



**NATIONAL IRRIGATION
ADMINISTRATION -
REGION VII**



BOHOL NORTHEAST BASIN MULTIPURPOSE DAM PROJECT

PROJECT DESCRIPTION FOR SCOPING

September 2019



**WOODFIELDS
CONSULTANTS, INC.**
A Planning and Engineering Consulting Firm

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LIST OF ACRONYMS

| | |
|-------|--|
| DAO | Department Administrative Order |
| DIA | Direct Impact Area |
| ECC | Environmental Compliance Certificate |
| EL | Elevation |
| GDP | Gross Domestic Product |
| Has | Hectares |
| IEC | Information, Education, and Communication |
| IIA | Indirect Impact Area |
| LGUs | Local Government Units |
| MAO | Municipal Agriculture Office |
| MCM | Million Cubic Meter |
| MENRO | Municipal Environment and Natural Resources Office |
| MPDO | Municipal Planning Development Office |
| NGOs | Non-Government Organization |
| NIA | National Irrigation Administration |
| PEISS | Philippine Environment Impact Statement System |
| POs | Peoples Organization |
| ROW | Right of Way |
| SRIP | Small Reservoir Irrigation Project |

Chapter 1

Basic Project Information

CHAPTER 1

BASIC PROJECT INFORMATION

1.1 Project Information

| | |
|-------------------|---|
| Name of Project | Bohol Northeast Basin Multipurpose Dam Project |
| Location | Province of Bohol within the Municipalities of Danao, Trinidad, San Miguel, Dagohoy, and Bien Unido |
| Nature of Project | Dams for irrigation, water source, and hydropower |
| Size / Scale | <p>At normal water surface level: reservoir water storage capacity of 8.75 million m³ and inundated area of 180.27 hectares (ha); At maximum water surface level: reservoir water storage capacity of 17.36 million m³ and inundated area of 424.42 ha; At minimum water surface level: reservoir water storage capacity of 3.66 million m³ and inundated area of 54.49 ha; Total irrigation service area of 2,133 ha;</p> <p>Raw water for domestic water supply of 48.295 million m³ / year;</p> <p>Hydropower output of 2.08 MW; and</p> <p>One (1) impounding dam, 6.575 km long trans-basin tunnel, four (4) concrete diversion dams, and two (2) rubber diversion dams</p> |

1.2 Proponent Profile

| | |
|---------------------------|---|
| Name of Proponent | National Irrigation Administration (NIA) Region VII |
| Address | 0662 J.A. Clarin Street Barangay Dao, Tagbilaran City, Bohol, Philippines |
| Authorized Representative | Engr. Wilson M. Lopez Acting Regional Manager |
| Contact Details | Telephone No. : (038) 501-9421 Email Address: niaregion7@yahoo.com |

Chapter 2

Project Description

CHAPTER 2 PROJECT DESCRIPTION

2.1 Project Location and Area

The proposed Dam Project is located in the Province of Bohol, with its key structures and service areas situated in the Municipalities of Danao, Trinidad, San Miguel, Dagohoy and Bien Unido. It is about 77 kilometers away from Tagbilaran City, the Provincial Capital of Bohol.

Figure 2-1 shows the area of coverage of Bohol Northeast Basin Multipurpose Project including its watershed area.

The Island of Bohol is one of the biggest islands in the Visayas, the tenth largest island in the Philippines with an area of 4,821 sq. km. It is bounded by the Province of Cebu in the west, the Island of Leyte in the northeast, and Mindanao in the south. Its terrain is basically rolling and hilly. About half of the island is covered with limestone. Near the outer areas of the island are low mountain ranges. The interior is a large plateau with irregular landforms.

The identified Direct Impact Areas (DIAs) are the areas that would be submerged and areas that are adjacent to the dam sites, canal alignments, access roads, and irrigation service areas. The DIAs cover the municipalities of San Miguel, Trinidad, Bien Unido, Danao, and Dagohoy in the Province of Bohol. **Table 2-1** summarizes the list of DIAs.

Table 2-1
Direct Impact Areas of Bohol Northeast Basin Multipurpose Dam Project

| Municipality | Barangay | Project Component |
|--------------|------------------|-------------------------|
| San Miguel | Hagbuyo | Cambangay Diversion Dam |
| | Bugang | Ipil Diversion Dam |
| | Cabangahan | Service Area |
| | San Jose | Cambangay Catch Dam |
| Trinidad | Mahagbu | Service Area |
| | Manuel M. Roxas | Service Area |
| | Catoogan | Service Area |
| | La Union | Service Area |
| | Soom | Service Area |
| | Guinobatan | Service Area |
| | Tagum Sur | Service Area |
| | Tagum Norte | Service Area |
| | La Victoria | Service Area |
| | Poblacion | Service Area |
| | Sto. Tomas | Kinan-oan Diversion Dam |
| | Hinlayagan Ilaya | Service Area |
| | Kinan-oan | Service Area |
| | Mabuhay | Service Area |
| | Cabigohan | Service Area |
| | San Vicente | Service Area |

| Municipality | Barangay | Project Component |
|--------------|-----------------|--------------------------------|
| | Bongbong | Service Area |
| | | Hinlayagan-Ilaya Diversion Dam |
| Bien Unido | Liberty | Service Area |
| | Nueva Esperanza | Service Area |
| | Mandawa | Service Area |
| | Tuboran | Service Area |
| | Nueva Estrella | Service Area |
| Danao | Dagohoy | Isumod Diversion Dam |
| | Cantubod | Service Area |
| | Santa Fe | Service Area |
| | Remedios | Service Area |
| | Concepcion | Wahig Main Dam |
| Dagohoy | Poblacion | Service Area |
| | Cagawitan | Service Area |
| | Estaca | Service Area |
| | Malitbog | Service Area |

Figure 2-2 and **Figure 2-3** show the location of the Wahig Main Dam and its Catch Dam and five (5) Diversion Dams superimposed on a Google Earth-based image.

The Indirect Impact Areas (IIAs) on the other hand are those areas not directly affected by the irrigation project but may be significantly affected because of the proposed developments. These include the watersheds of the seven dams, the downstream side of the service areas, and the neighboring municipalities such as Carmen, Bien Unido, Sierra Bullones, Dagohoy, Pilar, Buenavista, Talibon, Jetafe, Ubay, and Jabonga.

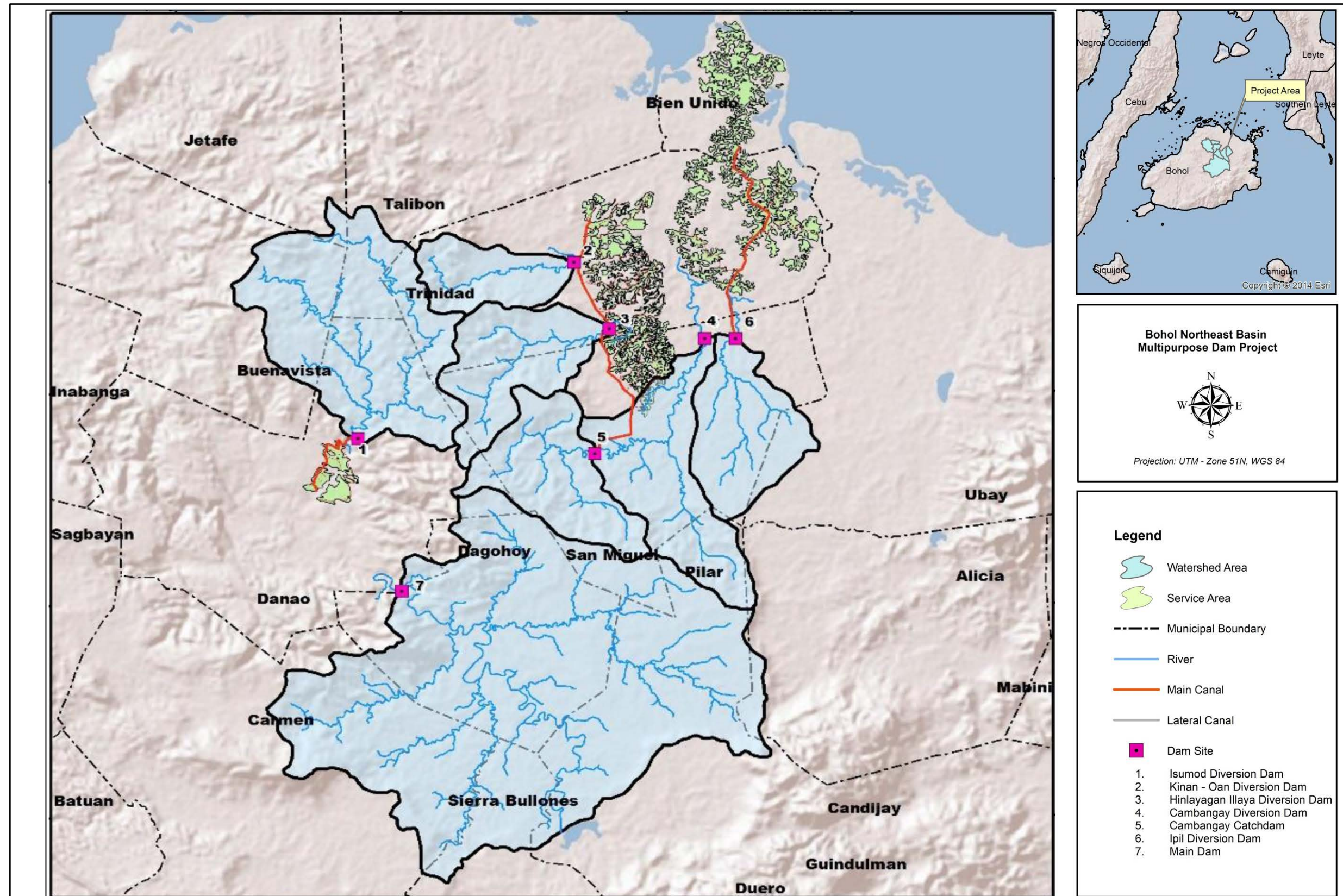


Figure 2-1
Location of the Service Areas and Watershed Areas

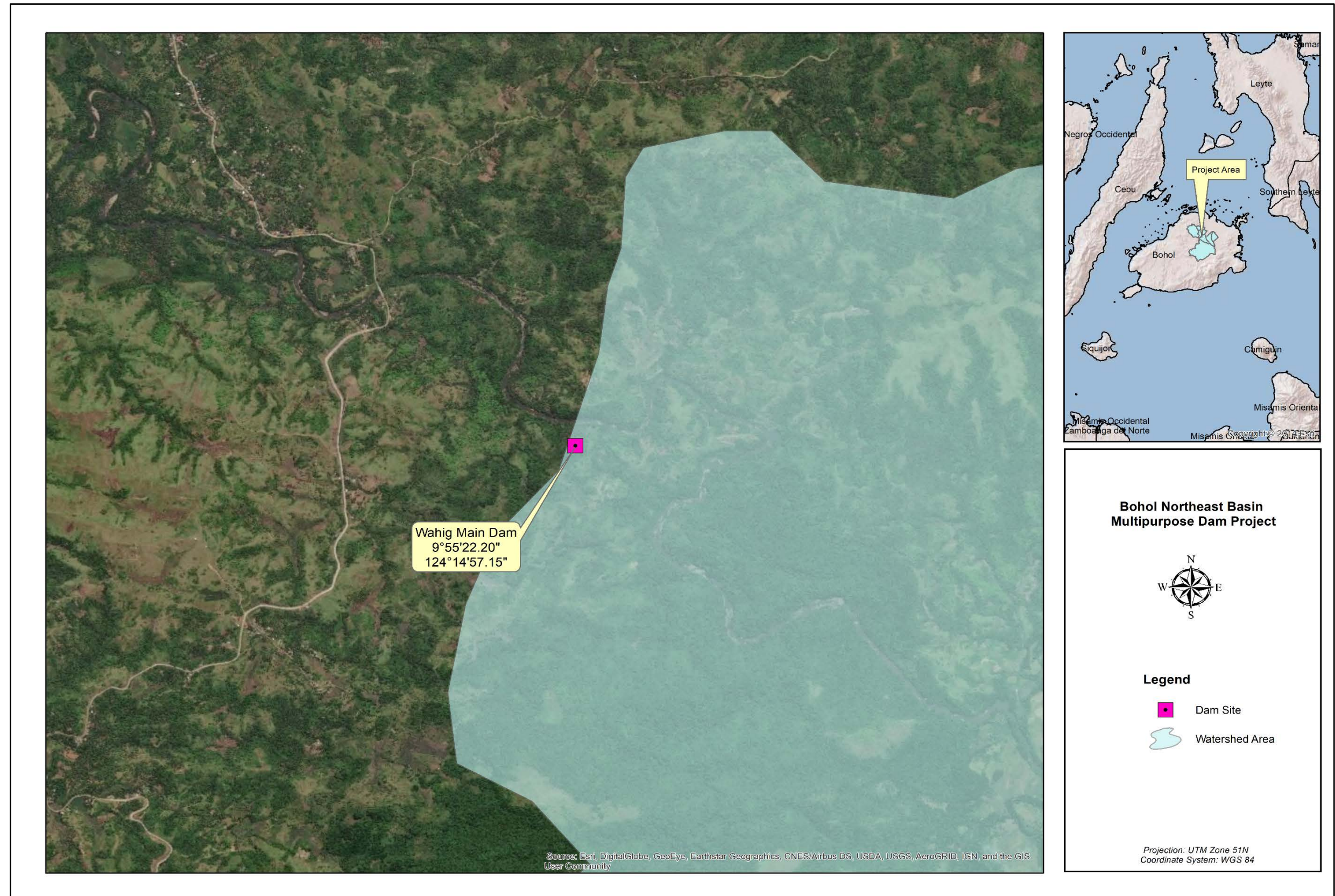


Figure 2-2
Location of the Wahig Dam

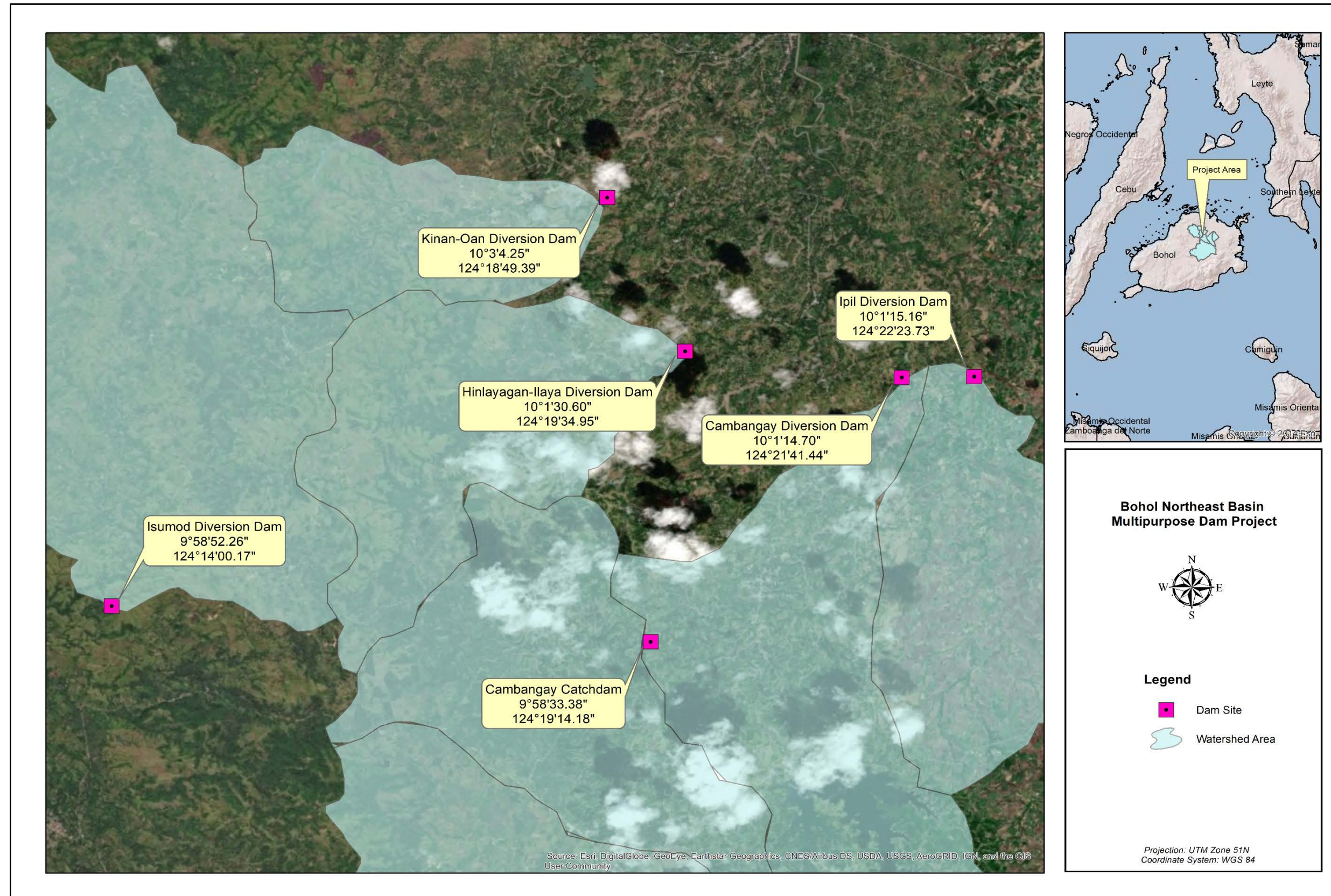


Figure 2-3
Location of the Catchdam and Diversion Dams

2.2 Project Rationale

Agriculture is one of the major sectors of the Philippine economy that contributes significantly to the country's Gross Domestic Product (GDP). One of the primary objectives of the Government is to increase rice self-sufficiency as part of enhancing food security and increasing incomes to farmers and eventually reducing extreme poverty at the countryside. In order to attain this, there is a need to increase rice production through the expansion of irrigated areas.

The Multipurpose Dam Project primarily aims to address this by providing an all year-round water supply to irrigate 2,133 ha of rice farms in the Municipalities of Danao, San Miguel, Dagohoy, Trinidad, and Bien Unido. The community will also stand to benefit from the 2.08-MW electrical power supply from the hydropower component of the project as well as from the 48.295 million m³ excess water storage that could be used as domestic water supply. Both the power and water supply components of the project try to address the need gap in the Province of Bohol.

2.3 Project Components

The project includes the construction of the following:

- (i) New access road;
- (ii) Transbasin Tunnel, Surge Tank, Penstock and Powerhouse;
- (iii) One (1) embankment dam and appurtenant structures;
- (iv) Four (4) concrete diversion dam and appurtenant structures;
- (v) Two (2) rubber diversion dam and appurtenant structures;
- (vi) Irrigation and drainage facilities;

Table 2-2 shows the project components and their corresponding descriptions.

In addition, the institutional development program of the project aims to strengthen the capacity of the irrigators associations through participation in the implementation of the project and the subsequent operation and maintenance.

The overall conceptual plan of the proposed project is to harness the excess flows from Malinao Dam and local flows of the downstream river/s and impound it at Wahig dam. The total service area to be irrigated is about 1,920 ha, topographically and hydrologically concluded, excluding the 213 hectares to be served independently on the Isumod diversion dam.

A 2.30 m dia. by 6.575 km long transbasin tunnel will be constructed to transfer water from the Wahig reservoir to the upstream of Cambangay catchdam. At the end of the tunnel, a surge tank, penstock and a hydropower plant will be provided. The Cambangay catchdam will be used as the diversion point of supplemental irrigation water for the Hinlayagan-Kinanoan dam/service area at the northern direction of the project area and the Cambangay/Ipil dam/service area in the north eastern part. Each of the diversion dam will be given an allocation for domestic water supply for future development.

Two alternatives were considered during the project conceptualization: Alternative 1 – with the impounding dam at Wahig River; and Alternative 2 – without the impounding dam.

Figure 2-5 and **Figure 2-6** show Alternative 1 and Alternative 2, respectively. As the project will serve bigger area and will provide more benefits with Wahig impounding dam, Alternative 1 will be pursued.

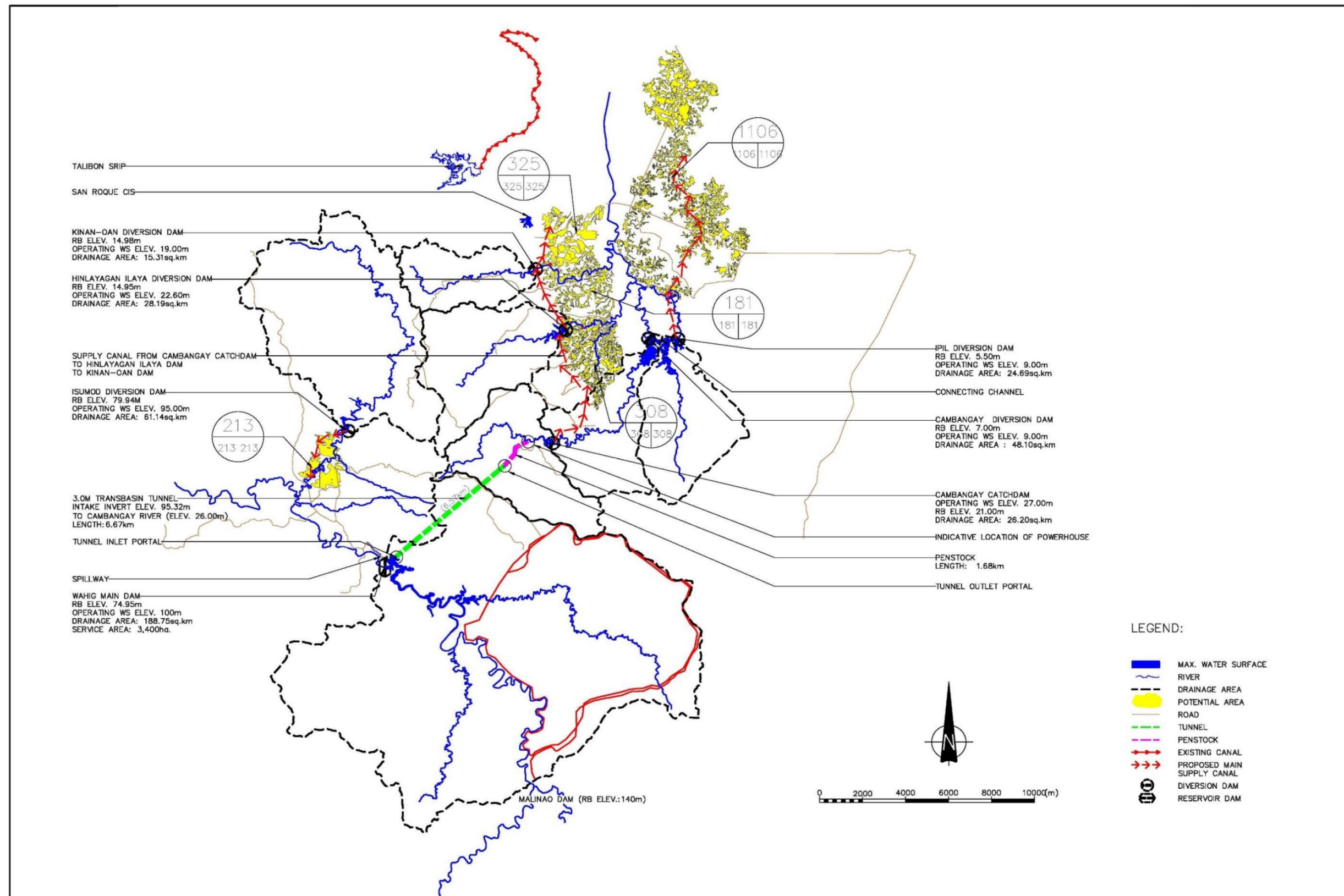


Figure 2-4
Alternative 1: Project Components of Bohol Northeast Basin Multipurpose Dam Project

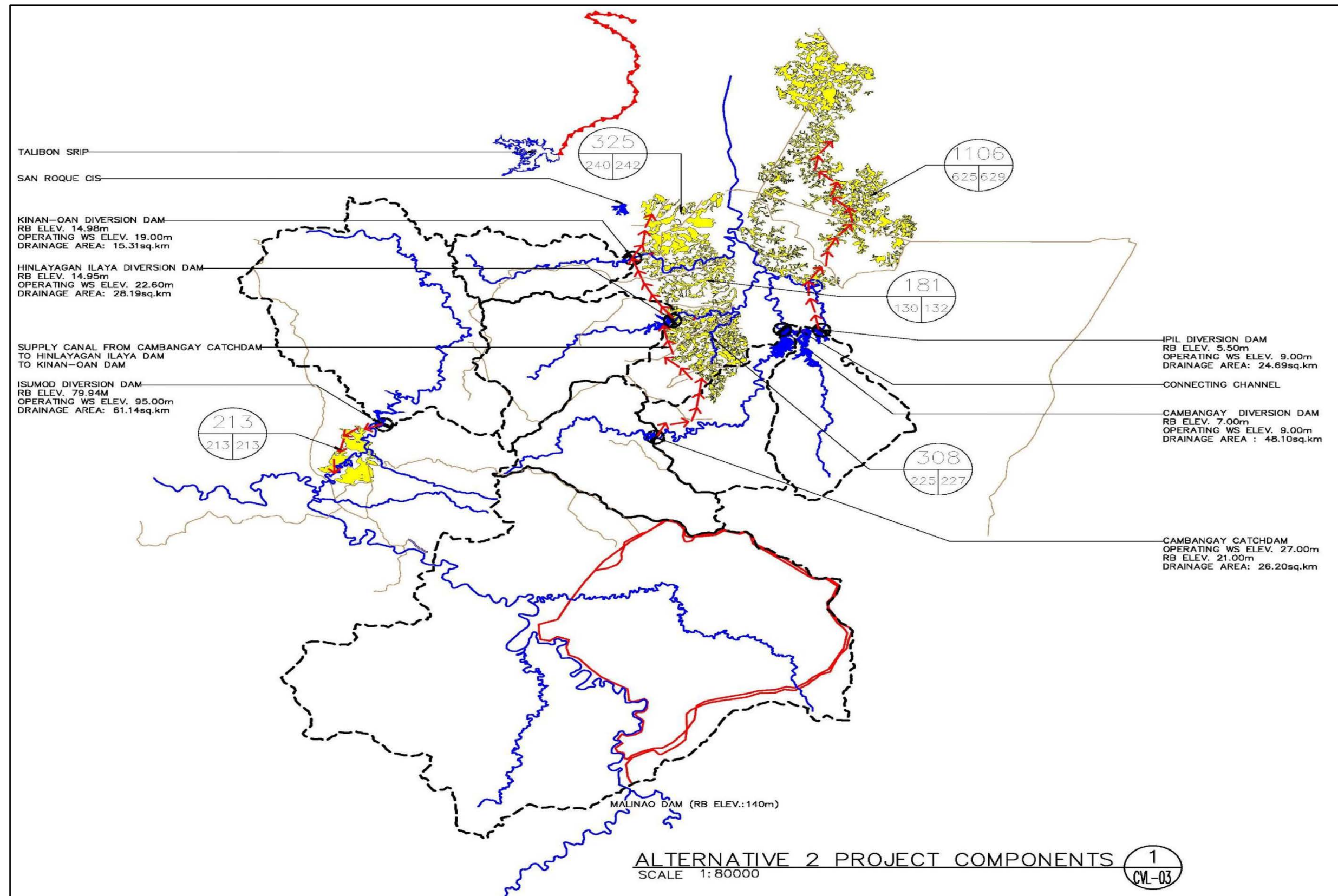


Figure 2-5
Alternative 2: Project Components of Bohol Northeast Basin Multipurpose Dam Project

Table 2-2
Components of the Bohol Northeast Basin Multipurpose Dam Project

| No. | Component | Description |
|-----------------------|--|---|
| 1 | Wahig Impounding Dam | The proposed Wahig Impounding Dam is expected to irrigate about 1,920 ha of paddy fields. It will have a height of about 33 m above the river bed and a crest length of about 160 m. It will inundate an area of about 180.27 ha with a storage capacity of 8.75 million m ³ based from the minimum water surface level (EL. 97.20). |
| 2 | Spillway | A spillway width of 300 m is adopted to limit the inundation at EL. 105. The spillway chute is about 46 m wide and length of 130 m and a stilling basin of about 60 m. The spillway is configured as an un-gated type for ease of operation and maintenance as usually adopted in NIA-Small Reservoir Irrigation Project (SRIP)'s project. |
| 3 | Transbasin Tunnel, Surge Tank, Penstock, and Power Plant | The tunnel is 2.30 m in diameter and about 6.575 km long. At the end of the transbasin tunnel, a surge tank and a steel penstock will be provided. The steel penstock end at Sta. 9+000 where a power plant is planned to be constructed. The stored water in Wahig reservoir is intended for supplemental irrigation water and domestic water supply. The design discharge (3.13 m ³ /s) of the transbasin tunnel has an equivalent irrigable area of 1,920 ha. The intake portal of the transbasin tunnel starts at Sta 0+600 in Brgy Concepcion at the Municipality of Danao and ends at Sta. 7+175 in Brgy San Jose, Municipality of San Miguel. |
| 4 | Diversion Conduit / Outlet Works | The Conduit is 240 meters long reinforced concrete with a slope of 0.00833. Its inlet will be at EL. 78 m while its outlet invert elevation at EL. 78 m which is about 2.0 m above the river bed at that section. The conduit will be 60-cm thick cut and cover reinforced concrete barrel constructed side by side. |
| Diversion Dams | | |
| 5 | Cambangay Catchdam | The Cambangay catchdam will serve as a diversion structure for the irrigable area in the Trinidad-Bien Unido service area. The dam will have a hydraulic head of 6.00 m while its non-overflow height will be at EL. 11.00 m. The irrigable area at the right side of the Hinlayagan River will be served best by the proposed Cambangay catchdam. |
| 6 | Hinlayagan-Ilaya Diversion Dam | This dam will operate at water surface EL. 22.60 meters. The river bed is at EL. 14.85 and its hydraulic head is about 8.10 meters. The service area lies below EL. 22 and will have an acreage of about 181 ha. As there will be excess water from the Hinlayagan River, it can be partly used to augment the irrigation water for the service area of Kinan-oan diversion dam. The main canal of the Hinlayagan-Ilaya diversion dam would be planned as conveyance canal of the excess (supplemental) water and will terminate at the upstream of Kinan-oan diversion dam. |
| 7 | Kinan-oan Diversion Dam | The proposed Kinan-oan diversion dam has a potential service area of about 325 ha. The irrigable area lies at EL. 19.00 meters and below. The operating water surface of the proposed dam is set at EL. 19.00 m. Without the |

| No. | Component | Description |
|-----|-----------------------------------|--|
| | | supplemental water from Wahig Dam, the dependable irrigation water is about 160 ha only. |
| 8 | Cambangay and Ipil Diversion Dams | <p>The eastern (right) side of the Ipil River, where the vast part of the proposed irrigable land of Trinidad area lies from EL. 10 to EL. 25 m, will be served by the proposed Ipil and Cambangay diversion dams.</p> <p>The original site of the Cambangay diversion dam is relocated for about 1.60 kilometers (areal distance) upstream of the original dam axis to avoid the construction of a major canal structure (siphon) that will cross the Ipil River.</p> <p>The Ipil diversion dam on the other hand is relocated about 1.80 kilometers (areal distance) upstream of the old dam site to avoid the submersion of some houses, an old bridge, and the main arterial road of sitios/barangays.</p> |
| 9 | Isumod Diversion Dam | The Isumod diversion dam will independently irrigate an area of about 213 ha. The service area is located at the flatter slopes of the rugged topography of Isumod hills. The operating water surface of the proposed diversion dam is set at EL. 95. The height of the overflow dam is 15.50 m and has a length of about 90.00 m. |

2.4 Project Phases, Key Environmental Aspects, Wastes, Issues, Built-in Measures

Table 2-3 summarizes the key environmental aspects, anticipated wastes and proposed mitigating measures during the different project phases.

Table 2-3
Summary of Environmental Management Plan

| Project Phases | Key Environmental Aspects | Wastes / Issues | Built-in Measures |
|------------------------|---------------------------|--|---|
| Pre-Construction Phase | Land | <ul style="list-style-type: none"> Leakage of fuel and engine oil during survey works | <ul style="list-style-type: none"> Implement preventive maintenance of vehicle and motor-driven survey equipment. |
| | People | <ul style="list-style-type: none"> Negative perception towards the project due to the anticipated right-of-way (ROW) land acquisition | <ul style="list-style-type: none"> Formulate and implement a Resettlement Action Plan (RAP). Conduct an Information, Education, Communication (IEC) campaign in the Project Affected Area. |
| Construction Phase | Land | <ul style="list-style-type: none"> Change in land use Destabilization of slope, soil erosion and increase of run off Clearing of trees Accumulation of solid wastes Leakage of fuel engine oil. | <ul style="list-style-type: none"> Conduct slope stability analysis and construct silt trap disposal area for spoils. Plant native vegetation that could retard erosion as appropriate on hill slopes and other potentially erodible places Cutting of trees will not commence until a tree cutting permit is secured from proper authority. Develop waste management plan for various specific waste streams. Minimize the production of waste materials by Reduce, Recycle and Reuse approach. |
| | Water | <ul style="list-style-type: none"> Sedimentation Contamination of surface water with oil and grease Marine and terrestrial habitat disturbance | <ul style="list-style-type: none"> Work stoppage during high rainfall events to reduce sediment loss Installation of oil traps and proper storage of used oil Restrict abandonment of wastes generated into the rivers and reservoirs |

| Project Phases | Key Environmental Aspects | Wastes / Issues | Built-in Measures |
|-----------------|---------------------------|--|---|
| | Air | <ul style="list-style-type: none"> Dust generation Exhaust fumes and gaseous emissions from vehicles | <ul style="list-style-type: none"> Dirt roads will be water-sprayed especially during hot and dry weather. Regulate speed of delivery/ hauling trucks Refrain from poorly maintained equipment at the construction site Wear dust masks when necessary. |
| | People | <ul style="list-style-type: none"> Workers health, safety and hygiene Public Safety | <ul style="list-style-type: none"> Provide training to all construction workers in basic sanitation and healthcare issues, general health and safety matters, and on the specific hazards of their work. Provide adequate sanitation and waste disposal at construction sites. Provide adequate healthcare for workers and locate worksites away from sensitive areas. Provide construction personnel with necessary self-protection devices, such as safety helmet, earplug, and other safety protection devices where necessary. Prohibit general public/local residents in high-risk areas, e.g., excavation sites and areas where heavy equipment is in operation and such sites have a watchman to keep public out. |
| Operation Phase | Water | <ul style="list-style-type: none"> Contamination coming from the operation of facilities Contamination from excessive use of pesticides and fertilizers. | <ul style="list-style-type: none"> Oil-water separators will be established such as at the motorpool, fuel/ lubricant storage or distribution facilities, etc. Formulate and implement a Fertilizer and Pesticide Use Plan. |

2.5 Project Cost and Duration

The project cost estimate is based on the quantities generated from the conducted Feasibility Study. **Table 2-4** presents the summary of the project cost.

Table 2-4
Summary of the Project Cost

| Item No. | Description | Total Amount (PHP) |
|----------|---|-------------------------|
| I. | General Requirements | 97,048,914.09 |
| II. | Civil Works | |
| A. | Wahig Reservoir Dam | 139,765,120.5 |
| B. | Spillway | 521,089,682.10 |
| C. | Diversion Conduit | 249,479,544.77 |
| D. | Dam Instrumentation | 3,227,700 |
| E. | Tunnel (Drill & Blast Method) | 836,340,324.33 |
| F. | Surge Tank | 21,346,481.61 |
| G. | Penstock (0.9m Ø X 10mm Thick) | 116,151,691.15 |
| H. | Powerhouse | 235,783,840.00 |
| I. | Cambangay Diversion Dam | 107,377,253.39 |
| J. | Cambangay Catchdam | 91,945,325.73 |
| K. | Hinlayagan Ilaya Diversion Dam | 153,899,401.98 |
| L. | Kinan-oan Diversion Dam | 56,690,763.11 |
| M. | Isumod Diversion Dam | 159,037,442.19 |
| N. | Ipil Diversion Dam | 123,334,198.98 |
| O. | Connecting Channel | 4,777,863.94 |
| P. | Access Roads | 49,549,458 |
| | Total Civil Works | 2,869,796,091.80 |
| III. | Irrigation | |
| A. | Cambangay Irrigation Network | 87,401,753.45 |
| B. | Cambangay - Ipil Irrigation Network | 145,861,830.12 |
| C. | Hinlayagan Irrigation Network | 48,612,085.91 |
| D. | Kinan-oan Irrigation Network | 13,483,849.05 |
| E. | Isumod Irrigation Network | 9,983,270.71 |
| | Total (III) | 305,342,789.24 |
| IV. | Land Acquisition & Resettlement Plan (LARF) | 26,612,764 |
| V. | Institutional Development | 21,000,000 |
| | Total Direct Cost | 3,319,800,559.13 |
| | Physical Contingency (10%) | 331,980,055.91 |
| | Price Contingency (10%) | 331,980,055.91 |
| | GESA (3.5%) | 116,193,019.57 |
| | NIA Management Fee (5%) | 165,990,027.96 |
| | Total Indirect Cost | 946,143,159 |
| | Grand Total | 4,265,943,718 |

Chapter 3

Social Preparation Activities

CHAPTER 3

SOCIAL PREPARATION ACTIVITIES

This chapter summarizes the social preparatory activities conducted for the proposed Bohol Northeast Basin Multipurpose Dam Project. This is in compliance with the Department Administrative Order (DAO) 2017-15 or the Guidelines on Public Participation under the Philippine Environmental Impact Statement System (PEISS).

3.1 Information, Education, and Communication (IEC) Activity

A series of IEC activities have been conducted as part of the social preparation activities in a form of Stakeholders' Meeting to inform the stakeholders and the LGU officials about the details of the proposed project. **Table 3-1** summarizes the IEC activities conducted in the different LGUs. A set of Annexes in relation to the IEC activities are attached to this report namely: Stakeholders' Meeting proceedings (**Annex A**); Stakeholders' Meeting request letters delivered to the respective LGUs (**Annex B**); Received IEC materials (**Annex C**); and, attendance sheets and signatures of stakeholders who received the IEC materials (**Annex D**).

Table 3-1
Timeline of IEC Activities

| Date | Time | Venue | Photo |
|--------------|--------------------|-----------------------------|--|
| 19 June 2019 | 11:15 am – 1:15 pm | New Cultural Center, Danao |  |
| 20 June 2019 | 9:45 am – 11:30 am | Conference room, San Miguel |  |

| | | | |
|--------------|--------------------|----------------------------|--|
| 24 June 2019 | 9:45 am – 11:00 am | Conference Room, Trinidad |  |
| 24 June 2019 | 2:30 pm – 4:00 pm | Municipal Hall, Bien Unido |  |
| 25 June 2019 | 9:45 am – 11:00 am | New Cultural Center, Danao |  |
| 25 June 2019 | 2:20 pm – 3:45 pm | Municipal Hall, Dagohoy |  |

3.2 Perception Survey

As part of the IEC Campaign, a perception survey was conducted in the affected barangays of the LGUs to gauge the baseline knowledge of the respondents regarding the project. This survey was delivered to a sample size of 115 with the distribution for each barangay shown in **Table 3-2**.

This section contains the results of the perception survey conducted in the municipalities of San Miguel, Trinidad, and Danao where the project components will be located.

Table 3-2
Sample Size for the Perception Survey

| Survey Dates | Province | Municipality | Barangay | Sample Size |
|--------------|----------|--------------|------------|-------------|
| 23 June 2019 | Bohol | San Miguel | Hagbuyo | 20 |
| | | | Bugang | 20 |
| | | | San Jose | 10 |
| 26 June 2019 | | Trinidad | Sto. Tomas | 15 |
| | | | Bongbong | 15 |
| 27 June 2019 | | Danao | Concepcion | 20 |
| | | | Dagohoy | 10 |
| Total | | | | 115 |

3.2.1 Demographic Profile of Respondents

The age range of respondents (n=115) as shown in **Figure 3-1** was divided into 3 categories. Majority (47%) of the respondents are between 41-60 years old, followed by those between 18-40 years old (30%). Respondents 61 years old and above represent the lowest age group at 23%.

Figure 3-2 shows the gender disaggregated population of the respondents. Based on the survey, 53% are females while 47% are males. This could be attributed to the observation that majority of the females were in the houses and their male companions were working at the time of the survey.

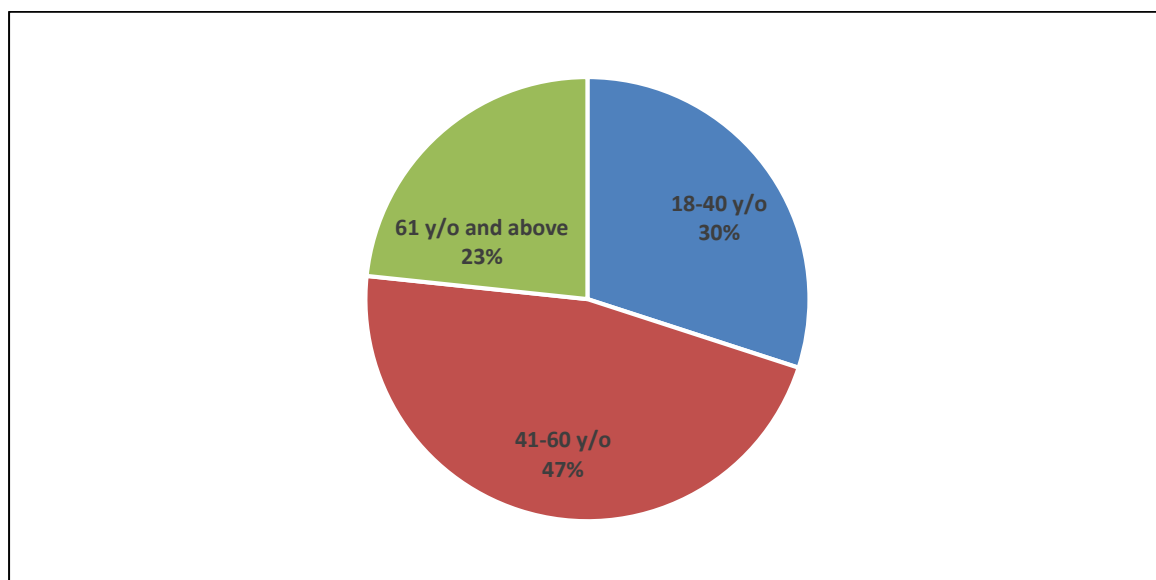


Figure 3-1
Age of Respondents

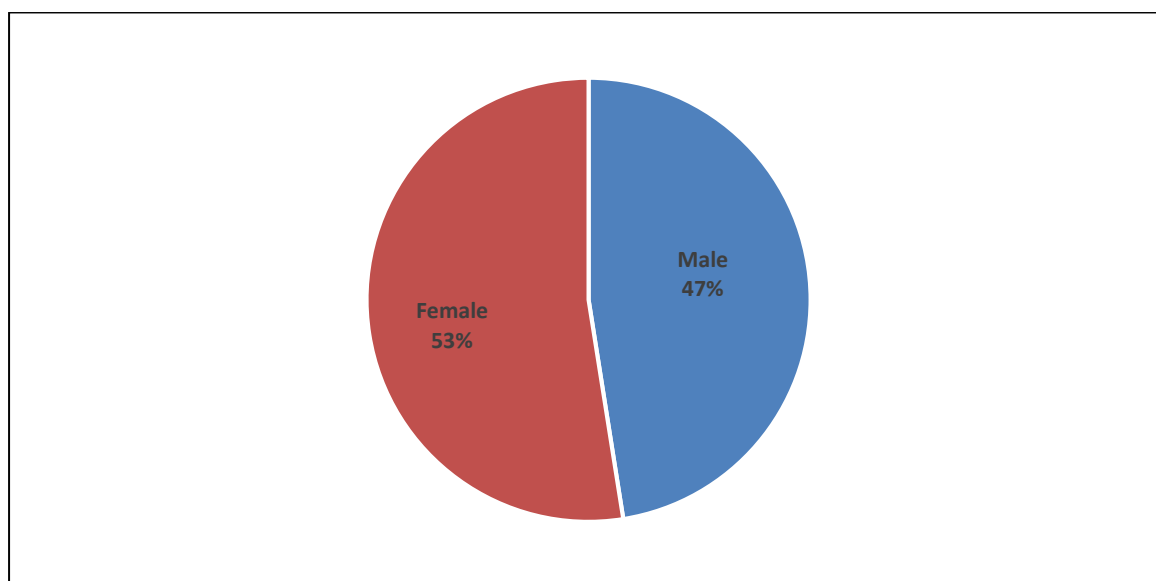


Figure 3-2
Gender of Respondents

Majority of the respondents shown in **Figure 3-3** are married (80%) followed by those who are single (11%), and widowed (6%). Only 2% of the respondents are staying cohabitated or “live-in” with their partners while 1% of the respondents are legally separated.

In terms of the religious background of the respondents, results shown in **Figure 3-4** are consistent with the predominant religion in the Philippines. 77% are Roman Catholic, followed by United Church of Christ in the Philippines (UCCP) at 13%, “Others” including Baptist, Yawe (4%), Iglesia ni Cristo (3%). Born-Again Christian, Pentecostal, and Jehovah’s Witnesses represent 1% each.

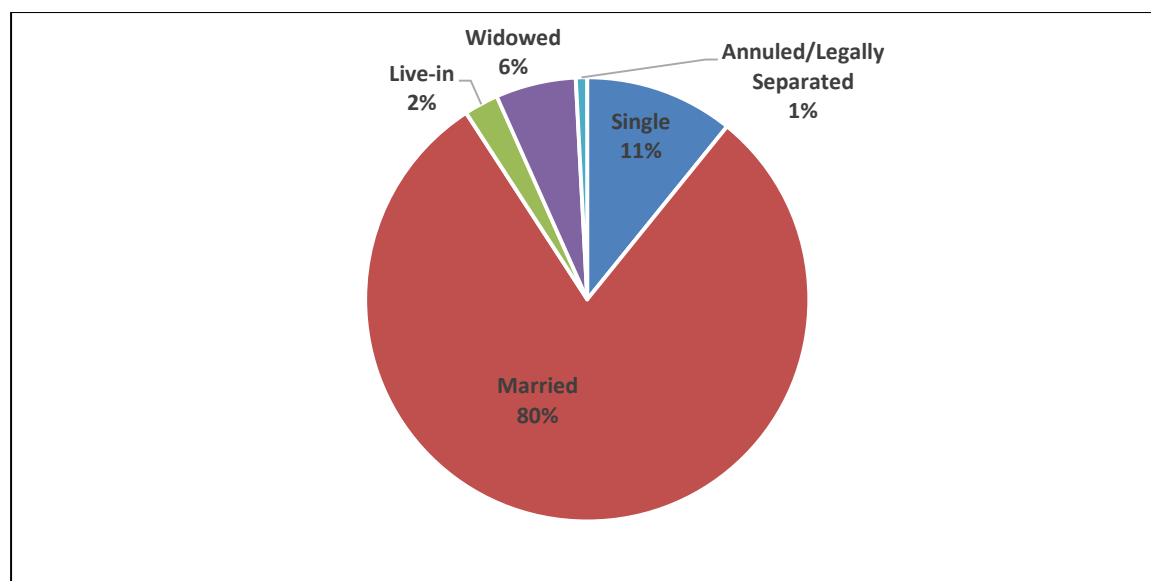


Figure 3-3
Civil Status of Respondents

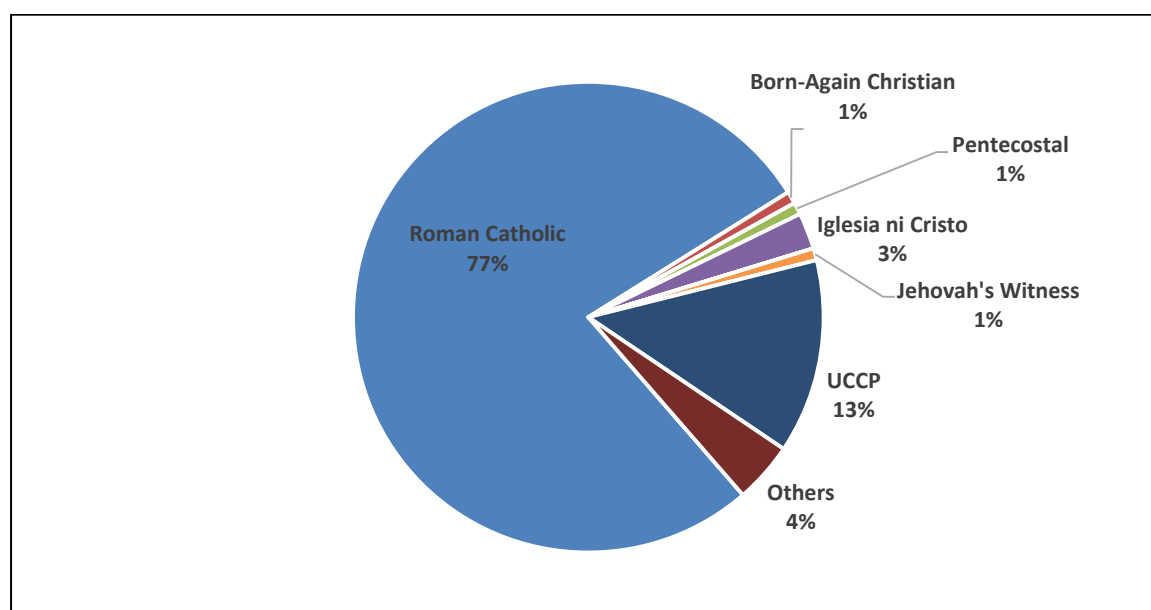


Figure 3-4
Religious Background of Respondents

Since the survey was conducted in Bohol, most of the respondents were locals born in Bohol (91%) as seen in **Figure 3-5**. Only 6% were born in Mindanao, 2% in Luzon, and 1% in other parts of Visayas.

Figure 3-6 shows that majority of the respondents (85%) have lived in their house for 10 years while the rest lived between 5 to 10 years (8%), 1 to 5 years (4%), and less than 1 year (3%).

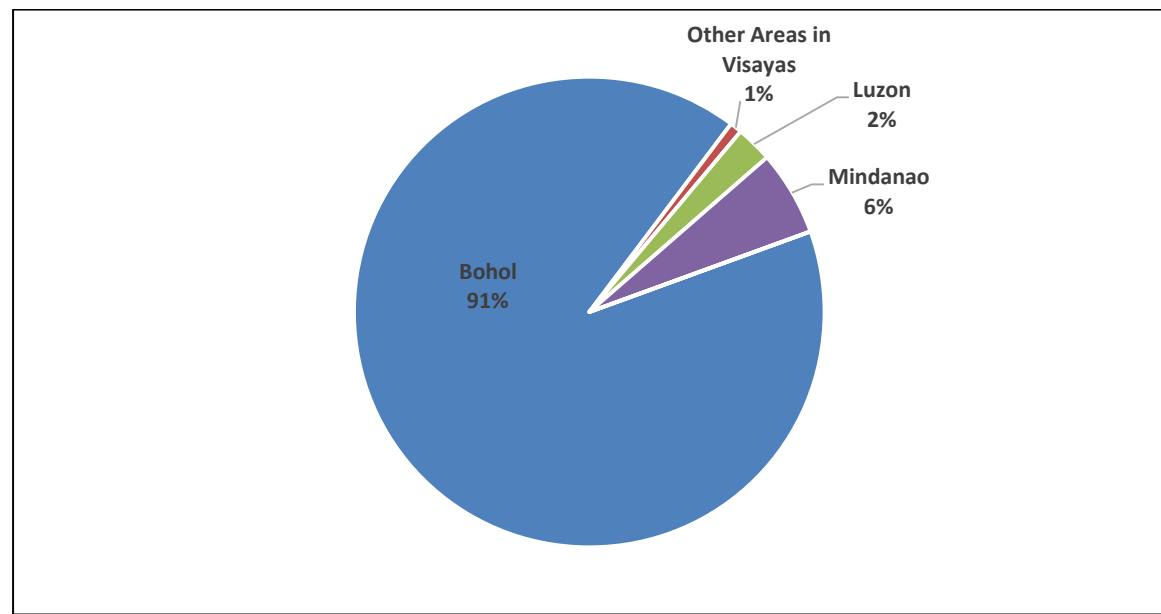


Figure 3-5
Place of Birth of Respondents

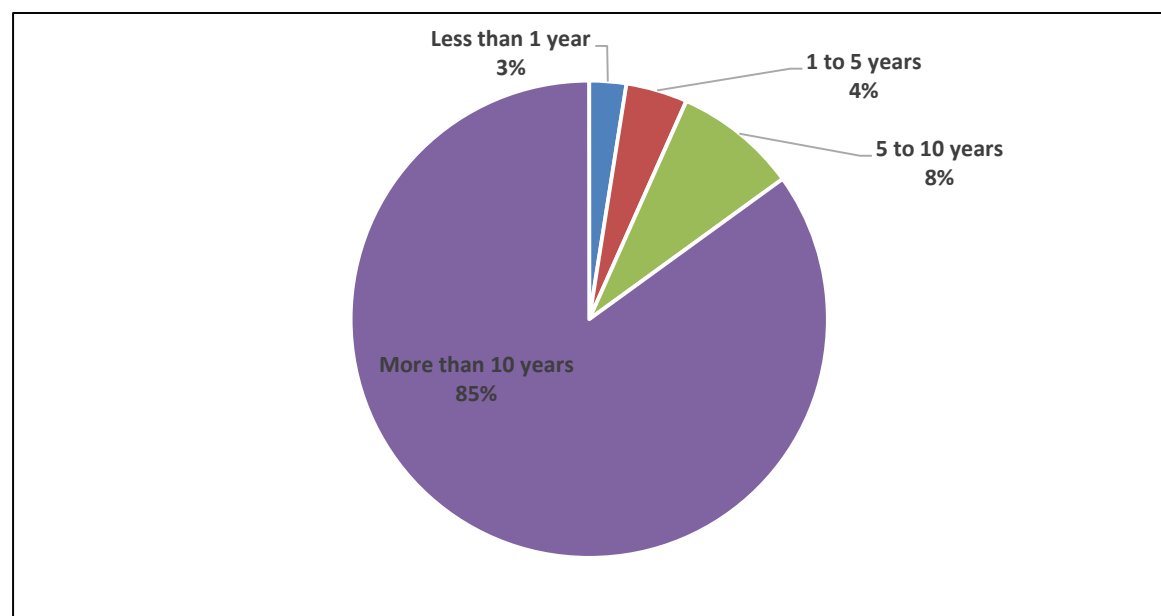


Figure 3-6
Years of Stay in the House

As far as ethnic group affiliation is concerned, majority of the respondents (**Figure 3-7**) are Bol-anon (90%) mainly because the survey was conducted in Bohol. The rest are Cebuano (9%) and Hiligaynon (1%).

In terms of educational background, most of the respondents finished basic elementary education (43%), while 34% graduated from high school. Based from **Figure 3-8**, 18% accomplished tertiary level education, 3% finished graduate school, and 2% acquired technical-vocational skills.

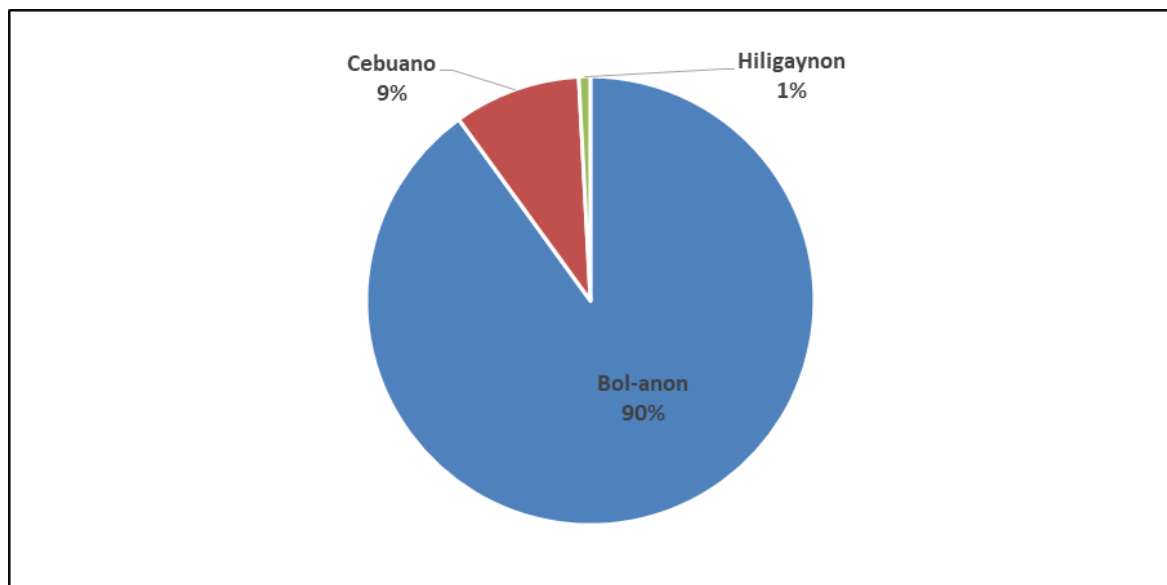


Figure 3-7
Ethnic Group Affiliation

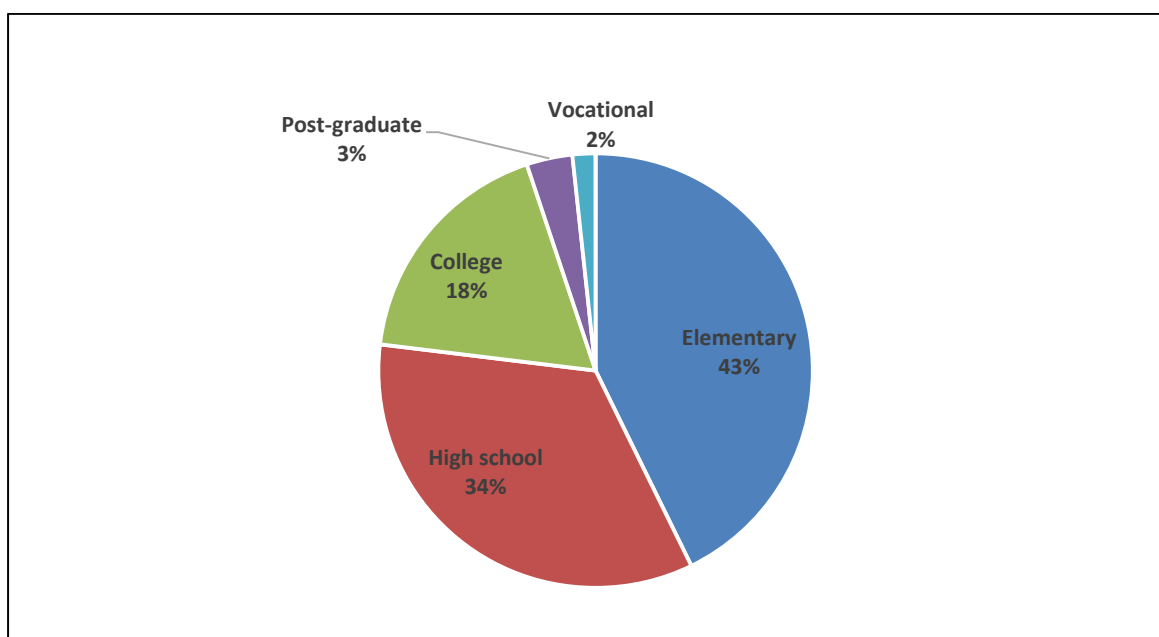


Figure 3-8
Educational Attainment

More than half (78%) of the respondents were currently employed which could be attributed to the presence of job opportunities in the survey area (**Figure 3-9**).

Most of the respondents were engaged in farming (65%) by virtue of the agricultural setting of the sites where the survey was conducted. The rest of the respondents as shown in **Figure 3-10** were employed in government service (12%), had own businesses (10%), laundry/ironing (3%), construction workers (2%), drivers (2%), fishing (1%). The remaining “others” (5%) include teachers, house helpers, and a pharmacist.

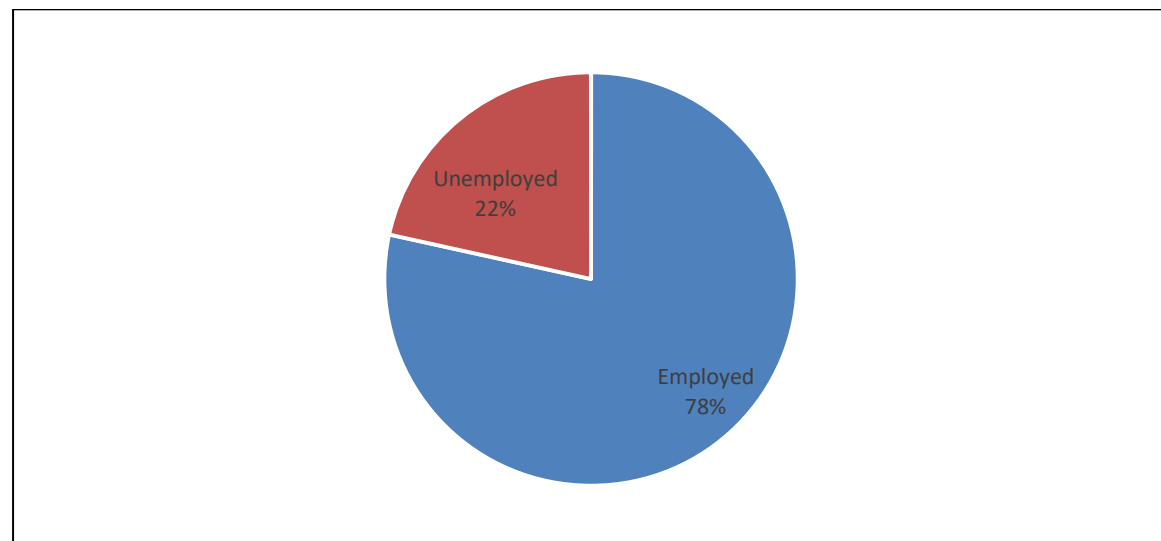


Figure 3-9
Employment Status of Respondents

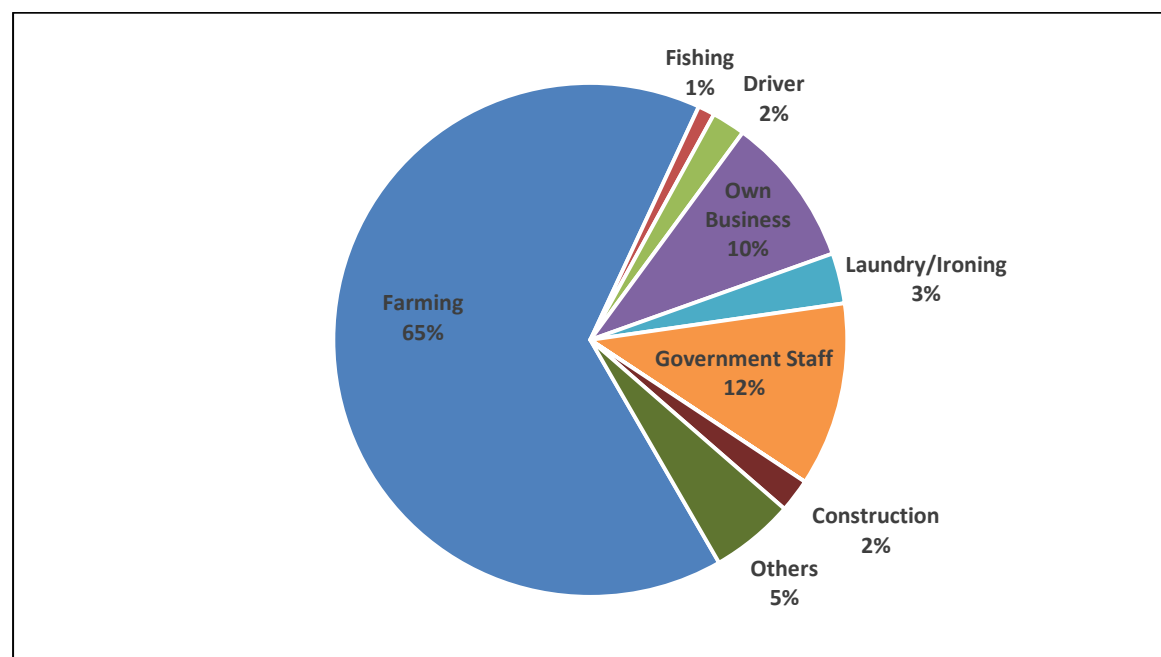


Figure 3-10
Nature of Work of Employed Respondents

Most of the respondents' place of work is within the barangay (89%) which basically may include those which are engaged in farming. **Figure 3-11** also shows that only 8% of the respondents' place of work is outside the barangay but still within the municipality, and 3% work outside the municipality but is within Bohol province.

The ranges of monthly income (in Php) of the respondents are shown in **Figure 3-12**. 44% of the respondents earn between 1,000 to 4,999, 29% earn between 5,000 to 9,999, 7% earn between 10,000 to 14,999, 6% earn between 15,000 to 19,999. Looking at both ends of the salary range, only 4% of the respondents have a monthly salary of more than 20,000 while 10% still earn less than 1,000.

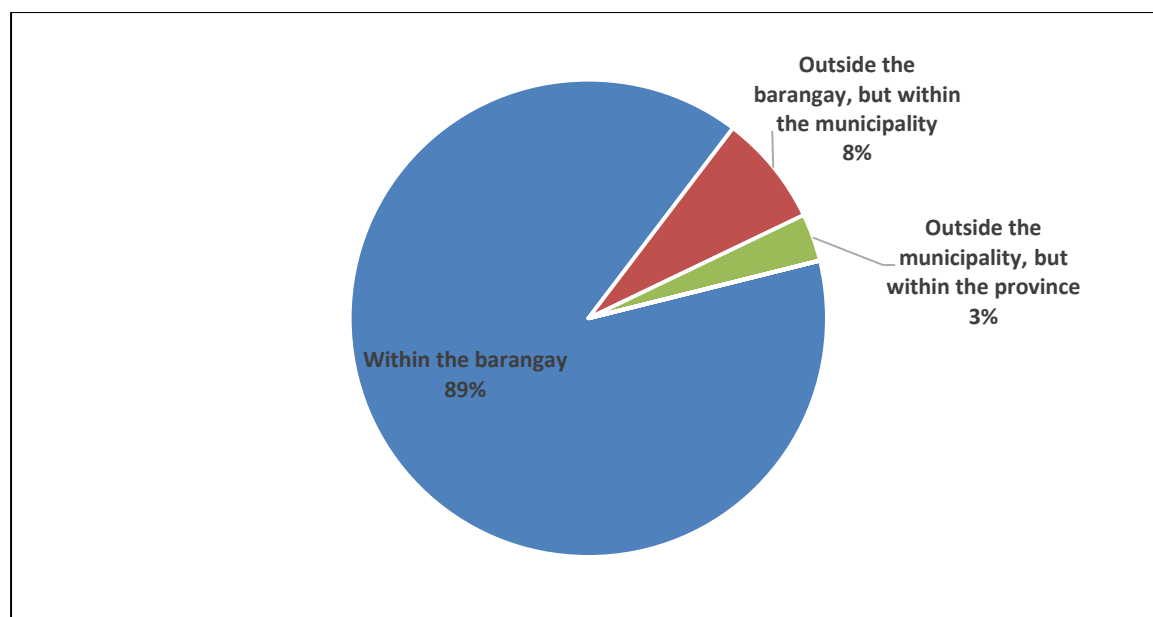


Figure 3-11
Location of Workplace of Employed Respondents

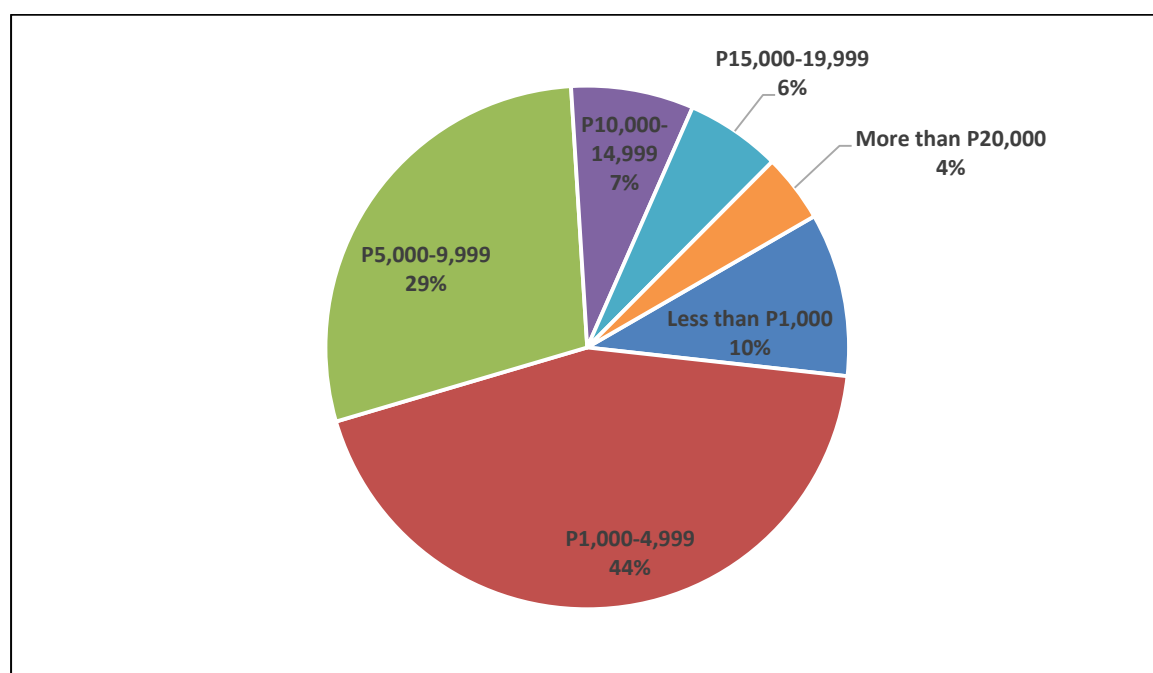


Figure 3-12
Monthly income of Respondents

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.

Majority (75%) of those surveyed indicated that the father is the household head as seen in **Figure 3-13** while 19% of the respondents had households headed by a mother, while 3% are headed by son or a daughter.

Majority of the respondents (33%) belong to a household with 5-6 members (see **Figure 3-14**), closely followed by those households with 3-4 members (32%). There were respondents belonging to large family sizes: 7-8 members (13%), 9-10 members (6%), and more than 10 members (5%). Respondents with 1-2 family members represent 11%.

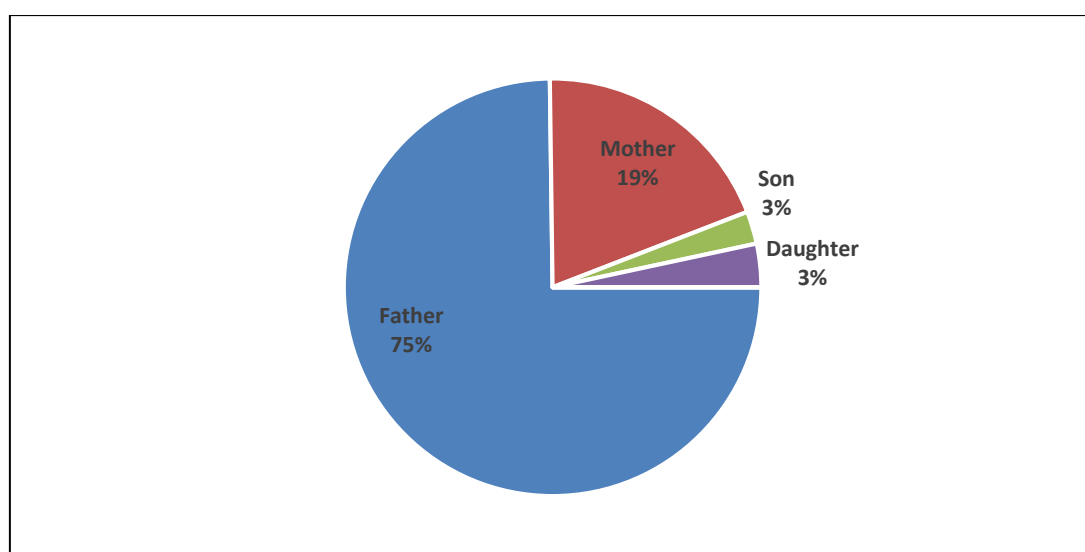


Figure 3-13
Head of Household

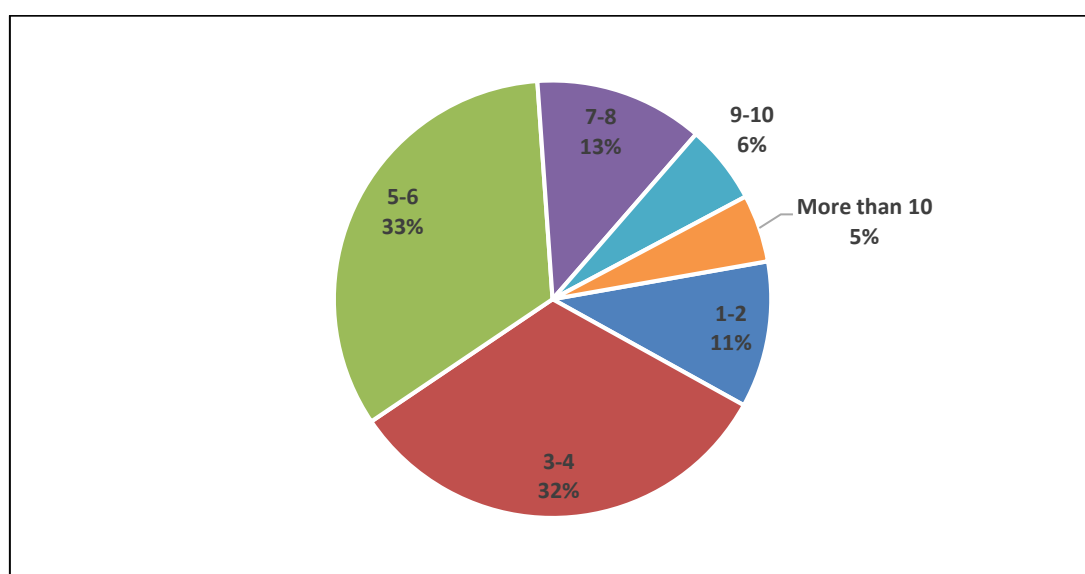


Figure 3-14
Household Size

Figure 3-15 shows that 82% of the respondents own their land while 8% are caretakers, 6% are tenants, and 4% are others (e.g. Grandmother, parents, friend, barangay).

In terms of the structures, 87% are owned by the respondents while 4% are tenants, 4% are caretakers, and 5% are others (e.g. parents) as seen in **Figure 3-16**.

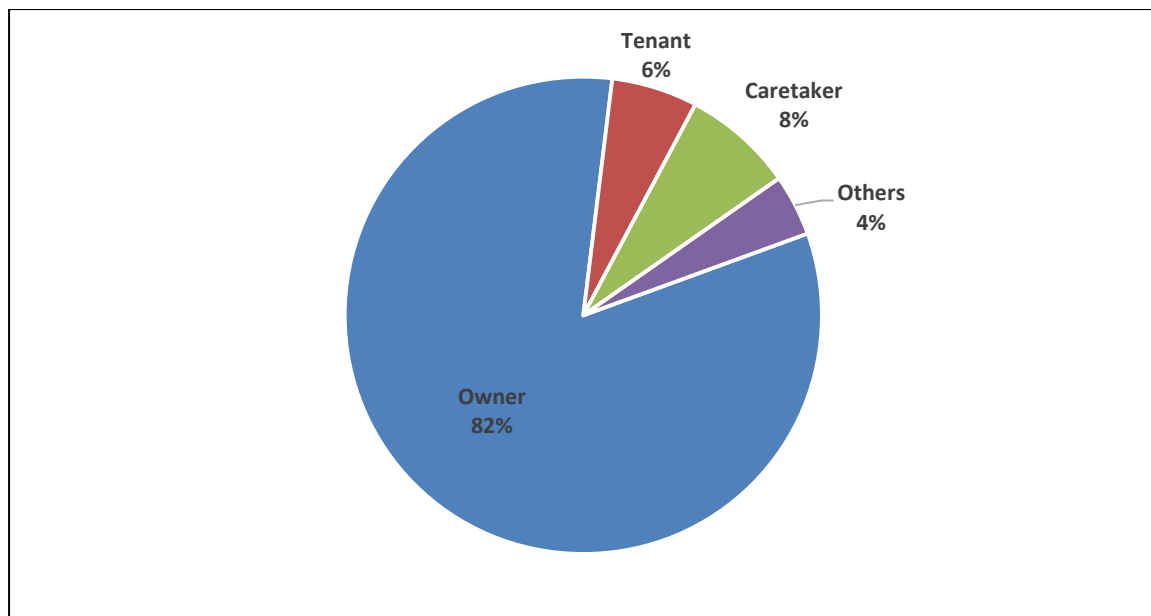


Figure 3-15
Landholding Status

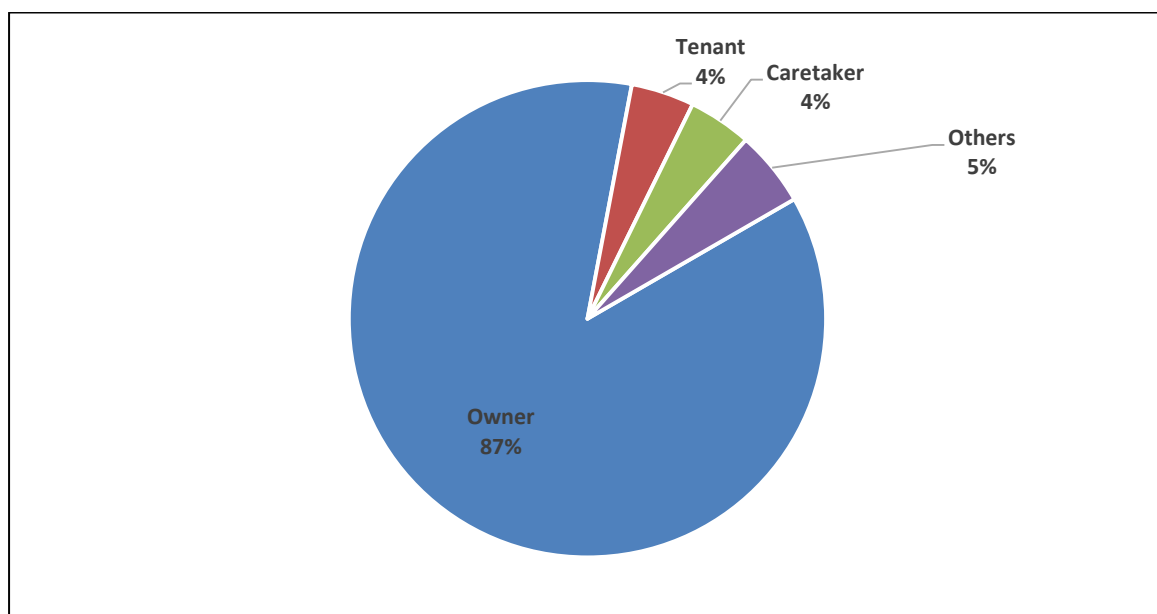


Figure 3-16
Structure Ownership

In terms of ownership of the structures (for those renting/caretakers), **Figure 3-17** presents that majority (38%) are “others” representing barangay, grandmother, parents etc.

As seen in **Figure 3-18**, majority of the respondents (70%) have a water-sealed toilet facility. About 28% of the respondents have a flushed toilet type facility. Only 1% of the respondents use the public toilet.

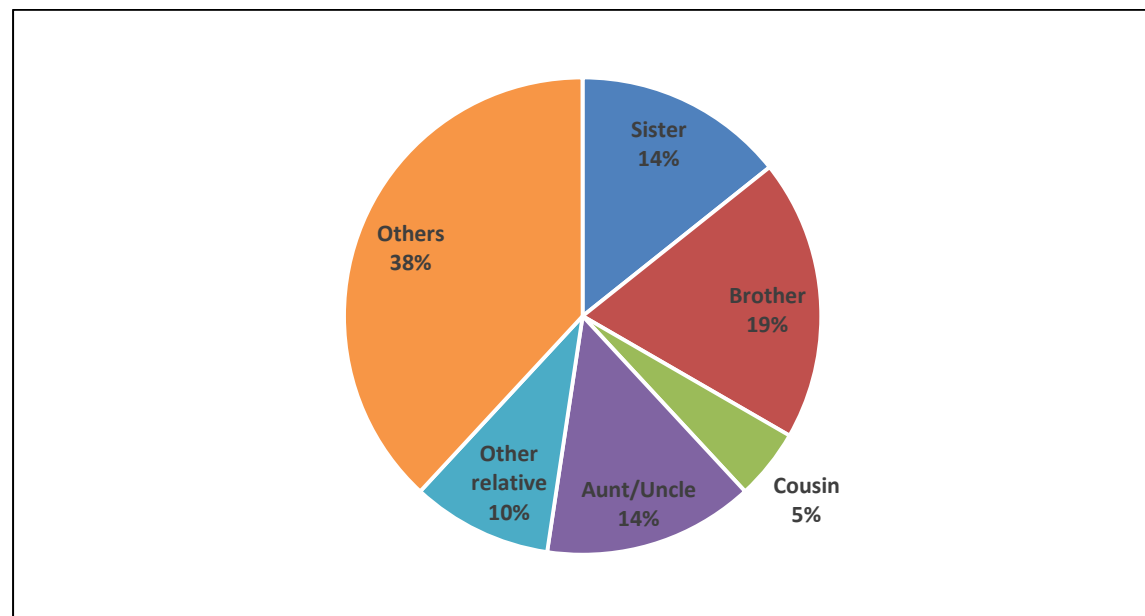


Figure 3-17
Owner of structure (renting/caretaker)

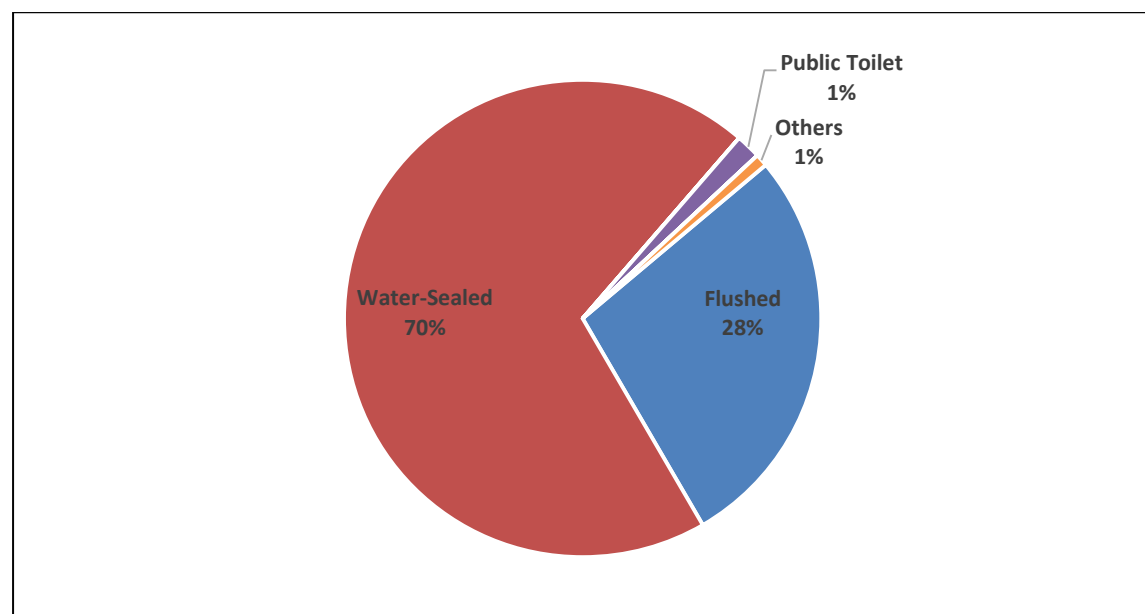


Figure 3-18
Toilet facility type

The common illnesses of the household members based on the respondents are presented in **Figure 3-19**. Cough still is the most prevalent at 52% followed by fever (34%). The rest represent less than 10% namely hypertension/high blood (5%).

In terms of domestic water supply source, **Figure 3-20** shows that 77% of the respondents have a Level I water supply, 15% have a Level II water supply, and only 8% have a Level 3 water supply.

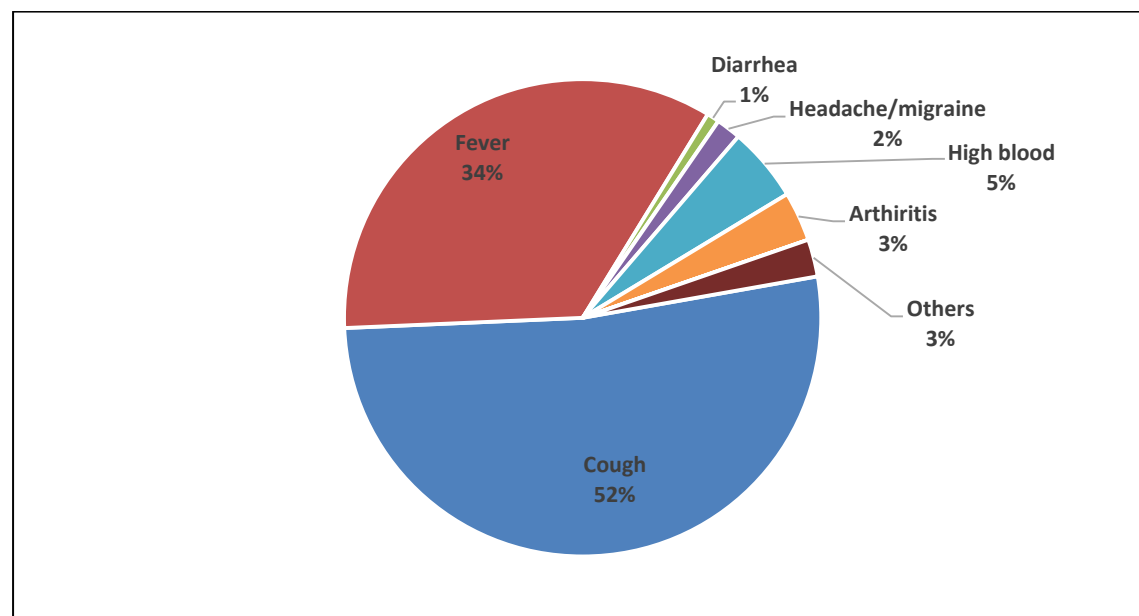


Figure 3-19
Common illnesses of Household members

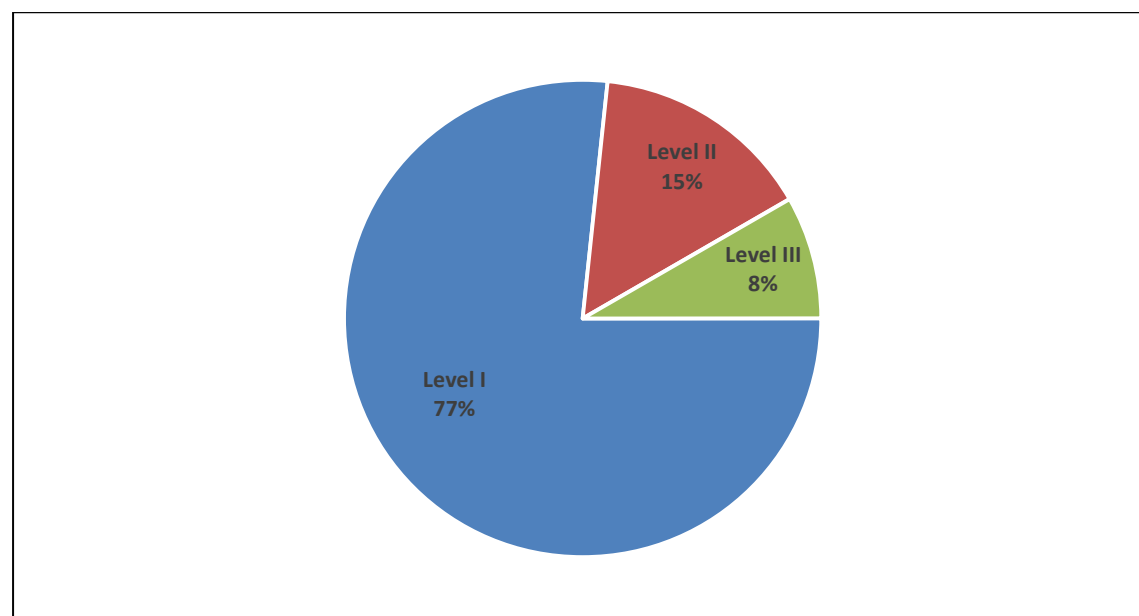


Figure 3-20
Source of Domestic Water Supply

In terms of electricity, only 2% of the respondents have no access to electricity. 98% have access to different sources of electricity namely via electric cooperative (95%), solar (2%) and generator set (1%) based on **Figure 3-21**.

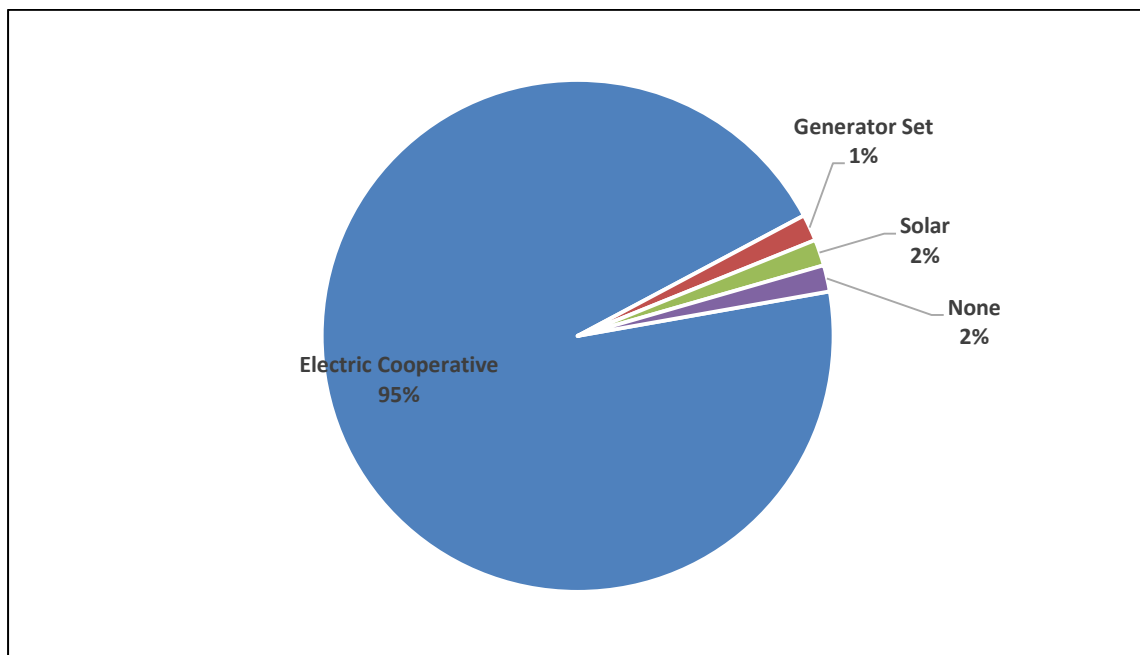


Figure 3-21
Source of Electricity

3.2.3 Perception of the Respondents on the Project

This section discusses the perception of the interviewees with regard to the project.

In terms of awareness on the presence of NIA in Region 7, 91% of the respondents are aware while only 9% are not. This is consistent with the results of the awareness of respondents on the provision of irrigation for farmers as seen in **Figure 3-22**.

Figure 3-23 shows that majority of the respondents (93%) are aware that NIA Region 7 provides irrigation for farmers while only 7% are not aware.

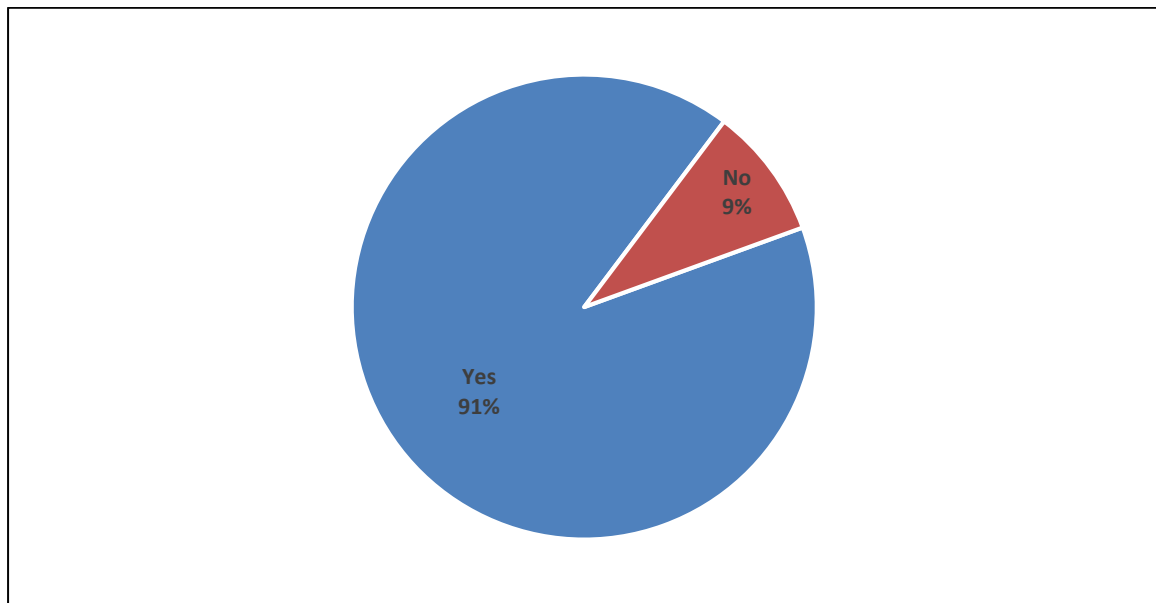


Figure 3-22
Awareness of NIA in Region 7

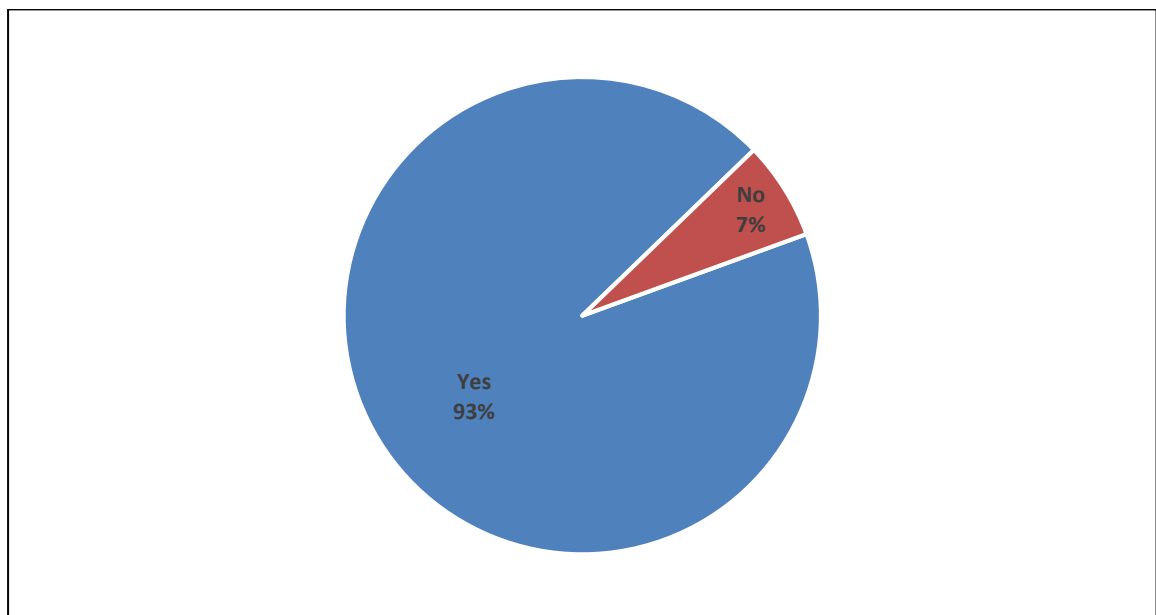


Figure 3-23
Awareness on provision of irrigation water for farmers

In terms of awareness of the Bohol Northeast irrigation Project, 76% of the respondents are aware of the project while 24% are not as presented in **Figure 3-24**.

Information and dissemination source for the Bohol Northeast Project mostly came from Municipal and Barangay officials (60%). Based on **Figure 3-25**, other sources of information include news from friends, relatives and neighbors (25%), radio, TV, news articles (9%), and from NIA officials (6%).

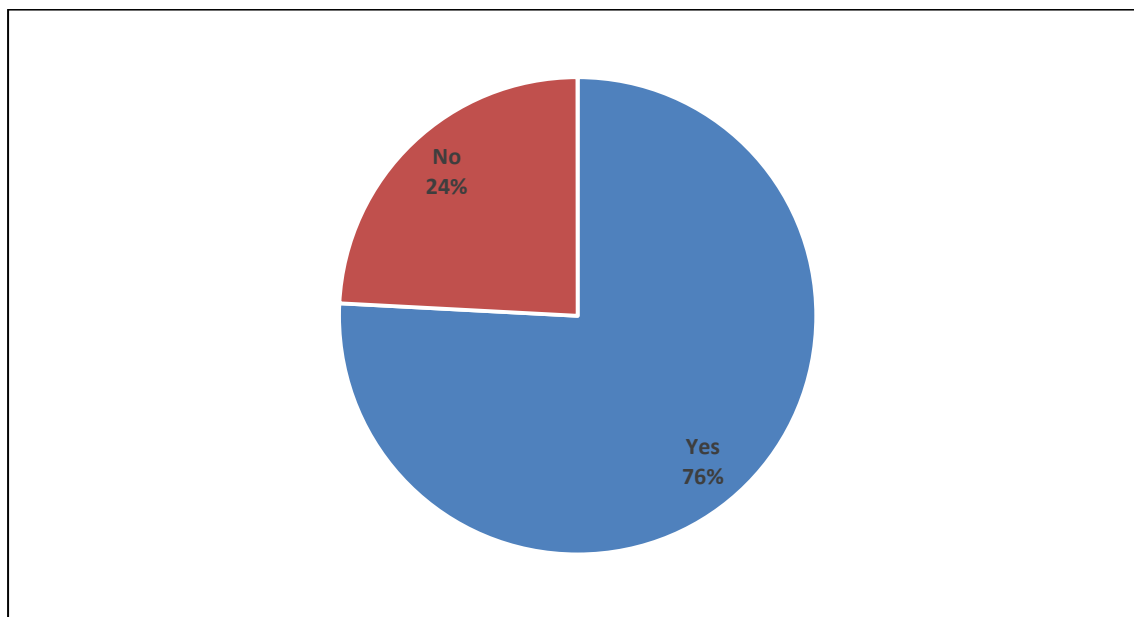


Figure 3-24
Awareness of Bohol Northeast Irrigation Project by NIA Region 7

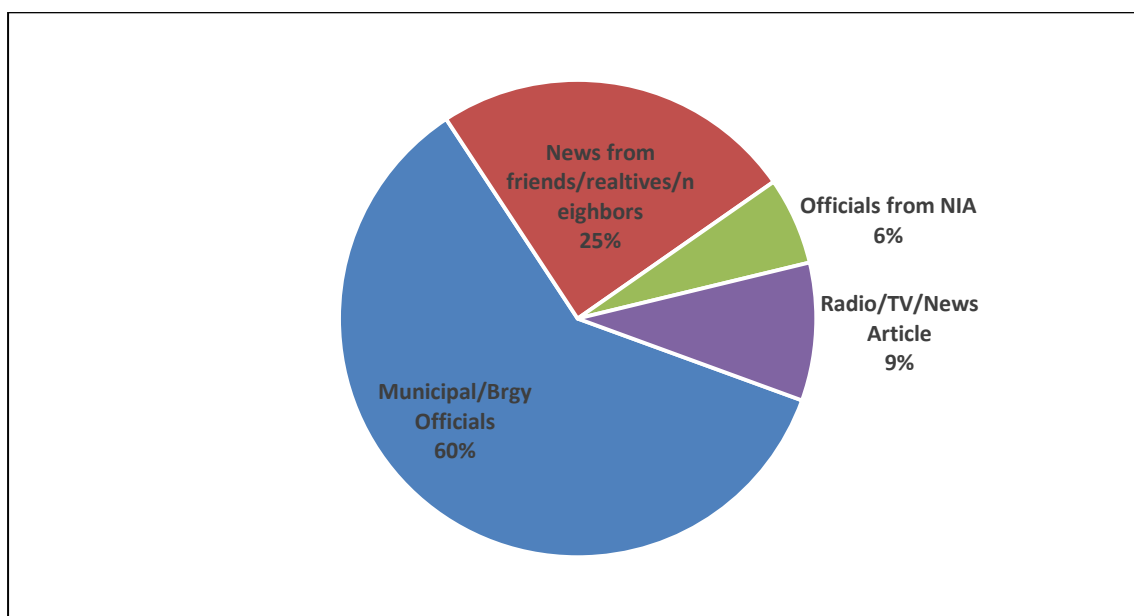


Figure 3-25
Source of information for Bohol Northeast Irrigation Project

Majority of the respondents, as presented in **Figure 3-26**, believe that the project will be able to irrigate more farm lands (57%), will generate more income for the farmers (32%), will produce higher crop yield (7%), and added domestic water supply (4%).

In terms of the perceived negative impacts of the Bohol Northeast Irrigation Project (**Figure 3-27**), majority of the respondents believe that the project may cause dam breakage (49%), may displace people (18%), may cause accidents during construction (11%). Respondents also believe that the project may also cause the loss of livelihood (11%) and limit use of the rivers (6%). 5% of the respondents ("others") believe that the project may also cause floods/flashfloods and may cause an increase in water bill.

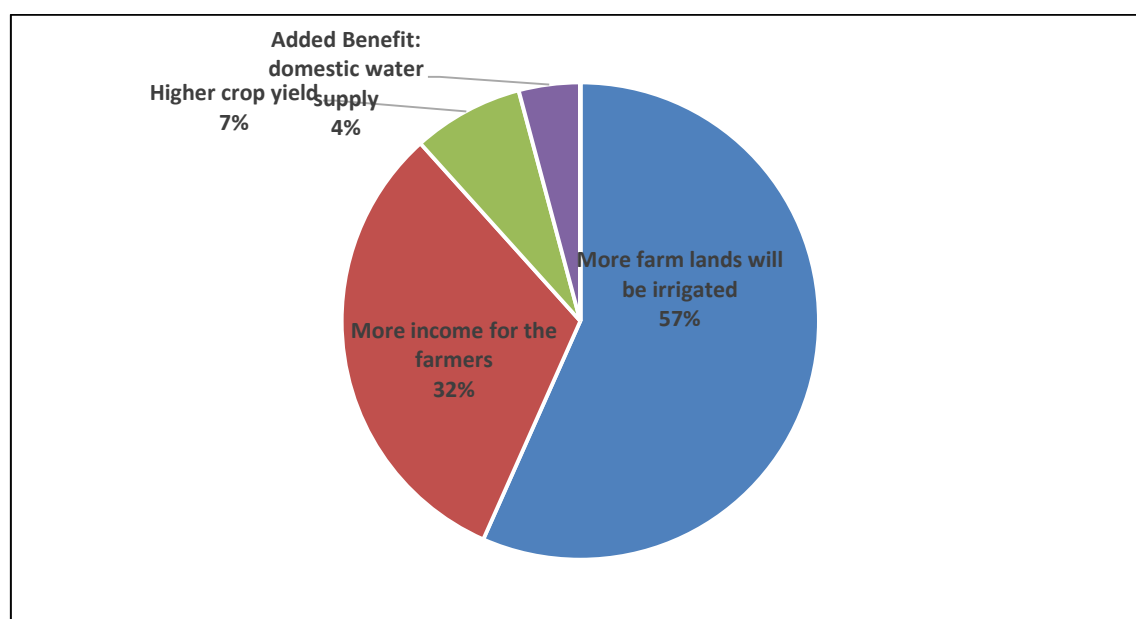


Figure 3-26
Positive impacts of the project

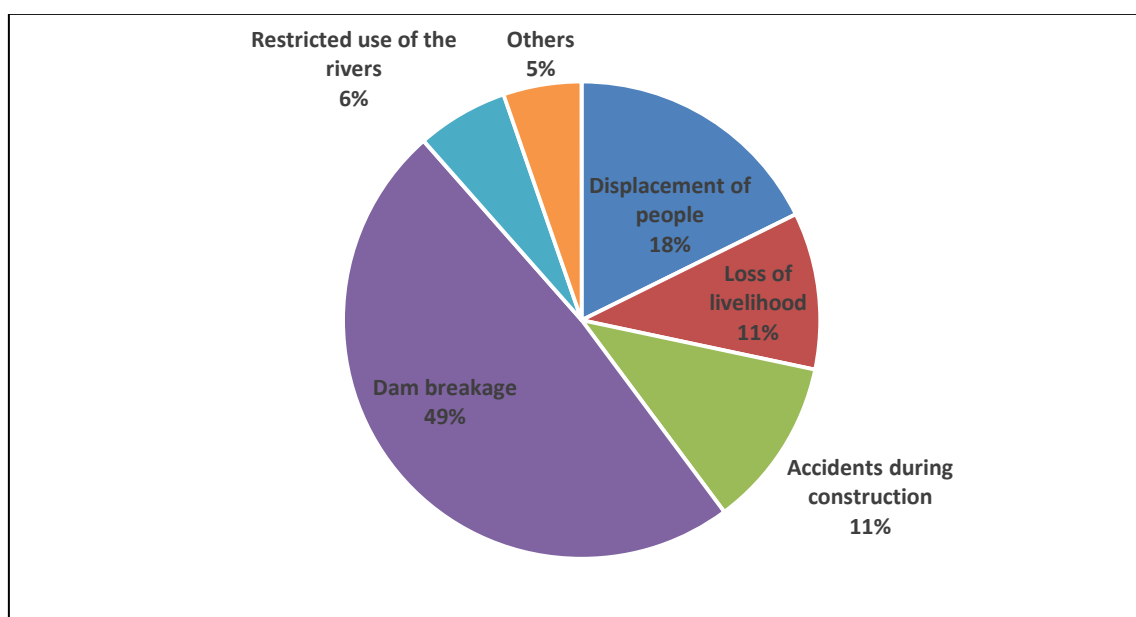


Figure 3-27
Negative impact of the project

The perception survey also gathered how the respondents view the possible means of managing and mitigating the negative impacts of the project. As seen in **Figure 3-28**, majority (41%) of the respondents believe that there should be clear rules and policies governing the affected parcels of land, structures, crops and livelihood. Respondents also believe that the contractor should properly implement safety standards (23%) and strictly conform to established technical standards (18%). The respondents also believe that the project should be participatory in nature by including the community and the rest of the stakeholders in discussions and meetings to have a better understanding of the said project (18%).

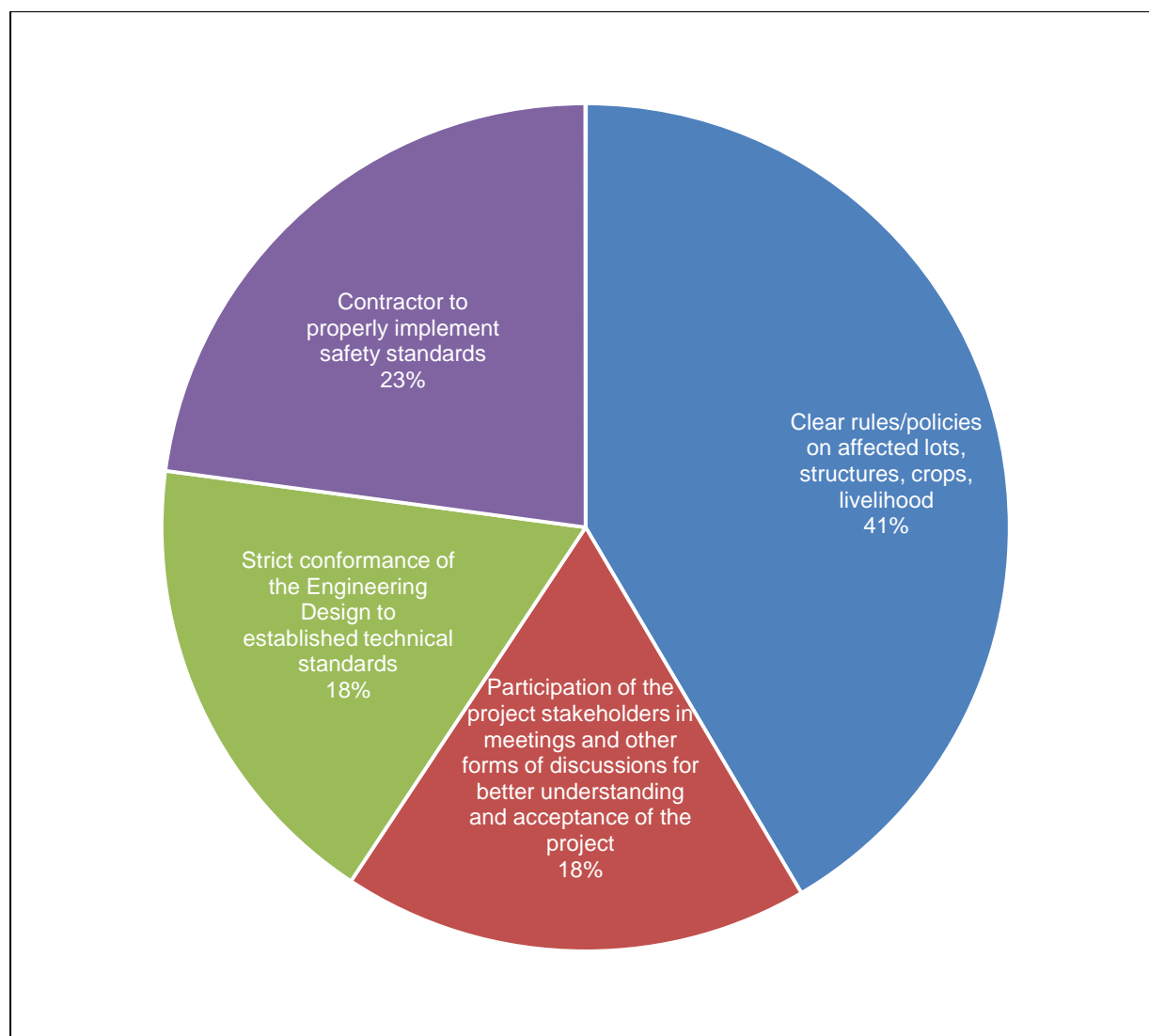


Figure 3-28
Possible means of mitigating impacts of the project

3.2.4 Acceptability of the Project by the Respondents

This section contains data on the respondents and their influences on accepting or rejecting the project. The present survey showed that a strong majority (92%) find the proposed project as acceptable.

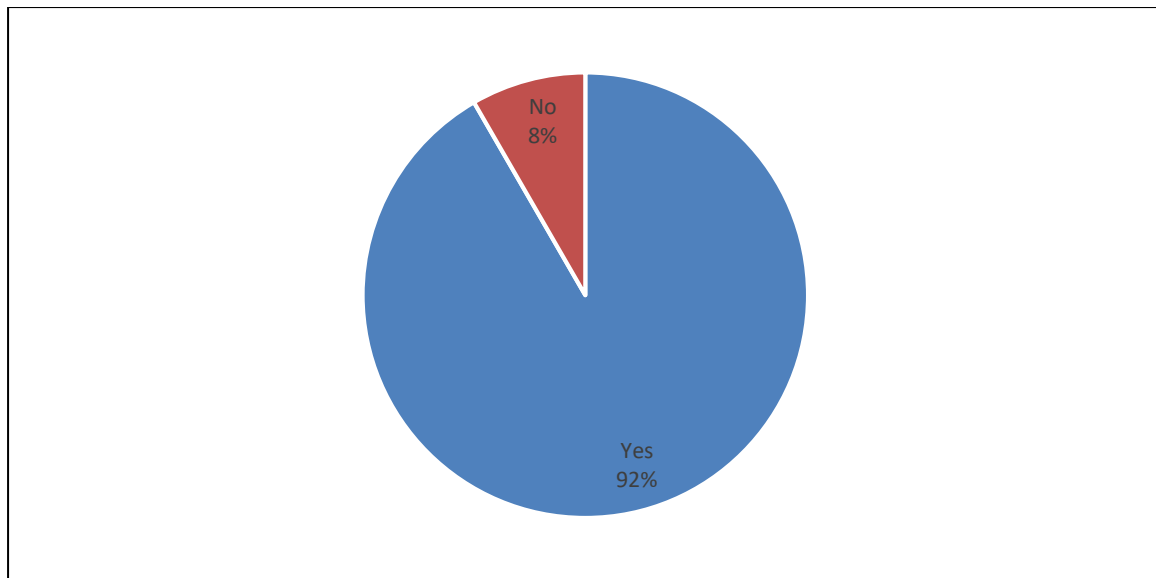


Figure 3-29
Acceptance of the Project

Annexes

Annex A

Minutes of Meeting of IEC Activity

Annex A Minutes of Meeting of IEC Activity

Municipality of Danao

| Social and Environmental Impact Assessment with ECC Acquisition for Bohol Northeast Basin Multipurpose Dam Project |
|---|
| Minutes of Meeting |

| Date: | Started: | Adjourned: | Venue: |
|--------------------------------------|----------|--|----------------------------|
| 19 June 2019 | 11:15 AM | 1:15 PM | New Cultural Center, Danao |
| Attendees: | | Topic: | |
| Please see attached attendance sheet | | Information, Education and Communication (IEC) | |

| Topic | Session Highlights and Discussion | Person Responsible |
|---|--|--|
| 1. Introduction | The program was officially opened by Mr. Ricardo T. Villavert. Mr. Villavert mentioned that the IEC activity being undertaken for the project was in compliance with the requirements of Department of Environmental and Natural Resources (DENR) Administrative Order 2003-30 and DAO 2017-15. | Mr. Ricardo T. Villavert (Environmental Specialist, WCI) |
| 2. Environmental Impact Assessment (EIA) Process | Mr. Villavert discussed a brief overview of the EIA Process and the activities to be undertaken for the acquisition of the Environmental Compliance Certificate (ECC). | Mr. Ricardo T. Villavert (Environmental Specialist, WCI) |
| 3. Project Presentation | The project was presented by Engr. Ronnie Añora, NIA-Region VII Representative. | Engr. Ronnie Añora (NIA Region VII) |
| 4. Forum (Concerns / Issues raised) | During the IEC activity, several issues and concerns were raised by the participants. | |
| | The lands in the proposed irrigation canals in Concepcion were mostly timberland, managed by a people's organization. Mr. Logronio asked what will happen if these areas will be affected during project construction. | Mr. Ricky Logronio (MENRO Representative) |
| | Timberlands are considered public domain. However, the affected trees planted by the people's organization will be compensated in a form of financial assistance due to loss of livelihood based on RA 10752 and EO 1035. There should be coordination between NIA and the people's organization on this matter. | Mr. Ricardo Villavert (Environmental Specialist, WCI) |
| | There should also be coordination with DENR since some of the areas are part of their reforestation program. | Mr. Ricky Logronio (MENRO Representative) |
| | The suggestions were well noted. | Mr. Ricardo Villavert (Environmental Specialist, WCI) |
| | Mr. Doroy asked if Poblacion is one of the service area of the project. | Mr. Agapito Doroy (Senior Citizen) |

| Topic | Session Highlights and Discussion | Person Responsible |
|-------|--|---|
| | The service areas include Cantubod, Santa Fe, and Remedios. Map showing the service areas was presented to further understand the project. | Mr. Ricardo Villavert (Environmental Specialist, WCI) |
| | Mr. Larian clarified the source of fund for the project implementation, whether foreign or government funded. | Mr. Tomas Larian (Vice President of Farmers Organization) |
| | The funding arrangement is not yet finalized as of this time. | Engr. Ronnie Añora (NIA Region VII) |
| | Mr. Larian shared that in the past, a notice to proceed (NTP) was served to the Contractor but the right of way (ROW) acquisition was not yet settled with the property owners. He requested that ROW acquisition for this project should be secured first prior to issuance of NTP to the Contractor. | Mr. Tomas Larian (Vice President of Farmers Organization) |
| | NIA will ensure the settlement of the ROW prior to project implementation. | Mr. Ricardo Villavert (Environmental Specialist, WCI) |
| | Ms. Estilloro asked if the project will not hamper the river water flowing to the farmlands downstream. These farmlands were not identified as project beneficiaries but they depend upon Wahig River. She feared the water supply to these areas may not be sufficient once this project starts operating. Further, she explained that their area was able to avail solar-powered pumps to irrigate their lands using water from Wahig River. | Ms. Evelyn Estilloro (Agriculture Technologist) |
| | NIA through their Consultants will consider this issue in the project study to ensure that adverse impacts are mitigated. | Engr. Ronnie (NIA Region VII) |
| | The community is experiencing a long dry season. The rivers in Danao will drain quickly since Wahig river was already tapped by Pilar Dam. To solve this problem, it is being recommended to establish a separate reservoir that will store water for utilization during dry season. | Mr. Jaime Salarda (Resident) |
| | This suggestion is not included in the proposed project. Nevertheless, this will be discussed with NIA. | Mr. Ricardo Villavert (Environmental Specialist, WCI) |
| | Mr. Salarda stated his approval for the implementation of the project to solve the irrigation water problem of the farmers. However, he suggested that the government should be able to provide support for the mechanization of farming. Further, he mentioned that farmers want to do organic farming; however, organic fertilizers are not available in their market. | Mr. Jaime Salarda (Resident) |

| Topic | Session Highlights and Discussion | Person Responsible |
|-------|---|--|
| | Hopefully, the government can be able to provide more budget for this undertaking to increase the farmers' productivity. | Mr. Ricardo Villavert, Environmental Specialist, WCI |
| | Engr. Ceniza asked for the initial design particularly of the Isumod Diversion Dam. He wanted to know the boundaries of the service areas. | Engr. John Rey Ceniza (Engr 1 – LGU Danao) |
| | The design will be completed during the detailed engineering design stage of the project. | Engr. Ronnie (NIA Region VII) |
| | The detailed design can be presented during the succeeding public consultation. | Mr. Ricardo Villavert, Environmental Specialist, WCI |
| | There are some rice fields located at the back of the proposed Isumod Diversion Dam. These areas might be damaged/submerged with water during its operation. | Mr. Ireneo Ludeuese (Chairman of Danao Agrarian Cooperative) |
| | This will be subject for compensation. | Engr. Ronnie (NIA Region VII Representative) |
| | Mr. Duroy requested that all barangays be beneficiaries to this project. Instead of diverting the water (either for irrigation or domestic supply) to other towns, priority should be given to the barangays of Danao. | Mr. Agapito Duroy (President of Senior Citizen Federation) |
| | Mr. Salarda stated his concern on the possible complaints of other towns particularly Inabangga if there will be a decrease in the amount of water flowing in their area since the project will divert the water from Wahig River. | Mr. Jaime Salarda (Resident) |
| | He requested to increase the service area in Danao, which will include Poblacion, Hibale, Santo Niño, among others. | |
| | This will be incorporated in the report for NIA's consideration. | Mr. Ricardo Villavert, Environmental Specialist, WCI |
| | Mr. Salarda reiterated the request to invite all affected stakeholders during consultation. | Mr. Jaime Salarda (Resident) |
| | During the detailed engineering design, the affected areas will be determined, which will be the basis for the identification of the affected stakeholders. The identified affected stakeholders will be invited in the succeeding consultations. | Mr. Ricardo Villavert, Environmental Specialist, WCI |
| | Ms. Busacanan requested that all Danaoanons especially the farmers should benefit in the project since all water will be sourced from their town. | Ms. Carmencita Busacanan (President of Women's Organization) |

| Topic | Session Highlights and Discussion | Person Responsible |
|----------------|---|--|
| | NIA will try to maximize the areas to be serviced by this project. | Engr. Ronnie (NIA Region VII Representative) |
| | Engr. Ceniza asked if treatment facility is included in the project design since there will be provision for domestic water. | Engr. John Rey Ceniza (Engr 1 – LGU Danao) |
| | The provision for domestic water is included in the project. However, the treatment facility will be undertaken by San Miguel if it will materialize. | Engr. Ronnie (NIA Region VII Representative) |
| | Engr. Ceniza requested that the community will be given access to the excess water for their domestic use. | Engr. John Rey Ceniza (Engr 1 – LGU Danao) |
| | The excess water can be utilized by the community at a certain elevation. | Engr. Ronnie (NIA Region VII Representative) |
| | Ms. Saguid reiterated their request to maximize the service area to 500-600 hectares. Also, she stated their hope that this project will be able to decrease their electricity cost used for water pumps to obtain their potable water. | Ms. Wiena Saguid (Waterworks Representative) |
| | This can probably be solved by using gravity instead of pumps. NIA will look into this request for consideration in the design. | Engr. Ronnie (NIA Region VII Representative) |
| | It is recommended to prioritize locals in the work opportunities during construction. | Mr. Jaime Salarda (Resident) |
| | This was well noted. | Mr. Ricardo Villavert, Environmental Specialist, WCI |
| 5. Adjournment | The IEC ended at 1:15 PM | WCI |

Prepared by: **Ma. Lourdes C. Ronquillo**
Environmental Specialist, WCI

Reviewed by: **Aaron James R. Orosco**
Environmental Specialist, WCI

Noted by: **Maria Fe Tahanlagit**
Senior Engineer, NIA Region VII

Municipality San Miguel

| Social and Environmental Impact Assessment with ECC Acquisition for Bohol Northeast Basin Multipurpose Dam Project | | |
|---|--|-------------------|
| Minutes of Meeting | | |
| Date: | Started: | Adjourned: |
| 20 June 2019 | 9:45 AM | 11:30 AM |
| Attendees: | Topic: | |
| Please see attached attendance sheet | Information, Education and Communication (IEC) | |

| Topic | Session Highlights and Discussion | Person Responsible |
|---|---|--|
| 1. Introduction | The program was officially opened by Mr. Ricardo T. Villavert Mr. Villavert mentioned that the IEC activity being undertaken for the project was in compliance with the requirements of the Department of Environmental and Natural Resources (DENR) Administrative Order 2003-30 and DAO 2017-15. | Mr. Ricardo T. Villavert (Environmental Specialist, WCI) |
| 2. Opening Remarks | Hon. Bulaga welcomed all the participants present in this stakeholders meeting. He also thanked NIA and the Consultants for their presence. | Hon. Faustino Bulaga (Vice Mayor, Municipality of San Miguel) |
| 3. Environmental Impact Assessment (EIA) Process | Mr. Villavert discussed a brief overview of the EIA Process and the activities to be undertaken for the acquisition of the Environmental Compliance Certificate (ECC). | Mr. Ricardo T. Villavert (Environmental Specialist, WCI) |
| 4. Project Presentation | The project was presented by Engr. Tahanlangit, NIA-Region VII Representative. | Engr. Maria Fe Tahanlangit (NIA-Region VII) |
| 5. Forum (Concerns / Issues raised) | During the IEC activity, several issues and concerns were raised by the participants. | |
| | She requested to show the location map of the proposed diversion dam, tunnel and canals in San Miguel in preparation for the design and plans for their water system. | Ms. Maria Belen Evangelista (Municipal Public Information Officer) |
| | Engr. Putong explained that the specific location and detailed design of the project is still being finalized. But in the next stakeholders' meeting, representative from the Consultant who is conducting the Detailed Design shall be invited to present the specific location of the project components. | Engr. Evelina Putong (NIA Region VII) |
| | Engr. Añora discussed that the detailed design is still on-going but the endpoint of the proposed tunnel is located near Brgy. Capayas. | Engr. Aproniano Añora (NIA Region VII) |

| Topic | Session Highlights and Discussion | Person Responsible |
|-------|--|---|
| | Ms. Abellar stated that negative impacts of this project is hard to identify as of this moment since the specific location of the project components are not presented. | Janilane D. Abellar (Municipal Health Office Representative) |
| | Ms. Abellar also mentioned that the project entails the construction of three (3) dams in San Miguel, which aims to provide irrigation, electricity and domestic water. However, she raised her concern on fish cages being set-up by the community as experienced in Bayongan Dam wherein the owners have already spent money to put up these fish cages. She then recommended for policy formulation to be implemented by the LGU on prohibiting fish cages in the vicinity of the proposed dam. | Janilane D. Abellar (Municipal Health Office Representative) |
| | Engr. Putong responded that fish cages are really not allowed in the constructed dams of NIA. In other areas where there are established fish cages, NIA ordered for the removal of these structures. Fish cage owners should have not spent money in putting up these cages if they have officially requested/inquired to NIA. | Engr. Evelina Putong (NIA Region VII) |
| | Mr. Villavert added his personal input that everyone should aim for sustainable development. So if fishing will be allowed in the dams, it should be undertaken sustainably wherein future generation can also benefit from it. | Mr. Ricardo T. Villavert (Environmental Specialist, WCI) |
| | Ms. Abellar raised the potential impact on water quality deterioration due to the fishing activity in the dams. With this, she stated her concern that the water intended for domestic purposes might be compromised. | Janilane D. Abellar (Municipal Health Office Representative) |
| | She then suggested that NIA should set the guidelines on what activities are acceptable to be conducted in the dams. | |
| | This was well noted and shall be considered in the study. | Mr. Ricardo T. Villavert (Environmental Specialist, WCI) |
| | Vice Mayor Bulaga inquired the plans of NIA for the areas that will be submerged by the project. | Hon. Faustino D. Bulaga (Vice Mayor, San Miguel) |
| | Engr. Putong answered that for the affected properties and structures, NIA shall compensate the owners. In the previous project, the tenants were not compensated but were given relocation during the leadership of Governor | Engr. Evelina Putong (NIA Region VII) |

| Topic | Session Highlights and Discussion | Person Responsible |
|-----------------------|---|---|
| | <p>Aumentado through Gawad Kalinga with the assistance of NIA.</p> <p>During construction of the project, the affected person will be prioritized for employment as long as they are qualified.</p> <p>Mr. Villavert added that the concerns on the affected structures, properties and trees/crops will be duly compensated in accordance with RA 10752 or Right-Of-Way Act.</p> | Mr. Ricardo T. Villavert (Environmental Specialist, WCI) |
| 6. Adjournment | The IEC ended at 11:30 AM | WCI |

Prepared by: Ma. Lourdes C. Ronquillo
 Environmental Specialist, WCI

Reviewed by: Aaron James R. Orosco
 Environmental Specialist, WCI

Noted by: Maria Fe. Tahanlangit
 Senior Engineer, NIA Region VII

Municipality of Trinidad

| Social and Environmental Impact Assessment with ECC Acquisition for Bohol Northeast Basin Multipurpose Dam Project | | | |
|---|----------|--|-------------------------|
| Minutes of Meeting | | | |
| Date: | Started: | Adjourned: | Venue: |
| 24 June 2019 | 9:45 AM | 11:00 AM | Trinidad Municipal Hall |
| Attendees: | | Topic: | |
| Please see attached attendance sheet | | Information, Education and Communication (IEC) | |

| Topic | Session Highlights and Discussion | Person Responsible |
|--|--|--|
| 1. Acknowledgment of Participants | Mr. Orosco acknowledged the presence of the different representatives of the LGU, barangay officers and representatives of different organizations. | Mr. Aaron James Orosco (Environmental Specialist, WCI) |
| 2. Introduction | The program was officially opened by Mr. Salino. He mentioned that the IEC activity being undertaken for the project was in compliance with the requirements of the Department of Environmental and Natural Resources (DENR) Administrative Order 2003-30 and DAO 2017-15. | Mr. Juan Paulo Salino (Environmental Specialist, WCI) |
| 3. Environmental Impact Assessment (EIA) Process | Mr. Orosco discussed a brief overview of the EIA Process and the activities to be undertaken for the acquisition of the Environmental Compliance Certificate (ECC). | Mr. Aaron James Orosco, (Environmental Specialist, WCI) |
| 4. Project Presentation | The project was presented by Engr. Tahanlangit NIA Region VII Representative. | Engr. Maria Fe Tahanlangit (NIA Region VII) |
| 5. Forum (Concerns / Issues raised) | During the IEC activity, several issues and concerns were raised by the participants. | |
| | Mr. Medina stated his appreciation on the project objectives. However, he would like to know the compensation for the affected areas due to the construction of the canals. Further, he asked what if there are farmers who do not want the project structures to be constructed in their properties? During the construction, all the affected lands traversed by the improvements will be compensated. In case of those farmers who do not want the project in their properties, adjustment in the alignment or other options can be considered. However, if it is not possible to re-align the design due to some important consideration, the Proponent will undertake expropriation. | Mr. Diego Medina (MDRRMO Representative) Engr. Ireneo Pelias (NIA Region VII) |

| Topic | Session Highlights and Discussion | Person Responsible |
|-------|---|--|
| | <p>Mr. Medina would like to know if the proposed dam can withstand earthquake since Bohol has four (4) identified fault lines. Currently, these fault lines are not active and yet Bohol already experienced an earthquake with magnitude of 7.2.</p> <p>The dam to be constructed shall be designed in such a way in can withstand the potential earthquake. Moreover, the height of the proposed diversion dams is only 2 to 3 meters, which pose minimal risk.</p> <p>Mr. Tinio asked whether the location of the proposed dam is situated in a flood-prone and landslide area. He stated his concern that the project might bring negative impact to their community.</p> <p>This project is being studied by different experts to ensure that these natural hazards are well considered in the design.</p> | <p>Mr. Diego Medina (MDRRMO Representative)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> <p>Mr. Brian Tinio</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>In case climate change will result to abrupt changes in rainfall and decrease in the volume of water in the watershed, Mr. Medina asked if the project includes program on watershed management in order to sustain availability of the water source.</p> <p>DENR might include the reforestation program as one of the conditions in the ECC. Nevertheless, it is important to protect and improve the watershed area.</p> | <p>Mr. Diego Medina (MDRRMO Representative)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>Mr Medina said that the community relies on creeks and tributaries for their domestic water. He stated his concern on the decrease in the water volume on these waterbodies due to the presence of the dam.</p> <p>Spillway will be constructed for the excess water to flow into these creeks and tributaries.</p> | <p>Mr. Diego Medina (MDRRMO Representative)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>Mr. Medina stated his approval for the implementation of the project. However since the project is a multi-purpose dam, he asked whether it can supply domestic water to the community.</p> <p>The main purpose of the project is to provide irrigation water to farmlands. Nevertheless, the LGU and NIA can enter into a MOA with regard to the distribution of excess water for domestic use.</p> | <p>Mr. Diego Medina (MDRRMO Representative)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>Mr. Dellosa stated his full support to the project since the LGU has few CIS and only three (3) barangays are beneficiaries</p> | <p>Mr. Marvis Dellosa (Trinidad LGU MPDC)</p> |

| Topic | Session Highlights and Discussion | Person Responsible |
|-----------------------|--|--|
| | <p>of these irrigation facilities (based on CLUP) but for this proposed project, there are many target barangay beneficiaries. However, he would like to know if the project is focused only on the construction of infrastructures. He asked if the project has provision for livelihood programs and environmental safeguards in support to the needs of the farmers.</p> <p>These can be included in the project.</p> | <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>Mr. Dellosa mentioned their proposal for a small water impounding project (SWIP) but there was no available fund to implement this.</p> <p>NIA-Region is also looking for SWIP. She suggested to send a proposal to NIA.</p> | <p>Mr. Marvis Dellosa (Trinidad LGU MPDC)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>He asked if the ongoing construction of Small Scale Irrigation Project (SSIP) in Kinauswagan and Sto. Tomas will be affected by the proposed project.</p> <p>The said project is not in Isumod, it is instead located in Ipil. Nevertheless, if the SSIP will be implemented first, then, NIA will have to identify other locations for the project.</p> | <p>Mr. Marvis Dellosa (Trinidad LGU MPDC)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>The water will be sourced from Danao and will traverse Kauswagan. However, based on the presentation, Kauswagan is not identified as service area.</p> <p>During the FS, the identified service areas were not yet specific and final. The areas in Kauswagan can be potential beneficiaries, however, the appropriate elevation should be considered.</p> | <p>Mr. Marvis Dellosa (Trinidad LGU MPDC)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| | <p>Once this will materialize, he asked whether the project will be under the free irrigation service act.</p> <p>It will depend on the direction of the current administration.</p> | <p>Mr. Marvis Dellosa (Trinidad LGU MPDC)</p> <p>Engr. Maria Fe Tahanlangit (NIA Region VII)</p> |
| 6. Adjournment | The IEC ended at 11:00 AM | WCI |

Prepared by: **Ma. Lourdes C. Ronquillo**
Environmental Specialist, WCI

Reviewed by: **Aaron James R. Orosco**
Environmental Specialist, WCI

Noted by: **Maria Fe Tahanlangit**
Senior Engineer, NIA Region VII

Municipality of Bien Unido

| Social and Environmental Impact Assessment with ECC Acquisition for Bohol Northeast Basin Multipurpose Dam Project | | | |
|---|---|---|------------------------------|
| Minutes of Meeting | | | |
| Date: | Started: | Adjourned: | Venue: |
| 24 June 2019 | 2:30 PM | 4:00 PM | Bien Unido Municipal Hall |
| Attendees: | | Topic: | |
| Please see attached attendance sheet | | Information, Education and Communication (IEC) | |
| Topic | Session Highlights and Discussion | Person Responsible | |
| 1. Introduction | The program was officially opened by Mr. Mr. Orosco. He mentioned that the IEC activity being undertaken for the project was in compliance with the requirements of the Department of Environmental and Natural Resources (DENR) Administrative Order 2003-30 and DAO 2017-15. | Mr. Aaron James Orosco (Environmental Specialist, WCI) | |
| 2. Opening Remarks | Mayor Borenaga acknowledged the presence of the representatives from NIA-Region VII, municipal offices and all barangay officials. She apologized for the few number of attendees due to conflict in schedule with San Juan Festival. She assured that the project information will be disseminated to the affected stakeholders particularly to the farmers. She also stated the need of irrigation facilities in their area and her hope for the implementation of the project to happen soon. | Hon. Rene Borenaga (Bien Unido Municipal Mayor) | |
| 3. Environmental Impact Assessment (EIA) Process | Mr. Orosco discussed a brief overview of the EIA Process and the activities to be undertaken for the acquisition of the Environmental Compliance Certificate (ECC). | Mr. Aaron James Orosco (Environmental Specialist, WCI) | |
| 4. Project Presentation | The project was presented by Engr. Tahanlangit, NIA-Region VII. | Engr. Maria Fe Tahanlangit (NIA Region VII) | |
| 5. Forum (Concerns / Issues raised) | During the IEC activity, several issues and concerns were raised by the participants. | | |
| | Mr. Autida asked the reason for the slow implementation of this project in their area. He stated that the project has already been discussed few years back; however, project implementation has not yet started. Based on experience in other big-scale projects, the implementation depends on the release of the budget. The schedule of the actual construction works cannot be determined yet but hopefully this project | Mr. Jose Autida (Farmer Representative) Engr. Ireneo Pelias (NIA Region VII) | |

| Topic | Session Highlights and Discussion | Person Responsible |
|-------|---|--|
| | will commence soon to resolve the water irrigation problem in the area. | |
| | The project is intended to provide irrigation water to rice fields. Mr. Alvarez asked if the project can also provide water for domestic purposes since there are plenty of water that can be sourced in Danao. | Mr. Moises Alvarez (MPDC Representative, Bien Unido) |
| | The water supply for domestic use is already included in the project scope. Based on the feasibility study prepared by the Consultants, the excess water for the rice fields will be allocated for domestic water supply. However, NIA and the affected municipalities have to enter into a Memorandum of Agreement (MOA) | Engr. Ireneo Pelias (NIA Region VII) |
| | Mr. Alvarez asked if the water supply going to Buen Unido is enough since the municipality is in the far end of the project area. | Mr. Moises Alvarez (MPDC Representative, Bien Unido) |
| | The study have included the provision of water supply for domestic use to the affected municipalities. The Consultants have considered the best option with the highest benefits to the community. | Engr. Ireneo Pelias (NIA Region VII) |
| | Mr. Alvarez asked for the compensation for the affected properties during construction. | Mr. Moises Alvarez (MPDC Representative, Bien Unido) |
| | There is an allocated budget for the right-of-way acquisition. | Engr. Ireneo Pelias (NIA Region VII) |
| | There is an operational irrigation facility in Talibon. Was this considered in the project study since this irrigation facility is close to Barangay Nueva Esperanza? Can the barangay benefit from this existing irrigation facility? | Mr. Moises Alvarez (MPDC Representative, Bien Unido) |
| | Based on the previous survey in that area, the construction of irrigation will require a flume, which can be very costly. The cost for the construction is higher than its benefits and return of investment; therefore, it was not considered in the study. | Engr. Ireneo Pelias (NIA Region VII) |
| | He asked for the implementation schedule of the project particularly on the number of years for the completion of the feasibility study. | Mr. Moises Alvarez (MPDC Representative, Bien Unido) |
| | The duration of the feasibility study is 180 calendar days or six (6) months. However, the Project Consultants requested for time extension due to some challenges encountered. As of to date, revision on the submitted report is being undertaken since NIA Central Office has a lot of corrections on the document. But upon the approval of | Engr. Ireneo Pelias (NIA Region VII) |

| Topic | Session Highlights and Discussion | Person Responsible |
|-----------------------|---|---|
| | the feasibility study by NIA Central Office, the project will commence soon as this is included in the flagship project of the Duterte Administration. | |
| | Among the proposed diversion dams, is it possible to prioritize the construction of the diversion dam in Bien Unido? | Mr. Moises Boniel (Municipal Agriculturist, Bien Unido) |
| | It is possible to start the construction of the diversion dam in Bien Unido. Actually, the recommendation of the Consultants is the individual construction of the proposed diversion dams. However, the construction of the diversion dam in Bien Unido cannot irrigate the total targeted area since most of the required water will come from Wahig Dam. This recommendation will be raised to NIA Administration. | Engr. Ireneo Pelias (NIA Region VII) |
| 6. Adjournment | The IEC ended at 4:00 PM | WCI |

Prepared by: Ma. Lourdes C. Ronquillo
Environmental Specialist, WCI

Reviewed by: Aaron James R. Orosco
Environmental Specialist, WCI

Noted by: Maria Fe Tahanlangit
Senior Engineer, NIA Region VII

Municipality of Danao (Vice Mayor)

| Social and Environmental Impact Assessment with ECC Acquisition for Bohol Northeast Basin Multipurpose Dam Project | | | |
|--|-----------------|--|-------------------------|
| Minutes of Meeting | | | |
| Date: | Started: | Adjourned: | Venue: |
| 25 June 2019 | 9:45 AM | 11:00 AM | Municipal Hall of Danao |
| Attendees: | | Topic: | |
| Please see attached attendance sheet | | Information, Education and Communication (IEC) | |

| Topic | Session Highlights and Discussion | Person Responsible |
|---|---|---|
| 1. Introduction | The program was officially opened by Mr. Salino. He mentioned that the IEC activity being undertaken for the project was in compliance with the requirements of the Department of Environmental and Natural Resources (DENR) Administrative Order 2003-30 and DAO 2017-15. | Mr. Juan Paulo M. Salino (Environmental Specialist, WCI) |
| 2. Opening Remarks | Vice Mayor Cepedoza acknowledged the presence of the representatives from NIA-Region VII, Sangguniang Bayan, WCI and Barangay Captains. He stated his hope to that the proposed project will be beneficial to his constituents without prejudicing the natural resources in their area. | Hon. Jose G. Cepedoza, Municipal Vice Mayor, Danao |
| 3. Environmental Impact Assessment (EIA) Process | Mr. Orosco discussed a brief overview of the EIA Process and the activities to be undertaken for the acquisition of the Environmental Compliance Certificate (ECC). | Mr. Aaron James R. Orosco (Environmental Specialist, WCI) |
| 4. Project Presentation | Engr. Apale presented the description, components and benefits of the project. | Engr. Orencio Apale, Chief Engineer, NIA-Region VII |
| 5. Forum (Concerns / Issues raised) | During the IEC activity, several issues and concerns were raised by the participants. | |
| | Based on the presentation, the covered service areas in Danao are Dagohoy, Cantubod, Santa Fe, and Remedios Concepcion. He asked the reason for not including other barangays like Hibale and Santo Niño. | Mr. Diosdado Valencio, SB member |
| | Engr. Apale explained that the data were based on the project's feasibility study. The capacity in Hibale is rather small and its approved design will not be able to service the Poblacion area. | Engr. Orencio Apale, Chief Engineer, NIA-Region VII |
| | Vice Mayor Cepedoza asked why the other barangays in Danao were not included in the service area. He emphasized that the LGU will pose their objection to the project implementation if it will deprive the other barangays with irrigation water coming | Hon. Jose G. Cepedoza, Municipal Vice Mayor, Danao |

| Topic | Session Highlights and Discussion | Person Responsible |
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| | from the main dam, which is situated in Danao. Engr. Apale said that this issue shall be discussed with NIA Administrator and EDCOP, the Feasibility Study Consultant, for consideration. | Engr. Orencio Apale, Chief Engineer, NIA-Region VII. |
| | There are a lot of area in the lower portion of Danao particularly in Hibale and Santo Niño that can be supplied with water. There should be further evaluation since there are a lot of agricultural areas that are not yet irrigated. He requested NIA to provide a soft copy of the project plan to the LGU for their review. This was well noted. | Engr. Baal, SB Member Engr. Orencio Apale, Chief Engineer, NIA-Region VII |
| | Vice Mayor Cepedoza requested for the area coverage of the proposed dam, the direct and indirect beneficiaries to fully understand the project. He said that they find it a bit insulting that the source of water comes from their municipality and yet only 5 out of the 17 barangays will be served by this project. He explained that the LGU has plans in developing some of their land as agricultural area and these water that will be subjected for distribution to other municipalities will be needed in these undertakings. This was well noted and will be considered in the study. | Hon. Jose G. Cepedoza, Municipal Vice Mayor, Danao Engr. Orencio Apale, Chief Engineer, NIA-Region VII. |
| | Vice Mayor Cepedoza stated that sufficient information should be given to the LGU and its constituents. He explained that water is a major problem in Danao and that Wahig River is their solution to this problem. He asked if NIA can give an assurance that even with the presence of the dam, there will still be water available to their people especially during the dry months Engr. Apale explained that the project also aims to provide a potable water supply along with the other objectives of providing irrigation water and power supply. However, the design is yet to be finalized. But the suggestions raised in this meeting will be taken into consideration. | Hon. Jose G. Cepedoza, Municipal Vice Mayor, Danao Engr. Orencio Apale, Chief Engineer, NIA-Region VII |
| | Engr. Motoc informed that their programs/plans were focused on developing the agriculture sector in Danao. He stated his hope that the problem regarding potable water will be addressed by the project. | Engr. Motoc, SB Member |

| Topic | Session Highlights and Discussion | Person Responsible |
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| | In line with the suggestion of Vice Mayor, the project will try to maximize the benefits to Danao before distributing the water to other municipalities. | Engr. Orencio Apale, Chief Engineer, NIA- Region VII |
| | He reiterated that the prepared programs of the LGU aims to address the water problem in their area. As discussed in the presentation, the service area of the project covers only 5 barangays out of 17. He suggested to include the remaining 12 barangays in the formulation of the design. He also requested for a copy of the plans. He said that Danao will align their programs on potable water. Further, he said that the title should state that Danao is the project location since it is where the dam will be situated. Other municipalities like Trinidad and San Miguel are only beneficiaries. | |
| | Since this is in line with the previous suggestion, he emphasized that this stakeholders meeting will be part of the series of consultation to be undertaken by the project. NIA will not proceed with the implementation without presenting the final plan to the affected LGUs. | Engr. Orencio Apale, Chief Engineer, NIA- Region VII |
| | Vice Mayor Cepedoza reminded NIA and the Consultant on the previous experience of the municipality. He narrated that Sta. Clara Corp., proponent of the Cantakoy dam, already had a previous agreement with the LGU. However, Sta. Clara sold the project to Ayala Corporation (developer) during its construction. In effect, all the opportunities of the LGU as stated in the agreement with Sta. Clara were lost. During the construction, Ayala Corp. spent around 105M but they failed to comply with the ECC requirements. During the social preparation undertaken by the LGU, it was identified that 122 hectares directly and indirectly affected by the project should had been given compensation. Since the developer did not act on it, Humabon, Gabriela and other NGOs intervened resulting to the stoppage of the project. If compensation was given to the people, there should had been no problem in the project implementation. He warned NIA to be careful and learn from this sad experience. If the social problem will not be resolved, he will refuse to accept this project. | Hon. Jose G. Cepedoza, Municipal Vice Mayor, Danao |
| | This was well noted by representatives from NIA and WCI. | Engr. Orencio Apale, Chief Engineer, NIA- Region VII |
| 6. Adjournment | The IEC ended at 11:00 AM | WCI |



Prepared by: Ma. Lourdes C. Ronquillo
Environmental Specialist, WCI

Reviewed by: Aaron James R. Orosco
Environmental Specialist, WCI

Noted by: Maria Fe. Tahanlangit
Senior Engineer, NIA Region VII

Municipality of Dagohoy

Social and Environmental Impact Assessment with ECC Acquisition for Bohol Northeast Basin Multipurpose Dam Project

Minutes of Meeting

| Date: | Started: | Adjourned: | Venue: |
|--------------------------------------|----------|--|------------------------|
| 25 June 2019 | 2:20 PM | 3:45 Pm | Dagohoy Municipal Hall |
| Attendees: | | Topic: | |
| Please see attached attendance sheet | | Information, Education and Communication (IEC) | |

| Topic | Session Highlights and Discussion | Person Responsible |
|---|--|---|
| 1. Introduction | The program was officially opened by Mr. Orosco. He mentioned that the IEC activity being undertaken for the project was in compliance with the requirements of the Department of Environmental and Natural Resources (DENR) Administrative Order 2003-30 and DAO 2017-15. | Mr. Aaron James Orosco (Environmental Specialist, WCI) |
| 2. Environmental Impact Assessment (EIA) Process | Mr. Orosco discussed a brief overview of the EIA Process and the activities to be undertaken for the acquisition of the Environmental Compliance Certificate (ECC). | Mr. Aaron James Orosco (Environmental Specialist, WCI) |
| 3. Project Presentation | The project was presented by Engr. Apale, NIA-Region VII Representative. | Engr. Orencio Apale (NIA Region VII) |
| 4. Forum (Concerns / Issues raised) | During the IEC activity, several issues and concerns were raised by the participants. | |
| | Mayor Apat asked for the impact of the construction of dam in their area. He was worried that one of their barrios/barangays particularly Malitboc, Cagawitan and Poblacion including the public market will be submerged with water. He explained that their area was already experiencing flood if there is a continuous rain for four (4) days. The implementation of the project might aggravate this condition. He expressed his opposition to the proposed project. He said that the safety of the people should be prioritized first. Based on the feasibility study, the identified location of the proposed dam is in Concepcion. However, the design and layout has not yet been finalized. This activity is part of the ECC acquisition, which requires initial disclosure of the project information. | Hon. Sofronio Apat, Dagohoy Municipal Mayor Engr. Orencio Apale (NIA Region VII) |

| Topic | Session Highlights and Discussion | Person Responsible |
|-----------------------|--|---|
| | Mayor Apat said that once the ECC is secured, NIA can already proceed and the LGU can no longer do something to stop the project implementation. For this reason, they are already stating their opposition to the project. | Hon. Sofronio Apat, Dagohoy Municipal Mayor |
| | The issue was noted and subjected for discussion with NIA management for consideration. Further, delineation of the project components particularly the back water limit and possible submerged areas, including the identification of the appropriate measures, will be undertaken. These information will be presented to the LGU and affected community. | Engr. Orencio Apale (NIA Region VII) |
| | Mayor Apat recommended that the presentation to the community should also include the potential impacts and benefits of the proposed project to the people in Dagohoy. Further, he suggested that the presentation should be in the local dialect for better understanding of the project. | Hon. Sofronio Apat, Dagohoy Municipal Mayor |
| | This was well noted. | Engr. Orencio Apale (NIA Region VII) |
| | Mayor Apat stated their plan to obtain water from the river for irrigation, which will bring profit to the LGU and more benefits to the community. | Hon. Sofronio Apat, Dagohoy Municipal Mayor |
| | Engr. Apale suggested to send a formal request to NIA for evaluation. | Engr. Orencio Apale (NIA Region VII) |
| | Engr. Apale requested the LGU not to remove the markings placed in the area. These markings are just reference points for the technical surveys (e.g. hydraulic) being conducted. He mentioned that the markings do not indicate the final location of the proposed project. Nevertheless, the affected structures/properties during the project implementation will be subject for just compensation. | Engr. Orencio Apale (NIA Region VII) |
| | This was noted by the LGU representatives. | Hon. Sofronio Apat, Dagohoy Municipal Mayor |
| 5. Adjournment | The IEC ended at 3:45 PM | WCI |

Prepared by: Ma. Lourdes C. Ronquillo
Environmental Specialist, WCI

Reviewed by: Aaron James R. Orosco
Environmental Specialist, WCI

Noted by: Maria Fe Tahanlangit
Senior Engineer, NIA Region VII

Annex B

Letters Requesting for IEC Activity

Annex B
Letter Requests for IEC Activity

Municipality of Danao (Mayor)



WOODFIELDS
CONSULTANTS, INC.
A Planning and Engineering Consulting Firm

153 Kamias Road Extension
Kamias, Quezon City, 1102 Philippines
wci.com.ph
☎ (632)436-7360/436-7365/625-3621
📠 (632)436-7372

18-048-LTR-19-012

11 June 2019

HON. NATIVIDAD R. GONZAGA
Vice Mayor
Municipality of Danao
Province of Bohol

Subject: Request for Stakeholders' Meeting

Project : Bohol Northeast Basin Multipurpose Dam Project

Dear Mayor Gonzaga,

Greetings!

National Irrigation Administration (NIA) - Region 7 contracted the consulting services of **Woodfields Consultants Inc. (WCI)** for the Environmental and Social Assessment with ECC Acquisition of the **Bohol Northeast Basin Multipurpose Dam Project**. This Project aims to improve the agricultural productivity in the rural areas of Bohol and at the same time provide domestic water and power supply. It will benefit approximately 2,133 hectares of farm lands all-year round within the Municipalities of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido.

Part of this undertaking is the timely, effective, and adequate disclosure of project information and the engagement of the public, especially the project stakeholders. In view thereof, we are requesting for a Stakeholders' Meeting within your municipality on **19 June 2019 at 9:00 AM**.


May we also request that this invitation be extended particularly to the following stakeholders?

- Municipal Agricultural Officer
- Municipal Planning and Development Officer
- Municipal Environment & Natural Resources Officer
- Barangay Captain of Concepcion
- Barangay Captain of Dagohoy
- Municipal Engineer
- Health Officer / Representative
- Disaster Risk Reduction Officer
- Water District Representative
- Electric Cooperative Representative
- People's Organizations:
 - Farmer's Organization
 - Women's Organization
 - Youth Organization
 - Senior Citizens' Group
- Concerned NGOs
- Sangguniang Bayan

Should you have concerns and clarifications, please do not hesitate to contact our team through: **Mr. Aaron James Orosco** at **0936-537-2243** or **ajorosco@wci.com.ph**.

Thank you, and we are looking forward for your warm support and favourable response.

Truly yours,



KRISTINE ANN S. MARTINEZ, EnP, PhD
Project Team Leader

Recd: *[Signature]* 6/19/19
Mayor, Danao Bohol

Municipality of Danao (Vice Mayor)



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

18-048-LTR-19-012

11 June 2019

HON. JOSE G. CEPEDOZA

Vice Mayor
Municipality of Danao
Province of Bohol

Subject: Request for Stakeholders' Meeting

Project : Bohol Northeast Basin Multipurpose Dam Project

Dear Mayor Cepedoza,

Greetings!

National Irrigation Administration (NIA) - Region 7 contracted the consulting services of **Woodfields Consultants Inc. (WCI)** for the Environmental and Social Assessment with ECC Acquisition of the **Bohol Northeast Basin Multipurpose Dam Project**. This Project aims to improve the agricultural productivity in the rural areas of Bohol and at the same time provide domestic water and power supply. It will benefit approximately 2,133 hectares of farm lands all-year round within the Municipalities of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido.

Part of this undertaking is the timely, effective, and adequate disclosure of project information and the engagement of the public, especially the project stakeholders. In view thereof, we are requesting for a Stakeholders' Meeting within your municipality on **25 June 2019 at 9:00 AM**.

May we also request that this invitation be extended particularly to the following stakeholders?

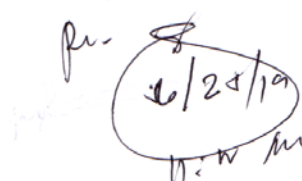
- Municipal Agricultural Officer
- Municipal Planning and Development Officer
- Municipal Environment & Natural Resources Officer
- Barangay Captain of Concepcion
- Barangay Captain of Dagohoy
- Municipal Engineer
- Health Officer / Representative
- Disaster Risk Reduction Officer
- Water District Representative
- Electric Cooperative Representative
- People's Organizations:
 - Farmer's Organization
 - Women's Organization
 - Youth Organization
 - Senior Citizens' Group
- Concerned NGOs
- Sangguniang Bayan

Should you have concerns and clarifications, please do not hesitate to contact our team through: **Mr. Aaron James Orosco** at **0936-537-2243** or **ajorosco@wci.com.ph**.

Thank you, and we are looking forward for your warm support and favourable response.

Truly yours,


KRISTINE ANN S. MARTINEZ, EnP, PhD
Project Team Leader



Municipality of San Miguel



**WOODFIELDS
CONSULTANTS, INC.**
A Planning and Engineering Consulting Firm

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

18-048-LTR-19-016

11 June 2019

Hon. Manay Mendez

Mayor
Municipality of San Miguel
Province of Bohol

Subject: Request for Stakeholders' Meeting

Project : Bohol Northeast Basin Multipurpose Dam Project

Dear Mayor Mendez,

Greetings!

National Irrigation Administration (NIA) - Region 7 contracted the consulting services of **Woodfields Consultants Inc. (WCI)** for the Environmental and Social Assessment with ECC Acquisition of the **Bohol Northeast Basin Multipurpose Dam Project**. This Project aims to improve the agricultural productivity in the rural areas of Bohol and at the same time provide domestic water and power supply. It will benefit approximately 2,133 hectares of farm lands all-year round within the Municipalities of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido.

Part of this undertaking is the timely, effective, and adequate disclosure of project information and the engagement of the public, especially the project stakeholders. In view thereof, we are requesting for a Stakeholders' Meeting within your municipality on **20 June 2019 at 9:00 AM**.

May we also request that this invitation be extended particularly to the following stakeholders?


- Municipal Agricultural Officer
- Municipal Planning and Development Officer
- Municipal Environment & Natural Resources Officer
- Barangay Captain of Hagbuyo
- Barangay Captain of Bugang
- Barangay Captain of San Jose
- Municipal Engineer
- Health Officer / Representative
- Disaster Risk Reduction Officer
- Water District Representative
- Electric Cooperative Representative
- People's Organizations:
 - Farmer's Organization
 - Women's Organization
 - Youth Organization
 - Senior Citizens' Group
- Concerned NGOs

Should you have concerns and clarifications, please do not hesitate to contact our team through: **Mr. Aaron James Orosco** at **0936-537-2243** or **ajorosco@wci.com.ph**.

Thank you, and we are looking forward for your warm support and favourable response.

Truly yours,


KRISTINE ANN S. MARTINEZ, EnP, PhD
Project Team Leader

Received:

6/20/2019

Municipality of Trinidad

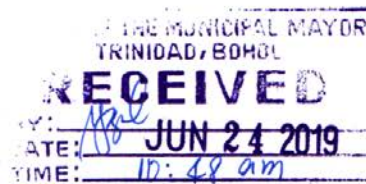


18-048-LTR-19-015

11 June 2019

Hon. Judith Cajes
Mayor
Municipality of Trinidad
Province of Bohol

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



Subject: Request for Stakeholders' Meeting

Project : Bohol Northeast Basin Multipurpose Dam Project

Dear Mayor Cajes,

Greetings!

National Irrigation Administration (NIA) - Region 7 contracted the consulting services of **Woodfields Consultants Inc. (WCI)** for the Environmental and Social Assessment with ECC Acquisition of the **Bohol Northeast Basin Multipurpose Dam Project**. This Project aims to improve the agricultural productivity in the rural areas of Bohol and at the same time provide domestic water and power supply. It will benefit approximately 2,133 hectares of farm lands all-year round within the Municipalities of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido.

Part of this undertaking is the timely, effective, and adequate disclosure of project information and the engagement of the public, especially the project stakeholders. In view thereof, we are requesting for a Stakeholders' Meeting within your municipality on **24 June 2019 at 9:00 AM**.

May we also request that this invitation be extended particularly to the following stakeholders?

- | | |
|---|---------------------------------------|
| • Municipal Agricultural Officer | • Water District Representative |
| • Municipal Planning and Development Officer | • Electric Cooperative Representative |
| • Municipal Environment & Natural Resources Officer | • People's Organizations: |
| • Barangay Captain of Sto. Tomas | ○ Farmer's Organization |
| • Barangay Captain of Bongbong | ○ Women's Organization |
| • Municipal Engineer | ○ Youth Organization |
| • Health Officer / Representative | ○ Senior Citizens' Group |
| • Disaster Risk Reduction Officer | • Concerned NGOs |

Should you have concerns and clarifications, please do not hesitate to contact our team through: **Mr. Aaron James Orosco** at **0936-537-2243** or **ajorosco@wci.com.ph**.

Thank you, and we are looking forward for your warm support and favourable response.

Truly yours,


KRISTINE ANN S. MARTINEZ, EnP, PhD
Project Team Leader

Municipality of Dagohoy



153 Kamias Road Extension
Kamias, Quezon City, 1102 Philippines
wci.com.ph
☎ (632)436-7360 / 436-7365 / 425-3621
✉ (632)436-7372

18-048-LTR-19-017

13 June 2019

Hon. Sofronio Apat
Mayor
Municipality of Dagohoy
Province of Bohol

Subject: Request for Stakeholders' Meeting

Project : Bohol Northeast Basin Multipurpose Dam Project

Dear Mayor Apat,

Greetings!

National Irrigation Administration (NIA) - Region 7 contracted the consulting services of **Woodfields Consultants Inc. (WCI)** for the Environmental and Social Assessment with ECC Acquisition of the **Bohol Northeast Basin Multipurpose Dam Project**. This Project aims to improve the agricultural productivity in the rural areas of Bohol and at the same time provide domestic water and power supply. It will benefit approximately 2,133 hectares of farm lands all-year round within the Municipalities of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido.

Part of this undertaking is the timely, effective, and adequate disclosure of project information and the engagement of the public, especially the project stakeholders. In view thereof, we are requesting for a Stakeholders' Meeting within your municipality on **25 June 2019 at 2:00 PM**.

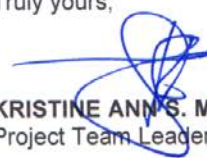
May we also request that this invitation be extended particularly to the following stakeholders?

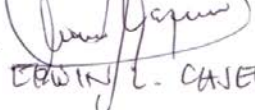
- Municipal Agricultural Officer
- Municipal Planning and Development Officer
- Municipal Environment & Natural Resources Officer
- Municipal Engineer
- Health Officer / Representative
- Disaster Risk Reduction Officer
- Water District Representative
- Electric Cooperative Representative
- People's Organizations:
 - Farmer's Organization
 - Women's Organization
 - Youth Organization
 - Senior Citizens' Group
- Concerned NGOs

Should you have concerns and clarifications, please do not hesitate to contact our team through: **Mr. Aaron James Orosco** at **0936-537-2243** or **ajorosco@wci.com.ph**.

Thank you, and we are looking forward for your warm support and favourable response.

Truly yours,


KRISTINE ANN S. MARTINEZ, EnP, PhD
Project Team Leader

Received by: 
EDWIN L. CASELO

Municipality of Bien Unido



**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

18-048-LTR-19-014

11 June 2019

Hon. Rene B. Borenaga
Mayor
Municipality of Bien Unido
Province of Bohol

Subject: Request for Stakeholders' Meeting

Project : Bohol Northeast Basin Multipurpose Dam Project

Dear Mayor Borenaga,

Greetings!

National Irrigation Administration (NIA) - Region 7 contracted the consulting services of **Woodfields Consultants Inc. (WCI)** for the Environmental and Social Assessment with ECC Acquisition of the **Bohol Northeast Basin Multipurpose Dam Project**. This Project aims to improve the agricultural productivity in the rural areas of Bohol and at the same time provide domestic water and power supply. It will benefit approximately 2,133 hectares of farm lands all-year round within the Municipalities of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido.

Part of this undertaking is the timely, effective, and adequate disclosure of project information and the engagement of the public, especially the project stakeholders. In view thereof, we are requesting for a Stakeholders' Meeting within your municipality on **24 June 2019 at 2:00 PM**.

May we also request that this invitation be extended particularly to the following stakeholders?

- Municipal Agricultural Officer
- Municipal Planning and Development Officer
- Municipal Environment & Natural Resources Officer
- Municipal Engineer
- Health Officer / Representative
- Disaster Risk Reduction Officer
- Water District Representative
- Electric Cooperative Representative
- People's Organizations:
 - Farmer's Organization
 - Women's Organization
 - Youth Organization
 - Senior Citizens' Group
- Concerned NGOs

Should you have concerns and clarifications, please do not hesitate to contact our team through: **Mr. Aaron James Orosco** at **0936-537-2243** or **ajorosco@wci.com.ph**.

Thank you, and we are looking forward for your warm support and favourable response.

Truly yours,



KRISTINE ANN S. MARTINEZ, EnP, PhD
Project Team Leader

received by:
ARCEVE C. AVENIDA OAH/K
LD/AMW

Annex C

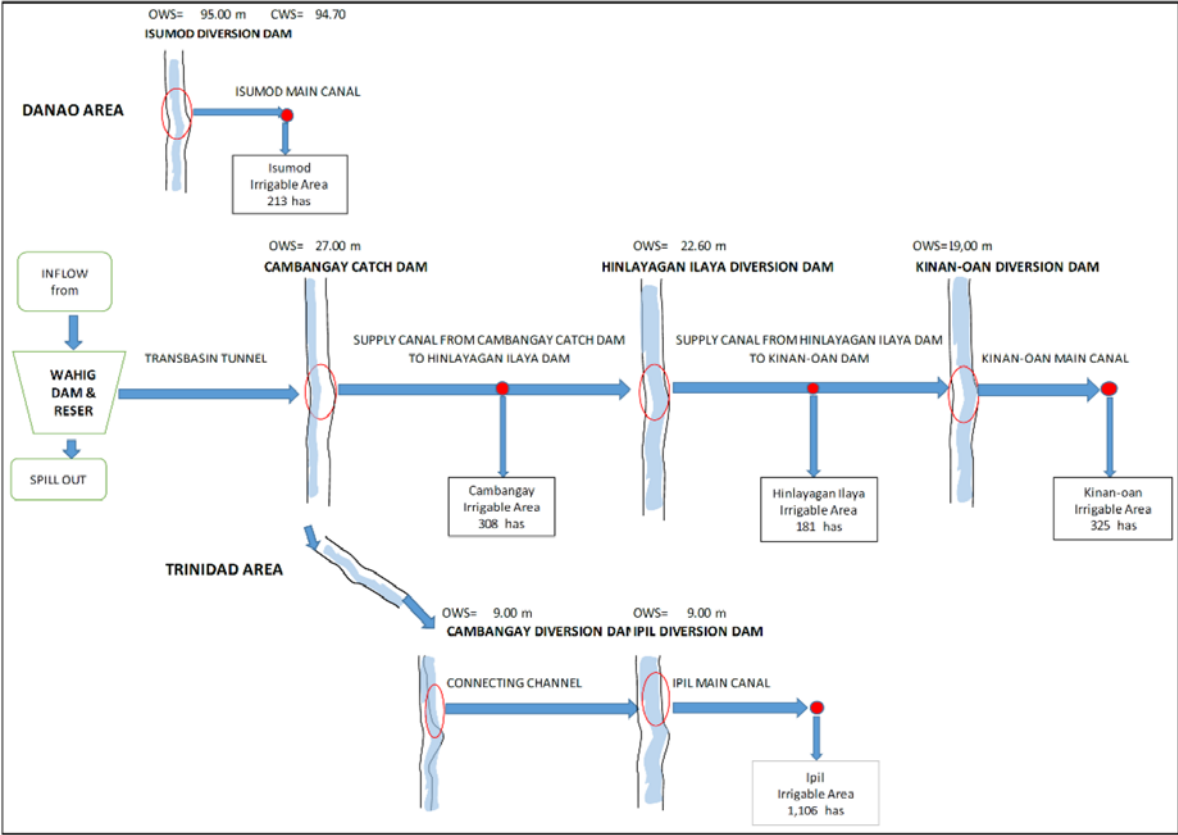
IEC Material and Proof of Receipt

Background

The key structures and service areas of the Multipurpose Dam Project is located in the North-East of the Province of Bohol covering the Municipalities of Danao, Trinidad, San Miguel, Dagohoy, and Bien Unido.

The Project primarily aims to irrigate 2,133 hectares of farm lands in the Municipalities of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido. In addition, it will provide 2-MW electrical power supply and 48 million m³ domestic water supply.

The overall concept is to harness the excess streams of water from the Malinao Dam and from the downstream rivers and impound them at the Wahig Dam to irrigate a total service area of about 1,920 hectares. The Isumod Diversion Dam on the other hand will independently source its water from the Isumod River and will serve 213 hectares of rice fields.



Generally, six diversion dams will comprise the proposed Project. Five of the diversion dams will be supplied by the Wahig Reservoir Dam through the 6.575-km trans-basin tunnel while the Isumod Diversion Dam will be supplied by the Isumod River.

Municipality of Danao (Mayor)

| | | | | | |
|---|---|--|---------|------------------|--------|
|  | WOODFIELDS CONSULTANTS, INC. LETTER OF TRANSMITTAL (TRL) | | Form No | SP-QMS-04F4 | |
| | | | Rev No | Effectivity Date | Page/s |
| | | | 4 | 08/26/11 | 1 of 1 |

TO: Mayor Natiridad R. Gonzaga
Danao, Bohol

DATE: 19 June 2019

REF NO: _____

Dear Sir / Madam:

We are sending you herewith the following items:

| NO. OF COPY(IES) | REFERENCE CODE | REVISION STATUS | H/E | DESCRIPTION |
|------------------|----------------|-----------------|-----|---|
| 20 | IEC Materials | | H | IEC materials / Flyer for the stakeholders' meeting |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

☐ For Approval
☒ For your use
☐ For submission

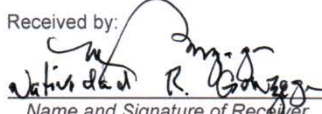
☐ Approved as submitted
☐ Returned for corrections
☐ For reference

☐ For review and comments
☐ For further processing

REMARKS:

Very truly yours,


Aaron James R. Orosco
 Name and Signature of Sender

Received by:

Natiridad R. Gonzaga
 Name and Signature of Receiver
19 June 2019 1:30 PM
 Date Time

Copy to:

Municipality of Danao (Vice Mayor)

| | | | | |
|---|---|--------------------------------|-------------|--------|
|  | WOODFIELDS CONSULTANTS, INC. LETTER OF TRANSMITTAL (TRL) | | Form No | |
| | | | SP-QMS-04F4 | |
| | Rev No | Effectivity Date (mm/dd/yy) | Page/s | |
| | | 4 | 08/26/11 | 1 of 1 |

TO: JOSE G. CEPEDA DATE: 25 June 2019
VICE MAYOR
DANAOG, BOHOL REF NO: _____

Dear Sir / Madam:

We are sending you herewith the following items:

| NO. OF COPY(IES) | REFERENCE CODE | REVISION STATUS | H/E | DESCRIPTION |
|------------------|------------------------|-----------------|-----|--|
| 30 | IEL Materials / Flyers | | H | IEL Dissemination / Stakeholders Meeting |
| | | | | |
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|--|---|--|
| <input type="checkbox"/> For Approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> For review and comments |
| <input checked="" type="checkbox"/> For your use | <input type="checkbox"/> Returned for corrections | <input type="checkbox"/> For further processing |
| <input type="checkbox"/> For submission | <input type="checkbox"/> For reference | |

REMARKS:

Very truly yours,

Adron James Orasoo
 Name and Signature of Sender

Received by:


 Name and Signature of Receiver
6/25/19 11:40 AM
 Date Time

Copy to:

Municipality of San Miguel

| | | | |
|---|---|--------|--------------------------------|
|  | WOODFIELDS CONSULTANTS, INC. LETTER OF TRANSMITTAL (TRL) | | Form No |
| | | | SP-QMS-04F4 |
| | | | Rev No Effectivity Date Page/s |
| 4 | 08/26/11 | 1 of 1 | |

TO: Mayor Manan Mendez DATE: 20 June 2019
San Miguel, Bohol
 REF NO: _____

Dear Sir / Madam:

We are sending you herewith the following items:

| NO. OF COPY(IES) | REFERENCE CODE | REVISION STATUS | H/E | DESCRIPTION |
|------------------|----------------|-----------------|-----|---|
| 30 | IEC Materials | | H | IEC Dissemination / Stakeholders' Meeting |
| | | | | |
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☐
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For Approval
 For your use
 For submission

☐
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☐

Approved as submitted
 Returned for corrections
 For reference

☐
☐

For review and comments
 For further processing

REMARKS:

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Very truly yours,

Aaron James R. Orasca
 Name and Signature of Sender

Received by:

ISIDORA E. TIRIALE
 Name and Signature of Receiver
20 June 2019 11:15 AM
 Date Time

Copy to:

| |
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Municipality of Trinidad

| | | | | |
|---|---|-----------------------------|---|----------------------|
|  | WOODFIELDS CONSULTANTS, INC. LETTER OF TRANSMITTAL (TRL) | Form No. SP-QMS-04F4 | | |
| | | Rev No. 4 | Effectivity Date (mm/dd/yy) 08/26/11 | Page/s 1 of 1 |

TO: Mayor Janeth Cajigas DATE: 24 June 2019
Trinidad, Bohol
 REF NO: _____

Dear Sir / Madam:


We are sending you herewith the following items:

| NO. OF COPY(IES) | REFERENCE CODE | REVISION STATUS | H/E | DESCRIPTION |
|------------------|------------------------|-----------------|-----|-----------------------|
| 30 | IEC Materials / Flyers | | H | Stakeholders' Meeting |
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|--|---|--|
| <input type="checkbox"/> For Approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> For review and comments |
| <input checked="" type="checkbox"/> For your use | <input type="checkbox"/> Returned for corrections | <input type="checkbox"/> For further processing |
| <input type="checkbox"/> For submission | <input type="checkbox"/> For reference | |

REMARKS:

Very truly yours,


Aaron James R. Orozco
 Name and Signature of Sender

Received by:


MARIETTA S. GOYENECHE
 Name and Signature of Receiver
6/24/2019 10:48 am
 Date Time

Copy to:

Municipality of Dagohoy

| | | | |
|---|---|-------------|--------------------------------|
|  | WOODFIELDS CONSULTANTS, INC. LETTER OF TRANSMITTAL (TRL) | Form No | |
| | | SP-QMS-04F4 | |
| | | Rev No | Effectivity Date (mm/dd/yy) |
| | | 4 | 08/26/11 |
| | | | Page/s 1 of 1 |

TO: Mayor Sofronio Apat DATE: 25 June 2019
Dagohoy, Bohol
 REF NO: _____

Dear Sir / Madam:

We are sending you herewith the following items:

| NO. OF COPY(IES) | REFERENCE CODE | REVISION STATUS | H/E | DESCRIPTION |
|------------------|------------------------|-----------------|-----|---|
| 30 | IEC Materials / Flyers | | H | IEC Dissemination / stakeholders' meeting |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

☐ For Approval
☒ For your use
☐ For submission

☐ Approved as submitted
☐ Returned for corrections
☐ For reference


☐ For review and comments
☐ For further processing

REMARKS:

Very truly yours,

Aaron James R. Orisco
 Name and Signature of Sender

Received by:


ERWIN L. CASEW
 Name and Signature of Receiver
6/25/19 1:45 PM
 Date Time

Copy to:

Municipality of Bien Unido

| | | | | |
|---|---|-----------------------------|---|----------------------|
|  | WOODFIELDS CONSULTANTS, INC. LETTER OF TRANSMITTAL (TRL) | Form No. SP-QMS-04F4 | | |
| | | Rev No. 4 | Effectivity Date (mm/dd/yy) 08/26/11 | Page/s 1 of 1 |

TO: Mayor Rene Borenaga DATE: 24 June 2019
Bien Unido, Bohol
 REF NO: _____

Dear Sir / Madam:

We are sending you herewith the following items:

| NO. OF COPY(IES) | REFERENCE CODE | REVISION STATUS | H/E | DESCRIPTION |
|------------------|----------------|-----------------|-----|--|
| 30 | IEC Materials | | H | Stakeholders Meeting / IEC Dissemination |
| | | | | |
| | | | | |
| | | | | |
| | | | | |


☐ For Approval
☒ For your use
☐ For submission

☐ Approved as submitted
☐ Returned for corrections
☐ For reference

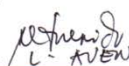
☐ For review and comments
☐ For further processing

REMARKS:

Very truly yours,


Aaron James R. Orosco
 Name and Signature of Sender

Received by:


ARCELE L. AVENIDO (LI)
 Name and Signature of Receiver
06/24/2019 4:05 PM
 Date Time

Copy to:

Annex D

Attendance Sheets of IEC Activity


Annex D

Attendance Sheets of IEC Activity

Municipality of Danao (Mayor)

[illegible]

Municipality of Danao (Vice Mayor)



WOODFIELDS CONSULTANTS, INC.

ATTENDANCE SHEET

(External)

Form No

SP-QMS-04F7

Rev No

1

Effectivity Date

03/05/12

Page/s

1 of 1

Office/ Project:

Bacol Northeast Multipurpose Dam Project

Venue:

New Cultural Center, Danao, Bohol

Subject:

IEC Dissemination / Stakeholders' Meeting

Date

25 June 2014

Time

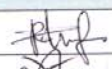
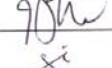
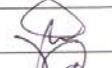

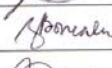

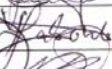

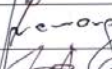
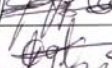
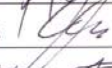



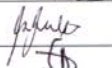






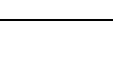


Start: 9:45 AM

End: 11:00 AM

Reference No.:

| NAME | POSITION/COMPANY | E-MAIL ADD. | CONTACT NO/S. | SIGNATURE |
|------------------------|--------------------------------|-----------------------|---------------|-----------|
| VOSSE S. CORTES | Mayor Elect | | 0939903374 | |
| PRESENTED B. MUTUC | KAC | | 0939903374 | |
| MARIA FE A. TAYLOR | GRAND A-NIA Reg | mfe.taylor@nla.com.ph | 09185572210 | |
| ORENCIO M. APALA | ENG'G. REG. 7 | | 0916736584 | |
| MARIA CELESTE C. LORON | SRB - member | celcece@nla.com.ph | 0998884075 | |
| VALENTIN M. DORON | SRB - new | | 09178670389 | |
| MONICO S. GONZAGA | SRB member | | 0907416285 | |
| Agapito P. DORON | Rep Senior Citizen | | | |
| Vitor, Albert | SRB Member | | 09299231516 | |
| PONSTER SUTER | SRB member | | | |
| BENITO N. TORRECO | MDRRML | benito@torreco.com | 0909977777 | |
| GRACE L. ESTOZA | MRD | | 0921167599 | |
| DELEMA T. DUAVER | SRB member | | 09478701149 | |
| Aaron James R. Orasco | Environmental specialist / WCI | a.jorasco@wci.com.ph | 09365372293 | |
| Juan Pablo M. Salinas | Environmental specialist | | | |

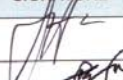
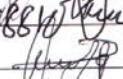
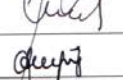

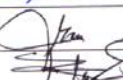
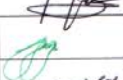

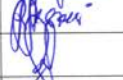

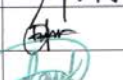








Municipality of San Miguel

| WOODFIELDS CONSULTANTS, INC. | | Form No. SP-QMS-04F7 | | |
|---|--------------------------------|--------------------------|-----------------------------|---|
| ATTENDANCE SHEET (External) | | Rev No. | Effectivity Date (mm/dd/yy) | |
| | | 1 | 03/05/12 | |
| | | Page/s 1 of 1 | | |
| Office/ Project: | | Date | | |
| NIA Region VII - ESIA for ECC Aquil / Bohol Northeast Project | | 20 June 2014 | | |
| Venue: | | Time | | |
| Conference Room, San Miguel | | Start: 9:45 am | | |
| Subject: | | End: 11:30 am | | |
| PEC Dissemination / Stakeholders' Meeting | | Reference No.: | | |
| | | | | |
| NAME | POSITION/COMPANY | E-MAIL ADD. | CONTACT NO/S. | SIGNATURE |
| 1. ROLANDO E. KRITAGA | WATER SYSTEM ADMIN. | LGA-SAN MIGUEL | 09222948834 |  |
| 2. ISIDORA E. THMALE | MPDC | ietthma@gmail.com | 09178807045 |  |
| 3. JANILANE D. ABELLA | MHO | janilaneabella@gmail.com | 09273824178 |  |
| 4. Maria Belen E. Hiracay | PID | hiracay@yahoo.com | 09273459040 |  |
| 5. Fortunata T. Palma | AT | marcpalma@yahoo.com | 09318016429 |  |
| 6. Felix E. Opasi | Kap. | | |  |
| 7. Zenaida R. Poncales | Women's Pres | | 09302201812 |  |
| 8. Victorina O. Garay | Women's Pres. | | 09300797558 |  |
| 9. Judith A. Poulagsac | Senior Citizens | | 09182445346 |  |
| 10. Germiniano G. Labonte | BAPA Pres. | | |  |
| 11. PEDRO B. NAVAL | SENIOR CITIZEN PRES. | | 04506653913 |  |
| 12. Maximiano S. Dumonayox | P.B | | 09306705601 |  |
| 13. Namang, Melfred B. | SK Chairperson | melfrednamang@gmail.com | 09487127745 |  |
| 14. EPIMACO A. BUNCALLES | P.B | | 09089443368 |  |
| 15. Ignacio Agbi | F.A | | 09254778804 |  |
| 16. REBOLODO EFRAS A. | Brgy. Capt | | 09082646687 |  |
| 17. DEMETRIO G. BUNCALLES | Brgy. Capt. | | 09309194655 |  |
| 18. Polcampo C. Arancillo | P.D | | 09487496756 |  |
| 19. Faustino D. Bulag | MM | | 09182662109 |  |
| 20. EVELINA P. PUTONG | PEC / NIA ROT | | 09177191532 |  |
| 21. XIORA XERONIANO D. | HYDROLOGIS / NIA RT | | 09462258034 |  |
| 22. ESTRELA R. SULARD | Prng Brgy. - San Miguel | | 0910912444 |  |
| 23. RICARDO T. VILLAVIENTA | Env'l Specialist / WCI | rtvillavienta@wci.com.ph | 09173210224 |  |
| 24. PHILIP MARK JATENILANO | P.D | | 09173609501 |  |
| 25. Aaron James R. Orosco | Environmental specialist / WCI | ajorosco@wci.com.ph | 09265372243 | |

Municipality of Trinidad

| WOODFIELDS CONSULTANTS, INC. | | Form No | |
|--------------------------------|--------------------------------|-------------|--|
| ATTENDANCE SHEET (External) | | SP-QMS-04F7 | |
| Rev No | Effectivity Date (mm/dd/yy) | Page/s | |
| 1 | 03/05/12 | 1 of 1 | |

| | | | |
|------------------|---|----------------|---------------------------------|
| Office/ Project: | Bohol Northeast Multipurpose Dam Project | Date | 24 June 2019 |
| Venue: | Trinidad Municipal Hall, Bohol | Time | Start: 9:45 AM End: 11:00 AM |
| Subject: | TEC Dissemination / stakeholders' Meeting | Reference No.: | |

| NAME | POSITION/COMPANY | E-MAIL ADD. | CONTACT NO/S. | SIGNATURE |
|------------------------|-------------------------------|-------------------------------|---------------|---|
| BRIAN S. TNIO | TNS MANAGER | brian2018.his@gnail.com | 09988927796 |  |
| BALONGA TEODORICO | MANAGER OFF. 1 | tedval520@com.ph | 099008810 |  |
| AUGA. MARCOS | BOGGY LEAD | | 09447427476 |  |
| JACO LAMUEL BALISOR | MARACANASO PRES. | | 0909 2294025 |  |
| AYELINA C. UPLICEROS | MAD/UCU-TRINIDAD | ayelinapliceros@gmail.com | 0910581166V |  |
| Mariaty C. Lomantas | MR. FAO President | MariatyLomantas@yahoo.com | 09205845711 |  |
| DIEGO V. MEDINA | LD/URMO | | 0577 2153573 |  |
| JOSEPH C. GARA | FARMERS' COORDINATOR | | 09690417524 |  |
| Riemala C. Boncales | P.B. | | 09108540519 |  |
| Virgilio A. Tubo Jr. | Youth Coordinator | virgiliohub08@gmail.com | 05942353435 |  |
| WILKIN DABOYU | BPPA PRESIDENT | tatskie.2017@yahoo.com | 09061323158 |  |
| SIMAYN C. ESOTO | WOMEN'S COORDINATOR | simaynesoto@gmail.com | 09102806266 |  |
| Rizalina T. Lucio | M.O. Staff | rhymelucio.com | 09128958221 |  |
| IRENEO D. PELAYO | ENVU XST & NIA | | 0945 461 005 |  |
| MARIA FEA. TAHANLANTIA | SR. ENGINEER A | mefe.tahanlantia@yahoo.com | 09108557220 |  |
| LEO G. PETARON | MENTO-LG/TTUNIDAD | mpele.trinidadbohol@gmail.com | 09382826700 |  |
| Aaron James R. Oresca | Environmental specialist /WCI | ajoresca@wci.com.ph | 0936 537 2243 |  |
| Juan Paulo Salinas | Environmental/Assistant | | |  |
| | | | | |
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Annex E

Presentation for Public Scoping

Annex E Presentation for Public Scoping



The slide features a blue background with a collage of images showing a dam, a river, and a group of people. The WCI logo is in the top right corner. On the left, the logos and names of the National Irrigation Administration – Region VII and Woodfields Consultants, Inc. are displayed. The title 'Stakeholders' Meeting for Bohol Northeast Basin Multipurpose Dam Project' is prominently shown in the center-right. Below the title, the location 'Municipality of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido, Province of Bohol' is listed. A horizontal banner across the middle contains the text 'A Planning and Engineering Consulting Firm'.

National Irrigation Administration – Region VII

WOODFIELDS CONSULTANTS, INC.
Water, Power & Environment, Buildings & Infrastructures, Information & Communications Technology

**Stakeholders' Meeting for
Bohol Northeast Basin
Multipurpose Dam Project**

Municipality of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido, Province of Bohol

A Planning and Engineering Consulting Firm

PROGRAMME

| | |
|-----------------------------------|-------|
| Registration | WCI |
| Prayer and National Anthem | LGU |
| Welcome Address | LGU |
| Presentation by DENR-EMB | EMB |
| Presentation by NIA Region VII | NIA |
| Open Forum | (ALL) |
| Snacks | (ALL) |
| Wrap-up / Future Engagement Plans | |

PRESENTATION OUTLINE

- I. Introduction to the EIA Process
- II. Project Information
- III. Objectives of the Project
- IV. Project Benefits
- V. Project Description

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I. INTRODUCTION TO THE EIA PROCESS

Presidential Decree (PD) 1151 defined the general state policies on the pursuit of a better quality of life without degrading the environment . It mandated the conduct of an Environmental Impact Assessment (EIA) for all projects that may have significant impacts to the environment.

PD 1586 established the Philippine Environmental Impact Statement System (PEISS). The IRR of PD 1586 is contained in **DAO 2003-30** .

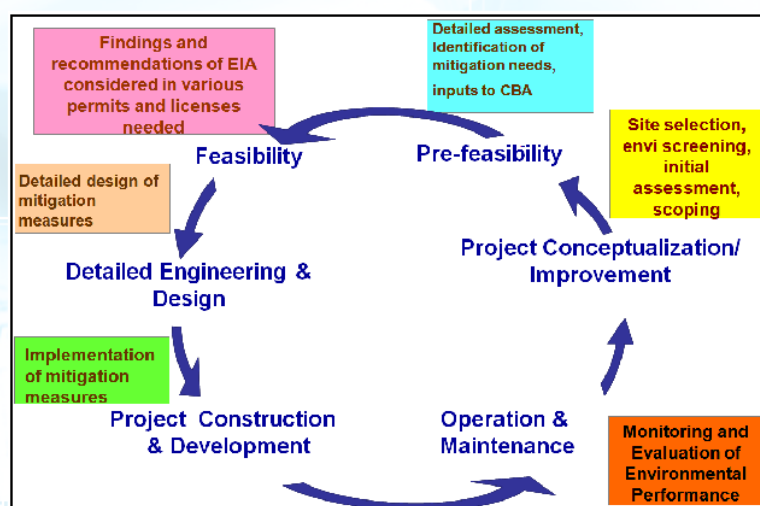
Project categorization is guided by **MC 2014-05**. Under this circular, Bohol Northeast Project, with a storage capacity of **5.09 MCM**, is classified as an Infrastructure with dam construction for irrigation purposes. It requires an Environmental Impact Statement (EIS) and the ECC application may be filed in the Central Office of DENR-EMB.

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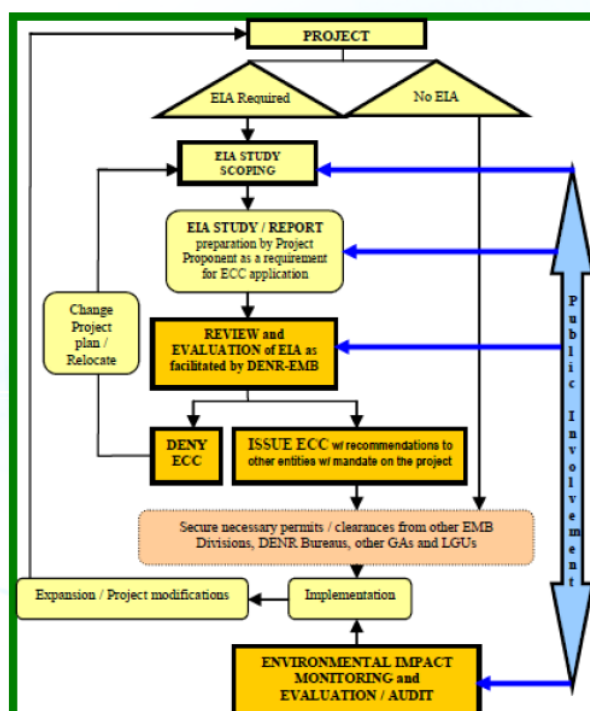
I. INTRODUCTION TO THE EIA PROCESS

Environmental Impact Assessment

The process of predicting the likely environmental consequences of implementing a project and designing appropriate preventive mitigating and enhancement measures



I. INTRODUCTION TO THE EIA PROCESS



Legend:

- Proponent-driven
- DENR-EMB driven
- Proponent-driven but outside the EIA Process
- Public involvement

Opportunities in Public Participation

- Improves decision-making
- Provides added sources of expertise
- Reduces level of misinformation and distrust
- Empowers the citizens to take responsibility in environmental protection
- Gives the people a voice to air their concerns and promote their active involvement in planning

II. PROJECT INFORMATION

Name of Project:

Social and Environmental Impact Assessment with ECC Acquisition for Bohol Northeast Basin Multipurpose Dam Project

Proponent:

National Irrigation Administration - Region VII

Project Location:

Municipalities of Danao, Trinidad, San Miguel, Dagohoy, and Bien Unido, all in the Province of Bohol

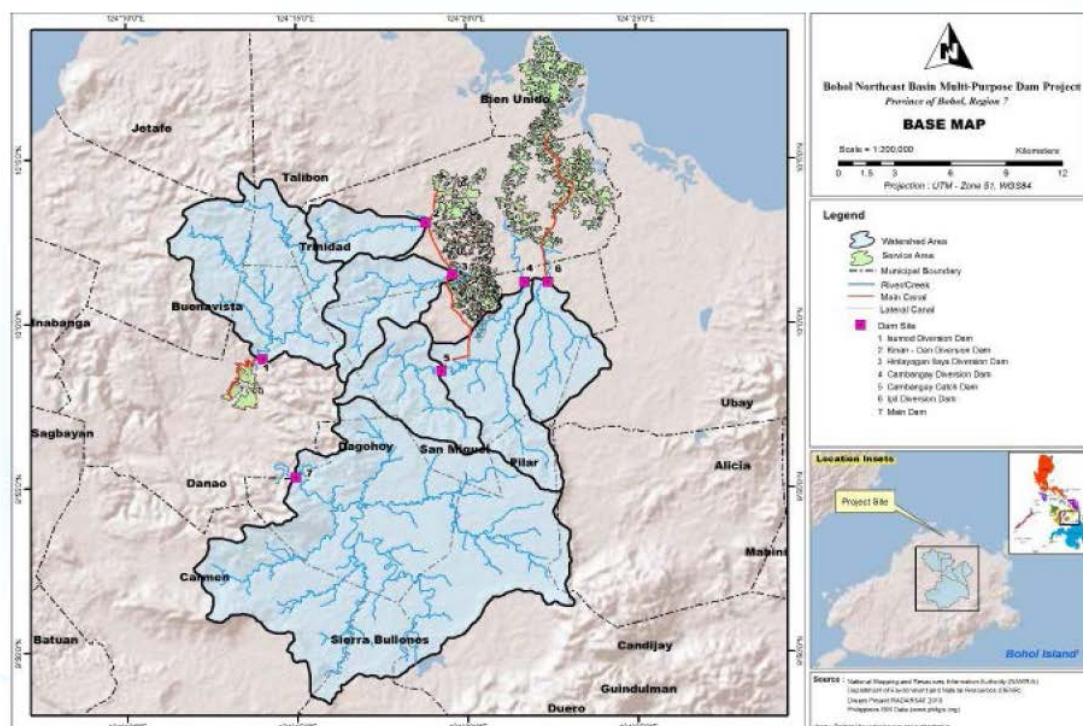
Project Nature:

Infrastructure, construction of dam and irrigation facilities

***Reservoir Capacity:* 5.09 Mm³**

***Service Area:* 2,133 hectares**

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DAM SITE LOCATION AND PROJECT COMPONENTS WITHIN THE WATERSHED AREA OF BOHOL NORTHEAST PROJECT

III. OBJECTIVES OF THE PROJECT

- Improve agricultural activity by irrigating approximately 2,133 hectares of farm lands in the Municipality of Danao, San Miguel, Trinidad, Dagohoy, and Bien Unido
- Provide domestic water supply (48 million m³) and (2-MW) electrical power supply.

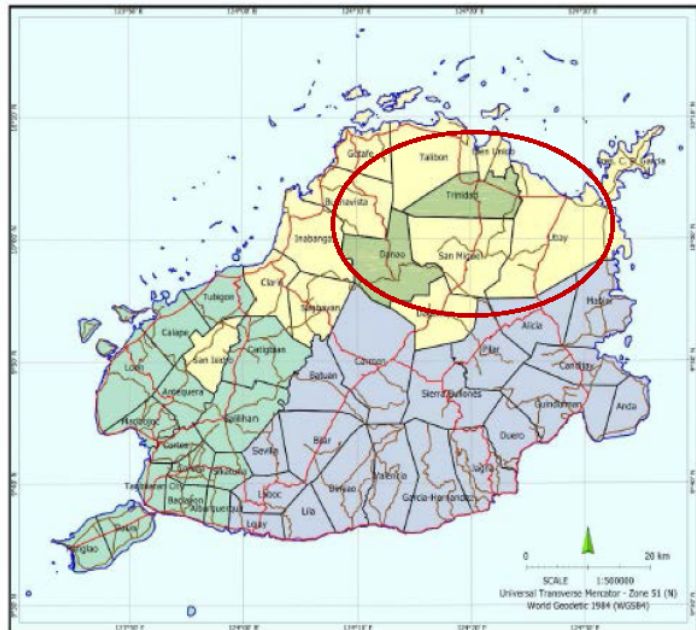
IV. PROJECT BENEFITS

- Irrigation benefit: increase in crop production
- Power generation hydro-power supply: 2MW power capacity
- Domestic water supply: 48.295 MCM

V. PROJECT DESCRIPTION

➤ The project area is located 77 kilometers north of the provincial capital of Tagbilaran City.

➤ The key structures and areas to be served are located in the Municipalities of Danao, Trinidad, Ubay, San Miguel, Dagohoy and Bien Unido.



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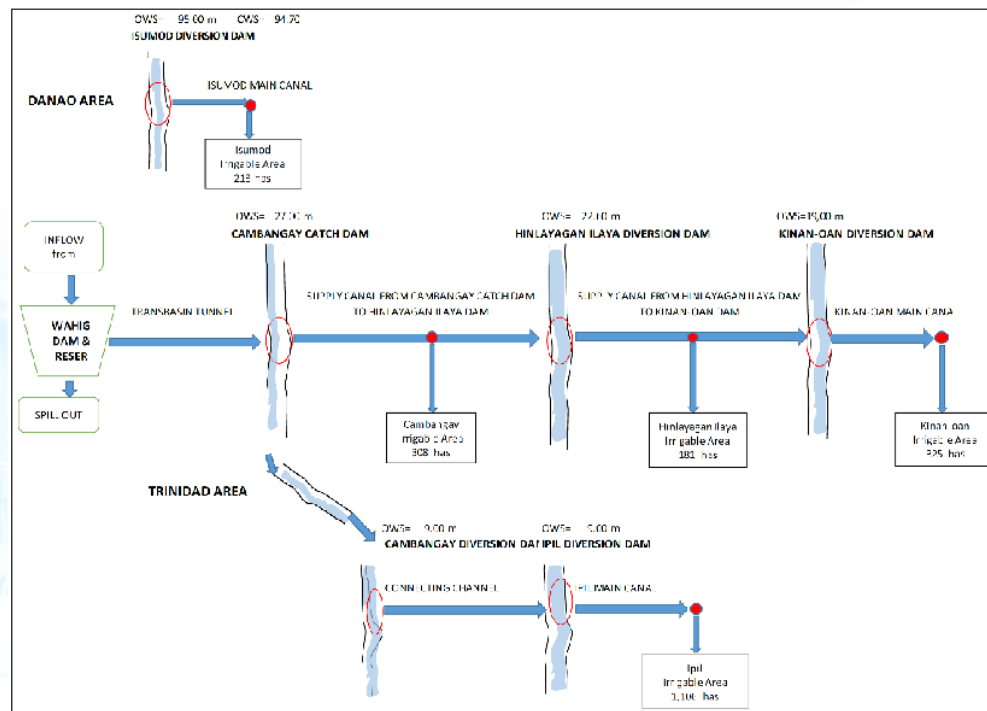
V. PROJECT DESCRIPTION

➤ The overall concept is to impound water coming from Malinao Dam and the downstream rivers at the Wahig Dam to irrigate a total of 1,920 hectares ricefields. The Isumod Diversion Dam will independently get its water from Isumod River to irrigate 213 hectares of rice fields.

➤ Generally, six diversion dams will comprise the proposed Project. Five of the diversion dams will be supplied by the Wahig Reservoir Dam through the 6.575-km trans-basin tunnel while the Isumod Diversion Dam will be supplied by the Isumod River.

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PROJECT DESCRIPTION CONTINUATION...



SCHEMATIC WATER FLOW OF BOHOL NORTHEAST PROJECT

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PROJECT DESCRIPTION CONTINUATION...

DIRECT IMPACT AREAS OF BOHOL NORTHEAST PROJECT

| Municipalities | Barangay | Project Component |
|----------------|------------------|--------------------------------|
| San Miguel | Hagbuyo | Cambangay Diversion Dam |
| | Bugang | Ipil Diversion Dam |
| | Cabangahan | Service Area |
| Trinidad | San Jose | Cambangay Catch Dam |
| | Mahagbu | Service Area |
| | Manuel M. Roxas | Service Area |
| | Catoogan | Service Area |
| | La Union | Service Area |
| | Soom | Service Area |
| | Guinobatan | Service Area |
| | Tagum Sur | Service Area |
| | Tagum Norte | Service Area |
| | La Victoria | Service Area |
| | Poblacion | Service Area |
| | Sto. Tomas | Kinan-oan Diversion Dam |
| | Hinlayagan-Ilaya | Service Area |
| | Kinan-oan | Service Area |
| | Mabuhay | Service Area |
| | Cabigohan | Service Area |
| | San Vicente | Service Area |
| | Bongbong | Hinlayagan-Ilaya Diversion Dam |

PROJECT DESCRIPTION CONTINUATION...

| Municipalities | Barangay | Project Component |
|-------------------|-----------------|----------------------|
| Bien Unido | Liberty | Service Area |
| | Nueva Esperanza | Service Area |
| | Mandawa | Service Area |
| | Tuboran | Service Area |
| | Nueva Estrella | Service Area |
| Danao | Dagohoy | Isumod Diversion Dam |
| | Cantubod | Service Area |
| | Santa Fe | Service Area |
| | Remedios | Service Area |
| | Conception | Wahig Main Dam |
| Dagohoy | Poblacion | Service Area |
| | Cagawitan | Service Area |
| | Estaca | Service Area |
| | Malitbog | Service Area |

PROJECT DESCRIPTION CONTINUATION...

➤ There are 2 alternatives considered: **Alternative 1 (with the impounding dam and transbasin tunnel)** and **Alternative 2 (without the main dam and reservoir at Wahig River)**

➤ Project components include:

a. Wahig Impounding Dam and Appurtenant Structures

1. Dam

- located in Brgy. Concepcion, Danao
- with catchment area of 327.50 sq. km and reservoir area of around 424.42 hectares
- Inundation area of about 180.27 hectares
- Crest width of 10.0 m and length of 160.0 m

Table 11-6: Dam Attributes

| Dam Attributes | Particular |
|---------------------------|--|
| Dam type | Earthfill |
| Clay core | Central clay core |
| Filter | Downstream – (fine / coarse) Upstream – (fine / coarse) |
| Outer shell 1 | Random Fill; U/S – DS |
| Outer shell 2 | Riprap – U/S; Gravel Ballast – D/S |
| Rock toe | Rockfill |
| Dam height | 40 m (Structural Height) |
| Dam crest elevation | 108 masl |
| Dam base | 214.50 m |
| Upstream slope (V:H) | 1:3.0 w/ 6.0m width berm 1:3.0 |
| Downstream slope (V:H) | 1:2.75 w/ 3.0m width berm |
| Coffer dam elevation. U/S | 90 masl |


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PROJECT DESCRIPTION CONTINUATION...**2. Spillway and Appurtenances****SPILLWAY**

| | | |
|--|---------------------|------------------------|
| Type | - | Ungated |
| Crest Elevation | - | 102.20 |
| Crest Width | m | 300.00 |
| Length of Chute and Dissipator | m | 130.00 |
| Type of Dissipator | - | Type II Stilling Basin |
| Inflow Design (1,000-yr Return Period) | m ³ /sec | 3,042.70 |
| Maximum Discharge Capacity | m ³ /sec | 2,990.75 |
| Surcharge Height | m | 2.80 |

3. Diversion Conduit / Outlet Works and Appurtenances

- the conduit shall be 240 meters long reinforced concrete with 60-cm thick cut and cover reinforced concrete barrel constructed side by side


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4. Four (4) concrete diversion dam and two (2) rubber diversion dam and appurtenant structures

(a) Cambangay Catchdam

- located less than a kilometer downstream of the outlet portal of the Wahig transbasin tunnel in Brgy San Jose, San Miguel
- it will serve as a diversion structure for the irrigable area in the Trinidad-Bien Unido service area
- the dam has a hydraulic head of 6.00 meters while its non-overflow height is at El 11.00 meters. The crest length of the ogee is about 80.00 meters.

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(b) Hinlayagan-Ilaya Diversion Dam

- located in Brgy Bongbong, Trinidad
- its hydraulic head is about 8.10 meters and the non-overflow elevation is set at Elev. 28.00 meters

(c) Kinan-oan Diversion Dam

- its hydraulic height is about 4.50 meters. The length of the overflow is about 70.00 meters and top of the non-overflow section of the dam is set at El. 23.00 meters

(d) Cambangay and Ipil Diversion Dams

- hydraulic height of Cambangay diversion dam is 2.00 meters and that of Ipil diversion dam is 3.50 meters.

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(b) Isumod Diversion Dam

- height of the overflow dam is 15.50 meters and has a length of about 90.00

5. Access and Service Road

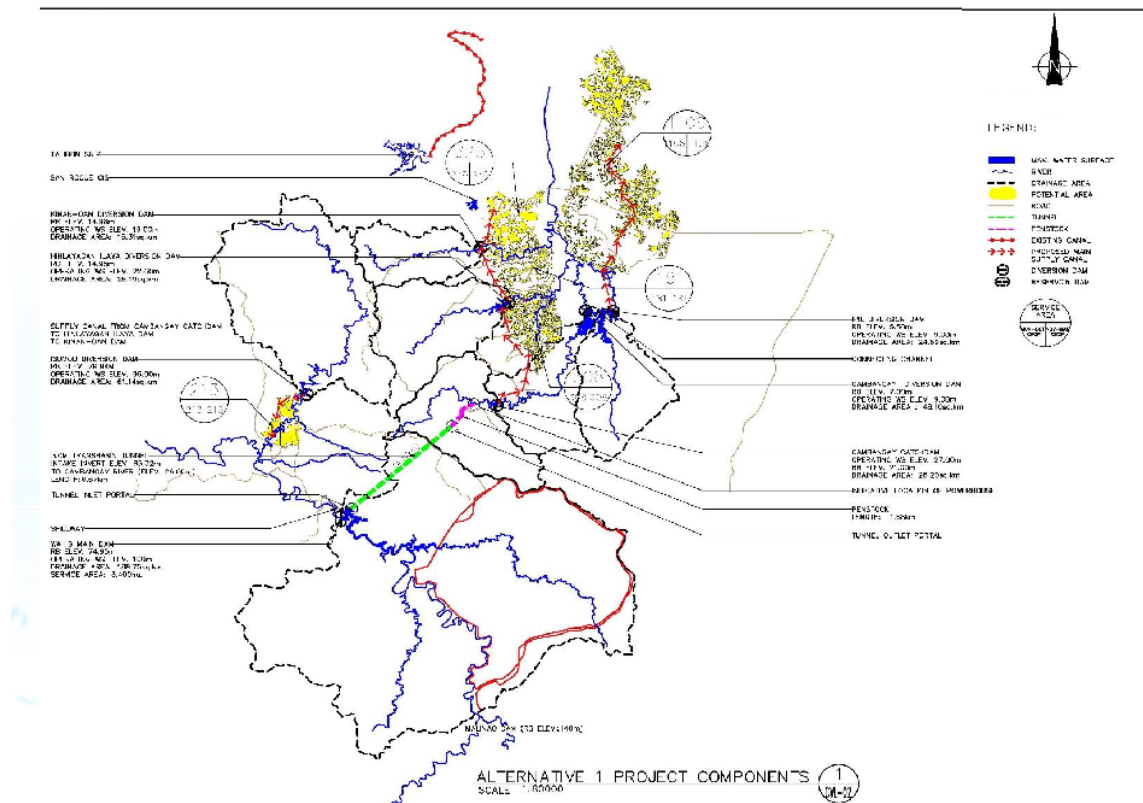
- A total of 6.3 km of existing will be improved and 1.0 km of new roads will be constructed

b. TRANSBASIN TUNNEL AND POWER PLANT

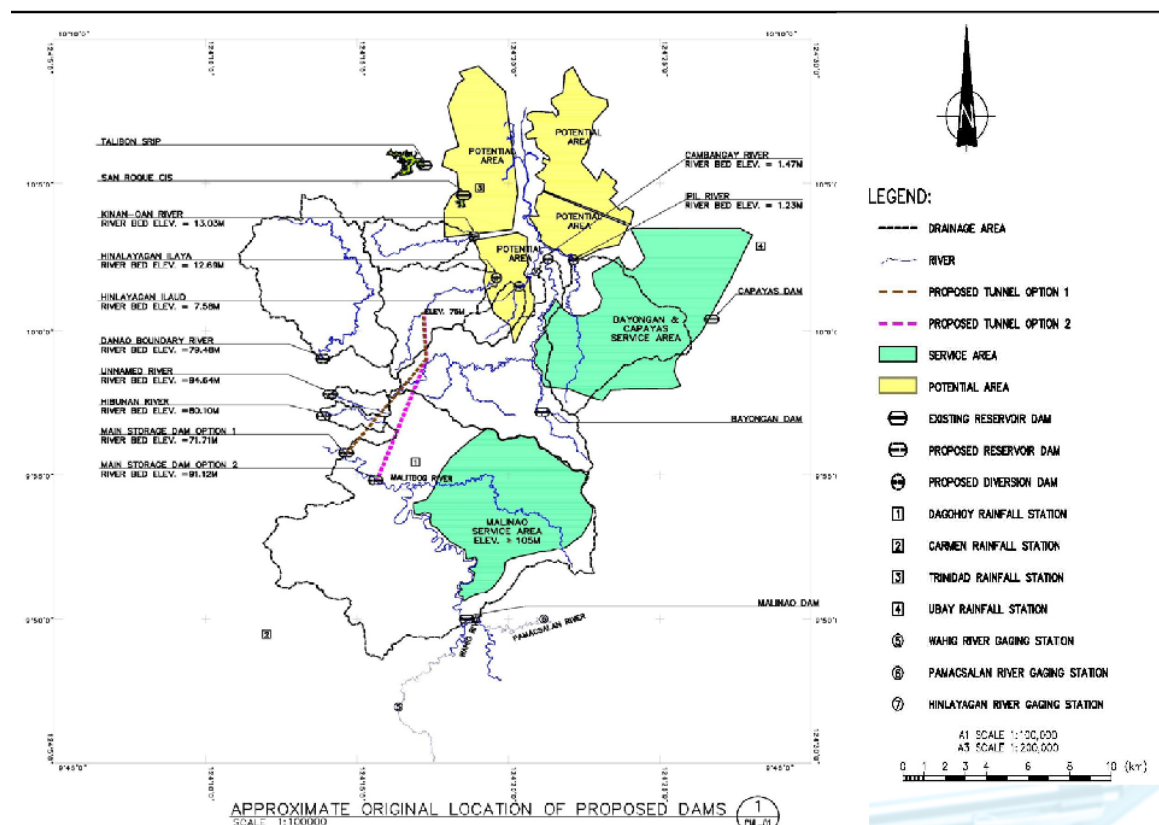
- the intake portal starts at Sta 0+600 in Brgy. Concepcion, Danao and ends at Sta. 7 + 175 in Brgy. San Jose, San Miguel
- tunnel is 2.30 meter in diameter and about 6.575 km long. At the end of the transbasin tunnel, a surge tank and a steel penstock will be provided. The steel penstock end at Sta. 9+000 where a power plant is planned to be constructed.

c. Irrigation and Drainage Facilities

- comprised of the diversion works, the main canal and laterals, canal structures and the on-farm facilities composed of farm ditches and farm drains



ALTERNATIVE 1 OF BOHOL NORTHEAST PROJECT



ALTERNATIVE 2 OF BOHOL NORTHEAST PROJECT

Key Environmental Aspects, Wastes, Issues, Built-in Measures

Pre-Construction Phase

| Key Environmental Aspects | Wastes / Issues | Built-in Measures |
|---------------------------|--|--|
| Land | <ul style="list-style-type: none"> Leakage of fuels and other hazardous materials/chemicals during survey works | <ul style="list-style-type: none"> Proper handling of fuel and materials at all times will be strictly implemented to minimize the generation of wastes that could alter the existing water quality within the basin. |
| People | <ul style="list-style-type: none"> Negative perception towards the project due to the anticipated right-of-way land acquisition | <ul style="list-style-type: none"> Information dissemination in the community about the project through coordination with LGUs, PO's, NGO's, barangay officials and other concerned community groups |

Key Environmental Aspects, Wastes, Issues, Built-in Measures

Construction Phase

| Key Environmental Aspects | Wastes / Issues | Built-in Measures |
|---------------------------|---|---|
| Land | <ul style="list-style-type: none"> Change in land use Destabilization of slope, soil erosion and increase of run off Clearing of trees Accumulation of solid wastes Leakage of fuels and other hazardous materials/chemicals | <ul style="list-style-type: none"> Conduct slope stability analysis and construct silt trap and spoils disposal area Plant native vegetation that could retard erosion as appropriate on hill slopes and other potentially erodible places Cutting of trees will not commence until a tree cutting permit is secured from proper authority. Develop waste management plan for various specific waste streams. Organize disposal of all wastes generated during construction in an environmentally acceptable manner. Minimize the production of waste materials by Reduce, Recycle and Reuse approach. Segregate and reuse or recycle all the wastes as applicable and feasible |

Key Environmental Aspects, Wastes, Issues, Built-in Measures

Construction Phase

| Key Environmental Aspects | Wastes / Issues | Built-in Measures |
|---------------------------|---|---|
| Water | <ul style="list-style-type: none"> Sedimentation Contamination of surface water with oil and grease Marine and terrestrial habitat disturbance | <ul style="list-style-type: none"> Work stoppage during high rainfall conditions to reduce sediment loss Installation of oil traps and proper storage of used oil Restrict abandonment of wastes generated into the rivers and reservoirs |
| Air | <ul style="list-style-type: none"> Dust generation Exhaust fumes and gaseous emissions from vehicles | <ul style="list-style-type: none"> Dirt roads will be water-sprayed especially during hot and dry weather. Regulate speed of delivery/ hauling trucks Refrain from using equipment/vehicle that cause excessive pollution (e.g. visible smoke) at the construction site Wear dust masks when operators work |

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Key Environmental Aspects, Wastes, Issues, Built-in Measures

Construction Phase

| Key Environmental Aspects | Wastes / Issues | Built-in Measures |
|---------------------------|---|---|
| People | <ul style="list-style-type: none"> Workers health, safety and hygiene Public Safety | <ul style="list-style-type: none"> Provide training to all construction workers in basic sanitation and healthcare issues, general health and safety matters, and on the specific hazards of their work. Provide adequate sanitation and waste disposal at construction sites. Provide adequate healthcare for workers and locate worksites away from sensitive areas. Provide construction personnel with necessary self-protection devices, such as safety helmet, earplug, and other safety protection devices where necessary. Prohibit general public/local residents in high-risk areas, e.g., excavation sites and areas where heavy equipment is in operation and such sites have a watchman to keep public out. |

Key Environmental Aspects, Wastes, Issues, Built-in Measures

Operational Phase

| Key Environmental Aspects | Wastes / Issues | Built-in Measures |
|---------------------------|--|--|
| Water | <ul style="list-style-type: none"> Contamination coming from the operation of facilities Contamination of surface water from domestic wastes | <ul style="list-style-type: none"> Oil-water separators will be established such as at the motorpool, fuel/ lubricant storage or distribution facilities, etc. Domestic wastes generated from comfort rooms, washings and rinsing will be treated at the septic tank |
| Air | <ul style="list-style-type: none"> Emission of fugitive dust Increased gaseous emission from vehicle | <ul style="list-style-type: none"> Regular water spraying by water sprinklers on haulage roads during transporting of construction materials, equipment etc. Transport trucks will not be overloaded and keeping transport speed below specified limits and will be required to have the loads covered |

THANK YOU!

