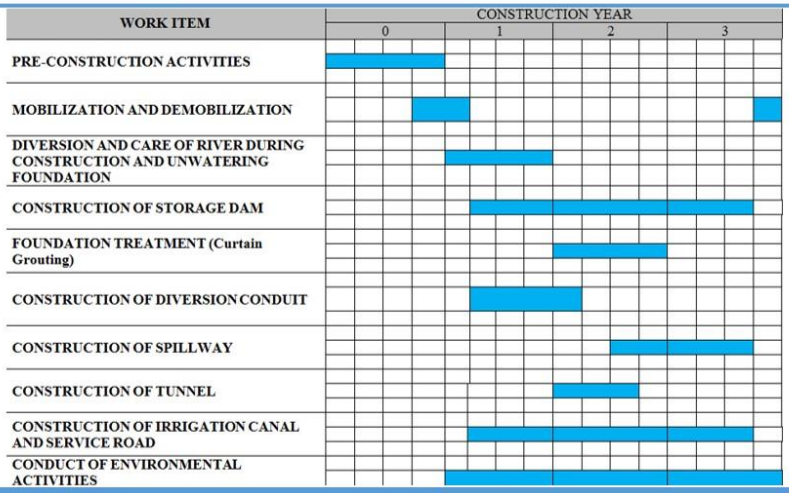


PROJECT SCHEMES COMPONENTS



- Impounding Dam (40-m height) in Brgy. Malapaao, Langiden, Abra
- Reservoir Capacity = 58 MCM
- Reservoir Area = 262 hectares
- Diversion Tunnel (11 km) traversing from Langiden, Bantay, and Sto. Domingo
- Tunnel Outlet and Powerhouse
- (approx. 2 MW) in Brgy. Laoingen, Sto Domingo

PROJECTED TIMEFRAME



PRELIMINARY IDENTIFIED ENVIRONMENTAL ASPECTS

Activities/ Areas of Concern	General Issues/Impacts	Generalized Mitigation Measures/ Controls
Pre-construction Phase		
Acquisition of necessary documents/ permits prior to construction and operation of the project (e.g Environmental Compliance Certificate (ECC), construction permits, tree cutting permit)	– Fears and apprehensions of the community about the project	– Structured Information, Education and Communication (IEC) Campaign – Regular meetings and coordination with project stakeholders
Land acquisition for the proposed project	– Compensation issues and concerns	– Identification of ownership status – Agreement between the owner and Proponent will be made – In case of displacement, compensation package based on existing laws and regulations will be provided

PRELIMINARY IDENTIFIED ENVIRONMENTAL ASPECTS

Activities/ Areas of Concern	General Issues/Impacts	Generalized Mitigation Measures/ Controls
Construction Phase		
Construction of the Project components	– Possible impact on rivers from erosion and sedimentation – Potential effects on aquatic biota associated with water quality impacts – Possible erosion along disturbed slopes and exposed soil surface – Possible impact on soils from vehicle and machine fuel spills – Solid and liquid waste management issues	– Employment of appropriate soil erosion control measures – Proper housekeeping – Provision of hygiene and sanitary facilities – Enforcement of a solid and liquid waste management plan – Suppression of road dust with water, as necessary on a regular basis. Drivers will be educated on the effects of vehicular speed on dust generation. Speed limits will be enforced by the company.

PRELIMINARY IDENTIFIED ENVIRONMENTAL ASPECTS

Activities/ Areas of Concern	General Issues/Impacts	Generalized Mitigation Measures/ Controls
Construction Phase		
Construction of the Project Components	– Possible increase of vehicle exhaust emissions in roadways and dust suspension in disturbed and exposed soil surfaces – Noise and vibration generation from vehicle during earth-moving activities – Increase in traffic flow – Potential removal of wildlife habitat covered by the project – Employment opportunities; influx of migrants – Workers' health and safety	– Enforcement of proper management practices for the handling of fuels and oils – Heavy equipment will be appropriately muffled. Workers operating heavy equipment will be provided with appropriate PPE, as necessary. – Development activities shall be limited to the proposed project area – Preferential local hiring policy – Implementation of health and safety standards – IEC regarding social hygiene and community health

PRELIMINARY IDENTIFIED ENVIRONMENTAL ASPECTS

Activities/ Areas of Concern	General Issues/Impacts	Generalized Mitigation Measures/ Controls
Operation Phase		
Operation of the hydropower plant	• Injuries or death of fish and other aquatic organisms from the turbine • Reservoir water becomes more stagnant and may contain higher levels of sediments and nutrients leading to increase in algae and weeds	• Installation of intake screen • Manual harvesting or introduction of fish to minimize proliferation of algae and weeds
Irrigated farmlands	• Increase in production and yield • Alleviation of poverty/Increase quality of life	
Closure and Decommissioning Phase		
Rehabilitation of the area	• Non-completion of the rehabilitation/ inappropriate land-use	• Progressive rehabilitation strategy

Open Forum

CONTACT NUMBERS

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Thank you!

Annex 8

EIA Coverage and Requirements Screening Checklist

EIA COVERAGE & REQUIREMENTS SCREENING CHECKLIST (ECRSC)

Purposes of the Screening Checklist:

1. Self-Screening Form by the Proponent (unofficial, for guidance purposes)
2. Screening Validation Form by the EMB (official; signed copy may be transmitted to banks, economic/industrial zone administrators, other users who request EMB validation or any entity EMB may want to inform)
3. Site Inspection Report Form by the EMB for ECC/CNC applications
4. Site Inspection Report Form by the EMB for suspected or reported projects operating without ECC

Instructions: *Write legibly and put information or check mark (✓) in box, where appropriate.*

A. SCREENING FOR EIA COVERAGE AND REQUIREMENTS

Purpose of Screening	☑ Proponent Self Screening for ☑ ECC ☐ CNC ☐ ECC Amendment ☐ EMB Screening for Validation ☐ Inquiry ☐ Site Inspection Report for: ☐ ECC/CNC/Amendment ☐ Proj w/out ECC
Project Name	Consulting Services for the Feasibility Study of the Proposed Ilocos Sur Irrigation Project (Upper Banaoang Project)
Project Location	Note: If project is in national waters or outside any LGU jurisdiction, pls state nearest LGU & distance.

Sitio/s	Barangay/s	Municipality/ies	Province/s	Region
	Lingsat	Bantay	Ilocos Sur	Region I
	Laoingen	Sto. Domingo	Ilocos Sur	Region I
	Malapaao	Langiden	Abra	CAR

Proponent Name	National Irrigation Administration Regional Office I
Proponent Address	Ambrosio Street, Brgy. Bayaoas, Urdaneta City, 2428, Pangasinan
Contact Person Name	Engr. Vicente R. Vicmudo, Ph.D./ Leonila G. Fernandez Regional Irrigation Manager/ Principal Engineer C
Proponent Means of Contact	Landline No : (075) 568-2308 Fax No. : N/A Mobile No :(+63) 922-867-9689 Email :leonilafernandez16@yahoo.com; niarinoffice@yahoo.com;niaregion 1pso@gmail.com
Project Type or Undertaking	New ECC Application 3.1.1 DAMS (including irrigation, hydropower) *Based on Annex A of EMB MC 005-2014*
Project Status	✓ New ☐ Existing, for Modification (w/or w/out Expansion ☐ Operating without an ECC ☐ Previously not covered
Main Project 's Components for both Multi-Component Single Project Applications and for Co-Located Project Applications	3.1.1 DAMS (including irrigation, hydropower) *Refer to Annex 2-1b for new projects and Annex 2-1c for ECC amendment/modification proposal (if not listed, use DTI official nomenclature and classification number);*

Project Size (main project component and sub-components)

Project Size* of Components		
1. Main Component: 55-m Storage Dam at Malapaao River 2. Sub-Component #1: 8-km tunnel with concrete lining of 25 cm	3. Sub-component #2: Tunnel Outlet and Powerplant with 375-m long penstock that has a diameter of 1.8 m 4. Sub-component #3: existing Banaoang Pump Irrigation System	

**e.g. Capacity (MW, m³, heads), production capacity (MT/year) and space allocation (km, ha,) See Annex 2-1b for examples.*

Project Group based on Type of Threshold ONLY

Single Project ☐ **Group I** (ECP) ☑ **Group II *** (NECP in ECA)

Co-located Project (Group IV) ☐
Unclassified Project (Group V) ☐

* *All new Projects are initially assumed located in ECA. Thus, there is no Grp III in the first level screening.*

EIA Report Type

☑ EIS ☐ PEIS ☐ IEER ☐ PDR
☐ EPRMP ☐ PEPRMP ☐ IEEC ☐ Letter Request

*For EIA Report Types: Refer to Annex 2-1b for new projects, Annex 2-1c for modification, and **Table 3** for further guidance*

	If a component has an EIA Report requirement at a higher level than the main project component being applied for (e.g. EIS for a support component, IEE for main project, the component's report type should be adopted as the application document for the entire project) *NOTE: FOR PROJECTS UNDER Group I (all with EIS requirement) and Group II with PDR-threshold level), there is no need to undertake ECA screening. Step 13 is the final screening step. For projects under Group II with EIS or IEE threshold, proponent is advised to go to Step #14 if it wants the option to confirm the actual ECA status of the project for the purpose of determining non-coverage. If project location is confirmed non-ECA, project shall not be required any report type or ECC. However, if the Proponent wants the option to secure a CNC, it must submit a PDR.*
Environmental Criticality of Location (ONLY FOR GROUP II PROJECT W/ EIS & IEE-BASED THRESHOLDS & WANT TO KNOW NON-COVERAGE OPTION)	Fill out Table 2b first as basis for filling out the ECA Summary Table 2a, then check appropriate box below: ☐ ECA* ☐ NECA** ☐ Uncertain*** **Any one confirmed ECA among the 12 ECA categories renders the project location an ECA.* ***All of the relevant ECA categories have to be confirmed by Proponent thru the mandated agencies as "not an ECA" before the project is considered a NECA. See footnote of Table 2b on "relevance" determination.* ****If no response or data from agencies, the "uncertain" rating renders the project location as ECA.* *For ECA Categories:* **Specific Category** | **Legal Basis or Official Name of Specific ECA Category** | | | | | |
Final Project Group & EIA Report Type based on ECA Screening	**Single Project** ☑ **Group II** (NECP in ECA) ☐ **Group III** (NECP in NECA)
EIA Report Type	☑ EIS ☐ PEIS ☐ IEER ☐ PDR ☐ EPRMP ☐ PEPRMP ☐ IEEC ☐ Letter Request *For EIA Report Types: Refer to Annex 2-1b for new projects, Annex 2-1c for modification, and **Table 3** for further guidance* *- If a component has an EIA Report requirement at a higher level than the main project being applied for (e.g. EIS for a support component, IEE for main project, the component's report type should be adopted as the application document for the entire project)*
Processing/ Endorsing Authority	☐ EMB CO Director ☑ EIAMD Chief Refer to **Table 3**
Application Deciding Authority	☐ EMB RO Director ☑ EMB CO Director ☐ DENR Secretary
Filing Fee	PhP_____

RAPID SCREENING FOR ENVIRONMENTAL ISSUES
(Note: Optional for Proponent for Pre-Scoping Preparations; Required for EMB if project is required a Site Inspection Report prior to Substantive Review of procedurally-accepted applications)

Site-specific (ECA/Non-ECA) Potential Key Environmental Issues

Envi'l Component*	Potential Issues
Land	Possible erosion along disturbed slopes and exposed soil surface; Possible impact on soils from vehicle and machine fuel spills; Solid and liquid waste management issues
Water	Possible impact on rivers from erosion and sedimentation; Potential effects on aquatic biota associated with water quality impacts
Air	Possible increase of vehicle exhaust emissions in roadways and dust suspension in disturbed and exposed soil surfaces; Noise and vibration generation from vehicle during earth-moving activities
People	Fears and apprehensions of the community about the project; Compensation issues and concerns; Safety, security, and health of workers

Use **Table 2b as basis for identification of environmental and social issues likely associated with the project's location in specific ECA category/ies. Otherwise, issues may be identified thru site inspection for a rapid screening/ observation of the project environment.*

SIGN-OFF PAGE FOR PROPONENT (For any purpose the Proponent may intend the self-screening to be used)

Prepared by Proponent: Signature over Printed Name	Date of Signing (MM/DD/YYYY)
Received by EMB: Signature over Printed Name	Date of Receipt (MM/DD/YYYY)
Remarks by EMB:	

SIGN-OFF PAGE FOR EMB (For purposes # 2,3,4)

Prepared by EMB Region Office __: Signature over Printed Name	Date of Signing (MM/DD/YYYY)
Remarks by EMB Regional Office:	
Remarks by EMB Central Office:	

Table 1. Project Types (in bold letters) and sub-types(*Put check in appropriate box)*

GROUP I (ECPs in both ECAs and NECAs)	GROUP II (NECPs in ECAs)	GROUP III (NECPs in NECAs)
☐ **A. Golf Course Projects**	☐ **A. Heavy Industries**	☐ **A. All Group II Project Types/Sub-Types in NECA**
☐ A1. Golf course projects/complex	☐ A1. Iron and Steel Mills	
☐ **B. Heavy Industries**	☐ A2. Non-Ferrous Metal Industries	
☐ B1. Iron and Steel Mills	☐ A3. Petroleum and Petrochemical Industries	
B2.. Non-Ferrous Metal Industries	☐ A4. Smelting Plants	
☐ B3. Petroleum and Petrochemical Industries	☐ **B. Resource Extractive Industries**	
☐ B4. Smelting Plants	☐ B1. Fishery Projects – Dikes for / and Fishpond Development Projects	
☐ **C. Resource Extractive Industries**	☐ B2. Forestry Projects	
☐ C1. Fishery Projects – Dikes for / and Fishpond Development Projects	☐ B3. Minor Mining and Quarrying Projects	
☐ C2. Forestry Projects	✓ **C. Infrastructure Industries**	
☐ C3. Major Mining and Quarrying Projects	☐ C1. Minor Dams	
☐ **D. Infrastructure Projects**	☐ C2. Minor Power Plants	
☐ D1. Major Dams	☐ C3. Minor Reclamation Projects	
☐ D2. Major Reclamation Projects	☐ C4. Minor Roads & Bridges	
☐ D3. Major Roads & Bridges	☐ C5. Other Power Plant (not listed in Proclamation No. 2146)	
☐ D4. Major Power Plants	☐ **D. Agriculture Industry**	
	☐ D1. Agricultural Plantation (e.g. orchards, including rubber plantation)	
	☐ D2. Agricultural Processing Facilities	
	☐ D3. Cut-flower Industry/Projects	
	☐ D4. Livestock Production	
	☐ **E. Buildings, Storage Facilities and Other Structures**	
	☐ E1. Cemetery	
	☐ E2. Commercial, [Business centers with residential units (mixed use), malls, supermarkets, public markets] • Fast food/Restaurant Projects • Commercial Establishments (i.e. Showrooms)	
	☐ E3. Commercial, [office spaces only] • Institutional and other related facilities: religious, government, and educational	
	☐ E4. Facilities for Barangay Micro-Business Enterprises (BMBE) Projects	
	☐ E5. Family dwellings	
	☐ E6. Funeral parlors, crematório, columbarium	
	☐ E7. Institutional and other related facilities: medical facilities	
	☐ E8. Institutional and other structures with laboratory facilities	
	☐ E9. Motels, Hotels, Condominium/ Apartelles (residential)	
	☐ E10. LPG storage and refilling	
	☐ E11. Refilling station projects / gasoline station projects	
	☐ E12. Storage of petroleum, petrochemical or related products	
	☐ E13. Storage facilities, non-toxic/hazardous materials, substances or products	
	☐ E14. Storage facilities, toxic or hazardous materials, substances or products	
	☐ E15. Subdivision and housing projects, resettlement projects, economic and socialized housing project, open market housing and other similar (horizontal) land development projects	
	☐ E16. Telecommunication Projects	
	☐ **F. Chemical Industries**	
	☐ F1. Manufacturing, processing and/or use of substances included in the Priority Chemical List	
	☐ F2. Manufacture of explosives, propellants and industrial gases	
	☐ F3. Manufacture of agri-chemicals and other industrial chemicals not in the PCL	
	☐ F4. Pharmaceutical industries and manufacture of soap and detergents, health and beauty products, and other consumer products.	
	☐	

GROUP I (ECPs in both ECAs and NECAs)	GROUP II (NECPs in ECAs)	GROUP III (NECPs in NECAs)
	F5. Surface coating industries (paints, pigments, varnishes, lacquers, anti- capacity fouling coating, printing inks)	
	G. Cottage Industries	
	H. Demonstration and Pilot Projects	
	I. Environmental Enhancement and Environmental Mitigation Projects	
	I1. Artificial Reef	
	I2. Pollution control devices or facilities required under the ECC condition/s of the *"main"* project/s covered under Groups I or II.	
	I3. Pollution control devices or similar facilities intended to prevent emissions and/or discharges beyond allowable limits (e.g. for compliance with Clean Air Act or Clean Water Code).	
	I4. Preventive or proactive measures against potential natural hazards (such as shore protection, river embankment, river stabilization, seawall, etc.)	
	I5. Reforestation projects	
	J. Food and Related Industries	
	J1. Animal products processing (fish/meatprocessing, canning, slaughterhouses, etc.)	
	J2. Coconut processing plants (including production of coconut based products)	
	J3. Distillation and Fermentation Plants (e.g. bio-ethanol project)	
	J4. Food preservation (e.g., drying, freezing) and other methods aside from canning	
	J5. Fruit and vegetable processing	
	J6. Leather and related industries	
	J7. Other types of food (and other food by-products, additives, etc.) processing industries	
	J8. Processing of dairy products	
	J9. Sugar Mills	
	K. Manufacture of Other Products, e.g. Packaging Materials	
	K1. Glass-based products	
	K2. Metal-based products	
	K3. Paper and plastic-based products	
	L. Pipeline Projects	
	L1. Fuel pipelines	
	L2. Other pipelines	
	M. Service Industries that do not emit pollutants except for domestic wastes and occupying a space equal to or less than limits specified in Groups I or II forinfrastructure or other applicable project components needed in the service industry.	
	N. Textile, Wood, Rubber Industries	
	N1. Textile, Wood, Rubber Industries	
	N2. Wood and Metal Furniture Assembly	
	O. Tourism Industry	
	O1. Resorts and other tourism/leisure projects	
	P. Transport Terminal Facilities	
	P1. Airports	
	P2. Land transport terminal (for buses, jeepneys and other modes of transportation)	
	P3. Sea port, causeways, and harbors	
	Q. Treasure Hunting Projects in NIPAS	
	R. Waste Management Projects	
	R1. Compost/fertilizer making	
	R2. Domestic wastewater treatment facility	
	R3. Hazardous waste treatment, recycling, and/or disposal facilities (for recycling of lead, see details in Group I - Heavy Industries)	
	R4. Industrial and hospital waste (non-hazardous) materials treatment facilities	
	R5. Landfill for industrial and other wastes	
	R6. Materials Recovery Facilities	
	R7. Receiving facilities, paper, plastic, and other materials recycling	
	R8. Sanitary landfill for domestic wastes only	

GROUP I (ECPs in both ECAs and NECAs)	GROUP II (NECPs in ECAs)	GROUP III (NECPs in NECAs)
	☐ **S. Water Supply, Irrigation or Flood Control Projects**	
	☐ S1. Impounding System or Flood Control Project	
	☐ S2. Irrigation System (Distribution System Only)	
	☐ S3. Water Supply Systems (Complete System)	
	☐ S4. Water Supply System (Distribution Only)	
	☐ **T. Wildlife Farming or any related projects as defined by PAWB**	

☐ **GROUP IV (Co-located Projects)**

☐ **GROUP V (Unclassified Projects)**

Refer to Annex 2-1b for specific EIA Report Types for new projects or to Annex 2-1c for specific report requirements for modification proposals.

Table 2a. List of Environmentally Critical Areas *(Put check on appropriate box)*

NOTE: Refer to Table 2b for technical description of ECA and basis for filling out this table

☐ **A. Areas declared by law as**
- ☐ A1. national parks
- ☐ A2. watershed reserves
- ☐ A3. wildlife preserves
- ☐ A4. sanctuaries

☐ **B. Areas set aside as aesthetic potential tourist spots**

☐ **C. Areas which constitute habitat for any endangered or threatened species of Philippine wildlife (flora and fauna)**

☐ **D. Areas of unique historic, archeological, geological, or scientific interests**

☐ **E. Areas which are traditionally occupied by culturalcommunities or tribes**

☐ **F. Areas frequently visited and or hard-hit by natural calamities**
- ☐ F1. geologic hazards
- ☐ F2. floods
- ☐ F3. typhoons
- ☐ F4. volcanic activities

☐ **G. Areas with critical slope**

☐ **H. Areas classified as prime agricultural lands**

☐ **I. Recharged areas of aquifers**

☐ **J. Water bodies**

☐ **K. Mangrove Areas**

☐ **L. Coral Reefs**

Table 2b. ECA Related Issues Screening Checklist for ENVIRONMENTALLY CRITICAL AREAS (ECAs)[1]

Technical Description of Twelve (12) ECA Categories	The project falls within ECA description			Basis State specific official declaration of ECA List specific ECA at the project (e.g. slope)	Agency from where to get technical information (if not available from EMB) [2]
	Yes	No	Uncertain		
A. Areas declared by law as national parks, watershed reserves, wildlife preserves, and sanctuaries [3]					**DENR-PAWB/ CENRO/PENRO**
The laws referred to by this provision are Pres. Decree No. 705, as amended, otherwise called as the "Revised Forestry Code", Republic Act No. 7586 or the National Integrated Protected Areas System (NIPAS) Act, and other issuances including other proclamations, executive orders, local ordinances and international commitments and declarations.					
vcA "national park is defined under Section 4(c) of the NIPAS Act as a "forest reservation essentially of natural wilderness character which has been withdrawn from settlement, occupancy or nay form of exploitation except in conformity with approved management plan and set aside as such exclusively to conserve the area or preserve the scenery, the natural and historic objects, wild animals and plants therein and to provide enjoyment of these features in such area."					
A "wildlife sanctuary" is defined under Section 4(m) of the NIPAS Act as "an area, which assures the natural conditions necessary to protect nationally significant species, groups of species, biotic communities or physical features of the environment where these may require specific human manipulations for their perpetuation."					
All other protected areas covered by NIPAS shall likewise be included in this category.					
B. Areas set aside as aesthetic, potential tourist spots					**DOT**

[1] Any one (1) confirmed ECA among the 12 ECA categories renders the project location an ECA. However, before a project location is considered in a Non-ECA (NECA), all of the likely relevant /applicable ECA categories (e.g. coral reef as an ECA category is not relevant for a project situated up in the mountains) have to be confirmed by Proponent thru the mandated agencies as "not an ECA". Short-listing of relevant ECA categories shall be determined thru consultation with EMB. If there is no response or data from agencies on the request for confirmation, the "uncertain" rating renders the project location as ECA, per EMB protocols. The burden of proof lies with the Proponent in proving that the project is located in a NECA. DENR can only issue certification for ECA categories within its jurisdiction, as follows: water bodies by DENR-EMB; NIPAS areas, wildlife habitat and mangrove areas by DENR-PAWB and geologic hazards and areas in critical slope by DENR-MGB.

[2] Proponents claiming the project location is not located in an ECA must secure an official confirmation or conforme from the agency. The agency's confirmation should contain a statement that the project is located or not located within the applicable ECA technical criterion, or "unable to assess" due to lack or absence of information. In the case where there is no data from the agency, the proponent can gather information and submit it to the agency for evaluation and confirmation. The DENR shall not issue any certification beyond its jurisdiction, unless authorized by the respective agency with mandate on the ECA. In case no certification is obtained from the mandated agency, the location will be arbitrarily considered an ECA, following the Precautionary Principle. The word "certification" is applied only for the purpose of screening a project's coverage under the PEISS, and shall not in any way be considered a requirement for ECC/CNC application.

Annex 9

Summary List of Pre-Scoping IEC Activities and Issues

Summary List of Pre-Scoping IEC Activities and Issues

IEC Participants	Actual IEC Schedule / Dates and Venue	Issues Raised /Suggestions Provided	Proponent's Response
Municipality of Langiden, Province of Abra	Langiden Municipal Hall, 03 April 2018, 10:00am-12:00n	The issue of compensation surfaced because the participants feared that they would not receive proper compensation for their property.	Engr. Bustanera of NIA-Abra clarified that relocation will undergo several processes and it will not happen abruptly. Just compensation will also be provided.
		The participants were concerned regarding their safety because they fear that flooding incidences may increase and/or intensify.	Engr. Bermudez explained that in the design of the reservoir, flood mitigation will be considered. He added that the project is still being studied and to let the team conduct their surveys to retrieve better information for the project.
Municipality of Bantay, Province of Ilocos Sur	Bantay Municipal Hall, 04 April 2018, 10:00am-12:00n	Mr. Gorospe from the Bantay Assessor's Office asked if the Consultant has applied for an Environmental Compliance Certificate (ECC) because the proposed site location is said to be a protected area. The project site for ISIP is also the proposed site for their future tree-planting project.	Mr. Leonard Matias of Woodfieds answered that the project is currently undertaking the EIA process to obtain the ECC. This IEC activity is the first step in the process.
		Mr. Gorospe asked whether the Municipality of Langiden approves the implementation of the project since the said municipality will not receive any benefit.	Engr. Bermudez of Woodfields replied that Langiden understands the need for the project; thus, no strong opposition of the project from this municipality. Additionally, the access road that will be built in the project area will greatly benefit the residents.
		Mr. Gorospe asked whether there will be a shortage in the water supply of the Langiden reservoir since there will be diversion of water flow to the tunnel.	Engr. Bermudez said that this will not happen with the engineering designs and plans of the project.
		A comparison was made between Upper Banaoang Project and the existing Banaoang Pump Irrigation System as the participants feared that the mistakes of the latter project may be made again in the former.	Engr. Bermudez emphasized that the Upper Banaoang Irrigation Project will supplement the Banaoang PIS by providing irrigation services to areas that are not covered by BPIS.

IEC Participants	Actual IEC Schedule / Dates and Venue	Issues Raised /Suggestions Provided	Proponent's Response
		One participant asked where the canal will run through.	Engr. Palomares of NIA ISIMO answered that it will be located in Barangay Lingsat.
		The participants raised that the proposed project might affect their drinking water supply.	Engr. Bermudez answered the issue by saying that the tunnel will not pass through Barangay Lingsat; thus, the water sources in the area will not be affected.
		Lingsat Barangay Captain Lopez requested that another Publci Consultation may be held with the residents of Barangay Lingsat.	Mr. Leonard Matias stated that this IEC is just one of the few Public Consultations that will be held for the Project. Another one shall be conducted soon.
Municipality of Sto. Domingo, Province of Ilocos Sur	Sto. Domingo Municipal Hall, 05 April 2018, 10:00am-12:00n	The concern of flooding was raised again as the participants fear such calamities may be induced by the structures.	Engr. Bermudez stated that flood mitigation measures shall be incorporated in the DED stage.
		Health issues were raised as the residents around the project site may experience respiratory-related diseases due to the construction.	Engr. Bermudez stated that the team inspected the site to assess and consider the environmental and social conditions in the study.
		A participant asked if the construction of project components will affect the existing dam project in the area.	Engr. Bermudez clarified that the outlet will be in Barangay Laoingen and the project will not affect the existing dam project there.
Irrigation's Association, NIA- BPIS, San Ildefonso	NIA-BPIS, San Ildefonso, Ilocos Sur	With regards to the 11-km tunnel, the presidents highly insisted that it should not be built on any of the springs.	Engr. Bermudez answered that the existing springs in the area will be considered in the design of the tunnel.
		Engr. Palomares asked if the team has visited the site. She stated that the Mayor of Bantay said that the BPIS destroyed the land. This is the reason why the outlet of the tunnel was transferred to Sto. Domingo.	Engr. Bermudez replied that there is more focus on the environmental and social conditions of the area to eliminate the possibility of mistakes. Moreover, Engr. Bermudez emphasized that the Upper Banaoang Irrigation Project will supplement the Banaoang PIS by providing irrigation services to areas that are not covered by BPIS.
		One participant asked if the mayor of Langiden gave his approval on the project.	Engr. Bermudez answered that the mayor gave his approval to the feasibility of the project.

IEC Participants	Actual IEC Schedule / Dates and Venue	Issues Raised /Suggestions Provided	Proponent's Response
		The participants discussed among themselves that the project might trigger landslides and the volcano in Bantay.	Engr. Bermudez answered that the existing condition in the area will be considered in the design.
		The participants discussed among themselves that this project might lead to pollution since the locals threw trash in the BPIS canals.	Engr. Bermudez answered that NIA will closely coordinate with the local government to address this issue.
		Engr. Palomares said that the project might lead to crimes such as murders since there have been incidences of homicide in the BPIS Project. The BPIS caused disputes among people.	Engr. Bermudez answered that NIA will closely coordinate with the local government to address this issue.

Annex 10

EIS Scoping and Procedural Screening Checklist

EIS SCOPING AND PROCEDURAL SCREENING CHECKLIST

<table>
<tr><td>Project Name</td><td>Consulting Services for the Feasibility Study of the Proposed Ilocos Sur Irrigation Project (Ilocos Sur Transbasin Project & Upper Banaoang Project)</td><td>Project Location</td><td colspan="3"><table><tr><th>Barangay</th><th>Municipality/City</th><th>Province</th><th>Region</th></tr><tr><td>Lingsat
Laoingen
Malapaao</td><td>Bantay
Sto. Domingo
Langiden</td><td>Ilocos Sur
Ilocos Surr
Abra</td><td>Region I
Region I
CAR</td></tr></table></td></tr>
<tr><td>Proponent Name</td><td>National Irrigation Administration Regional Office I</td><td>Proponent Address</td><td colspan="3">Ambrosio Street, Brgy. Bayaoas, Urdaneta City, 2428, Pangasinan</td></tr>
<tr><td>Proponent Contact Person</td><td>Engr. Vicente R. Vicmudo, Ph.D./ Leonila G. Fernandez</td><td>Proponent Means of Contact</td><td colspan="3">Landline No : (075) 568-2308
Mobile No :(+63) 922-867-9689
Fax No. :
Email :leonilafernandez16@yahoo.com; niarinoffice@yahoo.com; niaregion1pso@gmail.com</td></tr>
<tr><td>EIA Consultant</td><td>Woodfields Consultants, Inc.</td><td>Consultant Address</td><td colspan="3">153 Kamias Road Extension, Kamias, Quezon City, 1102 Philippines</td></tr>
<tr><td>EIA Consultant Contact Person</td><td>Kristine Ann S. Martinez</td><td>Consultant Means of Contact</td><td colspan="3">Landline No : 433-7053
Mobile No : 0995-911-1934
Fax No. :
Email : kmartinez@wci.com.ph; rcaguimbal@wci.com.ph; eflorendo@wci.com.ph</td></tr>
<tr><td>EMB/DENR Scoping Representatives</td><td>DENR EMB Regional Office I</td><td>Place of Scoping</td><td colspan="3">Langiden Municipal Hall, Bantay Municipal Hall, and Sto. Domingo Municipal Hall</td></tr>
<tr><td></td><td></td><td>Date of Scoping</td><td colspan="3">28 January to 1 February 2018</td></tr>
</table>

A. REQUIREMENTS ON EIA REPORT OUTLINE, FORMAT AND CONTENT

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler? YES	NO	REMARKS
Project Fact Sheet	**~2-3 pages**: Information highlights from Executive Summary on Project Description; Project Specific EIA Process, Baseline Profile, Key Impacts, Key environmental management measures and monitoring plans; include 0.25 page of project regional site location on Philippine Map inset.					
Table of Contents	**~9-10 pages**: Include all sections of the EIS for procedural screening purposes; list of tables, figures, annexes					
Executive Summary	**Maximum ~15 pages**					
1.0 Brief Project Description	**~3 pages** (tabulated) : project location & area (with 0.25 – 0.50 page project regional location on Philippine map inset), rationale, components, project phases/stages, process/ technology (as applicable), products and production capacity or rate (as applicable), types & estimated generation rate of major waste streams, manpower, project cost, project duration and schedule					
2.0 Brief Summary of Project's EIA Process	**~2 pages**: (tabulated): name/expertise of preparer team, study period, study area (and attach I page map), EIA method, summary of public participation in scoping and conduct of EIA study					
3.0 Summary of Baseline Characterization	**~4 pages** (tabulated): Present integrated key findings/conclusions per ecosystem (Land, Water Air and People) in terms of criticality of environmental quality status. No need to detail findings per module.					
4.0 Summary of Impact Assessment and Environmental Management Plan	**~3 pages**: 1) Impacts Mitigation Summary 1st column: Key project activities per phase (i.e. most critical environmental aspects which are the sources of key impacts); 2nd column: environmental component or module affected, nature and magnitude of most significant impacts; 3rd column: proposed options for prevention and mitigation of impacts 2) Present a statement each for SDP Framework, IEC Framework, ERP Policy, Abandonment Policy					

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler?		REMARKS
				YES	NO	
5.0 Summary of the Environmental Monitoring Plan	**~2 pages**: 1) Summary of EMoP Matrix of Proponent – focused only on 1-3 most important objectives and corresponding parameters to be monitored per phase of the project, limit level to be complied with, station description to be monitored and what frequency 2) Summary of MMT or public participation framework in post-ECC monitoring					
6.0 EMF and EGF Commitments	**~1 page:**Present EMF and EGF amount committed					
DRAFT MAIN EIS	**Maximum ~142 pages (Less attachments)**;					
1. BASIC PROJECT INFORMATION	**~3 pages** (tabulation of Project name, location,/address (from Sitio to Region); nature of project; threshold limits applied for; Proponent Name, address, contact numbers, brief profile; EIA Preparer Name, address, contact numbers. Attach project site map in NAMRIA topographic (or nautical, if applicable) map in 1:50,000 scale					
2. DESCRIPTION OF THE PROJECT'S EIA PROCESS	**~25 pages** including all attachments as specified below					
2.1 EIA TOR	Tabulate the main issues raised by the EIARC (see below Summary of Most Significant Issues) and the community (refer to List of Issues During Public Scoping) and state where/how each was addressed in the EIA Study; attach the detailed Scoping checklists (Public and Technical) as an annex					
2.2 EIA Team	Tabulate data on EIA Team: list of team members, field of expertise, module assigned to both proponent and preparer team					
2.3 EIA Study Schedule	Inclusive periods of study/field surveys , state climate/season					
2.4 EIA Study Area	Present area from project site up to extent of coverage of study: Show study area in NAMRIA topographic (and nautical , if applicable) map of 1:50,000 scale					
2.5 EIA Methodology	Tabulate only generic EIA approach and data sources					
2.6 Public Participation	Tabulate chronologically the following: EIA stage, dates, sectors involved, issues raised, committed actions by the Proponent where relevant; and explain or shed light on succeeding public's response/ reactions/participation or					

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler?		REMARKS
				YES	NO	
	explain prevailing perceptions/ actions by the public. On sectors and issue, differentiate the list into supportive and opposing sectors as well as issues considered valid and invalid.					
3. PROJECT DESCRIPTION	**~ 30 pages**					
3.1 Project Location & Area	• Presented in legible maps (use clearly scanned or original NAMRIA topographic (or nautical, if applicable) map of 1:50,000 or appropriate scale) showing both project site up to regional location with Philippine map as inset; Regional and provincial vicinity map (showing major landmarks, existing industries, settlements, etc) • Show title, legend, scale, project location and political boundaries (from sitio/barangay to region); delineation of areas of primary and secondary impact areas, Present geographic coordinates • Present applicable ECA categories and statement on technical description on environmental criticality of the site					
3.2 Project Rationale	• Present need for project based on national &local economic development and in terms of contribution to sustainable development agenda or current development thrusts of the Philippines ; • Briefly justify/describe existence of expected commercial quantities of resources to meet local/national development or sectoral objectives (e.g. describe geologic resource for metallic/non-metallic mining, petroleum /geothermal reservoir, etc); Attach detailed Economic Geology as Annex					
3.3 Project Alternatives	Present criteria used in determining preliminary options for facility siting; development design; process/technology selection; resource utilization					
3.4 Project Development Plan, Process/ Technology Options and Project Components	Attach tentative/options of Physical Plan/Site Development Map being considered at the FS stage (e.g., present annual program of development for a mine project); discuss processes/technologies being considered; tabulate project components and estimated dimensions/specifications (facilities/infrastructures, other single projects supporting the main project) and locate in map at a level of detail feasible at FS Stage					
3.5 Description of Project Phases, Aspects, Wastes, Other Issues, Built-in Measures	Tabulate project phases, activities/environmental aspects, associated wastes*, other key environmental and social issues; and built-in pollution control measures					

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler?		REMARKS
				YES	NO	
	*Under the column on Waste Generation: subheadings are as follows: types of wastes, estimated waste generation rate, estimated volume for the duration of the project phase)					
3.6 Manpower Requirements	Present manpower requirements per project phase; specify expertise needed; nature & estimated number of jobs available for men; nature and number of jobs available for women; specify strategy and tentative scheme for sourcing locally from host and neighboring LGUs and those from outside					
3.7 Project Cost						
3.8 Project Duration and Schedule	Present estimate per project phase					
4. BASELINE ENVIRONMENTAL CONDITIONS, IMPACT ASSESSMENT AND MITIGATION	**~ 50 pages** (less Attachments); For each module, present a) Methodology of EIA Modular Study including tabulation of stations with coordinates and qualitative description, as well as NAMRIA topographic map of the study area in 1:50,000 or more detailed scale; b) Summary of primary and secondary data (present detailed info as annexes; c) highlights of findings and conclusions on the baseline profile as to sensitivity to project impacts. • On Baseline: MINIMUM DATA TO BE HIGHLIGHTED ARE THOSE ASKED IN THE PEMAPS QUESTIONNAIRE IN ANNEX 2-7d OF THE RPM. Subsequently, focus on 3-5 key findings on the baseline profiling per relevant module. No need to present or attach ALL primary data. Important to present highlights of analysis of baseline data: a) present summary analysis of physico-chem, bio and social data in terms of how the values compare with environmental standards, how the biostatistics compare with typical ecological values, how social data compare with national and local normsor Philippine statistics. b) present estimates and relative percentages of total area likely to be utilized, total volumes of soils to be excavated, # watersheds and total vegetation to be cut, # of rivers and extent of coastal/marine waters to be affected, total households to be displaced, etc…					

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler?		REMARKS
				YES	NO	
	c) presence and statistical highlights of ecologically and economically most important species and ECAs which may be affected; state nature of impact of project and how this can be prevented or mitigated. d) presence of any physico-chem, biological & social indicators (pseudo-indicators) of project impacts for monitoring purposes • On Impacts: Focus on 1-3 most significant impacts/issues of the most critically affected modules under Land, Water, Air, People across each project phase. Include discussion of residual, unavoidable and cumulative impacts, where relevant and appropriate. • On Mitigation: present major interventions/actions for each identified significant issue.					
4.1 THE LAND	• Discuss Land Use/classification and associated Terrestrial Biology (flora and fauna); • Discuss only relevant aspects of Geology which will explain the geohazards; (Note: For Metallic and Non-metallic Mining Projects, Geothermal Exploration and other similar projects, other aspects of Geology particularly which describe the geologic resource in relation to the project proposal must be described as part of Project Description to justify geologic resource use) • Discuss Geomorphology(i.e. land forms/topography/slope/ terrain) which explain the limitations or nature of the land use and distribution of population and nature of and vegetation/wildlife forms; • Discuss Pedology (main soil type and quality) which rationalize/explain and lend support to the land use, population and biota profile					
4.2 THE WATER	Discuss relevant modules: Hydrology and Hydrogeology, Oceanography, Water Quality, Freshwater and Marine Biology Note #1: Identify which surface and groundwater systems will be affected by the project; present water quality status with highlight on the most relevant parameters, critical uses and the users of these water bodies; present the most important species likely to be affected by the project; present conclusions of modeling (where relevant) of extent of physical and chemical					

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler?		REMARKS
				YES	NO	
	dispersion/trajectory of most relevant parameter and resulting concentrations with increasing distance and depth from the source as basis for deriving a mixing or buffer zone and delineating the DIA from the IIA; map out the economically and ecologically critical areas/resources and superimpose on the biophysical data; Note #2: Present key findings and conclusions of analysis of surface and groundwater quality; Identify key potential impacts of the project across project phases and propose corresponding measures					
4.3 THE AIR	• Meteorology (Note: For most projects, the relevant parameters are only the climate types. seasons, rainfall profile, wind roses and climatological extremes as the latter pose environmental hazards; the rest of the climatological data can be attached as an Annex); • Air Quality (& Noise, if relevant) : Present highlight of air quality status with highlight on the most relevant parameters; present conclusions of modeling (where required) on extent of physical and chemical dispersion/trajectory of most relevant parameter and resulting ground level concentrations with increasing distance from the source as basis for deriving a buffer zone and delineating the DIA from the IIA; superimpose on the economically and ecologically critical areas/resources and population/significant socio-cultural features • Note: Present key findings and conclusions of analysis of air quality; Identify key potential impacts of the project across project phases and propose corresponding measures					
4.4 THE PEOPLE	Present highlights of primary and secondary data on the DIA and IIA, including highlights of perception survey; Present key findings and conclusions of analysis of the Socio-Cultural Environment; Identify key potential impacts of the project considering biophysical findings across project phases and propose corresponding measures					
5 ENVIRONMENTAL RISK ASSESSMENT (WHEN APPLICABLE)	**~2 page** Present only key findings and conclusions of the ERA. Refer to Section C of this Checklist and Annex 2-7eof the RPM to determine coverage and nature of ERA to be required.					

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler?		REMARKS
				YES	NO	
6 ENVIRONMENTAL MANAGEMENT PLAN	**~30 pages**					
6.1 Impacts Management Plan	Use Annex 2-17 of RPM – limit to most significant impacts per project phase and per environmental component arising from key environmental aspects					
6.2 Social Development Framework	Use Annex 2-18 of RPM					
6.3 IEC Framework	Use Annex 2-19 of RPM					
6.4 Emergency Response Policy and Generic Guidelines	The policy and generic guidelines are to be consistent with the relevant agencies' requirements that are to be complied with after the ECC is issued, e.g. MGB has a prescribed ERP content for mining projects.					
6.5 Abandonment /Decommissioning /Rehabilitation Policy and Generic Guidelines	Statement on Proponent's policies and generic procedures; Detailed Abandonment/Decommissioning Plan to be submitted post-ECC, within a timeframe specified in the ECC					
6.6 Environmental Monitoring Plan						
6.6.1 Self-Monitoring Plan	Use Annex 2-20 of RPM (including costing) and applicable parts of Annex 3-1 on ECC Compliance Monitoring of the Proponent; Attach filled out PEMAPS Questionnaire (Annex 2-7d) – present a statement on the existence of a PATHWAY, criticality of the RECEPTOR, status of perception of ENVIRONMENTAL PERFORMANCE from supportive or opposing groups.					
6.6.2 Multi-sectoral Monitoring Framework	For projects with MMT requirement, tabulate the following: list of stakeholder community sectors or representatives who are proposed to be likely members of the MMT as validated by EIA process, basis of priority selection, proposed MMT role, and scope of MMT responsibilities/activities; strategy or approach in establishing and monitoring Environmental Quality Performance Levels (EQPLs) in coordination with the MMT's program of identifying pseudo/quasi-indicators of environmental damage. Refer to Annexes 3-2 and 3-4 of the RPM.					
6.6.3 Environmental Guarantee and Monitoring Fund Considerations	Present a proposed amount of EMF (based on a draft AWFP in Annex 3-4 and consistent with guidelines in Annex 3-5); Present a committed amount of EGF and the basis for the estimate, following the guidelines in Annex 3-6					

GENERAL CONTENTS/ REQUIREMENTS	SPECIFIC CONTENTS/REQUIREMENTS	FOR SCOPING USE	FOR PROCEDURAL SCREENING USE			
		CLARIFICATIONS/ CHANGES/SPECIAL INSTRUCTIONS BY EIARC/EMB	Page/s in the EIA Report	Validated Acceptable by EMB Case Handler?		REMARKS
				YES	NO	
6.7 Institutional Plan for EMP Implementation	Discuss the Table of Organization of the Proponent where the reporting line and manpower complement/positions of the EU, MEPEO or equivalent units to higher management and relationships with operating departments are shown					
7 BIBLIOGRAPHY/REFERENCES	**~2 pages**					
8 ANNEXES	**~80 pages**					
8.1 Scoping Checklist	Use Annex 2-7a of the RPM (signed off document) with attached signed off Public Scoping List of Issues, as applicable (Annex 2-7c)					
8.2 Original Sworn Accountability Statement of Proponent	Use Annex 2-21 of RPM					
8.3 Original Sworn Accountability Statement of Key EIS Consultants	Use Annex 2-22 of RPM					
8.4 Proof of Public Participation	Attendance Sheets of IEC, Public Scoping, Public Consultation/Public Hearing; Proof of public participation in the EIA Study					
8.5 Baseline Study Support Information	• Detailed analysis of primary and secondary information per module; perception survey analysis with sample questionnaire; Lab analytical results for soil, ground and surface freshwater and marine waters, air quality, noise – all tables compared with relevant Philippine standards, Philippine typical baseline values, Philippine statistics or other equivalent reference standards. • The rest of the baseline data obtained by the Preparer shall be presented during the EIA Review Meetings in case the Review Team has items to validate against detailed baseline info. These can also be used by the Proponent in its self-monitoring and MMT validation activities.					
8.6 Impact Assessment and EMP Support Information	ERA, PEMAPS Questionnaire, etc					

NOTE: The EIA review process will advise DOH if the project will pose a significant public health risk to the environment, e.g. public health may be affected if the wastes/discharges are direct contributors to the leading causes of mortality/morbidity in the DIA, regardless of environmental management measures. To assist EMB on its review, DOH shall coordinate with the DENR-EMB on the declaration of Health Sensitive Projects and Health Sensitive Areas. Until such time, DOH shall review EHIA independently of the EIA Process, consistent with the DENR-DOH MOA on EHIA. Further, workers' HIA component of the EHIA is recommended to be coordinated by DOH with DOLE for the latter's consideration in its requirement of an Occupational Health and Safety Program from the Proponent.

DURING TECHNICAL SCOPING: OTHER INSTRUCTIONS BY THE EIARC/EMB ON THE FORMAT AND CONTENT OF THE EIA REPORT TO BE SUBMITTED			DURING PROCEDURAL SCREENING: OTHER OBSERVATIONS/COMMENTS/REMARKS BY THE EMB CASEHANDLER ON THE FORMAT AND CONTENT OF THE SUBMITTED EIA REPORT
1)		1)	
2)		2)	
3)		3)	

B. TECHNICAL SCOPING CHECKLIST [3]

NOTE: Attach list of issues raised by the attending community representatives during the Public Scoping (Annex 2-7c). Integrate the issues in the Technical Scoping Checklist below.

	List of Key Environmental Issues	Relevance based on PD and Project Location[4] LS = Likely Significant; LI = Likely Insignificant; NR= Not Relevant			a) Basis of Assessment of Relevance; b) Proposed Method of Impact Assessment; c) Other Instructions per Project Phase?	Description of Environment	Required?		Proposed Methodology of Securing and Presenting Information; Other Considerations in EIA Study	Page in the EIA Document	Verified acceptable by EMB CH?	
		LS	LI	NR			Y	N			Y	N
1.0	**THE LAND**					**THE LAND**						
1.1	**Land Use and Classification**	✓				**Land Use and Classification**						
1.1.1.	Change/Inconsistency in land use	✓				Description of existing land use/zoning/ classification						
1.1.2.	Encroachment in Protected Area under NIPAS	✓				Land Use Map *(include location of any ECAs and special land features)*						
1.1.3.	Encroachment in other ECAs		✓									
1.2	**Geology/Geomorphology**		✓			**Geology/Geomorphology**						
1.2.1.	Change in surface landform /topography/terrain/slope		✓			Slope and Elevation Map						
1.2.2.	Change in sub-surface/ underground geomorphology (e.g. underground mining)		✓			Regional/General Geological Map						
1.2.3.	Inducement of subsidence		✓			Geological Cross-Sections						
1.2.4.	Inducement of landslides or other natural hazards	✓				Sequence Stratigraphic Column of Rock Units						
1.2.5.						Geomorphological Map						
1.2.6.						g factor Contour Map for Rocks						

[3] This table has two major columns: Key environmental issues to be addressed, and the Description of Environment (primary or secondary data) based on one or more environmental issues identified. There is no one-to-one correspondence between the potential issue columns to the left and the baseline information to the right. These columns are provided to ensure the EIA Study focuses on the most relevant environmental issues. **LS = likely significant, LI = likely insignificant, NR = nor relevant**. LS requires in depth quantitative analysis depending on the availability of mathematical methods. LI requires qualitative analysis. NR column is provided since there are listed impacts that may not be after all existent due to the nature of the project and location. During the EIA study, some project aspects may be discovered as significant and may be the basis of Additional Information in the review.

List of Key Environmental Issues		Relevance based on PD and Project Location[4] LS = Likely Significant; LI = Likely Insignificant; NR= Not Relevant			a) Basis of Assessment of Relevance; b) Proposed Method of Impact Assessment; c) Other Instructions per Project Phase?	Description of Environment	Required?		Proposed Methodology of Securing and Presenting Information; Other Considerations in EIA Study	Page in the EIA Document	Verified acceptable by EMB CH?	
		LS	LI	NR			Y	N			Y	N
1.2.7.						Seismicity Map						
1.2.8.						Differential Settling Hazard Map						
1.2.9.						Bathymetric and Morphostructural Map						
1.2.10.						Results of Petrographic and Mineragraphic Analyses						
1.2.11.						Results of Geochemical Analyses of Rock Samples						
1.3	**Pedology**	✓				**Pedology**						
1.3.1.	Soil Erosion	✓				Summary of Soil Investigation Report on soil type and quality						
1.3.2.	Change in soil quality (e.g. in irrigation areas)	✓				Laboratory Results of Soil Sample Analysis						
						Erodibility Potential						
1.4	**Terrestrial Biology**	✓				**Terrestrial Biology**						
1.4.1.	Vegetation removal and loss of habitat	✓				Flora and Fauna Species Inventory or Survey						
1.4.2.	Threat to existence of important local species	✓				Summary of Endemicity /Conservation Status						
1.4.3.	Threat to abundance, frequency and distribution	✓				Summary of Abundance, Frequency and Distribution						
1.4.4.	Hindrance to wildlife access	✓				Site Observation/ Transect Walk Map						
2.0	**THE WATER**					**THE WATER**						
2.1	**Hydrology/Hydrogeology**	✓				**Hydrology/Hydrogeology**						
2.1.1.	Change in drainage morphology	✓				Topographic Map showing Drainage System						
2.1.2.	Change in stream, lake water depth	✓				Regional Hydrogeologic Map						
2.1.3.	Reduction in stream volumetric flow	✓				Streamflow Measurements/ Mean Monthly Flow Data						
2.1.4.	Inducement of flooding		✓									

List of Key Environmental Issues		Relevance based on PD and Project Location[4] LS = Likely Significant; LI = Likely Insignificant; NR= Not Relevant			a) Basis of Assessment of Relevance; b) Proposed Method of Impact Assessment; c) Other Instructions per Project Phase?	Description of Environment	Required?		Proposed Methodology of Securing and Presenting Information; Other Considerations in EIA Study	Page in the EIA Document	Verified acceptable by EMB CH?	
		LS	LI	NR			Y	N			Y	N
2.1.5.	Water resource competition			✓		Flood Peaks, Volumes, frequency rating curves and Stormwater flow estimates						
2.1.6.	Reduction/Depletion of groundwater flow			✓		Spring and Well Inventory and location map						
						Flow measurement location map						
2.2	**Oceanography**			✓		**Oceanography**						
2.2.1.	Change in circulation pattern			✓		Predicted Tides						
2.2.2.	Change in bathymetry			✓		24-Hour Tidal Cycles						
2.2.3.						Surface Current System						
2.3	**Water Quality**	✓				**Water Quality**						
2.3.1.	Groundwater pollution		✓			Physico-Chemical Characteristics of Wells and Springs						
2.3.2.	Stream water pollution	✓				Physico-Chemical Characteristics of Inland Surface Waters						
2.3.3.	Lake water pollution			✓		Physico-Chemical Characteristics of Coastal Waters						
2.3.4.	Marine water pollution			✓		Bacteriological Characteristics of Wells and Springs						
						Bacteriological Characteristics of Inland Surface Waters						
						Bacteriological Characteristics of Coastal Waters						
						Sampling Site Map						
2.4	**Freshwater Ecology**	✓				**Freshwater Ecology**						
2.4.1.	Threat to abundance, frequency and distribution of species	✓				Abundance of ecologically and economically important species						
2.4.2.	Loss of important species	✓				Presence of Pollution indicator Species						
2.4.3.	Loss of habitat	✓				Sampling Site Map						
2.5	**Marine Ecology**			✓		**Marine Ecology**						

List of Key Environmental Issues		Relevance based on PD and Project Location[4] LS = Likely Significant; LI = Likely Insignificant; NR= Not Relevant			a) Basis of Assessment of Relevance; b) Proposed Method of Impact Assessment; c) Other Instructions per Project Phase?	Description of Environment	Required?		Proposed Methodology of Securing and Presenting Information; Other Considerations in EIA Study	Page in the EIA Document	Verified acceptable by EMB CH?	
		LS	LI	NR			Y	N			Y	N
2.5.1.	Threat to abundance, frequency and distribution			✓		Abundance of ecologically and economically important species						
2.5.2.	Loss of important species			✓		Presence of Pollution indicator Species						
2.5.3.	Loss of habitat			✓		Marine Resource Map						
2.5.4.						Abundance/Densities/Distribution of mangroves, coral reefs, fishes, sea grasses, algae, seaweeds, plankton, etc						
2.5.5.						Sampling Site Map						
3.0	**THE AIR**	✓				**THE AIR**						
3.1	**Meteorology/Climatology**	✓				**Meteorology/Climatology**						
3.1.1.	Change in the local climate, e.g. local temperature	✓				Monthly Average Rainfall of the Area						
3.1.2.	Contribution to global greenhouse gas	✓				Climatological Normals/Extremes						
						Wind Rose Diagrams						
						Frequency of Tropical Cyclones						
3.2	**Air Quality (& Noise)**	✓				**Air Quality (& Noise)**						
3.2.1.	Air pollution	✓				Ambient concentrations of TSP, SO_x, NO_x, PM10, etc., 1-hour, 24-Hour Sampling						
3.2.2.	Increase in noise	✓				Noise Levels						
						Sampling Station Map (air and noise)						
4.0	**THE PEOPLE**	✓				**THE PEOPLE**						
4.1.1.	Displacement of settler	✓				Demography						
4.1.2.	Change in land ownership	✓				Settlement Map and Population Distribution Map						
4.1.3.	Displacement of property	✓				Population Growth Rate						

List of Key Environmental Issues		Relevance based on PD and Project Location[4] LS = Likely Significant; LI = Likely Insignificant; NR= Not Relevant			a) Basis of Assessment of Relevance; b) Proposed Method of Impact Assessment; c) Other Instructions per Project Phase?	Description of Environment	Required?		Proposed Methodology of Securing and Presenting Information; Other Considerations in EIA Study	Page in the EIA Document	Verified acceptable by EMB CH?	
		LS	LI	NR			Y	N			Y	N
4.1.4.	Right-of-way conflict	✓				Number of Households and Household Size by Barangay						
						Summary of Demographic data per Barangay to be directly affected: Land Area, Population, Population Density, Main Sources of Income, Gender and Age Composition, Literacy, Highest Educational Attainment, Employment Status						
4.1.5.	In-migration	✓				Household Profile based on results of the Socio-Economic/Perception Survey						
4.1.6.	Presence of Indigenous People		✓			Indigenous Peoples						
4.1.7.	Cultural Change	✓				Health						
4.1.8.	Threat to public health		✓			Morbidity and Mortality Rates (Infants and Adults) from Direct Impact Areas						
4.1.9.	Local benefits from the project		✓			5-Year Trend in Morbidity and Mortality						
						Notifiable Diseases in the Area including Endemic Diseases						
						Local Health Resources (Government and Private)						
						Environmental Health and Sanitation Profile: water supply, human excreta mgt, waste mgt and disposal systems and food hygiene						
4.1.10.	Threat to delivery of basic services		✓			Water Supply and Demand						
						Power Supply and Demand						
4.1.11.	Traffic congestion		✓			Transportation/Traffic situation						
SUMMARY/HIGHLIGHTS OF TECHNICAL SCOPING									For Procedural Screening			

List of Key Environmental Issues	Relevance based on PD and Project Location[4] LS = Likely Significant; LI = Likely Insignificant; NR= Not Relevant			a) Basis of Assessment of Relevance; b) Proposed Method of Impact Assessment; c) Other Instructions per Project Phase?	Description of Environment	Required?		Proposed Methodology of Securing and Presenting Information; Other Considerations in EIA Study	Page in the EIA Document	Verified acceptable by EMB CH?	
	LS	LI	NR			Y	N			Y	N

	Considering all project activities and phases, select the most critical Environmental Aspects (major sources of most significant impacts)	List of Associated Most Significant Environmental Issues/Stressors	Agreed EIA Approach in Impact Assessment and Mitigation on key environmental aspects and impacts/issues	Remarks	Page in EIA Document	Verified Acceptable by EMB CH?	
						Y	N
1							
2							
3							

C. ENVIRONMENTAL RISK ASSESSMENT

If the project has the following:	Required Study/Report	Y	N
1. Facilities for the production or processing of organic or inorganic chemicals using: alkylation, amination by ammonolysis, carbonylation, condensation, dehydrogenation, esterification, halogenation and manufacture of halogens, hydrogenation,hydrolysis, oxidation, polymerization, sulphonation, desulphurization, manufacture and transformation of sulphur-containing compounds, nitration and manufacture of nitrogen-containing compounds, manufacture of phosphorus-containing compounds, formulation of pesticides and of pharmaceutical products, distillation, extraction, solvation	Risk Screening Study		
2. Installations for distillation, refining or other processing of petroleum products.	Risk Screening Study		
3. Installations for the total or partial disposal of solid or liquid substances by incineration or chemical decomposition	Risk Screening Study		
4. Installations for the production or processing of energy gases, for example, LPG, LNG, SNG	Risk Screening Study		
5. Installations for the dry distillation of coal or lignite	Risk Screening Study		
6. Installations for the production of metals or non-metals by a wet process or by means of electrical energy	Risk Screening Study		
7. Installations for the production of metals or non-metals by a wet process or by means of electrical energy	Risk Screening Study		
8. Specific facilities or the use of certain processes listed in the **Risk Thresholds Table** below.	Risk Screening Study		
9. Facilities that would use, manufacture, process or store hazardous materials in excess of **Level 1** threshold inventory in **Risk Thresholds Table** below.	Hazard Analysis Study, and Emergency/ Contingency Plan based on the study and worst-case scenario.		
10 Facilities that would use, manufacture, process or store hazardous materials in excess of **Level 2** threshold inventory in **Risk Thresholds Table** below.	Quantitative Risk Assessment (QRA) and Emergency/Contingency Plan based on the QRA		

Risk Thresholds Table

CATEGORY	LEVEL 1 (tons)	LEVEL 2 (tons)	CATEGORY	LEVEL 1 (tons)	LEVEL 2 (tons)
1. Explosives	10	50	7. Toxic substances (medium)	10	50
2. Flammable substances	5,000	50,000	8. Toxic substances (high)	5	20

CATEGORY	LEVEL 1 (tons)	LEVEL 2 (tons)	CATEGORY	LEVEL 1 (tons)	LEVEL 2 (tons)
3. Highly flammable substances	50	200	9. Toxic substances (very high)	0.2	1
4. Extremely flammable substances	10	50	10. Toxic substances (extreme)	0.001	0.1
5. Oxidizing substances	50	200	11. Unclassified (Type A)	100	500
6. Toxic substances (low)	50	200	12. Unclassified (Type B)	50	200

NEED FOR PUBLIC HEARING/CONSULTATION /SITE VISIT OR SITE/VALIDATION DURING EIA REVIEW	BASIS FOR RECOMMENDATION/DECISION
1) Proponent's Request	
2) EIARC Evaluation	
3) EMB Evaluation	

SCOPED BY: EIARC MEMBERS

NAME	EXPERTISE	SIGNATURE	NAME	EXPERTISE	SIGNATURE

EIA PERSONNEL REPRESENTATIVE DURING TECHNICAL SCOPING:		REPRESENTATIVE/S OF THE PROJECT PROPONENT:	
Signature over Printed name	Signature over Printed name	Signature over Printed name	Signature over Printed name
NOTED BY: EIAM Division Chief		**REPRESENTATIVE/S OF THE EIA PREPARER:**	
Signature over Printed name		Signature over Printed name	Signature over Printed name

PROCEDURAL SCREENING RECOMMENDATION BY EMB CASEHANDLER:

1st Procedural Screening: Check Return Document ☐ Accept Document for Filing of Application for Substantive Screening

REMARKS: _____

Printed Name of EMB Case handler: _____ Signature: _____ Date: _____

2nd Procedural Screening: Check Return Document ☐ Accept Document for Filing of Application for Substantive Screening

REMARKS: _____

Printed Name of EMB Case handler: _____ Signature: _____ Date: _____