

**VOLUME 3**

**SECTORAL  
STUDIES**



**MUNICIPALITY OF SAN FERNANDO  
PROVINCE OF BUKIDNON**



**COMPREHENSIVE  
LAND USE PLAN  
2019-2028**

VOLUME

3



# SECTORAL STUDIES

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MUNICIPALITY OF SAN FERNANDO  
PROVINCE OF BUKIDNON

# VOLUME 3

## SECTORAL STUDIES

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# DEMOGRAPHY

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# 1. DEMOGRAPHY

## 1.1 HISTORICAL GROWTH OF POPULATION

The 1<sup>st</sup> censal year conducted for the municipality was in 1970 with only 6,698 head counts. Ten years later, the average annual growth rate was recorded with 5.97% or an increase of the population to 23,083. Table 3.1 displays the ascending number of the populace although the municipality experienced an irregular trend of the average annual growth rate from 3.38% in 1995, 1.51% in 2007 to 2.15% in 2015. This is due to several factors concerning economic conditions, cultural orientations and error in enumerations.

**Table 3.1**  
**Historical Growth of Population**  
**Municipality of San Fernando, Bukidnon**  
**1970-2015**

Year	Population	Growth Rate
1970	6,698	
1975	17,270	20.86%
1980	23,083	5.97%
1990	29,052	2.33%
1995	34,299	3.38%
2000	40,165	3.21%
2007	44,595	1.51%
2010	50,207	4.03%
2015	56,138	2.15%

*Source: Philippine Statistics Authority (PSA) (formerly National Statistics Office)*

## 1.2 POPULATION BY BARANGAY

The official count released by the Philippine Statistics Authority, PSA (formerly National Statistics Office, NSO) in 2015 for the 24 Barangays is 56,138 populace as shown in Table 3.2.

Halapitan, the urban barangay as well as the center of all activities and services got the highest percentage of the population with 18.21% or 10,221 head counts among the twenty four (24) barangays. The urban/urbanizing barangays of Kalagangan, Little Baguio and Namnam are the 2<sup>nd</sup> to 4<sup>th</sup> preferences of the populace for residency with 5,569, 4,862, and 3,807 headcounts respectively. The rural barangays of Bulalang, Cabuling and Cayaga are the least populated barangays counting to 669, 836, and 910 headcounts respectively.

## 1.3 POPULATION BY URBAN AND RURAL BARANGAY, HOUSEHOLD NUMBER AND AVERAGE HOUSEHOLD SIZE

In 2015, the level of urbanization or the percentage of population residing in urban area in San Fernando was recorded at 10.21%. This means that the total of 10,221 person resided in Barangay Halapitan is classified as urban. However, there are seven barangays namely: Candelaria, Kalagangan, Little Baguio, Mabuhay, Nacabuklad, Namnam and Sacramento Valley, considered in the urbanizing core due to some urban activities and characterizations that are expanded on these areas.

In Census 2015, as shown in Table 3.2, the Municipality had a total of 12,394 households with an average household size of 4.52. Consistent with the number of population, the urban/urbanizing barangays of Halapitan, Kalagangan, and Little Baguio ranked also as the top 3 highest barangays with the most number of households. The factors of the people's preferences to reside in these areas are a.) Nearness to their working places, b.) Easy access to services and facilities and c.) Better opportunities. Barangay Halapitan had 2,257 households, Kalagangan had 1,230 while Little Baguio had 1,073 households. The least number of household is barangay Bulalang with only 148 or 1.19% of the total household number. This hinterland barangay has a narrow, earthy and high terrain road that can only be reached through motorcycle ride.

**Table 3.2**  
**Population by Barangay**  
**Municipality of San Fernando, Bukidnon**  
**Census 2015**

Barangay	Number of Population	Percent to Total (%)	Household Population	Household Number
<b>Urban</b>				
1. Halapitan	10,221	10.21	10,192	2,257
<b>Urbanizing</b>				
1.Candelaria	910	1.62	907	201
2.Kalagangan	5,569	9.92	5,553	1,230
3.Little Baguio	4,862	8.66	4,848	1,073
4.Mabuhay	3,083	5.49	3,074	681
5.Nacabuklad	1,250	2.23	1,247	276
6.Namnam	3,807	6.78	3,796	840
7.Sacramento Valley	1,870	3.33	1,865	413
Sub-total	21,351	38.03	21,290	4,714
<b>Rural</b>				
1. Bonacao	1,989	3.54	1,983	439
2. Bulalang	669	1.19	667	148
3. Cabuling	836	1.49	834	185
4. Cayaga	1,292	2.30	1,288	285
5. Dao	1,989	3.54	1,983	439
6. Durian	970	1.73	967	214
7. Iglugsad	1,622	2.89	1,617	358
8. Kawayan	1,778	3.17	1,773	393
9. Kibongcog	1,935	3.45	1,930	427
10. Magkalungay	2,533	4.51	2,526	559
11. Malayanan	1,246	2.22	1,243	275
12. Matupe	2,121	3.78	2,115	468
13. Palapacan	1,412	2.52	1,408	312
14. San Jose	973	1.73	970	215
15. Sto. Domingo	1,529	2.72	1,525	338
16. Tugop	1,672	2.98	1,667	369
Sub-total	24,566	43.76	24,499	5,423
<b>Total</b>	<b>56,138</b>	<b>100</b>	<b>55,981</b>	<b>12,394</b>
<b>Percentage</b>	<b>100%</b>		<b>99.72%</b>	
Average Household Size				4.52
Number of Population belong to Institutional Household				157 (0.28%)

Source: PSA, Population Census (POPCEN) 2015

It is noted also in Table 3.2 that 99.72% of population are considered in the household population while the rest percentage of 0.28% or 157 populace belong to institutional population which constituted that part of the total population who have their own families or households elsewhere and whose usual place of residence were collective or institutional living quarters such as boarding houses, hospitals, doctor and nurse's quarters, convents, military camps, and construction camps.

#### 1.4 POPULATION DENSITY BY BARANGAY

The gross population density of the municipality as shown in Table 3.3 is about one person per hectare. Barangay Halapitan, the only urban area, has a population density of two persons per hectare or two times higher than the gross population density of the municipality.

**Table 3.3**  
**Population Density by Barangay**  
**Municipality of San Fernando, Bukidnon**  
**Census 2015**

Barangay	Area (in hectare)	Rank	Population	Rank	Population Density		Rank
<b>Urban</b>							
1. Halapitan	6,162.10	4	10,221	1	1.66	2 person per hectare	4
<b>Urbanizing</b>							
1.Candelaria	2,956.67	11	1,292	16	0.31	1 person per 2 hectares	18
2.Kalagangan	5,162.50	6	5,569	2	1.08	1 person per hectare	5
3.Little Baguio	2,847.50	12	4,862	3	1.71	2 person per hectare	3
4.Mabuhay	765.73	24	3,083	5	4.03	4 person per hectare	1
5.Nacabuklad	6,514.17	3	1,250	17	0.19	1 person per 5 hectares	21
6.Namnam	4,057.50	7	3,807	4	0.94	1 person per hectare	6
7.Sacramento Valley	2,321.67	17	1,870	10	0.81		8
Sub-total	24,625.74		21,733				
<b>Rural</b>							
1. Bonacao	1510.83	23	1,989	8	1.32	1 person per hectare	17
2. Bulalang	2125.00	18	669	23	0.31	1 person per 3 hectares	18
3. Cabuling	2769.17	14	836	22	0.30	1 person per 3 hectares	19
4. Cayaga	6899.17	2	1,292	16	0.19	1 person per 5 hectares	21
5. Dao	5612.50	5	1,989	8	0.35	1 person per 3 hectares	16
6. Durian	2458.33	16	970	20	0.39	1 person per 3 hectares	14
7. Iglugsad	3389.17	9	1,622	13	0.48	1 person per 2 hectares	12
8. Kawayan	4000.82	8	1,778	11	0.44	1 person per 2 hectares	13
9. Kibongcog	7049.17	1	1,935	9	0.27	1 person per 4 hectares	20
10. Magkalungay	1436.67	22	2,533	6	1.76	2 person per hectare	2
11. Malayanan	1625.83	21	1,246	18	0.77	1 person per hectare	9
12. Matupe	3131.67	10	2,121	7	0.68	1 person per hectare	10
13. Palacpacan	2792.50	13	1,412	15	0.51	1 person per 2 hectares	11
14. San Jose	2628.33	15	973	19	0.37	1 person per 3 hectares	15
15. Sto. Domingo	1873.33	20	1,529	14	0.82	1 person per hectare	7
16. Tugop	2071.67	19	1,672	12	0.81	1 person per hectare	8
Sub-total	51,374.16		24,566				
<b>Total</b>	<b>82,162</b>		<b>56,138</b>		<b>Municipal</b>	<b>1 person per hectare</b>	

Source: PSA, POPCEN 2015

Seven barangays belong to urbanizing core with a population density of one person per hectare. Population density outside the urban core is one person per two (2) hectares which is lower than the overall average.

Among the barangays, densest concentration of population is attributed to the lowest territorial area of the municipality, the Barangay Mabuhay at four persons per hectare. It is notable that lowest densities figured at 2<sup>nd</sup> and 3<sup>rd</sup> larger territorial areas in the municipality, Cayaga and Nacabuklad at one person per five hectares.

## 1.5 POPULATION BY AGE GROUP AND SEX

Dominantly populated by the young generation, age group 5-9 taken the lead with 13.62% as shown in Table 3.4. Following closely are age groups 10-14 and 1-4 with 12.21% and 11.53%, respectively. It is close to a perfect pyramid figure with a heavy bottom to a very lean top with the population gradually decreasing from ages 5-9 to 80 and above or from as high as 13.62% to 0.49% at the top. Male population in all ages had higher number than female noting an average percentage of 52.35% or a population of 29,391.

**Table 3.4**  
**Population by Age Group**  
**Municipality of San Fernando, Bukidnon**  
**Census 2015**

Age Group	Population Census 2015	Percent to Total (%)	Male	Female
Under 1	1,662	2.96	845	817
1-4	6,474	11.53	3,383	3,091
5-9	7,647	13.62	3,946	3,701
10-14	6,853	12.21	3,578	3,275
15-19	5,569	9.92	2,899	2,670
20-24	4,821	8.59	2,496	2,325
25-29	4,318	7.69	2,323	1,995
30-34	3,598	6.41	1,890	1,708
35-39	3,273	5.83	1,787	1,486
40-44	2,913	5.19	1,531	1,382
45-49	2,459	4.38	1,280	1,179
50-54	1,998	3.56	1,059	939
55-59	1,490	2.65	785	705
60-64	1,120	2.0	605	515
65-69	789	1.41	412	377
70-74	550	0.98	279	271
75-79	330	0.59	166	164
80 and over	274	0.49	127	147
<b>All Ages</b>	<b>56,138</b>	<b>100%</b>	<b>29,391</b>	<b>26,747</b>
<b>Percentage to Total</b>			<b>52.35%</b>	<b>47.65%</b>
0-4 years	8,136	14.49	4,228	3,908
5 years and over	48,002	85.51	25,163	22,839
<b>Young Dependents (0-14 years)</b>	<b>22,636</b>	<b>40.32</b>	<b>11,752</b>	<b>10,884</b>
<b>Labor force (15 years old and over)</b>	<b>33,502</b>	<b>59.68</b>	<b>17,639</b>	<b>15,863</b>
<b>Working age (15-64 years)</b>	<b>31,559</b>	<b>56.22</b>	<b>16,655</b>	<b>14,904</b>
<b>School age (5-24 years)</b>	<b>24,890</b>	<b>44.34</b>	<b>12,919</b>	<b>11,971</b>
18 years and over	30,034	53.50	15,823	14,211
60 years and over	3,063	5.46	1,589	1,474
<b>Old Dependents (65 years and over)</b>	<b>1,943</b>	<b>3.46</b>	<b>984</b>	<b>959</b>
<b>Total Dependent-Age</b>	<b>24,579</b>	<b>43.78</b>	<b>12,736</b>	<b>11,843</b>
<b>Age Dependency Ratio</b>				<b>77.88%</b>

Source: PSA, POPCEN 2015

## 1.6 POPULATION COMPOSITION BY WORKING-AGE AND DEPENDENT- AGE

The population below 15 years old is considered young dependents while population 65 years old and over is the old dependents. Table 3.4 shows that there are 22,636 young dependents while their old counterparts are only 1,943 dependents reflected to the total of 24,579 dependents or 43.78% of the total number of all ages. Ages 15 years old and over are considered in the labor force population having a counterpart of 33,502 or 59.68% of the total population in 2015. Of this number, 31,559 of the population is considered in the working-age (15-64 years old).

The municipality's picture of the age dependency ratio which is the result of the total number of dependents over the total number of population in the working-age is 77.88% or 77 dependents for every 100 working-age.

## 1.7 POPULATION BY HIGHEST GRADE COMPLETED

There is a total of 48,002 population belongs to the age group of 5 years and over considered to be identified with highest grade completed during the Population Census 2015 wherein males dominated the number with average percentage of 52.42%. Out of this total, there are 6,784 or 14.13% identified with no grade completed as presented in Table 3.5.

**Table 3.5**  
**Population by Highest Grade Completed**  
**San Fernando, Bukidnon**  
**Census 2015**

Highest Grade/Year Completed	Male	Female	Both Sexes	Percent to Total (%)
No grade completed	3,462	3,322	6,784	14.13
Preschool	927	850	1,777	3.70
Special education	-	-	-	-
Elementary	13,929	10,981	24,910	51.89
1 <sup>st</sup> to 4 <sup>th</sup> grade	8,846	6,650	15,496	32.28
5 <sup>th</sup> to 6 <sup>th</sup> grade	2,267	1,790	4,057	8.45
Graduate	2,816	2,541	5,357	11.16
High School	5,572	5,834	11,406	23.76
Undergraduate	3,012	3,166	6,178	12.87
Graduate	2,560	2,668	5,228	1.89
Postsecondary	66	176	242	0.50
Undergraduate	7	5	12	0.02
Graduate	59	171	230	0.48
College undergraduate	722	882	1,604	3.34
Baccalaureate/ college graduate	468	765	1,233	2.57
Post baccalaureate	11	17	28	0.06
Not stated	6	12	18	0.04
<b>TOTAL</b>	<b>25,163</b>	<b>22,839</b>	<b>48,002</b>	<b>100</b>
<b>Percentage to Total</b>	<b>52.42%</b>	<b>47.58%</b>		

Source: PSA, POPCEN 2015

However, dominant population had taken elementary level comprising a number of 24,910 or 51.89% wherein 11.16% are graduates of this level. The common factor that affects the situation is the unavailability of higher level of education. Only six barangays offer high school level namely: Halapitan, Little Baguio, Kalagangan, Namnam, Sto. Domingo and Durian.

There are only 1,233 college graduates or 2.57% of the total age group whose majority of the courses completed was elementary education for the reason that the only tertiary school operated in Barangay Halapitan offered only few courses like education, criminology and secretarial administration up to second year level only and have the option to continue completing the course at Valencia City of the same main college campus.

For the desire of gaining higher standard of education, mostly high school graduates take college courses at nearby tertiary schools from neighbouring cities and municipalities like Valencia, Malaybalay and Maramag, Bukidnon

## 1.8 LITERACY OF POPULATION

The latest PSA data on literacy of the household population, 10 years old and over, was in year 2015. As reflected on Table 3.6, illiterate population is 6,374 or 15.86% of the specified ages mentioned below. The remaining 84.14% are considered literate.

From the records, both male and female took advantage of the equal opportunities for basic education as justified by the recorded 52.53% literate males and 47.47% literate females.

**Table 3.6**  
**Literacy of the Household Population 10 years old and over by Age Group and Sex**  
**Municipality of San Fernando, Bukidnon**  
**Census 2015**

Age Group	Total Population			Literate			Illiterate		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
10-14	6,846	3,575	3,271	6,195	3,191	3,004	651	384	267
15-19	5,541	2,883	2,658	4,992	2,571	2,421	549	312	237
20-24	4,779	2,463	2,316	4,191	2,126	2,065	588	337	251
25-29	4,301	2,308	1,993	3,735	2,000	1,735	566	308	258
30-34	3,586	1,878	1,708	2,984	1,579	1,405	602	299	303
35-39	3,258	1,772	1,486	2,599	1,450	1,149	659	322	337
40-44	2,905	1,526	1,379	2,251	1,199	1,052	654	327	327
45-49	2,452	1,273	1,179	1,948	1,035	913	504	238	266
50-54	1,986	1,049	937	1,543	833	710	443	216	227
55-59	1,484	782	702	1,142	593	549	342	189	153
60-64	1,119	605	514	889	499	390	230	106	124
65 yr old & over	1,941	984	957	1,355	693	662	586	291	295
<b>Total</b>	<b>40,198</b>	<b>21,098</b>	<b>19,100</b>	<b>33,824</b>	<b>17,769</b>	<b>16,055</b>	<b>6,374</b>	<b>3,329</b>	<b>3,045</b>
<b>Percent to Total</b>	<b>100%</b>	52.49%	47.51%	<b>84.14%</b>	52.53%	47.47%	<b>15.86%</b>	52.28	47.72%

Source: PSA, POPCEN 2015

## 1.9 LABOR FORCE POPULATION BY EMPLOYMENT STATUS AND SEX

As reflected in Table 3.7, there are 23,277 or 69.48% of the total age group identified as employed individuals wherein male population doubled the female counts. Most of these employed individuals are working as laborers in the agricultural and construction industry wherein preferred workers are males. Out of the total unemployed population, female individuals dominated the average percentage whose status are mostly plain housewives.

**Table 3.7**  
**Labor Force Population by Employment Status and Sex**  
**San Fernando, Bukidnon**  
**Census 2015**

Ages in the Labor Force	Population Census 2015	Male	Female	Employment Status					
				Employed			Unemployed		
				Male	Female	Total	Male	Female	Total
15-19	5,569	2,899	2,670	1,534	830	2,364	1,365	1,840	3,205
20-24	4,821	2,496	2,325	2,205	997	3,202	291	1,328	1,619
25-29	4,318	2,323	1,995	2,239	973	3,212	84	1,022	1,106
30-34	3,598	1,890	1,708	1,848	925	2,773	42	783	825
35-39	3,273	1,787	1,486	1,761	829	2,590	26	657	683
40-44	2,913	1,531	1,382	1,512	856	2,368	19	526	545
45-49	2,459	1,280	1,179	1,255	769	2,024	25	410	435
50-54	1,998	1,059	939	1,028	577	1,605	31	362	393
55-59	1,490	785	705	753	432	1,185	32	273	305
60-64	1,120	605	515	564	292	856	41	223	264
65 and over	1,943	984	959	721	377	1,098	263	582	845
<b>Total</b>	<b>33,502</b>	<b>17,639</b>	<b>15,863</b>	<b>15,420</b>	<b>7,857</b>	<b>23,277</b>	<b>2,219</b>	<b>8,006</b>	<b>10,225</b>
<b>Percentage</b>				47.35%	23.45%	<b>69.48%</b>	6.62%	23.90%	<b>30.52%</b>

Source: PSA, POPCEN 2015

## 1.10 POPULATION BY MOTHER TONGUE BY SEX

There is no latest data gathered regarding population by mother tongue by sex so the reference is considered in the data gathered in Censal Year 2000. There are 18,434 or 45.90% of the 40,165 population in 2000 that speak Cebuano in the entire locality. In-migration and intermarriages are clear indication of the presence of some dialects spoken like the Hiligaynon-Ilongo, the Matigsalog, the Manobo, Boholano and some dialects from other provinces countryside



as reflected in Table 3.8. Sex composition is 106 males for every 100 females or a little over males in a ratio of 1 male for every 1 female.

**Table 3.8**  
**Population by Mother Tongue by Sex**  
**Municipality of San Fernando, Bukidnon**  
**Census 2000**

Mother Tongue	Number of Population			
	Both Sexes	Percent to Total	Male	Female
Cebuano	18,434	45.90%	9,522	8,912
Hiligaynon-Illongo	5,518	13.74%	2,901	2,617
Matigsalog	4,387	10.92%	2,194	2,193
Manobo	3,493	8.70%	1,766	1,727
Boholano	2,546	6.34%	1,337	1,209
Tigwahanon	2,038	5.07%	1,016	1,022
Bisaya	1,598	3.98%	821	777
Karay-a	753	1.87%	404	349
Bukidnon	259	0.64%	129	130
Waray	110	0.27%	61	49
Ilocano	104	0.25%	53	51
Others	925	2.30%	495	430
<b>Total</b>	<b>40,165</b>	<b>100%</b>	<b>20,699</b>	<b>19,466</b>

Source: PSA, POPCEN 2000

### 1.11 HOUSEHOLD POPULATION BY RELIGIOUS AFFILIATION

The same also with the population by religious affiliation, the data was gathered from the census year 2000. The Roman Catholic dominated the municipality with 51.51% of the household population practising the said religion. Following at par are the Seventh Day Adventist with 13.09% and the Evangelicals with 6.33%. Other religious affiliation of the remaining 29.07 percent household population is shown on Table 3.9.

**Table 3.9**  
**Household Population by Religious Affiliation**  
**Municipality of San Fernando, Bukidnon**  
**Census 2000**

Religious Affiliation and Municipality	Both Sexes	Percent to Total	Male	Female
Roman Catholic	20,687	51.51%	10,760	9,927
Aglipayan	368	0.92%	186	182
Islam	50	0.12%	27	23
Iglesia ni Cristo	207	0.52%	110	97
United Church of Christ in the Philippines	985	2.45%	521	464
Lutheran Church in the Philippines	2	0.005%	2	-
Philippine Episcopal Church	32	0.08%	17	15
Iglesia Evangelista Metodista en Las Filipinas	51	0.13%	26	25
United Methodist Church	9	0.02%	6	3
Other Methodist	33	0.08%	18	15
Salvation Army, Philippines	1	0.002%	-	1
Convention of the Philippine Baptist Church	1,029	2.56%	545	484
Other Protestant	342	0.85%	171	171
Buddhist	3	0.007%	1	2
Church of Jesus Christ of the Latter Day Saints	86	0.21%	40	46
Jehovah's Witness	196	0.49%	96	100
Philippine Benevolent Missionaries Association	58	0.14%	31	27
Seventh Day Adventist	5,256	13.09%	2,681	2,575
Evangelist	2,541	6.33%	1,305	1,236
Bible Baptist	416	1.04%	212	204
Southern Baptist	464	1.16%	241	223
Association of Baptist Churches in Luzon, Visayas and Mindanao	3	0.007%	1	2
Association of Fundamental Baptist Church in the Philippines	470	1.17%	240	230
International Baptist Missionary Fellowship	-	-	-	-
Missionary Baptist Churches of the Philippines	5	0.01%	4	1
Other Baptist	1,107	2.76%	540	567
Tribal Religious	803	2.0%	390	413
Others	4,382	10.91%	2,216	2,166
None	266	0.66%	142	124
Unknown	313	0.78%	170	143

<b>TOTAL</b>	<b>40,165</b>	<b>100%</b>	<b>20,699</b>	<b>19,466</b>
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Source: PSA, POPCEN 2000

### **1.12 DEMOGRAPHIC PROJECTIONS**

The 10-year planning period is 2019-2028. All projections for demography and sectoral requirements have to be consistent with the planning years. For demography, the projected population at the end of the 5<sup>th</sup> year (2023), otherwise known as the medium term planning period will be 66,552 as shown in Table 3.10.

In 2028, the 10<sup>th</sup> year of the planning period, the projected population will reach to 74,021. Based on the average 2.15% annual growth rate from 2010-2015, the estimated population of the municipality will double in 32 years reaching a projected population of 112,276.

Population by age group will maintain the trend, having age group 5-9 with the highest count. This will still be followed by age groups 10-14 and 1-4 respectively. The head counts gradually diminish towards old age as reflected in Tables 3.11 and 3.12.

The urban/urbanizing barangays as the center of planned developments, the seat of government, the venue for commercial and institutional activities will remain the people's choice for residency. The number of households and household population will be increased in these areas as shown in Tables 3.13 and 3.14.

**Table 3.10**  
**Projected Population by Barangay**  
**Municipality of San Fernando, Bukidnon**  
**2019-2028**

Barangay	Census 2015	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1. Bonacao	1,989	2,166	2,212	2,260	2,308	2,358	2,409	2,460	2,513	2,567	2,623
2. Bulalang	669	728	744	760	776	793	810	828	845	864	882
3. Cabuling	836	910	930	950	970	991	1,012	1,034	1,056	1,079	1,102
4. Cayaga	910	991	1,012	1,034	1,056	1,079	1,102	1,126	1,150	1,175	1,200
5. Candelaria	1,292	1,407	1,437	1,468	1,499	1,532	1,565	1,598	1,633	1,668	1,704
6. Dao	1,989	2,166	2,212	2,260	2,308	2,358	2,409	2,460	2,513	2,567	2,623
7. Durian	970	1,056	1,079	1,102	1,126	1,150	1,175	1,200	1,226	1,252	1,279
8. Halapitan	10,221	11,129	11,368	11,612	11,862	12,117	12,378	12,644	12,916	13,193	13,477
9. Iglugsad	1,622	1,766	1,804	1,843	1,882	1,923	1,964	2,006	2,050	2,094	2,139
10. Kalagangan	5,569	6,064	6,194	6,327	6,463	6,602	6,744	6,889	7,037	7,188	7,343
11. Kawayan	1,778	1,936	1,978	2,020	2,063	2,108	2,153	2,199	2,247	2,295	2,344
12. Kibongcog	1,935	2,107	2,152	2,198	2,246	2,294	2,343	2,394	2,445	2,498	2,551
13. Little Baguio	4,862	5,294	5,408	5,524	5,643	5,764	5,888	6,014	6,144	6,276	6,411
14. Mabuhay	3,083	3,357	3,429	3,503	3,578	3,655	3,734	3,814	3,896	3,980	4,065
15. Magkalungay	2,533	2,758	2,817	2,878	2,940	3,003	3,067	3,133	3,201	3,270	3,340
16. Malayanan	1,246	1,357	1,386	1,416	1,446	1,477	1,509	1,541	1,574	1,608	1,643
17. Matupe	2,121	2,309	2,359	2,410	2,462	2,514	2,569	2,624	2,680	2,738	2,797
18. Nacabuklad	1,250	1,361	1,390	1,420	1,451	1,482	1,514	1,546	1,580	1,614	1,648
19. Namnam	3,807	4,145	4,234	4,325	4,418	4,513	4,610	4,709	4,811	4,914	5,020
20. Palacpacan	1,412	1,537	1,570	1,604	1,639	1,674	1,710	1,747	1,784	1,823	1,862
21. Sacramento Valley	1,870	2,036	2,080	2,125	2,170	2,217	2,265	2,313	2,363	2,414	2,466
22. San Jose	973	1,059	1,082	1,105	1,129	1,154	1,178	1,204	1,230	1,256	1,283
23. Sto. Domingo	1,529	1,665	1,701	1,737	1,775	1,813	1,852	1,891	1,932	1,974	2,016
24. Tugop	1,672	1,820	1,960	1,900	1,940	1,982	2,025	2,068	2,113	2,158	2,205
<b>Total</b>	<b>56,138</b>	<b>61,124</b>	<b>62,438</b>	<b>63,780</b>	<b>65,152</b>	<b>66,552</b>	<b>67,983</b>	<b>69,445</b>	<b>70,938</b>	<b>72,463</b>	<b>74,021</b>

Source: Municipal Planning and Development Office (MPDO)

Table 3.11  
 Projected Population by Age Group  
 Municipality of San Fernando, Bukidnon  
 2019-2028

Age Group	Census 2015	Percent to Total (%)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Under 1	1,662	2.96	1,772	1,810	1,849	1,888	1,929	1,970	2,013	2,056	2,100	2,145	2,191
1-4	6,474	11.53	6,901	7,049	7,201	7,355	7,514	7,675	7,840	8,009	8,181	8,357	8,536
5-9	7,647	13.62	8,151	8,326	8,505	8,688	8,875	9,066	9,261	9,460	9,663	9,871	10,083
10-14	6,853	12.21	7,305	7,462	7,622	7,786	7,953	8,124	8,299	8,477	8,660	8,846	9,036
15-19	5,569	9.92	5,936	6,064	6,194	6,327	6,463	6,602	6,744	6,889	7,037	7,188	7,343
20-24	4,821	8.59	5,139	5,249	5,362	5,477	5,595	5,715	5,838	5,964	6,092	6,223	6,357
25-29	4,318	7.69	4,603	4,702	4,803	4,906	5,011	5,119	5,229	5,342	5,456	5,574	5,694
30-34	3,598	6.41	3,835	3,918	4,002	4,088	4,176	4,265	4,357	4,451	4,547	4,644	4,744
35-39	3,273	5.83	3,489	3,564	3,640	3,719	3,799	3,880	3,964	4,049	4,136	4,225	4,316
40-44	2,913	5.19	3,105	3,172	3,240	3,310	3,381	3,453	3,528	3,604	3,681	3,760	3,841
45-49	2,459	4.38	2,611	2,677	2,735	2,794	2,854	2,915	2,978	3,042	3,107	3,174	3,242
50-54	1,998	3.56	2,130	2,175	2,222	2,270	2,319	2,369	2,420	2,472	2,525	2,579	2,634
55-59	1,490	2.65	1,588	1,622	1,657	1,693	1,729	1,766	1,804	1,843	1,883	1,923	1,965
60-64	1,120	2.0	1,194	1,219	1,246	1,272	1,300	1,328	1,356	1,385	1,415	1,446	1,477
65-69	789	1.41	841	859	878	896	916	935	955	976	997	1,018	1,040
70-74	550	0.98	586	599	612	625	638	652	666	680	695	710	725
75-79	330	0.59	352	359	367	375	383	391	400	408	417	426	435
80 and over	274	0.49	292	298	305	311	318	325	332	339	346	354	361
<b>All Ages</b>	<b>56,138</b>	<b>100%</b>	<b>59,837</b>	<b>61,124</b>	<b>62,438</b>	<b>63,780</b>	<b>65,152</b>	<b>66,552</b>	<b>67,983</b>	<b>69,445</b>	<b>70,938</b>	<b>72,463</b>	<b>74,021</b>
0-4 years	8,136	14.49	8,672	8,859	9,049	9,244	9,442	9,645	9,853	10,065	10,281	10,502	10,728
5 years and over	48,002	85.51	51,165	52,265	53,389	54,536	55,710	56,907	58,130	59,380	60,657	61,961	63,293
18 years and over	30,034	53.50	32,013	32,702	33,405	34,122	34,857	35,606	36,371	37,153	37,952	38,768	39,601
60 years and over	3,063	5.46	3,265	3,335	3,407	3,480	3,555	3,631	3,709	3,789	3,871	3,954	4,039

Source: MPDO

**Table 3.12**  
**Projected School-age Population, Labor Force and Dependent Population**  
**San Fernando, Bukidnon**  
**2019-2028**

<b>AGE GROUP</b>	<b>Census 2015</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>
<b>All Ages</b>	<b>56,138</b>	<b>59,837</b>	<b>61,124</b>	<b>62,438</b>	<b>63,780</b>	<b>65,152</b>	<b>66,552</b>	<b>67,983</b>	<b>69,445</b>	<b>70,938</b>	<b>72,463</b>	<b>74,021</b>
<b>Young Dependents (0-14 years)</b>	<b>22,636</b>	24,128	24,646	25,176	25,717	26,271	26,835	27,412	28,002	28,604	29,219	29,847
<b>Working-age (15-64 years)</b>	<b>31,559</b>	33,638	34,362	35,101	35,855	36,626	37,413	38,218	39,040	39,879	40,736	41,612
<b>Labor force (15 years old over)</b>	<b>33,502</b>	35,709	36,478	37,262	38,063	38,881	39,717	40,571	41,443	42,334	43,244	44,174
<b>School age (5-24 years)</b>	<b>24,890</b>	26,530	27,101	27,683	28,278	28,887	29,507	30,142	30,790	31,452	32,128	32,819
<b>Old Dependents (65 years and over)</b>	<b>1,943</b>	2,071	2,116	2,161	2,207	2,255	2,303	2,353	2,404	2,455	2,508	2,562
<b>Dependent-Age</b>	<b>24,579</b>	26,199	26,762	27,337	27,925	28,526	29,139	29,765	30,405	31,059	31,727	32,409

**Table 3.13**  
**Projected Household Population**  
**San Fernando, Bukidnon**  
**2019-2028**

<b>Year</b>	<b>Number of Household Population</b>
Census 2015	55,981
Current 2018	59,670
<b>Projected</b>	
2019	60,953
2020	62,263
2021	63,602
2022	64,969
2023	66,366
2024	67,793
2025	69,251
2026	70,740
2027	72,261
2028	73,814

Source: MPDO

**Table 3.14**  
**Projected Number of Household by Barangay**  
**Municipality of San Fernando, Bukidnon**  
**2019-2028**

Barangay	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
<b>Urban</b>											
1. Halapitan	2,405	2,457	2,510	2,564	2,619	2,675	2,733	2,791	2,851	2,913	2,975
<b>Urbanizing</b>											
1. Candelaria	214	219	223	228	233	238	243	249	254	259	265
2. Kalagangan	1,311	1,339	1,367	1,397	1,427	1,458	1,489	1,521	1,554	1,587	1,621
3. Little Baguio	1,144	1,169	1,194	1,220	1,246	1,273	1,300	1,328	1,356	1,386	1,415
4. Mabuhay	726	741	757	773	790	807	824	842	860	879	897
5. Nacabuklad	294	300	307	314	320	327	334	341	349	356	364
6. Namnam	896	915	935	955	975	996	1,018	1,040	1,062	1,085	1,108
7. Sacramento Valley	440	450	459	469	479	489	500	511	522	533	544
<b>Rural</b>											
1. Bonacao	468	478	488	499	510	521	532	543	555	567	579
2. Bulalang	157	161	164	168	171	175	179	183	187	191	195
3. Cabuling	197	201	205	210	214	219	224	228	233	238	243
4. Cayaga	304	311	317	324	331	338	345	353	360	368	376
5. Dao	468	478	488	499	510	521	532	543	555	567	579
6. Durian	228	233	238	243	249	254	259	265	271	276	282
7. Iglugsad	382	390	398	407	416	425	434	443	453	462	472
8. Kawayan	418	427	437	446	456	465	475	486	496	507	518
9. Kibongcog	455	465	475	485	496	506	517	528	540	551	563
10. Magkalungay	596	609	622	635	649	663	677	692	707	722	737
11. Malayanan	293	300	306	313	319	326	333	340	348	355	363
12. Matupe	499	510	521	532	543	555	567	579	592	604	617
13. Palacpacan	332	339	347	354	362	370	378	386	394	402	411
14. San Jose	229	234	239	244	249	255	260	266	271	277	283
15. Sto. Domingo	360	368	375	384	392	400	409	418	427	436	445
16. Tugop	393	402	411	419	428	438	447	457	466	476	487
<b>Total Number of Household</b>	<b>13,211</b>	<b>13,495</b>	<b>13,785</b>	<b>14,081</b>	<b>14,384</b>	<b>14,693</b>	<b>15,009</b>	<b>15,332</b>	<b>15,662</b>	<b>15,998</b>	<b>16,342</b>
<b>Total Population</b>		<b>61,124</b>	<b>62,438</b>	<b>63,780</b>	<b>65,152</b>	<b>66,552</b>	<b>67,983</b>	<b>69,445</b>	<b>70,938</b>	<b>72,463</b>	<b>74,021</b>

Source: MPDO

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# PHYSICAL ENVIRONMENT

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## **2. PHYSICAL ENVIRONMENT**

### **2.1 GEOGRAPHIC LOCATION**

The Municipality of San Fernando is located in the southeast most portion of the landlocked Province of Bukidnon, one of the five provinces of Region X, in Northern Mindanao (see Map 1: Bukidnon Map) and situated at point in the map (see Map 2: Municipal Map) with the following coordinates: 7°59'40" north latitude and the meridians 125°17' to 125°26'40" east longitude.

### **2.2 POLITICAL JURISDICTION**

San Fernando shares political boundaries with the following: Malaybalay City and the Municipality of Cabanglasan on its Northern side, City of Davao and the Province of North Cotabato on its southern side, the Province of Davao del Norte on its eastern side and on its western side, the Municipality of Quezon and City of Valencia. (See Map 3: Vicinity Map).

The town proper of San Fernando – Barangay Halapitan, is approximately thirty one (31) kilometers from the Poblacion through National Highway up to the City of Valencia and is approximately sixty two (62) kilometers away from the City of Malaybalay – reckoned from the Bukidnon Provincial Capitol. Travel time by Public Utility Transport (buses/jeepney) is about 2 hours from San Fernando to Malaybalay City.

### **2.3 LAND AREA AND CLASSIFICATION**

Comprising 24 barangays as shown in Table 3.15, San Fernando, a first class municipality, has a total land area of 82,162 hectares which constitutes 7.83% of the total land area of the Province of Bukidnon.

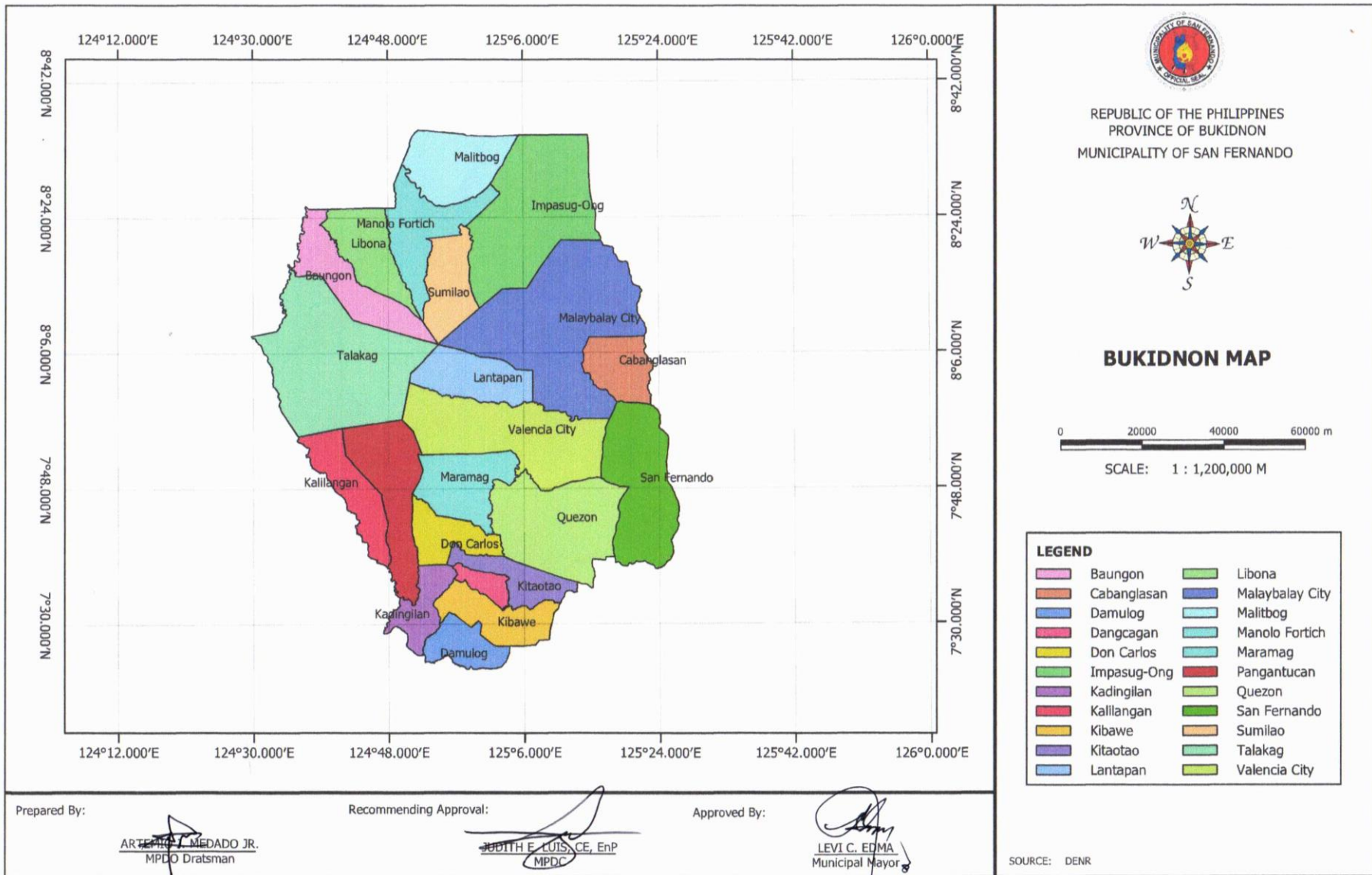
Barangay Halapitan is the only urban area of the municipality which covers 6,162.10 hectares or 7.50% of the total area. Seven (7) urbanizing barangays cover 24,625.74 hectares (29.98%) and the remaining 92.50% (51,374.16 hectares) comprises the rural areas.

As shown in Map 4: Land Classification Map, the area of the municipality is approximately at 82,162 hectares. A large part of this, constituting nearly 91% of the total land area has been classified as Timberland/Forestal. The rest is Alienable and Disposable area.

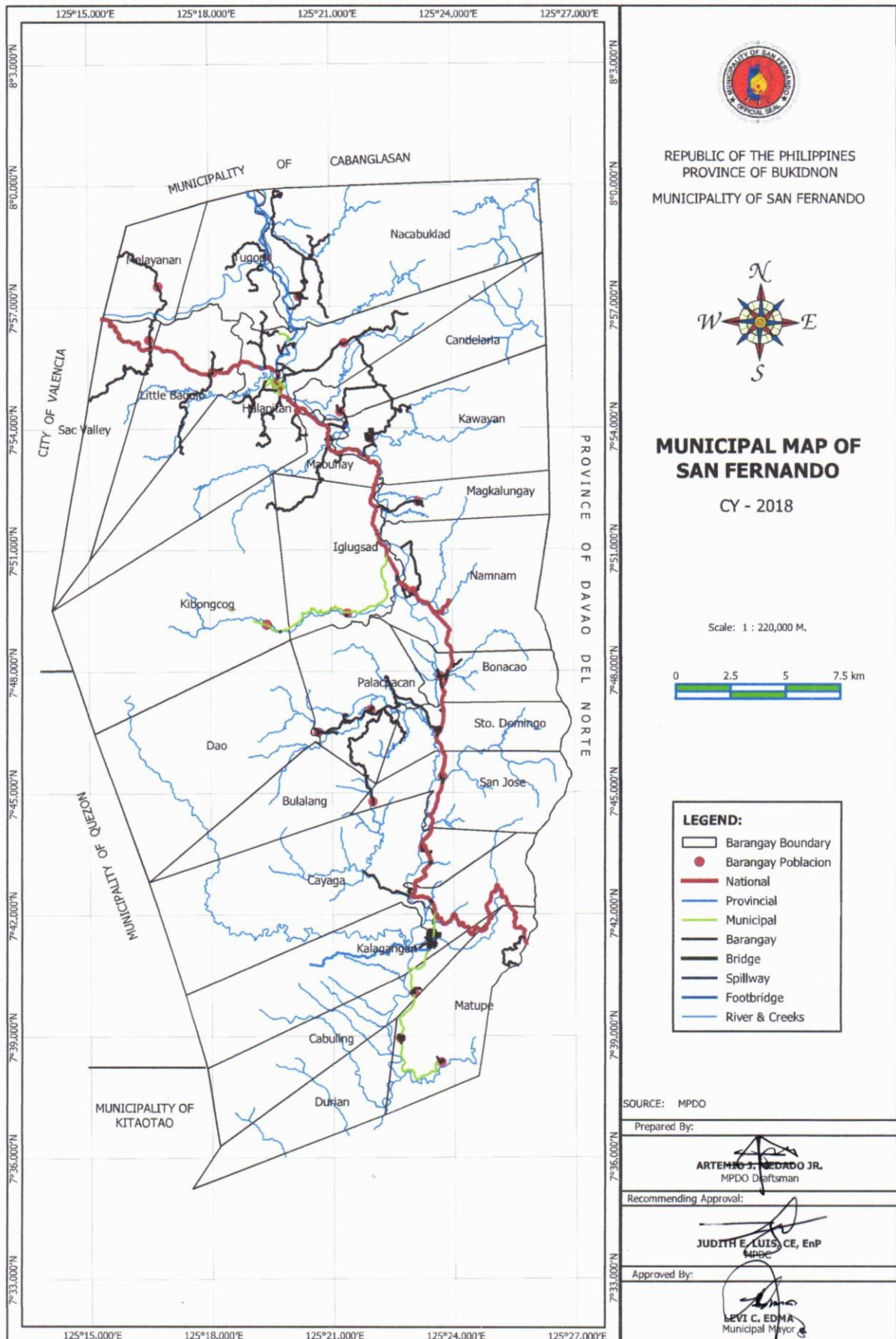
Gathered from the same map, every barangay within the municipal jurisdiction have timberland as part of its land area. In fact, even the Poblacion (Halapitan) itself comprises almost  $\frac{3}{4}$  timberland and only  $\frac{1}{4}$  alienable and disposable (A and D). Some area are even 100% officially classified as timberland. Only barangay Mabuhay had almost  $\frac{1}{2}$  classified as A and D. Table 3.16 shows the details of Land Classification by Barangay as quantified from the Land Classification Map.



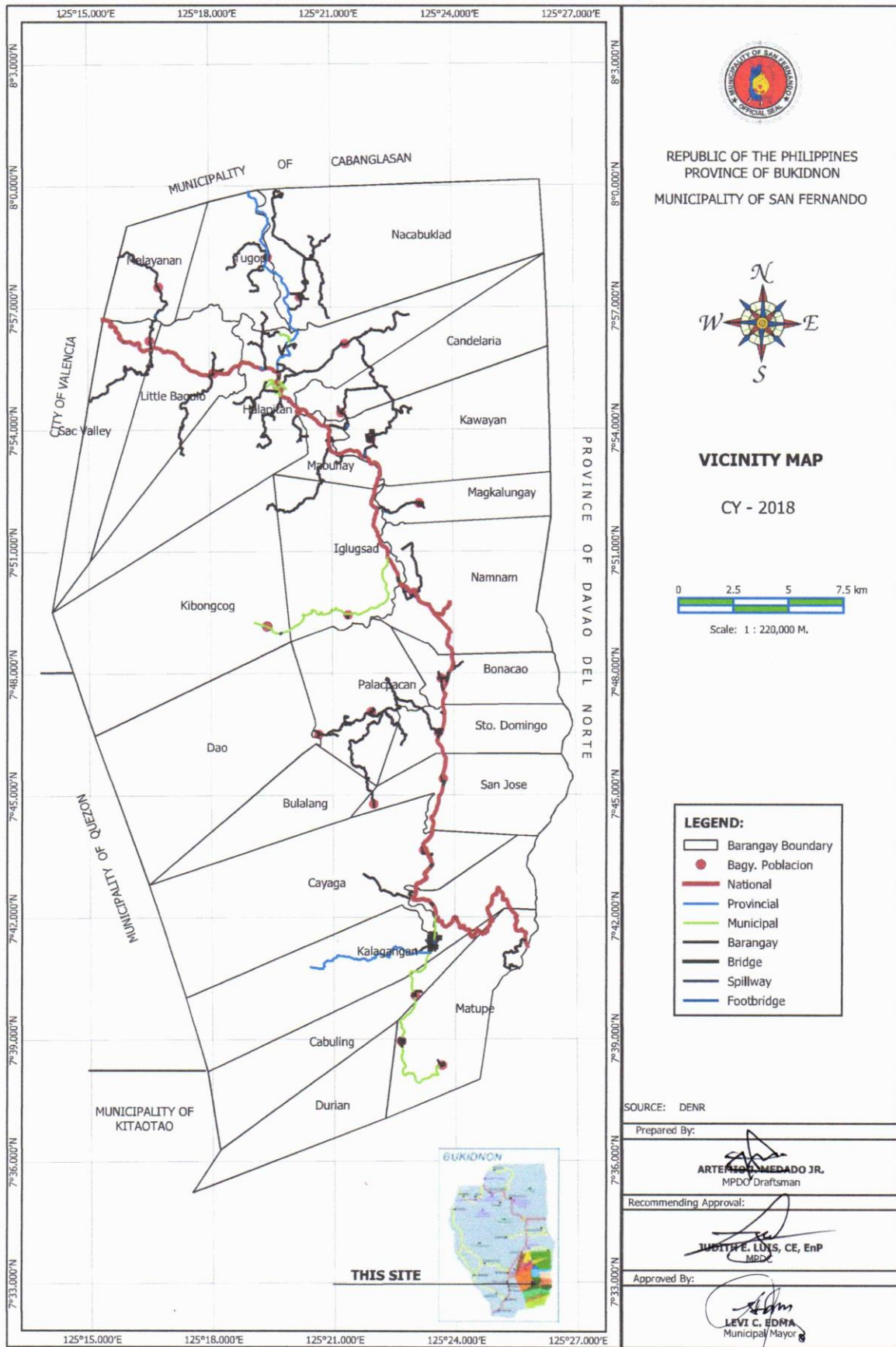
**Map 1: Bukidnon Map**



**Map 2: Municipal Map**



**Map 3: Vicinity Map**

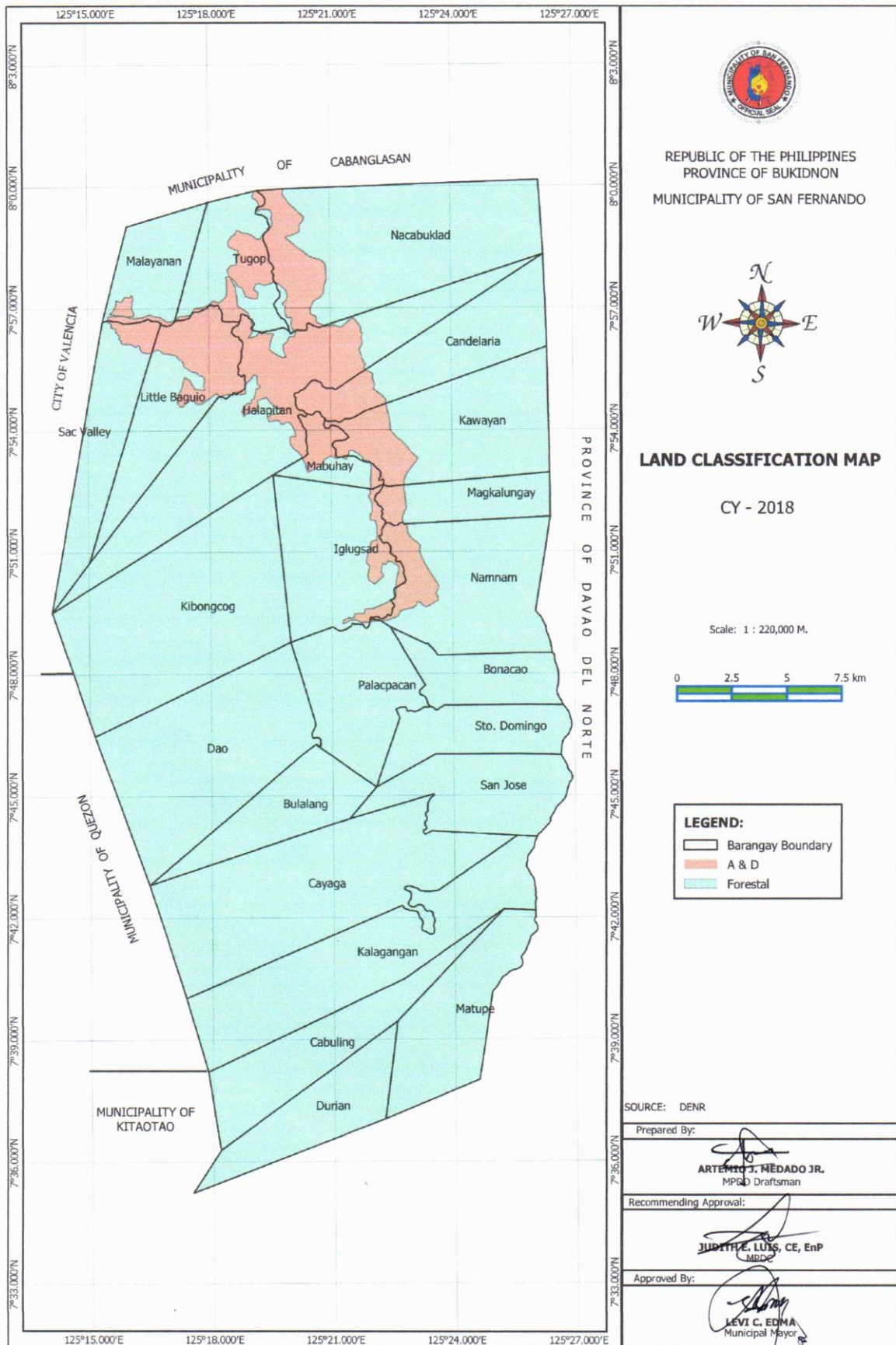


**Table 3.15**  
**Land Area by Barangay**  
**Municipality of San Fernando, Bukidnon**  
**2018**

Barangay	Area (in hectare)	Percent Share to Total
<b>Urban (1 Barangay)</b>		
Halapitan	6,162.10	7.50%
Sub-total	6,162.10	7.50%
<b>Urbanizing (7 Barangays)</b>		
Candelaria	2,956.67	3.60%
Kalagangan	5,162.50	6.28%
Little Baguio	2,847.50	3.47%
Mabuhay	765.73	0.93%
Nacabuklad	6,514.17	7.93%
Namnam	4,057.50	4.94%
Sacramento Valley	2,321.67	2.83%
Sub-total	24,625.74	29.98%
<b>Rural (16 Barangays)</b>		
Bonacao	1,510.83	1.84%
Bulalang	2,125.00	2.59%
Cabuling	2,769.17	3.37%
Cayaga	6,899.17	8.40%
Dao	5,612.50	6.83%
Durian	2,458.33	2.99%
Iglugsad	3,389.17	4.12%
Kawayan	4,000.82	4.87%
Kibongcog	7,049.17	8.58%
Magkalungay	1,436.67	1.75%
Malayanan	1,625.83	1.98%
Matupe	3,131.67	3.81%
Palacpacan	2,792.50	3.40%
San Jose	2,628.33	3.20%
Sto. Domingo	1,873.33	2.28%
Tugop	2,071.67	2.52%
Sub-total	51,374.16	64.06%
<b>Total</b>	<b>82,162</b>	<b>100%</b>

Source: Municipal Planning and Development Office (MPDO)

**Map 4: Land Classification Map**



**Table 3.16**  
**Land Classification by Barangay**  
**Municipality of San Fernando, Bukidnon**  
**2018**

Name of Barangay	A and D	Percent to Total A & D	Timberland (in hectare)	Percent to Total Timberland	Total Area (in hectare)
<b>Urban (1 Barangay)</b>					
1. Halapitan	1,501.25	24.36	4,660.85	75.64	6,162.10
<b>Urbanizing (7 Barangays)</b>					
1.Candelaria	451.25	15.26	2,505.42	84.74	2,956.67
2.Kalagangan	113.75	2.20	5,048.75	97.80	5,162.50
3.Little Baguio	1,051.25	36.92	1,796.25	63.08	2,847.50
4.Mabuhay	395.5	51.65	370.23	48.35	765.73
5.Nacabuklad	601.25	9.23	5,912.92	90.77	6,514.17
6.Namnam	530.50	13.07	3,527.00	86.93	4,057.50
7.Sacramento Valley	113.75	4.90	2,207.92	95.10	2,321.67
Sub-total	3,257.25		21,368.49		24,625.74
<b>Rural (16 Barangays)</b>					
1. Bonacao	-	-	1,510.83	100	1,510.83
2. Bulalang	-	-	2,125.00	100	2,125.00
3. Cabuling	332.50	12.01	2,436.67	87.99	2,769.17
4. Cayaga	-	-	6,899.17	100	6,899.17
5. Dao	-	-	5,612.50	100	5,612.50
6. Durian	38.75	1.58	2,419.58	98.42	2,458.33
7. Iglugsad	407.50	12.02	2,981.67	87.98	3,389.17
8. Kawayan	670.50	16.76	3,330.32	83.24	4,000.82
9. Kibongcog	-	-	7,049.17	100	7,049.17
10. Magkalungay	180.50	12.56	1,256.17	87.44	1,436.67
11. Malayanan	71.67	4.41	1,554.16	95.59	1,625.83
12. Matupe	345.08	11.02	2,786.59	88.98	3,131.67
13. Palacpacan	-	-	2,792.50	100	2,792.50
14. San Jose	-	-	2,628.33	100	2,628.33
15. Sto. Domingo	-	-	1,873.33	100	1,873.33
16. Tugop	595.25	28.73	1,476.42	71.27	2,071.67
Sub-total	2,641.75		43,119.91		51,374.16
<b>Total</b>	<b>7,400.25</b>	<b>9.01%</b>	<b>74,761.75</b>	<b>90.99%</b>	<b>82,162</b>

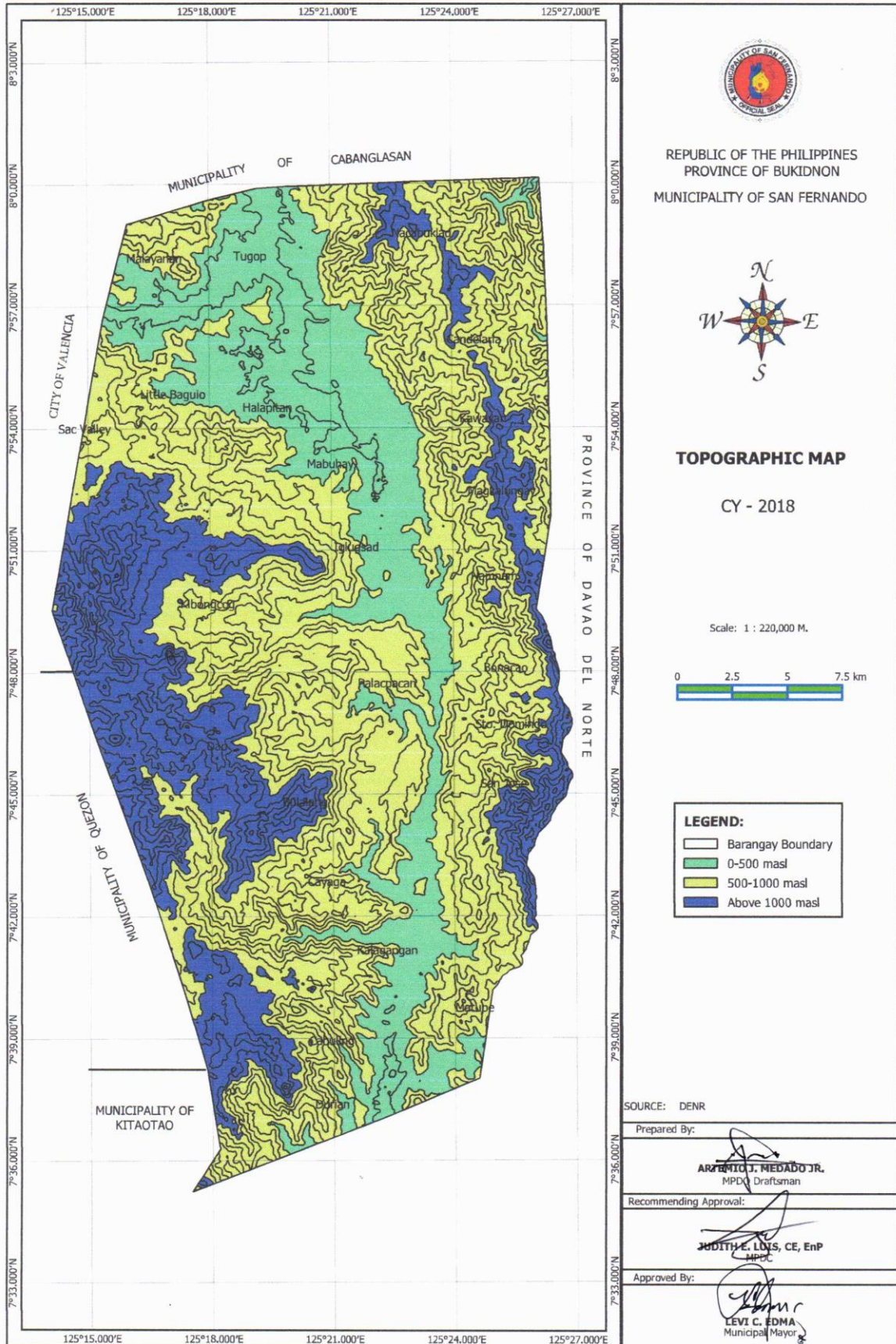
Source: MPDO

## 2.4 TOPOGRAPHY

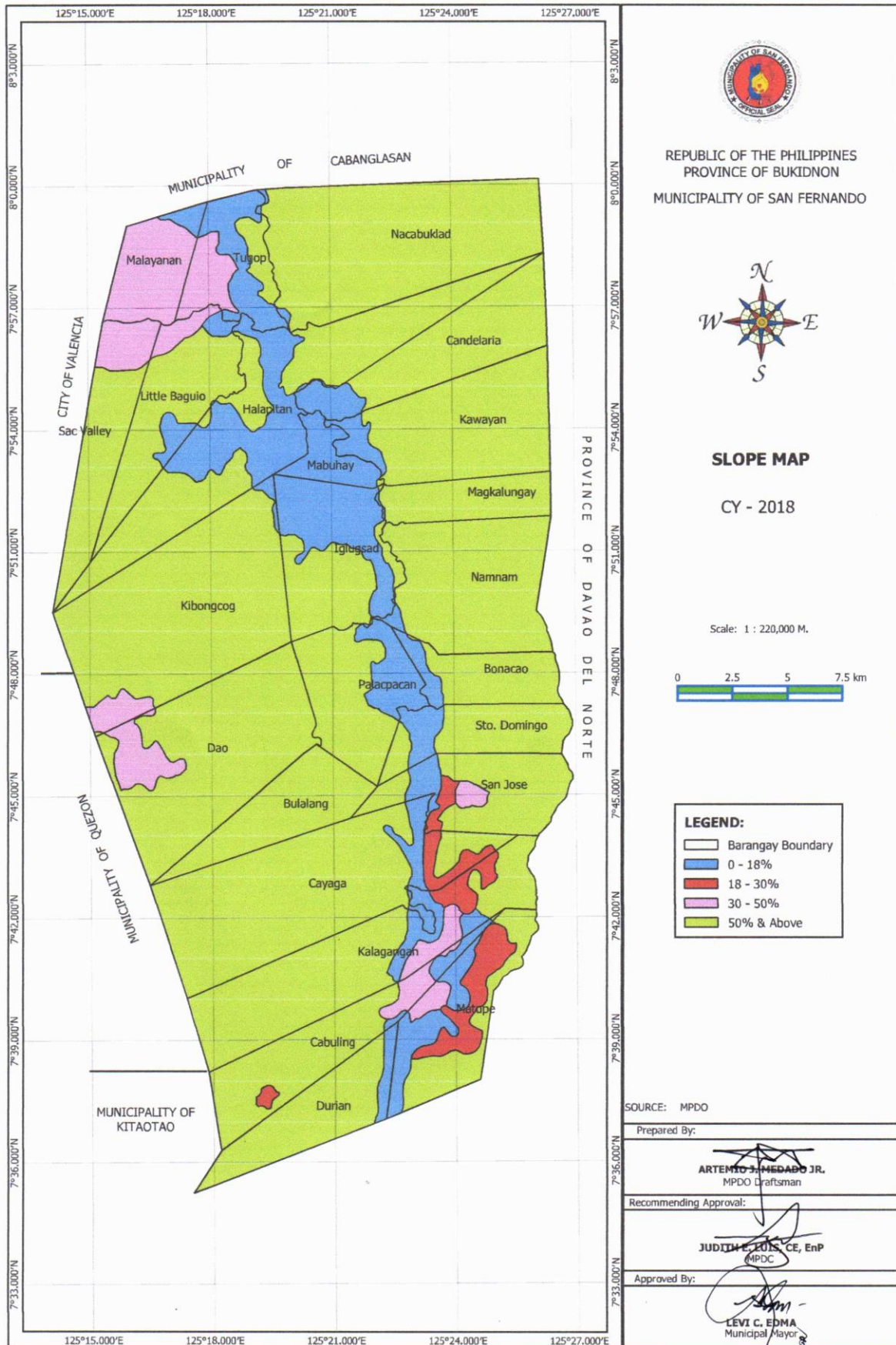
About 80% of the municipality's area is mountainous. The topography of the municipality is characterized by the rugged terrain of the land's rolling areas and high crests. The Pantaron Mountain Range (Central Cordillera of Mindanao) with an average elevation of 1,235 meters above sea level, forms part of the natural border between the Municipality of San Fernando and the Province of Davao del Norte in the east. There are four barangays which are part of this border elevation namely; San Jose, Sto. Domingo, Bonacao and Namnam as shown in Map 5 (Topographic Map).

Aga Mountains between Valencia City and Municipality of Quezon in the western part of the municipality has an average elevation of 1,287 meters above sea level which dominates wide portion of Barangays Kibongcog, Bulalang and Dao and small portion of barangays Halapitan, Little Baguio and Sacramento Valley. The Misagoksok Range at the southern portion is 1,004 meters high which pass through the small portion of Barangays Kalagangan, Cayaga and Cabuling. Tugop and Malayanan Mountains are lying at the northern portion of the town which has an elevation of less than 1000 meters above sea level. The town proper has an average elevation of 580 meters above sea level.

**Map 5: Topographic Map**



**Map 6: Slope Map**





## 2.5 SLOPES

The municipality is predominantly very steep hills and mountains which comprises 65,626.78 hectares or 79.87% of the total land area as classified in Table 3.17 based on the Map 6 (Slope Map). Slope varies from 50% and over. Majority of this areas are forestal land. Portions which are classified as rolling to hills are also part of the forestal land with slopes varies from 18% to 30%. Existence of these elevations are minimal which are located in the southern portion of the land.

Mostly alienable and disposable areas are classified as level to moderately sloping and rolling which is 18% and below sloping but there are few parts in the northern portion of the municipality which are classified as steep hills and mountains especially in the Barangay Malayanan with slopes varies from 30% to 50% elevations.

**Table 3.17**  
**Slope Classification**  
**Municipality of San Fernando, Bukidnon**  
**2018**

Slope Classification	Description	Area (in hectare)	Percentage to Total (%)
0-18	Level to moderately sloping and rolling	11,337.30	13.80
18-30	Rolling to hills	1,259.70	1.53
30-50	Steep hills and mountains	3,938.22	4.79
50 and over	Very steep hills and mountains	65,626.78	79.87
<b>Total</b>		<b>82,162.00</b>	<b>100%</b>

Source: MPDO

## 2.6 WATERS

The municipality has two major river systems identified as major watershed clusters: Upper Pulangi and Salug River (see Map 7, Watershed Map). Upper Pulangi River Valley being part of the longest and largest river in the province is divided into two sub-watersheds, the Pulangi River and the Tigua River located at the northern portion of the land. Headwaters from the elevated terrain of these valleys likely discharge into the Mindanao River in Cotabato City. On the other hand, the Salug River is divided into four sub-watersheds: Matimbus River, Namnam River, Salug River and Matupe River This River is a tributary of the Davao River that empty into the Davao Gulf in the South. (See Map 8, Sub-watershed Map)

All barangays of the municipality has inland waters like rivers and creeks which are found mostly in upper land area as shown in Map 9 (Surface Drainage Map) and detailed in Table 3.18 (List of Rivers and Creeks). It allocates a total length of 420.05 kilometers with corresponding area of 575.47 hectares. Lakes are also considered as inland surfaces but mostly found in lowland.

The municipality has abundant water sources scattered in all barangays but not all of them have been tapped to supply potable water to the people. These sources supply different levels of water system (Level I, Level II, and Level III).

SUBTOTAL							
CREEKS				RIVERS			
Length in km	Length in sqm.	Area in sqm.	Area in has.	Length in km	Length in m.	Area in sqm.	Area in has.
213.57	213,570	1,173,900	117.39	206.48	233,010	4,580,800	458.08

GrAND TOTAL			
RIVERS AND CREEKS			
Length in km	Length in sqm.	Area in sqm.	Area in has.
420.05	446,580	5,754,700	575.47

**Table 3.18**  
**List of Rivers and Creeks by Barangay**  
**Municipality of San Fernando, Bukidnon**  
**2018**

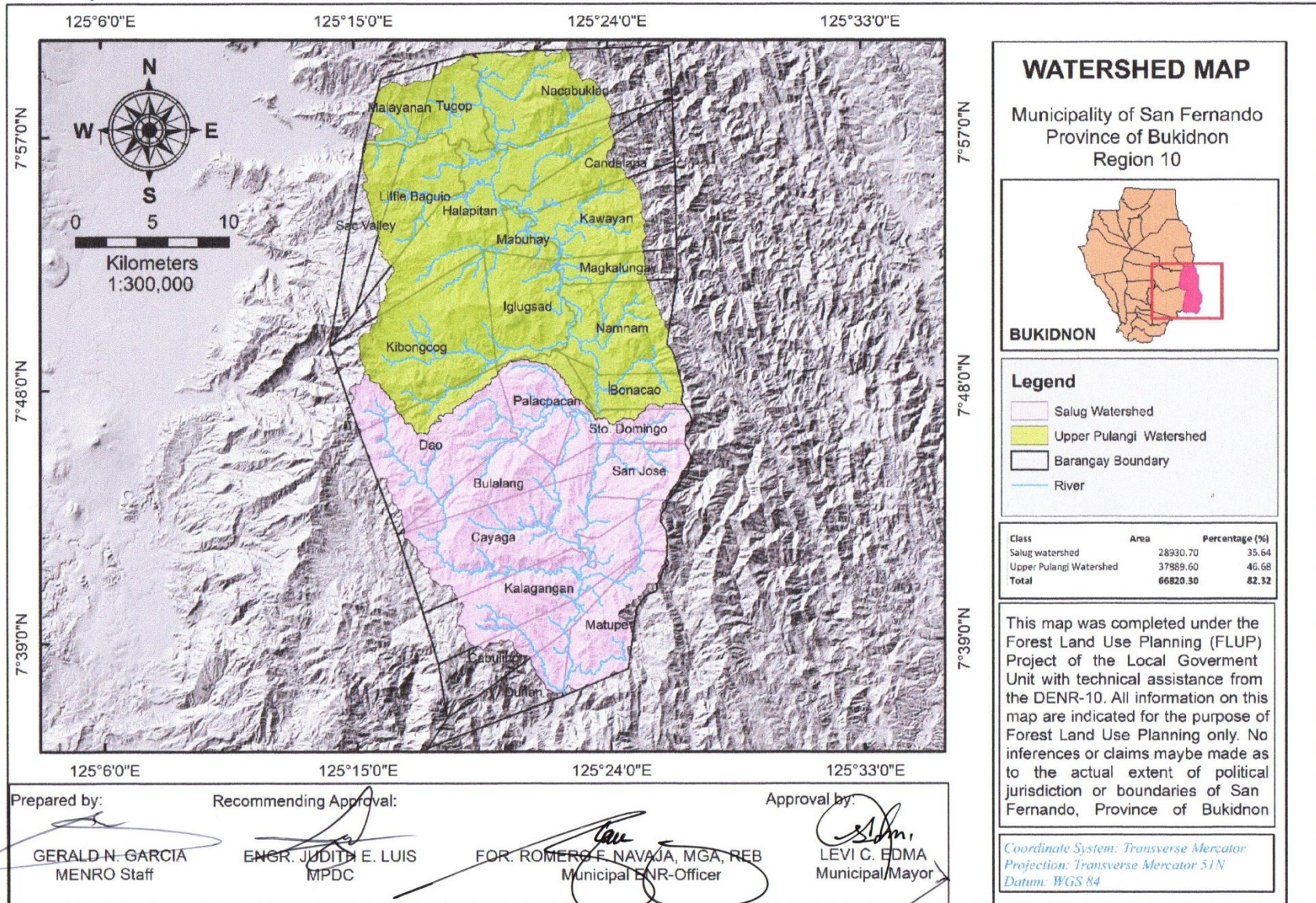
<b>URBAN</b>					
<b>HALAPITAN</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Alotangen Creek	0.13	130.00	650.00	0.065
2	Balongkot Creek	7.64	7,640.00	38,200.00	3.82
3	Creek	0.28	280.00	1,400.00	0.14
4	Creek	0.02	20.00	100.00	0.01
5	Creek	0.45	450.00	2,250.00	0.225
6	Creek	0.40	400.00	2,000.00	0.2
7	Creek	0.17	170.00	850.00	0.085
8	Creek	1.63	1,630.00	8,150.00	0.815
9	Gangob Creek	2.14	2,140.00	10,700.00	1.07
	Total Creeks	12.86	12,860.00	64,300.00	6.43
1	kalagutay River	4.76	4,760.00	95,200.00	9.52
2	kalagutay River	0.94	940.00	18,800.00	1.88
3	Mawi-e River	6.78	6,780.00	135,600.00	13.56
4	Molinga River	1.27	1,270.00	25,400.00	2.54
5	Tigwa River	3.90	3,900.00	78,000.00	7.8
	Total Rivers	17.65	17,650.00	353,000.00	35.3
<b>URBANIZING</b>					
<b>CANDELARIA</b>					
No.	Rivers & Creeks	Length in km.	Length in m.	Area in sqm.	Area in has
1	Creek	0.37	370.00	1,850.00	0.04
2	Balongkot Creek	2.96	2,960.00	14,800.00	0.30
3	Creek	4.73	4,730.00	23,650.00	0.47
4	Creek	2.52	2,520.00	12,600.00	0.25
5	Creek	1.13	1,130.00	5,650.00	0.11
6	Creek	2.78	2,780.00	13,900.00	0.28
7	Creek	0.95	950.00	4,750.00	0.10
8	Creek	0.99	990.00	4,950.00	0.10
	Tortal Creeks	16.43	16,430.00	82,150.00	1.64
1	Tigwa River	1.89	1,890.00	37,800.00	0.19
<b>KALAGANGAN</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Cabuling Creek	1.92	1,920.00	9,600.00	0.96
2	Creek	1.3	1,300.00	6,500.00	0.65
3	Creek	2.64	2,640.00	13,200.00	1.32
4	Creek	1.72	1,720.00	8,600.00	0.86
5	Creek	1.6	1,600.00	8,000.00	0.80
	Total Creeks	9.18	9,180.00	45,900.00	4.59
1	Digongan River	3.09	3,090.00	61,800.00	6.18
2	Kalagangan River	5.13	5,130.00	102,600.00	10.26
3	Lugawon River	0.06	60.00	1,200.00	0.12
4	Nilabasan River	6.86	6,860.00	137,200.00	13.72
5	Pailumon River	3.51	3,510.00	70,200.00	7.02
6	Salog River	4.07	4,070.00	81,400.00	8.14
	Total Rivers	22.72	22,720.00	454,400.00	45.44
<b>LITTLE BAGUIO</b>					
No.	River & Creek	Length in km.	Length in m.	Area in sqm.	Area in has.
1	Mawi-i River	7.07	7,070.00	141,400.00	14.14
2	Saguing Creek	5.4	5,400.00	27,000.00	2.70
	Total Rivers	12.47	12,470.00	168,400.00	16.84
<b>MABUHAY</b>					
No.	River & Creek	Length in km	Length in m.	Area in sqm.	Area in has.
1	kalagutay River	4.86	4,860.00	97,200.00	9.72
2	Tigwa River	1.88	1,880.00	37,600.00	3.76
	Total Rivers	6.74	6,740.00	134,800.00	13.48
<b>NACABUKLAD</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has
1	Creek	1.97	1,970.00	9,850.00	0.99
2	Creek	2.55	2,550.00	12,750.00	1.28
3	Creek	1.2	1,200.00	6,000.00	0.60

4	Creek	7.1	7,100.00	35,500.00	3.55
5	Creek	4.42	4,420.00	22,100.00	2.21
6	Creek	1.49	1,490.00	7,450.00	0.75
7	Creek	1.56	1,560.00	7,800.00	0.78
8	Creek	1.36	1,360.00	6,800.00	0.68
9	Creek	0.94	940.00	4,700.00	0.47
10	Supon Creek	2.81	2,810.00	14,050.00	1.41
	Total Creeks	25.4	25,400.00	127,000.00	12.70
1	Kulaman River	7.76	7,760.00	155,200.00	15.52
2	Molinga River	7.57	7,570.00	151,400.00	15.14
3	Pulangui River	3.26	3,260.00	65,200.00	6.52
4	Tigwa River	3.95	3,950.00	79,000.00	7.90
	Total Rivers	22.54	22,540.00	450,800.00	45.08
<b>NAMNAM</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Opes Creek	5.12	5,120.00	25,600.00	2.56
1	Namnam River	7.53	7,530.00	150,600.00	15.06
2	Balakayo River	5.59	5,590.00	111,800.00	11.18
3	Tigwa River	3.57	3,570.00	71,400.00	7.14
	Total River	16.69	16,690.00	333,800.00	33.38
<b>SACRAMENTO VALLEY</b>					
No.	River & Creek	Length in km	Length in m.	Area in sqm.	Area in has.
1	Saguing Creek	1.32	1,320.00	6,600.00	0.66
<b>RURAL</b>					
<b>BONACAO</b>					
No.	River & Creeks	Length in km	Length in m	Area in sqm.	Area in has.
1	Namnam River	3.93	3,930.00	78,600.00	7.86
1	Creek	1.82	1,820.00	9,100.00	0.91
2	Creek	2.83	2,830.00	14,150.00	1.42
3	Creek	1.13	1,130.00	5,650.00	0.57
4	Creek	1.99	1,990.00	9,950.00	1.00
5	Creek	0.96	960.00	4,800.00	0.48
	Total Creeks	8.73	8,730.00	43,650.00	4.37
<b>BULALANG</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Creek	1.64	1,640.00	8,200.00	0.82
2	Creek	0.47	470.00	2,350.00	0.24
3	Boloan Creek	0.76	760.00	3,800.00	0.38
4	Mitagiti Creek	2.34	2,340.00	11,700.00	1.17
5	Simsimon Creek	1.27	1,270.00	6,350.00	0.64
	Total Creeks	6.48	6,480.00	32,400.00	3.24
1	Lugawon River	0.51	510.00	10,200.00	1.02
2	Nilabasan River	1.54	1,540.00	30,800.00	3.08
	Total Rivers	2.05	2,050.00	41,000.00	4.10
<b>CABULING</b>					
No.	Rivers & Creeks	Length in km.	Length in m.	Area in sqm.	Area in has.
1	Creek	2.21	2,210.00	11,050.00	1.105
2	Creek	2.52	2,520.00	12,600.00	1.26
3	Creek	0.93	930.00	4,650.00	0.465
4	Creek	0.93	930.00	4,650.00	0.465
5	Creek	0.67	670.00	3,350.00	0.335
6	Cabuling Creek	2.58	2,580.00	12,900.00	1.29
7	Lubong Creek	1.88	1,880.00	9,400.00	0.94
	Total Creeks	11.72	11,720.00	58,600.00	5.86
1	Digongan River	2.72	2,720.00	54,400.00	5.44
2	Kalagangan River	0.81	810.00	16,200.00	1.62
3	Kalagangan River	0.27	270.00	5,400.00	0.54
4	Kalagangan River	3.45	3,450.00	69,000.00	6.9
	Total Rivers	7.25	7,250.00	145,000.00	14.5
<b>CAYAGA</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Creek	1.54	1,540.00	7,700.00	0.77
2	Creek	1.28	1,280.00	6,400.00	0.64
3	Creek	1.75	1,750.00	8,750.00	0.88
4	Creek	0.52	520.00	2,600.00	0.26
5	Creek	1.95	1,950.00	9,750.00	0.98
6	Creek	2.85	2,850.00	14,250.00	1.43

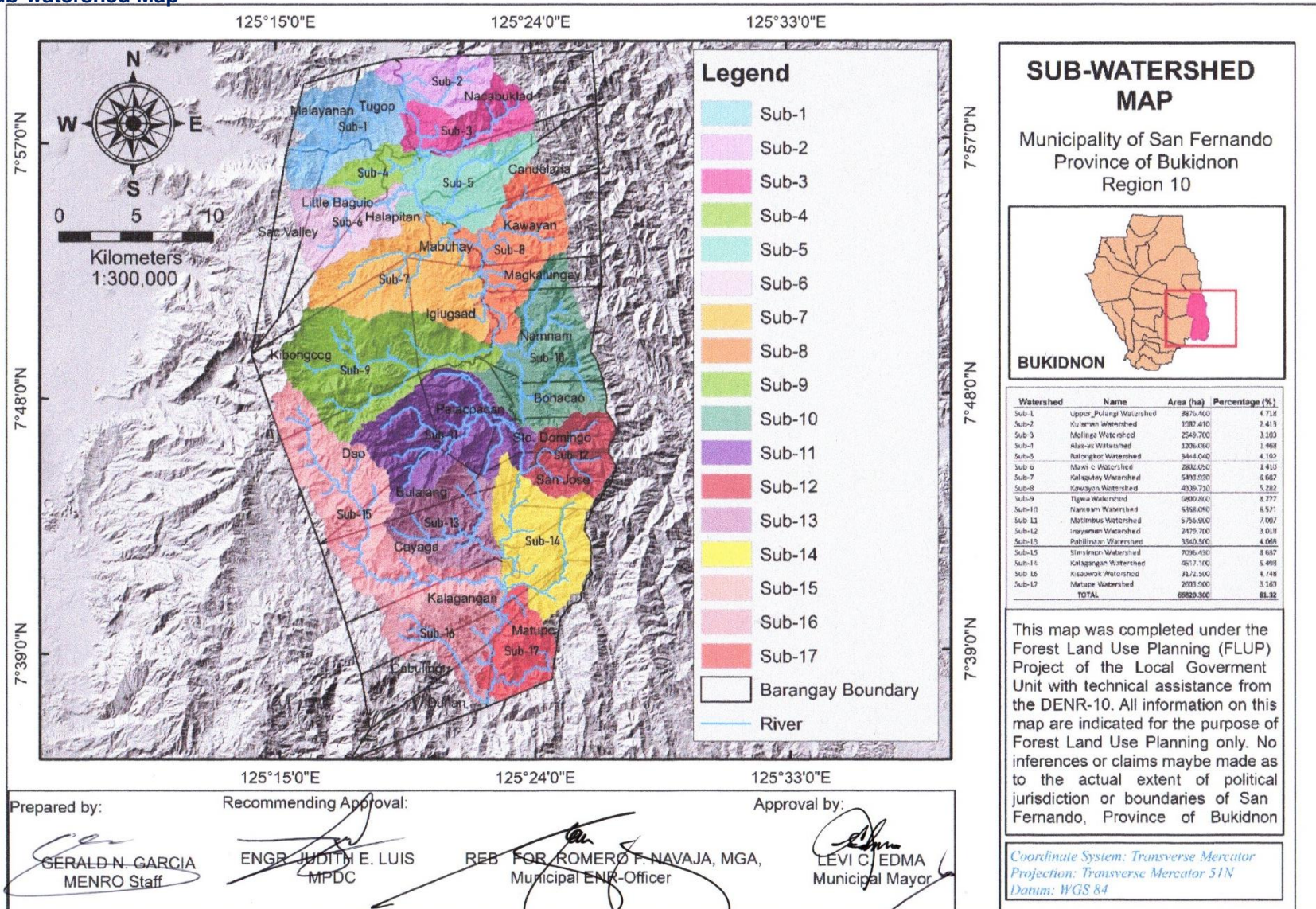
7	Creek	0.09	90.00	450.00	0.05
8	Creek	1.12	1,120.00	5,600.00	0.56
9	Creek	0.37	370.00	1,850.00	0.19
10	Malungon Creek	1.87	1,870.00	9,350.00	0.94
11	Simsimon Creek	6.06	6,060.00	30,300.00	3.03
	Total Creeks	19.4	19,400.00	97,000.00	9.70
1	Kalagangan River	0.92	920.00	18,400.00	1.84
2	Lugawon River	9.67	9,670.00	193,400.00	19.34
3	Nilabasan River	14.44	14,440.00	288,800.00	28.88
4	Salog River	4.98	4,980.00	99,600.00	9.96
5	Total Rivers	30.01	30,010.00	600,200.00	60.02
<b>DURIAN</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Cabuling Creek	1.56	1,560.00	7,800.00	0.78
2	Creek	0.61	610.00	3,050.00	0.31
3	Creek	0.29	290.00	1,450.00	0.15
4	Creek	0.06	60.00	300.00	0.03
5	Creek	2.59	2,590.00	12,950.00	1.30
6	Lubong Creek	3.38	3,380.00	16,900.00	1.69
	Total Creeks	8.49	8,490.00	42,450.00	4.25
1	Digongan River	3.91	3,910.00	78,200.00	7.82
2	Salog River	3.58	3,580.00	71,600.00	7.16
	Total Rivers	7.49	7,490.00	149,800.00	14.98
<b>IGLUGSAD</b>					
No.	Rivers & Creeks	Length in km.	Length in m.	Area in sqm.	Area in has.
1	Tigwa River	5.86	5,860.00	29,300.00	2.93
2	Tigwa River	1.9	1,900.00	9,500.00	0.95
	Total Rivers	7.76	7,760.00	38,800.00	3.88
<b>KAWAYAN</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Creek	0.26	260.00	1,300.00	0.13
2	Kawayan Maopya Creek	10.17	10,170.00	50,850.00	5.09
3	Kawayan Maraot Creek	5.17	5,170.00	25,850.00	2.59
	Total Creeks	15.6	15,600.00	78,000.00	7.80
1	Tigwa River	4.41	30,940.00	618,800.00	61.88
<b>KIBONGCOG</b>					
No.	Rivers & Creeks	Length in km.	Length in m.	Area in sqm.	Area in has.
1	Alotangen Creek	5.03	5,030.00	25,150.00	2.52
2	Creek	0.03	30.00	150.00	0.02
3	Creek	2.23	2,230.00	11,150.00	1.12
4	Salumayag Creek	2.35	2,350.00	11,750.00	1.18
	Total Creeks	9.64	9,640.00	48,200.00	4.82
1	Nilabasan River	1.53	1,530.00	30,600.00	3.06
2	Tigwa River	4.57	4,570.00	91,400.00	9.14
3	Tigwa River	0.07	70.00	1,400.00	0.14
	Total Rivers	6.17	6,170.00	123,400.00	12.34
<b>MAGKALUNGAY</b>					
No.	River & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Creek	3.59	3,590.00	17,950.00	1.80
2	Creek	4.34	4,340.00	21,700.00	2.17
3	Opes Creek	1.18	1,180.00	5,900.00	0.59
	Total Creeks	9.11	9,110.00	45,550.00	4.56
1	Tigwa River	1.84	1,840.00	36,800.00	3.68
<b>MALAYANAN</b>					
No.	River & Creek	Length in km	Length in sqm.	Area in sqm.	Area in has.
1	Pulangui River	3.51	3,510.00	105,300.00	10.53
<b>MATUPE</b>					
NO.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Cabuling Creek	0.02	20.00	100.00	0.01
2	Creek	0.38	380.00	1,900.00	0.19
3	Creek	0.45	450.00	2,250.00	0.23
	Total Creeks	0.85	850.00	4,250.00	0.43
1	Digongan River	0.02	20.00	400.00	0.04

2	Kalagangan River	3.13	3,130.00	62,600.00	6.26
3	Matupe River	7.36	7,360.00	147,200.00	14.72
4	Salog River	3.51	3,510.00	70,200.00	7.02
	Total Rivers	14.02	14,020.00	280,400.00	28.04
<b>PALACPACAN</b>					
No.	River & Creeks	Length in km	length in m.	Area in sqm.	Area in has.
1	Boloan Creek	4.89	4,890.00	24,450.00	2.45
2	Creek	0.28	280.00	1,400.00	0.14
3	Creek	0.21	210.00	1,050.00	0.11
4	Creek	0.99	990.00	4,950.00	0.50
5	Creek	0.67	670.00	3,350.00	0.34
6	Creek	1.01	1,010.00	5,050.00	0.51
7	Pusod Creek	6.72	6,720.00	33,600.00	3.36
	Total Creeks	14.77	14,770.00	73,850.00	7.39
1	Matimbus River	7.08	7,080.00	141,600.00	14.16
<b>SAN JOSE</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Camunoan Creek	3.57	3,570.00	17,850.00	1.79
2	Creek	0.15	150.00	750.00	0.08
3	Creek	0.43	430.00	2,150.00	0.22
4	Creek	0.18	180.00	900.00	0.09
5	Creek	1.36	1,360.00	6,800.00	0.68
6	Creek	0.42	420.00	2,100.00	0.21
7	Creek	1.32	1,320.00	6,600.00	0.66
8	Creek	0.91	910.00	4,550.00	0.46
9	Creek	0.68	680.00	3,400.00	0.34
10	Salangat Creek	5.15	5,150.00	25,750.00	2.58
11	Simsimon Creek	0.92	920.00	4,600.00	0.46
12	Umayam Creek	2.94	2,940.00	14,700.00	1.47
	Total Creeks	18.03	18,030.00	90,150.00	9.02
1	Kalagangan River	1.46	1,460.00	29,200.00	2.92
2	Salog River	3.97	3,970.00	79,400.00	7.94
	Total Rivers	5.43	5,430.00	108,600.00	10.86
<b>STO. DOMINGO</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Creek	0.06	60.00	300.00	0.03
2	Creek	6.1	6,100.00	30,500.00	3.05
3	Creek	0.15	150.00	750.00	0.08
4	Creek	3.73	3,730.00	18,650.00	1.87
5	Creek	0.78	780.00	3,900.00	0.39
6	Pusod Creek	0.47	470.00	2,350.00	0.24
7	Salangat Creek	2.08	2,080.00	10,400.00	1.04
	Total Creeks	13.37	13,370.00	66,850.00	6.69
1	Matimbus River	1.45	1,450.00	29,000.00	2.90
2	Salog River	1.91	1,910.00	38,200.00	3.82
<b>TUGOP</b>					
No.	Rivers & Creeks	Length in km	Length in m.	Area in sqm.	Area in has.
1	Pulangui River	8.29	8,290.00	248,700.00	24.87
2	Kulaman River	0.03	30.00	600.00	0.06
3	Tigwa River	0.22	220.00	4,400.00	0.44
	Total Rivers	8.54	8,540.00	253,700.00	25.37

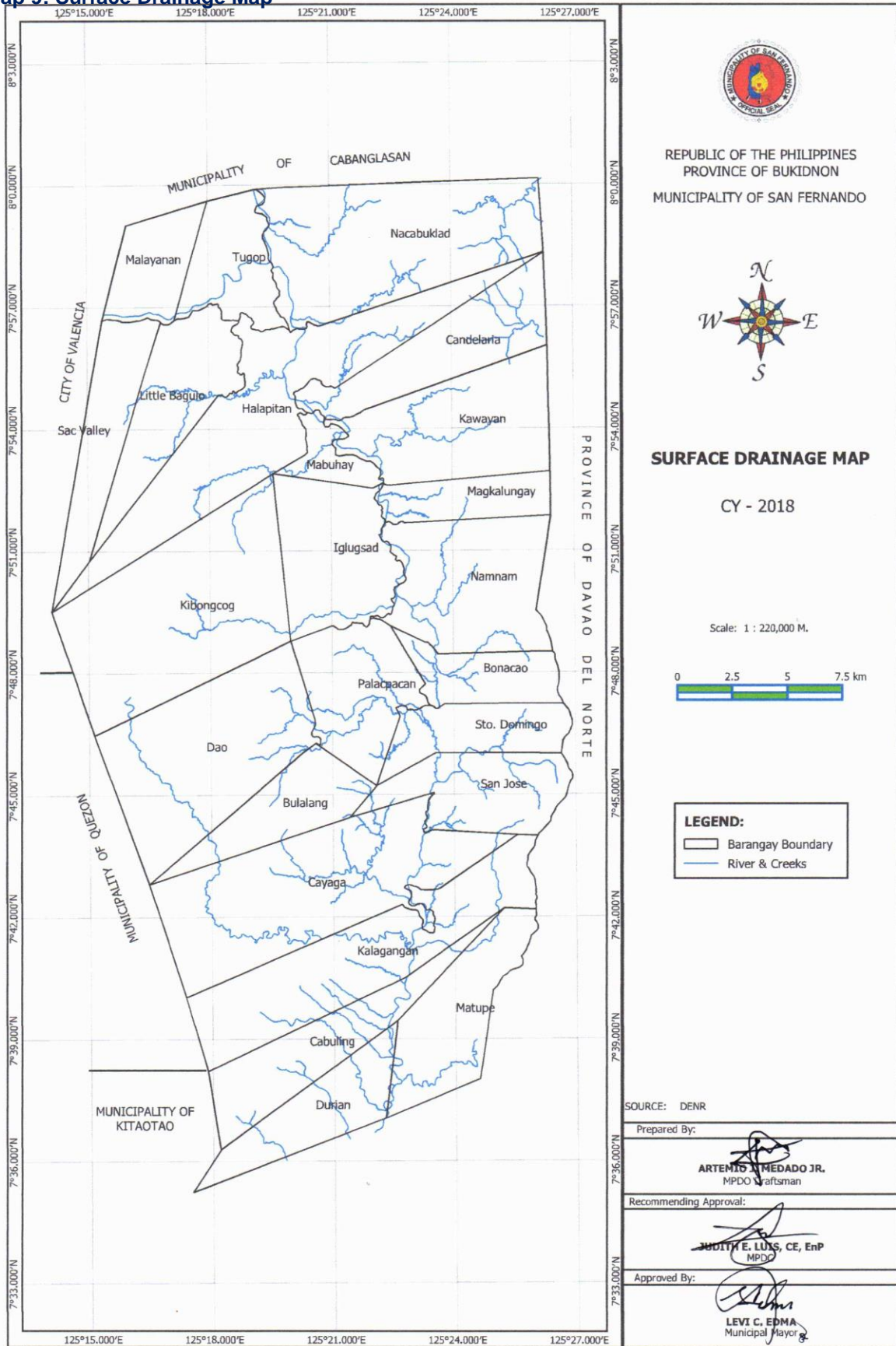
Map 7: Watershed Map



**Map 8: Sub-watershed Map**



**Map 9: Surface Drainage Map**





## 2.7 GEOLOGICAL FORMATION AND CHARACTERISTIC OF SOIL

The geologic formation of the land of San Fernando is dominated with *oligocene* soil formation in the upper part of the municipality which comprises 42,336.51 hectares or approximately 51.53% of the total land area of the municipality. This area is a common vegetation type covered by the expansion of grasslands and a regression of tropical broad leaf forests which are present in 20 barangays as enumerated in Table 3.19. The whole area of Barangay Malayanan is covered by this soil characteristic as shown in Map 10 (Geologic Map).

The second largest cover of geologic soil formation which allocate 12,666.40 hectares or 15.42% of the total area is the *upper miocene-pliocene* formation or clay loam and red clay. Sediments are present in some parts of this formation especially the red clay. This characteristics is suitable for agriculture especially for crops such as paddy rice, corn, sugarcane and banana. Barangays Cayaga and Bulalang and half part of Palacpacan are fortunate of this type of soil

*Oligocene-miocene* geologic formation covers 2,257.54 hectares of the municipality or 2.75% of the total wherein fossil soils are present. This kind of soil is not suitable for agriculture but maybe an important resource for terrestrial environment and climatic reconstruction. This type of soil is mostly present in barangay Sacramento Valley and few parts of other barangays as shown in the same Map.

*Neogene* formation is very common in barangay Dao. Climate is cooled and dried which is good for livestock production like goats, cattle and horses.

There are also barangays in the eastern boundary of the land which covered with *cretaceous paleogene* formation or cemented in type which is obviously not suitable for agriculture but a great resource for slope protection and sub-base layer reinforcing and protecting the subgrade. There are few parts in the lowest elevation of the land that are covered by *Holocene* soils or the *recent* formation that are characteristically composed of very gravelly materials.

Among the six geologic soil formations mentioned above, there are areas of barangay Matupe, Cabuling, Cayaga and Kalagangan fall on the *undifferentiated* covers due to some components which do not represent a regular pattern.

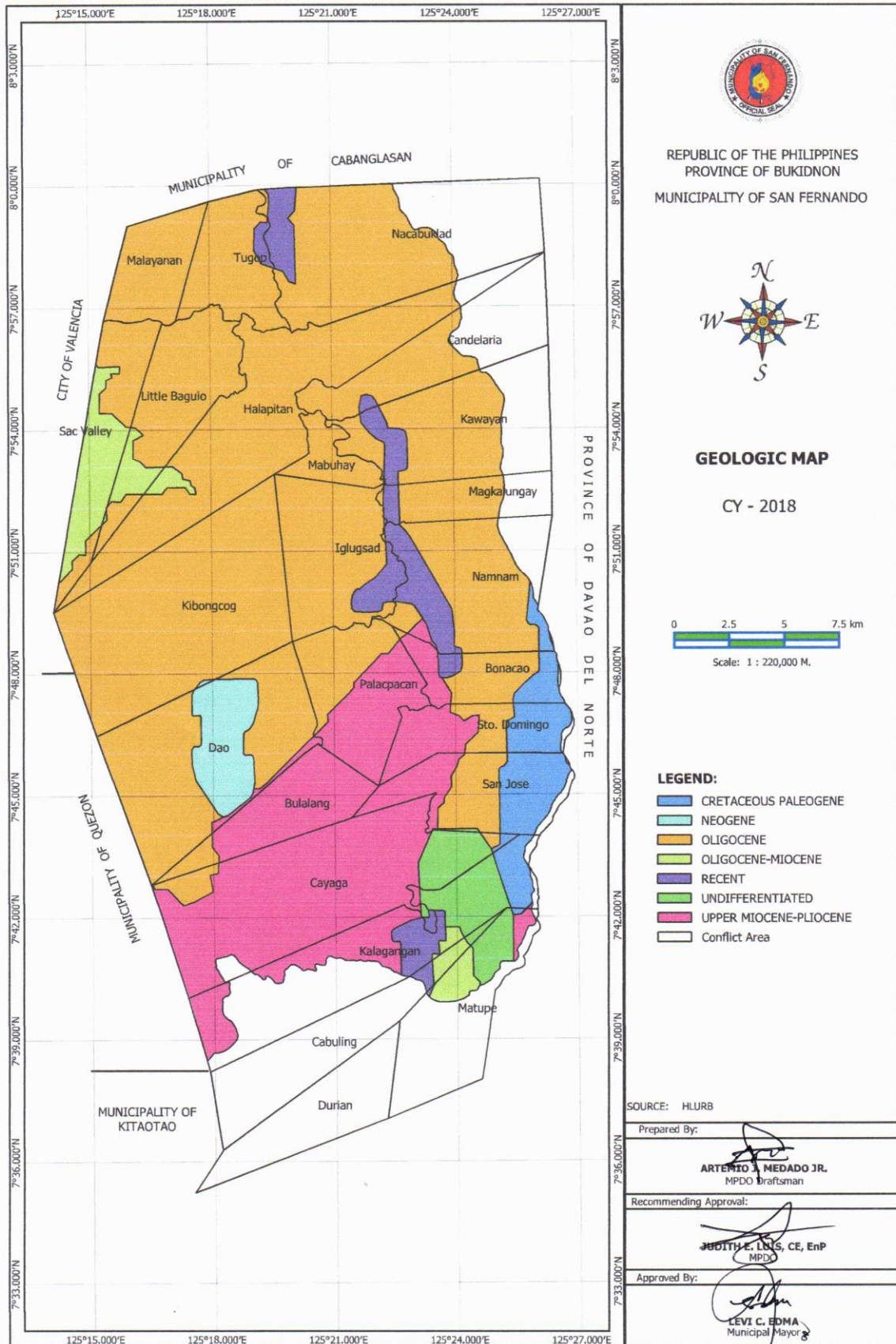
Based on the data gathered, the remaining 16,195.44 hectares or 19.71% of the total land area of the municipality belong to conflict area and not included in the characterization of soil formation.

**Table 3.19**  
**Geologic Formation and Soil Characteristic**  
**Municipality of San Fernando, Bukidnon**  
**2018**

Name of Barangay	Oligocene	Upper Miocene – Pliocene	Neogene	Oligocene - Miocene	Cretaceous - Paleogene	Recent	Undifferentiated	Conflict Area
<b>Urban</b>								
Halapitan								
<b>Urbanizing</b>								
Candelaria								
Kalagangan								
Little Baguio								
Mabuhay								
Nacabuklad								
Namnam								
Sacramento Valley								
<b>Rural</b>								
Bonacao								
Bulalang								
Cabuling								
Cayaga								
Dao								
Durian								
Iglugsad								
Kawayan								
Kibongcog								
Magkalungay								
Malayanan								
Matupe								
Palacpacan								
San Jose								
Sto. Domingo								
Tugop								
<b>Area</b> <b>82,162 hec</b>	<b>42,336.51</b>	<b>12,666.40</b>	<b>1,458.79</b>	<b>2,257.74</b>	<b>2,450.09</b>	<b>2,876.92</b>	<b>1,920.20</b>	<b>16,195.44</b>
<b>Percent to Total</b>	<b>51.53%</b>	<b>15.42%</b>	<b>1.78%</b>	<b>2.75%</b>	<b>2.98%</b>	<b>3.50%</b>	<b>2.34%</b>	<b>19.71%</b>
<b>Legend</b>								
Oligocene	- Soil covered with grassland, - regression of broad forest leaf							
Upper Miocene – Pliocene	- Clay loam, Red clay, - sediments are present in some soil - Suitable for agriculture especially for crops such as paddy, sugarcane and banana.							
Neogene	- climate is cooled and dried - suitable for livestock production							
Oligocene – Miocene	- fossil soils are present - Not suitable for agriculture but maybe an important resource for terrestrial environment and climatic reconstruction.							
Cretaceous Paleogene	- Cemented soil - Not suitable for agriculture but an important resource for slope protection and sub-base layer reinforcing and protecting the subgrade							
Recent	- Soil is composed of very gravelly materials							
Undifferentiated	- No conformity in soil formation							
Conflict Area	- Not included in the characterization of soil formation							

Source: MPDO, HLURB

**Map 10: Geologic Map**



## 2.8 LAND COVER

Based on Table 3.20, as quantified from Map 11 (Land Cover Map), the present land use cover of the municipality is characteristically dominated with shrub land representing 16,014.66 or around 19.49% of the total land area followed by mossy forest cover utilizes 13,465.19 hectares or 16.39% of the total land area. The third largest cover is other land with tree cover comprises 11,567.53 hectares or 14.08% allocation.

Agricultural land utilizes 12,949.16 hectares or 15.76% of the total area which is predominated with rice and corn, as these crops cover most of the cultivated area. The rest areas are covered with built-up, inland water, open/barren, and infrastructures.

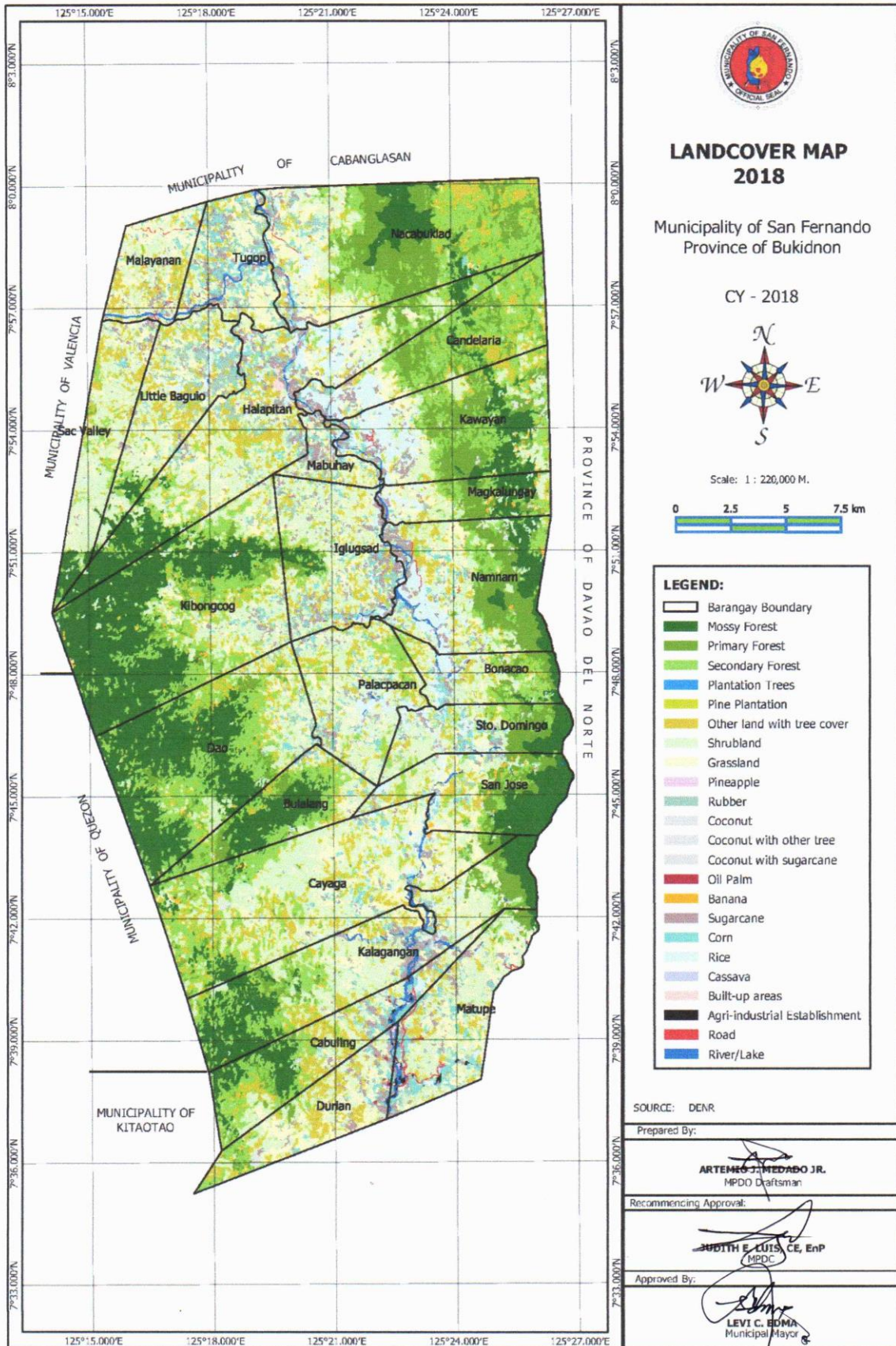
The map, also shows the clear identification of categorized land covers. Both sides are covered with forest and grasslands.

**Table 3.20**  
**Land Cover**  
**Municipality of San Fernando, Bukidnon**  
**2018**

Category	Area (in hectare)	% to Total
Mossy Forest	13,465.19	16.39
Primary Forest	8,294.33	10.10
Secondary Forest	9,634.17	11.73
Plantation Forest	1,016.0	1.24
Pine Plantation	0.60	0.0007
Other Land with Tree Cover	11,567.53	14.08
Shrubland	16,014.66	19.49
Grassland	8,315.59	10.12
Pineapple	8.55	0.01
Rubber	1,200.47	1.46
Coconut	4.50	0.005
Coconut with other Tree	296.15	0.36
Cocunut with Sugarcane	140.32	0.17
Oil palm	14.28	0.02
Banana	215.45	0.26
Sugarcane	2,228.39	2.71
Corn	5,988.53	7.29
Rice	2,591.21	3.15
Cassava	14.92	.018
Built-up Areas	186.44	0.23
Agri-industrial Establishment	45.56	0.06
Road	174.31	0.21
River/Lake/Creek	744.85	0.91
<b>Total</b>	<b>82,162.00</b>	<b>100%</b>

Source: MPDO

**Map 11: Land Cover Map**



## 2.9 MINERAL RESOURCES

Although no extensive studies have been made to ascertain the volume and the quantity of minerals available in the municipality, local dwellers and prospective developers claim that there are metallic deposits of gold in Barangay Bulalang and Dao, specifically in Kagatan and KM12 Terminal Area or also known as Tagbiga with 81 hectares of the total land area as shown in Map 12 (Mineral Map). Kagatan occupies an area of 81 hectares of the total land area of the Municipality. However, this portion of land has already surveyed by Region 10 Mines and Geosciences Bureau (MGB) for the proposed project (Minahang Bayan) and to legalize this land for any mining operations, particularly within Kagatan area. Moreover, local dwellers claim that there are non-metallic deposits of dimension stones are found in Barangay Namnam, Kalagangan and Magkalungay in the eastern portion of the municipality.

## 2.10 CLIMATE

Climate in the Philippines has been described in terms of rainfall distribution received in a locality. Climate zones traditionally were classified from a rain-gauge network, using the Modified Coronas Classification (MCC). With the use of average monthly distribution of rainfall at different stations, four types of such rainfall distributions in the Philippines are defined. The southern part of Bukidnon, where San Fernando is situated, falls under the fourth type of climate classification.

Characteristically, this type of climate has wet seasons but no dry seasons. Rainfall is more or less evenly distributed throughout the year. Rain occurrence is frequently in the months of May to November as shown in Table 3.21.

Rainfall distribution is likely to vary in this part of the province due to dominant presence of adjoining hills and mountain ranges. The Inter-Tropical Convergence Zone (ITCZ) also influences long rainfalls and thunderstorms in the area.

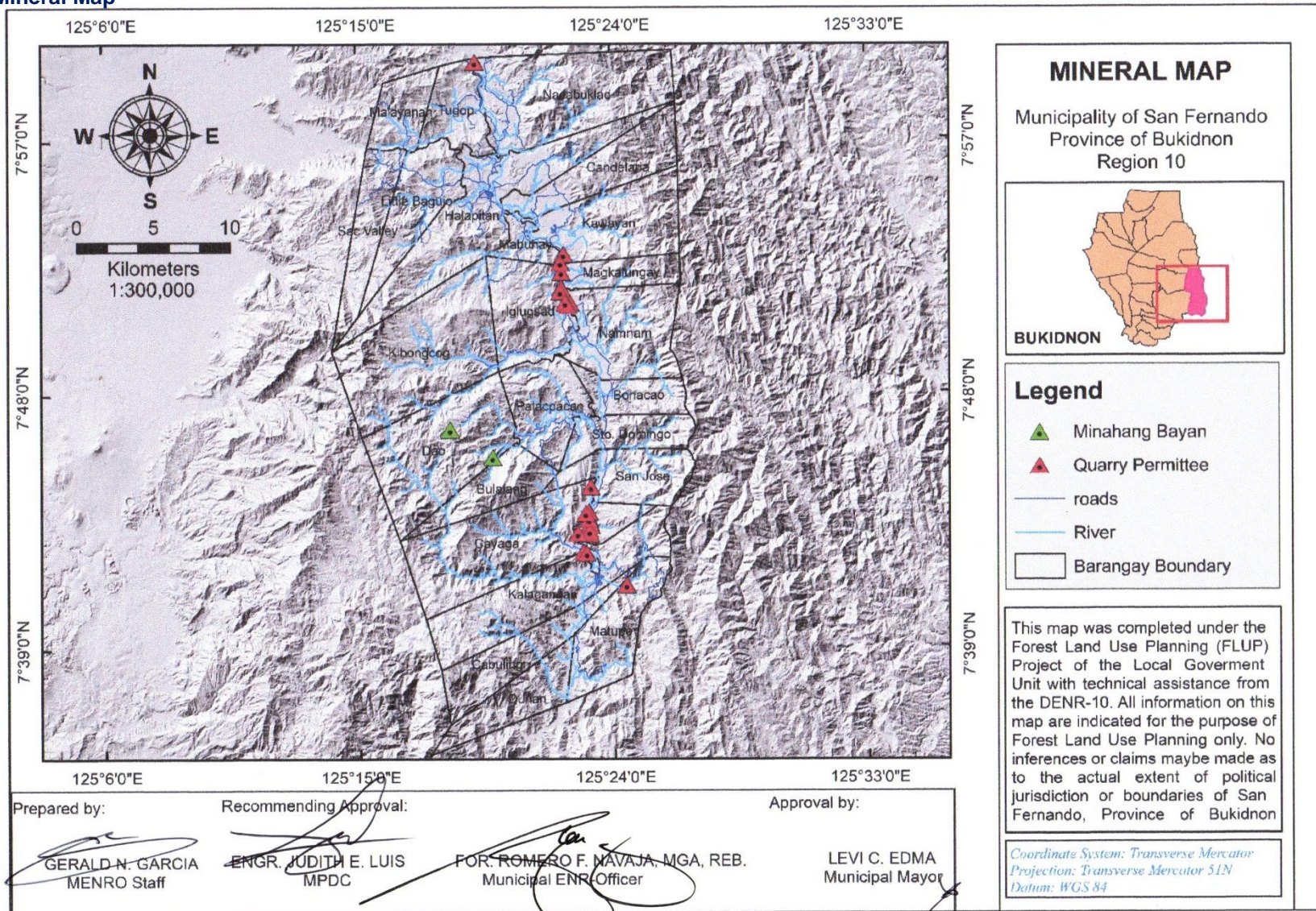
Generally, temperature ranges from 21°C to 30° with January being the coolest while April being the hottest month of the year. Frequency of tropical cyclones are rare, ranging from zero to ten percent annually.

**Table 3.21**  
**Climate Data**  
**Municipality of San Fernando, Bukidnon**  
**2015**

Month		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average High	°C	27	27	28	30	29	28	28	28	29	28	28	28	28
	°F	81	81	82	86	84	82	82	82	84	82	82	82	82
Average Low	°C	21	21	21	21	23	23	22	22	23	23	22	21	22
	°F	70	70	70	70	73	73	72	72	73	73	72	70	72
Average Precipitation	Mm	118	73	66	74	175	261	271	281	267	258	164	93	2,101
	inches	4.6	2.9	2.6	2.9	6.9	10.3	10.7	11.1	10.5	10.2	6.5	3.7	82.9
Average Rainy Days		16.0	13.8	12.4	13.1	24.2	27.6	28.9	28.5	27.1	27.4	21.0	16.1	256.1

Source: Meteoblue

**Map 12: Mineral Map**



## 2.11 EROSION

Considering that a major portion of the municipality is highly elevated and rain occurrence is more or less evenly distributed throughout the year, when it rains in the hilly areas, the soil gets washed away towards the plain thus running water is the leading cause of soil erosion in San Fernando. It also follows that those within this area covering 55,597.58 hectares or 67.67% of the total land area are severely susceptible to erosion. This covers mostly areas of all barangays except barangay Durian and other parts of barangays on the eastern and southern boundary portion due to conflict status of the areas and are considered not identified in the level category. Activities which lead to soil erosion are removal of vegetation, logging and ground disturbance like mining.

On the other hand, boundary areas on the northern portion and small part on the western boundary are considered slight to moderately susceptible to erosion which shares the least portion of the land as enumerated in Table 3.22 and as clearly categorized in the Map 13 (Erosion Map).

Out of the total land area, there is no susceptibility or no apparent erosion identified in 6,940.11 hectares or 8.45% of the total which distributed to barangays in the western portion of the municipality

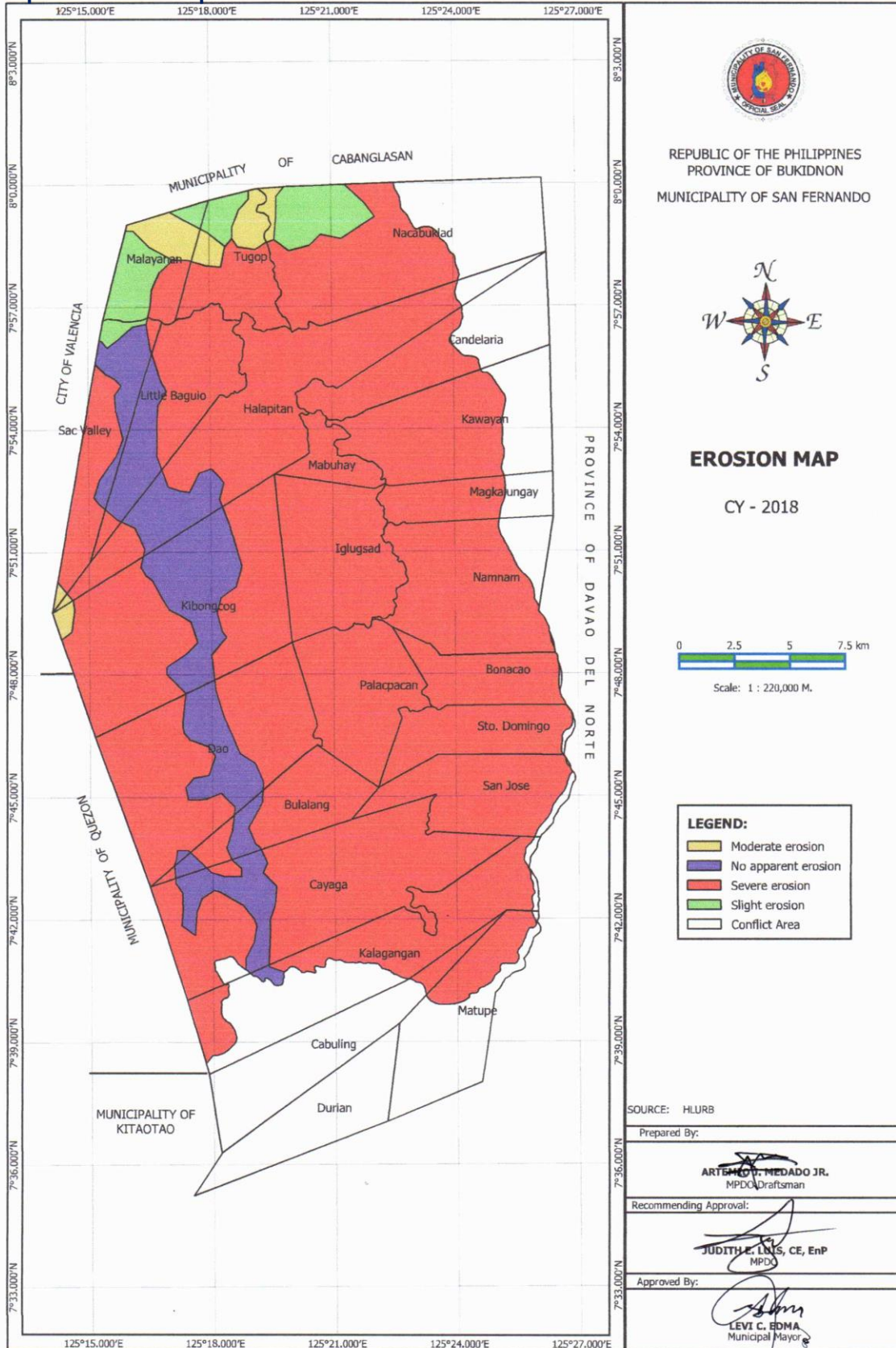
**Table 3.22**  
**Level of Erosion**  
**Municipality of San Fernando, Bukidnon**  
**2018**

Category	Area (in hectare)	Percentage to Total (%)
No apparent erosion	6,940.11	8.45%
Slight erosion	2,203.01	2.68%
Moderate erosion	1,225.78	1.49%
Severe erosion	55,597.58	67.67%
Not identified (Conflict Areas)	16,195.53	19.71%
<b>Total</b>	<b>82,162.00</b>	<b>100%</b>

Source: MPDO



**Map 13: Erosion Map**



## 2.12 GEO HAZARD AND RISK ASSESSMENT

In terms of natural hazards, San Fernando is susceptible to flashflood, landslide, erosion, and earthquake/ground shaking due to Davao Fault. On the other hand, manmade disasters include arm conflict, tribal intervention, vehicular accident and fire.

Due to highly elevated local terrain condition of the municipality as mentioned a while ago, all barangays of San Fernando are severely susceptible to erosion. In this case, it triggers landslide which also high susceptible throughout the land area as identified in Table 3.23 based on the Map 14 (Hazard Map). Areas passing through the lowest elevation portion identified low susceptibility while the small coveries of moderate landslide susceptibility is scattered towards different barangays.

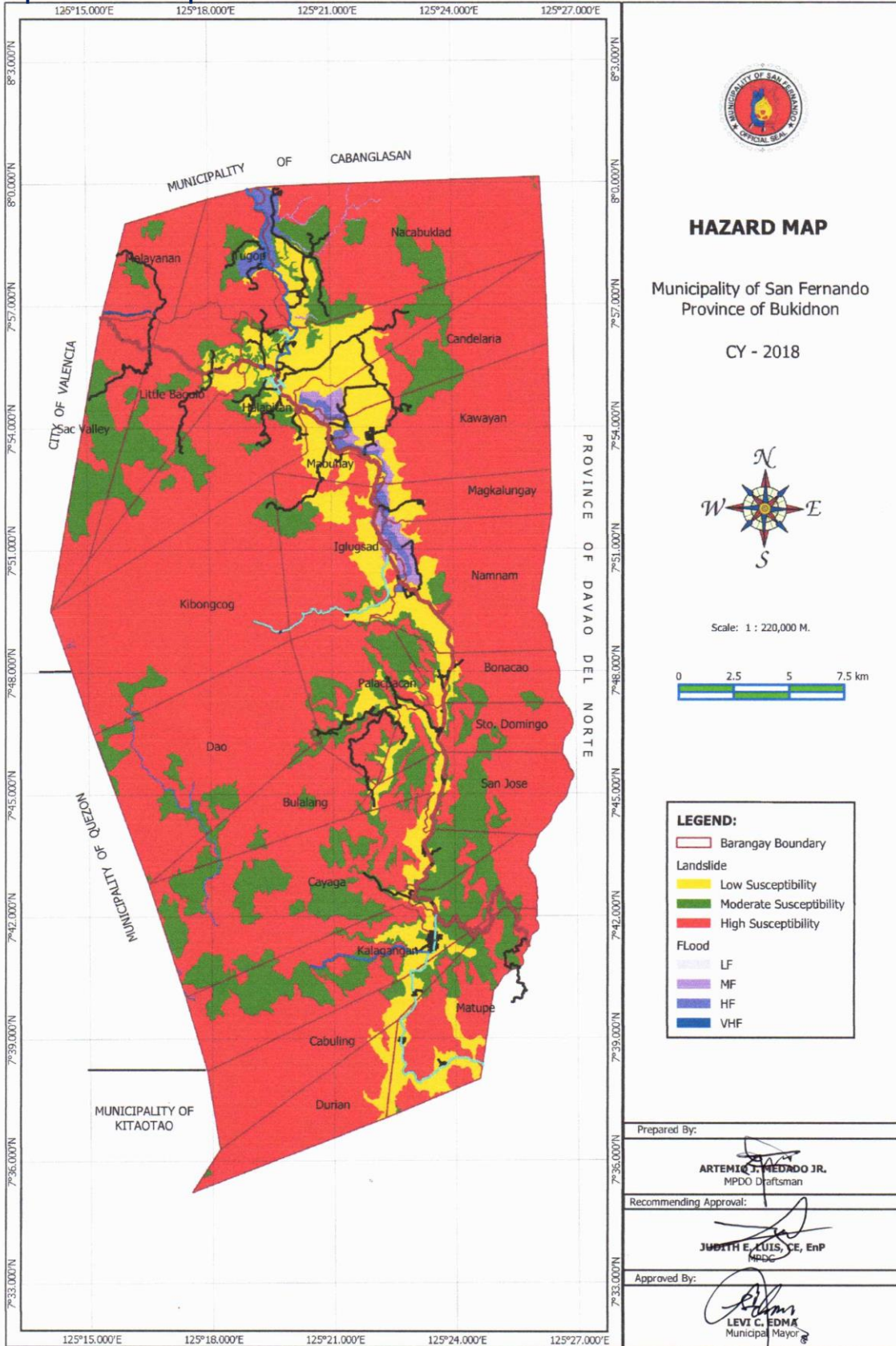
Majority of the barangays are prone to high flood susceptibility especially in the lowlands of Pulangi and Tigua River Valleys in lowest elevation. Concern is focus on the small portion of barangay Malayanan which is the only area that is identified as very high flood susceptibility.

**Table 3.23**  
**Hazard Susceptibility**  
**Municipalit of San Fernando, Bukidnon**  
**2018**

Name of Barangay	Geo Hazards					
	Landslide Susceptibility			Flood Susceptibility		
	Low	Moderate	High	Moderate	High	Very High
<b>Urban</b>						
1. Halapitan						
<b>Urbanizing</b>						
1.Candelaria						
2.Kalagangan						
3.Little Baguio						
4.Mabuhay						
5.Nacabuklad						
6.Namnam						
7.Sacramento Valley						
<b>Rural</b>						
1. Bonacao						
2. Bulalang						
3. Cabuling						
4. Cayaga						
5. Dao						
6. Durian						
7. Iglugsad						
8. Kawayan						
9. Kibongcog						
10. Magkalungay						
11. Malayanan						
12. Matupe						
13. Palacpacan						
14. San Jose						
15. Sto. Domingo						
16. Tuqop						

Source: Muncial Disaster Risk Reduction Management Office (MDRRMO)

**Map 14: Hazard Map**



In recent strategic planning workshop conducted by the Municipal Disaster Risk Reduction Management Council after environmental scanning identified floods, erosion, landslide, ground shaking due to fault line, arm conflict, fire and vehicular accident area as the priority hazard to be addressed. The following tables are hazards identified in the barangays in different sectors such as social (Table 3.24), economic (3.25 and 3.26), environmental (3.27) and infrastructure (3.28).

**Table 3.24**  
**Hazards Identified in the Barangays in the Social Sector**  
**Municipality of San Fernando, Bukidnon**  
**2018**

<b>SOCIAL SECTOR</b>						
<b>Name of Barangay</b>	<b>Natural Hazards</b>				<b>Manmade Disaster</b>	
	<b>Flashflood</b>		<b>Landslide</b>		<b>Arm Conflict</b>	
	<b>Number of Family</b>	<b>Population</b>	<b>Number of Family</b>	<b>Population</b>	<b>Number of Family</b>	<b>Population</b>
<b>Urban</b>						
1. Halapitan						
<b>Urbanizing</b>						
1.Candelaria	4	21	28	104		
2.Kalagangan	31	161	13	56		
3.Little Baguio	28	220	212	2,463		
4.Mabuhay	28	114	39	171	62	292
5.Nacabuklad						
6.Namnam	75	472	177	746	96	383
7.Sacramento Valley	495	1871	495	1,815		
<b>Rural</b>						
1. Bonacao	61	254			170	787
2. Bulalang						
3. Cabuling	126	512	286	1,243		
4. Cayaga	198	1147	226	1,253		
5. Dao	203	1014	96	521	414	1,987
6. Durian						
7. Iglugsad	72	296	28	95		
8. Kawayan	359	1485	122	632	77	416
9. Kibongcog	2	10	10	34		
10. Magkalungay	335	1461	432	1,870	271	1,095
11. Malayanan	1	5	1	6		
12. Matupe						
13. Palacpacan	7	50	28	127		
14. San Jose	226	896	249	1,016	176	775
15. Sto. Domingo	11	54	39	201		
16. Tugop	218	571	61	185		
<b>Total</b>	<b>2,480</b>	<b>10,614</b>	<b>2,542</b>	<b>12,566</b>	<b>1,266</b>	<b>5,735</b>

Source: Municipal Disaster Risk Reduction Management Office (MDRRMO)

**Table 3.25**  
**Hazards Identified in the Barangays in the Economic Sector**  
**Municipality of San Fernando, Bukidnon**  
**2018**

<b>ECONOMIC SECTOR - AGRICULTURE</b>			
<b>Irrigation Facility</b>			
<b>Barangay</b>	<b>Name of System</b>	<b>Area likely to be affected</b>	<b># of farmers likely to be affected</b>
Bonacao	Bonacao IA	150	168
Candelaria	ISA 1,2,3	90	70
Halapitan	NALA IA	200	180
Iglugsad	Namlugsad IA	50	60
Little Baguio	LIBAFA	60	50
Mabuhay	MABUHAY IA	40	45
Nacabuklad	NSWIPSAI	40	45

Source: MDRRMO

**Table 3.26**  
**Hazards Identified in the Barangays in the Economic Sector (Agriculture – Crops and Livestock)**  
**Municipality of San Fernando, Bukidnon**  
**2018**

<b>ECONOMIC SECTOR (AGRICULTURE)</b>																
<b>Barangay</b>	<b>Crop</b>								<b>Livestock</b>							
	<b>High Value Crops</b>		<b>Corn</b>		<b>Rice</b>		<b>Durian</b>		<b>Cattle</b>		<b>Swine</b>		<b>Carabao</b>		<b>Horse</b>	
	<b># of hec.</b>	<b># of Farmers</b>	<b># of Hec.</b>	<b># of Farmer</b>	<b># of Hec.</b>	<b># of Farmer</b>	<b># of Hec.</b>	<b># of Farmer</b>	<b># of Heads</b>	<b># of Farmer</b>	<b># of Heads</b>	<b># of Farmer</b>	<b># of Heads</b>	<b># of Farmer</b>	<b># of Heads</b>	<b># of Farmer</b>
Bonacao	50	25	65	55	28	30										
Bulalang	4.35	46	33.4	96	17	9										
Cabuling	6	24	47.55	64	6.85	8										
Candelaria			3	2	14.55	11										
Cayaga	4	19	48.53	71	53.5	32			1	1	1	1				
Dao	26.5	43	226	133			3	3								
Halapitan	68	40	43.25	28	2.5	7										
Iglugsad	50	30	80	100	40	45										
Kalagangan	85.02	275	501.3	495	13.75	8			8	5	5	2	4	4	1	1
Kawayan					2	1										
Kibongcog	20	30	80	60												
Little Baguio	30	30	2.5	2	1	1										
Mabuhay	3.5	5	26.75	15												
Malayanan	28	30	65	50	15	10										
Magkalungay		4.3	6	14.5	17											
Matupe			90	255											2	1
Nacabuklad			20.8	16	4.5	4										
Namnam	1.95	4	15.3	14	3.25	3										
Palacpacan			83.75	61	46.5	27									1	1
Sac. Valley	1	2	1.5	1												
San Jose	40.5	38	42.13	50	11	4			1	1						
Sto. Domingo			23.75	22	31.25	19			1	1	3	1				
Tugop			54.15	30	5	2										
<b>TOTAL</b>	<b>418.82</b>	<b>641</b>	<b>1,557.96</b>	<b>1,626</b>	<b>310.15</b>	<b>238</b>	<b>3</b>	<b>3</b>	<b>11</b>	<b>8</b>	<b>9</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>3</b>

Source: MDRRMO

**Table 3.27**  
**Hazards Identified in the Barangays in Environmental Sector**  
**Municipality of San Fernando, Bukidnon**  
**2018**

<b>HAZARDS IN ENVIRONMENTAL SECTOR</b>							
<b>Flood</b>							
<b>Barangay</b>	<b>Exposed Facility/ Area/ Population</b>	<b>Hazard (Susceptibility)</b>	<b>Likelihood</b>	<b>Degree of Damage</b>	<b>Adaptive Capacity</b>	<b>Severity of Consequence</b>	<b>Risk</b>
Bonacao	River	medium	medium	low	high	medium	medium
Cayaga	River/ Creek	medium	medium	low	high	medium	medium
Dao	River	low	low	low	medium	low	low
Halapitan	River	high	high	high	high	high	high
Kalagangan	River/ Creek	High	high	high	high	high	high
Magkalungay	River	medium	low	low	high	high	high
Matupe	River	low	low	low	low	low	low
Nacabuklad	River	medium	medium	low	high	low	low
Palacpacan	River	low	low	low	medium	low	low
San Jose	River	high	high	high	high	high	high
Sto. Domingo	River/Creek	medium	medium	low	medium	medium	medium
Tugop	River	medium	medium	low	high	low	low
<b>Landslide</b>							
Bulalang	Forestland	low	low	low	low	low	low
Cayaga	Forestland	medium	medium	low	low	medium	Medium
Dao	Forestland	medium	medium	medium	low	medium	Medium
Halapitan	Forestland	low	low	low	low	low	low
Kalagangan	Forestland	medium	medium	low	low	medium	medium
Kibongcog	Forestland	medium	medium	low	low	medium	Medium
Matupe	Forestland	medium	Medium	low	low	medium	Medium
Nacabulad	Forestland	medium	medium	low	low	medium	medium
Palacpacan	Forestland	medium	medium	low	low	medium	medium
San Jose	Forestland	medium	medium	low	low	medium	Medium
Sto Domingo	Forestland	high	high	high	low	high	high

Source: MDRRMO

**Table 3.28**  
**Hazards Identified in the Barangays in Infrastructure Sector**  
**Municipality of San Fernando, Bukidnon**  
**2018**

HAZARDS IN INFRASTRUCTURE SECTOR							
Flood							
Barangay	Name of Damaged Infra and Brief Description	Hazard (Susceptibility)	Likelihood	Degree of Damage	Adaptive Capacity	Severity of Consequence	Risk
Bulalang	Road/ Drainage	low	low	low	low	low	low
Cabuling	Road/ Drainage/ Water System	medium	low	low	low	low	low
Candelaria	ISA-II Dam	high	medium	medium	Low	medium	low
Dao	Road/ Drainage	low	low	low	low	low	low
Durian	Drainage/ Box Culvert/ Road	medium	low	low	low	low	low
Kalagangan	Road/ Box Culvert	medium	low	medium	medium	medium	medium
Simsimon, Kalagangan	School	medium	low	medium	medium	medium	medium
	Pandayan, Elem. School	low	low	medium	medium	medium	medium
	Sitio Stage	low	low	medium	medium	medium	medium
	Church	low	low	low	medium	medium	medium
Magkalungay	Riverbank	high	medium	medium	medium	medium	medium
Matupe	Road/ Drainage	medium	medium	low	low	low	Low
Nacabuklad	NSWIPS	medium	low	medium	low	medium	low
Palapacan	Road/ Drainage	low	low	low	low	low	low
Landslide							
Bulalang	Road	high	high	high	high	high	high
Cabuling	Potable Water Supply/ Road	high	high	high	high	high	high
Cayaga	Road	low	medium	medium	medium	medium	medium
Dao	Road	high	high	high	high	high	high
Durian	Road	medium	medium	medium	medium	medium	medium
Iglugsad	Road	medium	medium	medium	medium	medium	medium
Kibongcog	Road	high	high	high	high	high	high
Little Baguio	Road	high	high	high	high	high	high
Matupe	Road	medium	high	high	high	high	high
Palapacan	Road	medium	medium	low	low	low	low

Source: MDRMO

# 3

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# SPECIAL AREAS STUDY

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## 3. SPECIAL AREAS STUDY

### 3.1 CLIMATE DISASTER RISK ASSESSMENT (CDRA)



*Local Disaster Risk Reduction Management Office  
Sitio Malantao, San Fernando, Bukidnon*

#### 3.1.1 Climate and Disaster Risk assessment (CDRA)

The Climate and Disaster Risk Assessment (CDRA) is the process of studying risks and vulnerabilities of exposed elements namely, the people, urban areas, agriculture, forestry and fishery production areas, critical point facilities, and lifeline infrastructure associated with natural hazards and climate change. It seeks to establish risk and vulnerable areas by analysing the hazard, exposure, vulnerability/sensitivity and adaptive capacities of the various exposed elements. The CDRA identifies the priority decision areas that needs to be addressed given the acceptable or tolerable levels of risks and allow the identification of various disaster risk and climate change adaptation and mitigation measures and spatial policy interventions.



### 3.1.2. Historical Climate Trends

The prevailing seasonal rainfall data of the Province of Bukidnon including the Municipality of San Fernando as component municipality based on the CLIRAM Report from PAGASA, the period of December to February has 329.7 mm which is the lowest rainfall experienced in the locality for the past years from 1971-2000. Rainfall during March to May period increased slightly to 335.6 mm. The period of June to August has the highest rainfall for about 635.8 mm and eventually decreased slightly towards the period of September to November of similar baseline data from 1971-2000. The rainfall data and patterns for each period will signal to locality in terms of production time, water impoundment plan, water resource supply to population and many others. (See Table 3.29 and Figure 3.1)

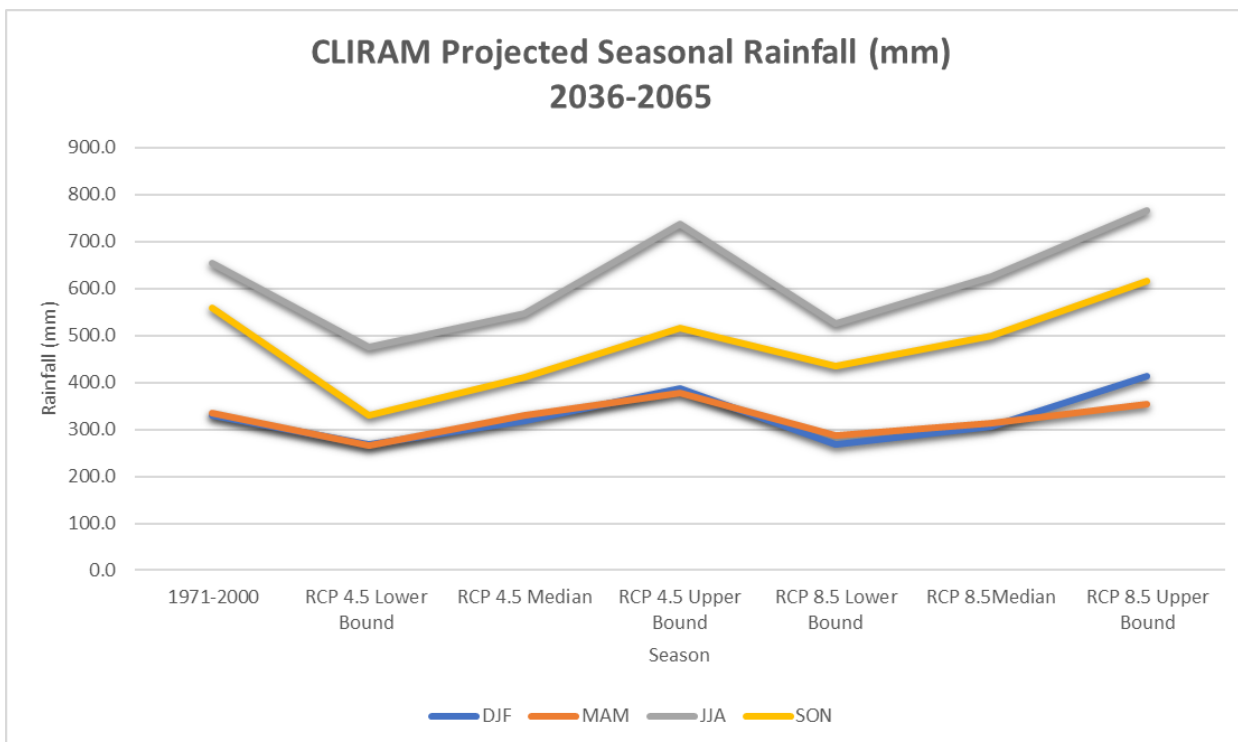
**Table 3.29**  
**CLIRAM of the Projected Seasonal Change in the Total Rainfall (in millimetres) in the mid-21st century (2036-2065)**  
**Municipality of San Fernando, Bukidnon**

RAINFALL	PERIODS			
	DJF	MAM	JJA	SON
<b>1971-2000 (Baseline)</b>	<b>329.7</b>	<b>335.6</b>	<b>653.8</b>	<b>559.5</b>
RCP 4.5 Lower Bound (2036-2065)	267.4	265.0	475.4	329.8
<b>RCP 4.5 Median (2036-2065)</b>	<b>319.2</b>	<b>331.0</b>	<b>547.4</b>	<b>411.2</b>
RCP 4.5 Upper Bound (2036-2065)	386.8	378.5	736.5	516.0
RCP 8.5 Lower Bound (2036-2065)	269.1	287.0	525.9	434.1
RCP 8.5 Median (2036-2065)	305.3	313.1	625.1	498.6
RCP 8.5 Upper Bound (2036-2065)	414.4	353.6	765.0	616.0

Source: PAGASA, *Climate Trends and Projected Climate Change, 2018*

The Intergovernmental Panel on Climate Change (IPCC) released a new set of scenarios representing cumulative concentrations of green-house gases (GHG). The new set of climate projections for the Philippines were based on the two most recent scenarios from the IPCC such as Regional Concentration Pathways (RCP) 4.5 for the moderate level of GHG emissions and RCP 8.5 for high level of GHG emissions. Using the Representative Concentration Pathways (RCP) as reported by PAGASA, a moderate emission scenario is adopted for the purpose of this study which is near to actual condition of the locality. The assumption of using the CLIRAM tool is based mainly on the current local development of San Fernando which is mostly based on agriculture and agro-forestry. Using RCP 4.5 median bound, the locality and the rest of the Province of Bukidnon will have 319.2 mm of rainfall for the period of December to February. The period of March to May will have 331 mm of rainfall. Periods June to August and September to November will have 547.4 and 411.2 mm of rainfall. A slight decrease of rain-fall will affect the locality for the coming years 2036 to 2065. The data will have implications towards the availability of water supply to support agriculture, water supply to households. A diagram is presented below in order to have better appreciate the projected data.

**Figure 3.1**  
**CLIRAM of the Projected Seasonal Change in the Total Temperature (CELCIUS) in the mid-21st century (2036-2065)**



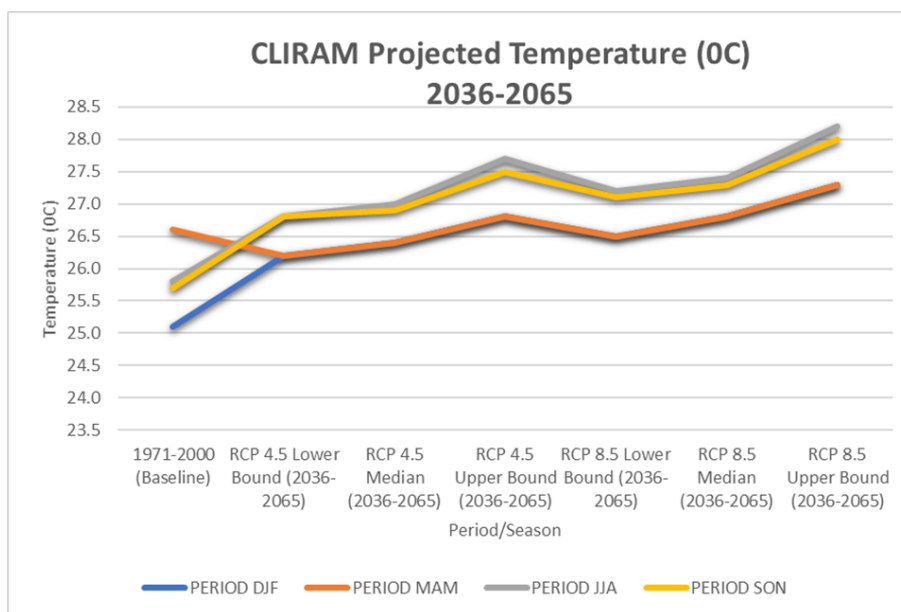
Source: PAGASA, *Climate Trends and Projected Climate Change, 2018*

**Table 3.30**  
**CLIRAM Projected Temperature (°C) 2036-2065**  
**Municipality of San Fernando, Bukidnon**

TEMPERATURE	PERIOD			
	DJF	MAM	JJA	SON
<b>1971-2000 (Baseline)</b>	<b>25.1</b>	<b>26.6</b>	<b>25.8</b>	<b>25.7</b>
RCP 4.5 Lower Bound (2036-2065)	26.2	26.2	26.8	26.8
<b>RCP 4.5 Median (2036-2065)</b>	<b>26.4</b>	<b>26.4</b>	<b>27.0</b>	<b>26.9</b>
RCP 4.5 Upper Bound (2036-2065)	26.8	26.8	27.7	27.5
RCP 8.5 Lower Bound (2036-2065)	26.5	26.5	27.2	27.1
RCP 8.5 Median (2036-2065)	26.8	26.8	27.4	27.3
RCP 8.5 Upper Bound (2036-2065)	27.3	27.3	28.2	28.0

The baseline data of temperature of the locality is 25.1 °C for the period of December to February which can be considered as the lowest temperature for the whole year. Low temperature is attributed to North-East Monsoon that affect the locality and the rest of the country. The period of March to May has 26.6 °C temperature which is considered as the highest temperature level. The period of June to August has a pre-valing temperature of 25.8 °C while the period of September to November has 25.7 °C temperature.

Figure 3.2: CLIRAM Projected Temperature (°C) 2036-2065



Using RCP 4.5 projected temperature for 2036-2065, the locality will experience a slight increase in temperature variability for all identified periods. The locality will experience a temperature of 26.4 °C for the periods of December to February and March to May. June to August will have a temperature of 27 °C while September to November will have 26.9 °C. Increase in temperature will have impact to health condition of the people, drier days ahead, decreased production for agriculture sector, and the probability of increase ghg emissions which brought about by increased consumption of electric power. (See Table 3.2.)

### 3.1.3 Extreme Climate Events

Retaining the previous PAGASA report on climate change published 2011, we have retained the projected extreme events for the locality and for the rest of Bukidnon Province. It is projected that by year 2020 to 2050, the number of dry days with temperature greater than 35 °C will soured to 477 days by 2020 and 1,441 by 2050. The data presented suggested that there will be hotter days to experience in the coming years. The projected number of dry days will abruptly decrease to 3,977 by 2020 and 4,461 by 2050. There will be increased number of days with rainfall greater than 150 mm which can be experienced 9 times as compared from the current experience of 4 days as observed by PAGASA. (See Table 3.31)

Table 3.31  
Projected Frequency of Extreme Events, 2020-2050  
Municipality of San Fernando, Bukidnon

Extreme Events	Observed Baseline (1971-2000)	2020	2050
Number of Days with Tmax >35 °C	26	477	1441
Number of Dry Days	6537	3977	4461
Number of Days with Rainfall >150mm	4	9	9

Source: PAGASA: Climate Change in the Philippines, 2011

### 3.1.4 Disaster Historical Events and Hazards Recorded

**Table 3.32**  
**Disaster Historical Events and Hazards Recorded**  
**Municipality of San Fernando, Bukidnon**

Hazard Events and Description/Date	Affected Barangays	Number of Casualties			Number of Affected Persons		Number of Houses Damaged		Damage to Properties (PhP)					Source of Information
		Dead	Injured	Missing	Persons	Families	Totally	Partially	Infrastructure	Agriculture (Has.)	Institutional	Private/Commercial	Total	
Typhoon Vinta Dec 21, 2017	All Barangays	4	7	1	17,556	3,356	550	300	14,804,468.75	40,197,479.51				MDRRMO
Typhoon Pablo Dec 2, 2012	Halapitan Kawayan Tugop Nacabuklad Candelaria Malayanan	0	0	0	125	25	0	25						MSWDO
Typhoon Sendong Dec.12, 2011														
El Niño Drought Mar-May 2016	All Barangays	0	0	0	-	1000	0	0						MSWDO
Heavy Rainfall April 2007	Halapitan	0	0	0	1,525	305	12	5						MSWDO
Heavy Rainfall 1993	Halapitan	0	0	0	1,014	200	2	12						MSWDO

### 3.1.5 Hazard Characterization

Table 3.33  
Flood Susceptibility, Likelihood of Occurrence, and Description by Barangay  
Municipality of San Fernando, Bukidnon

Flood Susceptibility	Likelihood of Occurrence	Barangay	Description
Very High	6	Halapitan (Purok 1, Purok 5, Purok 7, Purok 9)	Areas with likely to experience flood heights of greater than 2 meters and/or flood duration of more than 3 days. These include active river channels, abandoned river channels, and areas along riverbanks, which are immediately flooded during heavy rains of several hours and are prone to flash floods. These are considered critical geohazard areas and are not suitable for development. It is recommended that these be declared as "No Habitation/No Build Zones" by the LGU, and that affected households/communities be relocated.
	6	Tugop (Alimpolos, Purok 1)	
	6	Nacabuklad	
	6	Kalagangan	
	6	Cayaga	
	6	San Jose	
	6	Durian	
	6	Cabuling Santo Domingo	
High	6	Bonacao (Purok 4)	Areas with likely to experience flood heights of 1 meter up to 2 meters and/or flood duration of more than 3 days. Sites including active river channels, abandoned river channels, and areas along riverbanks, are immediately flooded during heavy rains of several hours and are prone to flash floods. These may be considered not suitable for permanent habitation but may be developed for alternative uses subject to the implementation of appropriate mitigation measures after conducting site-specific geotechnical studies as deemed necessary by project engineers and LGU building officials.
	6	Dao	
	6	Little Baguio (Mawi-e)	
	6	Candelaria	
	6	Iglugsad	
	6	Namnam	
	6	Palacpacan	
	6	Kawayan Mabuhay	
Moderate	6	Magkalungay	Areas with likely to experience flood heights of 0.5 meter up to 1 meter and/or flood duration of 1 to 3 days. These are subject to widespread inundation during prolonged and extensive heavy rainfall or extreme weather conditions. Fluvial terraces, alluvial fans, and infilled valleys are also moderately subjected to flooding.
	6	Kibongkog	
Low	6	Bulalang	Areas with likely to experience flood heights of less than 0.5 meter and/or flood duration of less than 1 day. These include low hills and gentle slopes that have sparse to moderate drainage density.
	6	Matupe	
	6	Malayanan	
	6	Sacramento Valley	

**Table 3.34**  
**Rain-induced Landslide Susceptibility, Likelihood of occurrence and Description by Barangay**  
**Municipality of San Fernando, Bukidnon**

<b>Landslide Susceptibility</b>	<b>Likelihood of Occurrence</b>	<b>Barangay</b>	<b>Description</b>
Very High	6	Dao (Purok 5)	Areas with usually have steep to very steep slopes that are underlain by weak materials, and have recent landslides, escarpments, and tension cracks present. These could be aggravated by human-initiated effects. These are considered as critical geohazard areas and are not suitable for development. Thus, it is recommended that these be declared as “No Habitation/No Build Zones” by the LGU, and that affected households/communities be relocated.
	6	Kalagangan	
	6	Bulalang	
	6	Little Baguio	
	6	Cayaga	
	6	Sacramento Valley	
	6	Halapitan	
High	6	Matupe	Areas with usually have steep to very steep slopes that are underlain by weak materials, with the presence of numerous old/inactive landslides. These sites may be considered not suitable for permanent habitation but may be developed for alternative uses subject to the implementation of appropriate mitigation measures after performing site-specific geotechnical studies.
	6	Magkalungay	
	6	Mabuhay	
	6	San Jose	
	6	Santo Domingo	
	6	Kibongkog	
Moderate	6	Namnam	Areas with moderately steep slopes where soil creep and other indications of possible landslide occurrence are present.
	6	Palacpacan	
	6	Durian	
	6	Cabuling	
	6	Candelaria	
Low	6	Iglugsad	Areas with gently sloping areas with no identified landslides.
	6	Kawayan	
	6	Tugop	
Debris Flow	5	Halapitan(Salumayag)	These are usually found at the base of slopes with manifestations of mass movement. These are considered as critical geohazard areas and may not be suitable for development. It is recommended that permanent habitation/development be avoided as remobilization of debris from previous landslide events may occur. In addition, relocation of settlements along debris flow paths is suggested.
	5	Little Baguio	
	5	Kalagangan	
	5	Cayaga	
	5	Dao	

Source: Mines and Geosciences Bureau

**Table 3.35**  
**Summary of Actual and Susceptibility Hazards by Barangay**  
**Municipality of San Fernando, Bukidnon**

Barangay	Flood		Rain-Induced Landslide		Earthquake-Induced Landslide	
	Actual	Map	Actual	Map	Actual	Map
Bonacao	✓		✓			✓
Bulalang		✓	✓			✓
Cabuling	✓		✓			✓
Candelaria	✓		✓			✓
Cayaga	✓		✓			✓
Dao	✓		✓			✓
Durian	✓		✓			✓
Halapitan	✓		✓			✓
Iglugsad	✓		✓			✓
Kalagangan	✓		✓			✓
Kawayan	✓		✓			✓
Kibongkog	✓		✓			✓
Little Baguio		✓	✓			✓
Mabuhay	✓		✓			✓
Magkalungay	✓		✓			✓
Malayanan		✓	✓			✓
Matupe	✓		✓			✓
Nacabuklad	✓		✓			✓
Namnam	✓		✓			✓
Palacpacan	✓		✓			✓
Sacramento Valley		✓	✓			✓
San Jose	✓		✓			✓
Sto. Domingo	✓		✓			✓
Tugop	✓		✓			✓

San Fernando is exposed to hydro-meteorological and geologic hazards due to its geographical location and characteristics. The most frequent hazards occurring in this municipality are rain-induced landslide and flooding. From The above Table (Table 3.35), the hazard susceptibility of each barangay summarizes the hazards where San Fernando is exposed to. Almost all barangays are susceptible to flooding. When the river overflow, the water will sip to the lower areas and will result to flood damaging the crops and properties. Aside from flooding, all barangays are determined to be susceptible to rain-induced landslide. San Fernando also lies within the Davao river fault line which is susceptible to ground shaking.

### 3.1.6 Flood

#### A. Population and Urban Use

##### A.1 Exposure

###### Population:

Total of 415.87 or 95.75% residential area are exposed to flood. There are 77.58 has or 18.66% are located in high flood exposure, 81.30 has or 19.55% are moderate and 256.99 has or 61.80% are low.

###### Urban Use:

Urban uses are composed of different categories namely; Agri-industrial, commercial, socialized housing, cemetery, park and recreation and slaughter. Based on Figure 3.4 (Urban Use Flood Exposure Map), a total of 0.361 hectares is exposed to high and moderate flood susceptibility as tabulated in Table 3.35 (List of Barangays Exposed to Flood Susceptibility). The common areas in San Fernando which are affected by this hazard are allocated with agri-industries and cemeteries. Brgy Namnam is the only area which is exposed to high flood susceptibility in terms of agri-industrial use which allocated an area of 0.153 hectares and Barangay Cayaga in terms of Cemetery use with an affected area of 0.103 hectares. Moderate flood susceptibility occurs in two barangays namely; Agri-industries in Mabuhay and Kalagangan and Cemetery in Kalagangan also. A total area of 0.105 hectares is affected by this susceptibility. Several barangays not mentioned, are also exposed to flood but in low susceptibility only.

##### A.2 Vulnerability (Sensitivity and Adaptive Capacity)

###### Population:

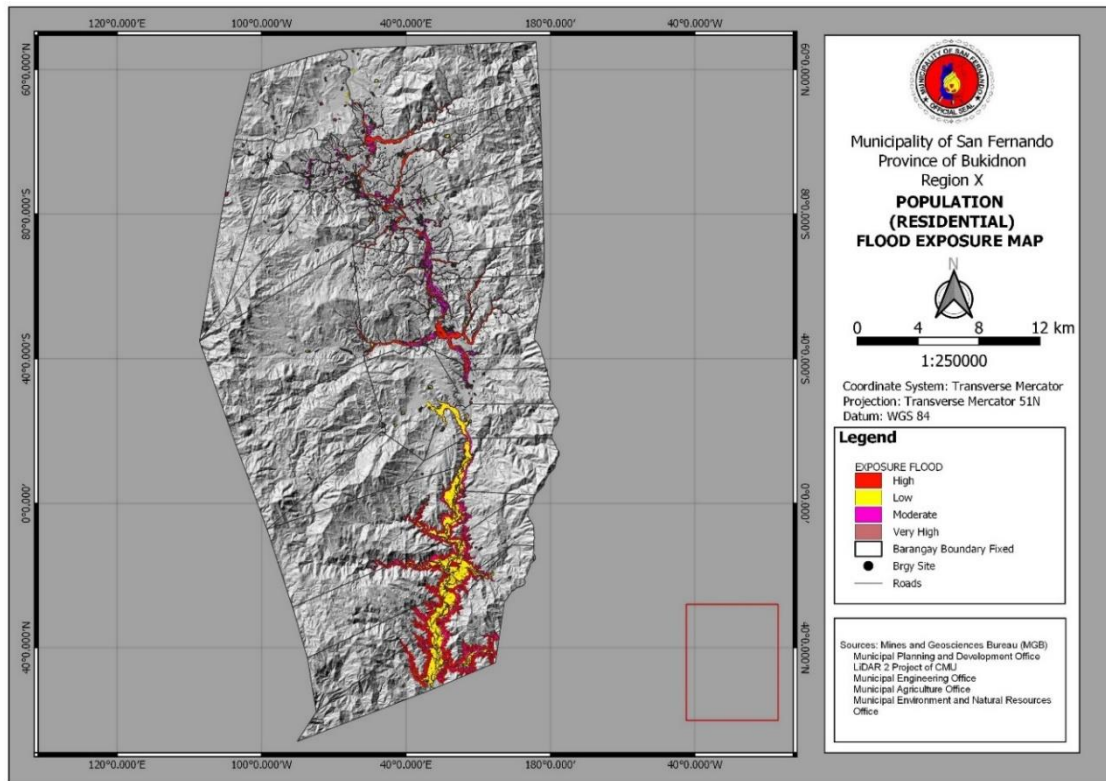
The identified vulnerabilities for the population are most of the population is living along rivers channels, living in makeshift houses using light materials. They have access to infrastructure related mitigation measures where most of the big rivers in the municipality along residential area have flood control dikes constructed by DPWH namely in Kalagangan river in Brgy Kalagangan, Salug River in Brgy San Jose and Tigua River in Brgy Halapitan and another for implementation along Namnam River in Brgy Bonacao.

###### Urban Use:

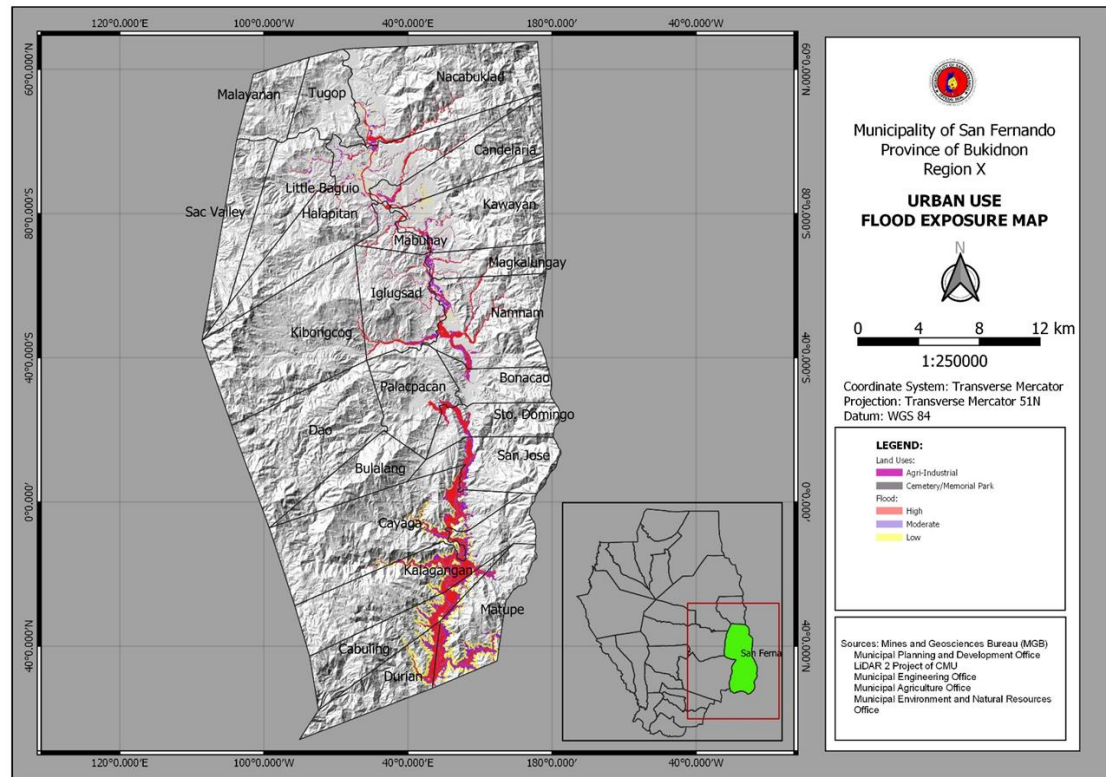
In terms of vulnerability assessment, as stated in Table 3.35 (List of Barangays Exposed to Flood Susceptibility), generated from Figure 3.6 (Urban Use Flood Risk Map) the damage or destruction is identified as low because most of the agri-industrial infrastructures are ricemill, cornmill and agri-industrial support facilities like solar driers most likely made of concrete pavements. Sensitivity is identified as very high due to visibility of flood level runways of Namnam River of Brgy Namnam, the second largest river in Tigua Tributary and Mambuaya River of Brgy Cayaga near the urban structures which identified as part of sub-watersheds in the municipality. Barangay Kalagangan has a passage way of Simsimon River while and Mabuhay river to barangay Mabuhay Vulnerability is described as low because agri-industries involved very few number of population while cemeteries involved structures only. Adaptive capacity for this hazard is high because construction of standard flood control system along the agri-industrial facilities is prioritized to provide protection for the agricultural products. Cemetery is also provided with drainage system to protect the structures from flooding hence, the facility can generate income which needs regular care and maintenance. In the case of the new construction, the barangays are conducting prohibition of additional building structures along river easements.



**Figure 3.3: Population (Residential) Flood Exposure Map**



**Figure 3.4: Urban Use Flood Exposure Map**



### **A.3 Risk Estimation**

#### **Population:**

There are no high and moderate flood risk in the Municipality of San Fernando, Bukidnon. However, low flood risk greatly affects to residential areas living along the rivers with no flood control dike

#### **Urban Use:**

Possible occurrence of flood can result to a total cost of damage to about Php 34,000 only because most agri-industrial structure facilities are made of light materials like wood. Solar drier pavements are only horizontal structure that can only be affected with slight damages like cracks and slight separation of concrete debris which create holes than can be fixed with low expenditure. On the other side, when these damages happen, high expenditure for renovation will counterpart because industrial establishments must comply with the standard engineering requirements and materials.

### **B. Critical Facilities**

#### **B.1 Exposure**

There are critical point facilities which identified to be exposed to Flooding situated in 11 barangays (portion) namely Tugop, Namnam, Iglugsad, Candelaria, Sto. Domingo, Cayaga, San Jose, Mabuhay, Kalagangan, Cabuling, Mabuhay.

#### **B.2. Vulnerability (Sensitivity and Adaptive Capacity)**

In terms of the vulnerability of the facilities, all of the 430 infrastructures are made of concrete/semi-concrete and the communication towers are made of steel. All of which are in serviceable condition and can readily be accessed in case of the occurrence of disasters.

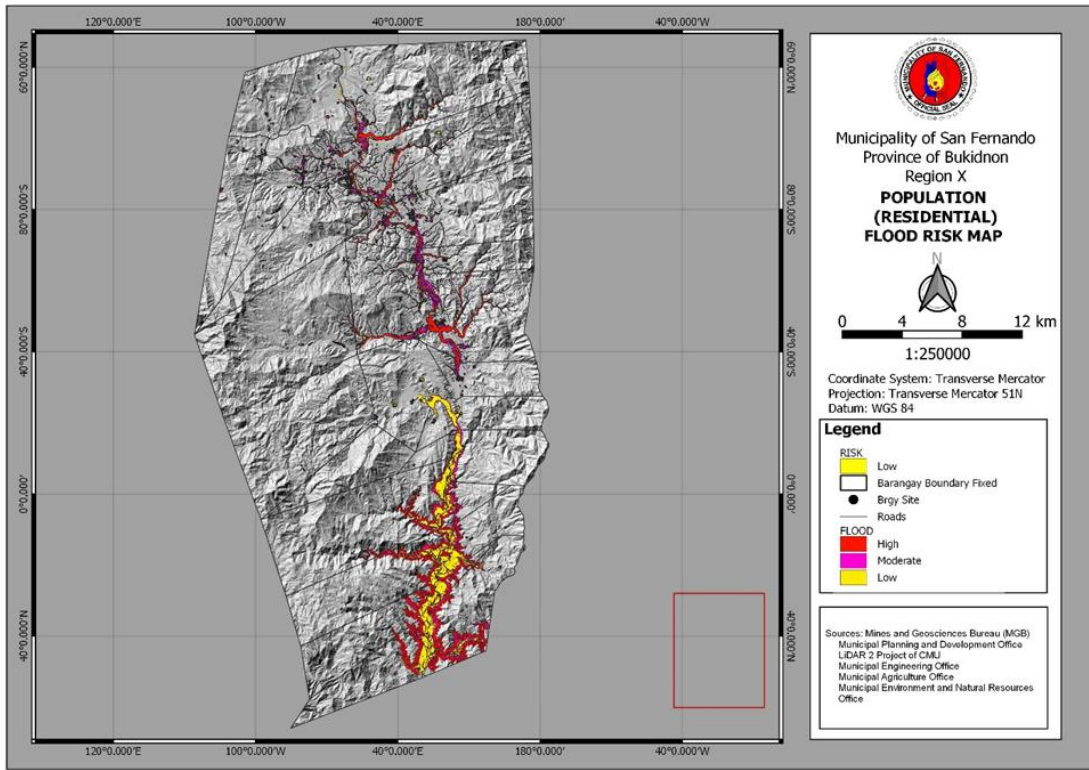
Analysing the adaptive capacity of the infrastructures under the critical point facilities, all facilities were identified not being constructed using hazard resistant design and not covered by an insurance except government facilities in case of damages and other structural breakage. All 24 barangays allot resources for disaster risk reduction management purposes. It was determined that every barangay will reserve 5% of its annual budget for disaster risk preparation and mitigation. The distribution of which is that 70% is allocated for use in developing and conduct of disaster preparedness programs while the remaining 30% allotted for disaster quick response.

Furthermore, it has been observed during the rounds in all 24 barangays that there are infrastructures built with the help of other government agencies. KALAHI- CIDDS program under the DSWD, has been reaching out with the construction of infrastructures such as schools, concreting of barangay roads, multi-purpose halls and water system.

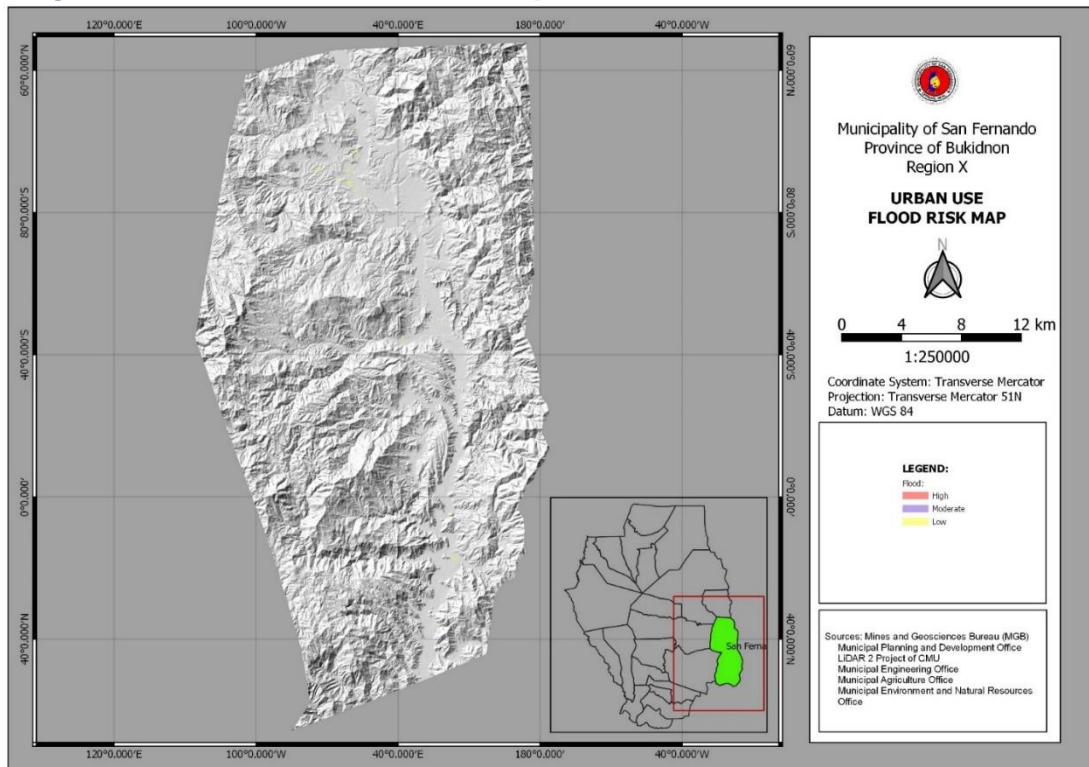
### **B. 3 Risk Estimation**

For the risk analysis, the critical point facilities which are at risk to Flooding are located in Barangay Tugop, Namnam, Iglugsad, Candelaria, Sto. Domingo, San Jose, Cayaga, Kalagangan, Cabuling and Matupe.

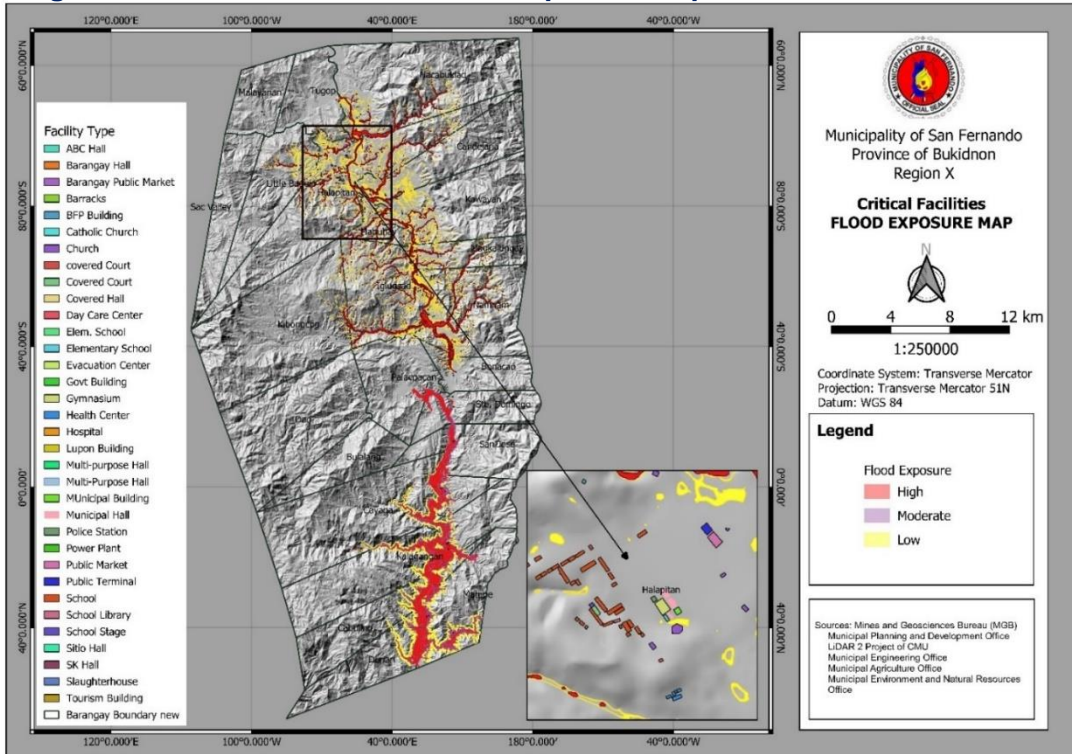
**Figure 3.5: Population (Residential) Flood Risk Map**



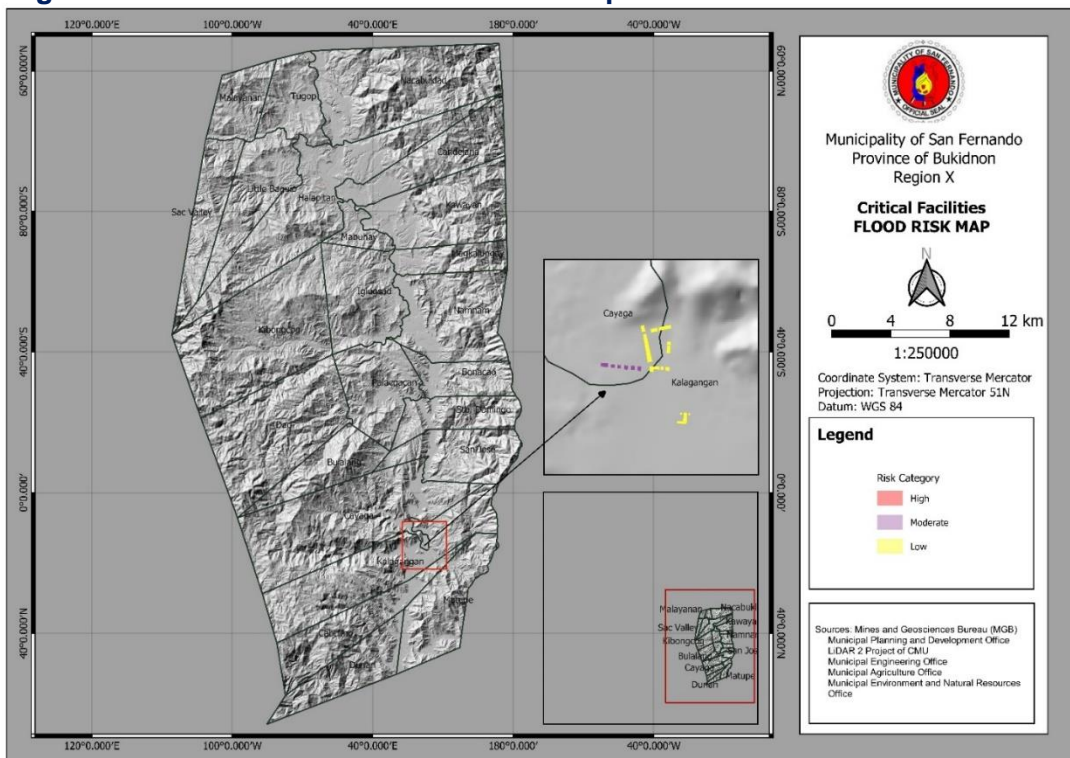
**Figure 3.6: Urban Use Flood Risk Map**



**Figure 3.7: Critical Facilities Flood Exposure Map**



**Figure 3.8: Critical Facilities Flood Risk Map**



## **C. Lifeline Facilities**

### **C.1 Exposure**

A total length of 107,156.28 km (15.16%) of all the roads in Municipality of San Fernando is susceptible to Flooding. The said length is composed of 37,300.013 km national road, 10,354.42km provincial roads, and 57,924.20km municipal and barangay roads. The value of all the roads exposed is estimated at Php. 717, 609,000M. Twelve bridges and spillway were situated in 17 Barangays in the municipality are located on areas susceptible to Flood. Nine of which are highly susceptible such as; Malayanan, Sacramento Valley, Candelaria, Mabuhay, Kawayan, Magkalungay, Iglugsad, San Jose, Bonacao, Cayaga, Kalagangan, Nacabuklad, Halapitan, Iglugsad/Kibongkog, Candelaria, Tugop in total of 1,545.66m. While the Mawi-e Bridge are in remain for moderately in total of 32.22m. The estimated value for all the bridges exposed is Php 12,773,602.00M. Figure 3.9 shows the roads and bridges exposed to Flood.

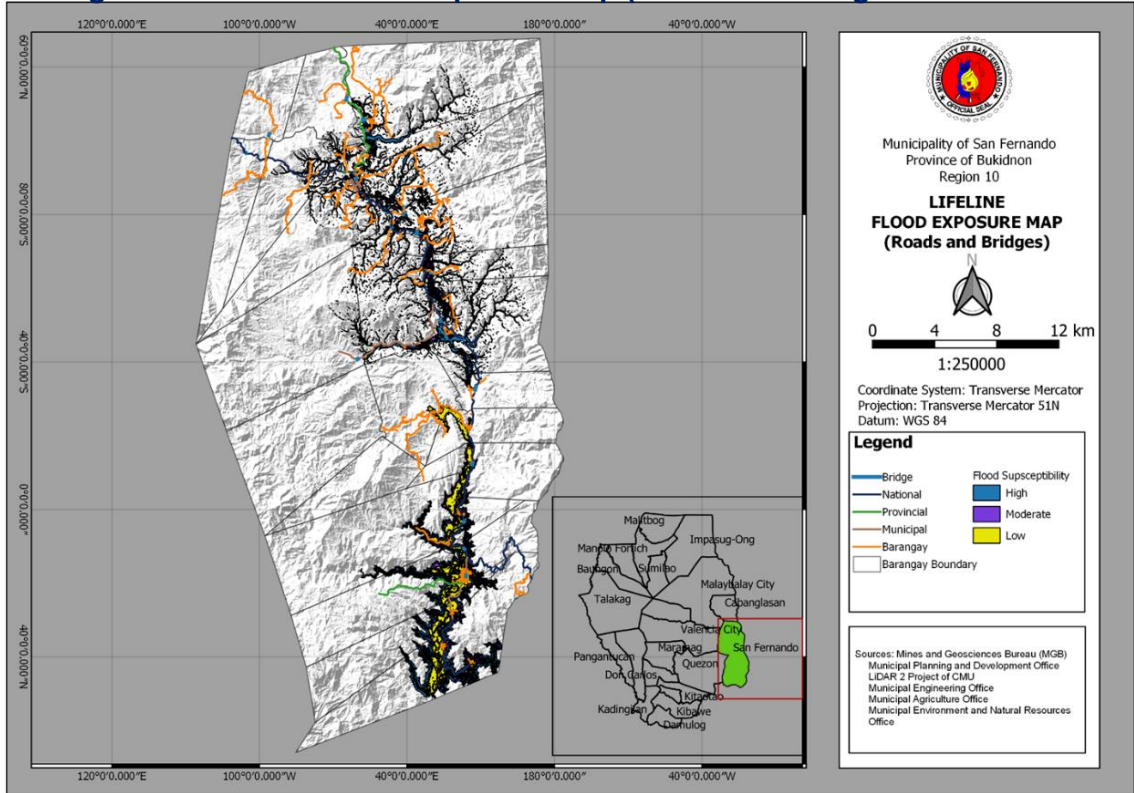
### **C.2 Vulnerability (Sensitivity and Adaptive Capacity)**

Most of the roads (85.64%) in the municipality are with gravel surface. Bridges are concretized, steel and constructed with composite structure and although most are constructed a decade or more ago, they generally are in good condition since they are regularly monitored and repaired when needed by DPWH for national and provincial coverage. The lifeline facilities in the municipality, however, do not have adaptive capacities for potential hazards like insurance. Not relying on DPWH, municipal funds for road constructions, reconstructions, and repairs are also not enough.

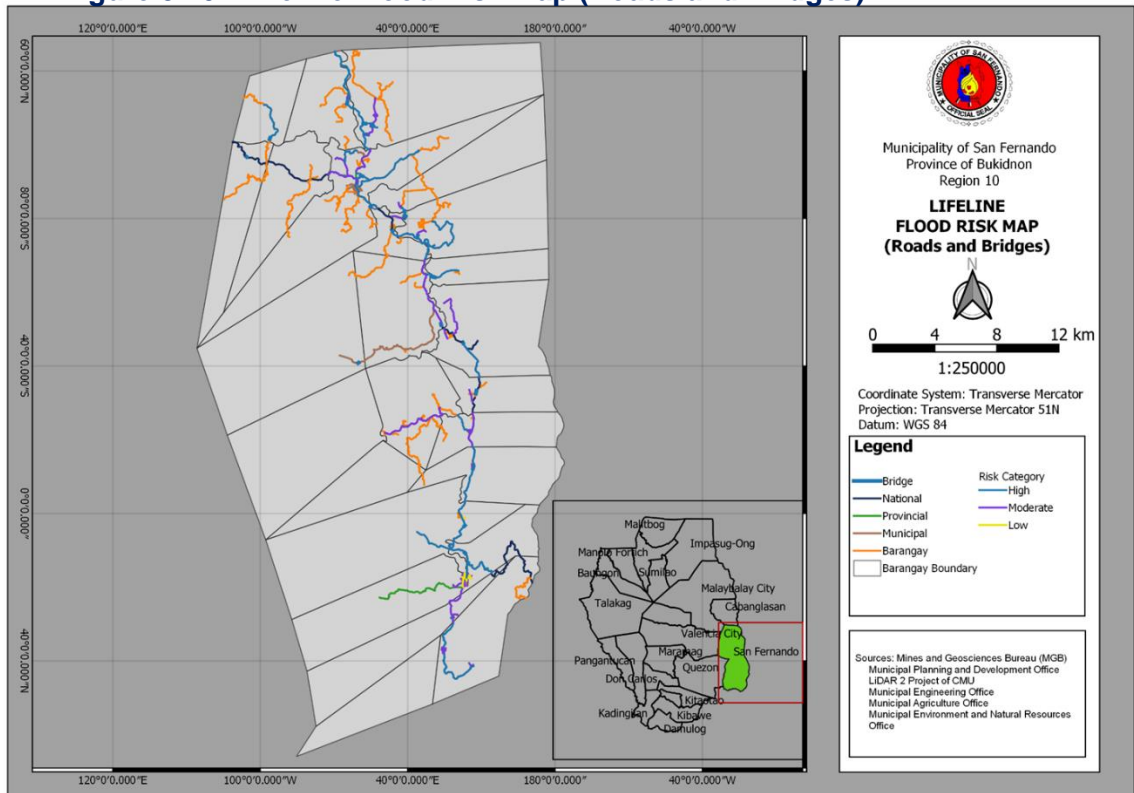
### **C.3 Risk Estimation**

The total length of the roads exposed to Landslide is 116057.688 KM (84.61%) and bridges were had a total length of 4736.147 Km. However, most of the roads from the said figure, with the total length of 49,573.343 KM, are located in areas with Moderate susceptibility to Landslide and 66484.345KM is highly susceptible to Landslide. These figures are composed of: 14036.371 km National Road, 7708.129 km Provincial Roads and 44703.097 km Municipal and Barangay Roads. Estimated value for all the roads exposed is Php 405,356,847.3M. Two bridges of municipality are highly susceptible to Landslide are in total of 164.42meter which is located in Barangay, Nacabuklad, Sacramento Valley and Malayanan. *(See Figure 3.10 on next page)*

**Figure 3.9: Lifeline Flood Exposure Map (Roads and Bridges)**



**Figure 3.10: Lifeline Flood Risk Map (Roads and Bridges)**



## **D. Natural Resource-Based (Agriculture)**

### **D.1 Exposure**

The municipality of San Fernando has a total land area of 19,314.29 ha. For a more detailed analysis, agriculture lands are divided into rice fields which has an area of 3,523.50 ha and the rest are non-rice (corn, banana, cassava, and other cash crops). 704.7 hectare are exposed to flood or equivalent to 20% of rice area are susceptible to flooding. Most of the area exposed to low moderate and some are high flood flood susceptibility. Also 12% area of flood susceptibility are from non-rice area. This covers 1,498.2 hectares are susceptible to flooding.

The barangays with the largest exposed rice field areas to Flood include. Nacabuklad, Candelaria, Mabuhay, Kawayan, Magkalungay, Namnam, Iglugsad, San Jose, Cayaga, Sto. Domingo, Palacpacan Halapitan and Kalagangan. Also the barangay that has a largest exposed corn field areas to Flood include Tugop, Halapitan, Mabuhay, Namnam, kalagangan, Cabuling, Durian, and Matupe. 14 barangay are rice exposed to flood susceptibility and 9 barangay are corn exposed to flood susceptibility.

### **D.2 Vulnerability (Sensitivity and Adaptive Capacity)**

As a municipality relying on agriculture and fisheries for a living, the local government unit recognizes the importance of interventions targeting agricultural production areas as well as the farmers and their dependents. Among the current agriculture programs and interventions in the municipality include: irrigation, farm-to-market roads, Registry System for Basic Sector in Agriculture (RSBSA) profiling, crop insurance, Farmers' Field School (FFS), Climate Smart Farm Business School (CSFBS), Integrated Learning and 4H (Head, Heart, Hands, and Health) Camp, Rural Improvement Club (RIC), School on the air (SOA), distribution of seeds and fertilizer, and distribution of production machineries and equipment. Also, the municipal agriculture office assisting farmers for loan application through land bank and other financial institutions based on Registry System for Basic Sector in Agriculture (RSBSA) profiling.

Irrigation supplies water to agricultural lands. The percentage of irrigation cover determines the ability of the municipality to provide water when there is less precipitation. Irrigation in the municipality covers 70% of rice fields. Irrigation facilities in the municipality are provided by the National Irrigation Administration (NIA), Department of Agriculture (DA), and LGU-San Fernando.

According to the Municipal Agriculture Office (MAO), a total of 523 farmers applied for crop insurance. The number of farmers that applied for crop insurance indicates how many farmers will have the capacity to start again after a natural disaster since the losses can easily be recouped with the help of insurance. Local government units offer good opportunities to expand knowledge and hone technical skills of local farmers by providing worthwhile seminars and trainings. The local government unit of San Fernando—alongside other agencies—has conducted Farmers' Field School and Climate Smart Farm business School which enhances the knowledge of farmers about different farming practices.

Farmers' Field School in San Fernando is about Hybrid and inbred rice as well as corn production; it is attended by 30 farmers in every barangay and in different season. Also, the municipal agriculture office of San Fernando Conducted training on Value Adding and processing and record keeping to the RIC member as well as to the farmers'

association. It adds to the adaptive capacity of the municipality to play a role in food security. Also not just providing trainings and seminars, the Municipal Agriculture Office of San Fernando has its municipal nursery complex just to showcase the technology in farming because the mentality of most farmers is to see is to believe.

### **D.3 Risk Estimation**

There are 14 rice producing barangay and 9 corn producing barangay are flood exposed and risk susceptibility. The barangays with the largest exposed rice field areas to Flood include. Nacabuklad, Candelaria, Mabuhay, Kawayan, Magkalungay, Namnam, Iglugsad, San Jose, Cayaga, Sto. Domingo, Palacpacan Halapitan, Bonacao and Kalagangan. Also the barangay that has a largest exposed corn field areas to Flood include Tugop, Halapitan, Mabuhay, Kibongkog, Namnam, kalagangan, Cabuling, Durian, and Matupe. This area is at low flood exposure susceptibility and low risk category. This natural resource-based production areas at low exposure and risk to Flooding are partially upland areas composed of corn, banana, and other crops also rice areas. (See figure 3.12 on next page)

## **E. Natural Resource-Based (Forest)**

### **E.1 Exposure**

There is a total of 34,626.44 ha of natural resources-based on forest. Forestland are divided into 3 different types of forest which are Mossy Forest, Primary Forest, Secondary forest and Plantations (Falcata, Gmelina, Rubber tree, Mahogany, Mangium and etc.).

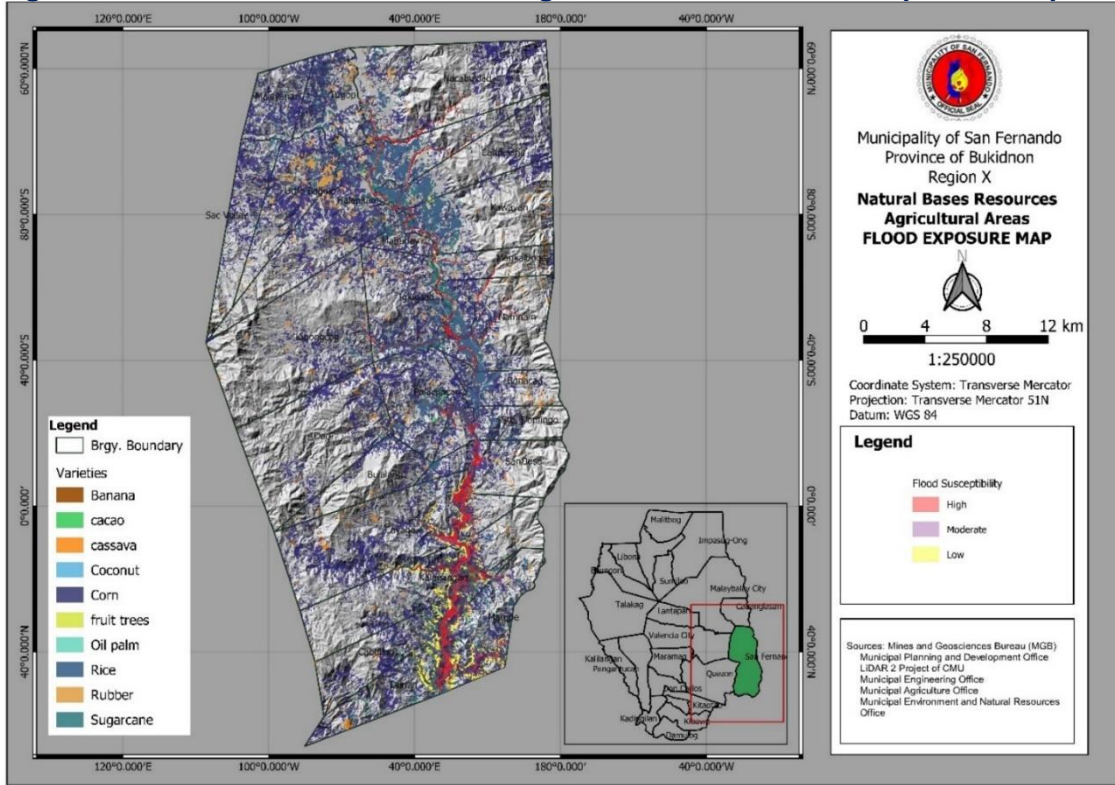
Based on the map above, there is a total of 2,138 ha forestland flooding exposure. For the detailed analysis, barangay Iglugsad has the highest expose with a total of 325 ha followed by Halapitan with a total of 316 and barangay San Jose has a lowest flood exposure with a total of 2 ha. In addition, based on the flood exposure map, a total 497 has exposed in high susceptibility followed by moderate with a total of 1,065 ha and low susceptibility with a total of 534 ha.

### **E.2 Risk Estimation**

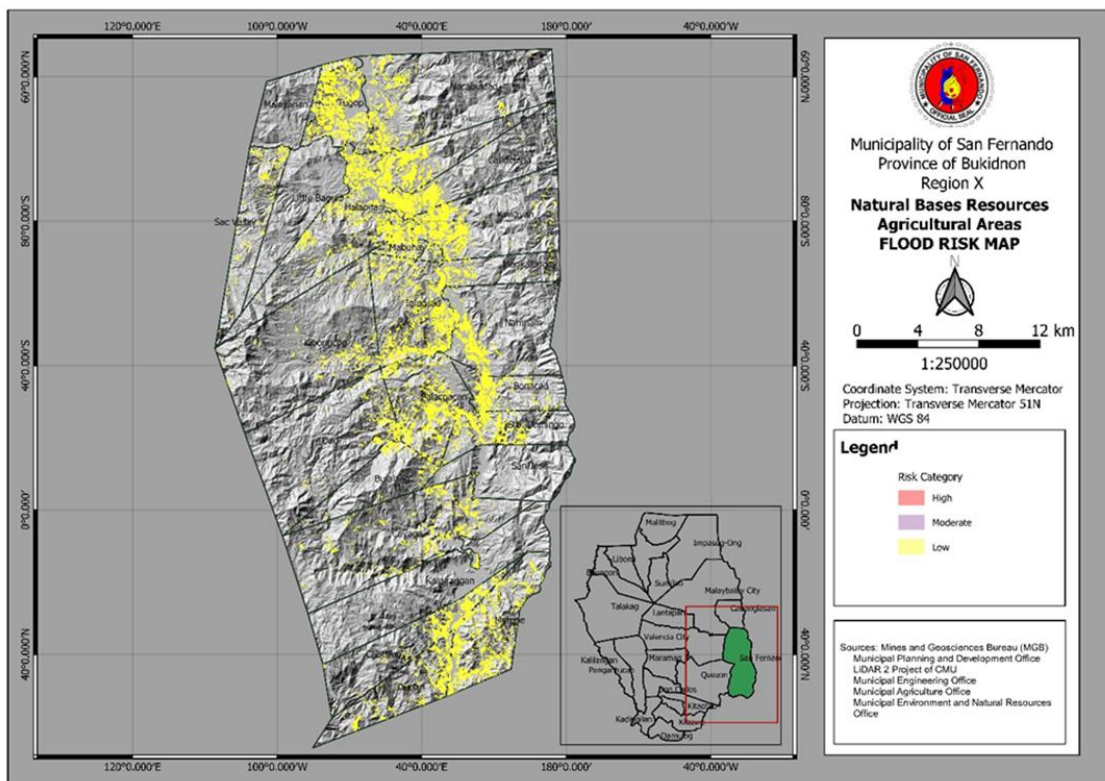
There is a total of 2,118.2 ha (2.6 %) of natural resources forest areas in which forest areas are affected in flood risk. All of the affected area is under the low risk because of the adaptive capacity and it highly adapt into hazard susceptibility specially the tree species. In addition, low risk flooding areas are located in the following barangay's; Halapitan, Iglugsad, Kawayan, Nacabuklad, Little Baguio, Magkalungay, Namnam, Cayaga, Candelaria, Kalagangan, Sto. Domingo, Kibongkog, Bonacao, Palacpacan and San Jose.



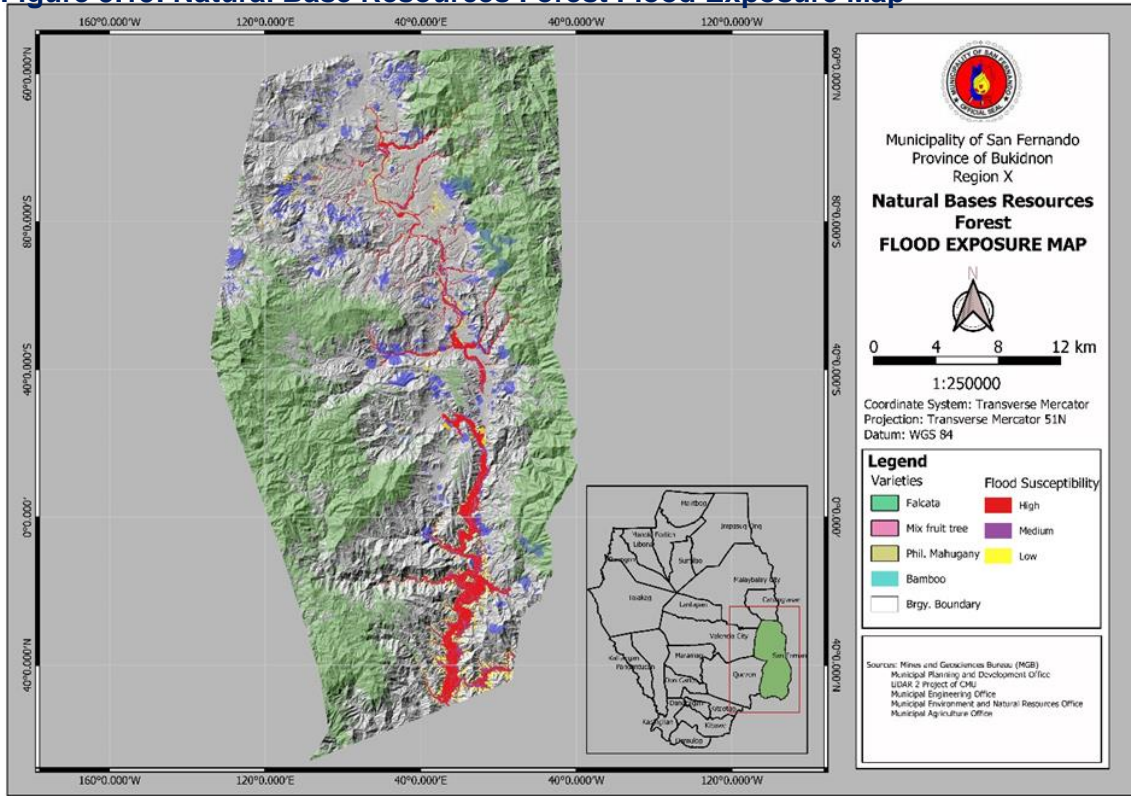
**Figure 3.11: Natural Base Resources Agricultural Areas Flood Exposure Map**



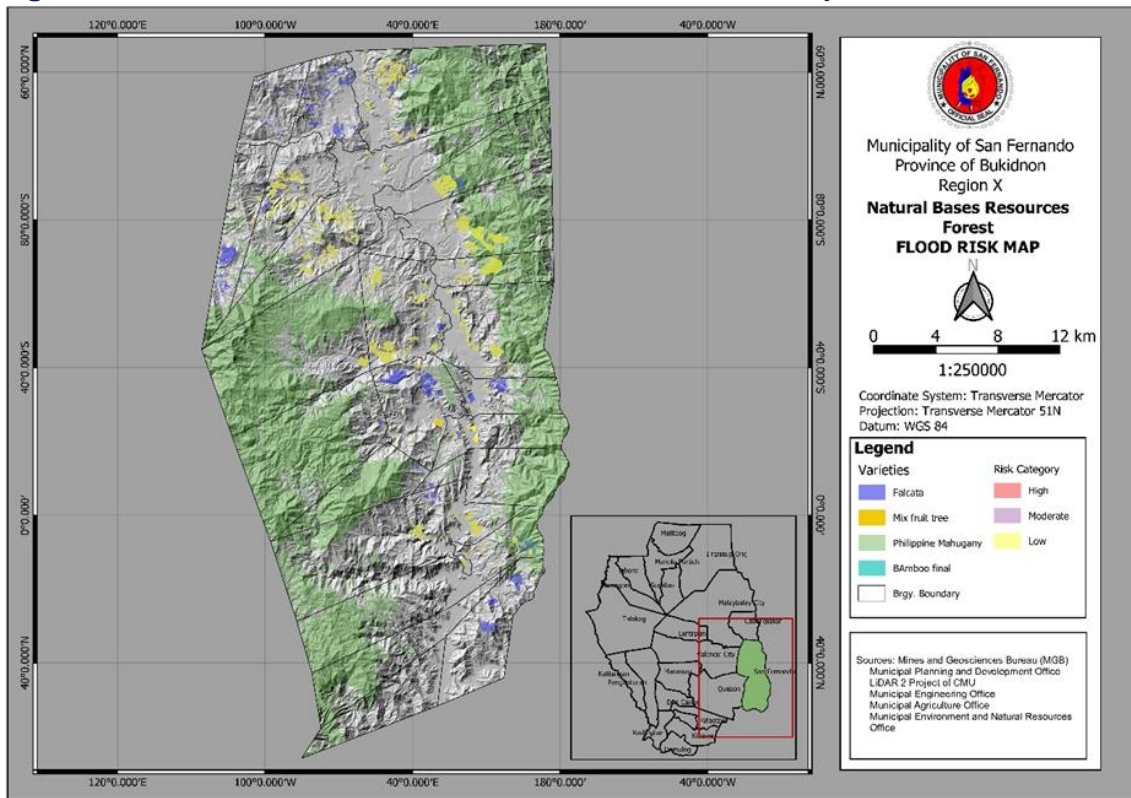
**Figure 3.12: Natural Base Resources Agricultural Areas Flood Risk Map**



**Figure 3.13: Natural Base Resources Forest Flood Exposure Map**



**Figure 3.14: Natural Base Resources Forest Flood Risk Map**



### **3.1.7 Landslide**

#### **A. Population/Urban Use**

##### **A.1 Exposure**

###### **Population:**

Total of 415.87 has or 95.75% residential area are exposed to landslide. There are 77.58 has or 18.66% are located in high landslide exposure, 81.30 has or 19.55% are moderate and 256.99 has or 61.80% are low.

###### **Urban Use:**

San Fernando has a total land area of 82,162 hectares and 80% of it is mountainous but a little part of it which about 4.33 hectares is exposed to high and moderate landslide susceptibility as noted in Table 3.35 (List of Barangay Exposed to Landslide) generated from Figure 3.16 (Urban Use Landslide Exposure Map). All 24 barangays have areas which identified with percent slope of 50% and above range based on the slope category of San Fernando. Land area which allocated with socialized housing projects to 0.65 hectares at Barangay Kibongcog is affected with high susceptibility of landslides while areas of a total of 0.94 hectares which allocated with agri-industrial infrastructures in 5 barangays namely Nacabuklad, Sacramento Valley, Iglugsad, Little Baguio and Namnam are also exposed to high landslide susceptibility. Moderate susceptibility is present in Barangay Halapitan and Little Baguio which allocated with commercial establishments and cemetery. Low occurrence of landslide is present in other barangays.

##### **A.2 Vulnerability (Sensitivity and Adaptive Capacity)**

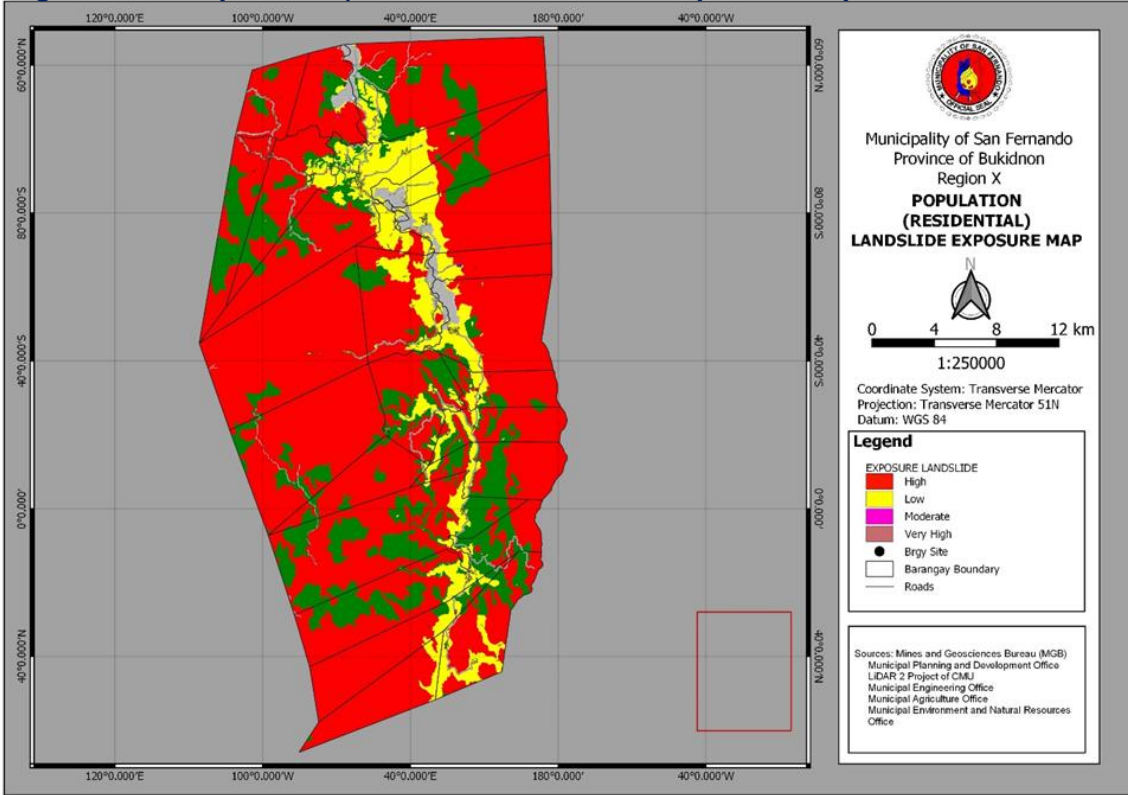
###### **Population:**

The identified vulnerabilities for the population are most of the population is living in areas with no legal claim or timberland, some are living in makeshift houses, using light materials; 71.1% of the population lives below poverty threshold; literacy and malnutrition were common vulnerability in the municipality.

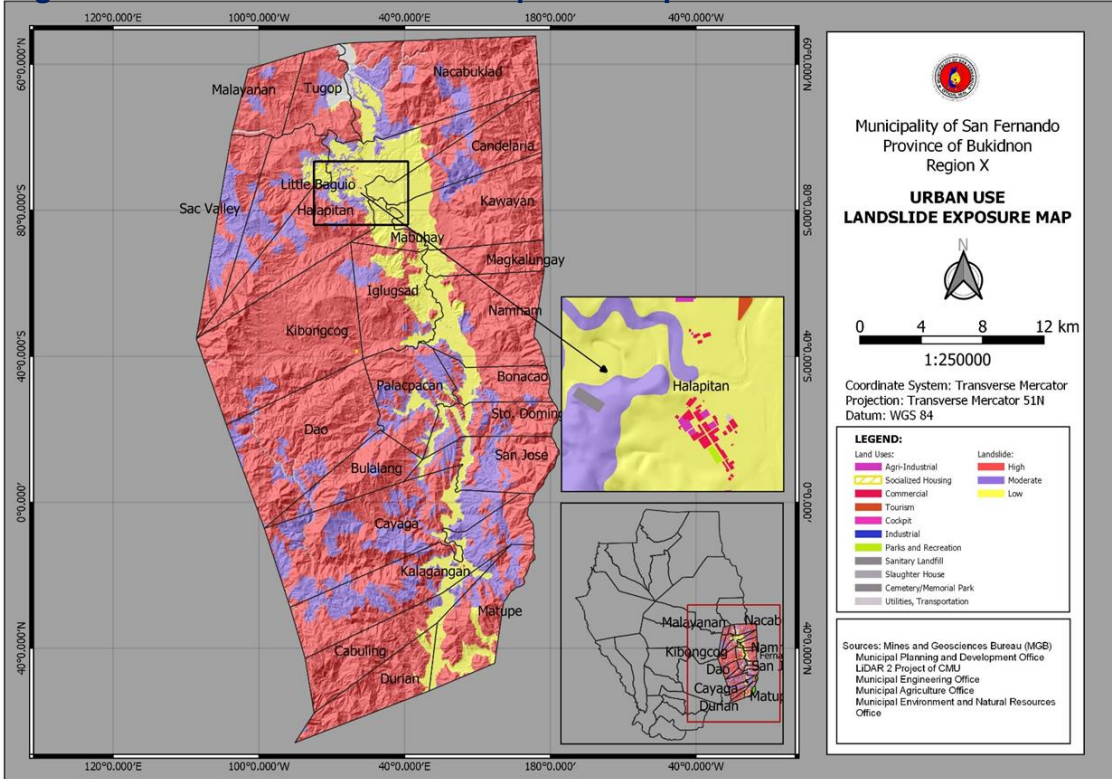
In terms of the adaptive capacity of the population, only of the population are members of the Pantawid Pamilyang Pilipino Program (4P's). Financial Assistance for senior citizens, solo parents, and poor families and PWDs are also provided. Financial Educational Assistance are given to deserving IP individuals for scholarship. For the IP's, Cash for work program from MSWDO exists in the Municipality which provides aid to those living below the poverty threshold. In terms of the government's capacity to generate job. This program aims to develop entrepreneur skills, alongside generating employment and skills development.

There are three socialized housing projects in the municipality located at Beverly Hills, Little Baguio, Purok 5, Iglugsad and Sitio Nangka, Kibongcog, all of San Fernando, Bukidnon.

**Figure 3.15: Population (Residential) Landslide Exposure Map**



**Figure 3.16: Urban Use Landslide Exposure Map**



### **Urban Use:**

As stated in Table 2 (List of Barangays Exposed to Landslide Susceptibility), generated from Figure 3.18 (Urban Use Landslide Risk Map), the damage or destruction is identified as low because agri-industrial structures only involve rice mill, cornmill and horizontal structure like solar drier pavements. Sensitivity is identified as very high due to highly elevated areas and presence of denuded forest. Adaptation for this hazard is somewhat high because there's a lot of project and programs conducted and implemented regarding reforestation to prevent suspected areas from forest denudation. Illegal logging is also strictly prohibited and forestal lands are regularly monitored. Trees especially rare types are geotagged by the MENRO foresters to control and prevent the forest from illegal logging activities. In case of the socialized housing site and cemetery, availability of alternative relocation site and new cemetery site is prioritized in the development plan.

## **A.3 Risk Estimation**

### **Population:**

There are no high and moderate landslide risk in the Municipality of San Fernando, Bukidnon. However, low landslide risk will affect 285 has of residential area or an approximate 40,917 individuals in the whole municipality.

### **Urban Use:**

A total possible cost of damage is about Php 88,000 as the result of the occurrence of landslide. This minimal destruction includes damage of agri-industrial facilities, commercial establishments, cemeteries and housing units.

## **B. Critical Facilities**

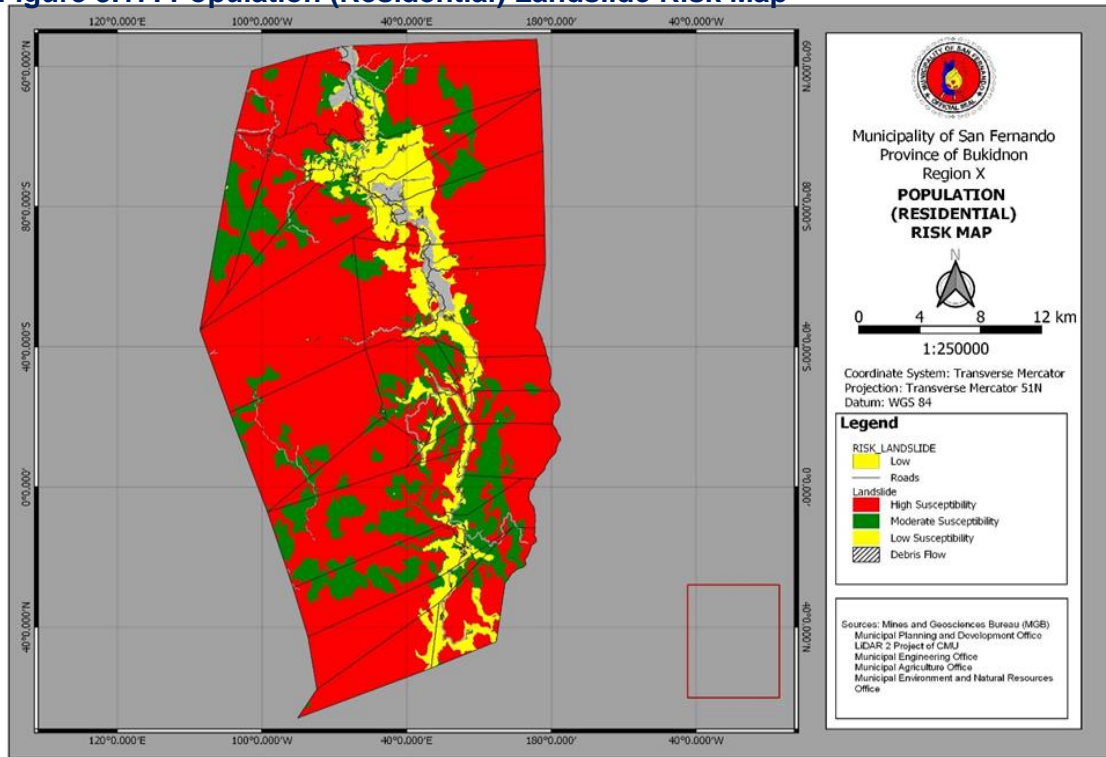
### **B.1 Exposure**

All barangays are exposed to Landslide, there are 20 critical point facilities which are moderately susceptible. In total, 80% of the facilities are exposed to Landslide.

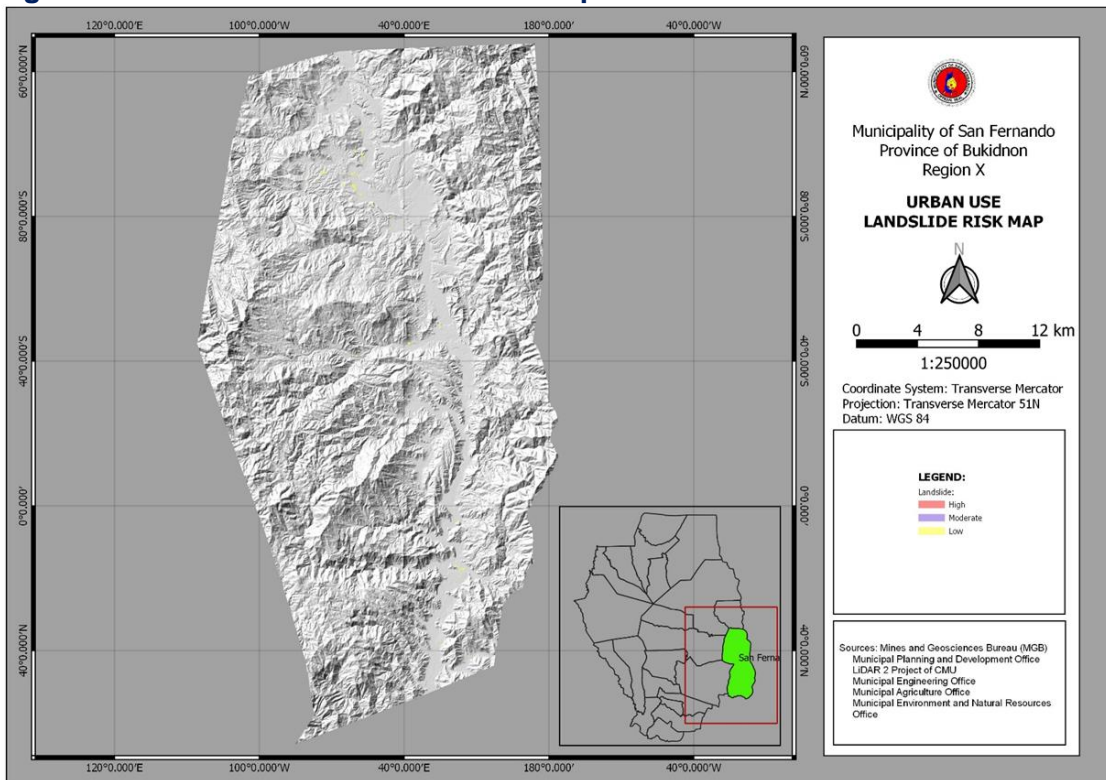
### **B.2 Risk Estimation**

There are 48 (11%) critical point facilities which are at risk to Landslide. There were no facilities identified to be at high risk to Landslide however, 60 were determined to be at moderate risk. These are located in Halapitan, Iglugsad, Palacpacan, Kalagangan, San Jose and Cabuling.

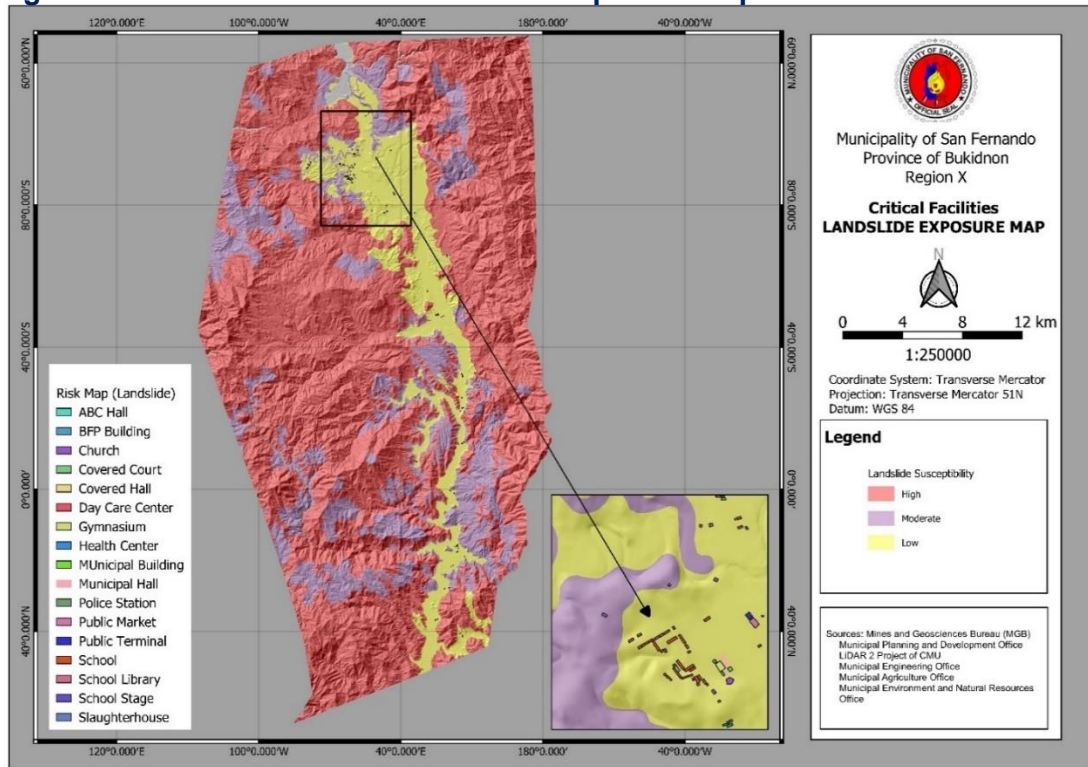
**Figure 3.17: Population (Residential) Landslide Risk Map**



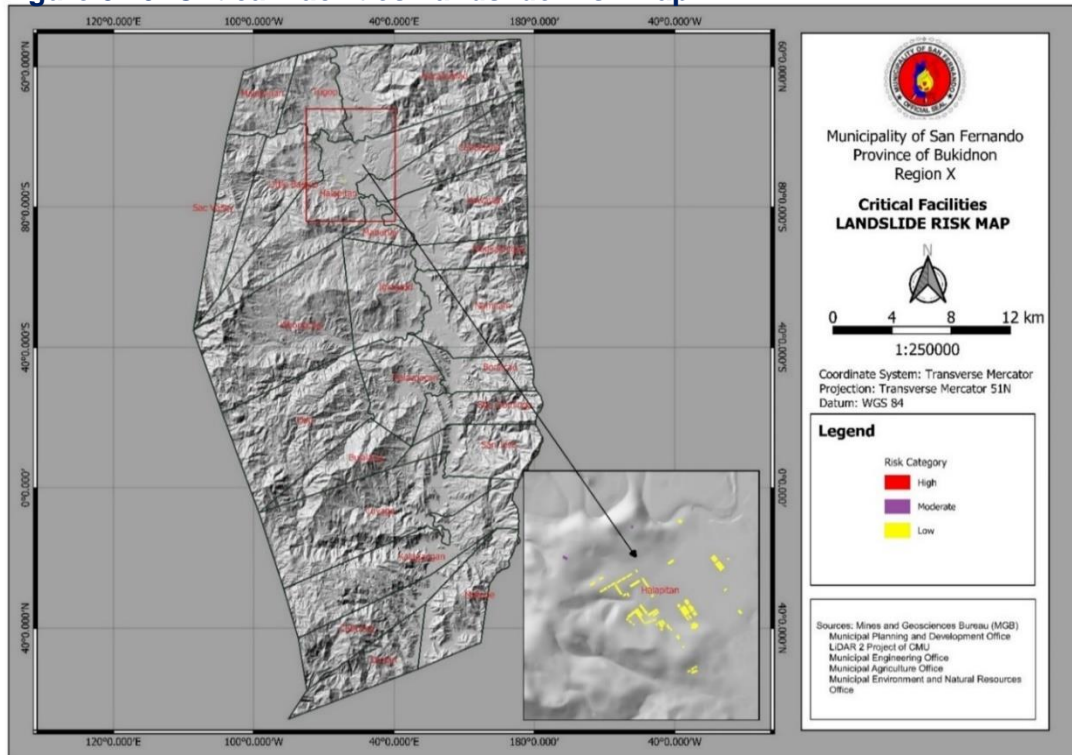
**Figure 3.18: Urban Use Landslide Risk Map**



**Figure 3.19: Critical Facilities Landslide Exposure Map**



**Figure 3.20: Critical Facilities Landslide Risk Map**



## **C. Lifeline Facilities**

### **C.1 Exposure**

The total length of the roads exposed to Landslide is 116057.688 KM (84.61%) and bridges were had a total length of 4736.147 Km. However, most of the roads from the said figure, with the total length of 49,573.343 KM, are located in areas with Moderate susceptibility to Landslide and 66484.345KM is highly susceptible to Landslide. These figures are composed of: 14036.371 km National Road, 7708.129 km Provincial Roads and 44703.097 km Municipal and Barangay Roads. Estimated value for all the roads exposed is Php 405,356,847.3M. Two bridges of municipality are highly susceptible to Landslide are in total of 164.42m. which is located in Barangay, Nacabuklad, Sacramento Valley and Malayanan.

### **C.2 Vulnerability (Sensitivity and Adaptive Capacity)**

Most of the roads (85.64%) in the municipality are with gravel surface. Bridges are concretized, steel and constructed with composite structure and although most are constructed a decade or more ago, they generally are in good condition since they are regularly monitored and repaired when needed by DPWH for national and provincial coverage. The lifeline facilities in the municipality, however, do not have adaptive capacities for potential hazards like insurance. Not relying on DPWH, municipal funds for road constructions, reconstructions, and repairs are also not enough.

### **C.3 Risk Estimation**

## **D. Natural Resource-Based (Agriculture)**

### **D.1 Exposure**

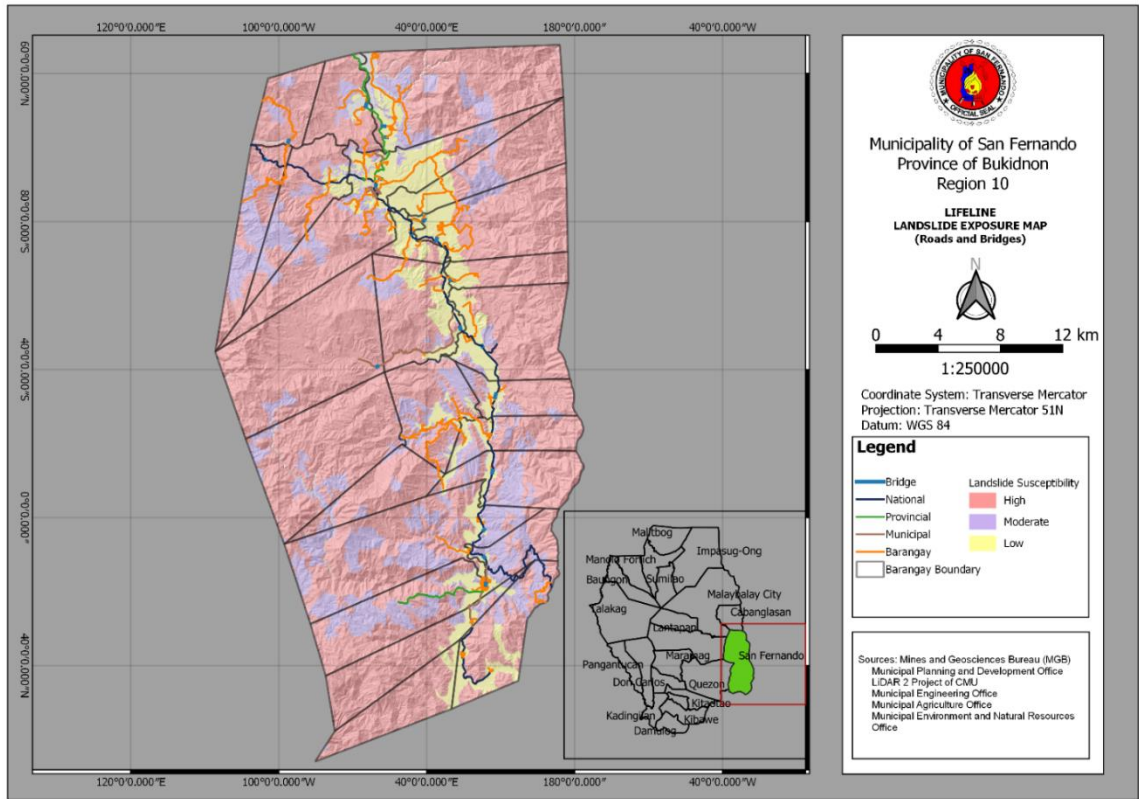
All 24 barangay area in the municipality of San Fernando, are landslide susceptible but most of the area are from non-rice production or the upland areas because most of this area are above 18% slope. Most areas are in low, moderate to high landslide susceptibility. 70% of the area are exposed to landslide. Most areas belongs to high landslide susceptibility are from corn areas because most of the area are above 18% slope and it cannot hold the soil tightly because corn belongs to a shallow rooted crops. Also most areas belongs to low to moderate susceptibility are from banana, cacao rubber and other crops, it is because this crops can hold the soil from run off and erosions.

### **D.2 Risk Estimation**

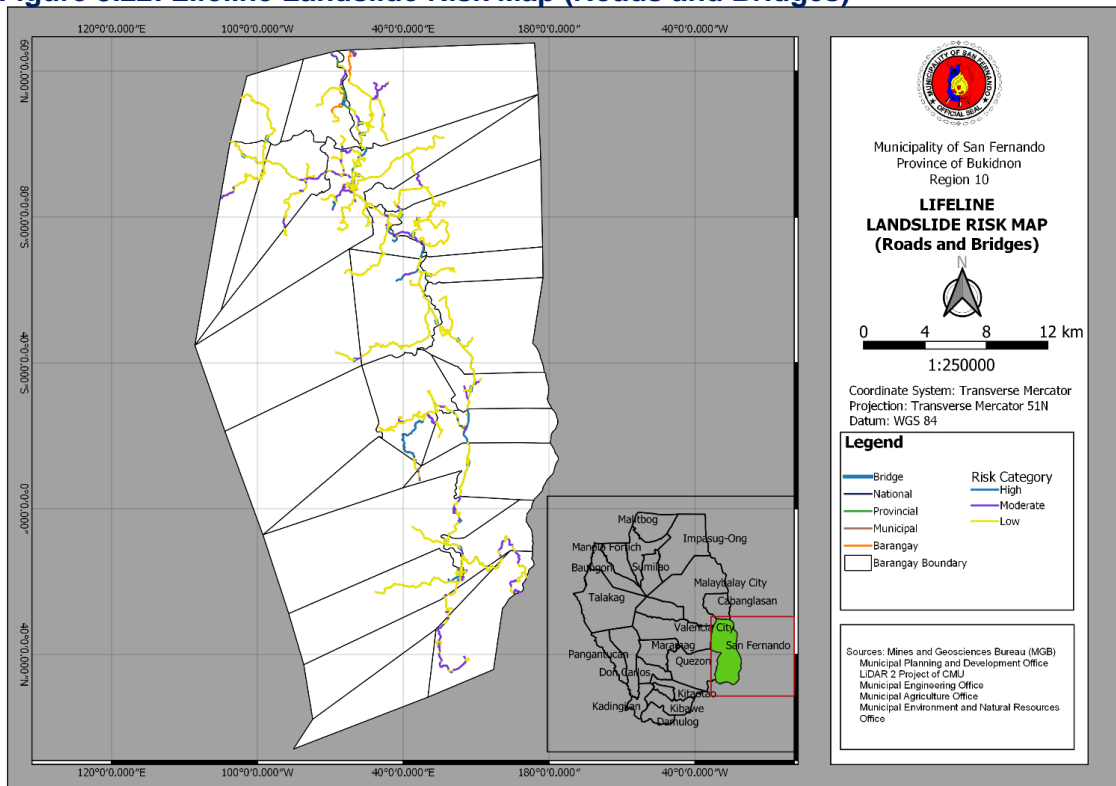
All 24 barangay in the municipality are in landslide susceptibility. There are 70% of the natural based resources production area belong to landslide risk susceptibility but it's in, low to moderate and some of it belong to high category. This includes barangay Malayanan, tugop, Nacabuklad, Sacramento Valley, Little Baguio, Halapitan, Mabuhay, Magkalungay, Namnam, Palacpacan, Iglugsad, Kibongkog, Dao, Bonacao, Candelaria, Kawayan, Sto. Domingo, Bulalang, San Jose, Cayaga, Kalagangan, Cabuling Durian and Matupe. However, this area is at mostly low to moderate and somehow high landslide risk susceptibility. Most of this Natural Based production areas are from non-rice areas or the upland areas like corn, Banana and other crops. *(See figure 27 on next page)*



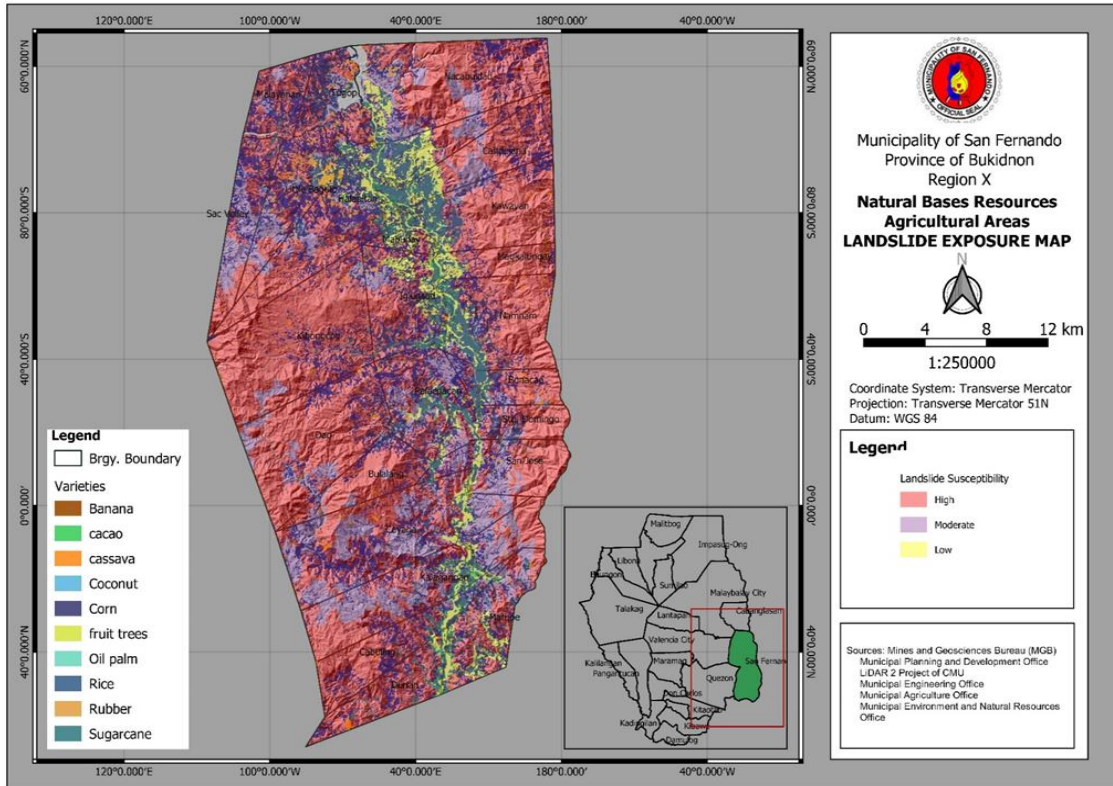
**Figure 3.21: Lifeline Landslide Exposure Map (Roads and Bridges)**



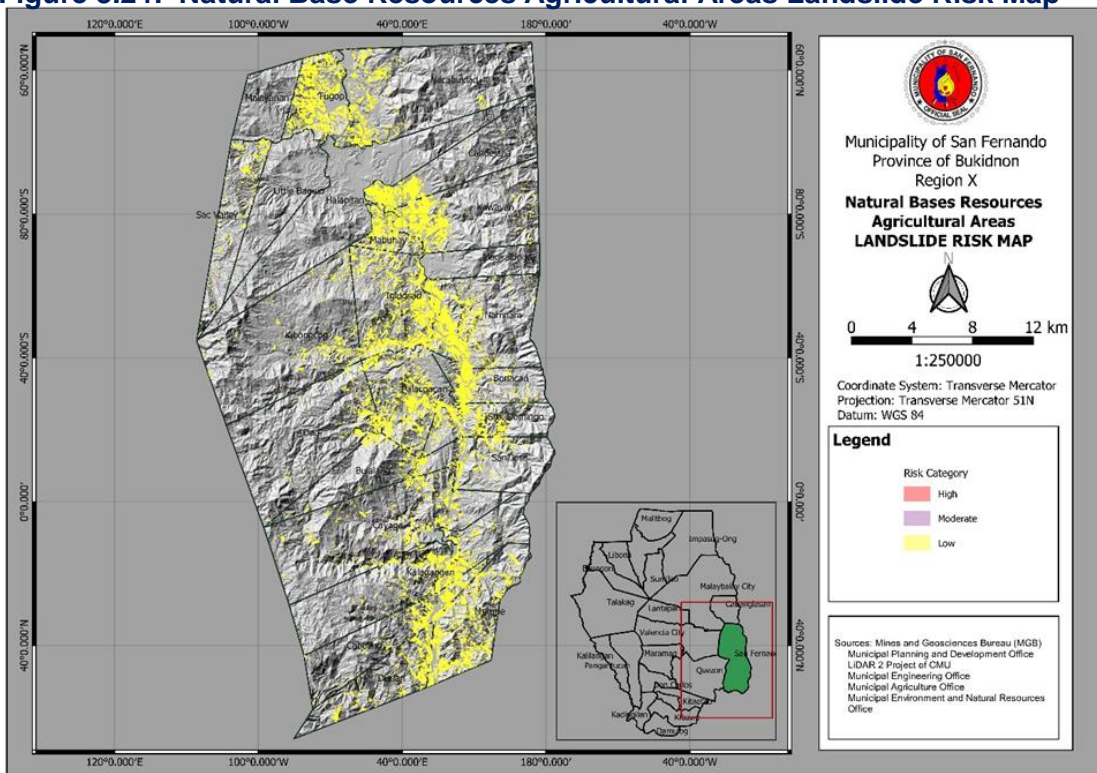
**Figure 3.22: Lifeline Landslide Risk Map (Roads and Bridges)**



**Figure 3.23: Natural Base Resources Agricultural Areas Landslide Exposure Map**



**Figure 3.24: Natural Base Resources Agricultural Areas Landslide Risk Map**



## **E. Natural Resource-Based (Forest)**

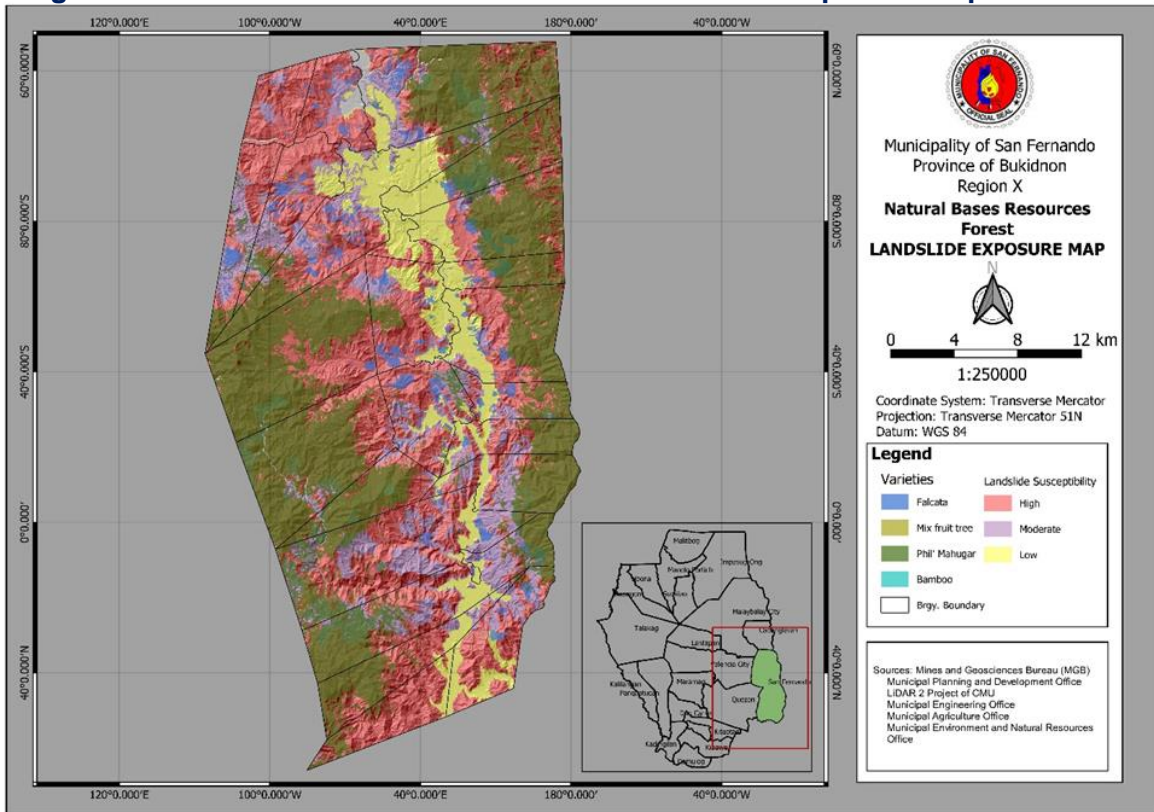
### **E.1 Exposure**

There is a total of 34,506.135 ha (42.5%) of Forestlands susceptible to Landslide. About 29,676.603 ha (36.6%) of Forestland are exposed to high landslide susceptibility while 4,472.144 (5.5%) are exposed to moderate landslide susceptibility and only 357.392 hectares (0.44%) are exposed to low landslide susceptibility (as shown in Figure above). Almost all barangays of the Municipality are prone to landslide. This is due to the fact that majority of the land of San Fernando is mountainous and steeper in terms of slopes. Highly susceptibility areas are the following; Barangay Nacabuklad, Candelaria, Kawayan, Magkalungay, Namnam, Bulalang, Dao, Cabuling, Kibongcog, Bonacao, Sto. Domingo, Kalagangan, Halapitan, San Jose and a small portion of land areas of Barangay Durian, Matupe, Iglugsad, Palacpacan, Tugop, Malayanan, Little Baguio, Cayaga and Sacramento Valley with the total of 2230 has. On the other hand, moderate landslide susceptibility also affects a small portion of land in Barangay Nacabuklad, Candelaria, Bulalang, Dao, Kibongcog, Palacpacan, Bonacao, San Jose, Sto. Domingo, Kalagangan, Halapitan, Matupe, Iglugsad, Little Baguio, Cayaga and Sacramento Valley a total of 9752.2 has. Moreover, low landslide susceptibility occupies a small portion of land in Barangay Nacabuklad, Candelaria, Magkalungay, Halapitan, Sto. Domingo, Namnam, Palacpacan, Bonacao, Matupe, Iglugsad and Cayaga total of 22550.7 ha.

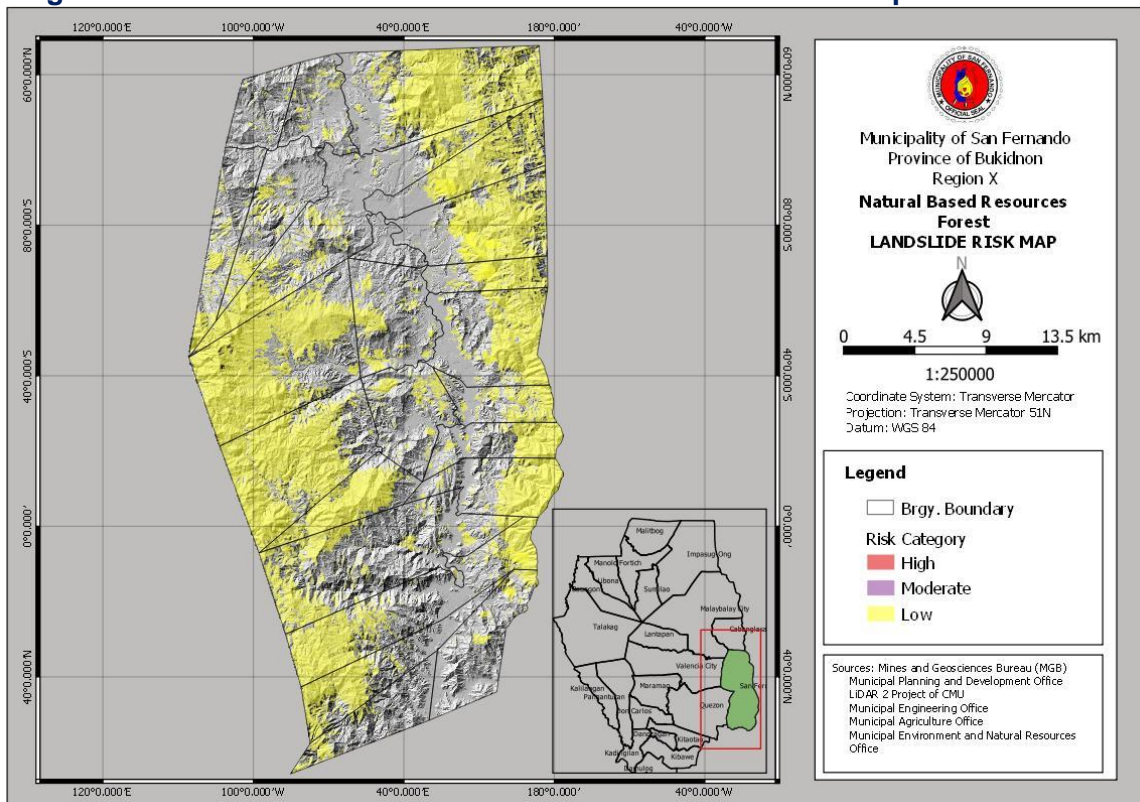
### **E.2 Risk Estimation**

There is a total of 2,118.2 ha (2.6 %) of natural resources forest areas in which forest areas are affected in flood risk. All of the affected area is under the low risk because of the adaptive capacity and it highly adapt into hazard susceptibility specially the tree species. In addition, low risk flooding areas are located in the following barangay's; Halapitan, Iglugsad, Kawayan, Nacabuklad, Little Baguio, Magkalungay, Namnam, Cayaga, Candelaria, Kalagangan, Sto. Domingo, Kibongkog, Bonacao, Palacpacan and San Jose.

**Figure 3.25: Natural Base Resources Forest Landslide Exposure Map**



**Figure 3.26: Natural Base Resources Forest Landslide Risk Map**

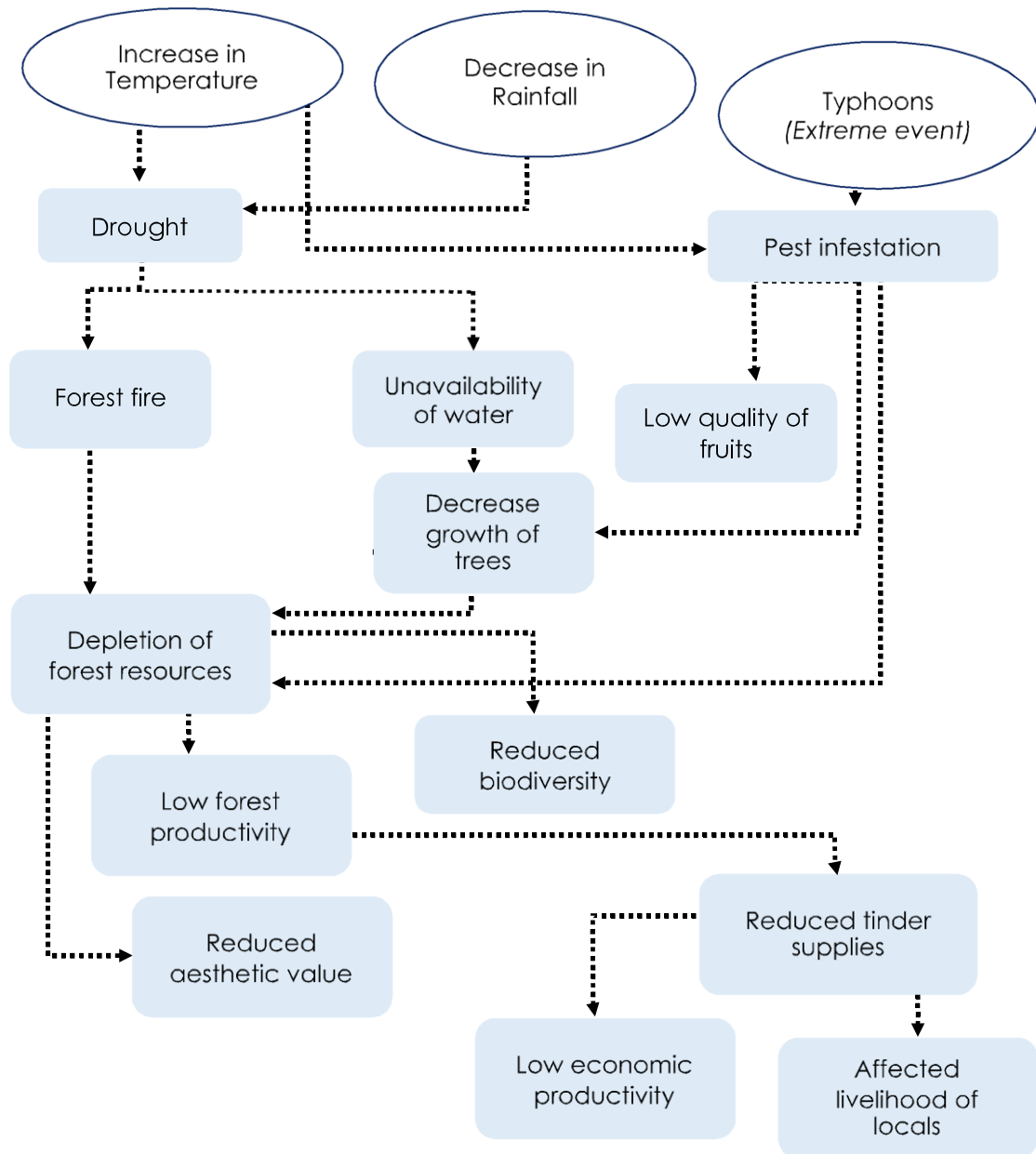


### 3.1.8 Climate Change Impact Chain Analysis

#### A. Increase in Temperature/ Increase in Rainfall

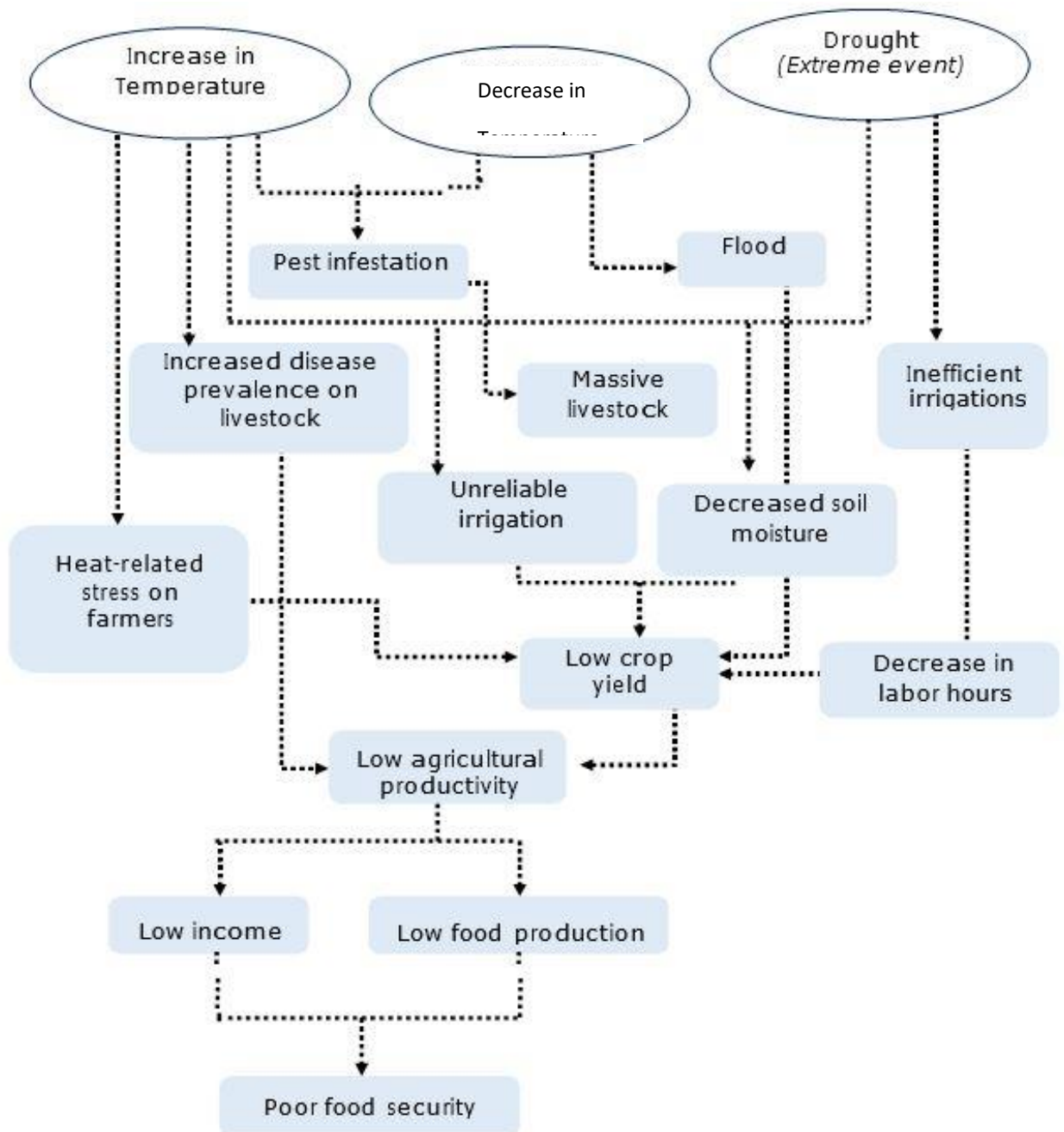
##### A.1 Forest Ecosystem

Figure 3.27: Impact Chain Diagram (Forest)



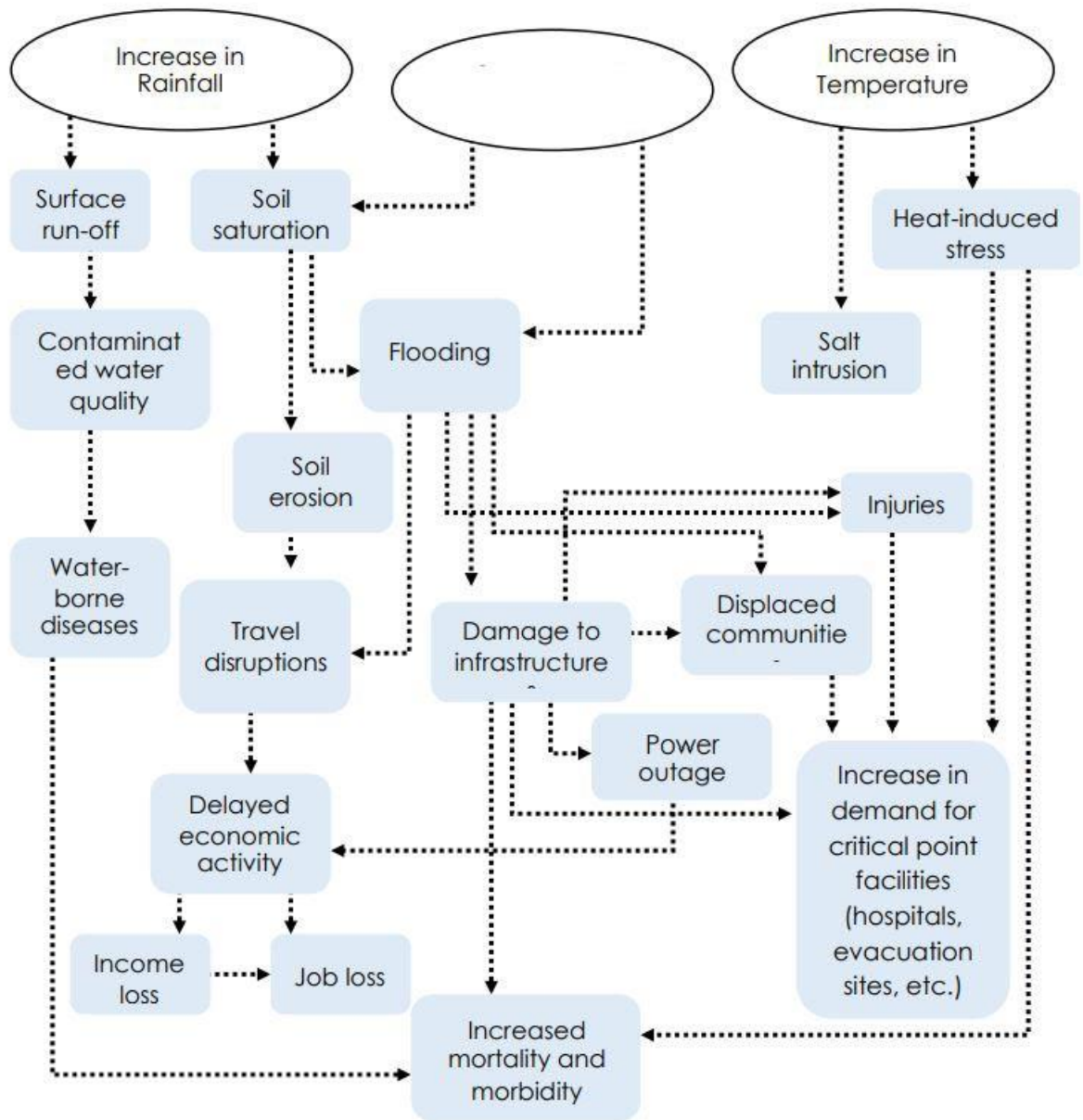
## A.2 Agriculture Ecosystem

Figure 3.28: Impact Chain Diagram (Agriculture)



### A.3 Urban Ecosystem

Figure 3.29  
Impact Chain Diagram (Urban)



### 3.1.9 Major Decision Areas

#### A. Issue Matrix (Residential )

A Decision Areas	B Description	C Problems/ Hazards	D Impacts/ Implications	E Policy Intervention
Residential Areas (portion) at Barangay Candelaria, Kawayan, Iglugsad & Mabuhay	Area located near the Tigua River	Area prone to river flooding, potential area for scouring that may cause damage to houses & properties	<ul style="list-style-type: none"> <li>• Severe potential damages to residential houses due to floods</li> <li>• Potential injuries and casualties during floods</li> <li>• Construction of Flood Control Dikes along the river &amp; other mitigation measures to retain existing land uses.</li> <li>• Future uncontrolled growth of settlements may increase exposure and risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of Early Warning System and formulation of flood contingency plan to lessen injuries and casualties during floods.</li> <li>• Land Banking are encourage to prepare future relocation site</li> </ul>
Residential Areas at Barangay Tugop	Area located near the Tigua River & Pulangui River	<ul style="list-style-type: none"> <li>• Area are prone to river flooding, potential area for scouring that may cause damage to houses &amp; properties</li> <li>• Area are prone to flooding due to its plain terrain</li> </ul>	<ul style="list-style-type: none"> <li>• Severe potential damages to residential houses, farms due to floods</li> <li>• Potential injuries and casualties during floods</li> <li>• Construction of Flood Control Dikes along the river &amp; other mitigation measures to retain existing land uses.</li> <li>• Future uncontrolled growth of settlements may increase exposure and risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of Early Warning System and formulation of flood contingency plan to lessen injuries and casualties during floods.</li> <li>• Land Banking are encourage to prepare future relocation site</li> </ul>



### B. Issue Matrix (Urban Use)

A Decision Areas	B Description	C Problems/ Hazards	D Impacts/ Implications	E Policy Interventions
<b>Agri-Industry</b> -Namnam  -Mabuhay  -Kalagangan	-The location is near the visibility of Namnam River  - The location is near the visibility of Mabuhay River  - The location is near the visibility of Simsimon River	-Area is prone to high flood susceptibility  -Area is exposed to moderate flood susceptibility  -Area is exposed to moderate flood susceptibility	<ul style="list-style-type: none"> <li>• Increased surface run-of</li> <li>• Occurrence of flood</li> <li>• Damage to agri-industrial facilities</li> <li>• Business temporary shutdown</li> <li>• Loss of income</li> <li>• High expenditure for renovation or new construction</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of standard drainage system</li> <li>• Construction of flood control system</li> <li>• Construction of dikes</li> <li>• No build along the river easements</li> </ul>
<b>Cemetery</b> -Cayaga  -Kalagangan	-The location is near the visibility of Mambuaya River  -- The location is near the visibility of Simsimon River	-Area is prone to high flood susceptibility  -Area is exposed to moderate flood susceptibility	<ul style="list-style-type: none"> <li>• Increased surface run-off</li> <li>• Occurrence of flood</li> <li>• Damage to structures</li> <li>• Loss of barangay income</li> <li>• Loss of funeral services</li> <li>• High expenditure of repair and renovation or new construction</li> <li>• Slippery pathways</li> <li>• Clogged drainage</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of standard drainage system</li> <li>• Construction of flood control system</li> <li>• Construction of dikes</li> <li>• No build along the river easements</li> <li>• Availability of new cemetery site</li> </ul>
Agri-industrial -Nacabuklad -Sacramento Valley -Iglugsad -Little Baguio -Namnam	-these areas are mountainous with a maximum slope of 50% and above range.	-Areas are exposed to high landslide susceptibility	<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Occurrence of landslide</li> <li>• Damage of land property</li> <li>• Damage of infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of retaining wall</li> <li>• Riprapping</li> <li>• Conduct of National Greening Program</li> </ul>

	-		<ul style="list-style-type: none"> <li>• High expenditure for renovation</li> <li>• Loss of livelihood</li> <li>• Business temporary shutdown</li> <li>• Loss of post-harvest infrastructure and support facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of Brgy Nursery for the reproduction of seedlings to support regular conduct of tree planting activities</li> </ul>
<p>Socialized Housing</p> <p>-Brgy</p> <p>-Kibongcog</p>	-Area is mountainous with a maximum slope range of 30-50%	Area is exposed to high susceptibility of landslide	<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Occurrence of landslide</li> <li>• Damage of housing units</li> <li>• Damage of land property</li> <li>• High expenditure for renovation</li> <li>• Slippery roadways</li> <li>• Damage of drainage system</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of retaining wall</li> <li>• Riprapping</li> <li>• Concreting of roadways</li> <li>• Availability of alternative relocation site</li> </ul>
<p>Commercial</p> <p>-Halapitan</p> <p>-Little Baguio</p> <p>-Sto Domingo</p>	Area is surrounded with sloping land partitions with a sloping range of 30%-50% and 50% above.	Area is exposed to medium susceptibility	<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Occurrence of landslide</li> <li>• Damage of land property</li> <li>• Damage of structures</li> <li>• Slippery pathways</li> <li>• Damage of various products</li> <li>• Business shutdown</li> <li>• Loss of income</li> <li>• Unemployment</li> <li>• High expenditure for renovation</li> </ul>	<ul style="list-style-type: none"> <li>• Use of standard materials for construction</li> <li>• Construction of retaining walls</li> <li>• Riprapping</li> <li>• Availability of alternative location for new construction</li> <li>• Reforestation</li> </ul>

			<ul style="list-style-type: none"> <li>• Loss of post-harvest infrastructure and support facilities</li> </ul>	
Cemetery -Halapitan	Area is located at high and sloping location with a range of 18%-30% slope	Area is prone to medium susceptibility	<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Occurrence of landslide</li> <li>• Damage of structures</li> <li>• Loss of municipal income</li> <li>• Loss of funeral services</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of new cemetery site</li> <li>• Riprapping</li> <li>• Construction of retaining wall</li> <li>• Reforestation</li> <li>•</li> </ul>

### C. Issue Matrix (Critical Facilities)

A	B	C	D	E
Decision Area/s	Description	Problems/ hazards	Impacts/ Implications	Policy Interventions
Sacramento Valley (Covered Court, Health Center, Barangay Hall, Day Care Center, Elem. School, Iglesia Sa Dios Church)	Areas are located at steep slope of Barangay Sacramento Valley	Areas are prone to landslide since there is a soil liquefaction happen at present	-Future uncontrolled growth of settlements may increase exposure and risks -Potential damages to facilities due to landslide	-Conduct of existing structural condition assessment -Ensure property insurance -Impose implementation of hazard resistant structural design in the construction/rehabilitation of infrastructure
Malayanan (Covered Court, Barangay Hall, Health Center, Lupon Building, Elem. School, Day Care Center)				-Provision of additional lifesaving facilities and early warning system -Construction of additional evacuation centers for all barangays
Little Baguio (Elem. School)	Areas are located at steep slope of Barangay Sacramento Valley			-Additional health facilities and supply in all barangay health center
Halapitan (Ilian Elem. School, Santa Cruz Elem. School)				-Improve all communication services for all barangays
Magkalungay (Elem. School)				-Relocate facilities in low-risk areas
Iglugsad (Brgy Hall, Covered Court, Health Center, Day Care Center, Elem School)				
Kibongkog (Brgy Hall, Covered Court, Health Center, Day Care Center, Elem School)				

### D. Issue Matrix (Forest)

A	B	C	D	E
Decision Area/s	Description	Problems/ hazards	Impacts/ Implications	Policy Interventions
<ul style="list-style-type: none"> <li>• Magkalungay</li> <li>• Cayaga</li> <li>• Dao</li> <li>• Bulalang</li> <li>• Kalagangan</li> <li>• Halapitan</li> <li>• Kawayan</li> <li>• Bonacao</li> </ul>	<p>Area located at mount Pantaron range, Bulalang range, Dao range and Kibongkog range</p>	<ul style="list-style-type: none"> <li>• Illegal logging</li> <li>Deforestation/ Kaingin</li> </ul>	<ul style="list-style-type: none"> <li>• Landslide</li> <li>• Flood</li> <li>• Disturbance of animals</li> <li>• Immigration of Animals</li> <li>Disturbance of animals habitat</li> </ul>	<ul style="list-style-type: none"> <li>• RA 7586-NIPAS law</li> <li>• RA 9147-Wildlife act.</li> <li>• PD 705-Revised</li> <li>• Forest law</li> </ul>



### F. Issue Matrix (Lifeline)

Concreting the roads with gravel and trail surfaces is an effective intervention for more effective coping up with the hazards that may occur in the municipality. Aside from the durability that the concretizing contributes, accessibility to the essential services would be easier. Several proposals from the Municipal Planning and Development Office were submitted regarding concretization of the unpaved roads. Also, during hazard events and rescue operations should be done, easy access to roads and more assured and clearer rescue instructions from the Barangay Captains will be received if roads and streets would be named in a form of resolution. Construction of bridges is also important, as there are some areas in the municipality which are not accessible in flood events.

A	B	C	D	E
Decision Areas/s	Description	Problems/ hazards	Impacts/ Implications	Policy Interventions
-Malayanan -Sacramento Valley	-Footbridge -Salolong Bridge	Footbridge is Danger and prone of Flood	Mildly Severe implication for damage of Base and Deck due to flood	Establishing Flood Control
Halapitan	-Comawas- BarangayTugop -SDA Road -Sta. Cruz Road -San Isidro Road -National Road- Kapalong-Davao -Tourism Road -Colon Road -New Cemetery Road	Road is prone for Flood and Scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
	Nala Footbridge	Footbridge is Danger and prone of Flood	Severe implication for damage of Base and Deck due to flood	Establishing Flood Control and Tree Planting along river

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Decision Area/s</b>	<b>Description</b>	<b>Problems/ hazards</b>	<b>Impacts/ Implications</b>	<b>Policy Interventions</b>
Nacabuklad	Brgy Road 4	Road is prone for Flood and Scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
Mabuhay	-National Road Kapalong-Davao -Brgy Road 2 -Brgy Road 4 -Street Road 4 -Street Road 3 -Street Road 1 -Mabuhay Bridge			
	-Malambago- Magkalungay Road -Magkalungay Footbridge			
Magkalungay	Candelaria Road 2	Spillway is prone for Flood and Scouring	Severe implication for damage of concrete slab and culvert	Replace Bridge or Implement Bigger Triple Barrel Culvert
Candelaria	Spillway			
Kawayan	-Brgy Road 3 -Sitio Dam Road	Road is prone for flood and scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
	Kawayan Footbridge	Footbridge is Danger and prone of Flood and Dilapidated	Severe implication for damage of Deck slab result falling	Replace or alter into Concrete Bridge



A	B	C	D	E
Decision Area/s	Description	Problems/ hazards	Impacts/ Implications	Policy Interventions
Iglugsad	-Iglugsad-Kibongcog -Street Road 1 -Street Road 2 -Street Road 3	Road is prone for flood and scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
Kibongkog	Spillway	Spillway is prone for Flood and Scouring	Severe implication Impact for damage of concrete slab and culvert	Replace Bridge or Implement Bigger Triple Barrel Box Culvert
Namnam	-Sumpitan Bridge -Balakayo Bridge	Bridge is Danger and prone of Flood and Base Scouring	Severe implication for damage of Deck slab result	Establishing Flood controls, Riprapping Sloping Area and Construction of Gabions
	-ARISP III Road -Namnam Road 5 -Namnam Road 1 -National Road- -Kapalong Davao -National Road-Kapalong Davao -Namnam - Laac Road	Road is prone for flood and scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
Sto. Domingo	-National Road-Kapalong Davao -Street Road 1 -Street Road 1 -Brgy Road 8 -Street Road 7			
San Jose	-National Road-Kapalong Davao -Street Road 3 -Street Road 2			
Palacpacan Dao	Brgy Road			

A	B	C	D	E
Decision Area/s	Description	Problems/ hazards	Impacts/ Implications	Policy Interventions
Cayaga	National Road-Kapalong Davao -Street Road 2 -Street Road 8 -Street Road 5 -Street Road 1 -Street Road 6 -Street Road 3	Road is prone for flood and scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
Kalagangan	-Street Road 1 -Street Road 2 -Street Road 5 -Street Road 6 -Street Road 7 -Sitio Road -Street Road 19 -Street Road 20			
Bonacao	National Road-Kapalong Davao Bonacao Bridge	Bridge is Danger and prone of Flood and Base Scouring	Severe implication for damage of Deck slab result	Establishing Flood controls, Riprapping Sloping Area and Construction of Gabions
Kalagangan	-Kalagangan Bridge			
Cayaga	Cayaga Bridge			
Matupe	-Matupe National Road -Street Road 4 -Street Road 2 -Street Road 3 -Street Road 1	Road is prone for flood and scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
Cabuling	-Municipal Road -Street Road 1 -Street Road 2 -School Road			
Durian	-Street Road 1 -Street Road 2 -Street Road 5 -Street Road 6			

	-Street Road 4 -Street Road 3			
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<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Decision Area/s</b>	<b>Description</b>	<b>Problems/ hazards</b>	<b>Impacts/ Implications</b>	<b>Policy Interventions</b>
Halapitan	Nala Footbridge	Footbridge is Danger and prone of Flood and Base Scouring	Severe implication for damage of Deck slab result	Establishing Flood controls, Riprapping Sloping Area and Construction of Gabions
	-Nala Road 1 -Nala Road 2	Road is prone for flood and scouring	Severe implication for damage of concrete pavement and Surface Gravel due to flood	Establishing Flood Control & Ditching Tree Planting Along River
Nacabuklad	Barangay Road 2 Barangay Road 3 Comawas-Brgy. Tugop			
Kawayan	Sitio Kaminungahan-Sitio Dam Road			
Kalagangan	Municipal Road			
Candelaria	Candelaria Rd 2 Candelaria Rd 3 Candelaria Rd 4			
Magkalungay	Malambago, Magkalungay Road			
Matupe	Street Road 1 Street Road 1			
Cabuling	Street Road 4			
Tugop	Tugop-Crossing Cabulohan			
Sto. Domingo	Sto.Domingo-Palacpacan Road			
Cayaga	Lugawon Road			

## 3.2 ECOSYSTEMS AND BIODIVERSITY

### A. Introduction

The research team of Central Mindanao University (CMU) had conducted Biodiversity Study in selected Mountain Ecosystems of Mindanao for Conservation and Sustainable Development. Thus, Barangay Magkalungay of the Municipality of San Fernando is one of the biodiversity hot spots and conservation areas of Mindanao cited by the said agency. The study is implemented with the collaborating agencies namely: 1. University of Philippines Los Baños (UPLB), 2. National Museum of the Philippines (NMP), and 3. Davao Oriental State College of Science and Technology (DorSU) with the joint support of Department of Environment and Natural Resources (DENR) and Center for Biodiversity Research and Extension in Mindanao (CEBREM). It is funded and monitored by the Department of Science and Technology (DOST). The ongoing three-year implementation duration was started last December 1, 2018 and will probably end on November 30, 2021.

Barangay Magkalungay, with a land area of 1,436.67 hectares, has a forestal land of about 1,246.17 hectares or 86.74% of barangay's total land area. Approximately, 75% of land cover is composed mostly of mossy and primary forests. Aside from that, the barangay is also one of the twelve stewards of Registered Integrated Social Forestry/Community-Based Forestry Management (ISF/CBFMA). The cited area has a varied habitat types and landscapes which contribute to high degree of biological diversity that deserves a concerted conservation effort.

### B. Methods

The three sampling sites at Pantaron Range are Mt. Bungkasan, Mt. Nabagkesan and Mt. Malimumu. The study focused on the fauna, flora and aquatic diversity using different sampling techniques and related diversity indices. Biodiversity parameters such as Shannon Diversity Index and Simpson Dominance index were computed for the various sampling sites using bird-sampling data.

### C. Results and Discussions

#### C.1. Fauna Report

There are four classes of vertebrate species involved in the fauna concentration namely; amphibians, reptiles, birds and mammals. In terms of species inventory, the highest number of vertebrates which were recorded to occur in different types of vegetation are bird species composed of 35 counts which represents 4.38% of the total number of bird species in the Philippines followed by 17 (7.23%) reptiles, and 15 (8.57%) mammals. The lowest number belongs to amphibians with 14 (13%) species. (See Figure 3.30)

Using Shannon (Figure 3.31) and Simpson (Figure 3.32) indices, out of 3 cited sampling area, the highest diversity index belongs to Mt. Malimumu when identified graphically using the rarefaction plot in shown in Figure 3.33.

Figure 3.30: Species Composition of Vertebrates in Mt. Malimumu

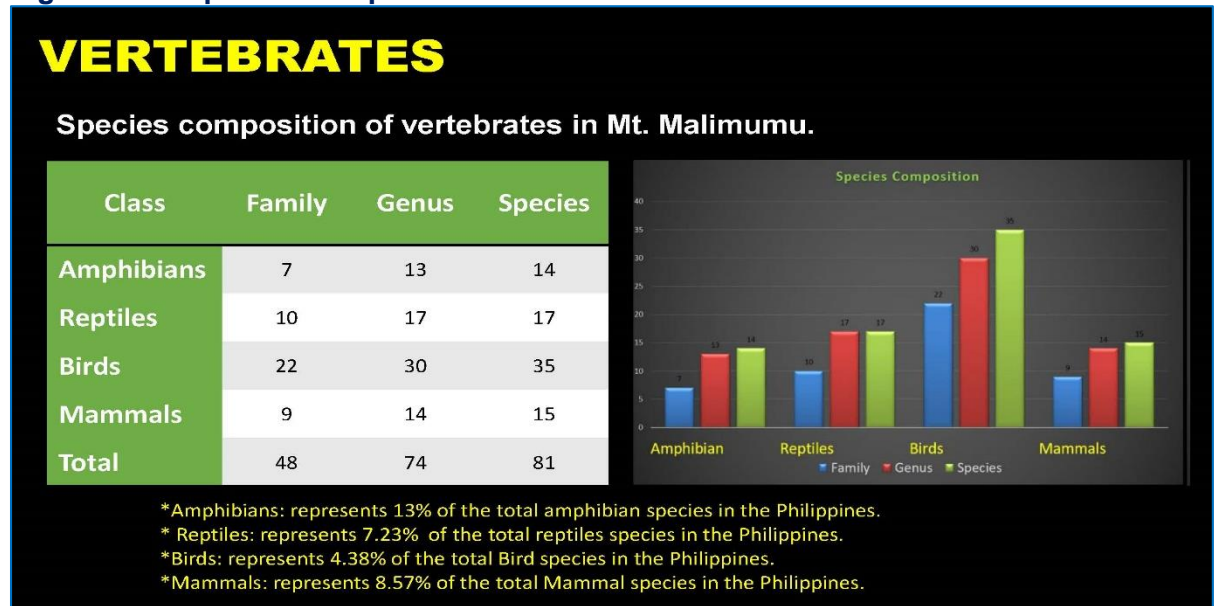
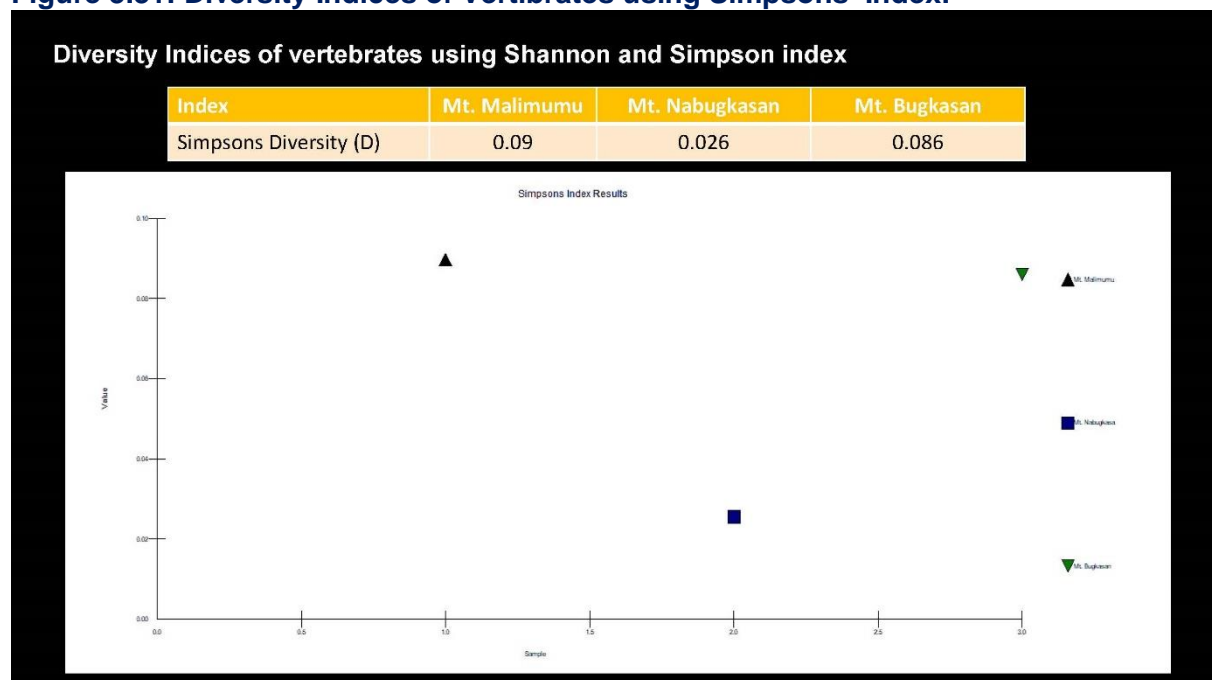
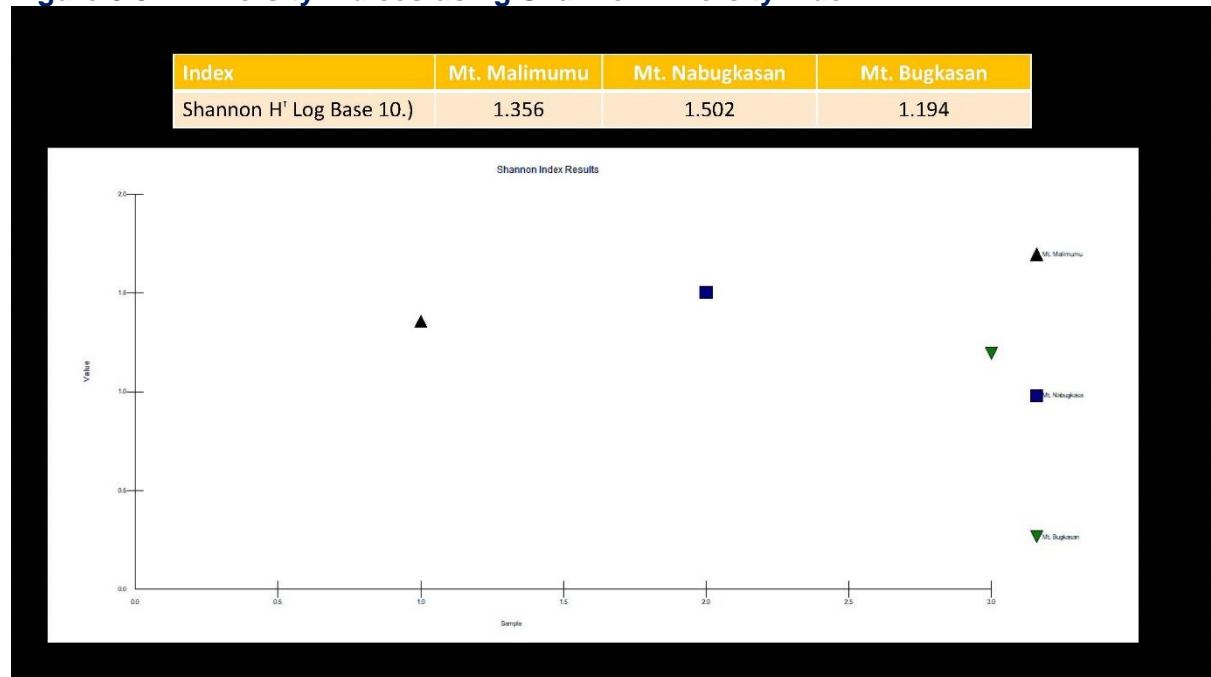


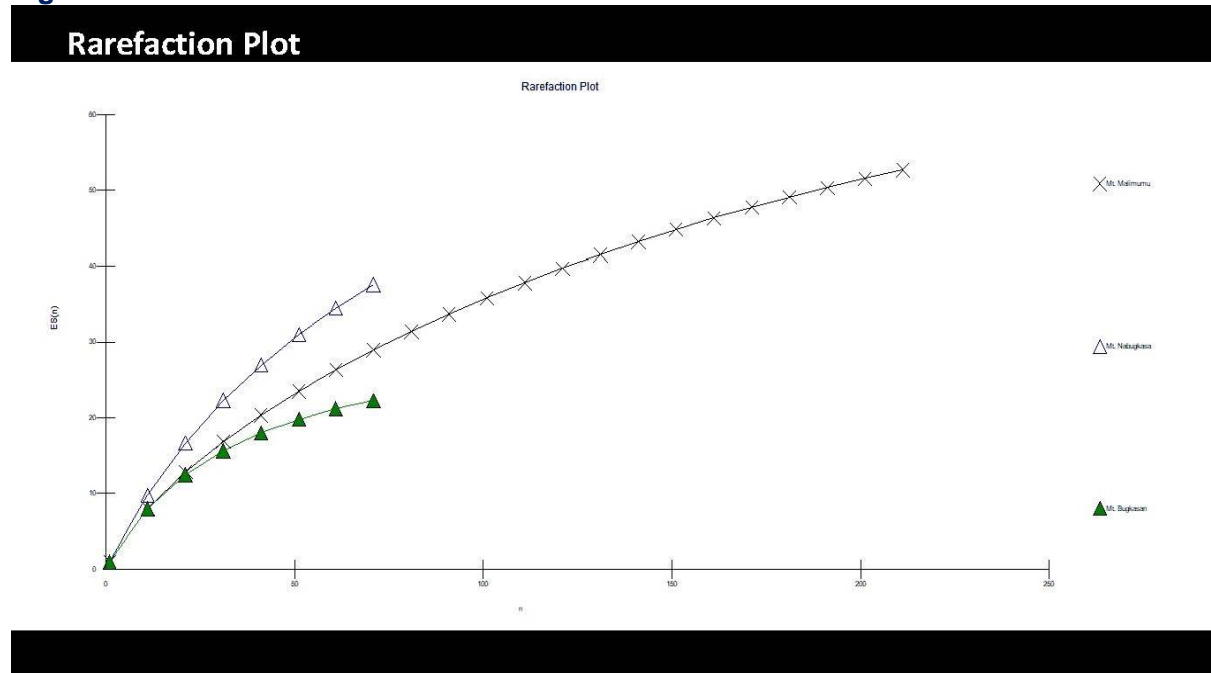
Figure 3.31: Diversity Indices of Vertibrates using Simpsons Index.



**Figure 3.32: Diversity Indices using Shannon Diversity Index**



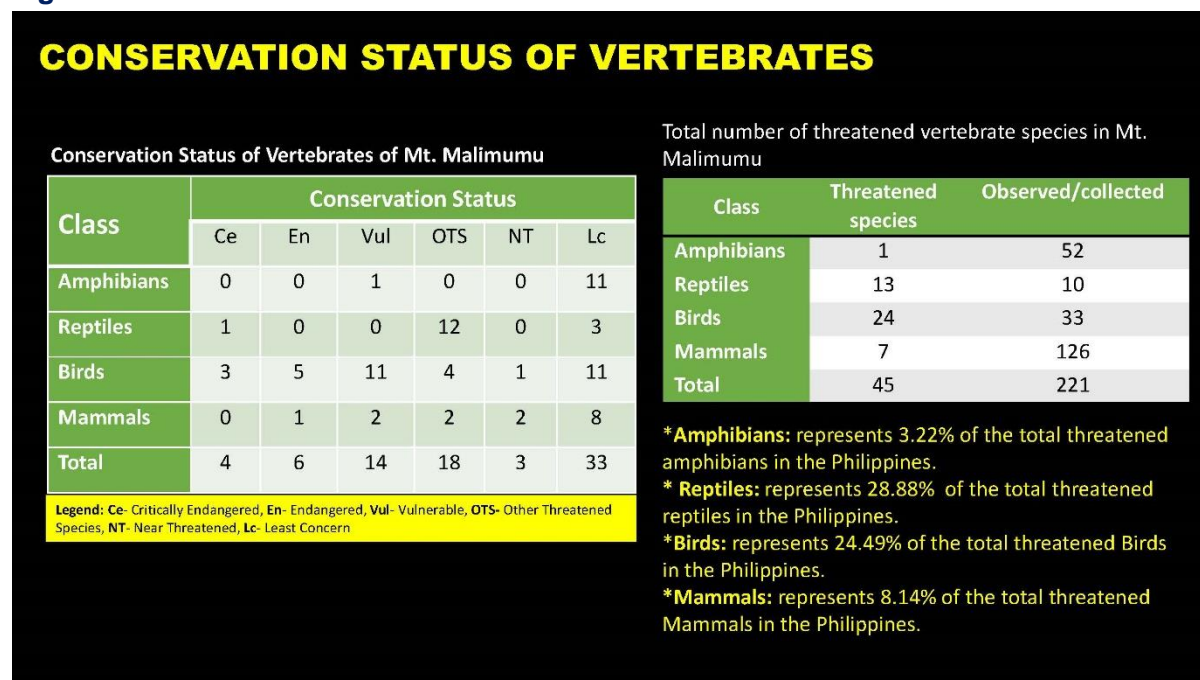
**Figure 3.33: Rarefaction Plot**



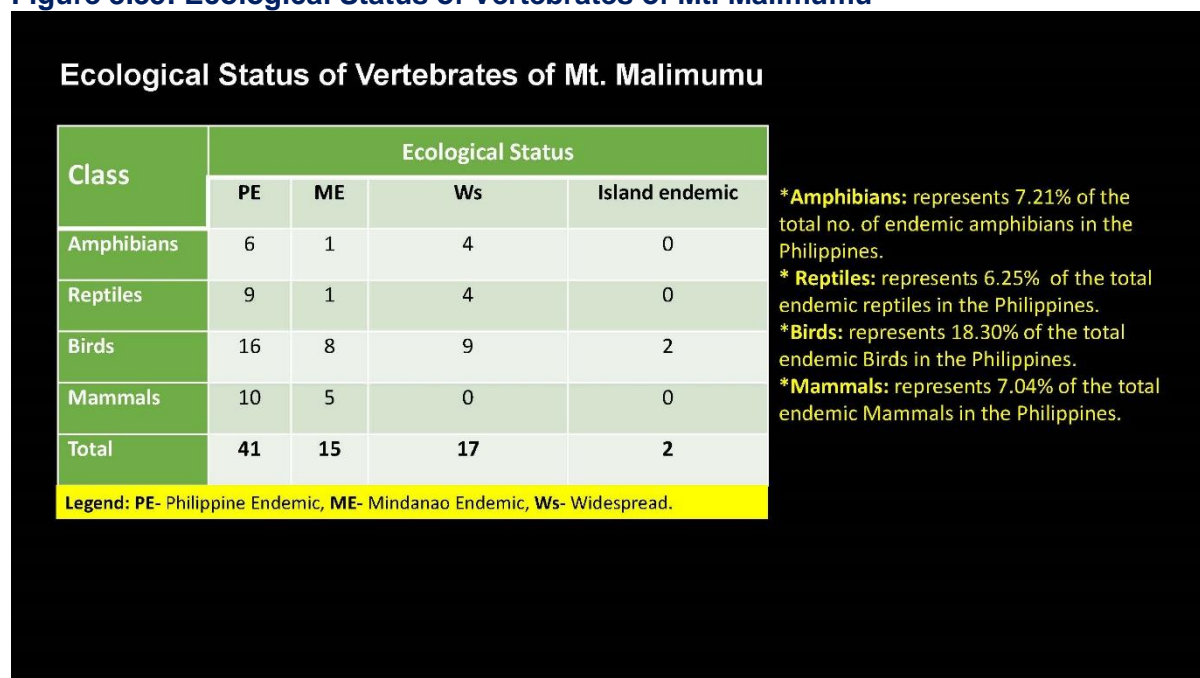
Based on the results of the conservation status of vertebrates of Mt. Malimumu, bird species are critically endangered and most vulnerable wherein studies concluded that there are species discovered in the area which has been categorized as very likely to become extinct. One of the most critically endangered species of birds in which the Municipality of San Fernando abundant of this type of specie no other than Philippine Eagle specie as shown in Figure 3.37. It has been declared as Philippine National Bird. Protection of this specie will also conserve other endemic wildlife making it an umbrella specie for the Philippines. They are also the most threatened vertebrate composed of 24

species which represents 24.49 % of the total threatened birds in the Philippines as stated in Figure 3.34.

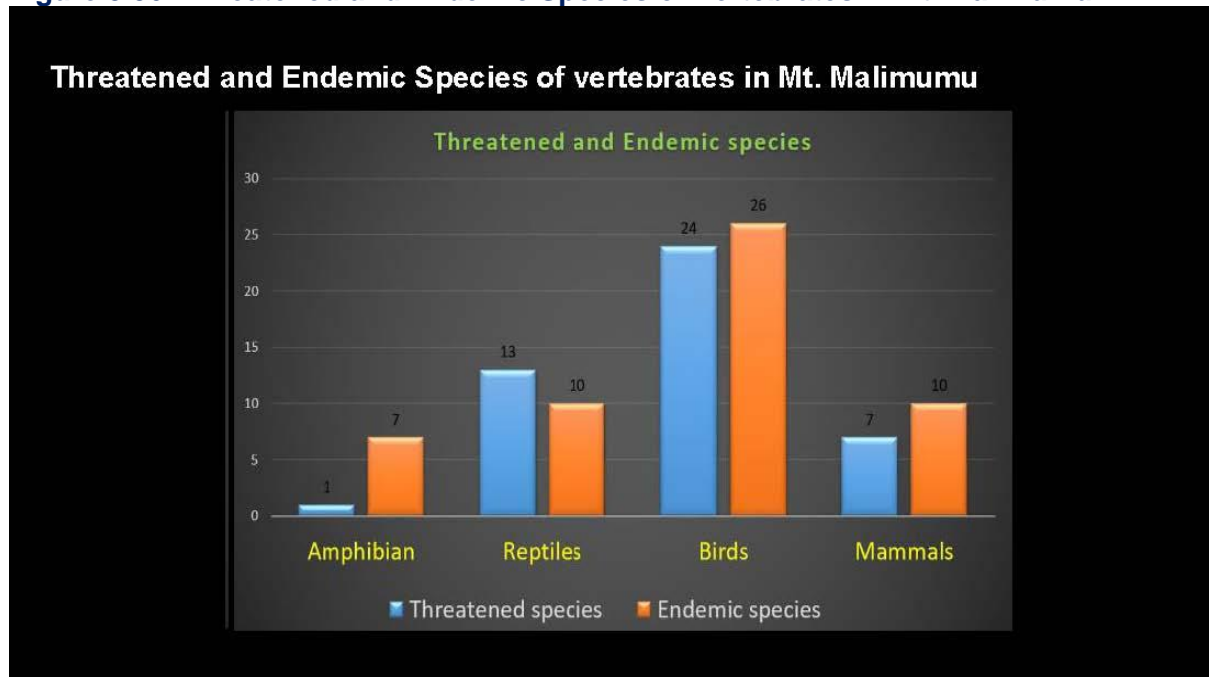
**Figure 3.34: Conservation Status of Vertebrates**



**Figure 3.35: Ecological Status of Vertebrates of Mt. Malimumu**



**Figure 3.36: Threatened and Endemic Species of Vertebrates in Mt. Malimumu**



As per ecological status of vertebrates, there are species which are confined and can only be found and occur only within specific areas. Some evolve in that place, adapting to the local environment and continuing to live within the confines of that environment and others are originated somewhere else but has lost most of its earlier geographic range. Out of the four classes studied by the team, birds ranked as the most endemic vertebrates which composed of 26 species which represents 18.30% of the total endemic birds in the Philippines as illustrated in Figure 3.35. There are 16 bird species belongs to Philippine Endemic, 8 in Mindanao Endemic, 9 in Widespread Endemic and 2 in Island Endemic. There are also other vertebrates like amphibians, mammals and reptiles which do have endemic species but in few numbers only as listed in Figure 3.34. The following figures are some of the noteworthy birds, frogs, reptiles and mammals which are vulnerable and endemic nationwide as shown in Figure 37, 38, 39, 40 and 41.

**Figure 3.37: Philippine Endemic Bird and Critically Endangered**





Figure 3.38: Philippine Endemic Bird Species

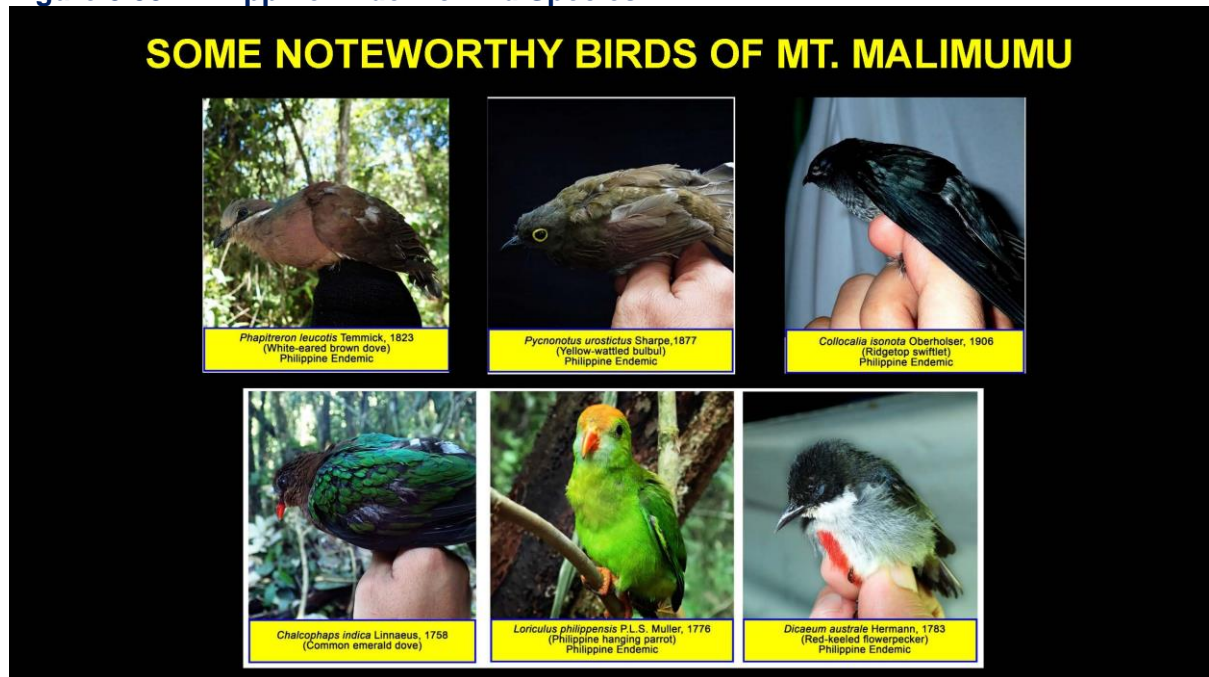


Figure 3.39: Endemic/Vulnerable Amphibians



Figure 3.40: Endemic Reptiles

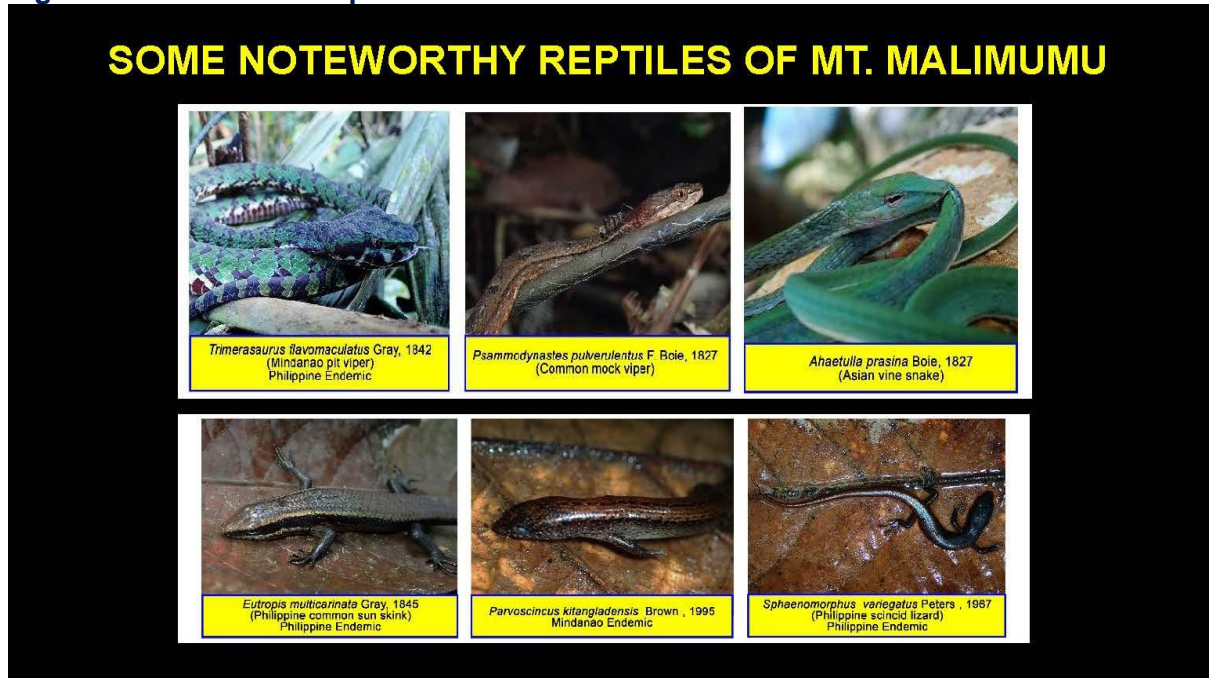
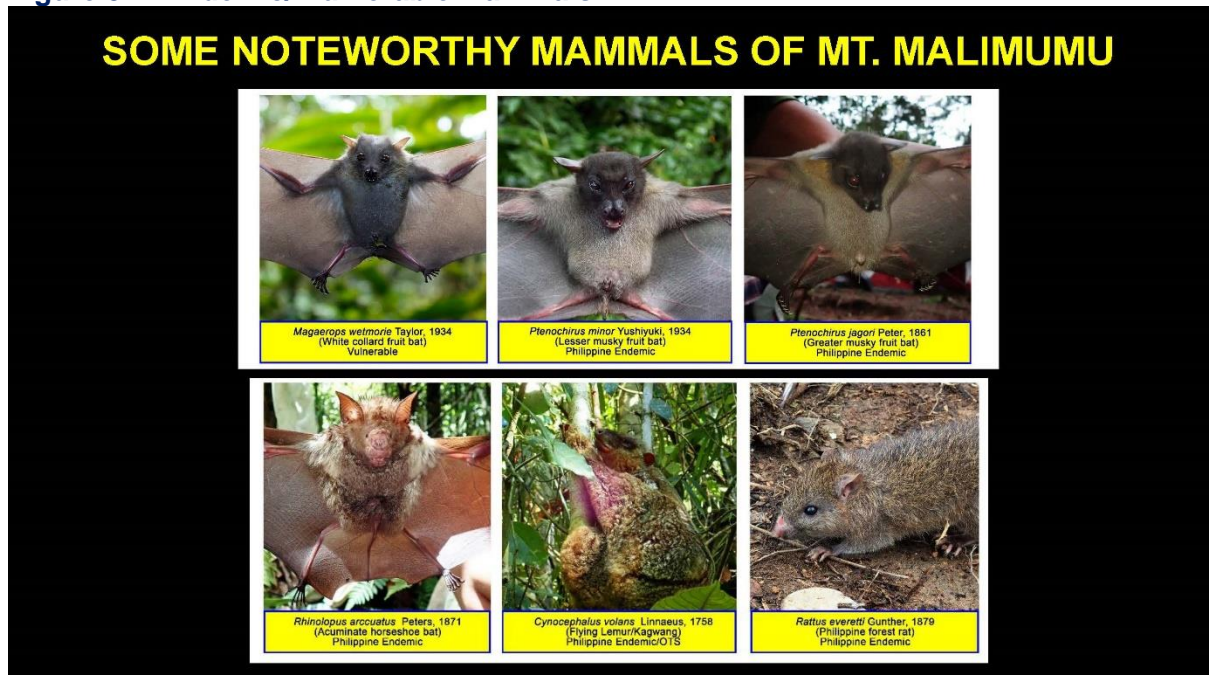


Figure 3.41 Endemic/ Vulnerable Mammals



Mt. Malimumu is also rich of invertebrate species or those that neither possess nor develop a vertebral column, derived from the notochord. There are 9 order categories of invertebrates' included in the study. The area is rich in Coleoptera or an order of insects that includes beetles composed of 68 species, the largest of all orders. It also rich in Lepidoptera, or an order of insects that includes butterflies and moths composed of 64 species, one of the most widespread and widely recognizable insect orders in the world. Other order form of invertebrates are listed in Figure 3.42 with its corresponding number of species.

**Figure 3.42: Species Richness of Invertebrates in Mt. Malimumu.**

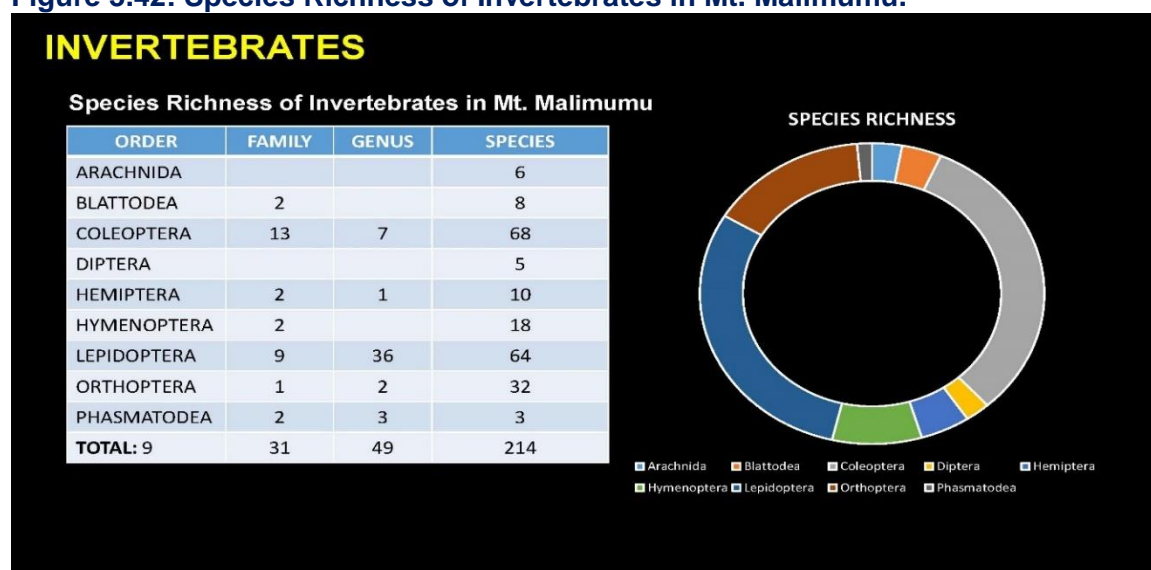


Figure 3.43 shows the taxonomy enumeration of invertebrate species and its corresponding ecological status of endemism. As per result, there are 15 species which identified as Philippine Endemic while 7 species belongs to Mindanao Endemic.

**Figure 3.43 Ecological Status of Invertebrates in Mt. Malimumu**



*Lepidoptera* order is also one of the two orders of insects which are identified as threatened invertebrates in Mt. Malimumu and there are three (3) species of insects found in Mt. Malimumu, two (2) are vulnerable and one (1) are least common. The other one is the order *Phasmatodea*, also known as *Phasmids*, whose members are variously known as stick insects, stick bugs, walking sticks, or bugsticks. Specific description of the two orders are detailed in Figure 3.44.

**Figure 3.44: Threatened Invertebrates of Mt. Malimumu**

Threatened Invertebrates of Mt. Malimumu				
ORDER	FAMILY	SCIENTIFIC NAME	CONSERVATION STATUS	REFERENCE
Lepidoptera	Nymphalidae	<i>Idea electra electra</i>	VU	IUCN 2020-02
	Papilionidae	<i>Troides rhadamantus</i>	LC	IUCN 2020-03
	Saturniidae	<i>Actias philippinica philippinica</i>	VU	DAO 2019-09
Phasmatodea	Heteropterygidae	<i>Euobrimus atherura</i>	OTS	DAO 2019-09

The following are some of the noteworthy butterflies, moths and phasmids that are found in Mt. Malimumu and identified as Philippine Endemic as shown in Figure 3.45 and 3.46.

**Figure 3.45: Endemic Lepidoptera**

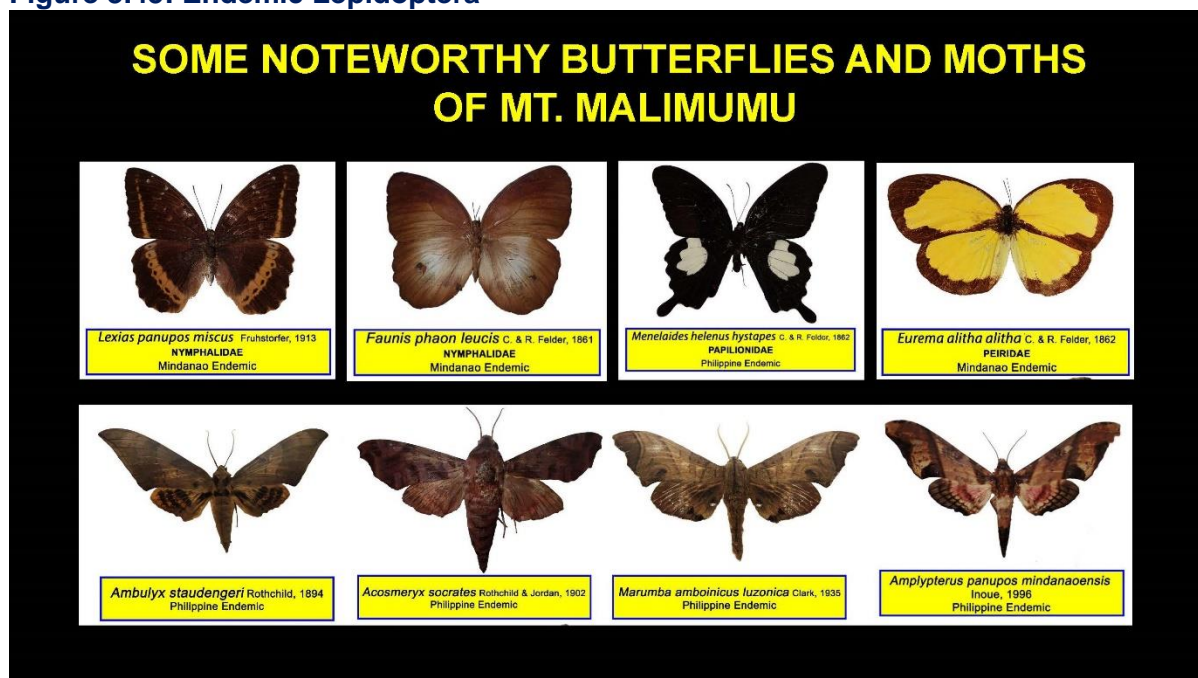


Figure 3.46: Endemic Phasmatodea

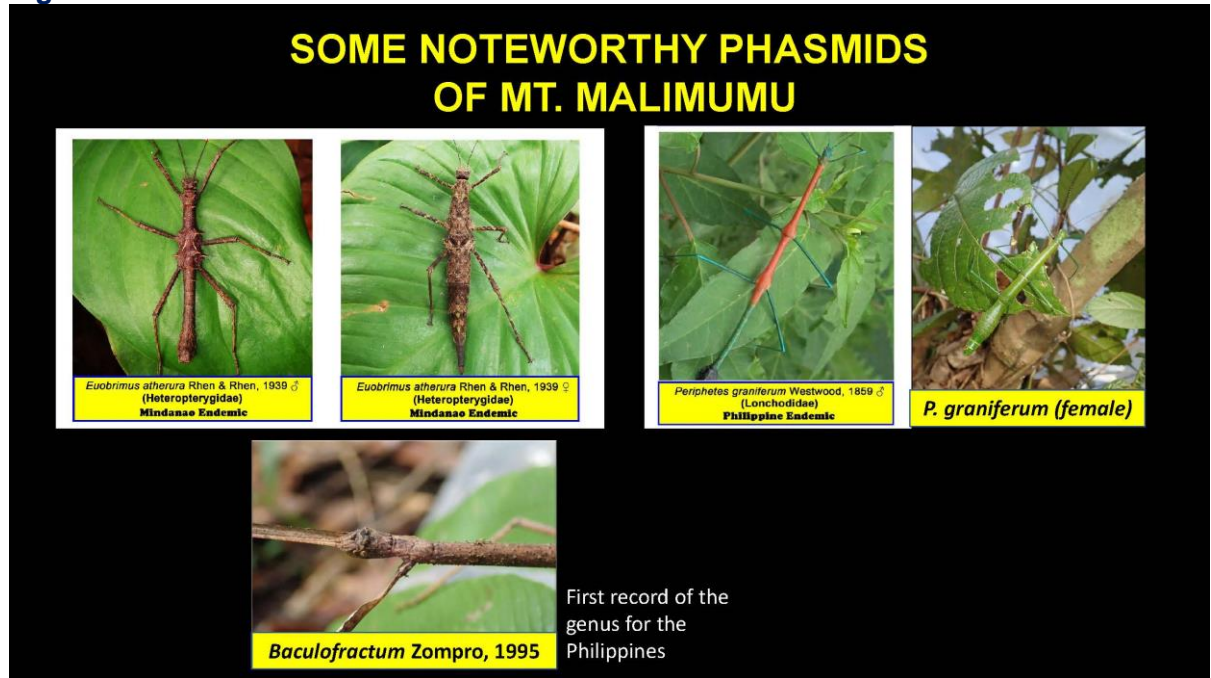


Figure 3.47 stated that out of 81 vertebrates, there are 45 threatened species identified. Threatened species considered as critically endangered, endangered, vulnerable or other accepted categories of wildlife whose population is at risk of extinction. The study also concluded that out of this total, 41 species discovered are considered Philippine Endemic while 15 species belongs to Mindanao Endemic.

On the other side, invertebrates has 214 total of species identified wherein 4 species are considered threatened species. Out of this total, there are 15 species discovered to be included in the Philippine Endemic while 7 species are under Mindanao Endemic category.

Figure 3.47: Fauna Summary

<h2 style="margin: 0;">SUMMARY</h2>	
<b>Total no. of Species:</b>	
<b>VERTEBRATES: 81 species</b>	
<b>INVERTEBRATES: 214 species</b>	
<b>Philippine Endemic:</b>	<b>No. of threatened species:</b>
<b>VERTEBRATES: 41 species</b>	<b>VERTEBRATES: 45 species</b>
<b>INVERTEBRATES: 15 species</b>	<b>INVERTEBRATES: 4 species</b>
<b>Mindanao Endemic:</b>	
<b>VERTEBRATES: 15 species</b>	
<b>INVERTEBRATES: 7 species</b>	

## C.2. Flora Report

Forests are critical habitats for biodiversity and they are also essential for the provision of a wide range of ecosystem services that are important to human well-being.

Plant and tree species diversity, richness, and similarity were studied in three sampling sites of Pantaron Range. Species composition includes; a.) Trees and Shrubs, b.) Ferns and Lycophytes and c.) Other Flowering Plants. Out of 380 total number of species representing 3.82% of the total number of Philippine vascular flora, trees and shrubs are the dominant species composed of 141 species under 83 genera and 47 families. It is followed by ferns and lycophytes composed of 131 species under 61 genera and 27 families. Other details are listed in Figure 3.48.

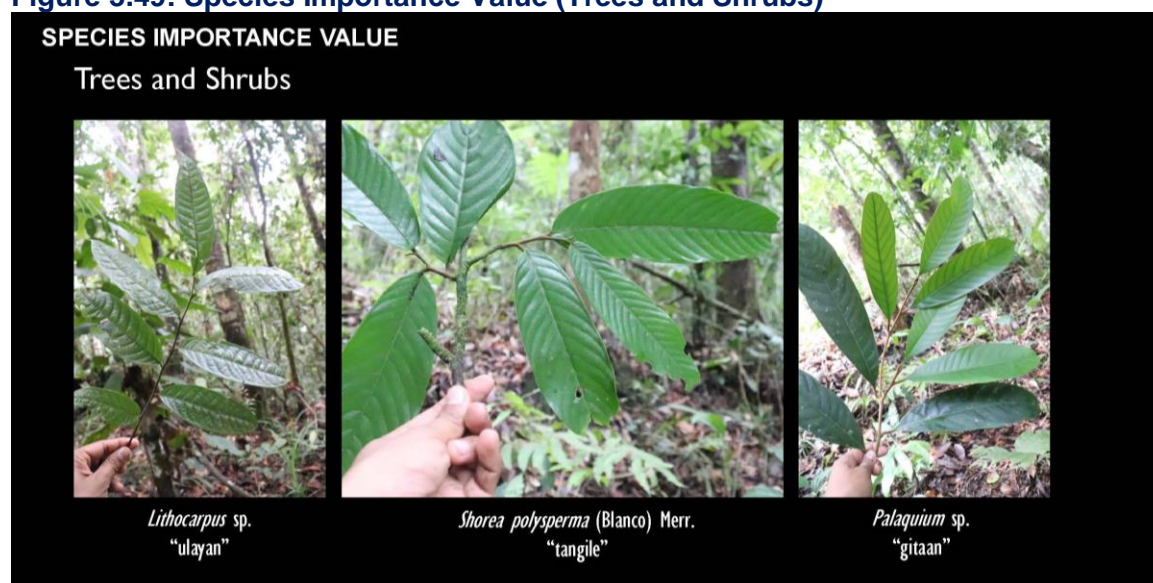
Images of flora found in the area are shown in Figure 3.49 and Figure 3.50. Different species of plant group are identified with their importance value.

**Figure 3.48: Species and Composition**

SPECIES COMPOSITION			
Plant Group	Number of		
	Families	Genera	Species
Trees and Shrubs	47	83	141
Ferns and Lycophytes	27	61	131
Other Flowering Plants	28	54	108
<b>TOTAL</b>	<b>102</b>	<b>198</b>	<b>380</b>

\*(3.82% of the total number of Philippine vascular flora)

**Figure 3.49: Species Importance Value (Trees and Shrubs)**

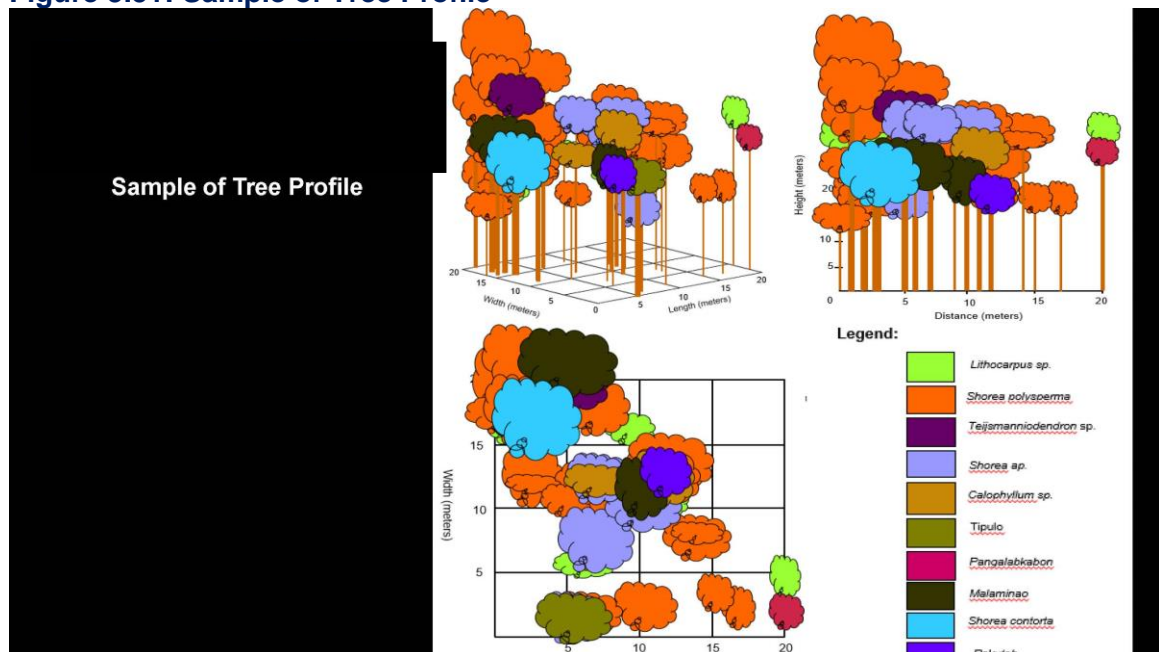


**Figure 3.50: Species Importance Value (Ferns and Lycophytes)**



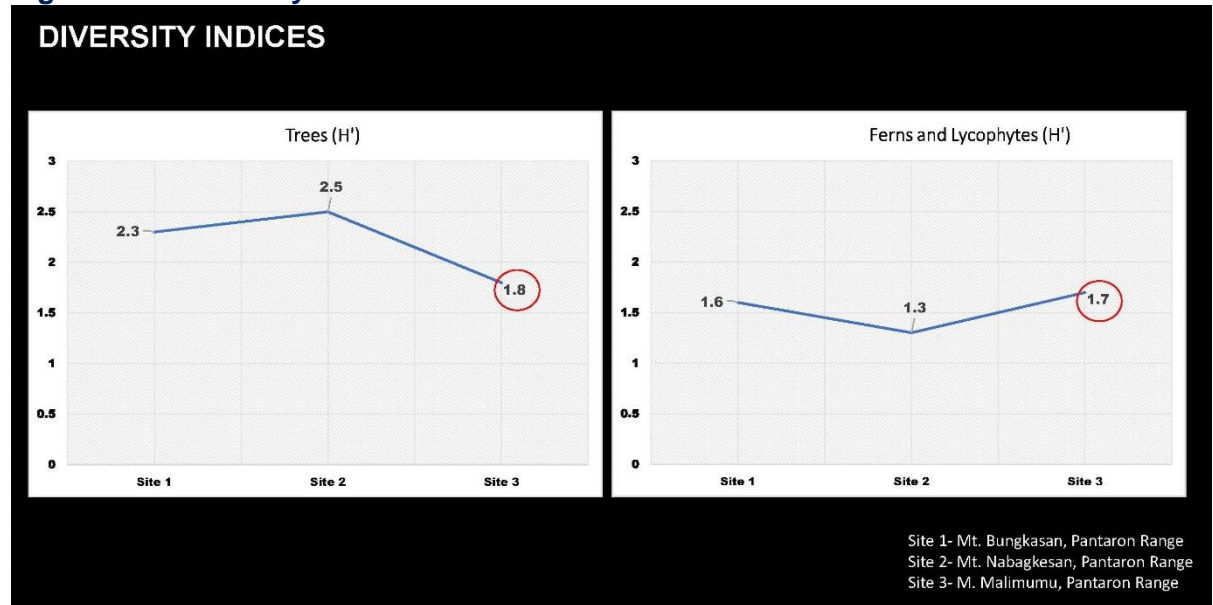
As demonstrated in Figure 3.51, out of 10 types of species of tree profile, *Shorea Polysperma* dominated in the area, one of the largest tree species in the said area. It is a species of Rainforest Trees in the Family *Dipterocarpaceae*. It is commonly known as *Tanguile* here in the Philippines. *Shorea contorta* is also belongs to the family of *Dipterocarpaceae*. It is commonly known as White Lauan. Furthermore, the family of *Dipterocarpaceae* is commonly known as timber wood producing because of its bole straightness.

**Figure 3.51: Sample of Tree Profile**



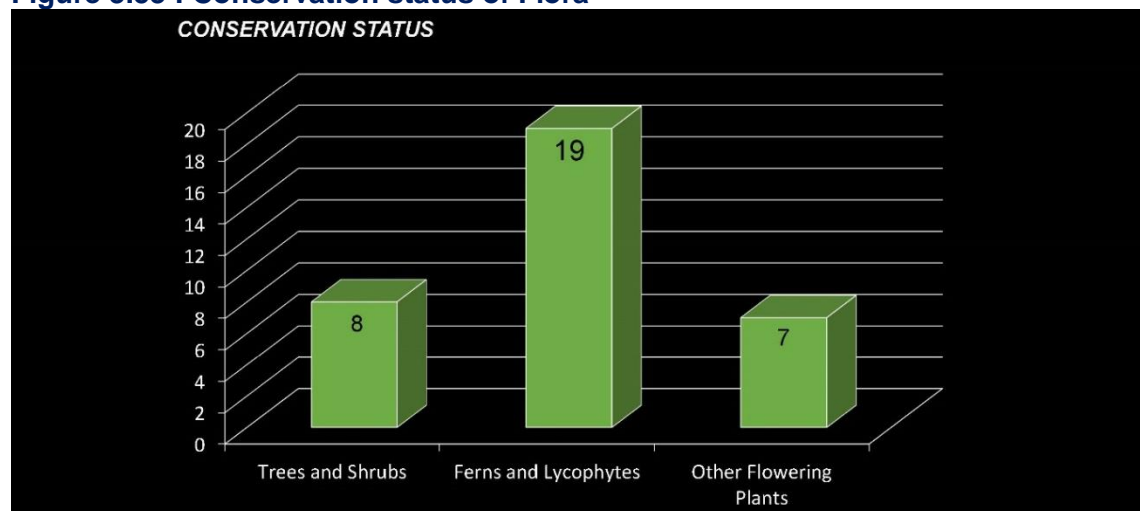
The *Shannon Diversity Index (H)* was used to characterize the richness of flora species in the area. The same with the fauna study, the three sampling sites are plotted for flora diversity. *Shannon Diversity Index (H)* means that lower values indicate more diversity while higher values indicate less diversity. Tree Group has highest diversity index of 1.8 in Mt. Malimumu while Ferns and Lycophytes Group got highest diversity index of 1.7 in Mt. Malimumu. Graphical formation is illustrated in Figure 3.52.

**Figure 3.52: Diversity Indices**



Based on the results of the conservation status of plant groups, ferns and lycophytes are critically endangered and most threatened which accounts to 19 species. This is due to deforestation, unhealthy habitats, human exploitation and absence of monitoring if those rare plant populations are still thriving. Results are illustrated in Figure 3.53.

**Figure 3.53 : Conservation status of Flora**

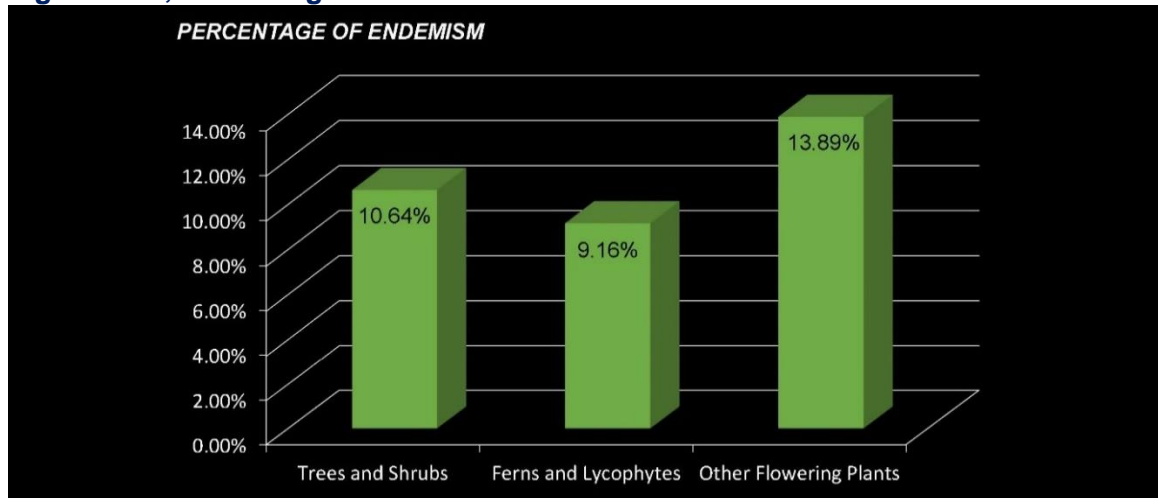


Endemic plants are special because they are found in only one location on the planet, and nowhere else. They adapt and change within the very specific parameters of that one location. These plants are perfectly adapted to thrive in the climate and soil type

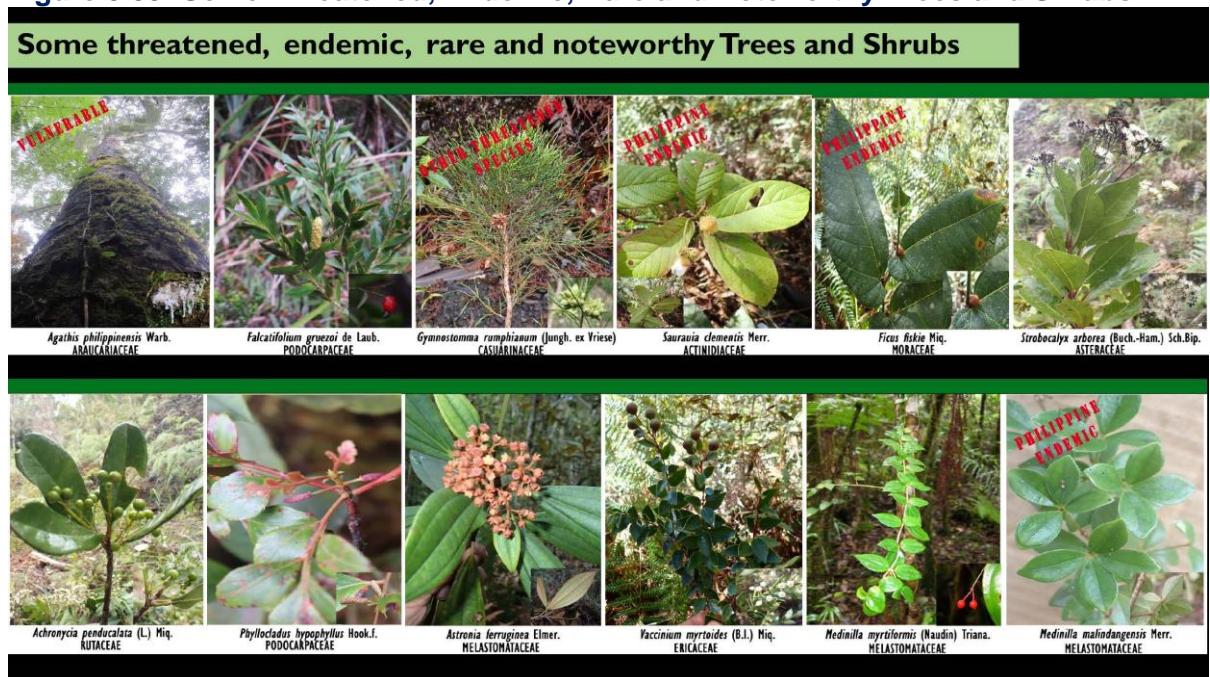


of the area. In terms of percentage of endemism, other flowering plant group got the highest of 13.89% followed by Trees and Shrubs Groups with 10.64%. The least endangered species belongs to Ferns and Lycophytes Group having 9.16% of endemism. Figure 3.54 shows the differentials of plant endemism. Some threatened, rare, endangered and noteworthy flora species of the three plant groups are shown in Figure 3.55, 3.56 and 3.57.

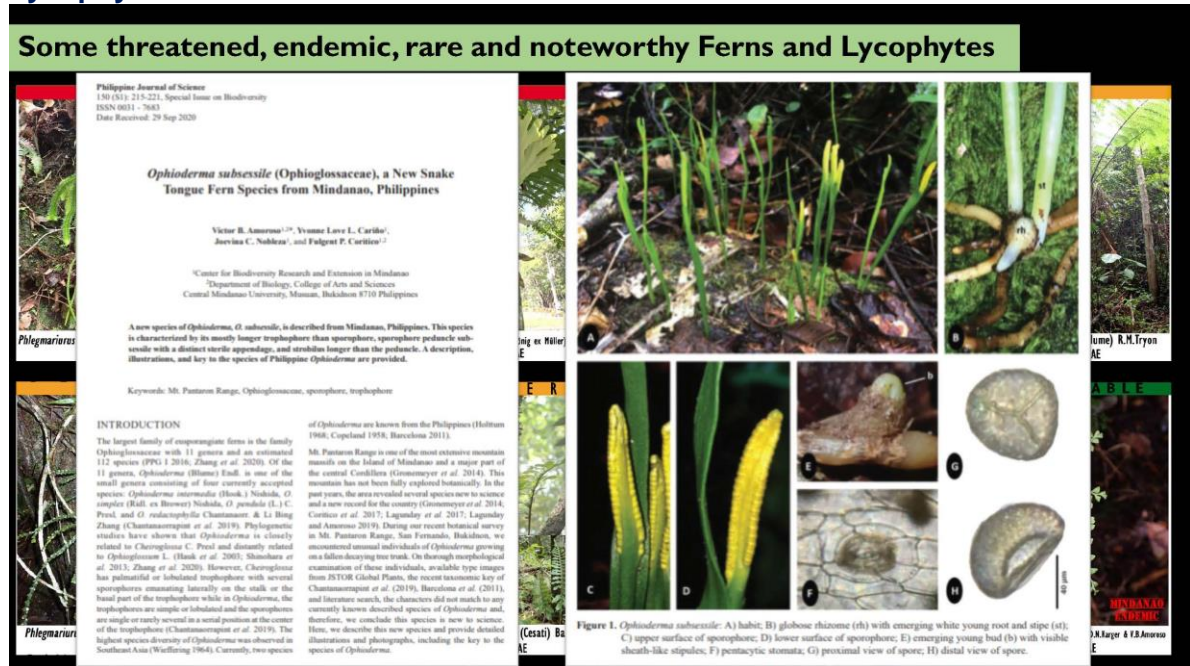
**Figure 3.54; Percentage of Plant Endemism**



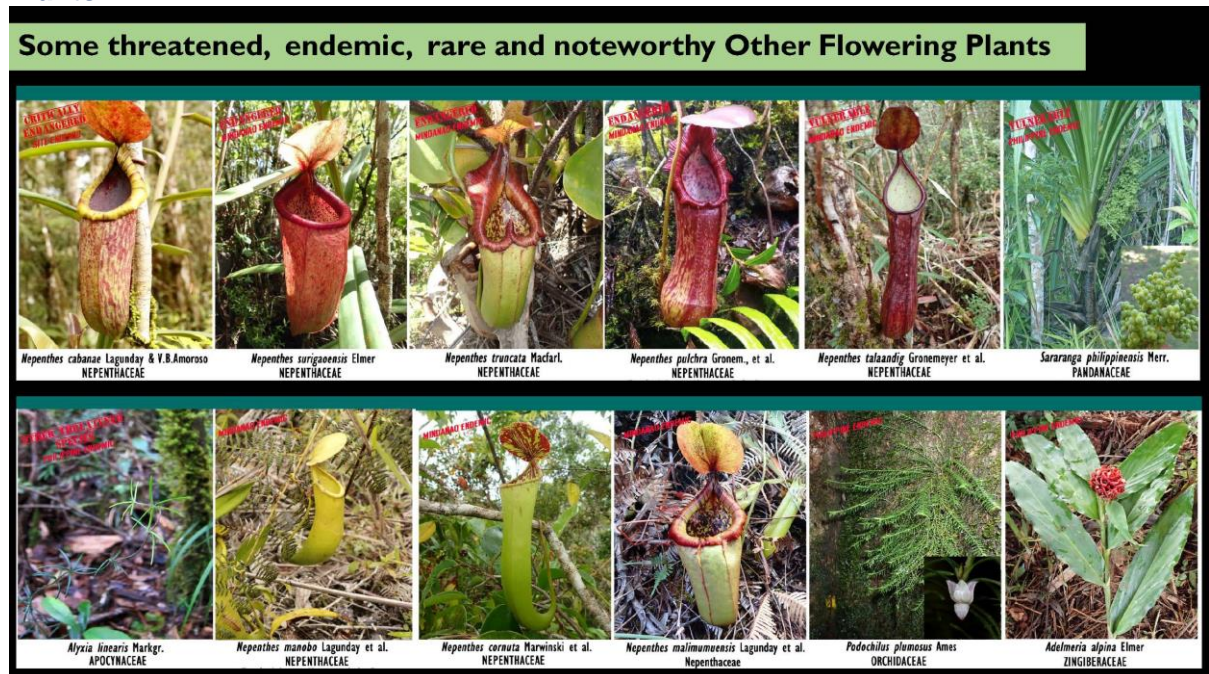
**Figure 3.55: Some Threatened, Endemic, Rare and Noteworthy Trees and Shrubs**



**Figure 3.56: Some Threatened, Endemic, Rare and Noteworthy Ferns and Lycophytes**



**Figure 3.57: Some Threatened, Endemic, Rare and Noteworthy Other Flowering Plants**



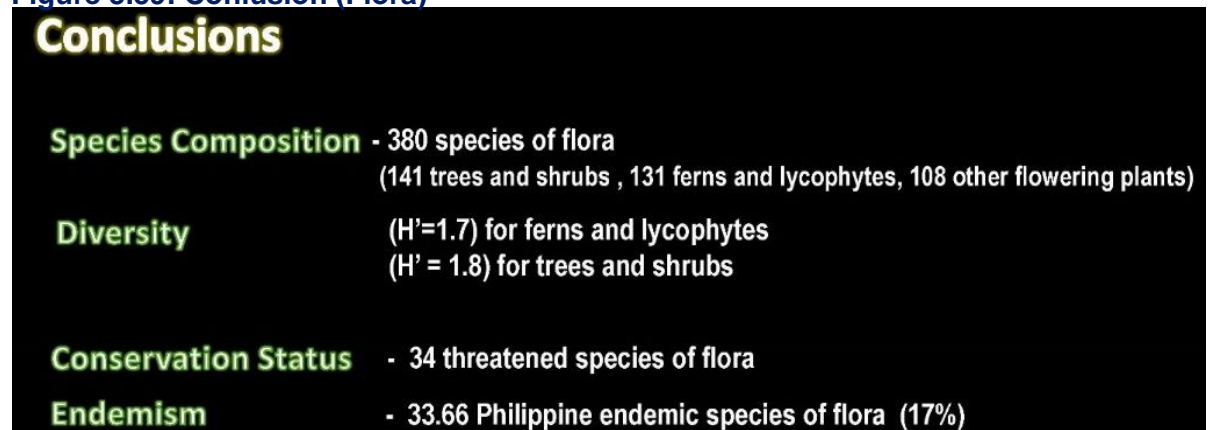
The implementation of the study had gain new distribution records of 4 plant species. The team reported the first occurrence of these species at Mt. Malimumu namely; 1.) *Lecanopteris luzonensis* Hennisman, a genus ferns in the family *Polypodiaceae* is identified as endangered species, 2.) *Pronephrium merrillii* (Christ) Holttum, a genus ferns in the family *Thelypteridaceae*, 3.) *Lindsaea hamiguitanensis* D.N. Karger & V.B. Amoroso of genus ferns is identified as vulnerable specie and 4.) *Amyema curranii* (Merr.) Danser, a flowering plants of family *Loranthaceae* *Juss.* The new distribution records of 4 species are shown in Figure 3.58.

**Figure 3.58: New Distribution Records**



It has been concluded that out of 380 species of flora, trees and shrubs are the dominant flora composed of 141 species followed by 131 ferns and lycophytes and 108 other flowering plants. Out of the said total, there are 34 threatened species while its endemism is rated with 33.66% which represents 17% of the total Philippine Endemic Species as shown in Figure 3.59. Considering the area of Mt. Malimumu, ferns and lycophytes resulted to 1.7 diversity index while trees has 1.8 index.

**Figure 3.59: Conclusion (Flora)**



### C.3 Aquatic Report

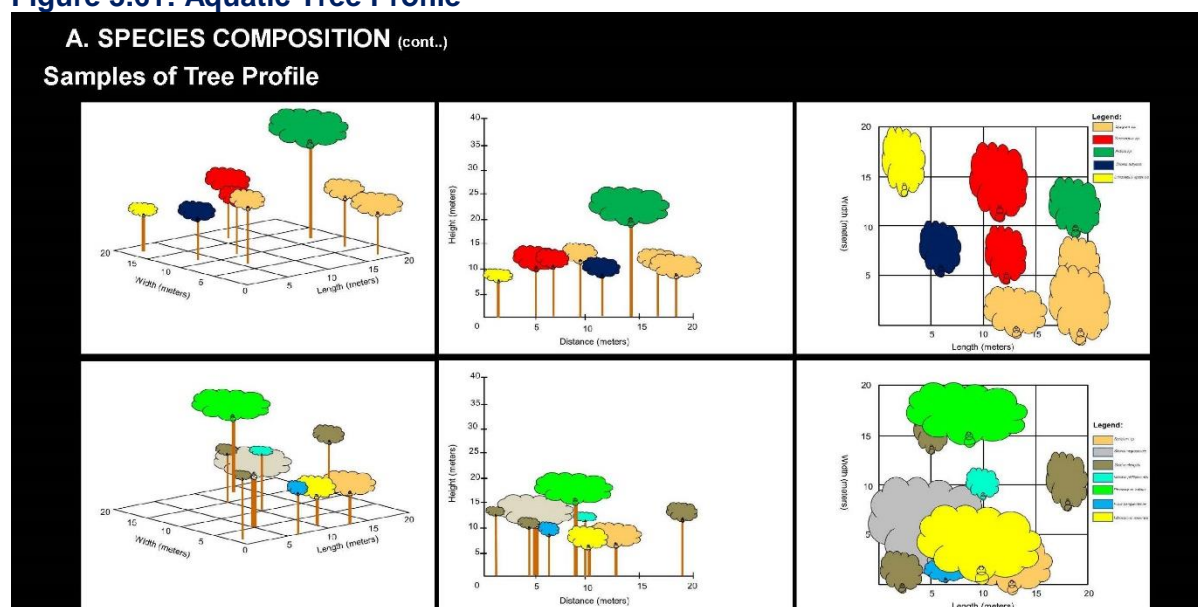
Aquatic wildlife is an important source of food, medicine, energy, jobs, atmospheric oxygen, buffers against new diseases, pests, and predators and protection against food shortages and global climate change. Aquatic biodiversity is the rich and wonderful variety of plants and animals that live in watery habitats. Sustaining biodiversity is essential to the health of the environment and to the quality of human life. People depend on many aquatic plants and animals and their ecological functions, for their survival.

During the realization of the field study, considering the aquatic wildlife condition of the area, there's a lot of plant species found such as ferns and lycophytes composed of 50 species which dominates the place along aquatic zone of *Nabangkal* River. It is followed by trees and shrubs with 21 species and understory plants having 18 species. Details are listed in Figure 3.60. Tree Profile is illustrated in Figure 3.61.

**Figure 3.60: Aquatic Plant Species Composition**

A. SPECIES COMPOSITION			
Plant Group	Number of		
	Families	Genera	Species
Ferns and Lycophytes	17	31	50
Understory Plants	14	12	18
Trees and Shrubs	15	16	21
<b>TOTAL</b>	<b>46</b>	<b>59</b>	<b>89</b>

**Figure 3.61: Aquatic Tree Profile**



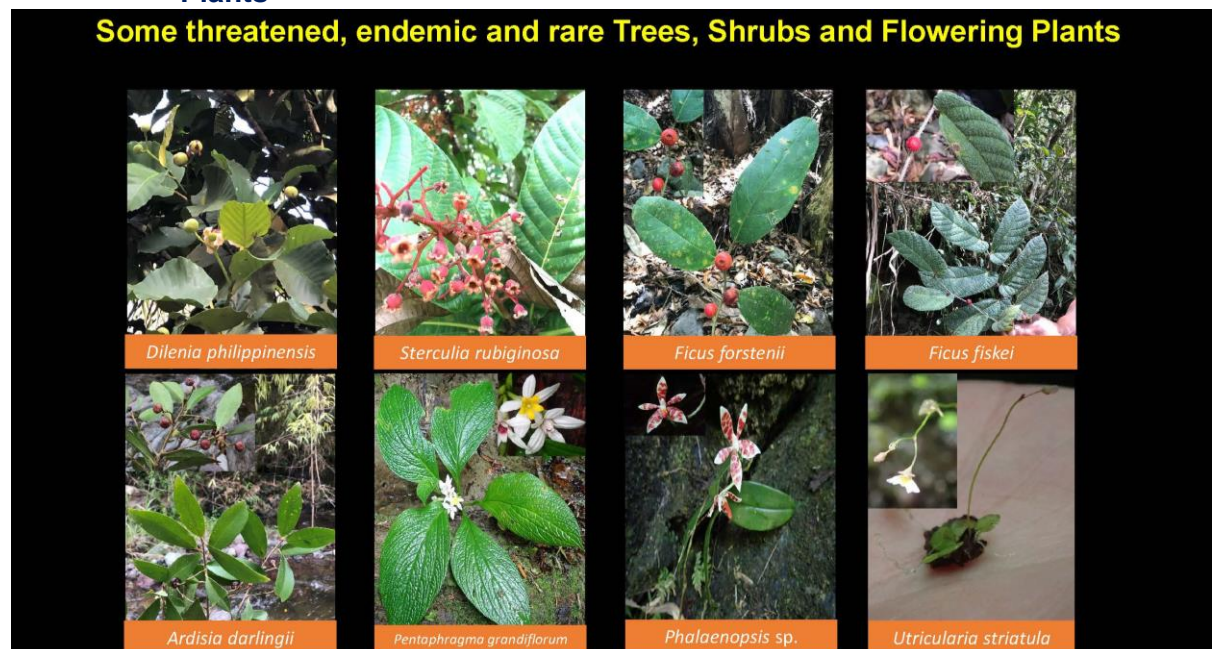
The lethal combination of historical overfishing and habitat degradation is blamed for the problems of many endangered and threatened aquatic species. Some of the threatened and endemic species of fern, lycophytes, trees, shrubs and flowering plants

found in the aquatic zone of *Nabangkal* River are shown in Figure 3.62 and Figure 3.63. Some of these species are identified as vulnerable, endangered and critically endangered.

**Figure 3.62: Some Threatened and Endemic Species of Ferns and Lycophytes**

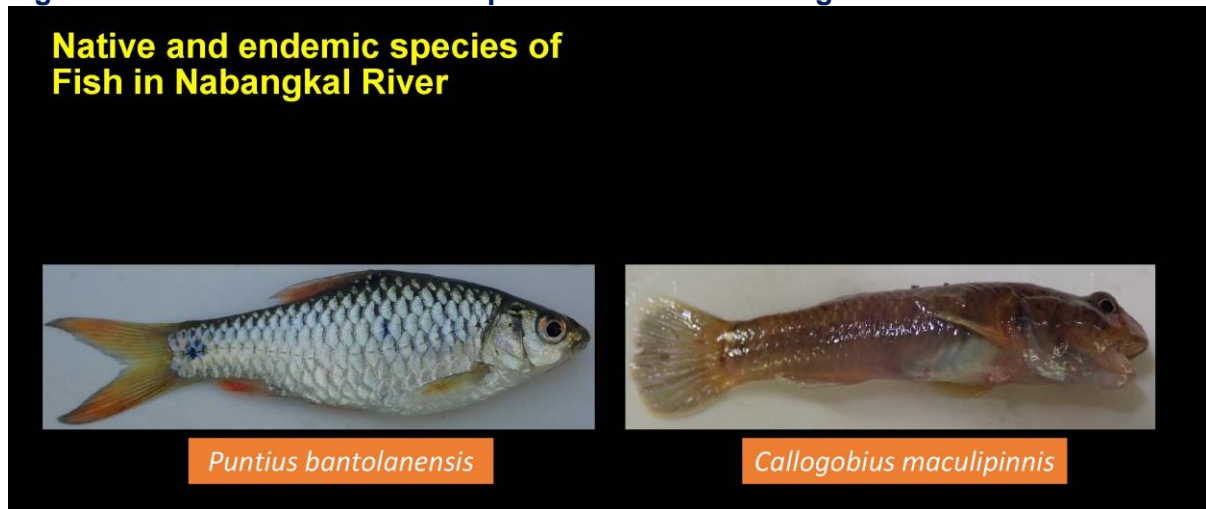


**Figure 3.63: Some Threatened, Endemic and Rare Trees, Shrubs and Flowering Plants**



Nabangkal River is rich in aquatic animals such as fish which serves as the source of food and income of native residents of Barangay Magkalungay. As per progress of the study. The team discovered native two species of fish namely; 1. *Puntius bantolanensis* and 2. *Callogobius maculipinnis*. Images of these endemic species are shown in Figure 3.64.

**Figure 3.64: Native and Endemic Species of Fish in Nabangkal River**



Aside from those endemic species found in the locality, other common species are maybe become critically endangered due to existence of introduced and invasive species such as catfish and other variety. Although their spread can have beneficial aspect such as being source of food and income, it adversely affect the invaded habitats and bioregions causing ecological, environmental, and/or economic damage. It could also cause harm to human health, and other valued resources. These species acts as predators to native aquatic animals. They have that characteristics that quickly spread even in the absence of water and can live in muddy habitat and eat eggs of other species which in turn could critically endanger native species. There are four introduced and invasive species identified in the place shown in Figure 3.65.

**Figure 3.65: Introduced and Invasive Species of Fish in Nabangkal River**



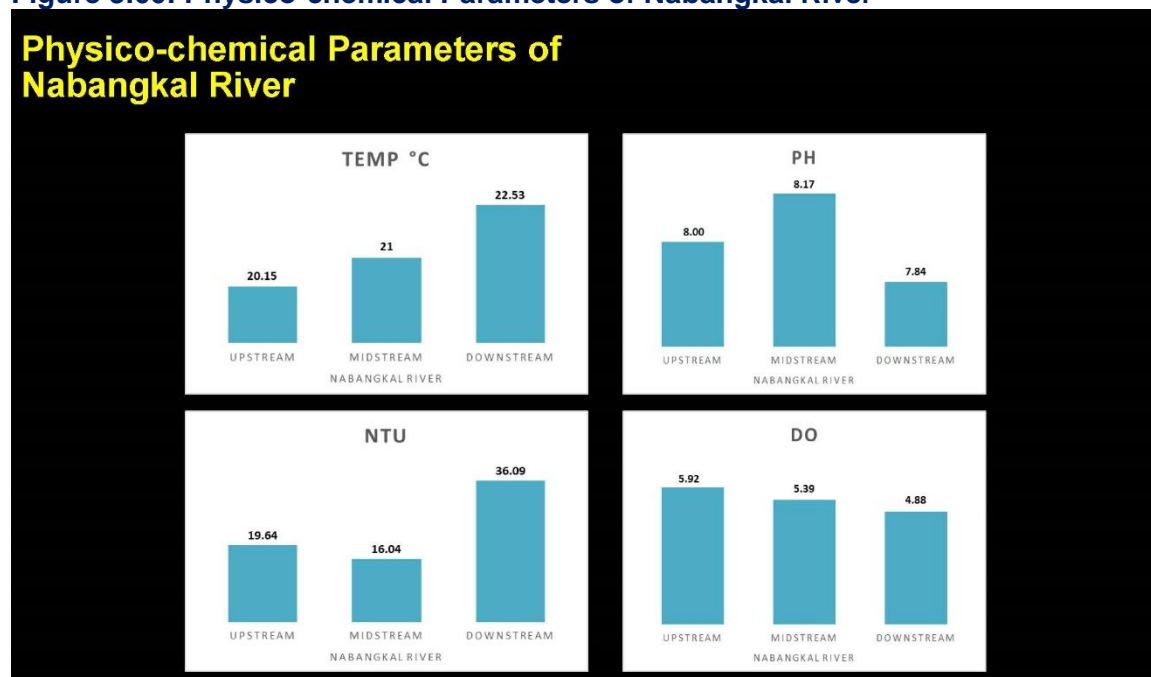
There are tests conducted in *Nabangkal* River to identify the physico-chemical parameters of stream. Water quality parameters include temperature, acidity, dissolved oxygen and turbidity. The highest temperature identified in the said river is at downstream scene having 22.53°C which pass the optimal temperature range of 5°C-25°C indicating inhabitable water for fish and other organisms. The river had a measured pH ranging from 7.84 to 8.17 in a range of locations wherein it is slightly more than the optimum pH of

7.4 for Water River as shown in Figure 3.66. However, the water acidity is still sufficient to support most river life with the possible exception of some organism that needs lower or higher acidity.

Turbidity is the measure of relative clarity of a liquid. It is the condition resulting from suspended solids in the water, including silt, clays, wastes, sewage and plankton. In *Nabangkal River*, the turbidity of water is ranging from 16.04 to 36.09 Nephelometer Turbidity Units (NTU) as shown in Figure 3.66. High turbidity is located at downstream wherein suspended particles is more present and invasive animals like catfish and other species are likely to adapt.

Dissolved oxygen is considered to be one of the most important parameters of water quality of river. It is the key test of water pollution. The higher the concentration of dissolved oxygen, the better the quality. Water fish needs higher levels (4 to 15mg/L). The amount of dissolve oxygen tested in *Nabangkal River* varies from 4.88 to 5.92 mg/L which is an adequate supply for the survival of fish as shown in Figure 3.66. It indicates also that the river is healthy due to oxygen produced by rooted aquatic plants and algae as a product of photosynthesis.

**Figure 3.66: Physico-chemical Parameters of Nabangkal River**



**Figure 3.67: Conclusions (Aquatic Species)**

**Conclusions**

- Species Composition** - 89 species of flora  
(50 ferns and lycophytes, 18 understory plants, 21 trees and shrubs)
- Diversity**
  - ( $H' = 2.0$ ) for ferns and lycophytes
  - ( $H' = 1.7$ ) for trees and shrubs
- Conservation Status** - 16 threatened species of flora
- Endemism** - 8 Philippine endemic species of flora

**D. indigenous Knowledge System on Natural Resource Utilization, Conservation, and Management in Mt. Malimumu**

Understanding the local condition of Indigenous People in Mt. Malimumu of Barangay Magkalungay is also one of the goal for sustainable development through direct connection to resource management and conservation. Thus, the team conducted Indigenous Knowledge System on natural resources, utilization, conservation and management in the area.

**Figure 3.68 Image of the Peak of Mt. Malimumu and the Native Residence**



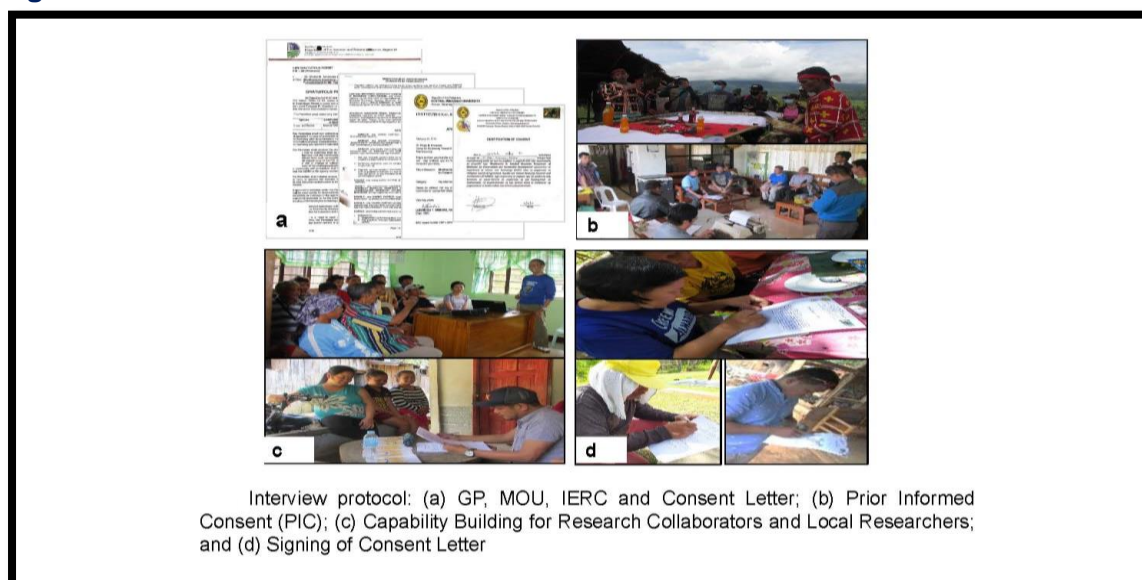
**Figure 3.69: Map of Barangay Magkalungay, San Fernando, Bukidnon**





As an initial step, the team identify the location through mapping and interview protocol as shown in Figure 3.69 and 3.70. The protocol includes courtesy call with the Barangay Officials, Tribal Leaders/Elders, Bagani and Women’s President followed by the presentation of Consent Letter, Capability Building for Research Collaborators and Local Researchers and Signing of Consent Letter.

**Figure 3.70 Interview Protocol**



The team also conducted socio-demographic profiling of the key informants and focus group participants who are mostly Manobo and Tigwahanon tribal groups. Most of them are farmers and farm laborers. Other data are detailed in Figure 3.71. Evidences are shown in Figure 3.72.

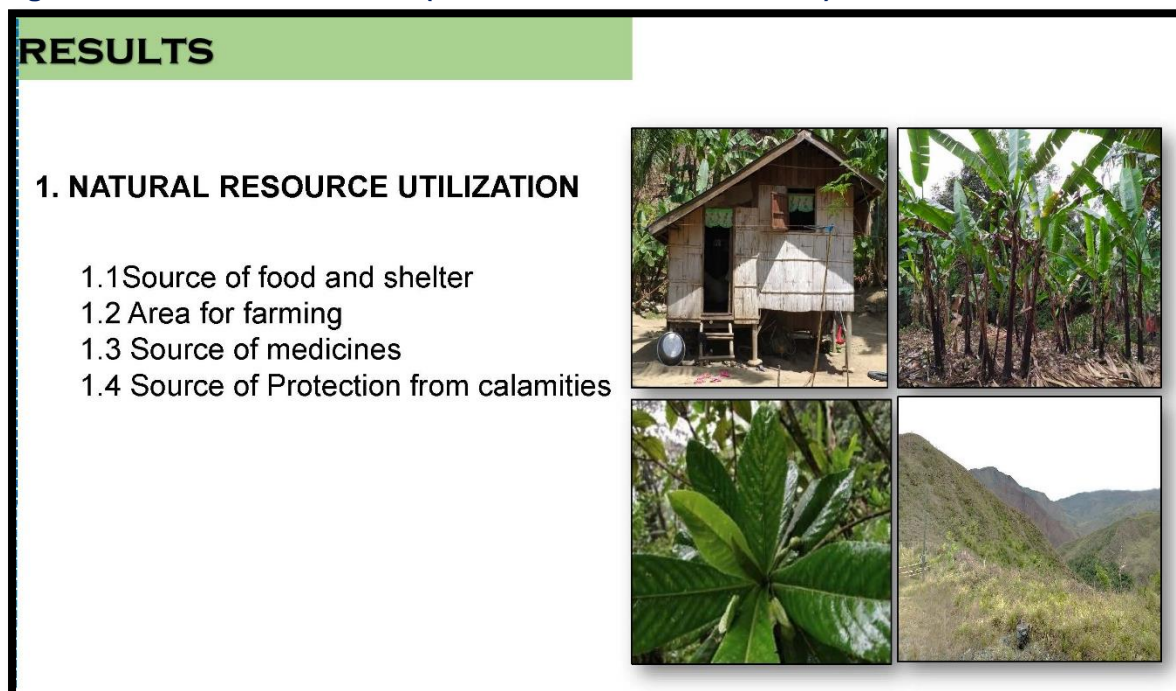
**Figure 3.71: Socio-Demographic Profile**

Socio-demographic Profile					
<b>Table 1. Socio demographic Profile of the Key Informants</b>			<b>Table 1. Socio demographic Profile of the Focus Group Participants</b>		
Variables	Frequency	Percentage	Variables	Frequency	Percentage
<b>Age</b>			<b>Age</b>		
20-35	4	30.7	14-24	13	39.3
36-50	5	38.5	25-34	9	27.3
51-65	2	15.4	35-44	5	15.2
66-80	1	7.7	45-54	3	9.1
81-95	1	7.7	55-64	3	9.1
<b>Total</b>	<b>13</b>	<b>100.0</b>	<b>Total</b>	<b>33</b>	<b>100.0</b>
<b>Sex</b>			<b>Sex</b>		
Female	4	30.7	Female	20	60.6
Male	9	69.3	Male	13	39.4
<b>Total</b>	<b>13</b>	<b>100.0</b>	<b>Total</b>	<b>33</b>	<b>100.0</b>
<b>Ethnicity</b>			<b>Ethnicity</b>		
Manobo-Tigwahanon	10	76.9	Manobo-Tigwahanon	33	100.0
Cebuano	1	7.7	<b>Total</b>	<b>33</b>	<b>100.0</b>
Boholano	1	7.7			
Ilonggo	1	7.7			
<b>Total</b>	<b>13</b>	<b>100.0</b>			
<b>Designation/Position</b>			<b>Occupation</b>		
Barangay Official	4	30.7	Farmer	28	84.8
Tribal Leader/Elder	6	46.2	Labor	5	15.2
Bagani	2	15.4	<b>Total</b>	<b>33</b>	<b>100.0</b>
Women’s President	1	7.7			
<b>Total</b>	<b>13</b>	<b>100.0</b>			

Figure 3.72: Key Informant Interview and Focus Group Discussion



Figure 3.73: Interview Results (Natural Resource Utilization)



## 1.1 Source of food and shelter

- “Ana pa tong mga katigulangan sauna na diri kuno sa kalasangan ginahimo nila na **merkado**...kay sa kalasangan naay may mga **ilaga, mga mananap, mga baboy halas ug uban pa...**”
- “...makuha diha sauna labi na kana pung mga **utanon** sa bukid daghan kaayo na sauna diri sa bukid...”



## 1.2 Area for farming

- “...sa ilang **panguma** sa ilang kuhaanan ug kamote... mao nang mo **kaingin** sila”
- “...mobunga rana silag gagmay didto **kamote** ... **balanghoy**... mao rana ilang uma... wala na sila ga tanom ug mais... sa ubos ubos rana sya...”



### 1.3 Source of medicines

“...mga gamot gamot maam parehas anang **bughat**  
...kahoy na sya na kuhaon lang ang gamut... kung  
**labdan kag ulo, makulangan kag dugo, sakit sa tiyan,**  
kung naa kay **samad**... kani pong **paakon kag bitin**  
mao nay tambal ana... **diha na tanan sa lasang**  
**kuhaon**... kaila man ko sa uban tambal pero dili pwede  
eistorya...”

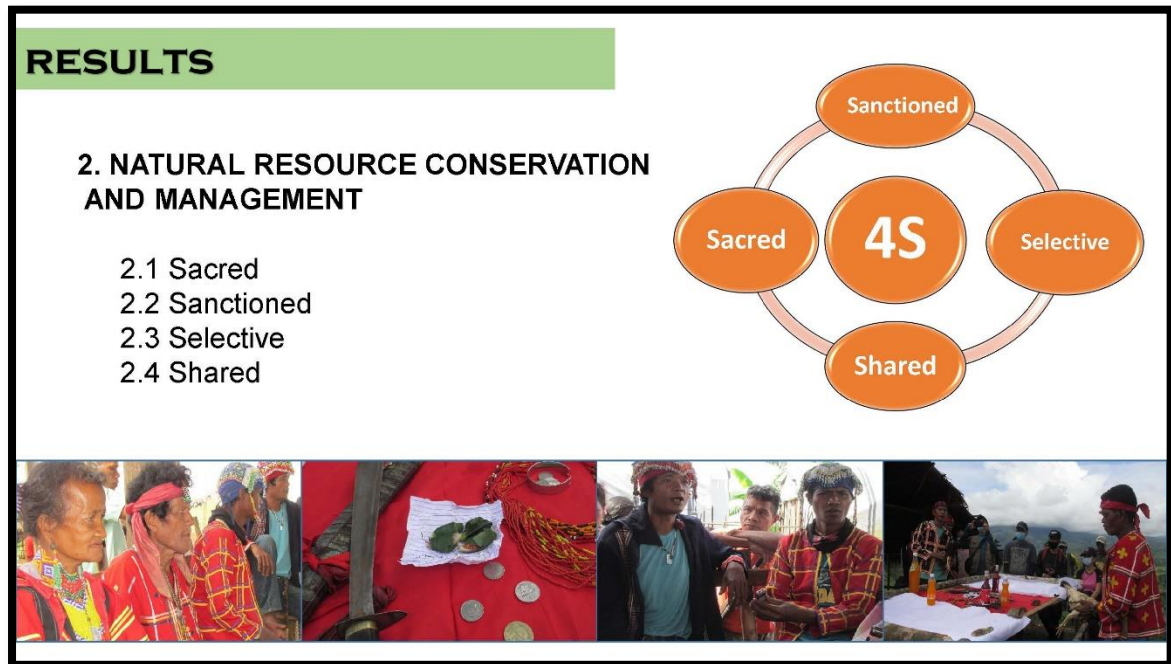


### 1.4 Source of Protection from calamities

“...makapanalipod ma’am kay dili man mag  
**baha**... intact paman ang mga kahoy... parihas  
ani karon ma’am ga **landslide** na tungod kay  
gaka anam nag kawala ang kahoy...”



Figure 3.74: Interview Results (Natural Resource Conservation and Management)



### 2.1 Sacred

*“... kay diin ang pag ritual usa ka sagrado man gud sa kultura namong mga lumad...”*



*“...mag tabi-tabi para dili makuan... para dili hilabtan bitaw... ohh... mag ritual ayha mag sulod...”*

Primarily, the purpose of conducting a ritual....

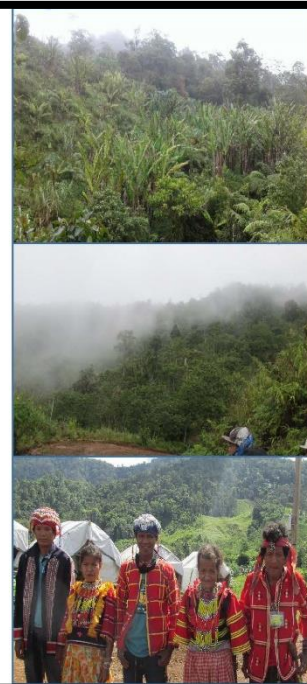
- a. For Protection
- b. For a Catch and Effective Cure
- c. For Abundant Harvest



## 2.2 Sanctioned

*"...magbinuutan ta kung muadto ta...pagsulod dadtu...**respeto** pod"*

*"...na obserbahan gyud nako na sa akong kauban, perte man syang **banhaa**, **yaga yaga** man sya, sus kadugayan, tingala man sya nganung ing ana ka **hiwi iyang** nawong..."*



### 2.3 Selective

“...kung naa nay **dagkong kahoy or mga balite** na mga kahoy **dili dapat ka mag tanom** na diha dapit kay pasabot ana naa nay nag puyo...”

“...**dili pwede hilabtan kay kinatibuk-an** mana gikan mana mao nay silbi gikuan sa Ginoo nga ila gyud nang area diha... pariha ragud aning tubig... **nay tubig diha na area nga dako mao nay ilang tulungdanon...**”



### 2.4 Shared

“Dili pud ka mag uma na imoha ra dapat **open pud sya kung kinsay gusto** mag sulod meaning pwede mag kuha ang silingan”

“mag bahin bahin... mao na diri sa among tribo ma’am... bahalag gamay basta maka kaon tanan... ma apod raman na”



Figure 3.75: Interview Results (Reasons for Continuous Farming and Extraction of Forest Resources)

**RESULTS**

**Reasons for Continuous farming and extraction of forest resources**

- 3.1 Need for livelihood
- 3.2 Selling of farms to migrant “capitalists”
- 3.3 Implementers’ fear of rebels
- 3.4 Limited sanctions for violators
- 3.5 Fear of threats and ruined relationships



**3.1 Need for livelihood**

“...ug **wa nay lain panginabuhian, modagan gyud sila sa lasang** kay mao may nakita nila nga ilang ka pang wartahan...”

“...kasagaran kaning mga **abaca**... gikan gyud sa lasang...**ginabaligya** gyud sya...sa diri maam... mao gyud na ang among **panginabuhian**...”





### 3.3 Implementers' fear of rebels

*"... tungod sa **mahadlok** sila ug kuan sa pikas...unsaon manang kaingin dinha unya mahigpit sa **pikas**... dili gyud sila ka attack sa gapamutol, murag napasagdan ra ba."*



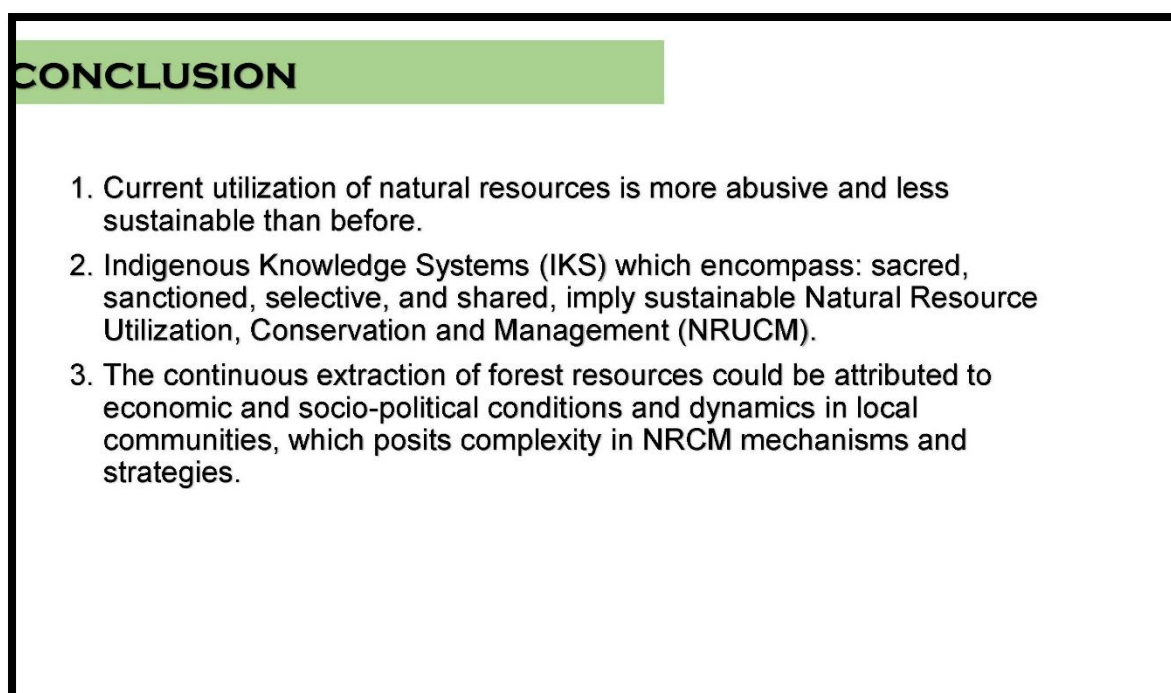
### 3.4 Limited sanctions for violators

*"...naa gapang gabas pero **ipa report ra** man na sila didto... **wala na dayon**..."*

*"...sige palusot (ug kahoy) dinhi kada gabie...kay isa moingon nga dakpon nila... kato sauna nga moingon man sila nga ilang gapuson pero **daghan naman kaayo mga nanglusot nga kahoy pero wala man nila gigapos**..."*



**Figure 3.76: Conclusion on indigenous Knowledge System on Natural Resource Utilization, Conservation, and Management in Mt. Malimumu**



## **E. Policy Recommendations**

### **E.1 (DENR and LGU)**

1. Implementation of *in situ* and *ex situ* conservation measures for the threatened and endemic species of plants and animals particularly the site endemic species such as *Nepenthes cabanae*, *N. malimumuensis*, *N. manobo* and *Ophioderma subsessile* for long term monitoring, (Refer to checklist of the threatened and endemic plants and animals);
2. Protection of the forest habitat of the Philippine Eagle (*Pithecophaga jefferyii*);
3. Participation in trainings on propagation protocols, spore culture and nursery establishment for the economically-important plants including the endangered and endemic ones;
4. Dissemination of the Communication, Education and Public Awareness (CEPA) materials like posting in strategic places to enhance understanding and awareness of the biodiversity in the area.
5. Re-introduction of indigenous species of plants through Assisted Natural Regeneration (ANR) to enhance the forest cover;
6. Integration of sustainable indigenous Knowledge System (IKS) in the utilization of forest and other natural resources by conducting cultural sensitivity trainings , among field staff/implementers, and supporting the declaration of Indigenous Peoples' Day and its regular celebration to recognize and revitalize the IKS on forest and natural resources utilization and management;
7. Regular monitoring of the implementation of existing policies/laws on the utilization of forest and other natural resources;

8. Provision of technical and financial support to the Community-Based Forest Protection Unit (CBFU)
9. Provision of budget for sustainable livelihood of communities to limit extraction of forest resources and selling of farm areas to “local capitalists”; and
10. Legislation of local ordinance declaring Mt. Malimumu as Local Conservation Area (LCA).

## **E.2 LGU's (Municipal & Barangay)**

1. Integration of biodiversity data in the development of the comprehensive eco-tourism plan;
2. Declaration of an “Indigenous Peoples’ Day” and allocation of budget for its regular celebration, for the recognition and revitalization of IKS on forest and natural resources utilization and management;
3. Allocation of budget for sustainable livelihood communities to limit the extraction of forest resources and selling of farm areas to “local capitalists”;
4. Legislation of Barangay/Municipal ordinance declaring Mt. Malimumu as Local Conservation Area (LCA)

## **E.3 Education/ HEI's**

1. Dissemination of the Communication, Education and Public Awareness (CEPA) materials like posting in strategic places to enhance understanding and awareness of the biodiversity in the area.
2. Integration of the endemic and threatened species of plants and animals in the learning materials for elementary and high school students.

### 3.3 ANCESTRAL DOMAIN AND CULTURAL HERITAGE

#### A. Ancestral Domain Situation



#### Scope

As per report prepared by FEMMATRICS on July 30, 2018 with assistance from ADF, PAFID and NCIP and based on the testimonies of IP leaders during the 3D mapping process, traditional ancestral domain claim comprises a total land area of approximately 136,336,469 hectares. It covers around 30 barangays and 15 barangay portions in 5 municipalities and 2 city districts.

The NCIP approved land area of CADT, on the other hand, is only 102,324.82 hectares as indicated in the Certificate of Ancestral Domain Title (CADT R10-KIT-0703-0011). This parcel of land covers 24 barangays and 12 barangay portions in 5 municipalities (Kitaotao, North Cotabato, Quezon, San Fernando and Kibawe) and 1 city district (Marilog District Davao City). The said area includes 4 barangays of the Municipality of San Fernando namely, Cabuling,

Durian, Matupe and portion of Kalagangan. Several portions of traditional claim, however, appear to be excluded in ancestral domain title and digitized CADT map includes portions of barangays Bulalang and Dao.

### **Terrain**

Most (82.3%) of ancestral domain areas are characterized by very steep slopes (50 degrees and above) and steep slopes (30-50 degrees). The eastern side of ancestral domain is bounded by major river system, known as Salug or Davao River. Tributaries of Davao River extend from Marilog District to the Municipalities of San Fernando, Kitaotao and Quezon. Other water bodies, like creeks and springs, can also be seen in different parts of the territory.

### **Current Land Use**

During the rehabilitation of 3D map, different uses of land and natural resources were identified. At present, most areas are comprised by brushland (26.4%), secondary forest (25%), primary forest (18.3%), and grassland (10.5%). Only 17.6% is used for agricultural production, and 1.6% for residential sites and built-up areas.

### **Hazard Vulnerability**

According to hazard vulnerability map, several areas in ancestral domain are vulnerable to earthquakes due to the presence of around 10 fault lines beneath the surface of the land, particularly in portions of Kitaotao, San Fernando, Marilog and Arakan (excluded in approved areas).

Because of steep terrain, most areas are also prone to landslides, especially when continuous rain and strong earthquakes occur. There is 44% of the area is classified as high risk area, where active or recent landslides and tension cracks can be found. Most of this can be located in San Fernando, Kitaotao, Arakan and Kibawe.

Furthermore, areas near creeks and rivers are mostly prone to flooding. There are also 3,996 hectares of ecologically fragile and erodible lands identified in portions of Brgys Kalapaton, White Kilaman, Kisawa, East Dalurong, West Dalurong and Kalagangan. Conversion of these lands will cause damage to mangroves and fish sanctuaries.

### **Issues and Problems Encountered**

One of the main problems is the denudation of land, forest and water resources. While before, majority of the territories are forested areas, now only 18% can be classified as primary forest areas. This condition can be attributed largely to the following: extensive commercial logging operations, and pasture land establishment in the past; continued selling and leasing of land rights to migrants and settlers; on-going illegal logging activities; slash and burn agriculture practices; and extreme climate related hazards.

Another problem is inadequate capacity and resources to transform vast idle lands (grasslands and brushlands) into productive areas. Presently, production areas only comprise 18% of the territory and mostly planted with corn. If this scenario continues, it will affect the well-being of the succeeding generations since

they will have less economic resources and they will be more vulnerable to natural disasters.

### Goal Achievement

Based on the review of ADSDPP goals, majority of leaders expressed their highest goal achievement on leadership and governance and preservation of culture. Meanwhile, the lowest achievements were on land and environmental protection, peace and security, and livelihood development.

### Project Implementation Status

As regards to the implementation of ADSDPP investment plan, many projects related to health, land, environment, and education have been carried out in the past years. However, only a few projects were undertaken on the livelihood development and peace building.

### Hindering and Constraining Factors in ADSDPP Implementation

Based the assessment, the critical factors for the implementation of the ADSDPP are the following: 1.) the awareness and participation of the people; 2.) the capacity of the leaders and organizations to protect, manage, and develop the ancestral domain and communities; 3.) continuing support from government and non-government organizations; and 4.) conducive and peaceful environment for sustainable development. The following are the hindering and facilitating factors in the implementation of ADSDPP in the past 12 years:

**Table 3.36:**  
List of Hindering and Facilitating Factors in the Implementation of ADSDPP for the Past 12 Years

Hindering Factors	Facilitating Factors
<ul style="list-style-type: none"> <li>• Inadequate education, knowledge and skills, as well as inappropriate attitude of the community leaders and members</li> <li>• Misunderstanding among IP leaders and IPOs in the management of ancestral domain.</li> <li>• Inadequate capital and resources for ADSDPP implementation due to inadequate income and livelihood.</li> <li>• Remoteness and inaccessibility of IP communities.</li> <li>• Illegal and unsustainable development activities (mining, logging, quarrying and chemical farming)</li> <li>• Selling and leasing of lands within the ancestral domain to migrants and other entities.</li> <li>• Inadequate financial, technical and manpower support from LGUs and other government agencies.</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of CADT and ADSDPP as instruments for recognition of rights to ancestral domain and self-governance.</li> <li>• Availability of forest and water bodies as sources of food and livelihood.</li> <li>• Cooperation and active participation of our leaders and communities.</li> <li>• Presence of respected traditional leaders with capacity to negotiate and resolve conflicts and problems based on our customary laws.</li> <li>• Presence of our IP organization that can facilitate collective decision making and mobilization of the people, as well as linkages with other agencies and organizations</li> <li>• Education, training and information drive conducted by NGOs, LGU and others for the community leaders and members.</li> <li>• Financial, technical, material support from several LGUs, government</li> </ul>

<ul style="list-style-type: none"> <li>• Inadequate enforcement and respect of customary laws, organizational policies and national laws on ancestral domain and IP rights.</li> <li>• Territorial boundary conflicts with other tribes (Ubo-Manobo AD claim)</li> <li>• Entry of investors, companies and institutions (eg. Resorts, rest house, churches, plantations, livestock production) without FPIC.</li> <li>• Cultural influences of non-IP and mainstream institutions and culture</li> </ul>	<p>agencies and other support groups for education, health, nutrition, livelihood, environmental conservation, infrastructure, and legal services.</p> <ul style="list-style-type: none"> <li>• Continuing peace talks between government and rebel forces.</li> </ul>
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## B. Enhanced Development Framework

### Vision-Mission Statement

The Matigsalug-Manobo Tribe within CADT No. R10 KIT-0703-0011 envision the following:

1. A free and self-determined government, as a tribal municipality under the united and respected leaders especially to the indigenous tribal communities who are being heard, consulted and served;
2. A living culture, which is faithfully adhered to and passed on to the future generations;
3. Lasting peace and justice to the tribe through respect and adherence to the Gantangan, Palavian, Kukuman and customary laws;
4. Delivery of basic services, i.e., education for children, roads and bridges, health facilities, services and medicines, livelihood and others;
5. Utilization of natural resources in ancestral domain for the empowerment of Indigenous Cultural Communities and future generations towards sustainable development; and
6. Respect of the migrants to culture, and unity with the local and national governments in the administration of the communities.

## C. Goals

- a. Identify and implement ecologically balanced resource use within the ancestral domain, and a sound environmental protection system, within the policy framework embodied in RA 8371
- b. Strengthen indigenous council leaderships in the different sitio and barangays and the indigenous peoples organization within the Matigsalug-Manobo ancestral domain.
- c. Meaningfully participate in the decision-making process for the sustainable management and development, including in the determination and prioritization of programs, projects, and policies for development and protection of the ancestral domain.
- d. Strengthen and promote the Federation of matigsalug-Manobo Tribal Councils (FEMMATRICs), Inc. as Indigenous Peoples Organization to facilitate collective endeavors.
- e. Effectively deal with interested entity/ies who want to enter into business with the tribe involving the ancestral domain, i.e., utilization, extraction,

- harvesting, development or exploitation of any natural resources following the policies of the Matigsalug-Manobo tribe and the guidelines set by concerned agencies in securing Free and Prior Informed Consent (FPIC).
- f. Uplift the socio-economic conditions through livelihood/ entrepreneur programs/ projects in the ancestral domain.
  - g. Deliver basic social services through enhanced linkages with other Peoples Organizations (Pos), non-Governmental Organizations (NGOs), Local Government Units (LGUs) and National Government Agencies (NGAs).
  - h. Increase the level of functional literacy and education among children and adults.
  - i. Strengthen, promote and preserve culture, traditions and indigenous knowledge systems and practices.
  - j. Conserve, rehabilitate and protect the environment and natural resources within the ancestral domain.

#### **D. Objectives:**

##### Sustainable Peace

- a. To prevent and reduce armed encounter between the military and NPAs within the ancestral domain.
- b. To reorganize "*Pahalad*" or tribal security in order to protect the communities and enforce the customary laws and policies.
- c. To settle boundary conflicts among clans and other tribes
- d. To eliminate all kinds of illegal activities within the CADT

##### Promotion of Culture

- a. To document and publish the culture of the tribe so that this can be read and lived out by succeeding generations.
- b. To continue teaching of culture by establishment of school of living tradition.
- c. To preserve cultural instruments by establishing a Tribal Museum.
- d. To improve and promote the products of the tribe by putting up "*Baley Ne Himuwanan*" and Tribal Display Center.

##### IP Education

- a. To ensure the implementation of IP Education Curriculum in Schools based on culture and situation of the tribe.
- b. To improve the school facilities in remote areas with electric connection and concrete road.
- c. To ensure that IP teachers are given priority to teach in schools within the ancestral domain system.
- d. To ensure the continuing education of out-of-school youth through Alternative Learning System.
- e. To get assistance for scholarship of deserving college students in order to increase the number of professionals among tribe.

##### Health and Wellness

- a. To encourage families to plant vegetable and herbal plants in their background to ensure adequate and sustainable supply of food and herbal medicines.



- b. To increase skills of the families especially the mothers, to make herbal medicine so they will not anymore buy expensive medicines to treat their sickness.
- c. To increase the number of IP midwifery and nursing students who can avail scholarship and pass the board exams.
- d. To increase access of communities to potable water system
- e. To strengthen the cooperation among “*Manguyamo*” (tribal healers), midwives, nurses, and doctors in promoting health and wellness.

## **E. Ancestral Domain Map Validation Report**

### **Background**

The ADF, in partnership with PAFID and FEMMATRICS, conducted a validation workshop of the thematic maps of Matigsalug-Manobo CADT in MLCA Training Center, Sinuda, Kitaotao last March 15-16, 2018. This was attended by 35 IP leaders from 5 Municipalities and 1 City District covered by the FEMMATRICS’ ancestral domain. A representative from NCIP Provincial Office in Malaybalay, Bukidnon also joined the group.

After the workshop, a ground validation survey was conducted on selected ancestral domain boundary monuments, particularly in Overview, Pontian, Katipunan, Balite and Namnam. The survey team included representatives from ADF, PAFID and FEMMATRICS.

### **Findings and Observations**

The following are the highlights of the findings and observations during the validation workshop and ground survey:

1. Based on the testimonies of the IP leaders during 3D mapping process, the traditional ancestral domain claim of FEMMATRICS comprises a total land area of approximately 136,336,469 hectares. It covers a total of 35 barangays and 16 barangay portions in 5 Municipalities and 1 City District.
2. The NCIP approved total land area of the CADT, on the other hand, is only 102,324.82 hectares as indicated in the Certificate of Ancestral Domain Title (CADT R10-KIT-0703-0011). Although the Title shows that the CADT covers 28 barangays and 16 barangay portions, the digitized CADT map, which was generated based on NCIP CADT technical description, appears to exclude the following areas: portions of Brgy. Sanipon and Kisawa, Municipality of Kibawe; portions of Brgy. Marilog and Brgy Gumitan, Marilog District and Brgy. Malabog, Paquibato District, Davao; portions of Bulalang and Dao, Municipality of San Fernando; Brgy Binoongan, Brgy. Napaliko, portion of Katipunan and Datu Ludayon, Municipality of Arakan; portions of Salaysay, Kawayan, and Lipa, Municipality of Quezon. The observed exclusion of some of the traditional territories of the FEMMATRICS was confirmed by the testimonies of some of the elders during the map validation workshop and during the ground validation survey of selected CADT boundary monuments.
3. For Marilog side, Datu Benito Paundag of Barangay Balite pointed out that the boundary points in the digitized map resemble the locastion of the NCIP boundary monuments in Marilog area. He himself admitted that the NCIP approved CADT boundary did not include Brgy. Balite because of the opposition of some IP leaders in Marilog. His statement was corroborated by the ground validation findings. Out

of 5 monuments visited by the team, 4 were labelled “NCIP AD 10”; while the one in Balite was labelled “Balite BAL 1987” (Please refer to attached picture and GPS coordinates of the surveyed monuments.) this finding indeed showed that the Balite marker was not part of NCIP established CADT monument, and therefore not included in the CADT approved boundary.

4. For Kibawe side, Datu Ganes Mantagiman of Barangay Pinamula manifested that his barangay was not included in the Matigsalug-Manobo CADT. He discovered this through an NCIP memorandum, which indicated that the NGCP Towers supposedly located with his barangay, are outside of the FEMMATRICS CADT based on NCIP GPS survey. Said memorandum was issued by NCIP in response to his queries if the NGCP towers in his barangay, are included in the CADT of FEMMATRICS.
5. For San Fernando side, Datu Jose Dia-on of Barangay Sinuda who accompanied the NCIP team during the CADT delineation survey, claimed that the boundary monument was established in portion of Barangay Dao, Barangay Cabulling and Barangay Durian, but not in Barangay Santo Domingo and Barangay Kalagangan as previously claimed by some IP leaders from San Fernando. Although the latter were part of the traditional AD boundary, these were not included in the delineation survey because of the opposition of the political leaders in said areas at that time.
6. For Kitaotao side, Datu Jose Dia-on likewise pointed out that two NCIP boundary monuments were established in Pontian and Overview as shown in the digitized map. Said boundary monuments were located during the ground validation survey in the position identified in the digitized map based on the GPS reading of their coordinates.
7. Certain areas in the CADT are vulnerable to landslides, earthquake and flooding. This can be made worst if the mining operation of Brixton Investment Corporation in Brgy. Kiplas and Lorega will push through.
8. Most provisions of the existing AD management policies and mechanisms have been affirmed by the IP leaders, however there were suggestions to review the document in view of the plan to strengthen the IPs and the creation of IPOs in every municipality covered by CADT. Specifically, there is a need to clarify the management arrangement and resource sharing among IPOs and FEMMATRICS.

## **Recommendations**

1. Request NCIP to conduct ground survey in other areas covered by CADT to confirm the position of the boundary monuments, especially in San Fernando, Marilog, Quezon areas.
2. Make NCIP CADT as indicative base map for current and future land use map as well as ADSDPP updating.
3. Review ADSDPP policies and implementing mechanism in view of the plan to strengthen the IPs as highest governing body and the creation of IPOs in the covered municipalities.
4. Make a CCA-DRR plans in areas prone to natural disasters and climate related risks.

*Note: This Report is prepared by FEMMATRICS as of July 30, 2018 with assistance from ADF, PAFID and NCIP*

MATIGSALOG-MANOBO INDIGENOUS COMMUNITIES

UPDATED ADSDPP INVESTMENT PLAN

Municipality: SAN FERNANDO

LAND AND ENVIRONMENTAL SECURITY

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
ADSDPP Updating and Enhancement Workshop	Existence of updated and enhanced ADSDPP	Entire ancestral domain	/	/	/			FEMMATRICS, NCIP, LGU, ADF, NGOs	200,000.00
Formation of Clan Organization	Presence of clan-based organizations	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			FEMMATRICS, NCIP. LGU, NGO, PRIVATE COMPANY	270,000.00
Enhancement, information dissemination and enforcement of policies for protection of ancestral domain, particularly on:	Enforced ancestral domain protection policies	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			FEMMATRICS, LGU, DENR, NCIP,	
• prohibition of mining								MGB, DENR, NCIP, FEMMATRICS	25,000.00
• prohibition of logging								DENR, LGU, FEMMATRICS	125,000.00
• prohibition of selling of land								FEMMATRICS, NCIP, LGU	125,000.00
• regulation of entry of companies and migrant settlers without FPIC								FEMMATRICS, NCIP, LGU	125,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Planting of trees in the farms and denuded areas in the mountains/Agroforestry, such as:	Additional trees planted in the mountains	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao		/	/	/		DENR, DA, FEMMATRICS,PEF, ADF	
• cacao								DA,DENR,LGU, NGO, Private Company	1,500,000.00
• coffee								DA,DENR,LGU, NGO, Private Company	1,500,000.00
• coconut								DA,DENR,LGU, NGO, Private Company	1,500,000.00
• rubber								DA,DENR,LGU, NGO, Private Company	1,500,000.00
• banana								DA,DENR,LGU, NGO, Private Company	1,500,000.00
• abaca and others								DA,DENR,LGU, NGO, Private Company	1,500,000.00
Planting of bamboos along the rivers	Bamboo trees planted along the rivers			/	/	/		FEMMATRICS, DENR, BLGU, LGU	900,000.00
Recognition and declaration of the following protected and sacred areas within the ancestral domain:	Declared and recognized protected areas		/	/	/	/		FEMMATRICS, IPMR, DENR, DOT	
• sacred waters and watershed		Tandayag falls Bulisan Falls Piglesingan Falls							750,000.00
• spring sources		Tandayag falls Bulisan Falls Piglesingan Falls							600,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
<ul style="list-style-type: none"> <li>historical places</li> </ul>		Brgy. Cabuling - Apo Gepew Burial Ground						FEMMATRICS, DA, NCIP , DOT	200,000.00
<ul style="list-style-type: none"> <li>wild life sanctuary and others</li> </ul>		Mt. Bulalang Mt. Mibanawes Mt. Kalambug							600,000.00
Development of eco-tourism sites	Existence of eco-tourism sites	Tandayag Falls Bulisang Falls Piglesingan falls Salug river rafting			/	/	/	FEMMATRICS, DENR, DOT, LGU, BLGU	4,000,000.00
Organization of forest guards (bantay kalikasan)	Existence of organized forest guards	Mt. Bulalang Mt. Mibanawes Mt. Kalambug Mt. Kan-anon	/	/	/			FEMMATRICS, DENR, LGU, BLGU	4,000,000.00
Formulation and implementation of Disaster Risk Reduction & Management Plan	Availability of DRR-CCA Plan and Policies	Brgy. Kalagangan Brgy. Cabuling Brgy. Durian Brgy. Matupi Brgy. Bulalang Brgy. Dao	/	/	/			FEMMATRICS, DENR, LGU, MDRRMC	3,000,000.00
Total									25,420,000.00

### IP EDUCATION

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Construction of roads going to school	Availability of roads going to the schools	Sitio Simsimon, Brgy.Kalagangan Sitio Balugo			/	/		DPWH,BLGU,MLGU, PLGU	5,000,000.00
Construction of vocational school	Presence of vocational school	Brgy.Kalagangan Brgy.Matupi Brgy.Bulalang			/	/		DEPED, TESDA, MLGU	4,500,000.00
Establishment of Alternative Learning System (ALS) Program and Classes	Availability of ALS classes	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			BLGU, MLGU, DEPED	1,800,000.00
Establishment of IKSP center within the schools	Presence of IKSP center in the school	Brgy. Kalagangan Brgy.Durian		/	/	/		BLGU, MLGU, DEPED, ADF	400,000.00
Recruitment of IP teachers for schools within the ancestral domain	Presence of IP teachers in schools within the ancestral domain	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao		/	/	/		BLGU,NCIP,DEPED	7,500,000.00
<b>Total</b>									<b>19,200,000.00</b>

## HEALTH AND WELLNESS

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Trainings on health, family planning and sanitation	Availability of health training program	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			DOH, RHU, ADF	2,400,000.00
Establishment of birthing facility	Availability of birth facility	Brgy.Kalagangan Brgy.Cabuling		/	/			DOH,MLGU, NCIP	700,000.00
Establishment of Maternity Waiting Home	Availability maternity waiting home	Brgy.Kalagangan Brgy.Cabuling						DOH,MLGU, NCIP	500,000.00
Establishment of health center in sitios	Accessible health centers	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao		/	/			MLGU, NGOs, DOH	2,700,000.00
Construction of sanitary toilets/ water sealed bowls in the households	Access to sanitary toilet at home	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				ADF, MLGU, RHU	1,200,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Provision of scholarship grants to IP midwifery students to ensure priority services to the tribe after they graduate	Availability of IP midwife in health centers	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao		/	/	/		MLGU, IPMR, NCIP,RHU	6,000,000.00
Establishment of organic vegetable and herbal gardens	Availability of backyard garden	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				ADF, DA, DSWD	1,500,000.00
Construction of water system	Access to water system	Sitio Lugawon Sitio Malunasay Sitio Napiluan	/	/	/			ADF, MLGU, DILG	1,500,000.00
Submit proposal to PCSO for services vehicle that can carry deceased IP members	Availability of service vehicle	Brgy. Bulalang Brgy.Dao Brgy.Kalagangan Brgy.Matupi			/	/		PCSO, MLGU	2,000,000.00
Support for fuel and maintenance of Emergency Transportation Vehicle (ETV)	Availability of funds for maintenance and fuel of ETV	Brgy. Bulalang Brgy.Dao Brgy.Kalagangan Brgy.Matupi			/	/		MLGU, NCIP	20,000.00
<b>Total</b>									<b>18,520,000.00</b>



## LEADERSHIP AND GOOD GOVERNANCE

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Regular meeting of FEMMATRICS Board of Trustees	Regular meeting of BOT	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			FEMMATRICS	150,000.00
Information, education, campaign (IEC) of IPO policies to the people	IEC regarding FEMMATRICS conducted	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				FEMMATRICS, MLGU, NCIP	120,000.00
Training of leaders, women and youth regarding <ul style="list-style-type: none"> <li>• Good governance</li> <li>• IPRA</li> </ul>	Availability of training program for community leadership and governance	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				ADF, NCIP, MLGU	864,000.00
Construction of "tulugan" or training center	Existence of tulugan	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang		/	/	/		ADF, NCIP, MLGU, OPPAP, DSWD	4,000,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
		Brgy. Dao							
Collection of SAPAT TE TAMBALE (royalty) in order to generate funds for the organization	Presence of fund collected as royalty	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao		/	/	/	.	FEMMATRICS ,NCIP,LGU	30,000.00
Organization of communities inside the ancestral domain	Presence of strong governance in the communities	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				FEMMATRICS, NCIP, MLGU	600,000.00
Enhancement of representation and coordinated with LGU through selection of Municipal and Barangay IPMR	Presence of IPMR in each barangay	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				DILG, MLGU, NCIP	600,000.00
Establishment of tribal hall	Availability of tribal hall for meetings	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao			/	/		DILG, MLGU, NCIP	1,000,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Total								7,214,000.00	

### SUSTAINABLE PEACE

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Organization of Pahalad (peacekeeping force) to monitor and report illegal activities in the ancestral domain	Presence of organized pahalad	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				FEMMATRICS, MLGU,AFP,PNP	600,000.00
Peace and security training, dialogue, and assembly in every community	Continued peace trainings	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				MLGU, OPAPP, NCIP,FEMMATRICS	1,350,000.00
Conflict resolution and dialogue among conflicting families, clans, and communities regarding their territorial boundary	Agreement on boundary conflicts	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			OPAPP, NCIP, MLGU,	600,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Continued negotiations among armed groups to avoid armed encounters within the ancestral domain	Agreements on suspension or cessation of hostilities	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao		/	/			FEMMATRICS, OPAPP,AFP,PNP,NPA	1,200,000.00
Total								<b>3,750,000.00</b>	

### SUSTAINABLE LIVELIHOOD

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Sustainable Agriculture and Enterprise Trainings	Sustainable agriculture and livelihood training program	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			Tribal Council, IPMR, FEMMATRICS, BLGU,DA,PCA	2,250,000.00
Production of food crops like:	Availability of food and durable crops in the garden and farms	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			FEMMATRICS, LGU, ADF, NGO, DA, DENR	
• rice									3,000,000.00
• corn									3,000,000.00
• vegetables									3,000,000.00
• other root crops									3,000,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Production of permanent crops, like:	Availability of durable crops in the farm	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			FEMMATRICS, LGU, ADF, NGO, DA, DENR	
• coffee									1,500,000.00
• cacao									1,500,000.00
• falcata									1,500,000.00
• abaca									1,500,000.00
• fruit trees (durian, lansones, mangosteen, rambutan, lanzones, mangga, bread fruit)									1,500,000.00
Raising of livestock	Availability of livestock for food and additional income	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/	/			FEMMATRICS, LGU, ADF, NGO, DA, DENR	
• horse									600,000.00
• cow									600,000.00
• goat									900,000.00
• chicken									600,000.00
• pig									600,000.00

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Setting up of fishponds for tilapia, carp, and catfish	Existence of fishponds			/	/			FEMMATRICS, LGU, ADF, NGO, DA, DENR	2240,000.00
Creation of alternative livelihood, like:	Availability of alternative source of income	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao		/	/	/		NGO, ADF, DSWD, PEF, DENR, MSU, IPMR, LGU, TESDA	
• handicraft making									200,000.00
• honey Farm									200,000.00
• furniture and wood craft making									500,000.00
• basketry making									200,000.00
• beads making									60,000.00
• herbal medicine making									200,000.00
• food processing									400,000.00
• cacao processing									350,000.00
• knife making									1,200,000.00
Link with different agencies	Agreement for support secured		/	/				Tribal Council, IPMR, FEMMATRICS, BLGU	60,000.00
<b>Total</b>									<b>28,930,000.00</b>

## CULTURAL INTEGRITY

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Documentation and publication of IKSP of the tribe especially the Gantangan-Palavian and other Customary Laws	Availability of IKSP documentation for Matigsalug Tribe	Brgy.Kalagangan		/	/			FEMMATRICS, IPS, LGU, NCIP, NGO, ADF	150,000.00
Establishment of Living Heritage Center/Cultural Center	Presence of living heritage center and cultural center for storage of tribal instruments	Brgy.Kalagangan		/	/			FEMMATRICS, IPS, LGU, NCIP, NGO, ADF	1,000,000.00
Establishment of school of living tradition	Existence of SLT	Brgy. Bulalang		/	/			DEPED, FEMMATRICS, IPS, PAMULAAN, MLGU	350,000.00
Training on indigenous instruments and crafts making	Regular training of indigenous crafts making	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao	/	/				IP lider, kabataan, IP expert nga kabalo mag buhat ug mga handicraft	200,000.00
Creation of display center for indigenous products	Presence of display center for indigenous products	Brgy.Kalagangan			/	/	/	FEMMATRICS, DTI, MLGU, ADF	350,000.00
Organization of Matigsalug Theatre Arts Group	Existence of theatre arts group	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao			/	/		Mga kabataan, MLGU, LGU, FEMMATRICS, NCCA	300,000.00

Total	<b>2,350,000.00</b>
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### INFRASTRUCTURE DEVELOPMENT

PROJECTS	EXPECTED RESULTS	PRIORITY AREAS/BARANGAYS	TIMEFRAME					FUND SOURCE	BUDGET
			1	2	3	4	5		
Construction of Farm to Market Road (FMR)	Availability of road to the communities	Brgy.Kalagangan Brgy.Cabuling Brgy. Durian Brgy. Matupi Brgy.Bulalang Brgy. Dao			/	/		FEMMATRICS, MLGU, DPWH	12,000,000.00
Construction of tribal hall and balay tulugan	Availability of venue for conflict mediation and lodging for visitors	Brgy.Kalagangan Brgy.Durian			/	/		FEMMATRICS, OPAPP	2,000,000.00
Total									
Overall Total									<b>14,000,000.00</b> <b>119,384,000.00</b>



# 3

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# SOCIAL SECTOR

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### 3. SOCIAL SECTOR

#### 3.1 MAJOR SECTOR GOAL

Enhance, promote and sustain quality services on peace and order, welfare, shelter, health, education, and skills development, thereby creating an economically sufficient, peaceful and harmonious society.

#### 3.2 MAJOR SECTOR SWOT MATRIX

SOCIAL SECTOR	STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Housing</li> <li>• Health</li> <li>• Education</li> <li>• Protective Services</li> <li>• Sports and Recreation</li> <li>• Social Welfare</li> </ul>	<ol style="list-style-type: none"> <li>1. Harmonious relationship of Government Organizations (GO) and Non-government Organizations (NGOs)</li> <li>2. Available area for housing program</li> <li>3. Available basic health and educational services</li> <li>4. Competent social services personnel</li> <li>5. Available (technical skilled) manpower</li> <li>6. Presence of well-disciplined employees.</li> <li>7. Responsive clients</li> <li>8. Increasing member of professionals</li> <li>9. Existing laws and ordinances to improve social services</li> <li>10. Available financial resources for programs and project.</li> </ol>	<ol style="list-style-type: none"> <li>1. Lack of public school teachers, social workers and health workers.</li> <li>2. Non-resident school teachers.</li> <li>3. Untitled school sites, health centers and day care centers.</li> <li>4. Increasing number of underweight children.</li> <li>5. Unavailability of firefighting facilities.</li> <li>6. Non-implementation of health/sanitation ordinances.</li> </ol>
OPPORTUNITIES	SO STRATEGIES	WO STRATEGIES
<ol style="list-style-type: none"> <li>1. On-going development programs (SRA CIDSS)</li> <li>2. National program on socialized housing.</li> <li>3. Opening of San Fernando to Davao del Norte road.</li> <li>4. National Law on the creation of Disaster Coordinating Council</li> <li>5. Presence of NGOs of their programs.</li> <li>6. Responsive clients.</li> <li>7. Increasing member of professionals.</li> </ol>	<ol style="list-style-type: none"> <li>1. Coordinate with line agencies on the provision of livelihood projects.</li> <li>2. Provide Benchmarking programs.</li> <li>3. Lobby legislative support for housing projects implementation.</li> <li>4. Organize Disaster Coordinating Council.</li> <li>5. Tap youth organization for the implementation of development programs and projects.</li> <li>6. Enhance NC operation to encourage and support entrepreneurs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Promote comprehensive municipal nutrition program.</li> <li>2. Construct Day Care Centers, school building and health centers.</li> <li>3. Improve school facilities.</li> <li>4. Hire professionals (teachers and health workers).</li> </ol>

<b>THREATS</b>	<b>ST STRATEGIES</b>	<b>WT STRATEGIES</b>
<ol style="list-style-type: none"> <li>1. Increasing member of migrants.</li> <li>2. Rise on morbidity cases.</li> <li>3. Natural and man-made calamities</li> <li>4. Land squatting problems within school sites.</li> <li>5. Increasing rates of school drop-outs.</li> <li>6. Presence of armed threats in some areas.</li> <li>7. Less response of tribal groups to some services programs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Intensify Information and Education Campaign on different government programs.</li> <li>2. Intensify the implementation of localization programs.</li> <li>3. Legislate laws and ordinances to address problems on land squatting and armed threats.</li> <li>4. Coordinate with line agencies (like DOH, PNPs) to address recurring issues.</li> </ol>	<ol style="list-style-type: none"> <li>1. Intensify educational activities for indigenous people.</li> <li>2. Intensify Information and Education Campaign on preventive health care.</li> <li>3. Provide relocation sites for informal settlers within school sites, health centers and day care centers.</li> </ol>

## 3.3 SOCIAL SUB-SECTOR STUDIES

### 3.3.1 HOUSING

#### A. Situational Analysis

The provision of affordable and decent shelter is among the basic needs of man which provides protection, comfort and rest to people, a place where a family can live together. Housing is a structure where people are dwelling with the corresponding direct environment, infrastructure and services that support human activities.

Considering the last three censal years as shown in Table 3.37, the housing situation is obviously in uptrend condition due to increase in household population, emergence of OFW and high income earner families through business or employment, implementation of government residential subdivisions and conversion of agricultural land to residential lot areas.

It is noted that for the last three censal years, households who do not occupy housing units increased from 61 households in year 2000 to 153 counts after 10 years. Usually, these households are identified as informal settlers who illegally find shelters from public lands, private areas or even in dilapidated establishments, residents from hazard prone areas and rebel returnees involved in war conflicts who are usually indigenous people of San Fernando.

Fortunately, the Local Government Code of 1991 (RA 7160) and the Urban Development and Housing Act of 1992 (RA 7279) mandated the local government units to implement programs and projects on low cost housing and other socialized dwellings specially for the unprivileged and homeless families. In year 2015, the number of household without housing unit decreased to 82 counts.



*Paglaum Village at Barangay Little Baguio, San Fernando, Bukidnon*

**Table 3.37**  
**Housing Situation for the Last 3 Censal Years**  
**San Fernando, Bukidnon**  
**2000, 2010, 2015**

Housing Situation	2000	2010		2015	
	Number	Number	% Increase	Number	% Increase
Total HH	8,112	10,339	27.45	12,394	19.88
Total HH Population	40,165	50,150	24.86	55,981	10.06
Total HU					
Occupied HU	8,051	10,186	26.52	12,312	20.87
Vacant HU	-	-	-	-	-
Ratio of HH to Occupied HU	1:1.01	1:1	-	1:1.01	-
Ratio of HH Population to Occupied HU	1:4.99	1:4.9	-	1:4.55	-
HH w/o HU	61	153	-	82	-

*Legend: HH – Household*

*HU – Housing Unit*

*Source: PSA, Census 2000, 2010 and 2015 Population and Housing*

Considering the number of population of the municipality which counted to 56,138 headcounts during the Census 2015 as shown in Table 3.38, including the number of households recorded to 12,394 counts, the household size is computed which resulted to an average of 4.55 members per household. This assumption is used to get the number of household per barangay. Barangay Halapitan, the town center of the municipality, and the most populated area had 2,256 number of household while the least number of household is Barangay Bulalang with only 148 counts.

**Table 3.38**  
**Number of Household by Barangay**  
**San Fernando, Bukidnon**  
**Census 2015**

Barangay	Population	Number of Household
1. Bonacao	1,989	439
2. Bulalang	669	148
3. Cabuling	836	185
4. Cayaga	910	201
5. Candelaria	1,292	285
6. Dao	1,989	439
7. Durian	970	214
8. Halapitan	10,221	2,256
9. Iglugsad	1,622	358
10. Kalagangan	5,569	1,230
11. Kawayan	1,778	393
12. Kibongcog	1,935	427
13. Little Baguio	4,862	1,073
14. Mabuhay	3,083	681
15. Magkalungay	2,533	559
16. Malayanan	1,246	275
17. Matupe	2,121	468
18. Nacabuklad	1,250	276
19. Namnam	3,807	840
20. Palacpacan	1,412	312
21. Sacramento Valley	1,870	413
22. San Jose	973	215
23. Sto. Domingo	1,529	338
24. Tugop	1,672	369
<b>Total</b>	<b>56,138</b>	<b>12,394</b>

*Source: MPDO*

In table 3.39, it is recorded that out of 56,138 number of population, 55,981 counts are considered in the total number of household population, the remaining 157 individuals are belong to institutional household population who were residents from boarding houses, convents, staff houses, nurse and doctors' quarters, military camps and construction

campers. They were those who had families in other cities or municipalities but stayed in San Fernando for work, business, interventions and others.

**Table 3.39**  
**Occupied Housing Unit by Type of Building**  
**San Fernando, Bukidnon**  
**Census 2015**

Type of Building	Occupied Housing Units	HH	HH Population	Ratio	
				HH to occupied Housing Unit	HH Population to occupied Housing Unit
Single House	11,662	11,740	53,437	1.01	4.58
Duplex	420	422	1,662	1.00	3.96
Multi-unit Residential	179	181	686	1.01	3.83
Commercial/ Industrial/ Agricultural	17	17	62	1.00	3.65
Not Reported	34	34	134	1.00	3.94
<b>Total</b>	<b>12,312</b>	<b>12,394</b>	<b>55,981</b>	<b>1.01</b>	<b>4.55</b>

Source PSA, POPCEN 2015

Legend: HH- Household

Usually, the type of building occupied by the household in the municipality are single houses which recorded to 11,662 units out of 12,312 number of different type of buildings. Based on the total household population and total occupied housing unit, the average family size is 4.55.

The ideal standard of shelter need is one housing unit for each household. Additional housing needs maybe due to backlog resulting from doubled-up household, formation of new households due to an increase in population growth, and/ or the upgrading of existing housing units with problems on tenure and structural status.

Out of 12,312 occupied housing units, majority of it are made of wood or semi-permanent/mixed materials which accounted to 7,896 or 64.13% as shown in Table 3.40. These are found mostly in rural areas which occupied by low income groups.

On the other hand, housing units made of concrete or permanent materials are usually constructed in urban and urbanizing areas wherein most of the occupants are high income earners like business owners, private and government employees and professionals. Few are found in rural areas which are occupied by OFWs and farm owners. The rest are made of light materials which are mostly occupied by indigenous people. The high cost of building materials contributed to the disparity.

With an increasing population each year with more households needed shelter for their family, the affordability among the populace poses a display among the low income group in the construction of new houses.

Majority of the tenure status of the housing unit and lot for the last three censal years are owned or being amortized. Out of the total of 8,112 households recorded in 2010 shown in Table 3.41, there are 5,633 households are either the owner of the lot or the lot is being amortized to them where their houses are constructed. After 10 years the number increased to 36.59% or total of 7,694 owned units and lot being amortized but in year 2015, it decreased to 6,884 or a negative percentage of (-10.53%).

**Table 3.40**  
**Occupied Housing Units by Construction Materials of the Outer Wall and Roof**  
**San Fernando, Bukidnon**  
**Census 2015**

Construction Materials of the Outer Walls	Total Occupied Housing Units	Construction Materials of the Roof					
		Galvanized iron/ Aluminum	Tile/ Concrete/ Clay Tile	Half Galvanized Iron and Half Concrete	Bamboo/ cogon/ nipa/ anahaw	Makeshift Salvaged/ Improvised materials	Trapals
Concrete/ Brick/ Stone	1,203 (9.77%)	1,195	3	3	2	-	-
Wood	7,896 (64.13%)	6,576	10	16	1,156	78	60
Half Concrete/ Brick/ Stone and half Wood	1,281 (10.40%)	1,248	2	28	3	-	-
Galvanized Iron/ Aluminum	68 (0.55%)	66	-	1	1	-	-
Bamboo/ Sawali/ Cogon/ Nipa	1,670 (13.56%)	745	-	1	909	5	10
Asbestos	14 (0.11%)	14	-	-	-	-	-
Glass	4 (0.03%)	4	-	-	-	-	-
Makeshift/ Salvaged/ Improvised Materials	46 (0.37%)	15	-	-	22	8	1
Trapal	96 (0.78%)	36	-	-	34	3	23
Not Reported	34 (0.28%)	32	2	-	-	-	-
<b>TOTAL</b>	<b>12,312</b>	<b>9,931</b>	<b>17</b>	<b>49</b>	<b>2,127</b>	<b>94</b>	<b>94</b>

Source: PSA, POPCEN 2015

The number of rented dwelling unit and lot is gradually increasing each year. Households who constructed their own houses in a rented lot and those who rented houses and lot with and without the consent of owner are recorded in year 2015 which accounts to 256(2.07%) and 1,366 (11.02%) and 13 (0.10%) respectively out of the total of 12,394.

**Table 3.41**  
**Occupied Housing Units and Lots by Tenure Status for the Last Three Censal Years**  
**San Fernando, Bukidnon**  
**2000, 2010, 2015**

Tenure Status of the Housing unit and Lot	2000	2010	%	2015	%
	Number	Number	Increase	Number	Increase
Own or being amortized	5,633	7,694	36.59	6,884	(-10.53)
Rented	214	251	17.29	256	1.99
Own house rent lot	-	-	-	189	-
Rent-free lot with consent of owner	1,795	2,218	23.57	3,614	62.94
Rent-free lot without consent of owner	64	89	-	72	-
Rent-free house and lot with consent of owner	-	-	-	1,366	-
Rent-free house and lot without consent of owner	-	-	-	13	-
Not Applicable	1278	87	(-93.19)	-	-
Not Reported	279	-	-	-	-
<b>Total</b>	<b>8,112</b>	<b>10,339</b>	<b>27.45</b>	<b>12,394</b>	<b>19.88</b>

Source: PSA, POPCEN 2015

## Residential Subdivision

The Municipality of San Fernando had developed four (4) government owned residential subdivision with socialized and low cost housing units as enumerated in Table 3.42. Due to flashflood that hit the municipality in year 2013, two (2) socialized housing

areas were allocated to cater the flood victims located at Barangay Little Baguio and Barangay Iglugsad, implemented a construction of 26 and 16 socialized housing units respectively started July 2013 and completed on July 2014. The said unit is a single type residential building with a standard floor area of 25 square meters good for one (1) household. Socialized housing unit is made of half concrete-half wood walls and galvanized iron roofing while low cost housing unit is made of amakan and wood walls and galvanized iron roofing.

This implementation is described as the “PAGLAUM (means Hope) Village Housing Project” which also prioritized the informal settlers from government owned lands and people who are identified as rebel returnees. There are additional 50 informal settler households benefited at Barangay Little Baguio which illegally occupy private owned land and those families relocated from hazard prone areas like riverside. There were 21 rebel returnees together with their families granted with socialized housing units at Barangay Kibongcog which were constructed last August 2013 and completed on April 2014.

Due to development and improving commodities in San Fernando, the Local Government identified an area for tourism site which caused mostly indigenous people to relocate because of the proposed Eco-tourism Park in Barangay Halapitan. Funds were insufficient to grant them a socialized housing unit but the LGU found an option to provide construction materials and financial assistance. Fifty (50) households were permitted to construct their own house at identified government low-cost housing area located at Sitio Malantao of Barangay Halapitan. The KALAHI-DSWD also constructed two (2) socialized housing units at the same location as part of their donations.

**Table 3.42**  
**Inventory of Residential Subdivisions**  
**San Fernando, Bukidnon**  
**2018**

Location	Little Baguio, San Fernando, Bukidnon	Iglugsad, San Fernando, Bukidnon	Kibongcog, San Fernando, Bukidnon	Sitio Malantao, Halapitan, San Fernando, Bukidnon
<b>Project Description</b>	Socialized Housing (PAGLAUM Village Housing Project)	Socialized Housing (PAGLAUM Village Housing Project)	Housing and Socialized Housing (PAGLAUM Village Housing Project)	Low Cost Housing and Socialized Housing (PAGLAUM Village Housing Project)
<b>Area Occupied</b>	3.80 hectare	0.50 hectare	2.0 hectare	1.2 hectare
<b>Type of Building</b>	Single House	Single House	Single House	Single House
<b>No. of Units</b>	66	26	21	50 – Low Cost Housing 2 – Socialized Housing
<b>Floor Area (sq.m)</b>	25 sqm	25 sqm	25 sqm	50 – varies 2 – 25 sqm
<b>Construction materials of the Roof</b>	Galvanized iron/ ALuminum	Galvanized iron/ ALuminum	Galvanized iron/ ALuminum	Galvanized iron/ ALuminum
<b>Construction Materials of the outer walls</b>	Half Concrete, Half Wood	Half Concrete, Half Wood	Half Concrete, Half Wood	50 – wood, amakan 2 – half concrete, half wood
<b>Agency involved</b>	Provincial Government/ LGU	Provincial Government/ LGU	PAMANA DILG/ LGU	DSWD/ KALAHI/ LGU
<b>Funding Source</b>	Provincial Fund/ LGU	Provincial Fund/ LGU	DILG PAMANA	DSWD/KALAHI/ LGU
<b>Tenure Status</b>	Rented and rent to own	Rent-free	Rent-free	Rent-free
<b>Period of Implementation</b>	July 2013 – December 2018	July 2013 – July 2014	August 2013 – April 2014	2013
<b>Beneficiaries</b>	Informal Settlers	Flood Victims	Rebel Returnees	Informal Settlers from government owned land (tourism site) and hazard prone areas

Source: Municipal Engineer's Office (MEO)



Considering the growth of population in the coming years and intervening the existing of homeless households, there is a potential land for expansion of the government socialized housing project at Sitio Colon of Barangay Halapitan of about three hectares. There is also a proposal from a private land developer of a residential subdivision at Barangay Mabuhay.

## B. Goal

Provide decent and healthy living environment.

## C. Problems, Causes and Impacts (Effects)

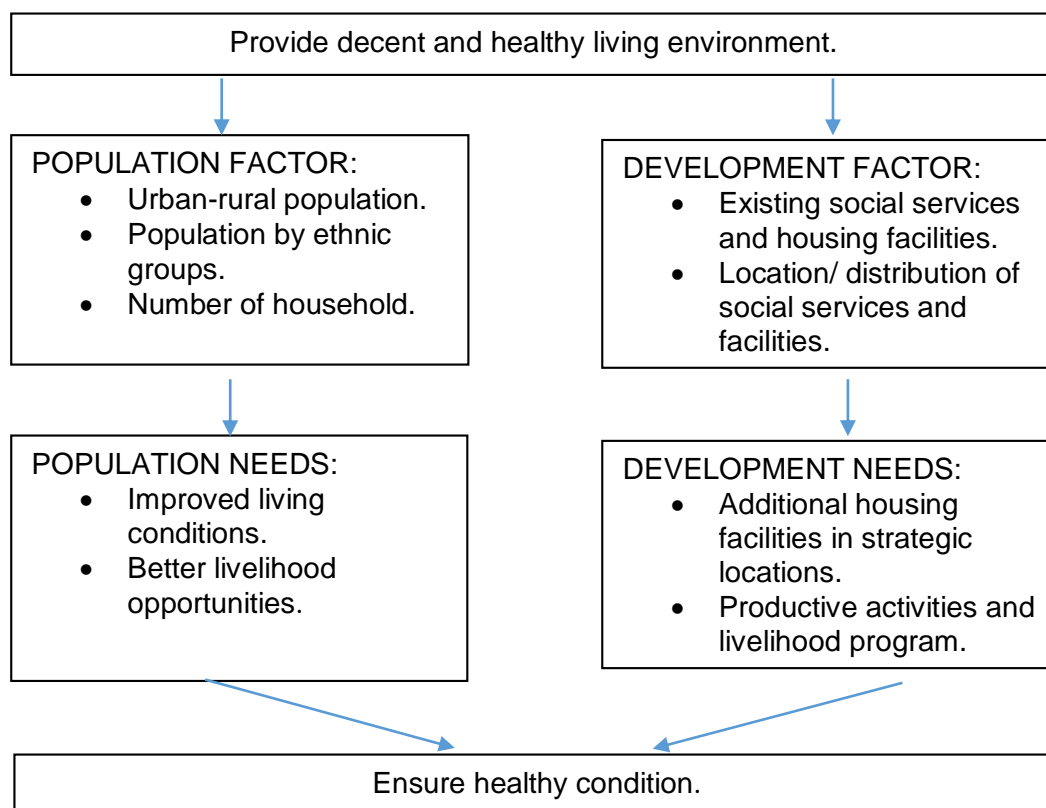
PROBLEMS	CAUSES	IMPACTS
1. Presence of informal settlers in public and private lands and along hazard/flood prone area.	<ul style="list-style-type: none"> <li>- Population growth</li> <li>- Rural-urban migration</li> <li>- Lack of affordable housing</li> <li>- Lack of tenure</li> <li>- Poverty</li> <li>- Inadequate basic services</li> </ul>	<ul style="list-style-type: none"> <li>- Poor health and sanitation</li> <li>- Congested, unhygienic and crowded houses</li> <li>- Prone to disasters</li> <li>- Inaccessible to basic services like water, food, sanitation, sewerage, and garbage collection.</li> <li>- No security of tenure</li> <li>- Lives of resident at risk</li> </ul>
2. Presence of insurgencies.	<ul style="list-style-type: none"> <li>- Discrimination</li> <li>- Low income generating jobs</li> <li>- Lack of livelihood of indigenous people who frequently suffer the clutches of poverty</li> <li>- Poverty</li> <li>- Unemployment</li> <li>- Political alienation</li> <li>- Land use and Property Rights</li> <li>- Desire of equality</li> <li>- Dissatisfaction</li> <li>- Discontentment</li> </ul>	<ul style="list-style-type: none"> <li>- War/ conflicts</li> <li>- Displacement of population</li> <li>-</li> <li>-</li> <li>-</li> </ul>
3. High cost of residential lot and available socialized housing site.	<ul style="list-style-type: none"> <li>- Accessibility to economic activities</li> <li>- Scarcity</li> <li>- Present and future land use</li> <li>- Future development potential</li> <li>-</li> </ul>	<ul style="list-style-type: none"> <li>- No housing program or socialized housing can be implemented</li> <li>- Insufficient fund</li> <li>- Low cost of housing site but inaccessibility of basic needs/facilities</li> <li>- Unproductive activities and unavailability of livelihood opportunities</li> </ul>

## D. Problems, Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Increase of informal settlers in public and private lands and along hazard/flood prone area.	-To provide additional housing units in a strategic locations	-Prioritized those in danger areas and identify and acquire land for relocation	-Resolution Ordinance
2. Presence of insurgencies.	-To provide socialized housing and livelihood opportunities to improve living condition.	-Funding allocation and tapping/linkages to NGO and private owners	-Resolution Ordinance (Socialized Housing)
3. High cost of residential lot and available socialized housing site.	-Identify adequate and suitable lands for housing or residential areas	-Confer with land owners	

## E. Situational Analysis Framework

### SA FRAMEWORK



### 3.3.2 HEALTH

#### A. Situational Analysis

##### Rural Health Unit (RHU)

There are 23 barangay health stations in different barangays of San Fernando, the main Rural Health Unit is currently utilized by Brgy. Halapitan as their health station. For GIDA areas, 5 Health Nutrition Post are strategically constructed and established in remote areas in Sitio Elian, Purok 10, and Sitio Nala of Brgy. Halapitan, Sitio Mahayag, Sacramento Valley, Sitio Mauswagon, Little Baguio and Sitio Malambago, Magkalungay. These facilities will cater to all health needs of the constituents in these places while providing them with privacy and confidentiality during consultation and PNC visits.



Source: Municipal Health Office (MHO)

The Rural Health Unit of San Fernando is composed of different skilled personnel (see Table 3.43) who actively rendered full time services to the community supervised by a Physician and at the same time designated as the Municipal Health Officer of the municipality.

**Table 3.43**  
**List of RHU Personnel**  
**San Fernando, Bukidnon**  
**2018**

Designation	No. of Personnel
Physician	1
LGU/Nurses (PHN & RB)	2
Rural Health Midwife	22
Medical Technologist/ HRH	1
Rural Sanitation Inspector	1
Drivers	2
Institutional Workers	5
Administrative Officer/ Clerk	1
Assistant Clerk	1
Laboratory Aide	1
Pharmacy Aide	1
Encoders (Information Technology)	2
Barangay Health Workers	278
Barangay Auxilliary Sanitation Inspector	24
HRH-NDP & RHMPPS	18
<b>Total</b>	<b>360</b>

Source: MHO

## Health Finance

Every year, the Local Government Unit Health Budget is increasing due to increasing budget acquisition to briefly provide the services that the community needs as shown in Table 3.44 parted to two budget provision namely the personnel services and maintenance operation and operating expenses (MOOE). In 2018 the budget increased to 11.73% which is lower than the past 2 years, (year 2017 increased by 16.20% and year 2016 increased by 19.64%).

**Table 3.44**  
**Health Financing Comparison (LGU Budget for Health)**  
**San Fernando, Bukidnon**  
**2015-2018**

YEAR	TOTAL LGU BUDGET	Increase/ Decrease	PERSONNEL SERVICES	MOOE
2015	147,258,396.00	-	10,208,193.00	3,407,548.00
2016	176,179,430.00	19.64%	9,656,487.00	3,407,548.00
2017	204,709,509.00	16.20%	14,191,684.00	3,528,780.00
2018	228,716,674.00	11.73%	14,423,410.00	5,338,013.00

Source: MHO

## General Health Status

### Vital Health Statistics

The health and growth of the municipality of San Fernando is being regularly studied as part of the health documentation of the community. The vital health statistics is being recorded annually that can be used in health and family planning programmes of the government. It also an important study with the corresponding causes of deaths and the mortality rates of different categories to help in assessing the health condition of the people. As shown in Table 3.45, the Vital Health Statistics enumerates that for the last four (4) years, the highest ratio of 22 live births per 1000 population was on year 2015 but has the lowest number of deaths of 91 or a ratio of almost two (2) deaths per 1000 population. The lowest number of live births was recorded on year 2018 with a ratio of 14 births per

1000 population but the ratio of 2 deaths per 1000 population remain the same for the last 3 years.

**Table 3.45**  
Vital Health Statistics  
San Fernando, Bukidnon  
Year 2015 to 2018

Description	2015		2016		2017		2018	
	Number	Rate (%)	Number	Rate (%)	Number	Rate (%)	Number	Rate (%)
Population	56,138		56,803		58,390		59,837	
Births	1,230	21.9	1,163	20.47	1,001	17.14	877	14.66
Deaths	91	1.62	121	2.13	120	2.06	123	2.06
Infant Deaths	2	1.63	6	5.16	2	2.0	8	9.12
Deaths (under 5y/o)	5	4.07	8	6.88	7	6.99	17	19.38
Maternal Deaths	4	3.25	3	2.58	2	2.0	4	4.56
Fetal Deaths	0	0	0	0	0	0	4	4.56

Source: MHO

### Crude Birth Rate and Infant Mortality Rate

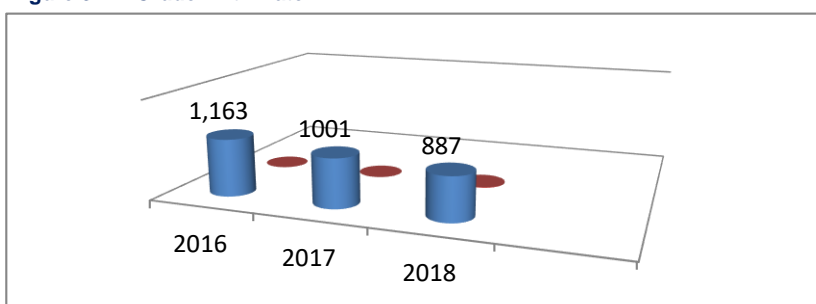
In 2018, data shown in Table 3.46 reflects that the total live births in the locality was 877, with a crude birth rate of 14.66%. A decrease of 2.48% was seen from the previous year 2017 rate of 17.14%. Figure 3.77 shows the decreasing formation of birth rate. This status was ascribed by varied factors including the effective dissemination of information regarding on awareness of importance in family planning through mother's class program and family counselling.

**Table 3.46**  
Crude Birth Rate  
San Fernando, Bukidnon  
2016-2018

CRUDE BIRTH RATE		
Year	Live Birth	Percentage
2016	1,163	20.47%
2017	1001	17.14%
2018	877	14.66%

Source: MHO

**Figure 3.77: Crude Birth Rate**



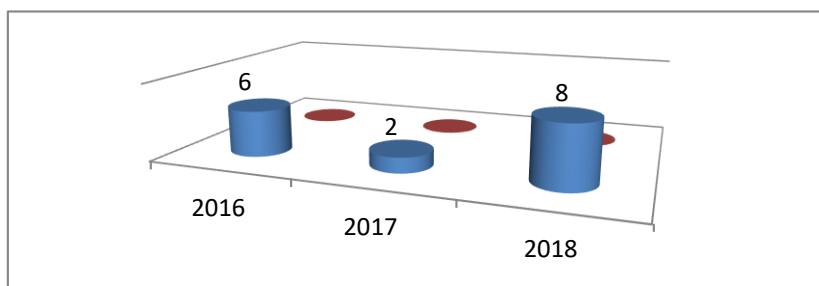
Source: MHO

**Table 3.47**  
**Infant Mortality Rate**  
**San Fernando, Bukidnon**  
**2016-2018**

INFANT MORTALITY RATE		
Year	Deaths	Percentage
2016	6	5.16%
2017	2	2.0%
2018	8	9.12%

Source: MHO

**Figure 3.78: Infant Mortality Rate**



Source: MHO

The data of Infant Mortality Rate (IMR), shown in Table 3.47, in year 2018 increased steeply by a difference of 7.12% from the last year 2017 IMR reflecting a ratio of 8 and 2 deaths per 1000 births respectively as reflected in Figure 3.78.

Many factors can contribute to these disparities; include overall health of the mother with access to prenatal care, and also the rate of immunization in the community.

Infant Mortality is defined as the death of children under the age of 1 year old. Table 3.48 shows that in year 2017, only Sepsis caused the infant mortality rate dropped to 2 cases but in year 2018, the most common cause of infant mortality rate increase were Pneumonia followed by Hypoxemia and Congenital Heart Disease. This caused the rate to come up to 9.12% or 9 deaths per 1000 births.

**Table 3.48**  
**Leading Causes of Infant Mortality**  
**San Fernando, Bukidnon**  
**2017-2018**

CAUSES	2016 LIVE BIRTHS = 1,163		2017 LIVE BIRTHS= 1,001		2018 LIVE BIRTHS= 877	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1. Pneumonia	2	1.72	0	0	4	4.56
2. Sepsis	2	1.72	2	2.0	0	0
3. Malnutrition	1	0.86	0	0	0	0
4. Kernicterus	1	0.86	0	0	0	0
5. Hypoxemia	0	0	0	0	2	2.28
6. Congenital Heart Disease	0	0	0	0	2	2.28
<b>TOTAL</b>	<b>6</b>	<b>5.16%</b>	<b>2</b>	<b>2.0%</b>	<b>8</b>	<b>9.12%</b>

Source: MHO

## Maternal Death

According to the World Health Organization (WHO) Maternal Death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and the site of the pregnancy from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

In the Philippines, the lifetime risk of maternal death is rated 1 in 140. Around 11 Filipino mothers die every day or an estimated population of 4,500 every year due to severe haemorrhage, hypertensive disorders, sepsis and problems related to obstructed labor and abortion. The Philippines is among 68 countries which contribute to 97% of maternal, neonatal and child health death worldwide. About half of the deaths of Filipino children under five happen in the first 28 days of life.

Sources of data that were used for the comparison of Year 2016 to Year 2018 Maternal and Infant Mortality are based from San Fernando Municipal Health Office Vital Health Statistics and the Municipal's Local Civil Registration Office. Data's were compared using the Live Births of Year 2016 is 1163, Year 2017 is 1001 and 2018 is 877.

Based on the data gathered there is a significant decrease as shown in Table 3.49 when comparing Maternal Deaths of 2016 and 2017, but during 2018 it went up again to 4 maternal deaths per 1000 births.

In San Fernando, there are two leading causes of maternal death, pre eclampsia and haemorrhage. Table 3.50 shows that most number of deaths was in year 2018 with 2 deaths each causes.

**Table 3.49**  
**Comparison of Maternal and Infant Deaths**  
**San Fernando, Bukidnon**  
**2016-2018**

YEAR	MATERNAL DEATHS		INFANT DEATHS	
	NUMBER	RATE 1	NUMBER	RATE 2
2016	3	2.58	6	5.16
2017	2	2.0	2	2.0
2018	4	4.56	8	9.12

Source: MHO

**Table 3.50**  
**Two (2) Leading Causes of Maternal Death**  
**San Fernando, Bukidnon**  
**2016-2018**

CAUSES	2016 LIVE BIRTHS= 1163		2017 LIVE BIRTHS= 1001		2018 LIVE BIRTHS=877	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
1. Pre Eclampsia	2	1.72	1	1.0	2	2.28
2. Hemorrhage	1	0.86	1	1.0	2	2.28
<b>TOTAL</b>	<b>3</b>	<b>2.58%</b>	<b>2</b>	<b>2.0%</b>	<b>4</b>	<b>4.56</b>

Source: MHO

Prevention of maternal death is to have easy access to antenatal care pregnancy, skilled maternal care during childbirth, and essential newborn care after child birth and additional support in post-partum period. Increasing the coverage of births supervised by skilled health professionals, especially by physicians, nurses or midwives, as well as

providing essential lifesaving care for mother and newborn before, during or after birth in emergency obstetric care facilities which is crucial. Infant Mortality can be reduced by ensuring that pregnant women have access to and receive adequate prenatal care, reduce the number of teen pregnancies and increase the number of mothers that breastfeed their infants.

Saving the lives of mothers and their newborns requires more than just medical intervention. Educating girls is pivotal in improving maternal and neonatal health and also benefits families and societies.

### Ante Natal Care

Pre natal or Ante Natal services is essential for the optimum health of both mother and child. During the entire period of conception until delivery of the newborn, every pregnant woman has to undergone several check and laboratory examination needed to monitor both the woman and the growing child. Tetanus immunization is provided in order to prevent Tetanus infection during delivery especially if delivery is aseptically done elsewhere outside health facilities. Pregnant women are also given Iron/Folic acid supplementation to prevent Iron deficiency anaemia during pregnancy and also to improve mental and neural development of the embryo.

As shown in Table 3.51, in 2016, 70% of women had quality prenatal care while only 65.33% in 2017 and it continues to its downward trend reaching to 57.13% in 2018. Besides the fact that we still have more or less 40% of non FBD (home deliveries), the decrease in number of women who availed of quality prenatal care is probably due to undesirable weather conditions and due to insurgency issues mostly in GIDA zones.

**Table 3.51**  
**Number of Women Avail the Prenatal Care**  
**San Fernando, Bukidnon**  
**2016-2018**

Year	Live Births	Mothers	Rate
2016	1,163	814	70%
2017	1,001	654	65.33%
2018	877	501	57.13%

Source: MHO

The MHO health services providers, together with the barangay officials are making all necessary means to increase awareness on safe motherhood program and are conducting outreach activities so as to address all of maternal health issues, hence improving the quality of pregnancy and its outcome. While pregnancy tracking has been implemented, teen pregnancies is a problem since most of these teen moms only divulge their secret in the later age of gestation since they can't anymore hide their bulging abdomen.

### Post Natal Care

Post-partum care reflected in Table 3.52 has tremendously decreased from 82.29% in 2016 down to 74.63% in 2017 and totally dropped to 71.04% in 2018. This is



related to the number also of deliveries not done in health facilities and poor health seeking behaviour of our clients and the community.

**Table 3.52**  
**Number of Women Avail Post-Partum Care**  
**San Fernando, Bukidnon**  
**2016-2018**

Year	Live Births	Women	Rate
2016	1,163	957	82.29%
2017	1,001	747	74.63%
2018	877	623	71.04%

Source: MHO

## Child Death

The child mortality rate (CMR) in 2018 has significantly increased by 7.99% from 5.83% per 1000 livebirth in 2017 to 13.82%. A slightly increase in the total number of livebirths weighing 2500 grams and above which is 99.63% out of 1,000 livebirths in 2018 and 98.80% in 2017 and decrease in the total number of livebirths weighing less than 2500 grams in 2017 which is 0.37% in 2018 and 1.20% in 2017 (see Table 3.53).

**Table 3.53**  
**Comparison Between Livebirths and Child Mortality Rate**  
**San Fernando, Bukidnon**  
**2016-2018**

Year	LIVEBIRTHS		CHILD MORTALITY RATE	
	2500 g and above	Below 2500 g	No. of Deaths	Rate
2016	98.45%	1.55%	8	6.61%
2017	98.80%	1.20%	7	5.83%
2018	99.63%	0.37%	17	13.82%

Source: MHO

The top cause of death among children with age 1- 4 years old in 2018 is severe electrolyte imbalance due to dehydration while in 2017 the top cause of child mortality is pneumonia followed by injury acquired in motor vehicular accidents. Inadequate knowledge and attitude of some parents when to seek early consultation and access to health facility is the major reason that attributed to the above-mentioned causes of child deaths. The high incidence of pneumonia could indicate prevalence of malnutrition among the youngest age in the society, which hinders the child's body resistance to fight common respiratory infections.

Poor environmental sanitation which may lead to contaminated water supply and polluted air, and the lack of serious concern for immediate intervention, aggravates the infection and made this young populace at higher risk for loss. Unfortunately, most of these diseases are preventable and can be improved with timely intervention.

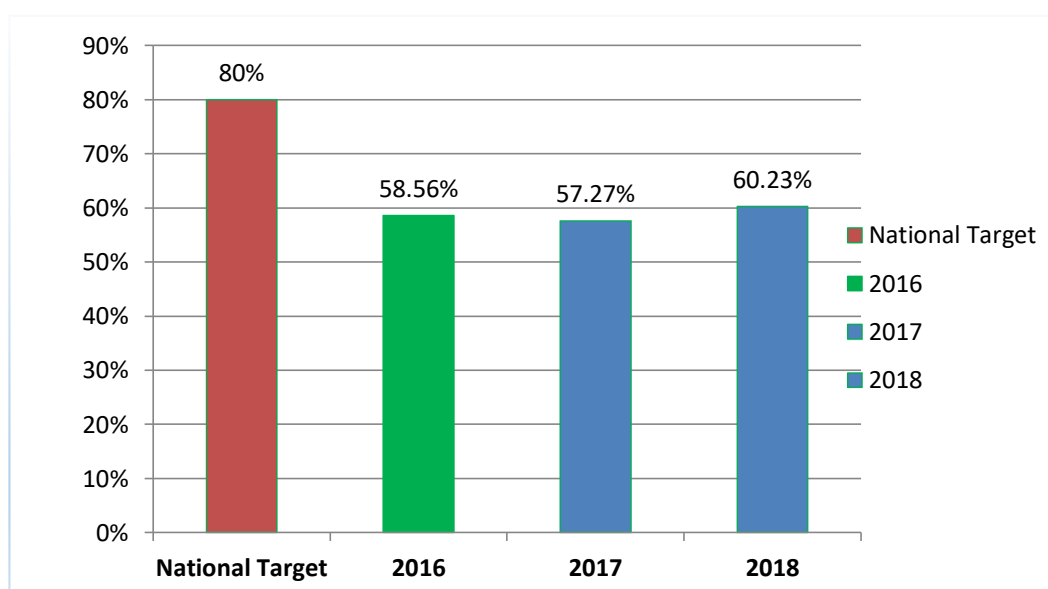
IEC about childcare during Mother's Class and Pabasa sa Nutrisyon, Family Development Session (FDS), and bench conference should be emphasized because of the increased number of deaths among children 1- 4 years old & 11 months. Nevertheless, it should be continue to be strengthened emphasizing on common childhood diseases, its prevention and the importance of seeking early consultation to health facilities to prevent disease progression and to contribute to the improvement of performance that would eventually speed to the reduction of child morbidity and mortality. Other priority

strategies and activities to be undertaken are provisions of adequate drugs/medicines, provisions of Vitamin A supplementation and deworming during Grantisadong Pambata (GP) activities.

### Facility Based Delivery

Home births deliveries by traditional *hilots* were still evident accounting for 41.4 % of all live births in San Fernando since 2016 up to 2018. This prevailing situation remained a challenge for health care workers due to the high risk of both mother and child. The lack of aseptic technique during birth delivery, coupled with the absence of vital medications and vaccines, as well as the lack of emergency interventions in the event of unforeseen fatal complications, will put the mother and child to a greater risk of demise. Moreover, the on-going establishment of BEmONC facilities will reduce the non-institutionalized birth deliveries. BEmONC will ensure that the facility has personnel and resources for emergency care in birth delivery-related cases. This will provide access for pregnant mothers, particularly from marginalized sectors, to have birth deliveries in a facility that can assure quality care and services. This effort will greatly reduce home deliveries, and infant and maternal mortality, as well as decongest normal deliveries in public hospitals or end-referral facilities.

Figure 3.79: Facility Based Delivery



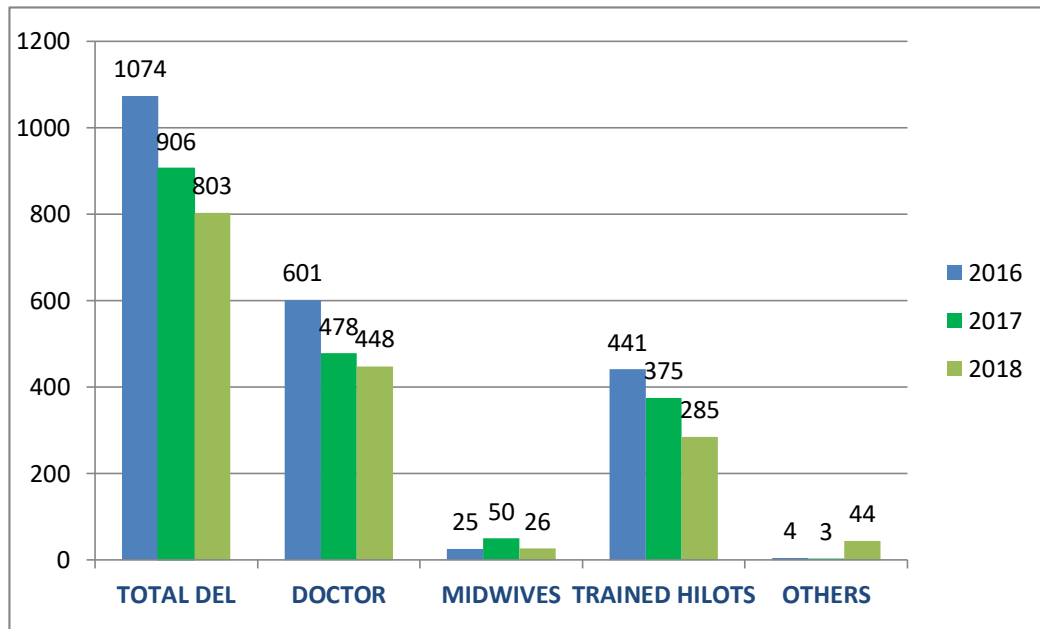
Source: MHO

There is a slight increase of 2.9% among the women who delivered in health Facilities, from 57.27% in 2017. There is still a gap of 23-25% in order to attain the national target of 80%. Added the data from 2016 to 2018 there are 2783 total deliveries and only 1,631 or 58.60% delivered at the Facilities, while there were 41.4% delivered at home (see Figure 3.79).

In 2016 the entire MHO family with the extended members of health volunteer workers and of the indigenous People (IP) community convened through a ritual called “*Panapo*” wherein it was attended by IP leaders and “*mangunguyamo*” from 6 IPMNCHN Pilot brgy namely Matupe, Durian, Cabuling, Kalagangan, Dao and Bulalang.

The main purpose of the ritual is to make a sacred covenant or pact that every pregnancy should be attended properly so that no life will be wasted either of the mother or child. Traditional birth attendants were then considered as health partners and must be allowed to perform traditional interventions but not home deliveries.

**Figure 3.80: Skilled Birth Attendant**



Source: MHO

Data in Figure 3.80 shows the decline of deliveries from 2016 – 2018, 518 of the 803 total deliveries were handled by skilled Professionals, 448 (55.79%) attended by doctors, 26 (3.23%) by Midwives, 285 (35.49%) by Traditional Birth Attendants, 44 (5.47%) others.

In totality, the deliveries attended by SBA in 2016 and 2018 was (71.80%) (1,999) and it did not reach the NOH Target of 90%, as well as in the LGU Score Card with a description rating of Red.

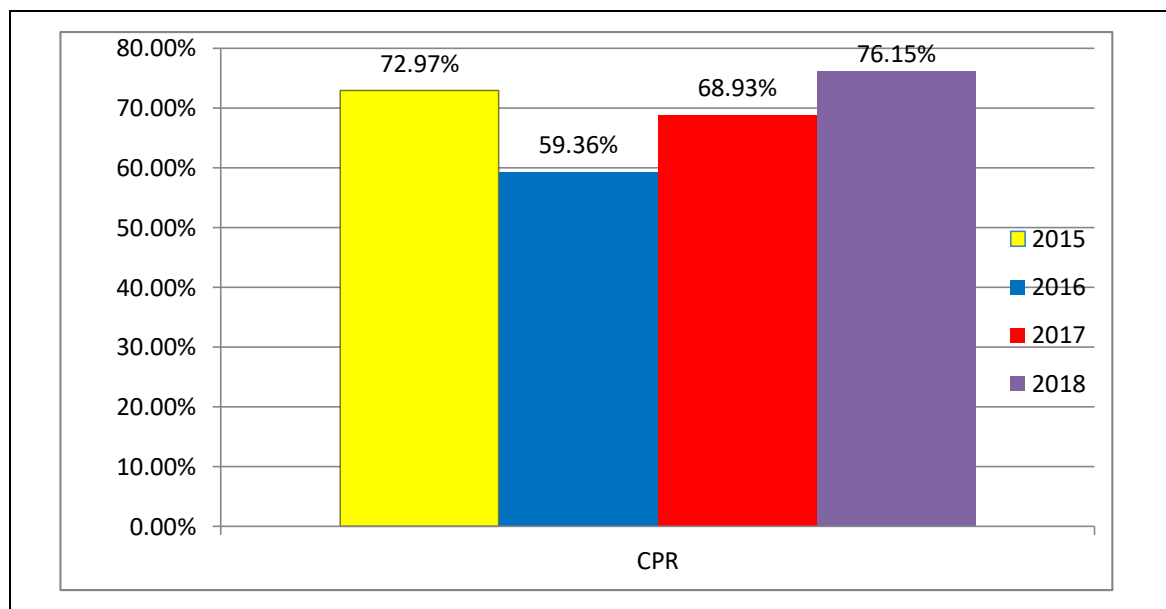
### Contraceptive Prevalence Rate

In 2018 the data shown in Table 3.54 and Figure 3.81 that the total CPR was at its highest with 76.15% much higher compared from 2015-2017. After a thorough Data Quality Check (DQC) in 2016, RHU San Fernando attained Contraceptive prevalence rate of 59.36% and gradually increased to 68.93% in the year 2017 and rose significantly again by 7.12% in 2018.

The National target of 65% contraceptive prevalence rate in 2018, made it under the green colour coding of the LGU scorecard. This is an exemplary proof of dynamic collaboration efforts of the different stakeholders, strong political will of our Local Government Officials and the dynamic work force of Human Resource for Health (HRH) augmentation from the DOH.

Involving the community in all health activities, persistent and consistent health promotion and IEC in all barangays helped in the enhancement of delivery of FP services and commodities, hence the increase of our CPR.

**Figure 3.81: Contraceptive Prevalence Rate**



Source: MHO

**Table 3.54**  
**Contraceptive Prevalence Rate**  
**San Fernando, Bukidnon**  
**2015-2018**

YEAR	ELIGIBLE POP	CURRENT USER	CPR
2015	6,865	5,009	72.97%
2016	7,001	4,156	59.36%
2017	7,094	4,890	68.93%
2018	7197	5480	76.15%

Source: MHO

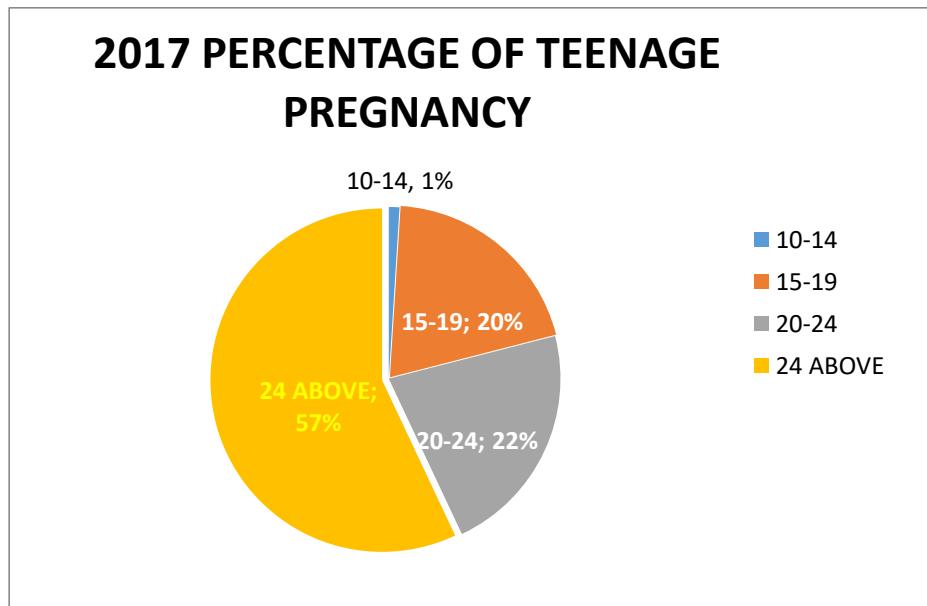
### Caesarean Section Rate

No data shown because we had no hospital to cater cesarian section.

### Teen Pregnancy

Teenage Pregnancy is an unintended pregnancy during adolescence. It becomes a growing concern nowadays. Statistical data shown that out of total pregnant in the municipality they were 21% total teenage pregnant tracked. Figure 3.82 shows that out of the total there were six or 1% that belong to 10-14 years old and 211 or 20% that comprises the group of 15-19 years old. The causes and effects of teenage pregnancy is more often a result of lack of communication between teenagers and parents and misinformation about the secondary sexual characteristics of a growing adolescent.

Figure 3.82: Percentage of Teenage Pregnancy



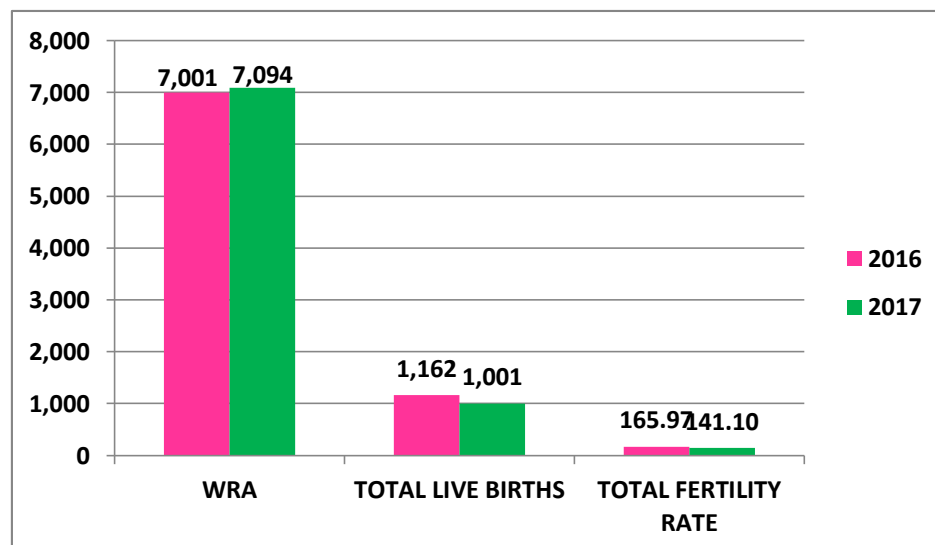
Source: MHO

The rapid increase in the incidence of teen pregnancy has been closely related to several factors including parental relationship, peer pressure, early alcohol use or intake, misconception of health and reproductive issues, low self-esteem and mostly in IP communities, culture and tradition primarily played very important role in the presence of teen pregnancy.

### Fertility Rate

The total fertility rate of the municipality in 2016 was registered at 165.97 for ages 15-49 years old women and was lowered down in the year 2017 with total fertility rate of 141.10 per 1,000 women per year. Data shows that every 1000 women there were 7 children per women, which is higher compared to the national average fertility rate of 3.0 (see Figure 3.83).

Figure 3.83: Fertility Rate



Source: MHO

## Philippine Disease Surveillance and Response

Philippine Disease Surveillance is a known disease surveillance system that is used and established for data collection and reporting procedures for numerous health programs. Effective disease control relies on the functional disease surveillance system. This surveillance system is used for monitoring, evaluation and improvement of disease prevention and control programs. From the system, we can generate data that will be useful to public health officials in understanding the emerging infectious and non-infectious diseases.

Based on our 2016 (PIDSR) data, there were 214 cases of Typhoid and Paratyphoid, 183 *Chikungunya* suspected cases, 76 Measles suspect, 10 reported cases of bloody diarrhea, and 1 Rabies confirmed case with 3 reports on Acute Effect following Immunization (high grade fever). In 2017, there were 416 cases of suspected Cholera cases mostly IP residing in *Kapalong* part of Davao del Norte, 51 cases of Typhoid and Paratyphoid, 6 Bloody diarrhea cases, 6 suspected Measles and 4 suspected *Chikungunya* cases. Outbreak in 2016 was related to poor personal hygiene and environmental sanitation practices. *Kiti-kiti* surveillance as a measure of larval control was one of the strategy used to prevent mosquito from developing to adulthood.

Cholera outbreak in 2017, was also due to poor environmental practices and poor safe water supply in indigenous people's cultural communities residing in boundaries of Davao and Bukidnon.

In 2018, there were sporadic measles cases in some of the barangays, the said cases were properly manage and given medical and nursing interventions.

## Morbidity and Mortality

Table 3.55 shows the top 10 leading causes of morbidity in the municipality of San Fernando from the year 2015 – 2018. Upper Respiratory Tract Infection (URTI) Diarrhea is still the highest reported cases for four consecutive years accounting to 53 % of all cases. Followed by Diarrhea and Injury.

Other cases such as Pneumonia, Skin diseases, UTI, Influenza, Hypertension, Asthma and DM appeared in the table from 2015 – 2018 but just varied in number.

**Table 3.55**  
**Ten Leading Causes of Morbidity**  
**San Fernando, Bukidnon**  
**2016-2018**

2016			2017			2018		
	NO. OF CASE	RATE		NO. OF CASE	RATE		NO. OF CASE	RATE
Upper Respiratory tract Infection (URTI)	3352	60.18	Upper Respiratory Tract Infection (URTI)	3,734	56.14	Upper Respiratory Tract Infection (URTI)	4,363	52.93
Injury	514	9.22	Diarrhea	1080	9.04	Diarrhea	732	8.88
Diarrhea	463	8.31	Injury	665	7.97	Injury	714	8.86
Pneumonia	453	8.13	Urinary Tract Infection	586	7.9	Urinary Tract Infection	526	6.38
Skin Disease	426	7.65	Pneumonia	493	7.50	Pneumonia	453	5.49
Urinary Tract Infection (UTI)	252	4.52	Skin Disease	447	4.43	Skin Disease	725	8.79
Influenza	146	2.62	Influenza	232	2.48	Influenza	286	3.45
Pulmonary Tuberculosis (PTB)	141	2.53	Hypertension	229	1.35	Parasitism	192	1.78
Asthma	93	1.67	Asthma	109	1.35	Asthma	147	1.27
Diabetes Mellitus	77	1.38	Diabetes Mellitus	62	1.09	Diabetes Mellitus	105	2.32

Source: MHO

**Table 3.56**  
**Five-Year Average of 10 Leading Causes of Morbidity**  
**San Fernando, Bukidnon**  
**2018**

10 Leading Causes of Morbidity	2018		5 YEAR AVERAGE	
	Number	Rate	Number	Rate
1.Upper Respiratory Tract Infection (URTI)	4363	52.93%	17,276	53.29 %
2.Diarrhea	732	8.88 %	3055	47.21 %
3.Skin Disease	725	8.79 %	2404	37.15 %
4.Injury(all forms)	714	8.66 %	2935	45.35 %
5.Urinary Tract Infection	526	6.38 %	1949	30.11 %
6.Pneumonia	453	5.49 %	2353	36.36 %
7.Influenza	285	3.45 %	1016	15.70 %
8.Parasitism	192	2.32 %	175	2.70 %
9.Asthma	147	1.78 %	436	6.73 %
10.Diabetes Mellitus	105	1.27 %	124	9.82 %

Source: MHO

The findings in the Table 3.56 indicate that progress has been steady but slow for many of the priority health issues. The leading causes of morbidity are declining in some cases but in some cases it is increasing. This highlight important health concerns and area in which more effort is needed. By tracking progress, public health officials, can better identify areas for improvement and programs to improve health and quality of life

**Table 3.57**  
**Ten Leading Cause of Mortality**  
**San Fernando, Bukidnon**  
**2016-2018**

2016			2017			2018		
CAUSES	NO. OF CASE	RATE	CAUSES	NO. OF CASE	RATE	CAUSES	No. OF CASE	RATE
Accident	26	24.80	ACCIDENT	20	19.61	Hypertension	18	60.0
Pneumonia	15	14.30	Cerebro Vascular Accident secondary to Myocardial Infarction	16	15.69	Pneumonia	13	10.0
HPN	14	13.30	Cerebro Vascular Accident	15	14.71	Cerebro vascular Accident	10	8.0
Cancer (all forms)	13	12.40	Cancer (all forms)	15	14.71	Pulmonary Tuberculosis	9	7.3
Pulmonary Tuberculosis	11	10.50	Hypertension	9	8.82	Hypoxemia	5	4.0
Cerebro Vascular Accident	7	6.70	Kidney Failure	7	6.86	Chronic Renal Failure	5	4.0
Acute Myocardial Infarction	5	4.80	Pulmonary Tuberculosis	6	5.88	Congestive Heart Failure	4	3.25
Congestive Heart Failure	4	3.80	Pneumonia	3	2.94	Cardio Pulmonary Arrest	3	2.40
Liver Cirrhosis	3	2.90	Cardiac Failure	2	1.96	Chronic Obstructive Pulmonary Disease	3	2.40
Cardio Pulmonary Arrest/ Hypovolemic Shock Secondary to Profuse	3	2.90	Asthma	2	1.96	Accident (all forms)	2	1.60
<b>Total</b>	<b>101</b>			<b>95</b>			<b>72</b>	

Source: MHO

The leading causes of death are pneumonias, diseases of heart, diseases of vascular system, PTB, cancer all forms, and diseases of excretory and endocrine system. Among these diseases, only 1 is communicable, others are non-communicable and two are the major NCDs such as CVD and cancers.

Reported deaths enumerated in Table 3.57, in year 2018 significantly decreased to 72 from 95 in the previous year. Hypertension topples the injury as the highest number of deaths for the year 2018. In addition, the former remains on top when it comes to the 5 year average index as shown in Table 3.58.

**Table 3.58**  
**Five-Year Average of Leading Causes of Mortality**  
**San Fernando, Bukidnon**  
**2018**

10 Leading Cause of Mortality	2018		5 YEAR AVERAGE	
	Number	Rate	Number	Rate
1.Hypertension	18	60 %	66	13.2 %
2.Pneumonia	13	10 %	44	8.8 %
3. Cerebro Vascular Accident	10	8 %	52	10.4 %
4.Pulmonary Tuberculosis	9	7.3 %	48	9.6 %
5.Hypoxemia	5	4.0 %	0	0
6.Chronic Renal Failure	5	4.0 %	0	0
7. Congestive Heart Failure	4	3.25 %	30	6 %
8. Cardio Pulmonary arrest	3	2.4 %	7	14 %
9.Chronic Obstructive Pulmonary Disease	3	2.4 %	0	0
10.Accident All Forms	2	1.6 %	83	16.6 %
<b>Total</b>	<b>72</b>		<b>330</b>	

Source: MHO



## Tuberculosis (TB) Control and Prevention

National TB Program is the DOH-run tuberculosis control initiative in our country. The program has a vision of achieving TB Free Philippines and aims to achieve Universal access TB services. The program provides various free of cost, quality TB diagnosis and treatment services across the country through the Philhealth reimbursement scheme. The WHO TB DOTS strategy is being recommended to improve its treatment outcome.

Since 2015, we tried several approaches to increase our CDR but unfortunately it remained to be our major problem in finding cases. One of the reasons are on the stigma effect after diagnosis and secondly, the poor health seeking behaviour of the people especially in far flung areas. (See Table 3.59)

**Table 3.59**  
**Tuberculosis Control and Prevention Data**  
**San Fernando, Bukidnon**  
**2015-2018**

YEAR	CASE DETECTION RATE	CURE RATE	TREATMENT SUCCESS RATE	CASE NOTIFICATION RATE
2015	21.07	95	96.12	116.7
2016	23.2	88.89	89.39	128.5
2017	15.05	96.77	93.24	83.4
2018	12.98	88.89	92.4	86.7

Source: MHO

## Mosquito Borne Disease

### Malaria

San Fernando has six (6) barangays endemic with Malaria namely; Matupe, Durian, Cabuling, Kalagangan, Magkalungay and Kawayan. Since 2010, there were no reported cases of malaria from these endemic areas. The creation of MASUVECO Team or Malaria Surveillance and Vector Control Team has a great impact on the reduction of cases and eventually to Malaria elimination in the succeeding years. With extensive *Malaria* awareness drive in all sitios and purok in these affected areas and other advocacy on Malaria prevention like bednets distribution, regular stream clearing and Indoor Residual spraying of houses with insecticides, no malaria cases were reported for more than 5 years..

### Dengue

Dengue is considered a Mosquito-borne disease and is caused by a viral pathogen that requires a vector in order to infect human. *Aedes aegypti* is the most common specie which is a day biting mosquito that harbours the infective stage of viral pathogen to human. Based on our Notifiable disease monitoring or PIDSR, in 2016 we had 26 Suspected Dengue cases but was noted to be markedly decreased in 2017, there were only 3 cases of suspected Dengue.

The marked reduction of Dengue cases was brought about by the concerted efforts of all health workers, volunteers and barangay officials in practicing 4S strategy. The massive info drive also help in educating the people on sanitation and infectious disease prevention and control especially on mosquito borne diseases.

## **Rabies**

There were 23 and 32 cases of animal bites mostly were dog bites in 2016 and 2017 respectively. Two cases of Rabies died in 2016, one (1) from Magkalungay and the other one is from Kalagangan. In 2017 an extensive Dog census and registration was then conducted together with canine vaccination and awareness drive responsible pet ownership. There were 6,484 domesticated dogs and cats registered however, only 1,984 (31%) of which received anti-rabies vaccination. This just proves that many pet owners are still not responsible enough to take care of their pet and of themselves as well

## **Child Survival Package**

In the past few years, an undue amount of effort has been put in towards the attainment of the millennium development goal (MDG) for child survival. Child survival interventions are aimed to address the most common causes of child deaths that occur. Essential interventions for child health are the following:

### **Expanded Program on Immunization**

Expanded Program on Immunization was established in 1976 through PD996, which seeks to ensure that children, particularly infants and their mothers have access to vaccines recommended for their age to prevent specific diseases. Comparing the data of 2016 to 2017, fully immunized child in 2016, were only 1,428 (93.11%) from out of 1,534 eligible pop and in 2017, there were 1,371 (88.22%) out of 1,664 children were fully immunized. In 2018, it dropped to 81.89 % or 1255 children were fully immunized. The inadequate number of health personnel to manage the increasing population in the barangay influences the low outcome of FIC. In fact, for the last 5 years, the population has constantly increased, without a corresponding augmentation of health workers. The untimely low supply of vaccines was also identified as one of the critical factors influencing the decreased in FIC.

### **Initiated Breastfeeding**

According to the Milk Code or EO 51, initiation of breastfeeding within one hour after birth should be strictly implemented in all public health facilities thru the “Unang Yakap” strategy. Newborns are latched to start breastfeeding once airway is cleared. Babies are born with an innate ability and desire to breastfeed. When healthy infants are given the opportunity and time to breastfeed without interruption immediately after delivery, they usually get themselves to the mother’s breast and begin nursing without any assistance.

Data on 2016 revealed 70.02% who were initiated breastfeeding after birth which the decreased 2% in 2017 which were down to 68.42% and its downward trend continued in 2018 to 50.91%. The promotion on breastfeeding initiation should be intensively done so that percentage of women that are able to initiate breastfeeding should be continuously increased and the pregnant mothers should be encouraged to breastfed their babies one (1) hour after birth.

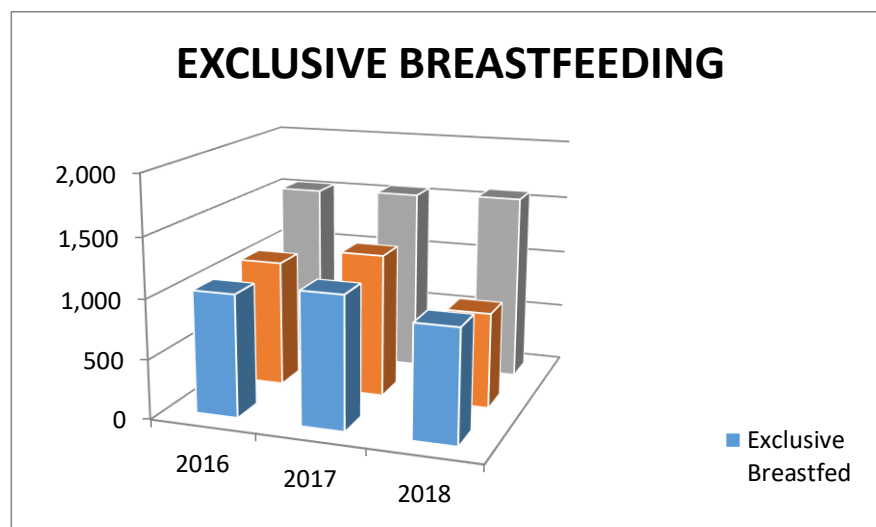
**Table 3.60**  
**Exclusive Breastfeeding**  
**San Fernando, Bukidnon**  
**2016-2018**

YEAR	ELIGIBLE POPULATION	LIVE BIRTHS	EXCLUSIVE BREASTFED	PERCENTAGE
2016	1,534	1,072	1,029	67.09%
2017	1,554	1,210	1,111	71.49%
2018	1577	803	1040	66.%

Source: MHO

Breast milk is the ideal food for any baby, for the best growth and development mentally, emotionally and physically. Exclusive breastfeeding is when a baby receives only breast milk, without any additional food or drinks, including water, until 6 months of age. While breastfeeding beyond 6 months, a baby should receive foods with breast milk until the age of 2 or older. The breastfeeding duration after 2 years depends entirely on the mother and the baby. In 2016, Table 3.60 shows that out of 1,072 live birth, 1,029 (67.09%) were exclusively breastfed and increased to 71.49% by 2017 from a total live birth of 1,111; 906 were exclusively breastfed. The promotion on breastfeeding initiation should be intensively done so that percentage of women that are able to initiate breastfeeding should be continuously increased and the pregnant mothers should be encouraged to breastfed their babies one (1) hour after birth.

**Figure 3.84: Exclusive Breastfeeding**



Source: MHO

## Malnutrition

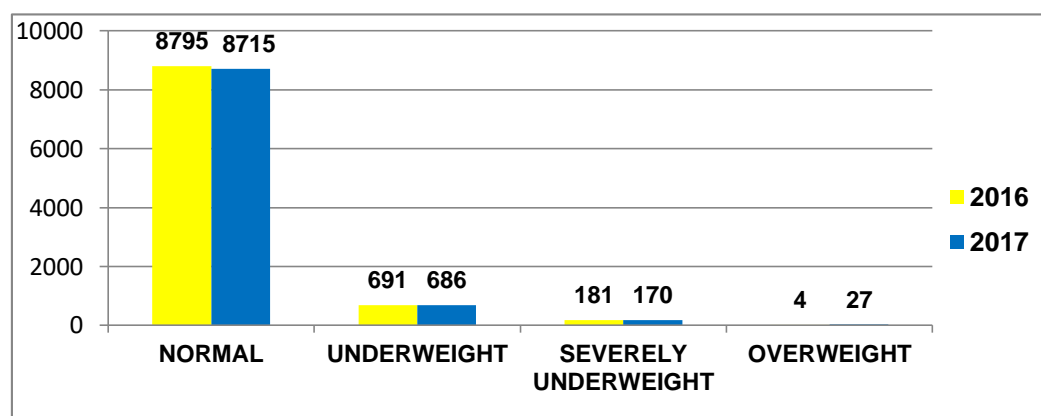
For the “Operation Timbang” results in 2016 shown in Table 3.61, there were 8,651 eligible children weighed ages 0-5 years old. Out of the total weighed in 2016 there were 8,795 was in normal weight compared in 2017 there were only 8,715 Normal, there were 691 underweight in 2016 and lowered into 686 children in 2017, there were 181 severely underweight in 2016 and lowered down into 170 in 2017 and 4 overweight in 2016 and increased in 2017 into 27. Illustration of malnutrition is shown in Figure 3.85. The prevalence of malnutrition rate of the municipality is remained significantly low.

**Table 3.61**  
**Data on Malnutrition**  
**San Fernando, Bukidnon**  
**2016-2017**

Year	Total Population	Normal	Underweight	Severely Underweight	Overweight
2016	8651	8795	691	181	4
2017	9457	8715	686	170	27

Source MHO

**Figure 3.85: Malnutrition**



Source: MHO

## Newborn Screening

The RHU SF Birthing home has been rendering NBS services since 2009 and was then given accreditation and license in 2011 as Newborn screening Center in San Fernando. Newborn screening is available 24/7 in our MCP birthing facility in P7 Brgy Halapitan and in Bukidnon Provincial Hospital-San Fernando (BPH-SF). Since 2015, our facility has been a recipient of Exemplary Award on NBS for attaining 99-100% accomplishment on newborn screening yearly. See Table 3.62.



*Bukidnon Provincial Hospital-San Fernando (BPH-SF)*

All neonates with positive screening test are then referred to Lavina General Hospital for confirmatory testing as our partner institution. As part of our health advocacies, every year, the RHU SF conducts G6PD awareness forum to mothers with G6PD babies during NBS day celebration every founding anniversary of our DOH MCP Birthing home every last week of November.

**Table 3.62**  
**Cases of Newborn Screening**  
**San Fernando, Bukidnon**  
**2015-2018**

<b>CASES</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Number of Newborn Screened	317	369	213	197
Number of Inborn	302	300	156	118
Number of Outborn	15	69	57	22
Number of G6PD (+) screened	16	37	36	0
Number of G6PD Confirmatory Test	9	20	24	0

Source: MHO

### Service Delivery

A full time Municipal Health Officer (MHO) manned the main RHU located in Poblacion, Brgy Halapitan in San Fernando. Health service delivery in the 24 barangays are complemented by Rural Health Midwives (RHMs) and Brgy Health Workers and Auxilliary Sanitation Inspectors as Volunteer health workers in the field. The Public Health Nurse and Rural Sanitation Inspector will conduct regular supervisory and monitoring activities in the barangays. However, there is no permanent RHM assigned in barangays Durian, San Jose and Dao. RHMs assigned in adjacent barangay will complement health services in these areas and augmented by HRH nurses or midwives provided by Department of Health.

Clients from these barangays who needs lab examination and complete medical check-up by a physician are referred to the main RHU in brgy Halapitan. Existing communication gadgets are available in the main RHU to respond to emergency calls but more than half of Barangay Health stations do not have internet and telecommunication access. There are few barangays with emergency transport system and mostly don't have, only using *habal-habal* as the most convenient and affordable means of transportation to the next level facility.

The Rural Health Unit to Population ratio is 1:58,802 which are above the standard of 1:20,000 populations, indicating that the RHU serves more than the desired standard of 1:20,000 people. In this concept, the workload faced by the RHU staff carry a significant implication on the quality of health care services provided to every patient. Each barangay has a functional health station and manned by a Rural Health Midwife (RHM) who provides basic primary health care services to the constituents. Barangay Health Volunteers (BHW, BaSI and BNS) assigned in every BHS assist the midwife in rendering health services to the populace.

**Table 3.63**  
**Number of Health Service Provider (HSP) by Barangay**  
**San Fernando, Bukidnon**  
**2018**

BARANGAY	PUROK/ SITIOS	POPULATION	NO. OF HSP	RATIO
BONACAO	15	2107	15	1:141
BULALANG	9	615	8	1:88
CABULING	8	895	7	1:128
CANDELARIA	6	948	9	1:106
CAYAGA	6	1449	10	1:145
DAO	7	1292	9	1:144
DURIAN	7	1092	7	1:156
HALAPITAN	25	10793	49	1:221
IGLUSAD	11	1738	11	1:158
KALAGANGAN	24	6034	23	1:263
KAWAYAN	10	1982	11	1:181
KIBONGKOG	10	1923	11	1:175
LITTLE BAGUIO	20	5164	27	1:192
MABUHAY	15	3246	17	1:191
MAGKALUNGAY	8	2285	13	1:176
MALAYANAN	8	1679	13	1:130
MATUPE	14	1911	10	1:192
NACABUKLAD	8	1268	11	1:116
NAMNAM	13	4084	22	1:186
PALACPACAN	8	1413	6	1:236
SAC. VALLEY	8	1983	14	1:142
SAN JOSE	8	882	6	1:147
STO. DOMINGO	9	1540	11	1:140

Source: MHO

The achievement of various health programs by the RHUs depends on the support they received from their Local Government Units. For the less supportive LGUs, this results into the failure to achieve target indicators/parameters. The problem seems to lie in the non-engagement of political leaders at the municipal and the barangay levels. Health services like Non-Communicable and Lifestyle Diseases, Rabies, Vector-Borne and other Infectious diseases, Maternal and Child Health, Disease Prevention and Control Initiatives, Health Education and Promotion, Mental Health, Family Planning, Environmental Sanitation, medico-legal certification, Issuance of health permits are mainly delivered by the main Rural Health center.

In order to address the Millennium Development Goals, now the 17 Sustainable Development Goals or SDGs and the *Kalusugan Pangkalahatan*, specifically on the improvement of maternal and neonatal health services. Several interventions are being done such as the organization of the Women's Health Teams and the deployment of CHTs and navigators at the municipal and to the barangay level and the crafting of Barangay Local Investment Plan for Health, are geared to respond to these SDGs. The purpose is to conduct pregnancy tracking, conduct information and motivation to increase health facility deliveries handled by health professionals, track defaulters on EPI and NTP program, and increase awareness on FP program.

## Environmental Sanitation

### Water

Water supply status in the Municipality of San Fernando as of year 2018 showed that out of the 12,773 total households 68.55% (8,756 HH) are with safe water supply, households were served with Level 1, II and III, considering as a safe drinking water supply. By the year 2019, the total HH with safe water supply was noted to decreased to 54% (7,122 HH) have access to safe water supply, this is because of the implementation of the Standard Water Drinking Sanitation in which 1 water facility (Level II) should cover only 4-6 households and at least 200 meter distance from household to water source. Some of the water facilities became dysfunctional also that is why there is a decrease in the safe water supply.

Unfortunately, 4,017 HH or 31.45% of 2018 population have access to water supply coming from doubtful sources, open dug well, shallow wells, undeveloped spring, rain tank collection and other sources which are considered unsafe. Currently several barangays have proposed projects on establishment of Potable water system under KALAHY funds and needs to formulate a cost recovery scheme to sustain their potable water system.

Figure 3.86: Water Supply Facilities

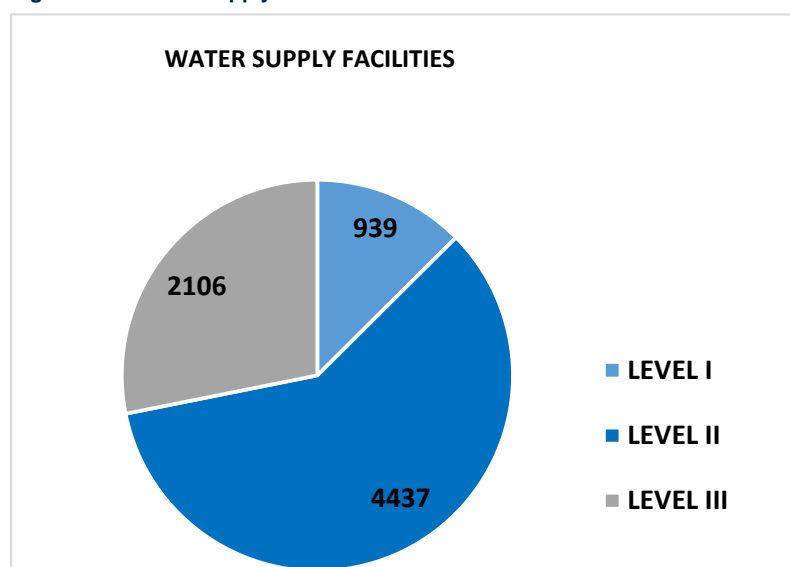
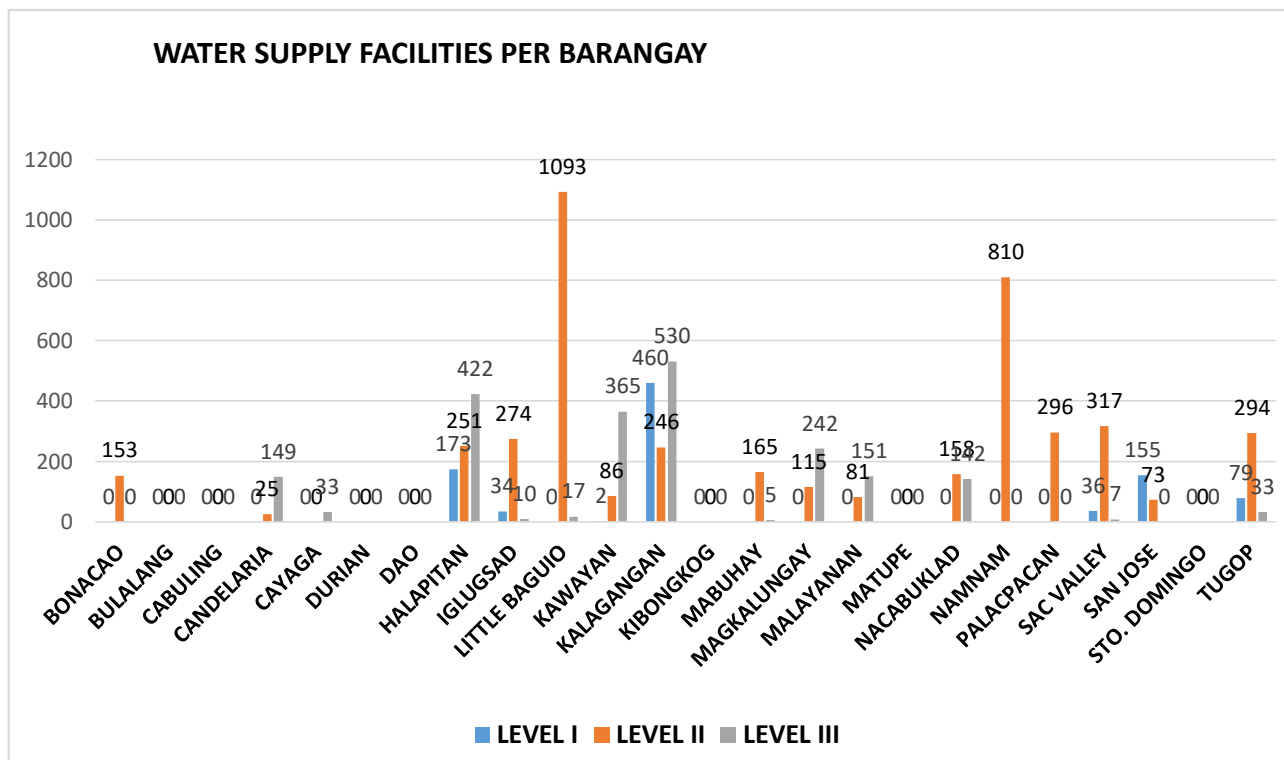


Table 3.64  
Number of Safe Water Facilities  
2017-2019

SAFE WATER FACILITIES						
YEAR	HH NO.	LEVEL I	LEVEL II	LEVEL III	TOTAL	%
2017	12,683	1,077	4,855	1,829	7,761	61.19%
2018	12,773	895	5,461	2,400	8,756	68.55%
2019	13,110	939	4,437	2,106	7,482	57%

Figure 3.87: Water Supply Facilities per Barangay



Source: MHO

Figure 3.88: Toilet Facilities



Source: MHO

### Sanitary Toilet

A marked increase was noted on our Environmental Sanitation program particularly on sanitary toilet as health indicator. In 2017, only 10,860 household have sanitary toilets which is about 85.63% but this however went down by a very small margin of 0.64% to 84.99% (10,856) in 2018. In 2019, households with sanitary toilet increased to 11,187 or 85.33%. Since the start of the DOH ES - ZERO OPEN DEFECATION program, officials from the different barangays were challenged to participate in this noble undertaking. In 2018, two barangays were recognized and awarded with seal of ZOD by DOH, namely



Barangay Tugop and Kawayan, and two (2) Regional Basic Sanitation Best Practices (RBSBP) awardee, namely Malayanan & Candelaria and are still actively promoting the program with regular monitoring of toilet facilities and establishing safe water system, water borne disease will eventually be eliminated.

**Table 3.65**  
**Sanitary Toilet Facilities**  
**Municipality of San Fernando, Bukidnon**  
**2017-2019**

SANITARY TOILET FACILITIES							
YEAR	HH NO.	HH with SANITARY TOILET	%	HH without TOILET	%	HH W with UNSANITARY TOILET	%
2017	12,683	10,860	85.63	1,384	10.91	439	3.0
2018	12,773	10,856	84.99	1,538	12	379	2.96
2019	13,110	11,187	85.33	1,510	13.49	400	3.0

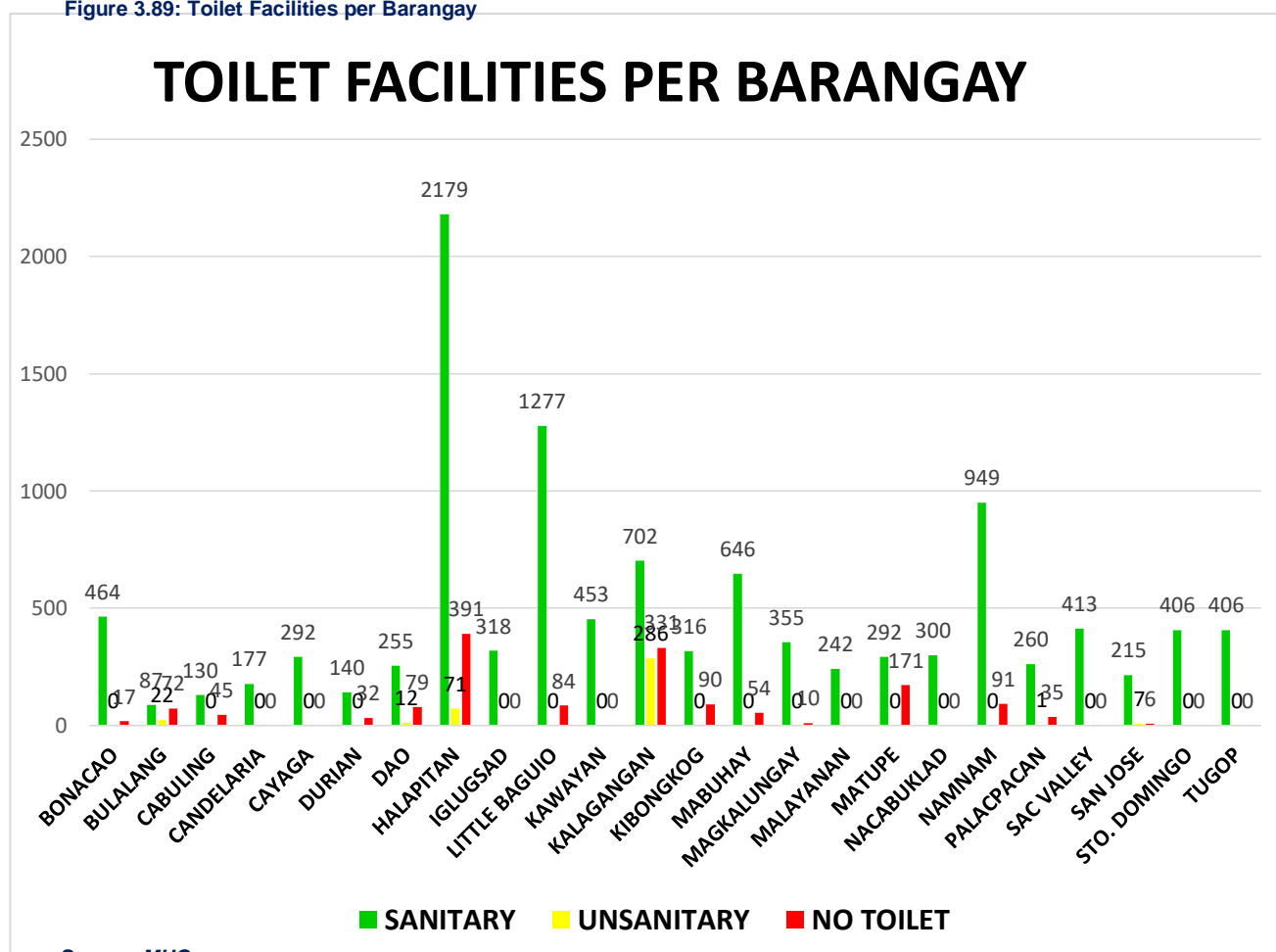
Source: MHO

**Table 3.66**  
**Food Establishment**  
**Municipality of San Fernando, Bukidnon**  
**2017-2019**

FOOD ESTABLISHMENT					
YEAR	No. of Establishment	With Sanitary Permit	Food Handlers	With Health Certificate	Trained
2017	954	229	1,311	470	798
2018	1,051	449	1,328	659	982
2019	1,185	513	1,883	700	1,055

Source: MHO

**Figure 3.89: Toilet Facilities per Barangay**



Source: MHO

## Management

In San Fernando and in most of the barangay the implementation of waste management was not sustained due to inadequate monitoring of the concerned personnel of the local government. There may be an organized waste management committee but not functional. The sustainability aspect of the waste management implementation was poor due to non-existence plan made by the Barangays during the past years. However, some of the Barangays pursued the plans with the efforts of the Rural Health Midwives and other Health Personnel assigned in the barangay. Out of 24 Barangays 29 Material Recovery Facility (MRF) were built where they can store the reusable materials.

With this scene, exerting double effort in the advocacy campaign and continuous information, and education to the community in proper waste segregation and proper garbage disposal should rigorously done and policy ordinance should strictly imposed and implemented.

**Table 3.67**  
**Disposal Facilities**  
**Municipality of San Fernando, Bukidnon**  
**2017-2019**

DISPOSAL FACILITIES					
YEAR	HH NO.	HH USING SEGRAGATION	HH WITH COMMUNAL	%	MRF
2017	12,683	7,829	2,159	79	24
2018	12,773	4498,369	1,977	81	29
2019	13,110	5137,496	2,013	73	50

Source: MHO

## Anti Smoking and Clean Air Act Program Implementation

Clean air laws have been enacted to reduce the harmful effects of Environmental Tobacco Smoke (ETS) on non-smokers by restricting or banning smoking in designated public areas. The Local Government Code of 1991 (RA No. 7160) accords every Local Government Unit a power and authority to promote the general welfare within its territorial jurisdiction. The Philippine Clean Air Act of 1999 (RA No. 8749) declares the right of every citizen to breath clean air thus prohibits smoking inside enclosed public places including vehicles and other means of transport and directs Local Government Units to implement this act. In addition to it, scientific evidence has unequivocally established that tobacco consumption and exposure to tobacco smoke causes death, disease and disability, lead to devastating health, social, economic and environmental consequences, and places burdens on families, on the poor and on local health systems. Accordingly, the Local Government Unit of San Fernando, Bukidnon recognizes the need to establish policy necessary to ensure public health safety. Resolution No. 224-2016 was passed enacting an Ordinacnce no. 662-2016 unanimously approved by the Sangguniang Bayan and signed by the Municipal Mayor Levi C. Edma last April 24, 2017 which absolutely prohibiting cigarette smoking in all public buildings and places in the municipality.

By reducing opportunities to smoke, smoking restrictions directly reduce the quantity of cigarettes smoked in the restricted areas, which may improve the chances of quitting. Smoking restrictions may also change norms regarding the social acceptability of smoking. As social attitudes change, smokers maybe induced to attempt to quit thereby reducing the number of smokers. The Municipal Health Office headed by Dr. Maria Algerlina I. Edma had initiated activities for this tobacco control strategy.

- A survey was conducted in the 24 barangays to know the number of smokers. Data gathered showed that there are smokers already in as early as 10-13 years old and had quite a number of smokers with a total of 8,427. The tables below show the number of smokers in age bracket and number in gender and the kind of cigarette used with its percentage. See tables 3.68 and 3.69

**Table 3.68**  
**Number of Smokers by Age**  
**Municipality of San Fernando, Bukidnon**

	Age Bracket (years old)							Total
	10-13	14-16	17=19	20-30	31-49	50-59	60 above	
No. of Smokers	4	294	629	2,290	3,269	1,116	846	8,427
Percentage	0.04%	3.40%	7.60%	27.10%	38.70%	13.20%	10%	100%

**Table 3.69**  
**Number of Smokers by Gender**  
**Municipality of San Fernando, Bukidnon**

	Male	Female	Cigarette Commercial	Beatle Nut
Total	7,633	794	7,766	661
Percentage	90.50%	9.40%	91.10%	7.80%

MPOWER Training was conducted last November 13-15, 2019 at San Fernando Eco Adventure Park and Resort participated by the Punong Barangays, Barangay Kagawads, IP Mandatory, BHWs and RHMs with the speakers from Action on Smoking and Health (ASH) Mr. Armand D. Ardanas and Dr. Gay D. Ardanas. It was a 30-day training with various topic about the tobacco control strategy. MPOWER is a policy package intended to assist in the implementation of effective interventions to reduce the demand for tobacco. It has six evidence based components which are the following: a.) Monitor tobacco use and prevention policies, b.) Protect people from tobacco smoke, c.) Offer help to quit tobacco use, d.) Warn about the dangers of tobacco, e.) Enforce bans on tobacco advertising, promotion and sponsorship and f.) Raise taxes on tobacco.

MPOWER is widely recognized summary of the essential elements of tobacco control strategy. It is the only document of a somewhat strategic nature that is a source of information on the spread of tobacco epidemic, as well as of suggestions concerning specific actions for supporting the fight against this epidemic. Tobacco epidemic is preventable. People don't have to die from tobacco related illness if the leaders takes urgent action to it. During the training, participants made action plan for their respective barangay of their strategies on the drive to control smoking and in drafting San Fernando for the said understanding

## B. Goal

Provide and upgrade health, nutrition and sanitation service delivery to attain and uphold a healthy society.

## C. Problems, Causes and Impacts (Effects)

PROBLEMS	CAUSES	IMPACTS (Effects)
1. Inadequate Health Service providers/manpower	<ul style="list-style-type: none"> <li>-Unrealistic/Un-updated Barangay population</li> <li>-Increasing mobile population</li> <li>-Cultural behavior</li> <li>-Uneducated residents</li> <li>-Presence of Geographically Isolated and Disadvantaged areas in 17 barangay</li> </ul>	<ul style="list-style-type: none"> <li>-Less people reached by Health service providers</li> <li>-Presence of Malnutrition, Under 5yo and Maternal deaths</li> </ul>
2. High incidence of water borne diseases	<ul style="list-style-type: none"> <li>-Unsafe water supplies</li> </ul>	<ul style="list-style-type: none"> <li>- Malnutrition and Parasitism</li> <li>-Economic drain</li> </ul>
3. Non-functional Barangay Nutrition Council & Barangay Health Board.	<ul style="list-style-type: none"> <li>-Poor program implementation and outcome</li> </ul>	<ul style="list-style-type: none"> <li>-Community is vulnerable for outbreak</li> <li>-Poor Health Governance</li> </ul>
4. Rapid increase in population number	<ul style="list-style-type: none"> <li>-Lack of awareness on Family Planning program</li> <li>-Poverty</li> <li>-Religious affiliation</li> <li>-Cultural practices/myths</li> </ul>	<ul style="list-style-type: none"> <li>- Increased Crude Birth rate</li> <li>-High Incidence of Malnutrition</li> <li>-High incidence childhood illnesses</li> <li>-High incidence of Teen pregnancy</li> </ul>
5. Under-five Mortality	<ul style="list-style-type: none"> <li>-Lack/insufficient Health Care Facilities</li> <li>-Unreceptive residents to new Health Programs</li> <li>-Untrained health worker</li> </ul>	<ul style="list-style-type: none"> <li>- Prevalence of Under Five Mortality and Morbidity</li> </ul>
6. Poor case detection rate of TB symptomatic	<ul style="list-style-type: none"> <li>-Poor health seeking behavior/ Unreceptive residents to new Health Programs</li> <li>-Social stigma of the disease</li> <li>-Poor knowledge on infectious diseases</li> <li>-Health worker not committed to perform their duties (Poor case finding)</li> </ul>	<ul style="list-style-type: none"> <li>- Increase deaths due to Tuberculosis (TB)</li> <li>- Economic drain</li> </ul>

7. Occupational Hazard/Infectious diseases (e.g. Schistosomiasis, Heterophydiasis, Parasitosis, Helmenthiasis)	<ul style="list-style-type: none"> <li>-Health worker not committed to perform their duties</li> <li>-Poor knowledge on infectious diseases control, prevention &amp; sanitation (use of protective gears, e.g. Boots, Gloves)</li> <li>-Presence of Open defecation</li> </ul>	<ul style="list-style-type: none"> <li>- Poor economic status-chronically ill patients</li> <li>- Prevalence of 5 endemic Barangays with Schistosomiasis</li> </ul>
8. Malnutrition	<ul style="list-style-type: none"> <li>-Poverty &amp; ignorance</li> <li>-Teenage pregnancy</li> <li>-Poor sanitary practices</li> <li>-Cultural beliefs and practices of indigenous people</li> <li>-Unhealthy life styles (smoking, alcoholic spree, substance abuse)</li> <li>-No enough budget to solve malnutrition problem</li> <li>-No capability building/refresher course</li> <li>Barangay Nutrition Scholars for more than 10 years</li> </ul>	<ul style="list-style-type: none"> <li>- Poor personal &amp; academic development</li> <li>- Increase incidence of childhood illnesses</li> <li>- Under developed society</li> <li>- Increase infant mortality rate</li> </ul>
9. Unsafe water Supply with only 18% Level III	<ul style="list-style-type: none"> <li>-No budget allocation</li> <li>-Not a priority program in the barangay</li> </ul>	<ul style="list-style-type: none"> <li>- Prevalence of Malnutrition</li> <li>- Increase incidence of waterborne diseases</li> </ul>
10. Prevalence of Non Communicable Diseases	<ul style="list-style-type: none"> <li>-Poor nutrition</li> <li>-Less awareness on Non-communicable diseases and Healthy Lifestyle</li> </ul>	<ul style="list-style-type: none"> <li>- Increase prevalence of Non-communicable diseases like Hypertension, Chronic Obstructive Pulmonary diseases and Diabetes Mellitus.</li> <li>- Unemployment</li> <li>- Younger deaths</li> </ul>
11. Prevalence of Mental illness	<ul style="list-style-type: none"> <li>-Environmental Stressors</li> <li>-Lack of Family Support</li> <li>-Not a priority program in the barangay</li> </ul>	<ul style="list-style-type: none"> <li>- Suicide/ Deaths</li> <li>- Poor economic status</li> </ul>

## D. Objectives, Strategies, and Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Inadequate budget/ funds for medicines and other health benefits	- Provide budget allocation for medicines & other health benefits	- Priority allocation of budget for medicines & other health benefits - Integration of budget for medicines to Barangay Internal Revenue Allotment	Resolution ordinance
2. Increasing Malnutrition incidence	- Provide budget allocation for the feeding of identified malnourished children - Increase Awareness on Malnutrition and its effects - Good Sanitation Practices - Capacitate Barangay Nutrition Scholars	- Funding allocation - Tapping/linkages to Non-Government Organizations - Conduct Information Education Campaign - Practice Good Environmental Sanitation to every Household - Capability building/refresher course to all Barangay Nutrition Scholars	Resolution ordinance
3. High incidence of water borne diseases	- Establish water system	- Funding allocation - Tapping/linkages to Non-Government Organizations	Resolution ordinance
4. Rapid increase in population	- Sustain Contraceptive Prevalence Rate+	- Ensure/Affordability of commodities thru BNBs - Monitoring of supplies - Coordinate with NGOs - Ensure completion of Urban Development Housing Act System for fast tracking of population management - Intensify the “Zero Unmet Need in Family Planning” Program	
5. Maternal Deaths	- Establish birthing home at the Barangay Level	- Funding allocation for supplies and instrument use for birthing home	
6. Poor case detection rate of TB symptomatic	- Reduction of TB Cases	- Spontaneous Case Detection - IEC - Provision of Medicine - Capability building	
7. Occupational Hazard/Infectious diseases (e.g. Schistosomiasis, Heterophydiasis, Parasitosis, Helmenthiasis)	- Increase awareness on Health Care	- Information Education Campaign - Provision of medicines	

## E. Situational Analysis Framework

### SA FRAMEWORK

Provide and upgrade health, nutrition and sanitation service delivery to attain and uphold a healthy society

#### POPULATION FACTOR:

- Population composition by age group/barangay.
- In and out population (mobile group).
- High incidence of water borne diseases.
- Unreported death.
- High Contraceptive Prevalence Rate (CPR).
- Low facility based delivery
- Poor case detection rate of infectious diseases.
- Occupational hazard/ infectious diseases (e.g. schistosomiasis, heterophyiasis).

#### DEVELOPMENT FACTOR:

- No functional “Botika ng Barangay”.
- Newly hired health workers
- Two (2) barangays with dilapidated barangay health station and only one (1) health nutrition post established.
- Nomadic attitude among indigeneous people (IP)
- Only 80% Philhealth member population.
- Consistent top ten (10) malnourish LGU in the province.
- Inadequate health manpower
- Low sanitation compliance.

#### POPULATION NEEDS:

- Meet halfway through Health Nutrition Post.
- 100% coverage to philhealth benefits/ membership.
- Population survey/ barangay/ age bracket/ socioeconomic status/ ethnicity.
- Strengthening regulation and financing for malnutrition.
- Poor health delivery system – inadequate manpower.
- All household must have access to safe potable water supply and sanitation facility.
- Massive intensive information drive on all health programs – conduct regular health caravan to all geographically isolated and disadvantage areas.

#### DEVELOPMENT NEEDS:

- Establishing and sustaining functional “botika ng Barangay” in 24 barangays with active Barangay Local Health Board with adequate budget allocation for health programs.
- Training of health personnel and stakeholders.
- Lobby additional budget for construction of additional health facilities (Health Nutrition Post, Barangay Health Station).
- Establishing water system.
- Tapping Non Government Organizations and other agencies concern.
- Implement and utilize mandatory budget for health programs from Local Council for the Protection of Children, Barangay Disaster Risk Reduction Management Funds, Barangay Anti-drug Fund and Barangay Nutrition Funds.

### 3.3.3 EDUCATION

#### A. Situational Analysis

##### Literacy of Population

The latest data on the literacy of population was in year 2015 Census of Population. As reflected on Table 3.70 below, considering the age group of 10 years old and over, there are 33,824 or 84.14% out of the total of 40,198 are literate wherein males dominated the counts.

**Table 3.70**  
Literacy of the Household Population 10 years old and over by Age, Group and Sex  
Municipality of San Fernando, Bukidnon  
Census 2015

Age Group	Total Population			Literate			Illiterate		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
10-14	6,846	3,575	3,271	6,195	3,191	3,004	651	384	267
15-19	5,541	2,883	2,658	4,992	2,571	2,421	549	312	237
20-24	4,779	2,463	2,316	4,191	2,126	2,065	588	337	251
25-29	4,301	2,308	1,993	3,735	2,000	1,735	566	308	258
30-34	3,586	1,878	1,708	2,984	1,579	1,405	602	299	303
35-39	3,258	1,772	1,486	2,599	1,450	1,149	659	322	337
40-44	2,905	1,526	1,379	2,251	1,199	1,052	654	327	327
45-49	2,452	1,273	1,179	1,948	1,035	913	504	238	266
50-54	1,986	1,049	937	1,543	833	710	443	216	227
55-59	1,484	782	702	1,142	593	549	342	189	153
60-64	1,119	605	514	889	499	390	230	106	124
65 yr old & over	1,941	984	957	1,355	693	662	586	291	295
<b>Total</b>	<b>40,198</b>	<b>21,098</b>	<b>19,100</b>	<b>33,824</b>	<b>17,769</b>	<b>16,055</b>	<b>6,374</b>	<b>3,329</b>	<b>3,045</b>
<b>Percent to Total</b>	<b>100%</b>	<b>52.49%</b>	<b>47.51%</b>	<b>84.14%</b>	<b>52.53%</b>	<b>47.47%</b>	<b>15.86%</b>	<b>52.28</b>	<b>47.72%</b>

Source: PSA, POPCEN 2015

##### School-age Population by Age Group

Ages involved in school-age population are 5 to 24 years old wherein there are 24,890 or 44.38% of the total population counted in year 2015 published by the Philippine Statistics Authority (PSA).

As shown in table 3.71, the enrolment participation rate is 63.17% through dividing the number of students of a particular age group enrolled in all levels of education by the size of the total population of that age group. Unfortunately, there are 9,167 or 36.83% belong to out-of-school-youth (OSY) and most of them are ages 15-24 years old or ages that must be served with secondary and tertiary education. The pursue of education is somewhat neglected due to unavailability of secondary and tertiary schools to several barangays. There are only six barangays out of 24 established high school curriculum and only Barangay Halapitan had established tertiary school.

Educational issues, concerns and priorities are identified within the districts of San Fernando. As the principal states, education begins at home but formal education should be served by the government in which it is the main concern of the municipality of San Fernando. Geographical location, peace and order and even its climate are some factors



on the efficiency of educational delivery. Culture and tradition and practices are also considered factors.

**Table 3.71**  
**School-age Population**  
**San Fernando, Bukidnon**  
**Census 2015**

School-Age Group	Census 2015 Population – 56,138			Number of Population Attended School			Out of School Youth		
	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	female	Both Sexes
5-9	3,946	3,701	7,647	3,490	3,344	6,836	454	357	811
10-14	3,578	3,275	6,853	3,171	3,019	6,190	407	256	663
15-19	2,899	2,670	5,569	1,233	1,148	2,381	1,666	1,522	3,188
20-24	2,496	2,325	4,821	162	154	316	2,334	2,171	4,505
<b>Total</b>	<b>12,919</b>	<b>11,971</b>	<b>24,890</b>	<b>8,058</b>	<b>7,665</b>	<b>15,723</b>	<b>4,861</b>	<b>4,306</b>	<b>9,167</b>
	<b>Percent to Total</b>		<b>44.38%</b>	<b>Participation Rate</b>		<b>63.17%</b>			<b>36.83%</b>

Source: MPDO, PSA, POPCEN 2015

Access to quality education is the main objective of the municipality but the problem of parents and school children are the inaccessibility of education facility from home and the economic status of the family or parents. Lack of interest in education, lack of classrooms and textbooks as well as insufficient number of teachers and classrooms contributed to the problem of education in the municipality. Due to the problems stated above which resulted to poor academic performance of students will eventually be the cause of drop outs of school children from the school. The main problem of both elementary and secondary schools in San Fernando is the shortage of number of teachers and classrooms due to rapid population of enrollees. Several factors are also observed namely: distance from home to school, family economic status, family problems, peace and order situation in the community, parent's lack of interest and even culture and tradition of the tribal groups in San Fernando.

Although there are no formal research in the past and until now, there are interviews made by teachers and administrators to parents and pupils why pupils/students have to leave school. Hundreds of students have to walk more than five (5) kilometers from their respective house to school especially for those who cannot afford to rent boarding houses nor pay the *habal-habal* fare. With that tiresome routinary walk daily they cannot even afford to open their books and notebooks to study their lessons since they are also required to do some household chores at home.

Family economic status is a given factor for low performance and student drop-outs since this is proven by different researchers all over the world. Researchers found out that the lower the economic status, academic performance is also low with a very high chance of drop-outs. Family problems and parent teacher's relationships are also mentioned by interviewees. As contributing factor, land disputes, husband and wife relationship affect student's performance in school while teachers also mentioned why parents left their students dropped from schools.

Presently, communist groups are active in the municipality of San Fernando. Although there is no recorded engagement between them and the government troops in the proper of San Fernando, but their presence in the remote barangays is very clear that affects the educational system and academic performance of pupils and students.

Due to the economic status of the families especially those who are below poverty threshold, parents are more interested in letting their children stay at home or let them help at their farms. Consequently, pupils and students have to be absent from their classes. Although parents felt the importance of education but the need for them to satisfy hunger comes most important.

Moreover, the cultural marriage arrangements of the tribe also affects the education of the children and youth. "Buya" is the traditional marriage used by the Tigwahanos and Matigsalogs wherein the parents agreed to marry each child with another from the same tribe once they reach the appropriate age. This left 40% to 50% of the students marrying at an early age of 14 to 15 which deprived them of the opportunity of earning higher education.

### **Levels of Education**

Education sector in San Fernando serves both formal and informal learnings which has three (3) levels namely: a) Elementary b) Secondary and c) Tertiary. The elementary and secondary both private and public schools are under the Department of Education (DepEd) while tertiary levels are under the Commission on Higher Education (CHED).

Based on the data in year 2018 gathered from Barangay Nutrition Council in 24 barangays, it is classified that 41% of the 17,778 population of children 0-17 years old are indigent (IPs). Meanwhile, the department of Education had implemented indigenous Peoples Education Program as a response to the right of indigenous peoples (IP) to basic education that is responsive to their context, respects their identities and promotes the values of their indigenous knowledge, skills and other aspects of their cultural heritage. With this regard, and with the continuing support of the government, there are 12 IP schools which serves elementary education only. These were are constructed at different barangays especially the remote or isolated areas bounded by hills and rivers.

Table 3.72 also classified 73 (0.3%) persons with disability (PWDs) aged 0-17 years old from several barangays of San Fernando. PWD learners are present in some schools and there are problems encountered by the teachers. Their uncontrollable disabilities cause troubles with classmates and may become the source of bullying within the classroom or even in the campus. Difficulty in teaching also one of the problems because of their PWD's limited capabilities. These learners need special attention, care, and approach that maybe cannot be provided by the teachers and normal learners. Special Education must be implemented in the municipality wherein PWD must receive appropriate free public education in the least restrictive environment necessary to meet those learner's needs but because of their few population, it has been neglected.

Basic education is provided by primary, elementary and secondary schools strategically located in the municipality of San Fernando. When a student does not have or cannot access formal education in schools, the DepEd offered Alternative Learning System (ALS) which is a parallel learning system that provides a practical option to the existing formal instruction. Tertiary education is offered by two (2) colleges namely a.) San Fernando Community College Inc. (private) and b.) Bukidnon State University (public) and one (1) technical Vocational courses managed by the Technical Education and Skills Development Authority (TESDA) under the support and assistance of the LGU.

**Table 3.72**  
**IP and PWD Children Classification**  
**San Fernando, Bukidnon**  
**2018**

Barangay		Classification			
		Population of Children (0-17 years old) – 24,391			
		IP Children 0-17 yrs old		PWD (0-17 yrs old)	
		Male	Female	Male	Female
1	Bonacao	314	305	2	3
2	Bulalang	128	156	-	-
3	Cabuling	149	118	1	-
4	Candelaria	12	6	-	-
5	Cayaga	129	88	4	2
6	Dao	373	343	-	-
7	Durian	68	49	3	1
8	Halapitan	502	524	9	10
9	Iglugsad	148	161	2	1
10	Kalagangan	942	873	1	3
11	Kawayan	126	127	-	-
12	Kibongcog	533	498	1	-
13	Little Baguio	164	168	3	9
14	Mabuhay	131	141	-	-
15	Magkalaungay	138	111	-	1
16	Malayanan	3	2	2	2
17	Matupe	160	171	-	-
18	Nacabuklad	77	81	1	-
19	Namnam	363	307	1	-
20	Palacpacan	257	242	-	-
21	Sac. Valley	109	71	2	1
22	San Jose	179	179	3	-
23	Sto. Domingo	135	125	3	2
24	Tugop	20	21	-	-
	<b>Sub-total</b>	<b>5,160</b>	<b>4,867</b>	<b>38</b>	<b>35</b>
	<b>Total</b>	<b>10,027 (41%)</b>		<b>73 (0.3%)</b>	
	Pop. 5-17 years old	<b>17,778</b>			
	IP Pop. 5-17 years old	<b>7,289</b> (Assumption)			

Source: MPDO and Barangay Nutrition Council (BNC)

## Elementary Level

All 24 barangays in San Fernando provide and promote basic literacy in the community. It has divided into two districts with 34 complete public elementary schools, 12 indigenous people's (IP) school and two (2) private schools, namely a.) Seventh Day Adventist Academy located at barangay Halapitan and b.) Divine Mercy School of Bukidnon located at Sitio Bugca Barangay Sto Domingo. All schools have opened their pre-schools as mandated by the Department of Education. There are 67 public day-care centers for age 3-4 years old that caters all barangays and others are managed privately by different churches which includes Baptist Kindergarten, Seventh Day Adventist Kindergarten and United Church of Christ of the Philippines Kindergarten all located at Poblacion Halapitan

Halapitan Central Elementary School is the largest public elementary school located at barangay Halapitan, the capital of the municipality which is also has the highest number of enrollees as shown in Table 3.73. It is situated 200 meters away from the national highway. The school is also surrounded with 6 public elementary schools and 2 IP schools from different sitios of the barangay.

**Table 3.73**  
**Inventory of Elementary Schools**  
**San Fernando, Bukidnon**  
**2015**

Barangay	Name of School Legend: ES (Elementary School) IPS (Indigeneous People' School)	No. of Enrolees	No. of Teachers	Teacher Pupil Ratio	No. of Classroom	Classroom – Pupil ratio	No. of Drop-out
<b>Urban</b>							
1. Halapitan	Halapitan Central ES	1,171	29	1:41	29	1:41	22
	Ilian ES	131	7	1:19	8	1:17	0
	Macabongbong ES	69	4	1:18	4	1:18	1
	Nala ES	200	10	1:20	2	1:100	0
	Colon ES	102	5	1:21	5	1:21	1
	Sta. Cruz ES	41	2	1:21	2	1:21	0
	Sulog ES	144					
	❖ Panuluanan To Salumayag	261	6	1:44	6	1:44	0
❖ Malayag No Paluanan To Salumayag	58	1	1:58	3	1:19	0	
<b>Urbanizing</b>							
1. Candelaria	Candelaria ES	123	7	1:18	3	1:41	0
2. Kalagangan	Kalagangan ES	829	28	1:30	28	1:30	30
	❖ Keupiyanan Te Balugo	103	2	1:52	3	1:35	0
	❖ Panayaban Te Simsimen	131	3	1:44	3	1:44	0
	❖ Panuluanan Te Masalugpok	67	3	1:23	3	1:23	0
	❖ Panuluanan Te Delon						
		129	3	1:43	3	1:43	0
3. Little Baguio	Little Baguio ES	801	23	1:35	20	1:41	0
	Kauswagan ES	146	6	1:25	4	1:37	3
	Bayting ES	63	3	1:21	2	1:32	0
4. Mabuhay	Mabuhay ES	405	17	1:24	12	1:34	7
5. Nacabuklad	Nacabuklad ES	213	7	1:31	5	1:43	0
6. Namnam	Namnam Integrated School	1,015	26	1:39	26	1:39	0
	Mahayag ES						
	❖ Basbasan To Goynawa To Balakayo	244	8	1:31	8	1:31	0
		84	1	1:84	3	1:28	0
7. Sac. Valley	Sac. Valley ES	376	10	1:38	9	1:42	0
<b>Rural</b>							
1. Bonacao	Bonacao ES	410	18	1:23	15	1:28	0
	❖ Basbasan To Diraya To Tigwa	149	4	1:38	4	1:38	0
	Panuluanan Te Kisayab						
		140	4	1:35	3	1:47	0
2. Bulalang	Bulalang ES	159	6	1:27	5	1:32	0
3. Cabuling	Cabuling ES	179	6	1:30	6	1:30	0
4. Cayaga	Cayaga ES	236	7	1:34	7	1:34	0
5. Dao	Dao ES	331	12	1:28	10	1:32	0
	❖ Kiranggal Tunghanan Te Katalonan	77	3	1:26	3	1:26	0
6. Durian	Durian ES	173	8	1:22	8	1:22	0
7. Iglugsad	Iglugsad ES	338	13	1:26	12	1:29	0
8. Kawayan	Kawayan ES	378	12	1:32	8	1:48	0
9. Kibongcog	Kibongcog ES	301	11	1:28	10	1:32	0
10. Magkalungay	Magkalungay ES	207	7	1:30	7	1:30	0
	Malambago ES	176	7	1:26	4	1:44	5
11. Malayanan	Malayanan ES	198	7	1:29	8	1:25	0
12. Matupe	Matupe ES	309	11	1:29	10	1:31	0
	❖ Kalayag Ne basbasan Te Kamyasungan	102	3	1:34	3	1:34	0
13. Palacpacan	Palacpacan ES	307	11	1:28	10	1:31	0
14. San Jose	San Jose ES	231	10	1:24	10	1:24	0
	❖ Baley Ne Panuluan Te Inayaman	51	2	1:26	3	1:17	0
15. Sto. Domingo	Bugca ES	233	8	1:30	8	1:30	0
16. Tugop	Tigua ES	297	11	1:27	9	1:33	0
<b>TOTAL</b>		<b>11,888</b>	<b>399</b>	<b>1:30</b>	<b>358</b>	<b>1:33</b>	<b>69</b>
<b>Legend</b>							
❖ IP school							
<b>No. of Barangay Schools – 34</b>		<b>No. of IP Schools – 12</b>		<b>Total No. of Schools - 46</b>			

Source: San Fernando, DEPED District I and II



**Panuluanan To Salumayag (Elementary IP School)**  
*Sitio Salumayag, Halapitan, San Fernando, Bukidnon*



**Keupiyanan Te Balugo (Elementary IP School)**  
*Sitio Balugo, Kalagangan, San Fernando, Bukidnon*



**Panayaban Te Simsimen (Elementary IP School)**  
*Sitio Simsimen, Kalagangan, San Fernando, Bukidnon*



**Kalayag Ne Basbasan Te Kamyasungan (Elementary IP School)**  
*Sitio Kamyasungan, Matupe, San Fernando, Bukidnon*

Based on the total number of 11,888 enrollees during school year 2017-2018, the average teacher-pupil ratio is one (1) teacher per a class size of 31 learners which may be still ideal compare to the proposal made from the “House Bill 473” or an act regulating class size in all public schools and appointing funds which proposes “class to be handled by one teacher shall be fixed at a standard size of 35 learners, with a maximum of no more than 50 students”. As shown in Table 3.73, based on the individual result, there are three (3) IP schools from Barangays Halapitan (*Malayag No Paluanan To Salumayag*), Kalagangan (*Keupiyanan Te Balugo*), and Namnam (*Basbasan To Goynawa To Balakayo*) failed to the compliance of the said proposal. One reason is the failure of funding additional teacher while the number of enrollees increasing every school year. It is noted also that the number of classroom is enough to be occupied by the IP pupils. These areas are considered isolated which contributed to the difficulty of teachers in terms of transportation to reach the site because of the hill topped and earthy condition of roadway especially during rainy season. There is no record of drop-outs from these IP schools which means they are all interested in going to school despite the poverty and overcrowding condition of relying to 1 or 2 teachers per over population of enrollees. Despite the fact that they are responsible, independent, willing to learn and live with desirable values, most IP pupils engaged in frequent absenteeism. Most of them are

considered as distant learners. They walked for almost 1 to 5 kilometers to reach the school. The risk of roadway to school especially when it rains, sometimes hinder their desire to go to school. Parents sometimes asked their children to be absent from the class to help them in farm to sustain for their daily needs. Other learners were affected by malnutrition.

Considering the location of rural areas especially the sitios which are already bounded by farm lots, sugarcane and corn and rice farms owned by private individuals, some people living in the place are only laborers that earns only a minimum salary which could hardly suffice the needs of their family. Indigenous people are currently suffering extreme poverty since most of them have not owned agricultural piece of land to earn a living, they only depend on government subsidy (4Ps) and on labor works which is not regular in nature.

Mostly, the problem in school is the unavailability of potable water supply, but they still survived with the sustainable raw sources from the environment like water falls or river running water. This could put their health at risk but they have adapted this survival in many years. Currently, almost schools need to have a fixed perimeter fence in their site in order to keep the school premises at safe from any forms of harm like entry of stray animals and thieves. It also prevent the pupils from uncontrollable escape during school hours.

As shown in Table 3.74, drop-out is rare, in every school year based on data from public schools having the highest ratio of only 7 drop-out pupils per 1000 enrolees in SY 2011-2012 and lowest ratio of 3 pupils per 1000 enrolees in SY 2014-2015. This condition still belongs to the main problems in education because the DepEd aim to achieve the goal of zero dropout by 2030 or maybe halve the rate of school dropout.

**Table 3.74**  
**Elementary Enrollment Data**  
**San Fernando, Bukidnon**  
**School Year 2017-2018**

School Year	No. of Enrolment	No. of Drop-out	Rate of Drop-out per 1000 Enrolees
2010-2011	8,403	39	5
2011-2012	8,565	61	7
2012-2013	9,456	52	6
2013-2014	9,852	39	4
2014-2015	9,271	24	3
2015-2016	9,697	43	4
2016-2017	9,520	45	5
2017-2018	11,888	69	6

Source: DepEd

## Secondary Education

There are 4 public and 5 private schools which serve secondary education in San Fernando with complete junior and senior high school except the school annexes as listed in Table 3.75. Halapitan National High School (HNHS), the largest school in the municipality that caters the 40% of the whole population of high school students within the municipality. It has 37 classrooms that house the 2,545 enrolees including senior high school students recorded in school year 2018 as shown in Table 3.76 and Table 3.77.

**Table 3.75**  
**List of Secondary Schools**  
**San Fernando, Bukidnon**  
**2018**

Name of School	Barangay
<b>Public</b>	
1. Halapitan National High School	Halapitan
2. Little Baguio National High School	Little Baguio
3. Halapitan National High School (Kalagangan Annex)	Kalagangan
4. Little Baguio National High School (Namnam Annex)	Namnam
<b>Private</b>	
1. Sevent Day Adventist Academy	Halapitan
2. San Fernando Community Colleges Inc.	Halapitan
3. Divine Mercy School of bukidnon	Sto. Domingo
4. Pope John Paul II School of Bukidnon	Durian
5. Kalagangan Academy	Kalagangan

Source: DepEd

**Table 3.76**  
**Historical Data on Enrollment**  
**Secondary Level**  
**San Fernando, Bukidnon**

School Year	No. of Enrollment	No. of Drop-outs	Rate of Drop-out per 1000 enrollees
2010-2011	1,346	66	49
2011-2012	1,382	76	55
2012-2013	1,349	88	65
2013-2014	1,355	3	2
2014-2015	1,648	27	16
2015-2016	1,605	2	2
2016-2017	1,720	0	0
2017-2018	2,545	9	4

**Table 3.77**  
**Secondary Enrollment Data**  
**San Fernando, Bukidnon**  
**SY 2017-2018**

Name of School	Enrollment	No. of Teachers	Teacher Pupil Ratio	No. of Classroom	Classroom – Pupil Ratio	No. of Drop-outs
Halapitan National High School	2,545	58	1:44	37	1:69	9
Total	2,545	58	1:44	37	1:69	9

Source: DepEd

HNHS has been a performing school in terms of the programs, projects and activities that the Department of Education has mandated to accomplish, especially in attaining its *Mantr-EduKalidad*.

It has received awards both in the division and regional levels. This is evident by the students and coaches who qualified in the division, regional and even national competitions.

The teachers are all professionally qualified, talented and skillful. In addition to such qualification they continue to upgrade and upskill themselves by enrolling post-graduate studies, obtain TESDA National Certificates and attend trainings and workshops.



*Halapitan National High School*

Every school year, population of enrollees increases which result to overcrowding and shortage of teachers and classrooms become the usual problems which currently recorded with a ratio of 1 teacher per 44 students and an average ratio of 1 classroom for 69 students.

As shown in Table 3.77, it is noted that the number of drop-outs from year 2010-2013 has higher population because of the poverty and early marriage due to unwanted pregnancy. But it is decreasing annually because nowadays, poverty, even though a trend problem nationwide but on the other point of view has been given an option of surpassing the issue through government's policy of free tuition to all public schools and the policy of provision of financial subsidy for IPs.

Despite performance of the teachers and students however, there are also challenges that the school needs to address. To mention few, the fads of technology right at the fingertips of school children, the prevailing addiction on the television programs and dramas, and health problems due to the wrong practices of families and school children



are but some of the few root causes of the problems on school performances as shown in the data below:

- a) 41 % (1:119) of the total enrollment belongs to frustration level in reading
- b) 35% (951) students are sports enthusiasts and the school has teachers who are potential coaches.
- c) The school offers four (4) Tech-Vocational Courses with 135 students that are under the JDVP contract

Hence, the administration will therefore adhere religiously to the KITE program of the department so as to address the local needs. It is to this end that the school calls for real partnership with the local government through its agencies and the private external stakeholders.

### **Tertiary Education**

Since 1994, San Fernando Community Colleges Inc. (SFCCI), a private school located at Barangay Halapitan offers courses for tertiary education. One of these courses is Bachelor of Elementary Education which mostly preferred by enrollees. The campus only cater enrollees up to second year level then required to finish the courses to the main campus located at Valencia City, Bukidnon.

Fortunately in year 2018, the Bukidnon State University of Malaybalay City, Bukidnon established a satellite campus in San Fernando. It is a complete public tertiary education which offers 2 courses namely a.) Bachelor in Public Administration and b.) Bachelor of Science in Business Administration.

The usual scenario of secondary school graduates mostly prefer to enroll outside the municipality or to some known colleges and universities of cities and municipalities in Northern Mindanao due to the unavailability of courses in San Fernando and/or due to the expectation of availing higher quality and standard of education and technologies that may be offered by other schools.

### **Non-formal Education**

Drop-out students from the past years are encouraged to return to school by offering Open High School conducted by HNHS where the teacher assigned them several modules which required home study and allowed them to report to the campus once a week. Other option offered by DepEd is the Alternative Learning System (ALS), a parallel learning system that provides a practical option of the existing formal instruction. This is a substitute when one does not have or cannot access formal education in schools. They are being required to comply the regular modules and then required to pass the Accreditation and Equivalency Exam. Passers/graduates will be awarded with diploma and certificates which are accredited to pursue tertiary education. This system is ran with coordinators, mobile teachers and the rest were volunteer teachers who serve several barangays of San Fernando. These volunteers are mostly fresh college graduates and new teacher board passers who are willing to offer free services to the ALS students. This act of kindness may credit to their records to fill the requirements in applying teaching jobs in the future.

When one doesn't afford to take tertiary education, he/she can enroll in Technical Education and Skills Development Authority (TESDA), a government agency supported and assisted by the LGU of San Fernando. It offers courses regarding skills and various vocational training oriented programs like;

- a.) Beadsmaking
- b.) Massage Therapy NC II
- c.) Carpentry NC II
- d.) Driving NC II
- e.) Electrical Installation Maintenance NC II
- f.) Food Processing
- g.) Pipefitting
- h.) Small Metal Arc Welding NC II

These opportunities inspired those who cannot afford to attend regular classes where most of the enrollees are single mothers, family providers, indigenous people (IP), out of school youth, rebel returnees, unemployed individual, people under community support or in conflict areas, displaced worker and persons with disabilities. They are very interested in skills training for the reasons that after the training, they can be able to apply for a job or put up their own small business. Some of them wants to have a livelihood, thus, attending the training might give them the capacity to engage or have a venue for them to earn money. There are some individuals who graduated in the trainings has their own income already out of the product they produce. Some also have a job right now due to the trainings they've attended.

## **Projections**

Teacher and classroom requirement is determined using the standard of 35 pupils under one teacher in a classroom. For the elementary level, assumption is 104% enrollment participation rate. Immigration is one of the factors which contributed to the increase of 4% participation rate. Other factor that may affect the increase is the school participation of teenagers who wants to avail basic education.

Using the above standard, there would be enough teachers and classrooms up to year 2025. However, by the end of the planning period in 2028, a total of 421 teachers shall have to be hired and 421 have to be constructed to meet the needs of the projected number of enrollees. See Table 3.78 as to existing number of classrooms and teachers and its respective projections.

Currently, 40% of the school age population of secondary level enrollment belongs to HNHS as shown in Table 3.79. Based on this data, projection maybe analyzed. Considering the standard requirement of 1:35, there is a current need of 35 classrooms to be constructed and additional 14 teachers to be hired to meet the standard. A total of 89 classrooms and 89 teachers are needed to accommodate the projected enrollment of 3,118 students at HNHS by year 2028.

**Table 3.78**  
**Projected School-Age Population, Elementary Level**  
**Enrollment and teacher-Classroom Requirement**  
**San Fernando, Bukidnon**

Year	School-age Population	Enrollment	Requirement	
			Teachers	Classroom
<b>Current</b>				
2018	11,477	11,888	399	358
<b>Projected</b>				
2019	11,724	12,193	348	348
2020	11,976	12,455	355	355
2021	12,233	12,722	363	363
2022	12,496	12,996	371	371
2023	12,765	13,276	379	379
2024	13,039	13,561	387	387
2025	13,320	13,853	395	395
2026	13,606	14,150	404	404
2027	13,898	14,454	412	412
2028	14,197	14,765	421	421

Assumption:

Enrollment Participation Rate (EPR)

Teachers and Classrooms requirement 1:35

Possible increase of enrollment – 4% (based on the latest enrollment)

**Table 3.79**  
**Projected School-Age Population, Secondary Level**  
**Enrollment and teacher-Classroom Requirement**  
**San Fernando, Bukidnon**

Year	School-age Population	Enrollment (HNHS only)	Requirement	
			Teachers	Classroom
<b>Current</b>				
2018	6,301	2,545 (40%)	58	37
<b>Projected</b>				
2019	6,436	2,574	73	73
2020	6,575	2630	75	75
2021	6,716	2686	76	76
2022	6,860	2744	78	78
2023	7,008	2803	80	80
2024	7,159	2864	81	81
2025	7,313	2925	83	83
2026	7,470	2988	85	85
2027	7,630	3052	87	87
2028	7,794	3118	89	89

## B. Goal

Provide quality education so that each become a self-reliant, productive, responsible, and law-abiding citizen.

## C. Problems, Cause and Impacts

Problems	Causes	Impacts
1. Insufficient number of teachers and classrooms	<ul style="list-style-type: none"> <li>- rapid increase number of enrollees</li> <li>- pioneering curriculum of senior high schools</li> </ul>	<ul style="list-style-type: none"> <li>- Overloaded of schedule</li> <li>- Overcrowding</li> <li>- congested rooms</li> <li>- Makeshift rooms</li> <li>- Use of alternative but improper areas.</li> </ul>
2. Presence of Drop-out learners.	<ul style="list-style-type: none"> <li>- Poverty</li> <li>- Unwanted pregnancy</li> <li>- Lack of parental support</li> <li>- Lack of interest</li> <li>- Transfer of residency</li> <li>- Family's tradition and culture (early marriage)</li> </ul>	<ul style="list-style-type: none"> <li>- Forced labor</li> <li>- No educational attainment which leads to jobless</li> <li>- Discrimination</li> </ul>
3. Absenteeism	<ul style="list-style-type: none"> <li>- Low nutritional status of children</li> <li>- Tardiness</li> <li>- Babysitting</li> <li>- far distance from home to school</li> <li>- Bullying</li> <li>- Learners are engaged in social media and online games.</li> </ul>	<ul style="list-style-type: none"> <li>- Low academic performance</li> <li>- Poor learning and reading ability</li> <li>- Pupils/students belong to identified non-readers.</li> <li>- Low self-esteem.</li> <li>- Addiction to mobile technologies</li> </ul>
4. No proper and genderized comfort rooms and lack of/or malfunction of potable water system	<ul style="list-style-type: none"> <li>- insufficient funds</li> </ul>	<ul style="list-style-type: none"> <li>- Poor health and sanitation.</li> <li>- Unhygienic learners</li> </ul>
5. No fixed perimeter fence	<ul style="list-style-type: none"> <li>- lack of fund sources</li> </ul>	<ul style="list-style-type: none"> <li>- Learner's and faculty's safety is at risk</li> <li>- Damage of school properties.</li> <li>- Uncontrollable escape of learners during school hours.</li> <li>- Illegal entries of stray animals, outsiders, and thieves.</li> </ul>

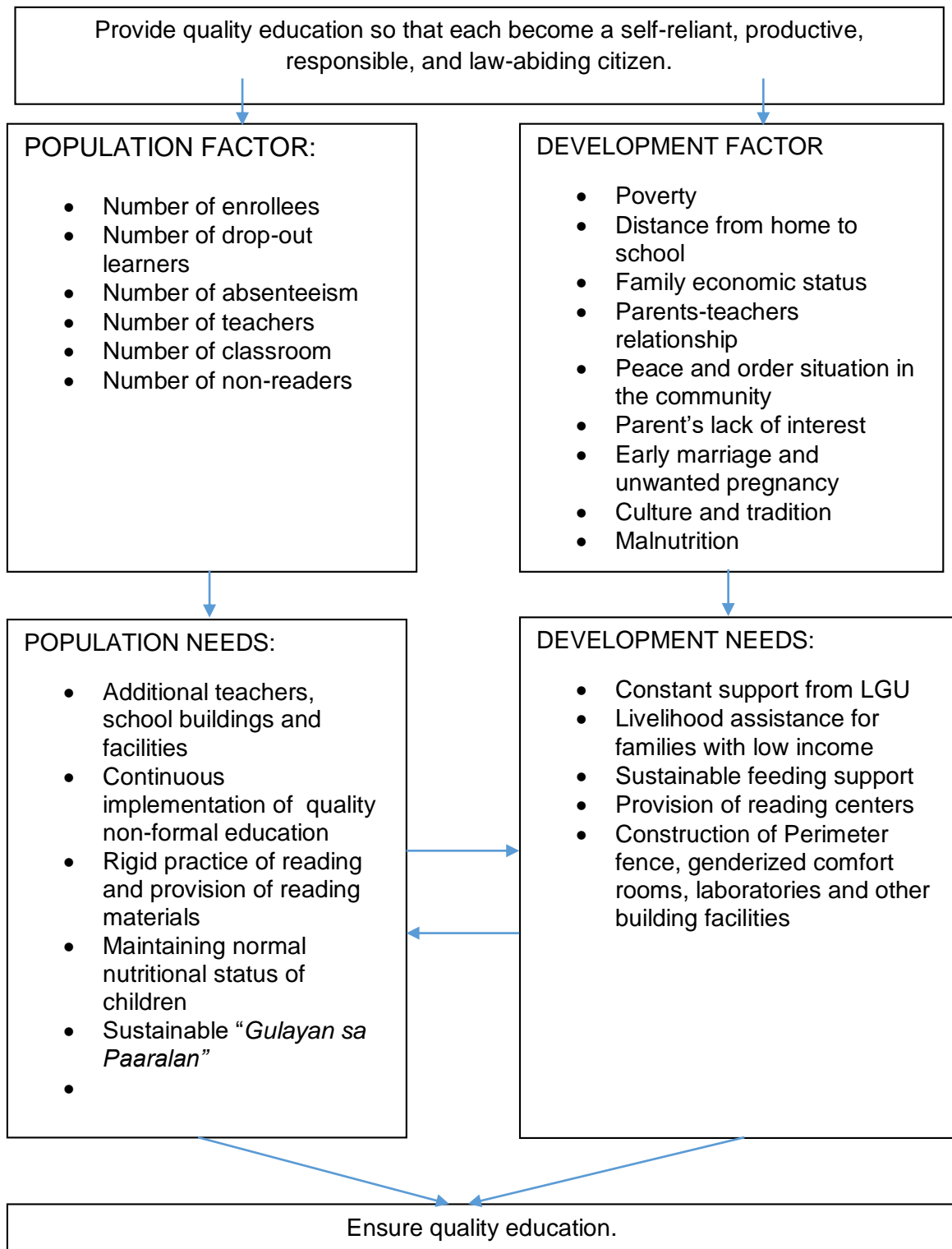
<p>6. Lack of school buildings, facilities and materials like school stage, chairs, tables, laboratories and computer rooms playground etc.</p>	<ul style="list-style-type: none"> <li>- Increased of population</li> <li>- Unavailability of funds</li> </ul>	<ul style="list-style-type: none"> <li>- overcrowding</li> <li>- Poor class participation</li> <li>- Improper place for school programs and activities</li> <li>- no suitable place for laboratory activities</li> <li>- low quality of education</li> <li>- limited sports activities</li> </ul>
<p>7. Presence of learners with special needs or disability (PWD)</p>	<ul style="list-style-type: none"> <li>- Parents are pushing the right of their PWDs to attend school regularly until they learn the basic skills needed to maximized their potentials</li> </ul>	<ul style="list-style-type: none"> <li>- Low literacy</li> <li>- Low school participation rate</li> <li>- low educational outcomes</li> </ul>
<p>8. Difficulty of access in going to school</p>	<ul style="list-style-type: none"> <li>- hazardous terrain and no proper road in going to school</li> <li>- no funds available for road construction</li> <li>- no established school in other remote or isolated areas especially those with river access</li> </ul>	<ul style="list-style-type: none"> <li>- teachers and learners are at risk especially during rainy season</li> <li>- absenteeism</li> </ul>
<p>9. Existence of non-readers</p>	<ul style="list-style-type: none"> <li>- learners engaged in social media and online games</li> <li>- lack of parent's guidance and support</li> </ul>	<ul style="list-style-type: none"> <li>- low quality of education</li> <li>- low self-esteem</li> </ul>

#### D. Objectives, Strategies and Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Insufficient number of teachers and classrooms	- To provide conducive learning environment.	- Adapt time management - Conduct shifting school hours - Conduct feasibility study to support the request of additional classrooms and teachers.	
2. Presence of Drop-out learners.	- To build transparency and communication of teacher-parent-learners relationship and vice versa. - To uplift family's economic status	- Strengthening the support of the LGU in providing assistance of livelihood programs. - Integrating of sexuality education lessons in schools to curb the incidences of teenage pregnancy, population growth and sexual diseases. - Conduct regular parents-teachers meetings which focus on the monitoring, supporting and counselling of children	
3. Absenteeism	- To eradicate the malnourished pupil -	- Regular consultation of parents and close monitoring of pupil's nutritional status. - Conduct barangay feeding program to lessen teacher's burden or class interruptions.	
4. No proper and genderized comfort rooms and lack of/or malfunction of potable water system	- To improve the good utility on the school to prevent disregard and avoid from cause of diseases.	- Conduct a fund raising activities - Tap LGU for the provision of buildings and facilities	- Policy guidelines of Comprehensive Sexuality Education.
5. No fixed perimeter fence	- To provide safety and security for learners	- Conduct fund raising activities for the construction of perimeter fence Enhance parent-teacher relationship	- Child Friendly School
6. Lack of school buildings,	- To enhance the capacity of the	Draft resolution address to the House of	

facilities and materials like school stage, chairs, tables, laboratories and computer rooms playground etc.	school in delivering good services in the community by ensuring the families and learners attracted in the school facilities and/or buildings	Representative and Provincial Government for the construction of additional classroom - Conduct a fund raising activities - tap LGU and national office for the provision of additional school buildings and facilities	
7. Presence of learners with special needs or disability (PWD)	- To provide special attention and consideration of learnings among disable pupils - To push awareness to make schools not just child friendly' but also "PWD friendly"	- Assign or request additional teacher or Special Education (SPED) teacher to cater PWDs -	PWD Friendly School
8. Difficulty of access in going to school	- to provide improvements and comfort to learners, teachers, parents, and stakeholders - to strengthen the networking and linkages to internal and external stakeholders so that they will be aware that the school needs their full support for the implementation of school improvement plans .	- conduct orientation to the PTA on their roles and responsibilities - organize the school governing council as support system to PTA and school to let them feel their big role in the school and community - organize the alumni as partners in school development - contact the landowners of possible site for road construction.	- formulate a resolution and MOA
9. Increased number of non-readers	- To provide the teachers with trainings in terms of teaching techniques especially in reading	- conduct INSET Training and LAC Session for teachers - Encourage the teachers to enroll in master's degree to enhance professional development - Strict compliance of the policy	- "No read, no move" Policy - " Every Child is a Reader" Program - Continuing Education Program

## E. Situational Analysis Framework





### 3.3.4 Protective Services

#### A. Situational Analysis

##### a. San Fernando Police Station

The grand venture in the maintenance of law and order requires a collaborative effort between government agencies interacting in a common language of pronouncing peace and progress. This evidently highlighted the fact that the competence and efficacy of sustaining a common goal depends entirely in the productive relationship between the working groups to achieve mutual result.

The local police station draws strength in the financial and logistics support from the Local Government Unit. Paucity or insufficiency of the underlying factors seriously handicapped and affects productivity and outstanding outcomes. In the business of peace and order, the foregoing should not be undermined because this dilemma fatally strikes at the operational and administrative backbone of the police.

A straight forward and direct evaluation of the present operational condition of the police station will lead a common public in his best resolves that underneath speedy, prompt, and diligent police service is the outlay of a reciprocated support from the corresponding pencil posts.



*San Fernando Municipal Police Station*

##### b. Profile

San Fernando Municipal Police Station is located at the municipal site which occupy a total land area of 500 square meters. It is attending to approximately 60,000 inhabitants throughout the twenty four (24) barangays stretching from the territorial boundaries of the province of Davao del Norte, Valencia City, Municipality of Cabanglasan, and the Municipality of Kitaotao.

The PNP San Fernando is composed of 36 police officers (PNP) wherein five (5) are females. The station also appointed three (3) PNP civilian employees or Non-uniformed Personnel (NUP) who are in charge of the administrative works and they are the partners of the police officers in delivery of its service, not in a combatant way but as clerks who manage the office and its paper works. With regards to PNP mobility, the station has two patrol cars and one motorcycle which are all in good condition (See Table 3.80). They activated an audible warning device and mounted in a fixed location to be used as a curfew alarm every night at nine (9) o'clock in the evening. Police cars conduct regular Ronda or nightly patrols especially those areas prone to possible dangers and ensure that all areas are cleared from community residents especially those conducting group gatherings to limit at curfew hour.

**Table 3.80**  
**Police Protective Services Data**  
**San Fernando, Bukidnon**  
**2018**

Type of Services	Location	Land Area	Number of Personnel	Vehicle	Condition
San Fernando Police Station	Municipal Site	500 sq.m	36 – PNP 3 – NUP	2- Patrol Car 1- Motorcycle	Good

Source: San Fernando Municipal Police Station

Legend: PNP – Philippine National Police

NUP – Non-uniform Personnel

As of the period, the local police station is partially suffering a depleted strength brought about by the relief and re-assignment of personnel.

Maximizing outdated police paraphernalia, modestly accommodating an assortment of complaints from the demanding public in a dilapidated working post, and attending to regular operational police works and functions, the local police station make the most out of the inadequate budget and support from the local counterpart.

### c. Crime Situation of San Fernando

The municipality of San Fernando, in crime prevention, solution and control, is not so much effective in relation to police service due to lack of personnel, equipment and mobility in the enforcement of laws and ordinances most especially to cater hitches in far flung barangays. The insufficient of supply through financial and logistics capabilities is a big impact affecting police performance to address against criminality and insurgency.

In insurgency state, the municipality is presently confronted with communist terrorist groups (CTGs) under Guerrilla Front 6 9GF 6) Coy Malayag, Former SYP 3 operating in the area of responsibility based in the gathered consolidated intelligence information. Their presence is not so publicly emerging because of the Community Support Program (CSP) initiated by 88<sup>th</sup> IB, PA, 56<sup>th</sup> IB, PA and 89<sup>th</sup> IB, PA who are friendly forces in service in the area of San Fernando with the support of San Fernando Municipal Police Station. Fortunately, even with their presence, the area of San Fernando is safe to live and do business with.

Table 3.81 shows that there is only a slight decrease in crime incidences in the municipality of San Fernando with 83 crimes committed in year 2018 from 85 incidences in year 2017. Violation of special laws tops among the types of index crimes committed in the municipality for year 2018 with 44 incidences, followed by Non-index crimes with 19 incidences and Crime against persons with 17 incidences. Crimes against property like

robbery and theft are the least crime committed including traffic incidence specifically in reckless imprudence resulting to homicide.

For the past three (3) years there are few number of children in conflict with law reported in the authority as listed in Table 3.40. They are those under 18 years old who comes into contact with the justice system as a result of being suspected or accused of committing an offence. Highest record with 3 cases was recorded in year 2016 while in decreased to 1 case only in year 2017.

The police to population ratio in San Fernando is only 1 policeman for every 2000 population. With these regard, incidences remains high when comparing the three consecutive years because of the low police visibility in the municipality especially in the rural areas. Police outpost that may be installed in strategic locations is also not functioning because of the insufficient number of policemen that will be responsible for the assignment. However, the DILG mandated all 24 barangays to appoint at least 20 barangay tanods that at the same time will also act as members of Barangay Peace Keeping Action Team (BPAT) to assist the government in the maintenance of peace and order in every barangays that cannot be catered by PNP, assist the PNP on their operational functions/activities such as during disasters/calamities and in the enforcement of law and ordinances. In case of threat of insurgency and organized crimes, friendly armed forces likewise reinforce the PNP San Fernando.

**Table 3.81**  
**List of Crime Incidence for the last 3 Years**  
**San Fernando, Bukidnon**  
**Year 2016-2018**

Nature of Crime	2016	2017	2018
<b>Against Persons</b>			
• Murder	16	7	10
• Homicide	2	4	3
• Physical Injury	4	6	
• Rape	3	4	4
Sub- total	25	21	17
<b>Against Property</b>			
• Robbery	4	3	1
• Theft	10	1	1
• Carnapping	3	2	
Sub-total	17	6	2
<b>Non-index Crimes</b>			
• Acts of Lasciviousness	1	1	
• Alarms and Scandals	2		
• Destructive Arson		2	1
• Forcible Abduction		1	
• Grave Threats		2	
• Direct Assaults	1		1
• Frustrated/Attempted Homicide	3	3	5
• Frustrated/Attempted Murder	2	6	11
• Frustrated/Attempted Parricide		1	
• Frustrated/Attempted Rape		1	1
• Malicious Mischief		1	
• Resisting Authorities		1	
Sub-total	9	19	19
<b>Traffic Incidents</b>			
• Reckless Imprudence Resulting to Homicide	2	2	1
• Reckless Imprudence Resulting to Physical Injury	7	3	
• Reckless Imprudence to Damage to Property	1	1	
Sub-total	10	6	1
<b>Special Laws</b>			
• Anti-cattle Rustling Law 1974	2		
• Anti-child Abuse Law	2	1	4

• Anti-gambling Law (PD 1602)	1	2	6
• Anti-VAWC Act 2004	1	3	2
• Comprehensive Dangerous Drugs Act 2002	7	20	4
• Comprehensive FA Law	4	1	3
• Illegal logging	2		1
• Illegal Numbers Game (Violation of RA 9287)	3	6	20
• Illegal Possession of Weapons	1		
• Illegal Possessions of Ammunitions & Explosives		1	
• Obstruction of Prosec. Of Criminals	1		
• Omnibus Election Code of the Phils			1
• Prohibited Acts on Petroleum			2
• Unauthorized Alcohol Sale to Minors			1
Sub-total	24	34	44
<b>TOTAL</b>	<b>85</b>	<b>86</b>	<b>83</b>

Source: San Fernando Municipal Police Station

**Table 3.82**  
**Number of Children Below 18 Years Old in Conflict with Law, Past 3 years**  
**San Fernando, Bukidnon**  
**Year 2016-2018**

Child in Conflict with Law (CICL)		
Year 2016	Year 2017	Year 2018
3	0	1

Source: PNP, San Fernando

**Table 3.83**  
**Total Number of BPATs by Barangay**  
**San Fernando, Bukidnon**  
**Year 2016-2018**

Barangay	2016	2017	2018
Bonacao	20	20	20
Bulalang	20	20	20
Cabuling	20	20	20
Candelaria	20	20	20
Cayaga	20	20	20
Dao	20	20	20
Durian	20	20	20
Halapitan	20	20	20
Iglugsad	20	20	20
Kalagangan	20	20	20
Kawayan	20	20	20
Kibongcog	20	20	20
Little Baguio	20	20	20
Mabuhay	20	20	20
Magkalungay	20	20	20
Malayanan	20	20	20
Matupe	20	20	20
Nacabuklad	20	20	20
Namnam	20	20	20
Palacpacan	20	20	20
Sacramento Valley	20	20	20
San Jose	20	20	20
Sto. Domingo	20	20	20
Tugop	20	20	20
<b>TOTAL</b>	<b>480</b>	<b>480</b>	<b>480</b>

Source: PNP, San Fernando

**Table 3.84**  
**Number of Existing Military Camps**  
**San Fernando, Bukidnon**  
**Year 2018**

Location/Barangay	Number of Military Camps
Halapitan	3
Bonacao	1
Namnam	1
Kalagangan	2
Kibongcog	1
Dao	1
<b>Total</b>	<b>9</b>

*Source: PNP, San Fernando*

#### **d. Needs and Priorities**

The municipal site of San Fernando had made some changes in the site development plan of the location. It is observed that the police station had obstructed the entrance of the municipal gymnasium so it has been decided to construct new police station building in a strategic location of the LGU-donated lots still within the municipal site. Since the proposal is still on process, among the needs of the old station are the installation and maintenance of security perimeter fence and the gradual rehabilitation of the police building comes in utmost priority.

Strengthening the three (3) Tiered Defense System, security cannot be sacrificed over neglectful delays and deliberate obstruction considering the unpredictable security status of the area. Additional police personnel, office supplies and equipments, and patrol vehicles, to include upgraded communication systems are likewise sought to improve the working conditions and efficiency of the police. Lastly, the appropriate and prompt allotment from the Local Government Unit to sustain the operational life-source of the enforcing office should not be overlooked and should be taken into careful and judicious consideration.

### **B. Bureau of Fire Protection-San Fernando**

#### **a. Profile**

The Bureau of Fire Protection (BFP) in San Fernando is primarily responsible for the prevention and suppression of all destructive fires and has the power to investigate all causes of fires. BFP is also empowered to act as first responders to non-fire emergencies such as providing assistance to victims of man-made and natural calamities as well as to respond to emergency medical and rescue calls, involving technical skills and capabilities in incidents involving chemical, biological, radiological and nuclear elements, toxic and hazardous material incidents.

In keeping with its mandate of protecting the communities against destructive fires, BFP San Fernando has one fire station located at the poblacion of Brgy Halapitan with 7 personnel, firefighting facilities and equipment including two firetrucks both in good condition which are subject to standard rules and regulations as promulgated by the Department of Interior and Local Government (DILG). Ideally there must be one firetruck for every 28,000 population based on the existing firetruck to population ratio being prescribed by the bureau. As such, given the population of almost 60,000 in 2018, the BPF of San Fernando have been ideally provided with two serviceable firetrucks. See Table 3.85.



**San Fernando Municipal Fire Station**

**Table 3.85**  
**Fire Protective Services**  
**San Fernando, Bukidnon**  
**2018**

Type of Services	Location	Land Area	Number of Personnel	Vehicle	Other	Condition
BFP-SF Building	Poblacion, Brgy. Halapitan	600sq.m	7	2 - Fire truck	0	Good

Source: Bureau of Fire Protection-San Fernando, Bukidnon

### **b. Fire Incidences**

Fire incidence in San Fernando was rarely occurred for the last three years which mostly originated with electrical short circuit due to illegal practices of some commercial establishments and even residential owners. Other incidences were due to vehicular fire, intentional fire, grass fire and unattended open flame which were all recorded from urban area of barangay Halapitan. See Table 3.86.

### **c. Duties and Responsibilities**

Fire Station personnel are continuously conducting Fire/Earthquake Drills. BFP also conducting Fire Safety Inspection on establishment with business permits to operate and in government owned buildings to ensure that these establishments and buildings are still in good condition and are not fire hazards. House to house inspections are also regularly conducted in fire- prone areas. An approved Fire Safety Evaluation Clearance from BFP is also needed in the compliance of building permit and Fire Safety Inspection Certificate before the issuance of occupancy permit of all government and private buildings.

**Table 3.86**  
**Fire Incidence for the Last 3 years**  
**San Fernando, Bukidnon**  
**2016-2018**

Origin	Barangay	Frequency of Occurrence		
		2016	2017	2018
1. Electrical short circuit	Candelaria	1		
	Halapitan	1	1	1
	Kalagangan		1	
	Little Baguuio			1
	Namnam			1
2. Vehicular Fire/ Intentional Fire	Halapitan			1
3. Grass fire	Halapitan	1		
4. Unattended open Flame	Halapitan			1
<b>TOTAL</b>		<b>3</b>	<b>2</b>	<b>5</b>

Source: Bureau of Fire Protection-San Fernando, Bukidnon

### C. Projections (PNP and BFP)

As shown in Table 3.87, based on the standard ratio of policemen and firemen to population, San Fernando is very much inadequate to meet the requirements. The local police force of the municipality needs additional 23 police personnel in the current year 2018 to meet the standard of 1 policeman for every 1000 population and an additional of one (1) or two (2) policemen annually to meet the police force of 74 by year 2028 based on the projected population of 74,021.

The BFP San Fernando has only an actual number of personnel of one fourth (1/4) or 1 firemen for every 8500 population which is unideal to the standard requirement but still able to cope with their task because of rare occurrence of fire incidences in the municipality which also ideally provided with two (2) firetrucks. But to ensure the safety and protection of all inhabitants from possible worst destructive fires, the station must comply the requirement of additional 22 personnel to meet the standard ratio of 1 fireman for every 2000 population, establishment of one (1) Fire Sub-station with adequate personnel, upgraded communication and equipments and additional one (1) fireman every year to meet the required number of 37 firemen by year 2028. Fire truck maybe added with 1 unit for the future proposal of sub-station to reach the total of three units by year 2028.

**Table 3.87**  
**Projected Number of Policemen, Firemen and Firetruck**  
**San Fernando, Bukidnon**  
**2019-2028**

Year	Population	Policemen	Firemen	Firetruck
Current				
<b>2018</b>	59,837	36	7	2
	Requirement	59	29	2
	Need additional of	23	22	0
Projected				
<b>2019</b>	61,124	61	30	2
<b>2020</b>	62,438	62	31	2
<b>2021</b>	63,780	63	32	2
<b>2022</b>	65,152	65	32	2
<b>2023</b>	66,552	66	33	3
<b>2024</b>	67,983	67	34	3
<b>2025</b>	69,445	69	35	3
<b>2026</b>	70,938	70	35	3
<b>2027</b>	72,463	72	36	3
<b>2028</b>	74,021	74	37	3

Standard Requirement: Policemen:1:1000  
 Firemen: 1:2000  
 Firetruck: 1:28,000

## D. Goal

Ensure public safety and internal security.

## E. Problems, Causes and Impacts (Effects)

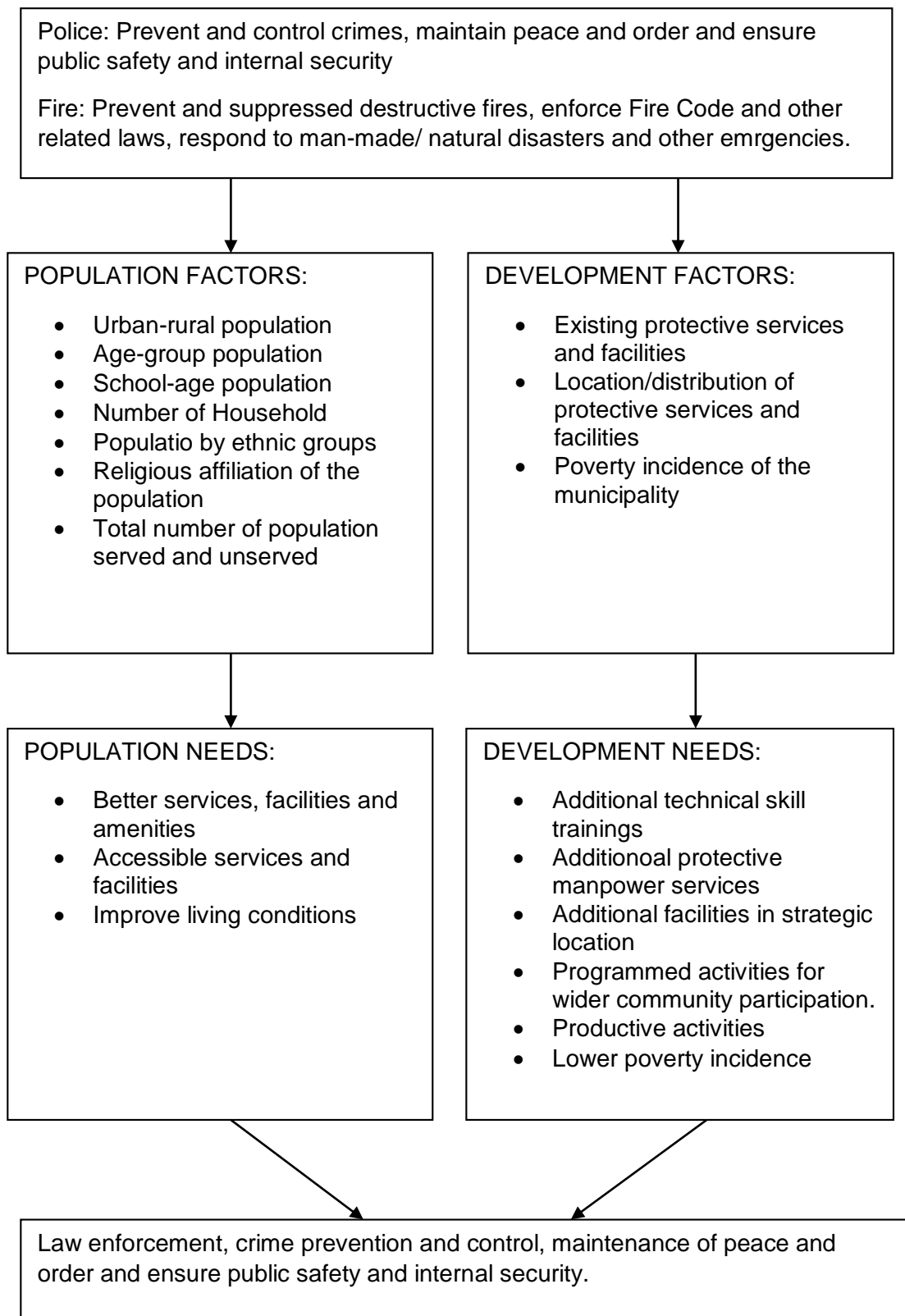
<b>Problems</b>	<b>Causes</b>	<b>Impacts</b>
<b>PNP</b>		
1. Lack of protective facilities and manpower	- Lack of prioritization	- Slow economic activities
2. Depleted strength of PNP personnel assigned at the local police station	- retired, relieved and re-assigned PNP personnel previously assigned at the local Police Station were not tactically replaced with new PNP members	- greatly affects the operational effectiveness of the police to serve the community
3. Insufficiency of financial and logistics support to sustain an unrelenting campaign against criminality and insurgency.	- Fiscal budget and logistics supports coming from the higher office of the PNP area often delayed and insufficient.	- Caused low morale among the ranks and file of the PNP in the station thereby reducing enthusiasm to accomplish the assigned tasks.
4. Low technology and obsolete/outdated police operational gadgets/paraphernalia.	- lack of priority in the deliberation of budget	- Negatively affects the crime solution efficiency and crime prevention.
<b>BFP</b>		
5. Damaged building structures/ properties	- Insufficient fire hydrants	- Hindrance to economic progress - Loss of lives
6. Difficult to achieve ideal fire response time	- Long distance	- Loss of lives and properties



## F. Objectives, Strategies and Policies

Problems	Objectives	Strategies	Policy
<b>PNP</b>			
1. Lack of protective facilities and manpower	- Procurement/ installation of protective facilities and other police requirements	- Request financial support from the LGU and NGOs Follow-up logistic support from the higher headquarters.	- Prompt release of budget allocated for the acquisition of the police equipments
2. Depleted strength of PNP personnel assigned at the local police station	- Augmentation of additional PNP personnel	- Request for additional PNP personnel - Organize, train and mobilize BPATs, Tanods, CVOs, volunteers and other force multipliers.	- Assignment of additional personnel
3. Insufficiency of financial and logistics support to sustain an unrelenting campaign against criminality and insurgency.	- Allocation of adequate budget to support the administrative/ operational function of the police	- Fiscal funds coming from the LGU should be deliberated properly address the lingering problem - Constant communication with the local executives and legislative so that funds intended for the enforcement agency will be released without delays.	- Fiscal budgets from the local counterparts should be adequate with the needs of the enforcement.
4. Outdated technology and obsolete operational gadgets and paraphernalia.	- Prioritize the deliberation of budget	- Allocate funds for the operational paraphernalia through Municipal Peace and Order Council (MPOC). - Educate personnel to use and operate new technologies. - Send personnel to seminars, schoolings and trainings.	- Acquisition of advance technology and police equipments to deliver quality police services.
<b>BPF</b>			
5. Damaged building structures/ properties	- Immediate fire response without delay, uninterrupted water supply for fire suppression	- Request financial support from the LGU - Installation of fire hydrants in fire prone areas	- Fiscal budgets from the local counterparts
6. Ideal fire response time	- Save lives and properties	- Establishment of one (1) fire sub-station with adequate personnel and equipments at Barangay Namnam	- Lobby resolution for lot donation, Brgy Council/ SB Resolution - Budgets for acquisition/ erection of fire sub-station

## G. Situational Analysis Framework



### 3.3.5 Sports and Recreation

#### A. Situational Analysis

##### A.1 Sports in Barangays

Sports development program in the municipality of San Fernando aims to promote social bonding and encourages health way of living for everyone. This program is vital in preparing the young population not only in academics but also in the field of athletics. Sports development program offer opportunities for sports enthusiasts to avail scholarships in college and be recruited to play in any distinguished sports competition both in local and international events.

Clearly, sports can help reach one's fitness goal and maintain a healthy weight. Sports also have hidden benefits such as lowering blood pressure, decreasing risk of developing early osteoporosis or any form of cancer later in life. It helps in healthy decision making such as not drinking, not smoking, and not using prohibited drugs.

Engaging in sports develop self-confidence, discipline, sense of accomplishment, opportunity to go through sacrifices, and often times divert one's sadness or depression to happiness and fulfillment.

In fact, in the absence of sports or the mere lack of physical activities, can result to serious medical ailments like cardio-vascular diseases, diabetes and cancers.



*San Fernando Municipal Gymnasium*

In the municipality of San Fernando, all 24 barangays have their own covered courts mainly used during local celebrations, barangay assemblies, and in sports activities like volleyball, badminton, and basketball. However, the municipal gymnasium is located within the LGU grounds in Poblacion, Halapitan usually utilized during bigger events. The San Fernando Parish Church parking space is occasionally utilized as a basketball and tennis court.

## A.2 Sports in School

Only few schools in the municipality have their own sports facility which caters to their respected pupils and students. Other schools performed their sports activities to available open spaces inside the campus but not actually suitable for such activities due to its rough and partly elevated condition of plane.

Halapitan National High School is one of the few schools in San Fernando that has sports facilities which caters 160 athletes and players of 12 different games/sports as shown in Table 3.88. It has covered court for indoor sports and wide open field for outdoor sports. Other sports like basketball and badminton are played in Municipal Gymnasium if available.

**Table 3.88**  
**List of Sports Events (Boys and Girls)**  
**Halapitan National High School**  
**San Fernando, Bukidnon**  
**2018**

Events	Number of Participants
1. Archery	8
2. Swimming	16
3. Athletics	60
4. Volleyball	12
5. Sipak Takraw	12
6. Basketball	12
7. Boxing	8
8. Chess	4
9. Table Tennis	8
10. Badminton	8
11. Dancesport	4
12. Billiard	4
13. Dart	4
<b>TOTAL</b>	<b>160</b>

Source: DepEd, HNHS

## A.3 Recreation

Sadly, there is no movie houses, amphitheaters, nor bowling alleys in San Fernando. However, people from all walks of life residing in San Fernando very much enjoy spending their free time, relaxing and singing using the “*Video Singko*” machine and “*Bilyaran*” (billiard tables) found anywhere in all 24 barangays. The municipality may not have high end recreational facilities and amenities but lucky and blessed enough with a variety of numerous outdoor and natural recreational sports for the residents and visitors to enjoy.

Eco-Adventure Park and Resort is LGU owned recreational area situated in Purok 1, Halapitan near *Tigwa* River, was opened last December 2015. It has a function hall that can accommodate 200 guest, a huge adult swimming pool appropriate for lapping and a kiddie pool where kids enjoy to swim and play. The construction of 2 family suites, 12 standard rooms and roof deck are currently on-going.

Among the natural and marvelous places one must visit in San Fernando is *Bunggalo*. This is situated in Sitio Sta. Cruz, Halapitan approximately 4.4 kms from the national highway with an elevation of 792 masl. This spot is famous for its sea of clouds appearance best appreciated early in the morning. *Bunggalo* is like a natural view deck of

San Fernando, wherein you can see lush greeneries of our municipality and even parts of Valencia City and Cabanglasan.

The presence and existence of endemic flora and fauna in certain parts of San Fernando opted the government to institutionalize the Conservation and Preservation of Pantaron Range which encompasses parts of Barangays Nacabuklad, Magkalungay, Namnam, Bonacao, San Jose and Cayaga. Scientists and researchers have proof that there are nesting eagles in the mountains of Nacabuklad and endemic pitcher plants exists in Mount *Malimumu* in Barangay Magkalungay, which is about 6 kilometers from national highway and 944 masl. These places are potential recreation and educational spots for trek lovers and mountain climbers.

The municipality of San Fernando is famous for its numerous waterfalls and clean bodies of water. In the past years, the LGU was awarded by the Provincial Government of Bukidnon – “*Gawad Pangulo sa Kapaligiran*” as the Cleanest and Greenest Municipality with also the Cleanest and Greenest Body of Water entry, *Supon River*, found in Barangay Nacabuklad.

Amazing waterfalls that people tend to visit for recreation and relaxation are found in barangays Kalagangan, Cabuling, Matupe, Namnam, San Jose and Bonacao.

**Table 3.89**  
**Recreational Facilities/ Hot Spots**  
**San Fernando, Bukidnon**  
**2018**

List of Recreational Facilities/ Hot Spot	Location
Video Singko	24 barangays
Bilyaran	24 barangays
Eco-Adventure Park and Rsort	Purok 1, Halapitan
Mapawa Spring Resort	Sto. Domingo (private owned)
Sam's Resort	Kalagangan (private owned)
Alacap Swimming pool and Fishing Pen	Cayaga (private owned)
Bunggalo	Sitio San Isidro, Halapitan
Pantaron Range	Nacabuklad, Magkalungay, Namnam, Bonacao, San Jose, Cayaga
Mount Malimumu	Magkalungay
Water Falls	Kalagangan, Cabuling, Matupe, Namnam, San Jose, Bonacao, Little Baguio
Supon River	Nacabuklad
Bulikat, Malungon and Simsimen Rivers	Kalagangan
Mawie and Alas-as River	Little Baguio
Balakayo River	Namnam
Simpitan River	Kibongcog
Magkalungay and Nabunturan River	Magkalungay
Balangkot River	Candelaria
Dao River	Dao
Inayaman and Kamunuan River	San Jose
Pahilina-an River	Cayaga
Kisapwat River	Durian

Source: Sports Committee

Numerous rivers that have been preserved became recreational hotspots for the people of San Fernando. These includes Bulikat, Malungon and Simsimen Rivers in Kalagangan, Supon River in Nacabuklad, Mawi-e and Alas-as Rivers in Little Baguio, Balakayo River in Namnam, Simpitan River in Kibongkog, Magkalungay and Nabunturan Rivers in Magkalungay, Balongkot River in Candelaria, Dao River in Dao, Inayaman and Kamunuan River in San Jose, Pahilina-an River in Cayaga and Kisapwat River in Durian.

Other recreational sports usually visited by residents and guests are spring resorts located in the different barangays of San Fernando. The recently opened private resorts are Mapawa Spring Resort in Brgy Sto. Domingo, Sam's Resort in Brgy. Kalagangan and Alacapa Swimming Pool and Fishing Pen in Brgy. Cayaga. People from other places often times visit these places because of their fresh clean water and cool breeze and ambience. See Table 3.89.

## B. Goal

Promote camaraderie and sustainable sports development.

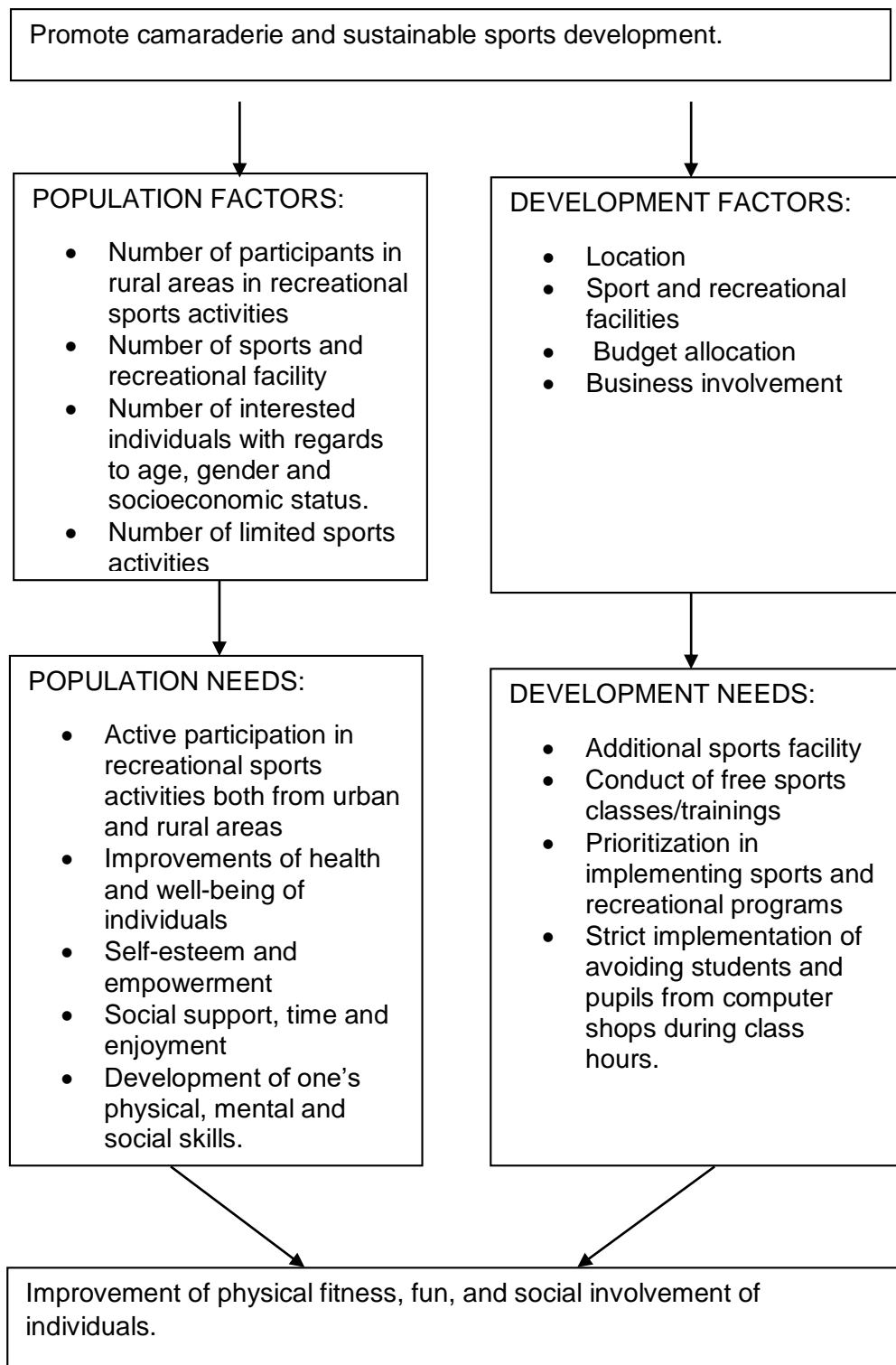
## C. Problems, Causes and Impacts (Effects)

Problems	Causes	Impacts
1. Lack of sport facility for other sport activities	- Insufficient funds of LGU	- Can cause accidents due to inadequate area
2. Lack of funds for sports and recreational development	- Not prioritized by LGU	- Sports program and recreational activities are limited.
3. No programs for other type of sports	- insufficient funds	- Individuals are focused only on 1-2 types of sports.
4. Other recreational programs are neglected	- loss of interest of initiating committee - failure of implementation	- failure of participatory interest of individuals - failure of fitness goal
5. No proper regulation regarding certain recreational activities like internet/gaming shops	- Not prioritized by LGU	- addiction to social networking sites - Destruction of educational status of students and pupils.

## D. Objectives, Strategies and Policies

Problems	Objectives	Strategies	Policies
1. Lack of sport facility for other sport activities	- To provide interest, enjoyments and comfort through availability of adequate sports facility	- Additional construction of sports facilities to cater different sports and recreational activities.	
2. Lack of funds for sports and recreational development	- To prioritize adequate budget for sports and recreation program that will help raise awareness in avoidance of social inclusion rather bring people of all ages and abilities together for enjoyment and sustainability of well-being.	- Provide appropriate funds or budget in the sports and recreation sector of the municipality.	
3. No programs for other type of sports	- To conduct different sports and allow rural inhabitants to participate that will lead promotion of peace, tolerance and understanding by bringing people together across boundairies, cultures and religions.	- Initiate programs that develop variety of sports in the municipality - Conduct municipal sports fest to invite all sportsminded people from all barangays.	
4. Other recreational programs are neglected	- To empower people by positively influencing individual their self-confidence and self-esteem through sports and recreation activities.	- Support the Sports Committee in initiating all sports program and assign personnel who deserved to handle such responsibility.	
5. No proper regulation regarding certain recreational activities like internet/gaming shops	- To implement regulation to address the engagement of social networking site issues. - To promote health improvement, prevention of diseases and to save children's future from the invasion of internet/social networking and online game addiction.	- Coordinate with computer shop owners and regulate ordinance regarding the avoidance of entry of students and pupils during class hours and implement closed door on curfew hours.	

## E. Situational Analysis Framework





### 3.3.6 Social Welfare

#### A. Situational Analysis

As of December 2018, there are 4,980 underprivileged families served throughout the 24 barangays of the municipality of San Fernando. Out of this total, 4,290 are beneficiaries of Regular Conditional Cash Transfer (RCCT) under the *Pantawid Pamilyang Pilipino Program* (4Ps) wherein 1,527 are indigenous people (IP). It provides cash grants to the eligible beneficiaries who are farmers, fisher folks, homeless families, IPs, those in the informal sector, those in geographically isolated areas and those in areas with no electricity. This is to improve the health, nutrition and education of children aged 0-18 years old. There are also 690 IPs from selected 8 barangays served with Modified Conditional Cash Transfer (MCCT-IP) of 4Ps. They are those families who are definitely poor and more vulnerable and disadvantaged but are not covered of the RCCT because of their being excluded in the enumeration of the National Household Targeting System as shown in Table 3.91.

Other Social Welfare Programs and Services are provided to meet their needs. The Municipal Social Welfare and Development Office of San Fernando is manned by three (3) regular personnel and six (6) job order employees serving all clientele throughout 24 barangays. There are 9,274 clientele served in year 2018. The number of personnel could not suffice the number of clientele to be served considering the geographical location of the area which comprises hinterland barangays of which 35% of its population belong to indigenous families. See Table 3.90.

The Social Welfare Services focus on the welfare of needy families, children in need of special protection and out-of-school youths, person with disabilities and older person and families, children in armed conflict in several areas, and victims of natural and man-made calamities.

Children in armed conflict are unreported but they are included in the programs and services provided during the advent of armed conflict.

**Table 3.90**  
**Type of Clientele and Number of Population Served**  
**San Fernando, Bukidnon**  
**2018**

Type of Clientele	No. of Population Served
1. Children (Early Child Care Development)	2,848
2. Supplemental Feeding	2,848
3. Children in Need of Special Protection (CNSP)	19
• Trafficking Children - 6	
• Abandoned/Neglected - 5	
• Sexually Abused -4	
• Children in Conflict with Law -4	
4. Disabled Person	293
5. Elderly Person	1,977
6. Mortuary Assistance to Senior Citizens	159
7. Aid to Individuals and families in Crisis (AIFC)	325
8. Marriage Counselling	135
9. Parent Effectiveness Service (PES)	200
10. Referral (Social Case Study)	25
11. Special Social Services to Solo Parents	127
12. Assistance to Victims of Natural & Man-made Calamities	318
<b>TOTAL</b>	<b>9,274</b>

Source: Municipal Social Welfare & Development Office (MSWDO)

**Table 3.91**  
**Number of 4Ps and IPs Beneficiaries**  
**San Fernando, Bukidnon**  
**2018**

4 Ps Program	Number of Beneficiaries		Total
	IP	Others	
1. Regular Conditional Cash Transfer (CCT)	1527	2,763	4,290
2. Modified Conditional Cash Transfer for IP (MCCT-IP)	690	-	690
		<b>Total</b>	<b>4,980</b>

Source: DSWD San Fernando (4Ps Office)

There are 2,848 pre-school children served in year 2018 with Early Child Care Development (ECCD) and prioritized for the provision of Supplementary Feeding daily for 120 days with a corresponding budget of 15 pesos per child per day. These children are coming from 73 Day Care Centers (DCCs) which are located in the 24 barangays with 73 respective Day Care Workers implementing Day Care Service Program in the municipality. This program provides for the basic holistic needs of young children aged 3 to 4 years old and promote their optimum growth and development.

As shown in Table 3.92, out of the 73 DCCs, there are 33 concrete and semi-concrete centers that are in good condition. The common problem of several day care workers are the physical condition of its building which need renovation especially the wooden structure. Some workers are hoping for a reconstruction due to extremely dilapidated materials.

Others have no DCC building but temporarily occupy other establishment like sitio/purok/SK hall depends upon its availability while some needs temporary closure in the coming year due to unavailability of venue and resignation of DCC Workers that would discontinue the participation of clientele of that certain area. DC workers who have overpopulated clientele never find it as a problem because they have the option to shift 2-3 classes a day to separate the population and to find it comfortable to the learners as well as to the workers and parents.

Their only concern is the provision of a separate and well established Day Care Centers in all barangays of San Fernando especially the remote and isolated areas to cater the services of Early Child Care Development and Supplementary Feeding granted by the government. Problems also includes the insufficient amount of DCC Workers that eventually contribute to the decision of quitting the job.

**Table 3.92**  
**Day Care Facility and Clientele**  
**San Fernando, Bukidnon**  
**2018**

Barangay	Facility	Type of Materials	Physical Condition	Number of Clientele
Bonacao	1 Bonacao DCC	Concrete	Good	77
	2 Nursery DCC	Wood	Need reconstruction	38
	3 Kisayab DCC	Semi-concrete	Need renovation	65
Bulalang	4 Bulalang DCC	Wood	Need renovation	45
Cabuling	5 Cabuling DCC	Semi-concrete	Good	37
	6 Nangka SNP		Closed in 2019	30
Candelaria	7 Candelaria DCC	Concrete	Good	30
Cayaga	8 Cayaga DCC	Concrete	Good	61
	9 Dao DCC	Wood	Need reconstruction. No CR, no feeding area	32
Dao	10 Kiranggal DCC		Closed in 2019	24
Durian	11 Durian DCC	Semi-concrete	Good	48
	12 Colon DCC	Wood	No comfort room, need renovation	36
	13 Lagsoom DCC	Wood	Need renovation	25
	14 Comawas DCC	Concrete	Good	63
	15 Halapitan DCC	Concrete	Good	33

Halapitan	16	Malantao DCC	Wood	Need renovation	26
	17	Nala DCC	Concrete	Good	34
	18	Ilian DCC	Wood	Need reconstruction	37
	19	Lawatano DCC	Semi-concrete	Need relocation and construction due to hazard area	37
	20	Comawas SNP		Closed in 2019	26
	21	Relocation SNP		Closed in 2019	44
	22	Purok 10 SNP		Closed in 2019	19
	23	Sulog DCC	Semi-concrete	Good	24
	24	Macabongbong DCC		Closed in 2019	31
	25	Kasilaan SNP		Closed in 2019	37
	26	Purok 11 SNP	Purok Hall, no DCC building		24
	27	Halapitan SK hall SNP	SK Hall, no DCC building		22
	Iglugsad	28	Iglugsad DCC	Concrete	Good
Kalagangan	29	Kalagangan DCC	Wood	Need reconstruction	105
	30	Lugawon DCC	Wood	Need renovation	38
	31	Simsimon DCC	Wood	Need reconstruction	44
	32	Balakayo DCC	Wood	Need renovation	28
	33	Baugan DCC	Wood	Need reconstruction	58
	34	Purok 7 DCC	Semi-concrete	Good	57
Kawayan	35	Kawayan DCC	Concrete	Good	53
	36	Caminungahan DCC		Closed in 2019	22
	37	Spring DCC		Closed in 2019	32
Kibongcog	38	Kibongcog DCC	Concrete	Good	66
	39	Sagulayan DCC	Semi-concrete	Good	49
Little Baguio	40	Tagalas-as DCC	Semi-concrete	Good	26
	41	Lower San isidro DCC	Purok Hall, no DCC building		32
	42	Little Baguio DCC	Concrete	Need relocation due to hazard prone and near of cockpit building	61
	43	Beverly Hills DCC	Concrete	Good	30
	44	Kauswagan DCC	Semi-concrete	Good	33
Mabuhay	45	Mawie DCC	Wood	Need reconstruction	37
	46	Dumalig DCC	Concrete	Good but no feeding area	29
	47	Mabuhay DCC	Concrete	Good	60
Magkalaungay	48	Magkalungay DCC	Concrete	Good	48
	49	Nabangkal DCC	Wood	Need reconstruction	40
	50	Malambago DCC	Wood	Need reconstruction	69
Malayanan	51	Salinguton DCC	Wood	Need reconstruction	21
	52	Malayanan DCC	Concrete	Good	34
	53	Hilltop DCC	Wood	Need renovation	25
Matupe	54	Matupe DCC	Concrete	Good	65
	55	Nacabuklad DCC	Concrete	Good	24
Nacabuklad	56	Bugca DCC	Semi-concrete	Good	19
	57	Purok 7 SNP	Purok Hall, no DCC building		23
	58	Supon SNP	Sitio Hall, no DCC building		13
	59	Palayang bayan SNP	Sitio Hall, no DCC building		18
Namnam	60	Namnam DCC	Concrete	Good	53
	61	Calubog DCC	Semi-concrete	Good	25
	62	Mahayag DCC	Semi-concrete	Good	36
Palacpacan	63	Opis DCC	Semi-concrete	Good	50
	64	Lugayaran DCC	Wood	Need renovation	21
	65	Bayog DCC	Wood	Need renovation	26
Sac. Valley	66	Palacpacan DCC	Concrete	Good	30
	67	Sac. Valley DCC	Concrete	Good	29
	68	Salolong DCC	Wood	Need renovation	27
San Jose	69	Mahayag SNP		Closed in 2019	17
	70	San Jose DCC	Semi-Concrete	Good	42
Sto. Domingo	71	Sto. Domingo DCC	Concrete	Good	46
Tugop	72	Tugop DCC	Concrete	Good	50
	73	Riverview DCC	Semi-concrete	Good	23
<b>TOTAL</b>					<b>2,848</b>
Number of DCC in Good condition - 33					
Number of DCC that needs renovation – 12					
Number of DCC that need reconstruction – 12					
Number of DCW that need DCC establishment – 6					
Number of temporary closure - 10					

Source: MSWD

Legend: DCC – Dy Care Center

SNP – Supervised Neighbor Play

SK – Sangguniang Kabataan

There are 19 persons who belong to Children in Need of Special Protection. They are victims of child trafficking, abandoned or neglected, sexually abused and children in conflict with law. The Municipal Social Welfare Development has the full force to ensure the right of these children to assistance, including proper care and nutrition and special protection from all forms of neglect, abuse, cruelty, exploitation and other conditions

harmful to their development. Victims are sent to Home for Girls at Cagayan De Oro City, others are subject for adaptation but depends upon the situation. Sexually abused children are provided with financial assistance for allowances, transportation and food during court hearings. They are secured, cared, provided with basic needs and subjected for counselling and values formation at San Fernando Crisis Center. Children in conflict with law are referred to Regional Rehabilitation Center for Youth (RRCY) at Gingoog City, a residential facility that provides intensive treatment for the rehabilitation of children in conflict with the law (CICL) whose sentences have been suspended. These children behaved in ways not acceptable to society but were given a second chance and right interventions until they are reformed and eventually became responsible individuals.

The municipality has no established Persons with Disabilities Affairs Office (PDAO) but as mandated by the Magna Carta for Disabled Persons, the MSWD San Fernando has designated a competent PWD Focal Person, as privilege to equal opportunity to employment, to facilitate the consultation of PWDs and perform the function of PDAO within the office of MSWD. There are 293 persons with disabilities or 0.49% of the total population are served in year 2018. These PWDs are able to avail of the programs and services as well as the benefits and privileges under RA 10070.

San Fernando had established a Senior Citizens (SC) Day Center located at Barangay Halapitan town center which cater the SC Federation. The municipality has a latest number of 1,977 SCs or 3.30% of the total population who have availed of the Senior Citizens Act Social Pension and served this year 2018. They were issued with SC IDs and booklets as identity to be entitled to a 20% SC discount and exempted from the valued added tax (VAT) on applicable goods and services for their exclusive use. As per expansion of the SC pension coverage, there are 159 SCs provided with burial assistance in year 2018.

A total of 325 individuals and families served with aid in crisis. They were provided with basic needs like foods, clothing and shelter.

Parent Effectiveness Service (PES) was also provided to 200 parents. This is the provision and expansion of knowledge and skills of parents including caregivers on parenting to be able to respond to parental duties and responsibilities on the areas of early childhood care and development of young and old children.

The office also served 25 clientele who need referrals by issuing them Social Case Study reports to support their individual purposes as per requirements by charitable institutions, burial services, government hospitals, non-government organizations and court related activities that provide services to clients and patients.

As of December 2018, there are total of 127 solo parents issued with Solo Parent ID as per mandated by the Republic Act 8972 otherwise known as Solo Parent Act of 2000 that provides benefits and privileges to solo parents or people who are the parents of their children or relatives. These parents are those that are stand-alone solo parents in their families because of marital separation, death of partner, and those whose income falls below the poverty threshold as set by the National Economic and Development Authority. The social worker receives and ensures that all documents are complete and applicable to the requirements set by the law.

The victims of natural and man-made calamities were 338 in year 2018. They were the victims of typhoon Vinta which hit the country last December 2017. Food supply assistance were given to families affected at barangays Matupe, Kalagangan, Malayanan, Sto. Domingo and Cayaga. Those partially and totally damaged houses were provided with shelter assistance from the Department of Social Welfare and Development.

The existence of indigenous communities in the entire municipality needs special attention and concern with various social services are intended to these type of clientele group. There are lots of indigenous families living in the hinterland barangays were deprived of basic services due to lack of manpower.

The social problems in the municipality is increasing due to its growing population and in the advent of industrialization and modernization. The Municipal Social Welfare in the implementation of its programs and projects needs a bigger allocation from the local government unit and other funding institution to serve the needs of clients.

**Projections:**

For the next 10 years, Social Welfare clientele is expected to double by 50%. Municipal Social Welfare Office served around 6000 needy families from all types of clientele group and it is projected that after 5 to 10 years the Social welfare Office will be serving twice the number of clientele due to increasing population. However, by this time, it is expected that the Local Government Unit will prioritize the hiring of additional permanent Social Workers to cater the needs of such clientele groups in order to attain quality service. Programs/ projects and activities such as counselling, referral, psychosocial process and other forms of assistance should also be included for the rehabilitation of children in armed conflict. Family Drug Abuse Program and the construction of Special Education Center for the minors and adults or Person Who Uses Drugs should also be considered and included

**B. Goal**

Provide opportunities that will uplift the living condition and restore normal functioning and participation of the less privileged families

**C. Problems, Causes and Impacts (Effects)**

<b>Problems</b>	<b>Causes</b>	<b>Impacts</b>
1. Lack of social workers/ manpower	- In excess limitation of the required staffing pattern	- Poor quality services
2. Low family income	- Lack of employment opportunities for unskilled, low educational status, and low esteem attitude	- Poverty - Family rely on government assistance
3. Lack of facilities and care givers to cater the neglected and abandoned, abused and children, out-of-school youths and children in armed conflict	- Insufficient fund	- Poor quality services - failure to implement Child Protection Policy -
4. Inadequate programs to enhance parenting skills/ or sense of	- Insufficient number persons to provide Parent Effectiveness Service.	- children’s behavioral problems due to lack of parents guidance -

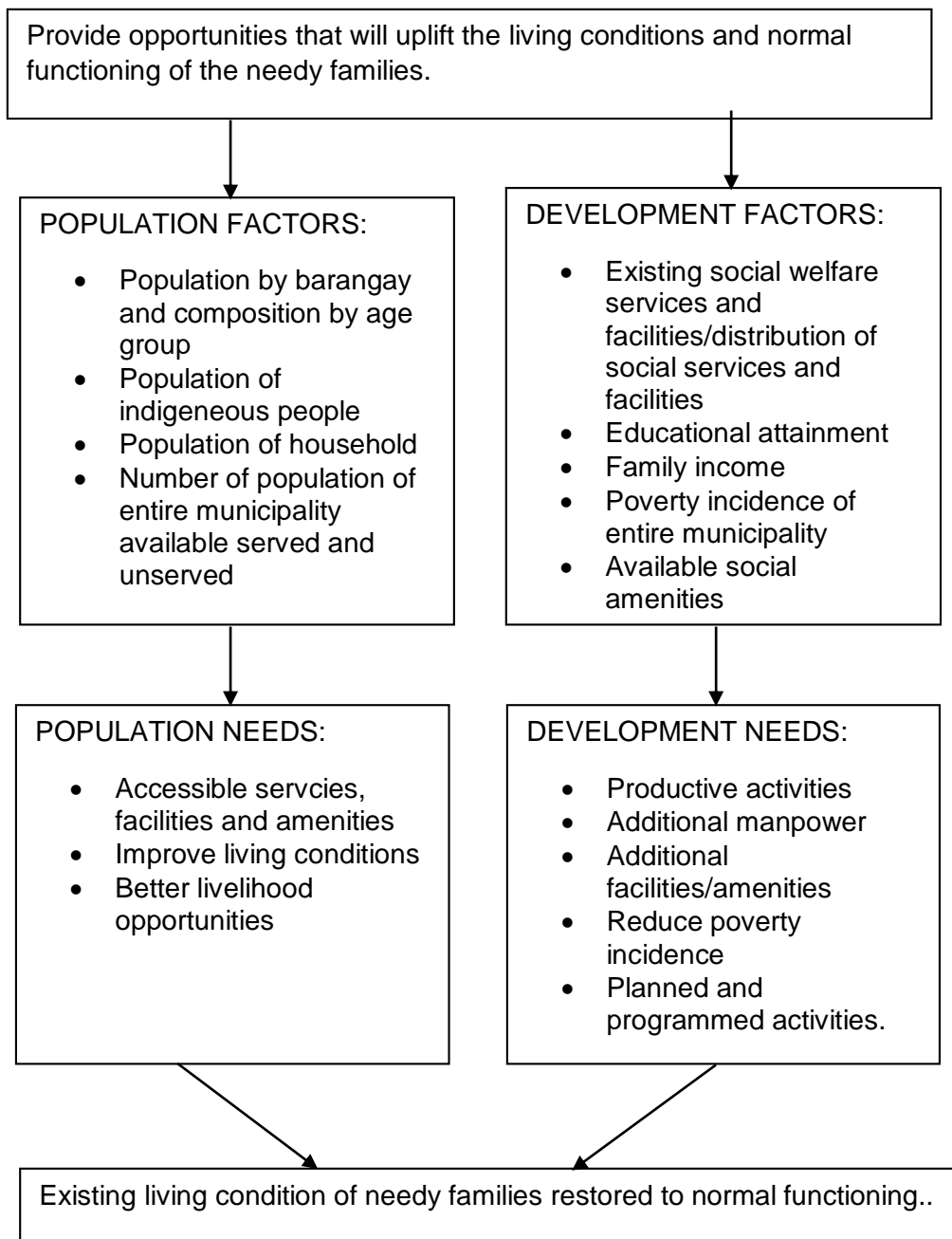
responsibility as parents.	- Lack of trainings and seminars of service provider	
5. Limited assistance for the victims of natural and man-made calamities	- Insufficient funds - unexpected occurrence of calamities - no projections on number of beneficiaries during destructive calamities -	- Other victims are neglected - Unfair provision of assistance.
6. Lack of Day Care Center Facility and workers	- population growth - insufficient fund for facilities and DCC worker's honorarium	- Poor quality and accessibility
7. No PWD Center to cater to the activities of PWDs	- Insufficient fund	- failure to meet PWD's need for socialization/product display and more active community involvement
8. Unreported/unattended children in armed conflict	- Unexpected occurrence of man-made calamities particularly in armed conflict area - Inadequate trained workers to continuously implement programs and activities	- Unidentified provision of needs - Displaced individual - Aggressiveness - At risk of abuses/vulnerable trafficking - Low self-esteem - Compulsive behaviors - Problem in interpersonal relationship
9. No concrete permanent building for Special Drug Education Center (SDEC) for the minor and adults or Persons Who uses Drugs (PWUDS)	- No permanent regular worker assigned to implement Special Drug Education (SDE) and Family Drug Abuse Program (FDAP)	- Low self-esteem - Health and mental problem - Violent behaviors - Sleeplessness - Depression - Anxiety - Loss of self-control
10. Inadequate center to cater to the activities of elderly persons	- Insufficient fund	- Failure to meet the need of elderly persons for socialization and more active community involvement

#### D. Objectives, Strategies and Policies

Problems	Objectives	Strategies	Policies
1. Lack of social workers/ manpower	- To provide quality and competent services in the community	- Additional registered Social Workers who can implement Social Welfare Programs	
2. Low family income	- To provide sustainable livelihood programs to underprivileged families.	- Conduct and implement sustainable livelihood programs that are	

		applicable in their respective areas	
3. Lack of Facilities and care givers to cater neglected, abused and abandoned children, out-of-school youths and children in armed conflict	- To provide special protection to disadvantaged children and youth with separate facility for male and female	- Additional crisis center facilities and care givers - Conduct programs and activities such as counselling, referral, psychosocial process and other forms of assistance.	Child Protection Policy
4. Lack of parenting skills/ or sense of responsibility as parents	- To expand knowledge, skills and appropriate attitudes on parenting	- Additional social workers for the conduct of Parent Effectiveness Service (PES). - Allocate budget for the provision of trainings and seminars among PES providers.	
5. Assistance for the victims of natural and man-made calamities	- To provide, quick response, fair and sustainable assistance to calamity victims	-Prioritization on the plans and programs that will support and sustain the needs of calamity victims	
6. Lack of Day Care Centers	- To provide valuable support to families with young children and to ensure the quality and accessibility of services.	- Additional construction of Day Care Centers - Additional amount of Honorarium to Day Care Workers	
7. Absence of PWD Center	-To promote equalization of opportunities and to provide comfort, satisfaction and an area to meet the PWD's need for socialization and more active community involvement.	- Establish PWD Center	
8. Inadequate center to cater to the activities of elderly persons	- Promote equalization of opportunities to provide comfort and safety to the elderly population	- Improvement of elderly/ senior citizen's center	
9. No concrete permanent building for Special Drug Education Center for the minor and adults or Persons Who uses Drugs (PWUDS)	- Provide better and comfortable venue for PWUDs to cater to their rehabilitation and counselling.	- Conduct Family Drug Abuse Program - Construct Special Education Center for the minors and adults or Person Who Uses Drugs.	

## E. Situational Analysis Framework





# 4

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# ECONOMIC SECTOR

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## 4. ECONOMIC SECTOR

### 4.1 MAJOR SECTOR GOAL

Create a favorable investment climate for sustained environment-friendly agri-based industry.

### 4.2 MAJOR SECTOR SWOT MATRIX

ECONOMIC SECTOR	STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Industry</li> <li>• Trade and Commerce</li> <li>• Agriculture</li> <li>• Forestry</li> <li>• Tourism</li> </ul>	<ol style="list-style-type: none"> <li>1. Available pasture land for livestock raising</li> <li>2. Active Youth/ People's Organization</li> <li>3. Availability of raw materials such as food and non- food processing</li> <li>4. Availability of non-metallic mineral resources</li> <li>5. Rich soil for agricultural production</li> <li>6. Vast agricultural and forest area</li> <li>7. Established Community-Based Forest Management - People's Organization (CBFM-POs)</li> <li>8. Scenic vistas potential for tourism</li> <li>9. Organized farmers' cooperatives/ People's Organization</li> <li>10. Strong linkages among Non-Government Organizations (NGO's), National Government Agencies (NGA) and people's Organizations/ investors</li> <li>11. Available Sloping Agricultural Land Technology (SALT)</li> <li>12. Presence of Negosyo Center</li> <li>13. Presence of unique natural and cultural assets</li> <li>14. Flagship program of the LGU</li> <li>15. Open to researchers and studies</li> <li>16. Presence of quality products ex. bamboo crafts, banana chips and other pasalubong products</li> <li>17. Availability of technology/ innovation facilities</li> <li>18. Sufficient means of transportation</li> <li>19. Good access to major highways</li> <li>20. LGU initiated projects</li> <li>21. LGU willingness to provide budget for ancillary services</li> </ol>	<ol style="list-style-type: none"> <li>1. No stable marketing outlet</li> <li>2. Lack of post harvest facilities and limited farm inputs</li> <li>3. Low supply of fishery products</li> <li>4. Lack of agricultural technicians</li> <li>5. Limited marketing outlets and no government price control</li> <li>6. Shortage of water supply for irrigation during dry season</li> <li>7. High cost of farm inputs</li> <li>8. Lack of credit facilities</li> <li>9. Tenurial insecurity</li> <li>10. Lack of Information Education Campaign (IEC) on the presence of Negosyo Center</li> <li>11. Less promotion and info-drives to stakeholders</li> <li>12. Slow procurement process</li> <li>13. Slow project mobilization/ movement</li> <li>14. Less LGU support</li> <li>15. Less promotion activities</li> <li>16. Inaccessible routes/ difficult roads to potential sites</li> <li>17. NO Department of Trade (DOT) accredited accomodations</li> <li>18. Less telecom infrastructure</li> <li>19. Almost 50% of remote barangays has no or weak signal</li> <li>20. Limitede LGU budget</li> </ol>

<b>OPPORTUNITIES</b>	<b>SO STRATEGIES</b>	<b>WO STRATEGIES</b>
<ol style="list-style-type: none"> <li>1. Precense of prospective investors from other areas</li> <li>2. National programs on livelihood projects</li> <li>3. Integrated Social Forestry (ISF) Program/CBFM</li> <li>4. Proposed irrigation projects of NIA and DAR</li> <li>5. Food security programs</li> <li>6. Road accessibility to market</li> <li>7. Existing tourist spots</li> <li>8. Availability of Credit facilities</li> <li>9. Strong potential for development of agro-industry</li> <li>10. Strong potential for livestock and poultry production</li> <li>11. Favorable climatic condition</li> <li>12. Presence of good community relationship/ involvement</li> <li>13. Improving business environment</li> <li>14. Open for investors</li> <li>15. Improved technology/ innovation</li> <li>16. Foreign grants/aid</li> <li>17. NGOs support/ participation</li> <li>18. National government agencies (NGAs) support</li> <li>19. Presence of potential investors</li> </ol>	<ol style="list-style-type: none"> <li>1. Promote or increase agricultural production</li> <li>2. Invite prospective investors from other area to develop agro-industry</li> <li>3. Promote SALT agro-forest development projects</li> <li>4. Soorce-out funds for livelihood projects or partner with line agencies to supplement livelihood project funds.</li> <li>5. Develop potential scenic vistas for tourism</li> <li>6. Develop potential mineral resources</li> <li>7. Strong imposition of Forestry laws &amp; regulations.</li> <li>8. Organize/Strengthen Mun. Forest Protection Committee</li> <li>9. Respect customs &amp; traditions of its community</li> <li>10. Implement proper solid waste management &amp; segregation</li> <li>11. Strengthen &amp; support peoples organizations / farmers group</li> <li>12. Enhance the operation of the Negosyo Center to encourage and support local entrepreneurs and attract investments</li> <li>13. Enhance product development for corn, abaca, rattan and bamboo-based products.</li> </ol>	<ol style="list-style-type: none"> <li>1. Solicit funds from congress ad national government to finance the procurement of PHP and provide credit facilities</li> <li>2. Hire additional agricultural technicians</li> <li>3. Promote SALT and ISF</li> <li>4. Construction of CIS and irrigation facilities</li> <li>5. Invite prospective investors to provide marketing channels of agricultural products and inputs</li> <li>6. Promote inland fishery program</li> <li>7. Promote Livestock raising</li> </ol>
<p><b>THREATS</b></p> <ol style="list-style-type: none"> <li>1. Unstable peace and order situation</li> <li>2. Slash and burn farming at the hinterlands (kaingin)</li> <li>3. Soil erosion</li> <li>4. Continued presence of settlements at the forest areas and reserves</li> <li>5. Extinction of wild life</li> <li>6. Practice traditional values.</li> <li>7. Siltation of irrigation sources</li> </ol>	<p><b>ST STRATEGIES</b></p> <ol style="list-style-type: none"> <li>1. Promote SALT on sloping areas</li> <li>2. Rehabilitate existing irrigation facilities and dis-courage illegal conversion of prime agri-lands</li> <li>3. Organize para-military units, establish quarantine stations</li> <li>4. Strengthen strong linkages among NGOs and Pos to establish agro-forestry projects</li> <li>5. Pooling of agro-forestry products, create and invite sustainable market outlets</li> <li>6. Strengthen CBFM to develop more agro-forest and provide</li> </ol>	<p><b>WT STRATEGIES</b></p> <ol style="list-style-type: none"> <li>1. Modernization of agriculture: by identifying Strategic Agricultural and Fishery Zones and focusing thereof needed production and post harvest facilities to optimize further farming activities in marginal areas</li> <li>2. Construction and maintenance of farm-to-market and barangay road networks to help promote economic</li> </ol>

<ul style="list-style-type: none"> <li>8. Deterioration of top soil due to erosion</li> <li>9. Denudation of watersheds</li> <li>10. Insurgencies</li> <li>11. Flooding</li> <li>12. Drought</li> <li>13. Poachers</li> <li>14. No detailed data of tourist arrivals</li> <li>15. Intruders</li> <li>16. Breach of contract</li> <li>17. Resistance from affected populace/ IPs</li> <li>18. Recruiters</li> </ul>	<p>necessary safeguard against encroachment.</p> <ul style="list-style-type: none"> <li>7. Establish linkages with investors / Pos./NGOs and other sectors of the society to address issues on climate change, extinction of wildlife, etc</li> <li>8. Organize the San Fernando Municipal Price Coordinating Council to address the issue of high cost of farm inputs and stabilize the prices of basic necessities and prime commodities during calamities</li> </ul>	<p>activity and other livelihood activities.</p>
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## 4.3 ECONOMIC SUB-SECTOR STUDIES

### 4.3.1 INDUSTRY

#### A. Situational Analysis

As of year 2018, the municipality of San Fernando has an industrial area of nine (9) hectares which allocated mostly for agricultural purposes. All industrial establishments operating in the municipality are non-pollutive and scattered in different areas of the 24 barangays.

Agro-industrial activities includes rice-mill, corn-mill, cassava chipper and granulator, poultry, and piggery. Other establishments are engaging in construction industry like sand, gravel and hollowblocks factory. There are also environmentally related industries in the municipality like, saw mill, abaca buy and sell, plant nursery and rattan supply. Some industries served for the power, gasoline and water supply consumption in the community. See Table 3.93.

Cottage industries also occurred in the municipality which related to furniture, handicraft, food processing, tailoring, wood moulding and transport services as shown in Table 3.94.

Historically, traditional industries in a household set-up prospered in the municipality. Bamboo and rattan furniture were once a profitable industries 20 years ago. But there was a gradual loss of bamboo furniture's market and end of rattan furniture as years passed by due to existence and proliferation of surplus markets which sells at a very low cost, plastics and synthetic wares, and wood, glass and steel furniture combination that mostly preferred by most clients because of its modernized built and design, longer life span and less maintenance requirement.



*Rice mill and Cassava Assembler @ Purok 9, Halapitan, San Fernando, Bukidnon*

**Table 3.93**  
**Inventory of Existing Industrial Establishment**  
**San Fernando, Bukidnon**  
**2018**

Barangay	Type of Industrial Establishment	Number of Establishment
Bonacao	Rice mill	2
Cayaga	Rice mill	3
Dao	Mining	1
Durian	Rice mill	1
	Corn mill	1
	Cassava Chipper	1
Halapitan	Rice mill	5
	Corn mill	5
	Hollow block Factory	2
	Poultry	1
	Piggery	1
	Saw mill	1
	Abaca buy and sell	1
	Plant Nursery	1
	Water Refilling Station	3
Iglugsad	Corn mill	1
Kalagangan	Rice mill	2
	Corn mill	2
	Quarry (Sand and Gravel)	1
	Rattan Supply	1
	Cassava Granulator	1
Kawayan	Rice mill	2
Kibongcog	Solar Power Panel	1
Little Baguio	Rice mill	3
	Corn mill	3
Mabuhay	Rice mill	1
	Corn mill	2
	Diesel Power Panel	1
Magkalaungay	Rice mill	1
Malayanan	Rice mill	1
	Corn mill	1
Matupe	Corn mill	1
Nacabuklad	Cassava Chipper	1
Namnam	Rice mill	4
	Corn mill	1
	Quarry (Sand and Gravel)	1
	Plant Nursery	1
	Solar Power Panel	1
Palacpacan	Rice mill	2
	Solar Power Panel	1
Sacramento Valley	Corn mill	2
Sto. Domingo	Rice mill	2
	Corn mill	1
Tugop	Corn mill	1
<b>TOTAL</b>		<b>62</b>

Source: Department of Agriculture, and Business Permits and Licensing Office

Most plastic industries now are copying the image of rattan structure made of plastic materials. On the other hand, Bamboo handicraft is now on high demand and as one of the pride of San Fernando because of its modernized and newly improved models, uniqueness, environmentally detailed structure and other linking materials that provides multiple purposes which is useful and in demand for the interest of cultural preservation of clients in the municipality and several provinces of Mindanao. Promotion of these product are now hitting its demand gradually.

Compradors or buyers of these traditional products were coming from nearby cities like Valencia and Malaybalay but the number declined as years passed by. Fortunately, the municipality's rattan supplier of barangay Kalagangan preserved the existence of rattan raw materials despite the problems encountered like underdeveloped establishment, lack of finance for equipments and machineries for material furnishings,

long process and lots of requirements for the rattan permittees and no proper support from the government and private sectors.

This caused failure to meet the demand of several buyers from other cities and provinces including Visayas and Luzon areas that need the said raw product to provide cultural richness of client's building design furnishings, national culture preservation and even international export investments.



**Doraemon Water Refilling Station  
@ Purok 3 of Barangay Halapitan**



**Aqua Shekinah Water Refilling Station  
@ Purok 1 of Barangay Halapitan**

**Table 3.94  
Inventory of Existing Cottage Industries  
San Fernando, Bukidnon  
2018**

Barangay	Type of Industrial Establishment	Number of Establishment
Bonacao	Banana Chips Production	1
Halapitan	Bamboo Handicraft	1
	Glass Shop	1
	Wood moulding shop	1
	Transport Service for a fee	3
	Tailoring Shop	2
Little Baguio	Bamboo Furniture Shop	3
	Wood Furniture Shop	2
Mabuhay	Transport Service for a fee	1
<b>TOTAL</b>		<b>15</b>

Source: Department of Agriculture (DA),  
Business Permits and Licensing Office (BPLO)

## OJ's Arts and Crafts @ Purok 9 of Barangay Halapitan



**6 out of more than 150 product designs**







**Villagracia Glass and Aluminum Supply**  
 @ Purok 1 of Barangay Halapitan



**Ekit Bamboo Furniture Shop**  
 (Display Area)  
 @ Barangay Little Baguio



**Rama Bamboo Furniture Shop**  
 (Operation Area)  
 @ Sitio Lagsoon of Barangay Halapitan



**Rama Bamboo Furniture Shop**  
 (Display Area)  
 @ Sitio Lagsoon of Barangay Halapitan

The community is now enjoying the supply of mineral and purified potable drinking water through the establishment of water refilling stations in barangay Halapitan that supplies other nearby barangays in a very affordable price. The diesel by-product power plant in Barangay Mabuhay is already fully furnished and is now on the preparation to operate, supply and sell power for electricity demand of First Bukidnon Electric Cooperative (FIBECO) that allocate electricity consumption of the province of Bukidnon. There are functional solar power panels established in 3 remote areas of barangays namely Kibongcog, Palacpacan and Namnam that generated more or less 20 households per barangay. These power plants are free of charge and no monthly collection granted by the Electrification Program of the Department of Energy.

The municipality has small and medium scale industries that are mostly agri-related. These are non pollutive rice mill, corn mill and cassava chipper and granulator with a range capitalization of 50,000-300,000 pesos employing a range of 2-12 persons. Products of these establishments are for local consumption. Chipped/granulated cassava are transported and sold to the wheat/flour factory located at the municipality of Manolo Fortich. Abaca farming is potential in Barangay Bulalang that contributes to the functional abaca buy and sell establishment of Barangay Halapitan. Compradors or buyers of this products are coming from outside places including Visayas and Luzon.



Power Plant @ Barangay Mabuhay, San Fernando, Bukidnon

Banana chips production is one of the potential household industry in San Fernando located at barangay Bonacao. The owner started in various trainings offered by TESDA which was conducted in the said barangay then the skill was gradually developed and begun establishing the business by growing a banana plantation then the fruits were processed for banana chips production which do not necessitate high manufacturing cost. Likewise, the income is immediate. Free but limited orientations, seminars, and trainings were regularly attended by the owner conducted by the Department of Trade and Industry to enhance the marketing and packaging strategies of the owner. The product is now exhibits in San Fernando Negosyo Center and is distributed in high demand in the market and other food establishments in the municipality. This is also exported in other cities and municipalities of the province of Bukidnon and now starting promoting the product in Cagayan de Oro City.

The most common factor that affects the up and down trends of agri-industries is climate change that happen to cause destruction of raw products during growing and harvesting. Other factor is the unawareness of the advancement of technology that might help improve for the enhancement of products due to limited offers of trainings, seminars and orientations. Another potential household industry is the transportation services for a fee, like truck for hire, that accommodate the transport of different exportable food and non-food products to other places with high market demand especially in cities and other provinces.

### Needs

There is no further development in this sector particularly in the agri-industry sector due to lack of marketing strategies to enhance and promote the individual products of the municipality. There is also a need to revive and enhance the traditional household industries by way of assisting household operators in seeking for markets of their products. Training programs must also continuously implemented for the upgrading of skills and talents of those engaged in the household industries, for the improvement of their

products, and for market compatibility. Lastly, there must be a need to provide financial assistance for capital build up.

## B. Goal

Promote agri-based industrial development in all potential and strategic locations within the municipality.

### B. Problems, Causes and Impacts (Effects)

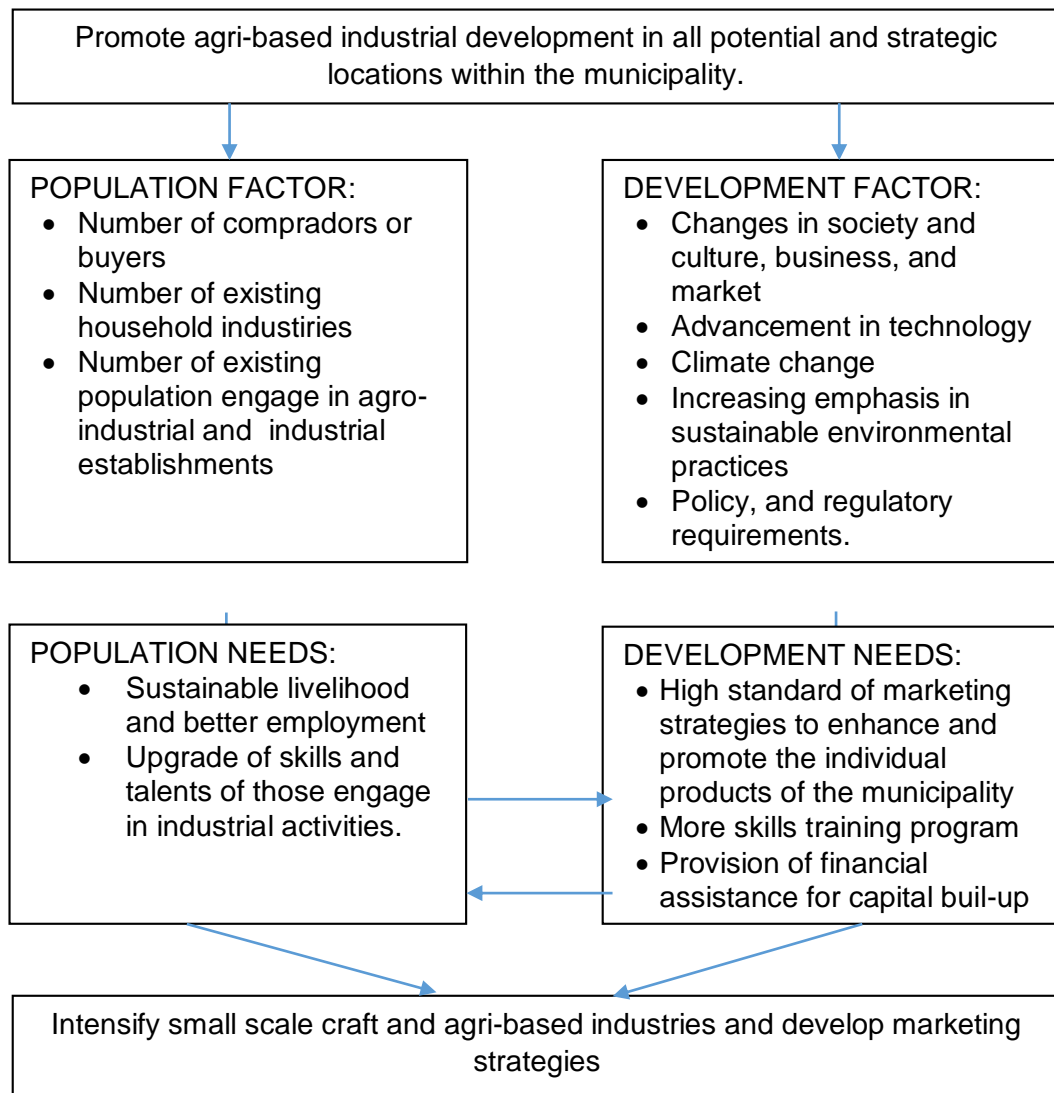
PROBLEMS	CAUSES	IMPACTS
1. Gradual loss of traditional industries	<ul style="list-style-type: none"> <li>- Lack of support from the government and private sectors</li> <li>- Lack of skills training among operators</li> <li>- Existence of surplus markets, plastic, synthetic and glass wares that sells at a very low price</li> <li>- Low entrepreneurial capacity</li> </ul>	<ul style="list-style-type: none"> <li>- Decrease of income</li> <li>- Loss of rare kind of traditional industries like rattan and bamboo raw products</li> </ul>
2. No further development in industry sector particularly in the agri-industry	<ul style="list-style-type: none"> <li>- Absence of advance technology in some areas</li> <li>- Lack of provision of area for expansion</li> <li>- No interest of commercial livestock</li> <li>- Climate change</li> <li>- No alternative techniques like engaging in new crops that are suitable in agricultural areas.</li> <li>- No product development for corn, abaca, rattan and bamboo</li> </ul>	<ul style="list-style-type: none"> <li>- No investors</li> <li>- Low income</li> <li>- Limited production</li> </ul>

## D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Gradual loss of traditional industries	<ul style="list-style-type: none"> <li>-To revive and enhance traditional household industries and help them find for markets of their products</li> </ul>	<ul style="list-style-type: none"> <li>-Enhance the operation of the Negosyo Center to encourage and support local entrepreneurs and attract investments</li> <li>-Enhance product development for rattan and bamboo products.</li> </ul>	
2. No further development in industry sector particularly in the agri-industry	<ul style="list-style-type: none"> <li>- To provide areas for agro-industrial expansion</li> <li>- To encourage commercial livestock production</li> <li>- To provide a good business atmosphere to attract investors</li> </ul>	<ul style="list-style-type: none"> <li>- Invite prospective investors from other area to develop agro-industry</li> <li>- Construction and maintenance of farm-to-market and barangay road networks to help promote economic activity and other livelihood activities</li> </ul>	

## E. Situational Analysis Framework

### SA FRAMEWORK



## 4.3.2 TRADE AND COMMERCE

### A. Situational Analysis

The municipality of San Fernando is only 31 kilometers away from Valencia City, province of Bukidnon but it is traversed by a national road connecting Valencia City and several municipalities of the province of Davao del Norte like Kapalung and Tagum City. Commercial activities like wholesale and retail are largely concentrated in the Barangay Halapitan, the only urban area of San Fernando where commercial establishments are mostly located as shown in Table 3.95.

**Table 3.95**  
**Inventory of Commercial Areas**  
**San Fernando, Bukidnon**  
**2018**

Commercial Areas	Location	Type of Services
San Fernando Public Market	Purok 5, Halapitan	Market services: fish, meat, fruits, vegetables, rice, cellphone accessories, small lottery, carenderia, groceries, dry goods, RTWs,
San Fernando Eco Tourism park	Purok 1, Halapitan	Swimming pool, function hall,
Jalalon General Merchandise	Purok 3, Halapitan	Grocery, hardware, school supplies, beverage dealer
Malbasias General Merchandise	Purok 3, Halapitan	Grocery, hardware, meat shop, pharmacy, buy and sell (corn), RTWs, plastic ware, beverages dealer, tea shop
Hallasgo Commercial	Purok 5, Halapitan	Hardware, Optical Clinic, Ukay-Ukay, Sari-sari, RD Pawnshop
Rabago Store	Purok 6, Halapitan	Grocery, bakery, school supplies,
Navarro Commercial	Purok 6, Halapitan	Pawnshop, Cellphone and accessories, rice retailer, 7/11 Convenience Store
First Valley Bank	Purok 5, Halapitan	Rural bank
M-art Bakeshoppe	Purok 5, Halapitan	Bakery, Letchon manok, Cakes and Pastries
Glucose Ading's Sweet Delicacies	Purok 5, Halapitan	Fastfood, Snack Inn, Cakes and Pastries
Dagaang Commercial	Purok 5, Halapitan	Motorcycle dealer, carenderia, furniture shop, Veterinary clinic, boarding house
Rabago fuel station	Purok 5, Halapitan	Gasoline refilling station, cafeteria,
Onting Commercial	Purok 6, Halapitan	Bakery, Cellphone and Accessories, Ukay-Ukay
Adajar store	Purok 5, Halapitan	Grocery, hardware, school supplies, agrivet supply, rice retailer, RTWs, plastic ware
Yong-yong Commercial	Purok 6, Halapitan	RTWs, plastic ware, appliances, toy store
Florido Commercial	Purok 3, Halapitan	Money remittance, water refilling station,
Gil Maghinay Commercial	Kalagangan	Agrivet supply, ukay-ukay
BYB Gasoline Station	Namnam	Gasoline refilling station, construction firm
AGT Petroleum	Purok 5, Halapitan Purok 1, Halapitan	Gasoline refilling station
Lucky Fuel Station and Lucky Hives	Purok 1, Halapitan Purok 9, Halapitan	Gasoline refilling station. Convenience store, restaurant
Asia SK Son Corporation	Purok 4, Halapitan	RTWs, Grocery, Utensils, etc
Jimboy Agrivet Supply	Purok 5, Halapitan	Agricultural and veterinary supplies
Saint John's Agrivet Supply	Purok 3, Halapitan	Agricultural and veterinary supplies
FICCO	Purok 7, Halapitan	Coop
Pacquiua Commercial	Purok 5, Halapitan	Pharmacy, convenience store, barber shop, restobar
Panadero Commercial	Purok 5, Halapitan	Fruit Stand, Laundry shop, Ukay-ukay
Lina's Place	Purok 4, Halapitan	Hardware, agrivet supplies
Others		

Source: MPDO

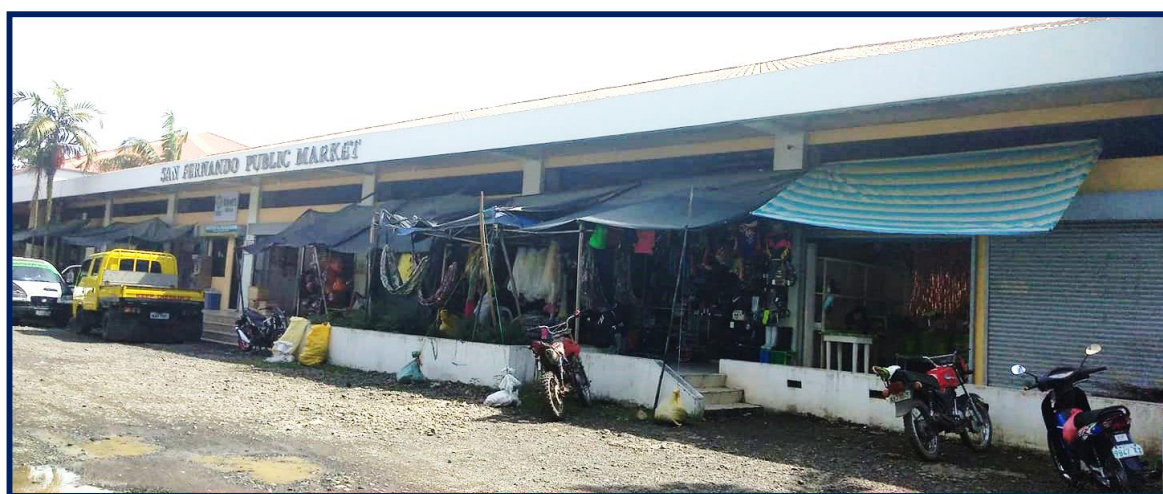
The one-storey central public market located at Halapitan has a limited area of 1000 square meters located beside the public bus/puj terminal having 50 stalls for different

types of business that serves mostly of retail trading area of poultry products, rice, RTWs, carenderia and sari-sari. There are 22 tables which caters for wet products like meat and fish, and others for vegetables and fruits.. The limited area of the building cannot cater the demands of other business resulting to the expansion of other business like agri supplies, pawnshops, beverages, bakeries, fast food chains, rice retailers and other common wholesale and retailer products adjacent to it.

There is an existing slaughter house but this needs reconstruction because of its dilapidated structures including the building, functional component, and its equipments. Livestock weighing scale is damaged and no longer serviceable. This affects the decrease of collectibles of the municipality like fees for the use of the scale. Livestock owners have the option to rent a scale from private individual who charged for higher rental fee and who also offer paid service for butchering activity when the public facility is not available for bulk livestocks.

Commercial shops are mostly surfacing along the national highway providing convenience to shoppers. There are also other commercial establishments surfacing along the highway like gasoline and water refilling stations, rural bank, pawnshop, fastfood chains, grocery stores, RTWs, beverage wholesalers, hardware, plastic ware, agrivet supplies, and bakeries. There are also individuals who are producing at the same time selling their products.

At present, there are 686 business existing commercial establishments in San Fernando based on the the 2018 registration record from Business Licensing Office. For the past five (5) years, records shows that the number of commercial establishments granted with permits are increasing each year because of the influence of business minded individuals from different outside locations who are willing to expand their business services in San Fernando. Other reason is the increasing number of investors who have been attracted by the opportunities found in the municipality like RTWs and other fashion related products, gas station, remittance centers, hardwares, and other present demands. These were able to employ hundreds of residents in the municipality. Table 3.96 shows the list of establishments present in the municipality.



*San Fernando Municipal Public Market @ Purok 5, Halapitan*



**Jalalon General Merchandise @ Purok 3, Halapitan**



**Hallasgo Commercial Building @ Purok 5, Halapitan  
(Hardware, Pawnshop, Optical Clinic, Ukay-ukay,  
Sari-sari store, Rice retail)**



**Adajar Store, Hardware and Agivet Supply  
@ Purok 5, Halapitan**



**Malbasias Store, Drugstore and Hardware  
@ Purok 3, Halapitan**



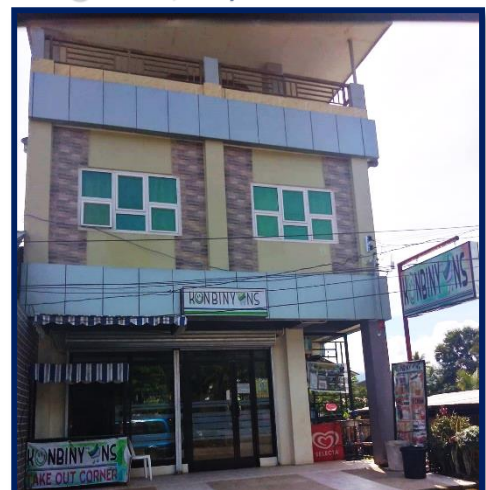
**Onting Commercial Building @ Purok 6, Halapitan  
(Ukay-Ukay, Bakeshoppe, Cellphone Accessories)**



**Asia SK Son Corp Commercial Building  
@ Purok 5, Halapitan**



**Navarro Commercial Building @ Purok 3, Halapitan  
(Convenience Store, Pawnshop, Rice Retail)**



**Convenience Store @ Purok 4, Halapitan**



**Saint John's Agrivet Supply  
@ Purok 3, Halapitan**



**Jimboy Agrivet Supply @ Purok 5, Halapitan**



**1st Valley Bank –San Fernando Branch @ Purok 5, Halapitan**



**FICCO –San Fernando Branch  
@ Purok 7, Halapitan**



**Dagaang Commercial Building @ Purok 9, Halapitan (Motorcycle Dealer, Carenderia)**





**AGT Petroleum @ Purok 5, Halapitan**



**AGT Petroleum @ Purok 1, Halapitan**



**Lucky Fuel Gasoline Station @ Purok 9, Halapitan**



**Lucky Fuel Gasoline Station  
And Lucky Hives Convenience Store  
and Dining @ Purok 1, Halapitan**



**Rabago Fuel Station @ Purok 9, Halapitan**



**Paquiao Commercial Building  
@ Purok 5, Halapitan  
(Pharmacy, Barbershop, Restobar)**



**Netcafe, School Supply and Hardware  
@ Purok 5, Halapitan**



**M-art Bakeshoppe @ Purok 5, Halapitan  
(Bakeshop, Litson Manok, Dining)**



**Rabago Building @ Purok 5, Halapitan  
(Glucose Snack Inn, Cakes and Ptries)**

**Table 3.96**  
**Business Permits Granted for the Past 5 Years**  
**San Fernando, Bukidnon**  
**2014-2018**

No.	Nature of Business	2014	2015	2016	2017	2018
1	Agricultural supply	1	1	4	10	8
2	Agrivet supply	6	6	3	5	7
3	Amusement game	1	1			
4	Bakery				14	10
5	Bakeshop	12	12	6		
6	Balut retailer	2	2	1	1	1
7	Bamboo furniture				1	
8	Barber Shop			2	2	3
9	Billiard Table			1	8	2
10	Boarding house				1	6
11	Burger station				1	1
12	Buy and sell (rice, corn, banana, craft, squash)	15	15	10	42	30
13	Cafeteria			2		
14	Carenderia	33	33	10	12	9
15	Catering services			1	1	1
16	Cellphone repair shop	1	1	2	1	
17	Cellphone sales accessories			1	1	2
18	Chicken ala cart				3	1
19	Cigarettes	29	29	89	68	89
20	Chicken Peddler			1		
21	Clinic	1	1			
22	Cockpit				1	1
23	Coconut grinder			1	1	1
24	Coffee station	1	1	1	2	
25	Computer shop				3	1
26	Concrete products	2	2	2	1	1
27	Contractor				3	1
28	Construction supply				1	1
29	Copy center			2	1	1
30	Corn mill	4	4	3	5	6
31	Corn Sheller	5	5	5	8	3
32	Crafts and Home furnishing				2	1
33	Cull retailer	1	1		1	2
34	Dried fish	2	2		2	2
35	Drinking water	1	1			
36	Dry goods	16	16	14	27	24
37	Eatery				10	4
38	Educational Institutions				1	
39	Egg dealer	1	1			
40	Egg retailer				1	2
41	Electrical supply	1	1	5	3	2
42	E-loading				1	1
43	Fish peddler	1	1	6	17	
44	Fish retailer				2	6
45	Fish vendor				2	3
46	Fried chicken retailer					1
47	Fruit retailer				3	2
48	Gasoline station	1	1	2	5	2
49	Glassware	1	1	1	4	2
50	Glass installer				1	
51	General merchandise				1	
52	Gown and Dress shop			1	1	
53	Grinder	1	1		1	
54	Grocery				2	3
55	Handicraft	1	1	1		1
56	Hardware	4	4	5	5	6
57	Hauling and trucking services			3		
58	Internet Café	3	3	5	4	3
59	Junk shop				1	1
60	Lechon manok				5	3
61	Lending Investor	1	1	3	3	1
62	Livestock					1
63	Lodging House			1	1	1
64	Liquor	33	33		72	90
65	Lodging house	1	1		1	
66	LPG retailer				2	1

67	Lumber/stick dealer	1	1	1	2	1
68	Meat retailer	3	3		6	5
69	Meatshop	1	1	2	3	3
70	Micro Finance			1	2	2
71	Mini sawmill				2	
72	Mini salon					1
73	Money changer				1	1
74	Money remittance				1	1
75	Motor parts	1	1		4	3
76	Motorcycles sales and services			1		
77	Motor repair shop			2	1	
78	Nursery				1	
79	Operation of business rendering for a fee	36	36		2	
80	Pawnshop				1	1
81	Pharmacy	2	2	2	3	3
82	Peddling				1	2
83	Peso net				13	10
84	Photocopier	1	1		1	
85	Photoshop and printing services				1	
86	Piggery	1	1	1	1	1
87	Plant nursery				1	1
88	Plastic ware				1	1
89	Power plant				1	1
90	Practice profession			1		
91	Printing press					1
92	Process food					1
93	Private educational institution			1		
94	Purified drinking water			1		
95	Quarry					1
96	RC cola peddler				1	
97	Refilling station					1
98	Repair shop				1	1
99	Rice mill	8	8	6	9	7
100	Rice retailer			7	13	12
101	Rural banking					1
102	Sand and gravel				3	
103	Sari-sari	144	144	138	173	220
104	School canteen snack inn	1	1		2	
105	Snack inn				2	5
106	School institution	1	1	1		
107	School supply	1	1			
108	Snack inn	1	1	3		
109	Tailoring services				1	2
110	Tarpaulin printing					1
111	Transport service for a fee			21	4	4
112	Trucking services	1	1		9	
113	Vegetable retailer	3	3	7	9	9
114	Video K	16	16	5	13	16
115	Vulcanizing shop	11	11	4	6	4
116	Water refilling station				2	3
117	Welding shop	4	4	4	8	4
118	Wholesaler	9	9	6		5
	<b>Total</b>	<b>428</b>	<b>428</b>	<b>409</b>	<b>683</b>	<b>686</b>

## B. Goal

Strengthen trade and commerce in the community for possible global competitive business investments.

## C. Problems, Causes and Impacts (Effects)

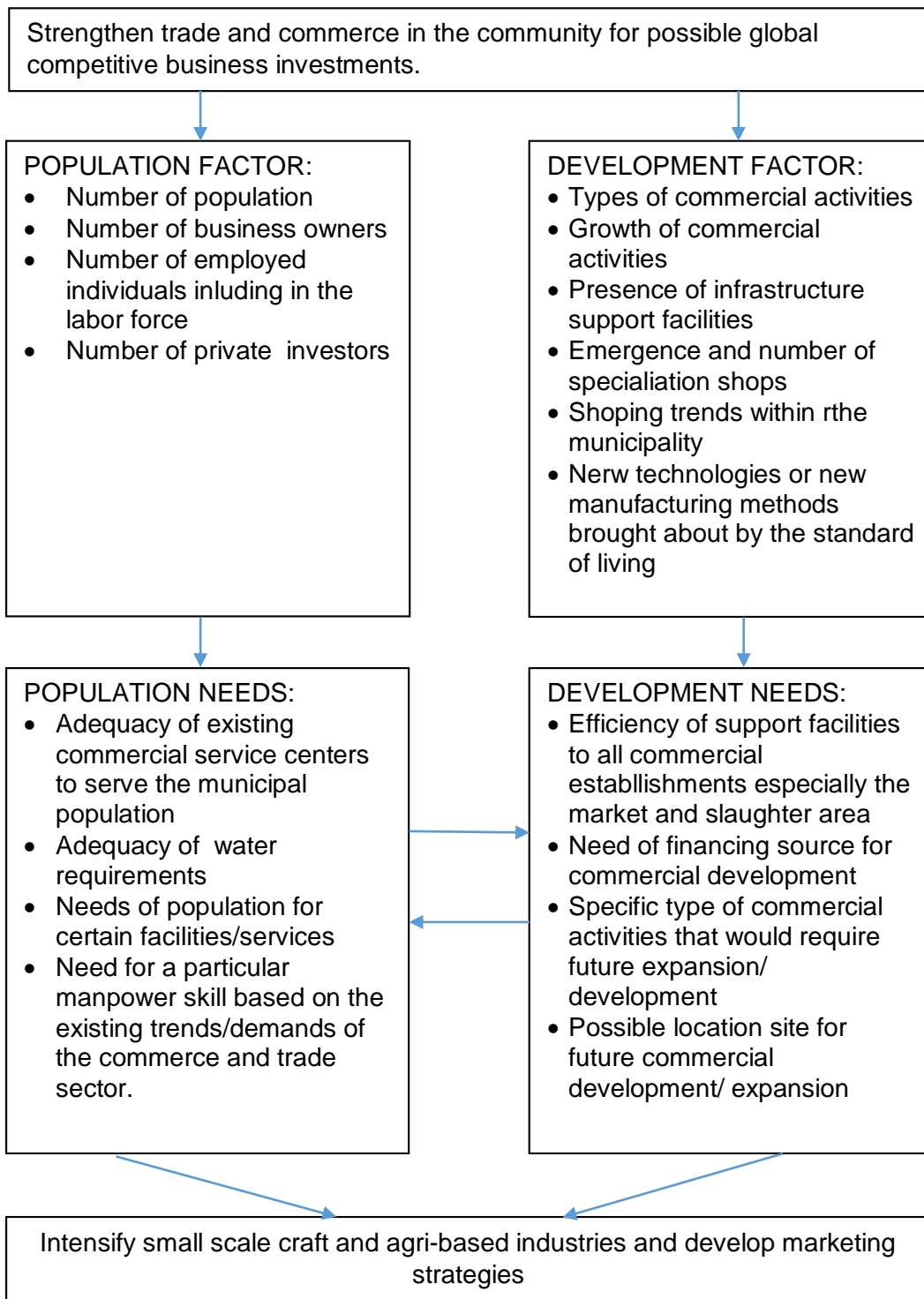
PROBLEMS	CAUSES	IMPACTS
1. Deteriorating condition of the slaughter area	- Insufficient fund	- Decrease in revenue in slaughter area operations
2. Inadequate parking areas in the central business district and other private commercial establishments especially along the national highway	- No strict implementation of road-right-of-way easements - Commercial establishments did not apply building permits and no issuance of zoning clearance.	- Unhealthy atmosphere of commercial and trading activities. - Discomfort and inconvenience to shoppers or consumers - Discouragement to some investors - Congestion of roadway due to double parking
3. Insufficient water supply	- Lack of water source - Insufficient fund	- Poor health and sanitation
4. Inadequate commercial activities	- Lack of investors	- Slow economic activities - Limited employment opportunities - Low income of families
5. Inaccessibility of market	- Several sellers price their products in order to maximize his/her profits under the assumption that he/she does not need to worry about competition.	- Slow economic activities - Limited employment opportunities - Low income of families
6. Limited number of investors	- Relative peace and order situation	- Slow economic activities - Limited employment opportunities - Low income of families
7. Unreasonable cost of commodities	- High transportation cost	- Slow economic activities - Limited employment opportunities - Low income of families
8. Disorganized and discouraged business sectors	- No pricing competitions	- Slow economic activities - Limited employment opportunities - Low income of families

## D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Deteriorating condition of the slaughter area	- To serve with adequate services and facilities and at the same time help increase economic growth	- Close monitoring and regular maintenance of slaughter area and the facilities inside it.	-
2. Inadequate parking areas in the central business district and other private commercial establishments especially along the national highway	- To provide enough parking spaces and meet the needs of the drivers as well as the safety and comfort for both costumers and business owners	- Strict imposition of zoning ordinance regarding setback compliance to all business establishments especially along the national highway	- Zoning Ordinance
3. Insufficient water supply	-To provide better health and sanitation to business sector	Locate suitable water sources and install high standard potable water system	
4. Inadequate commercial activities	- To be able to invite outside investors	- Provide tax incentives	- Sangguniang Bayan to issue resolution ordinances to enact tax incentives
5. Inaccessibility of market	- To secure more establishments or “bagsakan” center	- Establish more “bagsakan” centers	- Sangguniang Bayan to issue resolution ordinance to allocate funding for the establishment of “bagsakan” center
6. Limited number of investors	- To promote free entry of investors	- Provide tax incentives	- Sangguniang Bayan to issue resolution ordinances to enact tax incentives
7. Unreasonable cost of commodities	- To encourage first land supplier to engage in the municipality	- Offer first land supplier a tax free atmosphere	- Sangguniang Bayan to issue resolution ordinances to enact tax incentives
8. Disorganized and discouraged business sectors	- To promote healthy competitions among businesses	- Encourage small business establishments to engage in wholesaler business.	-Sangguniang Bayan to issue resolution ordinances to enact tax incentives

## E. Situational Analysis Framework

### SA FRAMEWORK



### 4.3.3 AGRICULTURE

#### A. Situational Analysis

#### Comprehensive Agrarian Reform Program (CARP) Situationer:

##### a) Land Tenure Support Program (LTSP)

Republic Act (RA) No. 9700 which amends RA No. 6657, provides for among others, the continuing acquisition and distribution of agricultural lands covered under Comprehensive Agrarian Reform Program (CARP) and the simultaneous provision of Agrarian Reform Beneficiaries Development Support Program (ARBDSP).

The Agrarian Reform Program is founded on the right of the farmers and regular farm workers, who are landless, to own directly or collectively the land they till. The Municipality of San Fernando, Bukidnon has a total land area of 82, 162 hectares of which the total land acquisition and distribution scope of target, a magnitude of more or less 6,218 hectares. This covers the 17 Barangay of San Fernando which has a CARP targeted landholdings; a total of more or less 2,538.78 hectares is the municipal CARP scope and about more or less 3,679.22 hectares classified as Non-CARPable and problematic areas. See table 3.97.

**Table 3.97**  
Agrarian Reform by Type of Area and Number of Farmer Beneficiaries  
San Fernando, Bukidnon  
2018

Land Type by Phase	Total Land Area (Scope in Ha.)	CARPable Area (Working Scope in Ha.)	Commulative (as of December 2018)		Total Number of Agrarian Reform Beneficiaries benefited	Total Number of Agrarian Reform Beneficiaries to benefit
			Accomplished (Ha.)	Balance (Ha.)		
<b>a. OLT</b>	N/A					
<b>b. PAL : &gt;50 has.</b>	None					
1. VOS						
2. VLT/DPS						
3. CA						
<b>c. Private Agri-lands (PAL), 24-50 has.</b>	None					
1. VOS						
2. VLT/DPS						
3. CA						
<b>d. PAL: &lt;24 ha.</b>						
1. VOS	364.45	364.45	352.79	11.65	207	6
2. VLT/DPS	1,758.18	1,758.18	1,758.18	-	1,095	-
3. CA	152.28	152.28	18.34	133.93	13	191
<b>e. GFI</b>	47.67	47.67	20.13	27.54	17	14
<b>f. GOL/KKK</b>	216.20	216.20	165.21	50.99	104	37
<b>Total</b>	<b>2,538.78</b>	<b>2,538.78</b>	<b>2,314.66</b>	<b>224.11</b>	<b>1,436</b>	<b>248</b>
Legend: OLT - Operation Land Transfer PAL - Private Agri-lands VOS - Voluntary Offer to Sell VLT/DPS - Voluntary Land Transfer/ Direct Payment Scheme CA - Compulsory Acquisition GFI - Government Financing Institution GOL/KKK- Government-owned Lands/ Kilusang Kabuhayan at Kaunlaran						

Source: Municipal Agrarian Reform Officer



## **b) Agrarian Reform Beneficiaries Development Support Program (ARBDSP)**

The Agrarian Reform Development Support Program division of Department of Agrarian Reform (DAR's) role is to complement the Land Tenure Support Program; aim to support the DAR's framework to accelerate production, farm household income and empower our Agrarian Reform Beneficiaries (ARBs) to become self-reliant; to create a socio-economic transformation of Agrarian Reform Communities (ARC); and enjoy political, economic and social stability. It is in Agrarian Reform Program that serve as the main tool for poverty alleviation and empowerment.

Success won't be maximized without the partnership forged by concerned groups who want to help the Municipality of San Fernando constituents to become self-reliant, empowered and substantially contributed to the total development of the country.

### **Agriculture**

Based on Table 3.98 and 3.99, as of year 2018, the total agricultural land area devoted to production is 12,949.16 hectares or 15.76% of the total municipal land area. Out of the 12 industrial and high value crops, corn is the major crop planted by farmers with 5,988.53 hectares gaining an average crop production of 4,500 kilograms per hectare followed by rice with 2,591.21 hectares obtaining an average crop production of 5,000 kilograms per hectare, sugarcane with 2,228.39 hectares attaining an average crop production of 60,000 kilograms per hectare.

Out of the total hectares devoted to corn, 69.94 % or 4,188.38 hectares is planted with *sige2x* variety and the rest 30.06% area is planted with hybrid seeds. This is because the *sige2x* variety is much cheaper than the hybrid seeds and is locally available. Most of the areas planted with corn are in hilly areas with more than 12% slope and don't have irrigation system.

In terms of rice, the major staple food of the Filipino, out of the total area, 1,688.17 hectares or 65.15% is with irrigation funded under the National Irrigation Administration (NIA), Department of Agriculture-Bureau of Soils and Water Management and some areas are Communal Irrigation System runned by the Farmers Association. About 34.84% or 903.04 hectares are rainfed areas and upland rice areas without irrigation and the only source of supply is rainwater.

The major problems faced by the farmers are the low production of their farm produce due to high prices of farm inputs and some areas with no irrigation facilities that can affect the crops optimum production especially in month with prolong dry season. Other problems are labor shortage and low mechanization rate, lack of pre and post-harvest facilities especially in corn, high transportation cost especially in remote areas with poor farm-to-market roads and lack of capital of marginal farmers.



**Table 3.98**  
**Area devoted to Agricultural Production**  
**San Fernando, Bukidnon**  
**2018**

CROPS		AREA (ha)	% to Total Agricultural Land Devoted to Crop Production	% to Total of Municipality's Land Area
1	Corn	5,988.53	46.25	7.29
2	Rice	2,591.21	20.01	3.15
3	Sugarcane	2,228.39	17.21	2.71
4	Rubber	1,200.47	9.27	1.46
5	Abaca	259	2.0	0.32
6	Banana	215.45	1.66	0.26
7	Coconut	177.0	1.37	0.22
8	Cacao	171.30	1.32	0.21
9	Coffee	80.06	0.62	0.10
10	Cassava	14.92	0.12	0.018
11	Oil Palm	14.28	0.11	0.017
12	Pineapple	8.55	0.07	0.010
<b>Total Agri land devoted to crop production</b>		<b>12,949.16</b>	<b>100%</b>	<b>15.76%</b>
<b>Total land area of the municipality</b>		<b>82,162</b>		

Source: Provincial Farmers Information System(PFIS), LGU San Fernando

**Table 3.99**  
**Major Agricultural Commodities**  
**San Fernando, Bukidnon**  
**2018**

Commodity	Production Area (ha)	Production (kg/ha)
Corn	5,988.53	4,500
Rice	2,591.21	5,000
Sugarcane	2,228.39	60,000

Source: DA

Based on Table 3.100, most type of Irrigation facilities present in our locality is the Small Diversion Dam (SDD) which covers Barangays Little Baguio, Nacabuklad, Halapitan, Mabuhay, Candelaria, Kawayan, Bonacao, Namnam and Iglugsad.

The recipients of this irrigation facilities are the different Farmers Associations who have their own implementing rules and regulations regarding the scheme in the collection of irrigation fee to be used for the repair and maintenance of irrigation facilities.

More than half of the total rice area or 65.15% is already with irrigation facilities while the remaining 34.84% have no irrigation yet and depends only on rainfed facility.

Some Barangays have Communal Irrigation System, they are small scheme irrigation and constructed, operated and maintained by private individuals or group with or without assistance by NIA or other government agencies. They have potential water source and is now being surveyed by NIA and DA-BSWM for possible funding for Irrigation Facilities.

Solar-Powered Irrigation System (SPIS) is also one of the alternative ways in irrigating the areas with potential water source but don't have irrigation facilities yet. One of the recipient of this new technology is the farmers of Purok 11, Halapitan, San Fernando,

Bukidnon. It is expected to finish on 2019. The Municipal Agriculture Office is currently surveying areas potential for the construction of SPIS.

Irrigation facility is very important to boost crop production in order to have higher yield thus increasing the income of marginal farmers.

**Table 3.100**  
**Irrigation Facilities by Area Covered and Location**  
**San Fernando, Bukidnon**  
**2018**

Type of Irrigation Facilities	Area Covered (Ha)	Location
<b>1 SMALL DIVERSION DAM (DD)</b>		
	70	Little Baguio, SFB
	120	Nacabuklad, SFB
	25	Malantao, Halapitan, SFB
	241	Nala, Halapitan, SFB
	22	Mabuhay, SFB
	150	Candelaria, SFB
	310	Kawayan, SFB
	200	Namnam-Bonacao, SFB
	200	Namnam-Iglugsad, SFB
<b>2 SMALL WATER IMPOUNDING PROJECT (SWIP)</b>		
	100	Magkalungay, SFB
<b>3 SMALL FARM RESERVOIR (SFR)</b>		
	2-3	Mawie, Little Baguio
	2-3	Sto. Domingo
	1	Nacabuklad
	2-5	Nala, Halapitan
<b>4 COMMUNAL IRRIGATION SYSTEM (CIS)</b>		
	120	Palacpacan
	5	Bulalang
	27	Malayanan
	30	San Jose
	116	Cayaga
	58	Kalagangan
	15	Cabuling
	20	Matupe
	110	Sto. Domingo

Source: MAO, LGU

One of the goals of the government in terms of crop production is to attain self-sufficiency especially in our staple crops. This agro-industrial industry present in our locality especially the pre and post-harvest facilities is one of the most crucial factors in attaining self-sufficiency in our area.

The DA's Farm Mechanization Program aims to further increase the productivity and income of farmers while helping them become agripreneurs and less dependent on labor in crop production.

The municipality have already existing pre and post-harvest facilities as shown on Table 3.101 but still need additional of this machineries and equipment because of expanded production area. In corn alone the municipality have an existing 13,874.80

hectares but has only 109 corn shellers and 86 solar dryers thus, in time of harvest season, this number of corn sheller and solar Dryer is not enough to cater the needs of the farmers.

Machineries and equipments like Corn and Rice Combine Harvester, Direct Seeder-Riding Type, Transplanter and other will ease the burden of farmers during planting as well as harvesting their produce. Various Farmers Association already availed this Mechanization Program of the Department of Agriculture but there are also associations who have not yet receive any programs from the government that is why the Municipal Agriculture Office of San Fernando is helping the farmers to form themselves into Farmers Association, Registered them in SEC, DOLE, DTI and other government institutions so that they can avail this Mechanization Program.

With the income of the association from the rental of their machineries and equipment with minimal fee, the farmers have now evolved into farm-entrepreneurs. Today, farmers now enjoy lesser fee compared to the usual payment of farm machinery rental in the area.

**Table 3.101**  
**Existing Number of Agro-Industrial Establishment by Type and Area (Ha)**  
**San Fernando, Bukidnon**  
**2018**

Type of Industry		Number		
		Rice	Corn	Total
1	Solar Drier/Multi-Purpose Drying Pavement	86		86
2	Rice Mill	22		22
3	Thresher	143		143
4	Power-Tiller	159		159
5	Corn Sheller		109	109
6	Rice Combine Harvester	4		4
7	Tractor			13
8	Flatbed Drier	8		8
9	Corn Mill		13	13
10	Waterpump			8
11	Cassava Chipper			2
12	Warehouse			6
13	Power Sprayer			3
14	Hammer Mill		2	2
15	Hand Tractor			1
16	Laminated Sack			1
17	Poultry			1
18	Corn Cob Drier		1	1
<b>Total</b>				<b>582</b>

Source: MAO

In table 3.102, it is indicated that production of basic commodities like rice, corn and beef can sustain the annual consumption of the municipality and able to supply the demand of other neighbouring cities and municipalities. Unfortunately, for other basic commodities like vegetables, pork, chicken and eggs is seem to be inadequate and cannot sustain the annual consumption of the municipality thus there is a need to rely on the outside suppliers to sustain enough consumption but higher price is very much expected due to transportation cost and attainability of enough profit of the resellers in San Fernando.

The idea of locating more potential production areas in the municipality with the help and support of the government and private sectors for the establishment of production activities is very important and must be prioritized to secure the food consumption in all

basic food commodities of the municipality of and to help individuals even the poorest family to generate income and to sustain their daily needs regarding food, shelter and education.

**Table 3.102**  
**Status on Basic Food Items**  
**San Fernando, Bukidnon**  
**2018**

Commodity	Existing Production Area	Potential Production Area	Production (mt/yr)	Consumption (mt/yr)	Production-Consumption Ratio
Rice	2,656.64 ha	500	26,560	5,006	5.31
Corn (White)	10,072 ha	1,200	80,576	4,342	18.53
Corn (Yellow)	3,801 ha	720	38,010	3,052	12.45
Vegetables (Lowland)	60 ha	100	36	1,149	0.03
Vegetables (Upland)	40 ha	80	120	246	0.49
Beef/ Carabeef	500 heads	10,000 heads	97.50	76	1.28
Pork	2,500 heads	3,000 heads	150	416	0.36
Chicken	72,000 heads	120,000 heads	108	336	0.32
Eggs	2,000	10,000	73	2,700	0.027

Source: MAO

## B. Goal

Sustain agricultural production and teneurial security of farmers.

## C. Problems, Causes and Impacts (Effects)

Problem	Causes	Impacts
<b>Agrarian Reform</b>		
Selling of rights of CARP Awarded Lands	- Financial difficulties	- Loss of property
Failure of Agrarian Reform beneficiaries to pay amortization	- Poverty	- Loss of property
<b>Agriculture</b>		
<b>1. Rice</b>		
Average yield of only 5mt/ha and expensive production cost	- Inadequate production support program - Lack of financial capital for seeds, fertilizer and pesticides	-Low economic profitability
Labor shortage and low mechanization rate	-Lack of pre and post-harvest facilities	-Slow economic activity
Limited irrigation facilities	-Lack of infrastructure support facilities from government	-Slow economic activity
Slow adoption of hybridization program	- Absence of demo farms and lack of trainings on hybrid production	-Slow economic activity
Occurrence of pests and diseases	-No training and equipments on the prevention and control of pests and diseases -	-Possible loss of income or profit -Failure of farming -Low quality of product

<b>2. Corn</b>		
High cost of farm inputs	-Inadequate production support program - Lack of financial capital for seeds, fertilizer and pesticides	Low profit
Poor farm-to-market roads (FMR)	-Lack of infrastructure support facilities	-High cost of hauling
Lack of drying facilities in the barangay	-Conversion of drying facilities into covered courts	-Rotten of crops -Low profit -Loss of income
<b>3. Pork</b>		
High cost of commercial feeds	-Lack of financial support from the government -No alternative solution	-Low profit
<b>4. Beef/ Carabeef</b>		
Lack of capital by backyard farmers	-Lack of knowledge about financing institutions	-Insufficient supply of livestock production
Inadequate supply of forage	-Absence of forage nursery	-Unhealthy animals
<b>5. Chicken/ Eggs</b>		
Lack of capital by backyard farmers	-Lack of knowledge about financing institutions	-No chance of expansion and development
Threat to diseases	-Limited distribution of animal medical supplies	-failure of profit -Low quality of chicken and eggs
<b>6. Vegetables</b>		
High cost of inputs especially high value vegetables	-Inadequate production support program - Lack of financial capital for seeds, fertilizer and pesticides	-Low profit
Occurrence of pests and diseases	-Lack of training on the prevention and control of pests and diseases -Lack of financial capital for pesticides -climate change	-Low quality of vegetables -Low profit -Failure of farming
<b>7. Fisheries</b>		
Declining number of fish stocks in communal bodies of water	-Inadequate dispersal of fingerlings -Climate change	-Insufficient supply of fish stocks -Low income
Undeveloped fishponds	-Lack of government support	-Low fish production
Lack of technical skills	-Lack of provision of trainings-	-Low quality of production
Lack of technical skills on processing and value-adding	-Lack of training on processing and value adding	-Low income

## D. Problems, Objectives, Strategies and Policies

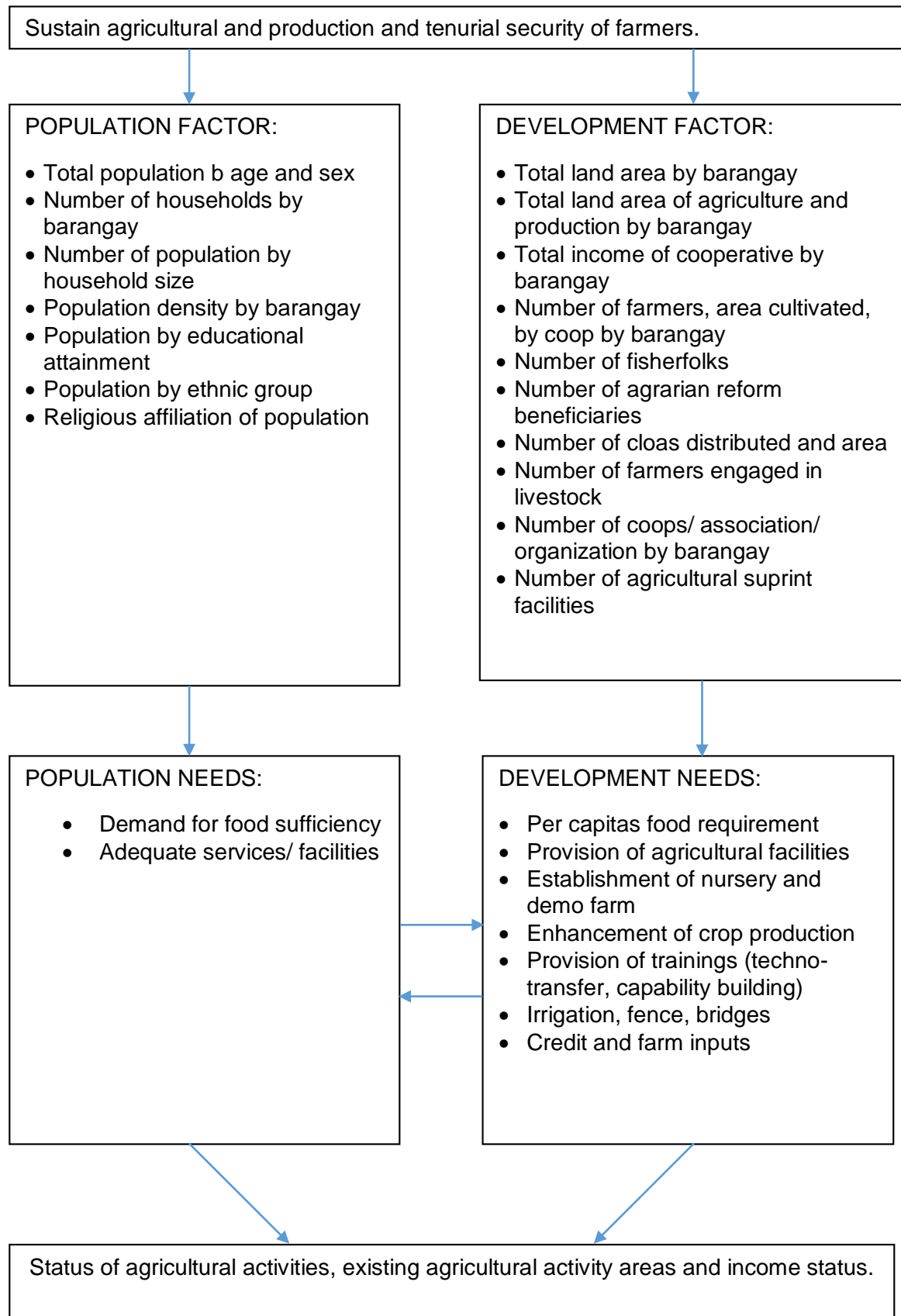
Problem	Objective	Strategies	Policy
<b>Agrarian Reform</b>			
Selling of rights of CARP Awarded Lands	<ul style="list-style-type: none"> <li>- To provide security to less fortunate farmers</li> <li>- To provide the landowners equality in terms of income and opportunities</li> </ul>	<ul style="list-style-type: none"> <li>- Agrarian Reform beneficiaries who sold their CARP awarded land will no longer be qualified</li> <li>- Membership in Farmer's Organization and Cooperatives</li> <li>- Provide technical assistance and support services</li> <li>- Conduct cross-visits to develop Agrarian Reform Communities (ARC)</li> </ul>	
Failure of Agrarian Reform beneficiaries to pay amortization			
<b>Agriculture</b>			
<b>1. Rice</b>			
Average yield of only 5mt/ha and expensive production cost	- To be food secure	<ul style="list-style-type: none"> <li>-Production support program</li> <li>-Supply of seeds, fertilizer, pesticides, etc.</li> <li>-Credit availment thru ACPC</li> </ul>	
Labor shortage and low mechanization rate	- To be food secure	Provision of pre and post-harvest facilities like rice transplanter and rice combine harvester	-Allocation of funds
Limited irrigation facilities	- To be food secure	Provision of irrigation facilities like diversion dam and SWIP	
Slow adoption of hybridization program	- To be food secure	<ul style="list-style-type: none"> <li>-Establish demo farms</li> <li>-Trainings on hybrid production</li> </ul>	
Occurrence of pests and diseases	- To be food secure	<ul style="list-style-type: none"> <li>-Training on the prevention and control of pests and diseases</li> <li>-Provide light trapping equipment for rice black bug</li> </ul>	
<b>2. Corn</b>			
High cost of farm inputs	- To be food secure	<ul style="list-style-type: none"> <li>-Production support program</li> <li>-Seeds, fertilizer, pesticides</li> <li>-Credit availment thru ACPC</li> </ul>	
Poor farm-to-market roads (FMR) resulting to high hauling cost	- To be food secure	<ul style="list-style-type: none"> <li>-Rehabilitation/ construction of concrete FMRs</li> <li>-Construction of bridges</li> </ul>	



		-Provision of hauling trucks	
Lack of drying facilities in the barangay due to conversion of drying facilities into covered court	- To be food secure	-Provision of multi-purpose drying pavement -Provision of corn-cob dryer	
<b>3. Pork</b>			
High cost of commercial feeds	- To be food secure	-Subsidy on commercial feeds -Establishment of mini-feedmill for backyard raisers	
<b>4. Beef/ Carabeef</b>			
Lack of capital by backyard farmers	- To be food secure	-Link to financing institutions like ACPC -Livestock dispersal -Establishment of multiplier farms	
Inadequate supply of forage	- To be food secure	-Establishment of forage nursery and provision of forage seeds/ seedlings	
<b>5. Chicken/ Eggs</b>			
Lack of capital by backyard farmers	- To be food secure	-Link to financing institutions lie ACPC	
Threat to diseases	- To be food secure	-Increase distribution of drugs, vaccines and other biologics	
<b>6. Vegetables</b>			
High cost of inputs especially high value vegetables	- To be food secure	-Provide seeds and fertilizer	
Occurrence of pests and diseases	- To be food secure	-Training on the prevention and control of pests and diseases -Provide pesticides/ beacon	
<b>7. Fisheries</b>			
Declining number of fish stocks in communal bodies of water	- To be food secure	-Intensify the dispersal of fingerlings in communal bodies of water/ creeks/ rivers	
Undeveloped fishponds	- To be food secure	-Support in the excavation and development of ponds -Provision of pond liner	
Lack of technical skills	- To be food secure	-Provide trainings and IEC materials	
Lack of technical skills on processing and value-adding	- To be food secure	-Conduct of training on processing and value-adding	

## E. Situational Analysis Framework

### SA Framework



#### 4.3.4. FORESTRY

##### A. Situational Analysis

As of year 2018 List of Registered ISF/CBFM, there are twelve (12) certificate of stewardship holders in the municipality from twelve (12) barangays totalling to an area of 25,742.37 hectares. These people's organizations are the partners of the LGU in forest preservation and reforestation since they maintain forest cover of the areas that are within their respective jurisdictions. Aside from maintaining forest cover, they also expand and increase since most of these organizations continue to plant more trees (see Table 3.103). Area allocated by ISF/CBFMA by barangays is presented in Map 17, Tenurial Map.

Aside from these CBFMA stewards, there is also a year round contracted reforestation project which was spearheaded by the LGU that is implemented by Municipal Environment and Natural Resource Office (MENRO) covering a total area of twenty (20) hectares for indigenous tree located at Barangay Nacabuklad and other twenty (20) hectares of bamboo for the riverbank rehabilitation located at Halapitan along Tigwa river.

**Table 3.103**  
**List of Registered Integrated Social Forestry (ISF)/**  
**Community Based Forestry Management (CBFM)**  
**Municipality of San Fernando**  
**2018**

Barangay (CBFMA Stewards)	Name of People's Organization	ISF/ CBFMA Code Number	Area (in Hectare)
1. Bonacao	Kapunungan sa mga Manobo sa Kisayab (KMK)	#55075	922.50
2. Candelaria	Candelaria Farmers Organization (CAFARO)	#55145	1,491.0544
3. Halapitan	Sail Halapitan Tree Planters Association (SAHA-TFA) formerly Sail Halapitan Tree Farmers	#55013	7,768.43
4. Iglugsad	Iglugsad Agri-Forest Organization (IAFO)	#55030	1,047.17
5. Kawayan	Peoples Alliance for the Restoration of Timberland Natures Ecosystem and Resources (PARTNER)	#55027	2,511.171
6. Kibongcog	Liboling sa Kauswagon Forestland Steward Community Organization	#55118	500.52
7. Little Baguio	Pagpalibud Tu Kakayuhan Association (PAGTUKAS), Inc.	#55010	1,435.40
8. Magkalungay	Magkalungay Environmental Protection Association (MEPA)	#55032	1,036.25
9. Nacabuklad	Nacabuklad Farmers Multi-purpose Cooperative (NAFAMCO) formerly Nacabuklad Association Inc. (NAFAI)	#55031	3,576.1401
10. Namnam	Namnam Ecological Farmers Workers Association of the Phils. Formerly Federation of Ecological Farmers Fishermen Workers Association of the Phils. (FEFFWAP)	#55119	2,558.99
11. Sacramento Valley	Onward Savers Tree Farmers Association (OSA-TFA), Inc.	#55011	1,734.74
12. Tugop	Abejid Multi-purpose Cooperative (AMPC)	#55049	1,160.00
		<b>Total</b>	<b>25,742.37</b>

Source: DENR

There are also remnants of the Bukidnon Environment Small-scale Tree Projects which are implemented in barangays Halapitan and Sacramento Valley totaling an area of 6.5 hectares. Since 2014 the LGU have also started to implement riverbank rehabilitation of Tigwa River which is a major tributary of *Pulang* hence contributing to the *Pulang* Watershed Rehabilitation Sub Project (PWRSP). The LGU thru the MENRO have already covered an area of almost 100 hectares from Barangay Namnam down to Barangay Tugop. Since 2018 the LGU had issued one rattan permittee with a rattan cutting contract in the municipality that is Manobo, Tigwahanon, Matigsalog, Agro-Industrial Development Corporation covering an area of 13,049.92 Hectares located in barangays, Kalagangan, Cayaga, Dao, Kibongkog and San Jose (see Table 3.104)

**Table. 3.104**  
**Program/Projects Implemented**  
**Municipality of San Fernando**  
**2018**

Programs/Projects	Location (San Fernando)	Area (in Hectare)
1. Integrated Social Forestry (ISF) / Community Based Forest Management (CBFM)	- Bonacao, Candelaria, Halapitan, Iglugsad, Kawayan, Kibongcog, Little Baguio, Magkalungay, Nacabuklad, Namnam, Sacramento Valley, Tugop	- 23,328.81
2. Contracted Reforestation Project	- Nacabuklad	- 20.0
3. Bamboo for the Riverbank Reforestation	- Halapitan	- 20.0
4. Bukidnon Environment Small-Scale Tree (BEST) Project	- Halapitan - Sacramento Valley	- 6.50
5. Pulangi Watershed Rehabilitation Sub-project (PWRSP)	- From Namnam To Tugop	- 100.0
6. Rattan Permitees	- Kalagangan, Bonacao, Cayaga, Kibongcog, Dao	- 13,049.92

Source: MENRO

Out of 82,162 hectares of San Fernando land area, 72,665.03 hectares or 88.44% covered with forest lands which classified in different categories as enumerated in Table 3.105 with corresponding areas and percentage shares to total forest lands and total municipal area. Largest area is shrubland while the least area is pine plantation.

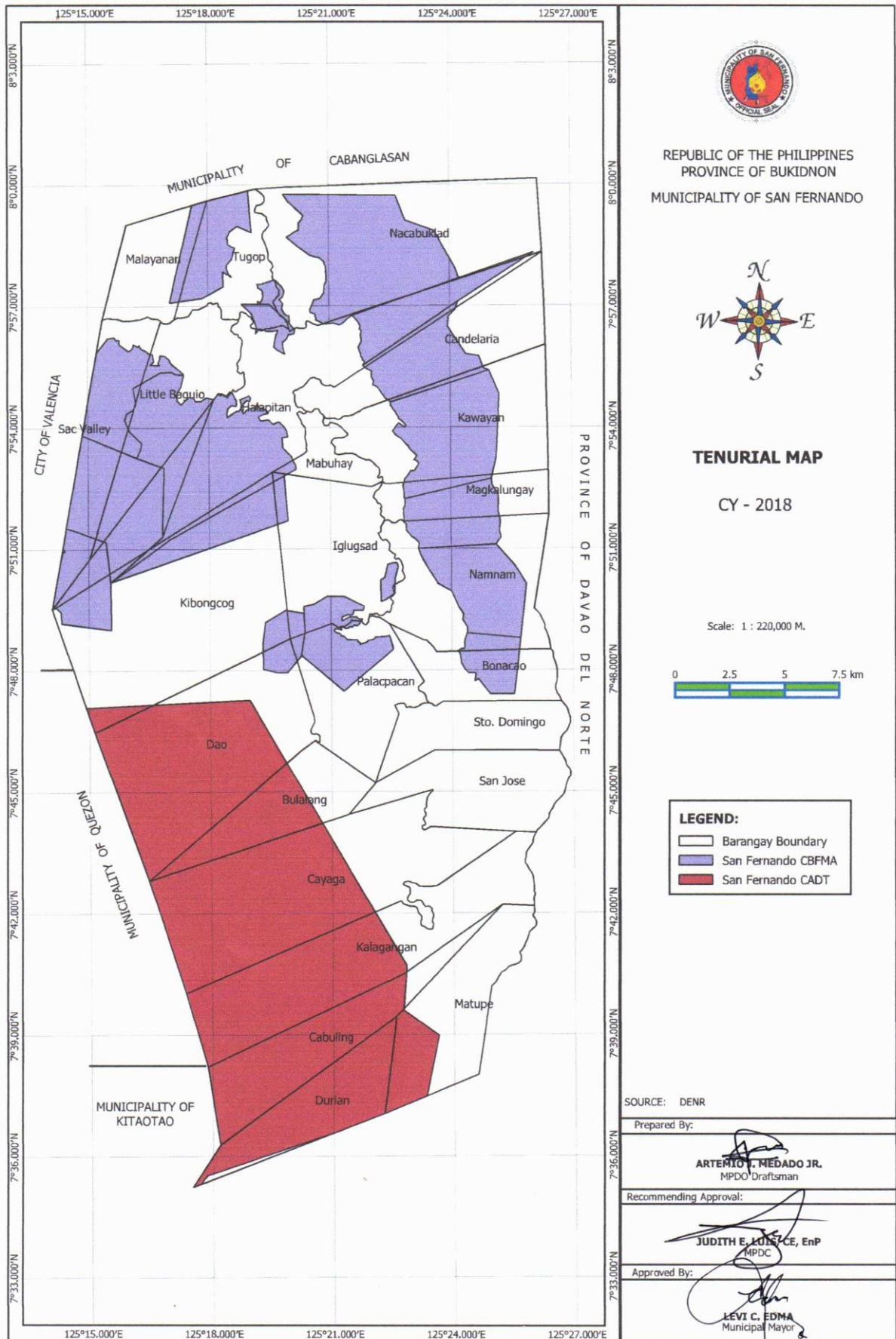
**Table. 3.105**  
**Classified Forest Lands**  
**Municipality of San Fernando**  
**2018**

Category	Area (in hectare)	Percentage (%) Total Forest Land	% Share to Total Municipal Land Area (82,162 has)
Primary Forest	8,294.33	11.41	10.10
Secondary Forest	9,634.17	13.26	11.73
Mossy Forest	13,465.19	18.53	16.39
Plantation Forest	1,016.0	1.40	1.24
Pine Plantation	0.60	0.0008	0.0007
Other land with tree cover	11,567.53	15.92	14.08
Shrubland	16,014.66	22.04	19.49
Grassland	8,315.59	11.44	10.12
Other Open Land	4,356.96	5.60	5.30
<b>Total</b>	<b>72,665.03</b>		<b>88.44</b>

Source: MENRO

Greening program is one of the projects focused by the MENRO through establishing at least one-hectare tree park in every barangays but only few implemented the program due to some factors such as unsuitability of area, absence of planting, maintenance and protection, and lack of community voluntary efforts or even financial supports which may shoulder establishment activities. Identified areas were only planted with trees during tree planting events once or twice a year but tree growing may seems impossible due to inaccessibility of location for maintenance operation. As a contribution to government's greening program as likely to establish a tree park, the LGU required the couples seeking marriage certificates to plant trees for at least five seedlings per couple into identified tree park areas but unfortunately, the activity still ended on planting only due to lack of maintenance and protection during the growing stage of such trees.

**Map 17: Tenorial Map**



As a continuous implementation of greening program in the municipality, the MENRO propose and require the 24 barangays to provide a bigger area of five-hectare Tree Park. It should be established in a government or public land preferably near a water source with good drainage, with good soil and should be accessible to be able to provide easy protection and management. This will also serve as venue for people's appreciation of the environment and understanding of biodiversity.

Other programs and projects are listed in the Table 3.106, which contribute to the development and conservation of forestry in the municipality.

**Table 3.106**  
**Developmental Programs/ Projects in Forest Lands**  
**Municipality of San Fernando**  
**2018**

Programs/Projects	Location	Area (in Hectare)
1. Reforestation and Agroforestry- National Greening Program (NGP)	- Candelaria, Kawayan, Nacabuklad, Tugop	- 40.0
2. Riverbank Rehabilitation	- Mabuhay, Kawayan, Namnam, Dao, Palacpacan, Sto. Domingo, San Jose, Cayaga, Cabuling, Kalagangan, Durian, Matupe	- 100.0
3. Watershed Management (NGP)	- Nacabuklad	- 40.0
4. Establishment of Protected Areas and Wildlife (Forest Park)	- 24 barangays	- 120
7. Forest Tree Nursery Enrichment/ Enhancement	- Halapitan	Not applicable
8. Trainings and capacity enhancement for Bantay Gubat, forest guards, AILTF Personnel, beneficiaries on reforestation, climate change, water conservation, watershed management, and riverbank rehabilitation.	- San Fernando	Not applicable
9. Assistance to Minahang Bayan	- Dao, Kibongcog	80
10. Hiring of Bantay Gubat	- Magkalungay, Dao, Iglugsad, Kibongcog	n/a

Source: MENRO

## B. Goal

Promote sustainable forest management approach in order to uplift the socio-economic status of the community

## C. Problems, Causes and Impacts (Effects)

PROBLEMS	CAUSES	IMPACTS
1. Illegal lumbering.	- Absence of sustainable livelihood program and project.	- Forest degradation.
2. Decreased biodiversity due to roaching.	- Hunting/kaingin making.	- Extinction of flora and fauna
3. Weak enforcement of related forestry laws/legislations.	- Inadequate forest guard and machine MPPC	- Forest law violations proliferate.
4. Too wide area per forest guard.	- Inadequate forest guard and absence of Local Government (LGU) counterpart.	- Ineffective enforcement of forestry laws.
5. Conflicting forestry laws against production forest, tribal customs and tradition.	- Overlapping functions of Department of Environment Natural Resources (DENR) and National Commission on Indigenous People (NCIP)	- Create confusions among forest occupants.
6. Boundary conflicts.	- No concrete demarcation of boundaries.	- Improper claims among barangays and municipalities.
7. Siltation due to Small Scale Mining (SSM)	- Suspension of BCC and absence of Multipartite Monitoring Team (MMT)	- Rampant illegal SSM
8. Underdeveloped forest park (tree park)	- Inaccessibility of site - No community voluntary efforts and financial budget for maintenance and protection - No regular planting activity and tree growing maintenance	- Failure of program

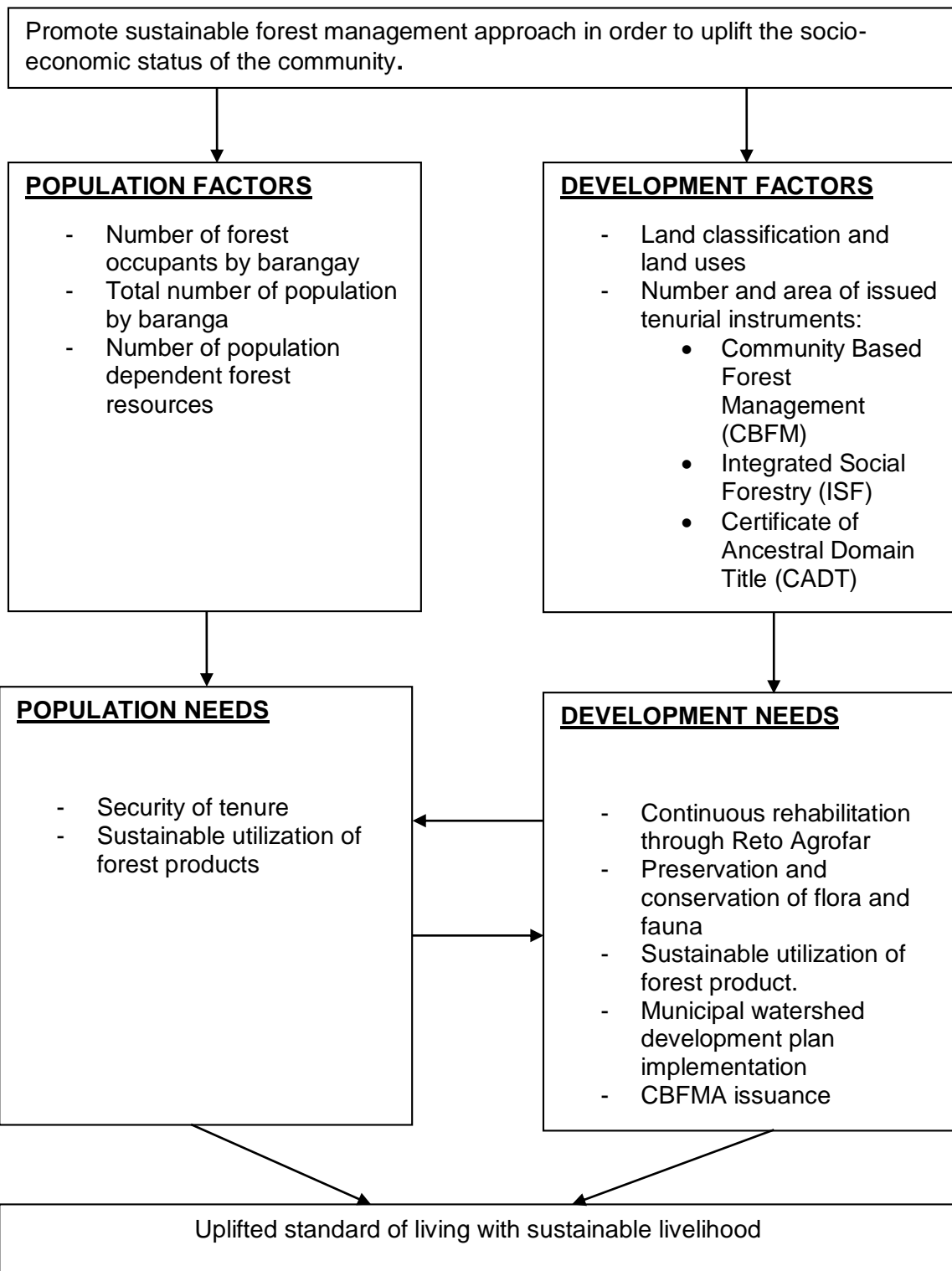
## D. Problems, Objectives, Strategies and Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Illegal lumbering.	- To protect the remaining forest resources..	- Strong imposition of forestry related laws.	- Resolution for re-organization and strengthen Municipal Forest and Protection Council (MFPC)
2. Decreased biodiversity due to roaching.	- To conserve flora and fauna.	- Intensify Information Education Communication (IEC).	- Resolution supporting DENR and all other forestry related laws.
3. Weak enforcement of related forestry laws/legislations.	- Enforcement of forest laws / legislations	- Close coordination with DENR	- Hire, train and deputize forest rangers
4. Too wide area per forest guard.	- Organize "Banta Gubat"	- Provide incentives and hiring of technical	- Strict enforcement of forest laws.

	in every barangay.	personnel to oversee and ensure protection of the remaining forest.	
5. Conflicting forestry laws against production forest, tribal customs and tradition.	- Delineate and identify production forest and conjoin ICC's/IP's with other national agencies	- Delineation survey and strengthen IEC to ICCs/ IPs regarding RA 8371 and other environmental laws	- Resolution that will promote the common interest in conservation and management of forest resources
6. Slash and burn farming.	- Organize upland farmers.	- Promote Sloping Agricultural land Technology (SALT)	- Resolution for the provision of enough budget for livelihood programs/ projects.
7. Siltation due to Small Scale Mining (SSM)	- Organize small scale mining operators as association/ cooperative	- Link SSM operators to other local and national agencies and provide technical assistance	- Zoning of the mining area/ site
8. Built up areas in forest zones (production and protection forest).	- To conduct proper identification of forest occupant. - To lobby for the speedy conversion of approximately 14,000 hectares classified as timberland into Alienable and Disposable (A&D).	- Intensify Information Education Communication (IEC). - Issuance of certificate of occupancy/tenurial instruments	- Resolution requesting for the conversion of timberland into Alienable & Disposable (A & D) lands. - Resolution supporting for the declaration of Mt. Pantaron as protected landscape.
9. Boundary conflicts.	- To delineate boundaries and install concrete monuments	- Coordinate with the proper authorities to conduct delineation survey.	- Resolution for the allocation of budget for the conduct of delineation survey.
10. Underdeveloped forest park (tree park)	- To provide recreation area for the people and encourage biodiversity conservation	- Encourage community voluntary establishment activities like planting and growing - Locate a strategic, suitable and accessible area near water source - Establish a nursery for seedling production - Allocate budget for maintenance and protection of the area.	- National Greening Program



## E. Situational Analysis Framework



## 4.3.5 TOURISM

### A. Situational Analysis

Tourism industry is one of the best ways that could generate widespread benefits and impacts to the economy and society. It could alleviate poverty, environmental conservation, and generation of employment opportunities for women, indigeneous communities and young people. Further, tourism could be a best source of revenues to the government and because of its multiplier effect, it could provide opportunities for local economic development, thus the local government unit of San Fernando established attractive sites of tourist.

Several barangays of the municipality are rich in natural resources which are potential for outdoor enthusiasts or tourist. Potential natural attractions composed of water falls, rivers, mountains, rainforests, caves, overviews, flora and fauna as identified in Table 3.107, Inventory of Tourism Spots/Attraction.

Dubbed as the hidden paradise of Bukidnon, one of the prides of the municipality is the San Fernando Resort Park and Adventure, a manmade attraction which boosts a great mileage of the town. It is an LGU-owned tourist destination and it is situated in the heart of Poblacion, Halapitan of this town. The site has two attractive swimming pools with a design that is surely eye catching for those who love to relax, to unwind and get together with friends and family.

Adult pool of 4-7 feet is a ¼ size of an Olympic standard swimming pool where students spend their swimming lessons and the other one is a kiddie pool with a deep of 4 feet. The resort has the largest function hall in town which cater any occasions, such as birthday party, weddings, conferences, seminars, and meetings, among others that can accommodate 200 persons. There are ten open cottages that surround the pools with the rental of 270 pesos. The entrance is only 25 pesos. Parking space is remarkable.

Another surprise of the place is the first of its kind that LGU San Fernando has owned – the 740-meter zip line which can carry three persons in one zipping. This amazing sloppy type zip lines in San Fernando is a great adrenaline-pumping thrills, where gorgeous views such as the mountains, trees, birds and the forest can be seen atop that can truly satisfy every human who loves thrills, adventure and nature.

For the whole year round of 2018, the officer in-charge had documented a total of 10,271 visitors who caters the function hall, pools, cottages and zip line as listed in Table 3.108. Few of them were considered “tourists” as they have spent a night to available but limited rental places in San Fernando but unfortunately, these rental places didn’t have record book of their customers. The rest were considered “visitors” only as their stay-in records were documented to neighboring city who had lots of available rental resting places. For this reason, the LGU is positively encouraged to construct a building specifically, a rental hotel-apartelle to accommodate stay-in tourists in San Fernando.

In year 2018, the San Fernando Eco Park and Resort had documented 10,271 visitors based on their record book summarized in Table 3.109. Peak seasons occurred in the month of November and December. The total includes number of person who rented the function hall for different occasions.

**Table 3.107**  
**Inventory of Tourism Spots/Attractions**  
**San Fernando, Bukidnon**  
**2018**

Tourist Attractions	Location	Type	Category	NDTP Tourism Product Portfolio Category	Activity	Status
1. San Fernando Eco-Adventure Park and Resort	Purok 1, Halapitan,	- Sports and Recreational Facilities	- Park/ Resort - Pools	- Leisure and Entertainment Tourism	- Function/ Event Holding, Swimming, Zipline, Site Seeing  - Bird Watching, Kayaking, Bamboo, Rafting, River/ Footbridge, Tourist Assistance Center, Wall Climbing Facility	- Existing  - Proposed
2. SF Tourists Center	Sitio Salolong, Sacramento Valley	- Sports and Recreational Facilities	- Park / Resort	- Leisure and Entertainment Tourism	- Stopover Tourist Assistance Center (TAC) Function/ Event Holding Pasalubong Center View Deck Pay Rest Rooms	- Proposed
3. Magkalungay Local Conservation Area	Magkalungay	- Nature	- Mountain/ Falls/ River and Landscape - Nature Trail and Path/ Camping Ground - Other Natural Attractions	- Nature and Cultural Tourism	- Trekking, Spelunking, Camping, Site Seeing, Bird Watching, Flora and Fauna, Research  - View Deck	- Existing/ Ongoing  - Proposed
4. Bonggalo Hill	Sitio San isidro, Halapitan	- Nature	- Mountain/ Hills/ Highlands	- Nature Tourism	- Site Seeing, Sea of Clouds, Camping, Trekking  - View Deck	- Existing, NGA Management  - Proposed
5. Kulaman River/ Water Falls	Sitio Supon, Nacabuklad	- Nature	- River and Landscape/ Falls	- Nature Tourism	- Trekking/ Spelunking, Swimming, Picnic	- Existing
6. Mawe-I River/ Waterfalls	Sitio Mawe-I, Little Baguio	- Nature	- River and Landscape/ Falls	- Nature Tourism	- Site Seeing, River Trekking	- Existing
7. Cayaga Wildlife and nature park/ LCA	Cayaga	- Nature	- Nature and trail Paths/ Other Natural Attractions	- Nature Tourism	- Camping, Nature Site Seeing, Tarsier Watching	- Emerging/ LCA
8. Kalinawan Culture and Arts Preservation (Local Conservation Area for Culture and Tradition)	Sitio kalinawan, Kibongcog	- Customs and Tradition	- Local Culture and Tradition (includes social practices and rituals) and Performing Arts (folk, music and dance)  - Mountain/ Falls/ River and Land Scape, nature trail and path/	- Cultural Tourism  - Nature Tourism	- Culture Emersion  - Nature adventure, camping, spelunking/, trekking, wildlife sanctuary	- Potential  - Potential

			camping ground/ other natural attractions			
9. Mission Culture and Arts Preservation Center	Sitio Simsimon, Kalagangan	- Customs and Tradition - Nature	- Local Culture and Tradition - River/ waterfalls	- Cultural Tourism - Nature Tourism	- Culture Emersion - River Trekking	- Existing
10. Bangkakawan Festival	Halapitan	- Customs and Tradition	- Festivals	- Cultural Tourism	- Cultural festival	- Existing
11. Mauswagon Caves	Sitio Saging, Little Baguio	- Nature	- Caves	- Nature Tourism	- Caving	- Existing
12. Sacramento Valley Caves	Purok 2, Sacramento Valley	- Nature	- Caves	- Nature Tourism	- Caving	- Existing
13. Sam's Resort	Kalagangan	- Sports and Recreational Facilities	- Resort/ Pools and Spring	- Leisure and Entertainment Tourism	- Swimming Pool	- Existing/ Private Owned
14. Executive/ Legislative Halls and Public Facilities	Halapitan	- History and Culture	- Structures and Buildings	- Cultural Tourism	-	- Existing
15. One Town, One Product/ Negosyo Center	Halapitan	- Shopping	- Shopping	- Cultural Tourism	- Souvenir, Shopping, Handicrafts Benchmarking	- Existing
16. Municipal Gymnasium	Halapitan	- Sports and Recreational Facilities	- Structure and Buildings	-	- Meetings, Incentives, Conventions, Exhibits (MICE)	- Existing

Source: *Economic Enterprise*



*Tourism Function Hall, San Fernando Eco-adventure Park and Resort*



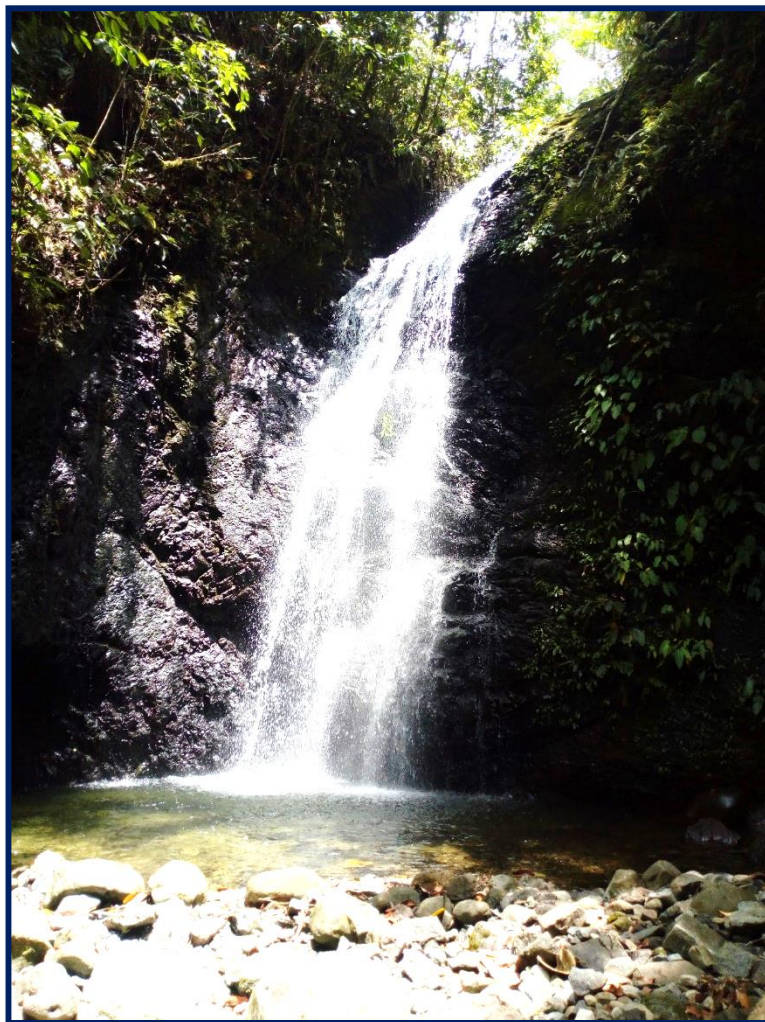
*Tourism kiddie Pool, San Fernando Eco-adventure Park and Resort*



*Tourism Adult Pool, San Fernando Eco-adventure Park and Resort*



*Sea of Clouds at Bonggalo Hill, Sitio San Isidro, Halapitan, San Fernando, Bukidnon*



*Magkalungay Falls, Magkalungay Local Conservation Area San Fernando, Bukidnon*



*Tourism & Business Assistance Center  
San Fernando Municipal Public Market*

**Table 3.108**  
**Tourist Consolidated Data Summary**  
**San Fernando Eco-Adventure Park and Resort**  
**2018**

Month	Number of Tourist		Monthly Total
	Male	Female	
January	134	102	236
February	32	31	63
March	113	127	240
April	356	340	696
May	495	549	1044
June	576	425	1001
July	425	321	746

Table 3.107 also shows identified indoor and outdoor sport facilities like the Municipal Gymnasium and Municipal Tennis Court that are mostly attracted by sports minded town residents which are usually crowded during morning and after working hours and during weekends.

Other tourist destinations are the identified natural attractions found in remote areas of different barangays which includes river, water falls, overviews, tree park, vegetation and caves that are best for hiking, trail, swimming, trekking, spelunking, biking, site seeing, camping, mountain climbing, jogging and picnic. Unfortunately, these potential natural attractions has poor road networks, less support facilities and no proper documentations of tourist and visitors but the good side is, these are allowed to be visited for free. Once the development be prioritized, it could be a source of revenues in due time.

The municipality is also rich for culture and tradition tourism. The preservation of culture and arts has great potential for emersion and research. Attractions includes IP villages from different barangays as shown in Table 3.109, Potential Culture Preservation wherein foreign tourists mostly attracted as it potentially supported their desire to conduct emersion, research or studies, fellowship, community services, ethnical detail discoveries

and other cultural features and activities. During the emersion, the LGU identified issues like the need of technical, livelihood programs and support facilities that would enhance the living condition of indigenous people (IPs).

Other cultural attractions that being yearly witnessed by tourists are town festivals like Bankakawan, Araw ng San Fernando, and Fiesta ng San Fernando wherein cultural presentation and street dancing are being highlighted. There are also different activities conducted during these events that are to be participated by both residents, visitors and tourists especially ballgames, motocross and other contest activities.

**Table 3.109**  
**Potential Culture Preservation (Including Festivals)**  
**San Fernando, Bukidnon**  
**2018**

Name of Attractions	Location/s	Date of Activity	Activities
Salumayag IP Village	Sitio Salumayag, Halapitan		Emersion
Kibongcog IP Village	Kibongcog		Emersion
Bonacao IP Village	Bonacao		Emersion
Kalagangan IP Village	Sitio Simsimon, Kalagangan		Emersion
Bankakawan Festival	Halapitan	June	Culture presentation, street dancing
Araw ng San Fernando	Halapitan	June 17-18 (Yearly)	-Ball games -business sector night, -senior citizen day - inter-faith night, -farmers achievement day, -marathon -variety show (PWUDs and youth -tree planting -LGU night -dance sports, -motocross -Miss San Fernando beauty pageant -tribal day -foam party -night café with acoustic band
Fiesta ng San Fernando	Halapitan	October 15-16 (Yearly)	Mutya ng San Fernando -Parade -employees night, -patron festival

Source: Economic Enterprise



## B. Goal

Enhance and develop eco-tourism in areas as tourist destinations.

## C. Problems, Causes and Impacts (Effects)

PROBLEMS	CAUSES	IMPACTS
1. Low influx of tourist	<ul style="list-style-type: none"><li>- Insurgencies</li><li>- Traditional tribal conflicts</li><li>- Lack of linkages</li></ul>	<ul style="list-style-type: none"><li>- Less number of tourist arrivals</li></ul>
2. Inadequate vegetation/ landscape	<ul style="list-style-type: none"><li>- Natural grown plants are damaged due to construction of new facilities</li></ul>	<ul style="list-style-type: none"><li>- Less natural shades</li><li>- Dryness</li><li>- High humidity</li></ul>
3. Stocked solid waste	<ul style="list-style-type: none"><li>- Long interval of waste collection</li></ul>	<ul style="list-style-type: none"><li>- Eyesore</li></ul>
4. Break even income/ expenses	<ul style="list-style-type: none"><li>- Lack/ limited outdoor recreation tourism facility</li></ul>	<ul style="list-style-type: none"><li>- Low income from tourism</li><li>- The revenue earned from the tourism business seldom is beneficial to the local population if there is no accommodation or less accommodation establishment</li></ul>
5. No regular route	<ul style="list-style-type: none"><li>- No traffic management council</li></ul>	<ul style="list-style-type: none"><li>- Long waiting time/ expensive</li></ul>
6. Most tourist stays overnight on neighboring cities	<ul style="list-style-type: none"><li>- Lack of accommodation</li></ul>	<ul style="list-style-type: none"><li>- Less overnight stay of tourist</li></ul>
7. No 24/7 convenience store and inadequate of ATM Unit	<ul style="list-style-type: none"><li>- Social interferences pulling down investors to invest</li></ul>	<ul style="list-style-type: none"><li>- Hinders tourist to stay overnight</li></ul>
8. No plantilla position for manage staff and not yet separated as LGU-Economic Enterprise	<ul style="list-style-type: none"><li>- Municipal Tourism Office not yet created</li></ul>	<ul style="list-style-type: none"><li>- No proper duties and responsibilities of tourism personnel</li></ul>
9. No proper environmental preservation, protection and regulation	<ul style="list-style-type: none"><li>- Deforestation, wildlife hunting</li></ul>	<ul style="list-style-type: none"><li>- Promotes vandalism and littering</li><li>- It makes way for destruction of wildlife and vegetation</li><li>- It invites air and water pollution</li><li>- It creates a large carbon footprints</li></ul>
10. Inappropriate livelihood programs for occupants within surrounding areas	<ul style="list-style-type: none"><li>- Lack of livelihood programs</li></ul>	<ul style="list-style-type: none"><li>- It creates a sense of dependency on the natural resources</li><li>- Low income from tourism</li><li>- Less number of tourist arrivals</li></ul>
11. Inadequate tourism infrastructure	<ul style="list-style-type: none"><li>- Insurgencies</li><li>- Traditional tribal conflicts</li></ul>	<ul style="list-style-type: none"><li>- Undeveloped tourist spots</li></ul>

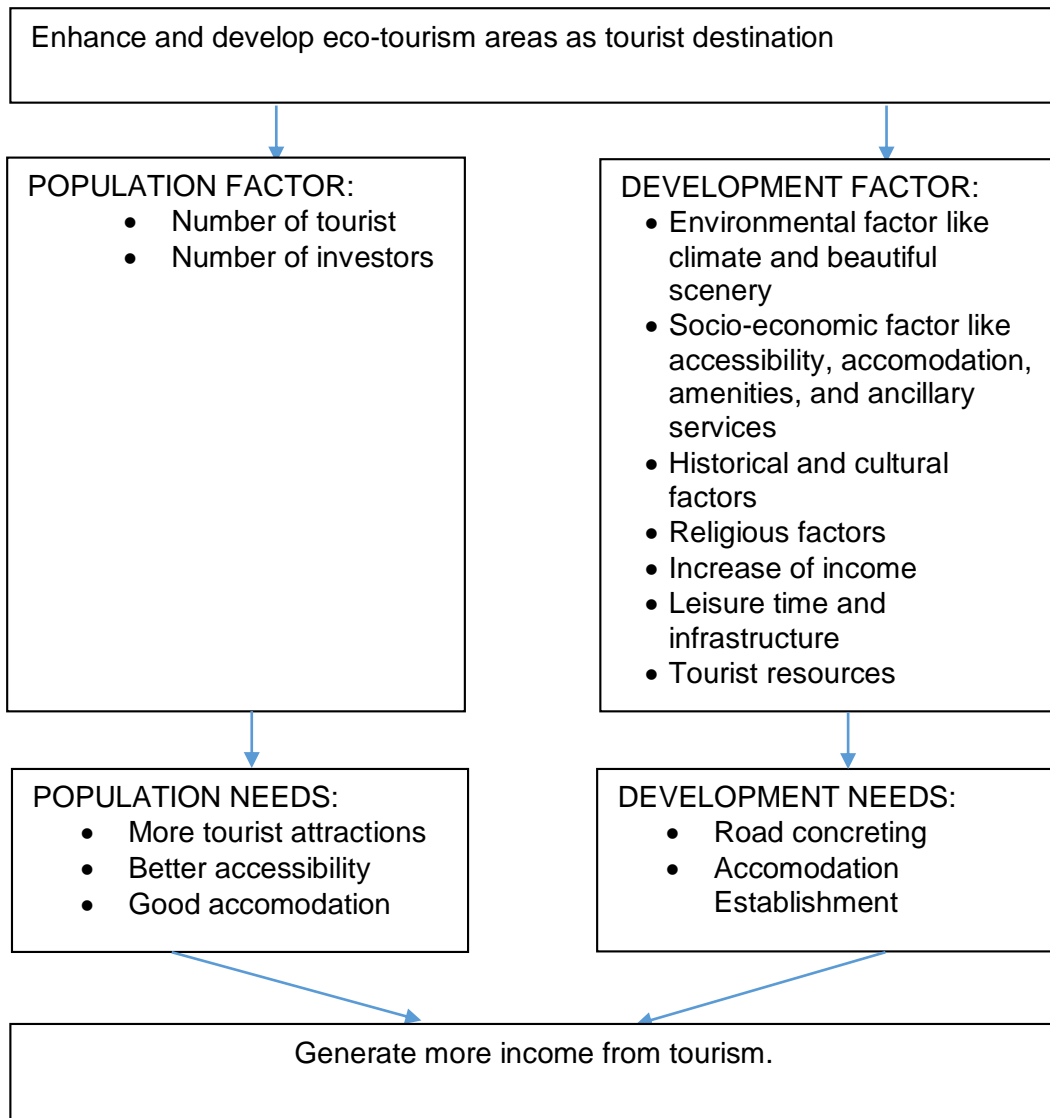
#### D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Low influx of tourist	- To attract local and international tourists	- Develop identified tourism sites and to conduct citation and discovery for any futuristic tourism area to different barangays of the municipality - Intensify promotion campaign - LGU tourism office to develop marketing strategies to help generate revenue, create job opportunities and generates opportunities for small scale local businesses	-
2. Inadequate vegetation/ landscape	- Provide adequate vegetation and landscape	- Allocate budget for vegetation and landscaping - Conduct proper planning and prepare site development plan - Consult skilled personnel to initiate vegetation and landscaping	-
3. Stocked solid waste	- Attain clean and green environment	- Cooperate the Solid Waste Management office for the regular collection of garbage	-
4. Break even income/ expenses	- Generate high revenue	- Construct additional infrastructures to attract tourist - Develop potential tourist spots - Establish unique spot views that will attract tourists	-
5. No regular route	- Provide good access to major highways	- Establish Traffic Management Council - Construct transportation projects - Source out fund from NGAs and private sectors	-
6. Most tourist stays overnight on neighboring cities	- Attract the tourists to stay long in our place	- Encourage potential investors on accommodation establishment	-

7. No 24/7 convenience store and inadequate of ATM Unit	- Provide convenience to tourists	- Encourage business investors to put up 24/7 store - Encourage bank institution to put more ATM unit in strategic locations.	-
8. No plantilla position for manage staff and not yet separated as LGU-Economic Enterprise	- To provide effective implementation of tourism programs and projects and conduct proper documentation of tourists and visitors	- Hiring of permanent tourism officer	-
9. Lack of proper environmental preservation, protection and regulation	- To promote investment in conservation of natural habitats	- Create Municipal Tourism Office - Conduct and implement regulation and policies that are friendly to both site residents and tourists - Provide livelihood programs for occupants within surrounding areas	-
10. Inappropriate livelihood programs for occupants within surrounding areas	- Provide extra income to neighboring occupants	- Conduct various livelihood programs - Continuous monitoring of livelihood activities of the beneficiaries - Regulate the people to minimize the use of the natural resources	-
11. Inadequate tourism infrastructure	- Develop tourist spots	- Construct tourism infrastructure and facilities to support tourist attractions	-

## E. Situational Analysis Framework

### SA FRAMEWORK



# 5

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## INFRASTRUCTURE AND UTILITIES

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## 5. INFRASTRUCTURE AND UTILITIES SECTOR

### 5.1 Major Sector Goal

Provide efficient infrastructure facilities and utilities.

### 5.2 Major Sector SWOT Matrix

<p><b>ECONOMIC SECTOR</b></p> <ul style="list-style-type: none"> <li>- Transportation</li> <li>- Power</li> <li>- Water</li> <li>- Communication</li> <li>- Solid Waste Management</li> </ul>	<p><b>STRENGTHS</b></p> <ol style="list-style-type: none"> <li>1. Availability of PT &amp; T telephone public calling office telegraph and postal stations and PT &amp; T telephone</li> <li>2. Available and functional provincial, municipal, barangay radio communication system.</li> <li>3. Abundance of water resources.</li> <li>4. Presence of natural drainage.</li> <li>5. Available electric power services</li> <li>6. Favorable topography.</li> <li>7. Presence of farm to market roads</li> <li>8. Large creeks and numerous springs for irrigation.</li> </ol>	<p><b>WEAKNESSES</b></p> <ol style="list-style-type: none"> <li>1. Limited infrastructure support facilities.</li> <li>2. Lack of heavy equipments.</li> <li>3. Limited budget to fund infra projects.</li> <li>4. Lack of maintenance of existing canal.</li> <li>5. Non-cooperation of power consumers.</li> <li>6. Obsolete water system.</li> <li>7. Absence of bridge in far flung barangays</li> <li>8. Undesirable communication facilities</li> <li>9. Limited manpower.</li> <li>10. Power shortage and frequent blackouts.</li> <li>11. Deterioration of barangay roads weaknesses.</li> <li>12. Limited drainage system to guide the flow of water into the natural drainage.</li> </ol>
<p><b>OPPORTUNITIES</b></p> <ol style="list-style-type: none"> <li>1. Modernization of water system.</li> <li>2. Proposed construction of east-west lateral road networks.</li> <li>3. Built-operate-transfer (BOT) scheme</li> </ol>	<p><b>SO STRATEGIES</b></p> <ol style="list-style-type: none"> <li>1. To improve existing infrastructure services and facilities in order to facilitate movement of people and goods.</li> </ol>	<p><b>WO STRATEGIES</b></p> <ol style="list-style-type: none"> <li>1. To avail of loans from any government lending institutions for the purchase of heavy equipments.</li> <li>2. Prioritize infrastructure projects for funding.</li> </ol>

<p>4. Proposed establishment of long distance telephone system</p> <p>5. Positive political linkages.</p>		
<p><b>THREATS</b></p> <p>1. National policy imposed by national agency (no hiring).</p> <p>2. Natural and manmade disasters/hazards.</p>	<p><b>ST STRATEGIES</b></p> <p>1. Conduct upgraded technical skills training.</p> <p>2. Establish of modern communication system.</p>	<p><b>WT STRATEGIES</b></p> <p>1. To prioritize the implementation of programs and projects according to their critically or urgency and the financial capability of the local government unit.</p>

## 5.3 INFRASTRUCTURE/ UTILITIES SUB-SECTOR STUDIES

### 5.3.1 TRANSPORTATION

#### A. Situational Analysis

Based on the 2018 inventory of roads, the municipality is traversed by a total of 242.23 kilometers of road. Majority or 60.76% are barangay roads that connect the interior barangays to the poblacion and other areas within and outside the municipality. However, these roads are still gravelled and earth filled. In contrast, municipal or urban roads cover the least 12.32% of the total road network which covers only 4.58%. With the road network as one indicator whether a settlement is well formed or not, it can be said that the urban settlement is still at its primary stage. See Table 3.110

**Table 3.110**  
Road Network by Classification and Type of pavement  
San Fernando, Bukidnon  
2018

Classification	Total Length	Percent to Total	Type of Pavement		
			Concrete	Gravel	Earth Fill
National	54.13	22.35%	54.13		
Provincial	11.09	4.58%	0.48	10.61	
Municipal	29.84	12.32%	29.84	19.96	9.88
Barangay	147.17	60.76%	6.91	51.02	89.24
<b>Total</b>	<b>242.23</b>		<b>91.36</b>	<b>81.59</b>	<b>99.12</b>

Source: Municipal Engineering Office



*National Highway along Sitio Sulog of Barangay Halapitan*



National road which provides external linkage to other municipalities of Bukidnon and Davao del Norte, is concretely paved. Few of barangay and municipal road networks are also concretely paved but only in poblacions.

In support to the road network are three types of bridge namely: footbridge, spillway and box culvert, with a total length of 1,262 linear meters and all in good/serviceable conditions. It exclude the bridges along the national road. See Table 3.111

Types of transportation traversing the municipality are limited to public utility jeepney that provides access to the key centers of the province and motorcycles locally called “habal-habal” that links the interior barangays to the urban core or poblacion. Table 3.112 shows the approximate road distances of every barangay to the town center of San Fernando, the Halapitan Poblacion. However, in year 2018, transportation is newly routed with public buses from Valencia City to San Fernando and vice versa. Some local dwellers have their own service vehicles to transport goods in and outside the municipality especially for farm products. People of San Fernando are now enjoying the convenient of travelling along the concrete paved national road.

**Table 3.111**  
**Inventory of Bridges by Type**  
**San Fernando, Bukidnon**  
**2018**

Type	No. of Bridges	Total Length (meters)	Condition
Footbridge	11	1,110	Good/Fair
Spillway	5	65	Good
Box Culvert	7	87	Good
<b>Total</b>	<b>23</b>	<b>1,262</b>	<b>Good</b>

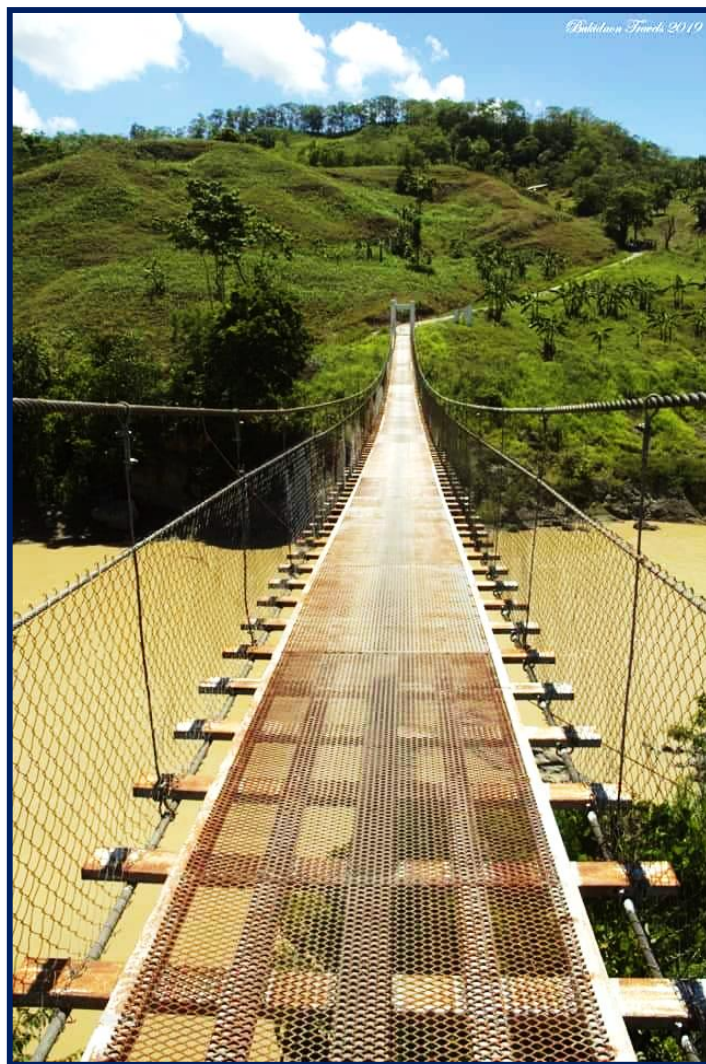
Source: Municipal Engineering Office



**Mawie Bridge along National Highway at Purok 1, Poblacion, Halapitan, San Fernando, Bukidnon**



*Mabuhay Bridge along National Highway at Barangay Mabuhay, San Fernando, Bukidnon*



*Malayanan Foot Bridge at Barangay Malayanan, San Fernando, Bukidnon*



*Spillway Bridge at Barangay Dao, San Fernando, Bukidnon*



*Spillway Bridge at Barangay Malayanan, San Fernando, Bukidnon*



*San Fernando Municipal Public Terminal*

**Table 3.112**  
**Distance from the Urban Core, in Kilometer**  
**Municipality of San Fernando, Bukidnon**  
**2018**

Barangay	Distance in Kilometer
<b>Urban</b>	
1. Halapitan	
<b>Urbanizing</b>	
1. Candelaria	5 km
2. Kalagangan	34 km
3. Little Baguio	4 km
4. Mabuhay	4 km
5. Nacabuklad	6 km
6. Namnam	14 km
7. Sacramento Valley	7.5 km
<b>Rural</b>	
1. Bonacao	19 km
2. Bulalang	33 km
3. Cabuling	36.5 km
4. Cayaga	28 km
5. Dao	30 km
6. Durian	39 km
7. Iglugsad	16 km
8. Kawayan	8.5 km
9. Kibongcog	21 km
10. Magkalungay	12 km
11. Malayanan	11 km
12. Matupe	44 km
13. Palacpacan	27 km
14. San Jose	24 km
15. Sto. Domingo	22 km
16. Tugop	10 km

Source: MPDO

In terms of drainage system, only in the Poblacion we can find man made drainage that drains into Tigwa and Mawie Rivers. Outside of the poblacion drainage systems are not delineated and water seeks its own level.

To provide convenience and more access in transporting goods and people, a total of 149.95 kilometers urban/urbanizing roads will be needed within the first five (5) years of the planning period as specified in Table 3.113.

For rural or farm-to-market roads, a total of 147.17 kilometer road will provide access to the total projected 27,995.17 hectares of arable lands within the 10 years planning period.

**Table 3.113**  
**Projected Urban – Urbanizing Areas Road Requirements**  
**San Fernando, Bukidnon**  
**2019-2028**

Year	Population	Road Requirement
2019	61,124	146.70
2020	62,438	149.85
2021	63,780	153.07
2022	65,152	156.36
2023	66,552	159.72
2024	67,983	163.16
2025	69,445	166.66
2026	70,938	170.25
2027	72,463	173.91
2028	74,021	177.65

Standard Requirement: 2.4 km per 1000 population  
Source: Municipal Engineering Office

## B. Goal

Provide better transportation services and facilities to uplift the quality of life of the people.

## C. Problems, Causes and Impacts (Effects)

PROBLEMS	CAUSES	IMPACTS
1. Limited maintenance of municipal and barangay roads	- Insufficient budget for maintenance and constructions of transportation facilities	- High fare cost - Difficulty in product transportation - Slow economic growth
2. Existence of footbridges instead of permanent or fixed bridges or drainage system.	- Insufficient fund and lack of prioritization -	- Slow economic growth

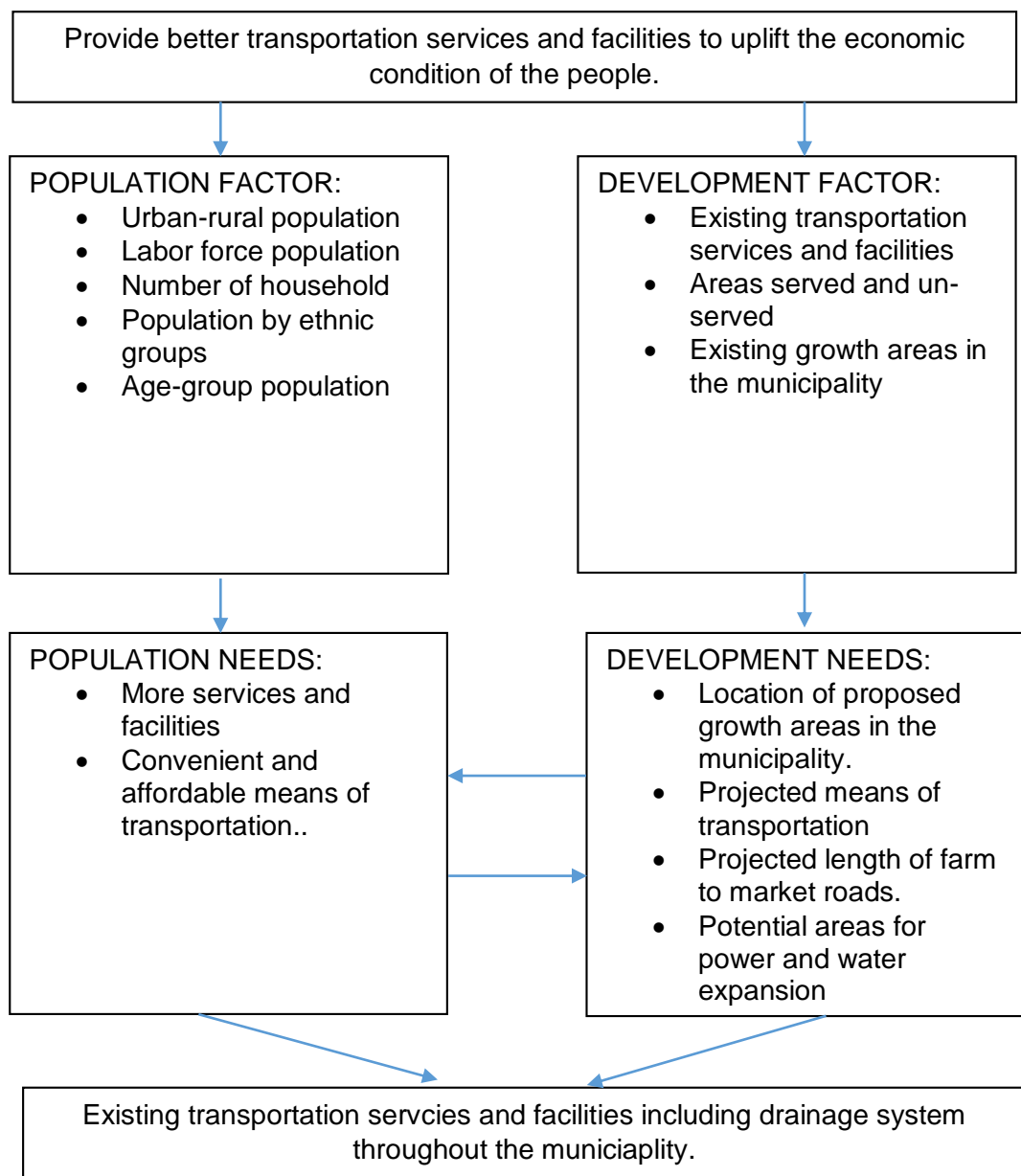
## D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
1. Limited maintenance of municipal and barangay roads	- To provide accessible road networks	- Budget allocation for road maintenance	Provide regular allocation/ budget for the maintenance of

			municipal brgy roads
2. Existence of footbridges instead of permanent or fixed bridges or drainage system.	- To ensure safety of the people	- Construct long term projects	Provide SB resolution asking for budgetary support from the provincial and national government and other concern agency

### E. Situational Analysis Framework

#### SA FRAMEWORK



## 5.3.2 POWER

### A. Situational Analysis

Power supply in the municipality of San Fernando is managed by First Bukidnon Electric Cooperative which hydraulically generated from the municipality of Maramag.

As shown in Table 3.114, it is compared that every year, the number of energized household is gradually increasing. Out of 13,601 number of household in year 2018, there are 7,102 households or around 52.22% are being energized. Most of these are distributed in the urban and urbanizing barangays. The least number of energized households are in barangay Bulalang. However, in terms of participation rate, Halapitan has the highest rate of 79.64%. This tend to show that the higher the participation rate, the more number of households are energized in each barangay. It is cleared also that electricity in the municipality of San Fernando becomes a necessity even in the most remote areas of hinterland barangays due to the needs of delivering sufficient services in all sectors especially for the development of health services, economic growth and risk reduction management.



*FIBECO San Fernando Collection Center @ Purok 1 of Barangay Halapitan*

Issues regarding illegal wiretapping is largely existed due to either delayed connection of separate electric meters or limited finances to have separate connections.

Aside from residential consumers which covers the bigger 87.99% chunk of the total numbers of consumers, commercial consumers ran second, both in number of establishments and average consumption.

In terms of services, power fluctuations and unscheduled brownouts still occur from time to time but generally caused by the power provider, either due to lack of maintenance along light of ways of power lines or from major power distribution lines in the hinterlands.

**Table 3.114**  
**Number of Household Served by Electricity for the Past Three Years**  
**San Fernando, Bukidnon**  
**2018**

Barangay	Number of HH Served			Number of HH in 2018	Number of Unserved HH	Participation Rate
	2016	2017	2018			
<b>Urban</b>						
1. Halapitan	1,876	1,928	1,972	2,476	504	79.64
<b>Urbanizing</b>						
1.Candelaria	121	124	131	220	89	59.55
2.Kalagangan	412	551	573	1,349	776	42.48
3.Little Bagoio	726	739	751	1,178	427	63.75
4.Mabuhay	458	466	472	747	275	63.19
5.Nacabuklad	234	238	248	303	55	81.85
6.Namnam	452	462	475	922	447	51.52
7.Sacramento Valley	260	263	267	453	186	58.94
Sub-total	2,663	2,843	2,917	5,172	2,255	56.40
<b>Rural</b>						
1. Bonacao	151	153	154	482	328	31.95
2. Bulalang	47	47	47	162	115	29.01
3. Cabuling	48	48	48	203	155	23.65
4. Cayaga	112	113	113	313	200	36.10
5. Dao	64	64	64	482	418	13.28
6. Durian	100	100	100	235	135	42.55
7. Iglugsad	157	161	166	393	227	42.24
8. Kawayan	256	261	262	431	169	60.79
9. Kibongcog	100	108	109	469	360	23.24
10. Magkalungay	194	195	197	614	417	32.08
11. Malayanan	136	162	175	302	127	57.94
12. Matupe	81	98	98	514	416	19.07
13. Palacpacan	98	100	100	342	242	29.24
14. San Jose	51	52	52	236	184	22.03
15. Sto. Domingo	196	225	227	370	143	61.35
16. Tugop	299	301	301	405	104	74.32
Sub-total	2,090	2,188	2,213	5,953	3,740	37.17
<b>Total</b>	<b>6,629</b>	<b>6,959</b>	<b>7,102</b>	<b>13,601</b>	<b>6,499</b>	<b>52.22%</b>

Source: MEO

## B. Goal

Improve power services.

## C. Problems, Causes and Impacts (Effects)

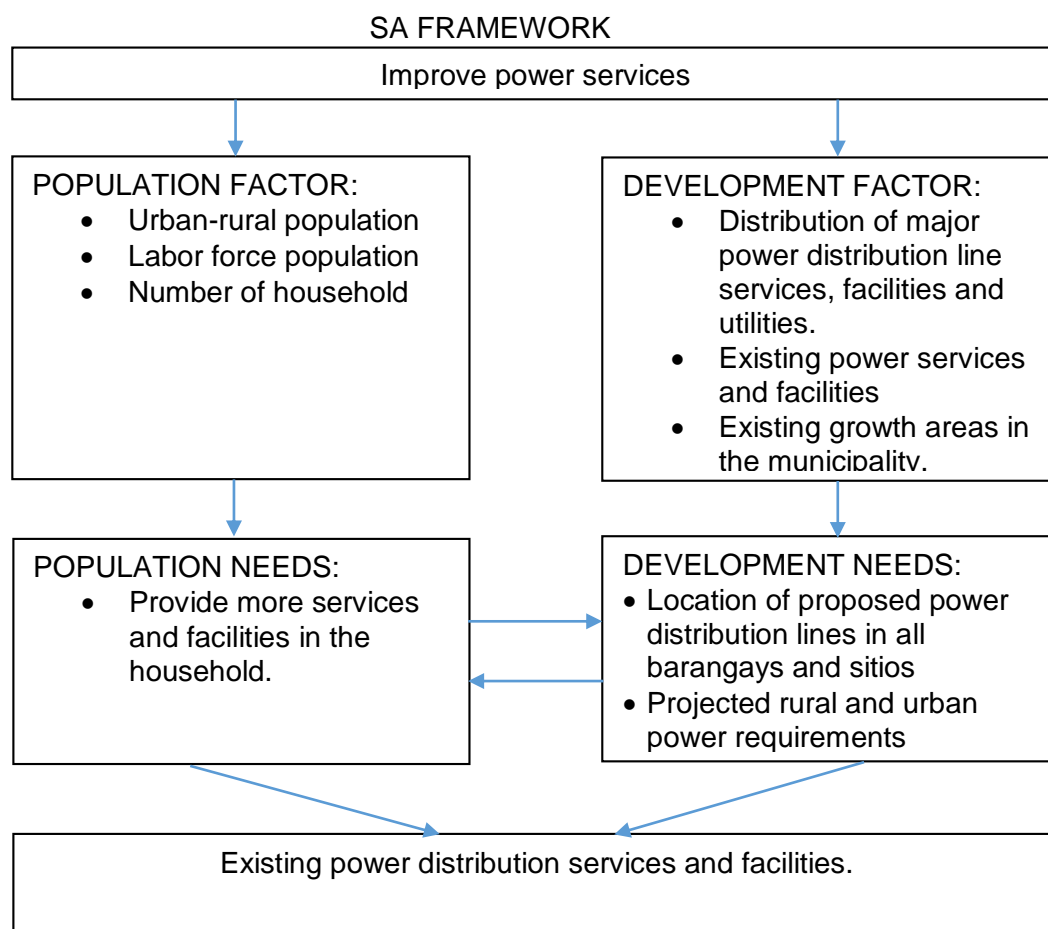
PROBLEMS	CAUSES	IMPACTS
Inadequate hydro-power supply	<ul style="list-style-type: none"> <li>- Denuded watershed.</li> <li>- Limited of distribution lines expansion urbanizing and rural barangays.</li> <li>- Sporadic location of subscribers costly for expansion of distribution.</li> </ul>	<ul style="list-style-type: none"> <li>- Low income.</li> <li>- Slow economic activities</li> </ul>
Non-payment of power provider to LGU for the right of way of power	<ul style="list-style-type: none"> <li>- Income assessment of right of way (ROW)</li> <li>- Incomplete tax assessment of road-right-of-ways of power of lines</li> </ul>	<ul style="list-style-type: none"> <li>- Limited income of LGU</li> </ul>
Un-tapped water sources for hydro power	<ul style="list-style-type: none"> <li>- Financial constraints of the LGU</li> <li>- Non-linkage with power utilities for a comprehensive study</li> </ul>	<ul style="list-style-type: none"> <li>- Limited socio-economic activities</li> <li>- Limited sources of income.</li> </ul>



## D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
Inadequate hydro-power supply	<ul style="list-style-type: none"> <li>- Provide adequate hydro-power supply</li> <li>- Provide additional lines to urbanizing and rural barangays</li> </ul>	<ul style="list-style-type: none"> <li>- Reforest denuded area</li> </ul>	<ul style="list-style-type: none"> <li>- Prepared comprehensive study for possible funding</li> </ul>
Non-payment of power provider to LGU for the right of way of power	<ul style="list-style-type: none"> <li>- Developed potential hydro-power sources</li> </ul>	<ul style="list-style-type: none"> <li>- Coordinate with DENR and FIBECO for preparation and implementation of reforestation of plan</li> <li>- Identify other power sources</li> </ul>	<ul style="list-style-type: none"> <li>- Link with power utilities for possible development of source</li> </ul>
Un-tapped water sources for hydro power	<ul style="list-style-type: none"> <li>- Payment of road right of way taxes</li> </ul>	<ul style="list-style-type: none"> <li>- Complete assessment of road right of way for power distribution lines</li> <li>- Coordinate with FIBECO for payment of assessment taxes</li> </ul>	<ul style="list-style-type: none"> <li>- Prepare resolution/ ordinance for the imposition of assessment of taxes.</li> </ul>

## E. Situational Analysis Framework



### 5.3.3 WATER

#### A. Situational Analysis

The municipality has abundant water sources scattered in all barangays but not all of them have been tapped to supply potable water to the people.

In year 2018, the total household number projection based on the Census population 2015 could reached to 13,211. As of the present, water supply in different barangays of San Fernando is provided by Level I, Level II and Level III water systems. A total of 11,670 households served with the said water.

. Level I water system such as shallow and deep well and the use of jetmatic pump are commonly present in remote areas of rural barangays. Direct source from flowing river or spring are also included in this system. With no other option, mostly indigenous people are adapted in this kind of system not knowing of the possible risk that may affect the health of the people especially the children and the poor sanitation that may suffered by the individual. To minimize the situation, as water is the basic need of the community, the government prioritized the provision and installation of Level II water system such as communal faucet to minimize the difficulty of seeking clean water of such barangays that are far from potable water source. Table 3.115 shows the list of barangays benefited the newly constructed level II potable water system-gravity driven implemented by government project of KALAHY-CIDDS and private company donation of Joint Together Society (JTS).

**Table 3.115**  
**Newly Constructed Level II Potable Water System (Gravity Driven)**  
**San Fernando, Bukidnon**  
**2018**

Barangay	Implementation
Bonacao	KALAHY-CIDDS
Little Baguio	KALAHY-CIDDS
Mabuhay	KALAHY-CIDDS
Cabuling	KALAHY-CIDDS
Sacramento Valley	KALAHY-CIDDS
Kibongcog	KALAHY-CIDDS
Namnam	KALAHY-CIDDS
Palacpacan (Sitio Bayog)	Joint Together Society (JTS)

Source: MEO

It is shown in Table 3.116 that Level II communal faucet has the most number of household served with 6,841 or 58.62% of the total household. Faucets were distributed strategically installed in crowded but protected locations. Maintenance and protection were shouldered by the barangay officials and community volunteers to ensure sustainability of the facility. Because of the affordability and availability of the system, it gradually decreased the drive of the remote area settlers to rely on the level I water system. There is no data of level I water system beneficiaries in the past 3-5 years but the table shows that in year 2018, the share percentage of 16.52 is less than half of the Level II beneficiaries.

In urban and urbanizing barangays, it is important for the settlement areas especially the commercial establishment requirement to upgrade the potable water system into level III. Budget allocation for water system is one of the major priorities of the LGU. Aside from ensuring the good health and better sanitation and development and improvement of the basic infrastructure services, it could also contribute to the economic growth and likely to increase the collectibles of the municipality.



**Table 3.116**  
**Number of Households Served by Level I Water System**  
**San Fernando, Bukidnon**  
**2018**

Barangay	Total Number of HH Served	Level I		Level II		Level III
		Direct Source (HH)	Jetmatic Pump (HH)	Communal Faucet (HH)	Number of Faucet (Unit)	Household Faucet (HH)
<b>Urban</b>						
1. Halapitan	2,160	507	319	924	231	410
	17.76%	34.82%	67.58%	13.51%		14.13%
<b>Urbanizing</b>						
1. Candelaria	194	24		96	4	74
2. Kalagangan	1,160	18	10	683	170	449
3. Little Baguio	1,024	349	19	504	126	152
4. Mabuhay	653	105		380	95	168
5. Nacabuklad	270	23		198	50	49
6. Namnam	797	57	30	644	161	66
7. Sacramento Valley	394	91		269	68	34
Sub-total	4,492	667	59	2,774	674	992
Percent to Total	38.49	45.81%	12.5%	40.55%		34.20%
<b>Rural</b>						
1. Bonacao	420	9	46	160	40	241
2. Bulalang	153	7		136		10
3. Cabuling	191	26	19	78	20	68
4. Cayaga	264	43	16	124	31	81
5. Dao	412	3		141	35	268
6. Durian	198	1	11	94	24	92
7. Iglugsad	340	4	2	273	67	61
8. Kawayan	356	2	-	314	79	40
9. Kibongcog	387	20	-	275	69	92
10. Magkalungay	507	16	-	241	60	250
11. Malayanan	249	12	-	107	27	130
12. Matupe	424	18	-	365	91	41
13. Palacpacan	282	60	-	222	55	-
14. San Jose	195	30	-	113	28	52
15. Sto. Domingo	306	22	-	250	63	34
16. Tugop	334	9	-	250	62	75
Sub-total	5,018	282	94	3,143	711	1,535
	43.0%	19.37%	19.92%	45.94%		52.91%
<b>Total</b>	<b>11,670</b>	<b>1,456</b>	<b>472</b>	<b>6,841</b>	<b>1,690</b>	<b>2,901</b>
<b>Percent to total</b>		<b>12.48%</b>	<b>4.04%</b>	<b>58.62%</b>		<b>24.86%</b>
Number of Household in 2018	13,211					
Number of Household not identified	1,541					

Source: MEO

As of the present there are 2,901 households or 24.86% of the total household served with Level III potable water system. Few part of the system is under construction while major part is under observation and maintenance to ensure that the services is sustainable and in good condition. The local water utility that serves the urban households is managed by the Economic Enterprises Section of the Local Government Unit with a minimum rate of 50 pesos per 10 cubic meter and additional 2 pesos per cubic meter in excess. Income derived from water system, goes to the improvements and maintenance of the reservoir and the distribution of 231 faucets strategically located in Halapitan. Income and expenses are breakeven due to high maintenance cost. One factor that affect the situation is weather condition, material quality and standard, and absence of Local Water Utility Office that will focus the system maintenance and stability.

Within the next 10 years, it is expected that the Level I water system will be upgraded to Level II and by year 2020, per capita requirement will be 3,746.28 cubic meter which will increase by 17.42% by year 2028 (Table 3.117)

**Table 3.117**  
**Projected per Capita Water Requirements**  
**San Fernando, Bukidnon**  
**2019-2028**

Year	Total Population	Total Requirements (cubic meter)
2019	61,124	3,667.44
2020	62,438	3,746.28
2021	63,780	3,826.80
2022	65,152	3,909.12
2023	66,552	3,993.12
2024	67,983	4,078.98
2025	69,445	4,166.70
2026	70,938	4,256.28
2027	72,463	4,347.78
2028	74,021	4,441.26

Source: MEO

There are 42 undeveloped springs scattered in the municipality waiting to be developed. If fully developed potable water supply will be able to cater to the total water needs of the population, including the agricultural requirements.

## B. Goal

Provide adequate potable water supply throughout the municipality.

## C. Problems, Causes and Impacts (Effects)

PROBLEMS	CAUSES	IMPACTS
Inadequate potable water supply throughout the municipality	- Undeveloped water source.	- Slow economic activities
Absence of Local Water Utility Office	- Absence of local ordinance creating water district	- No prioritization of the maintenance services
Low collection efficiency of water consumption payments	- High maintenance cost	- Low income

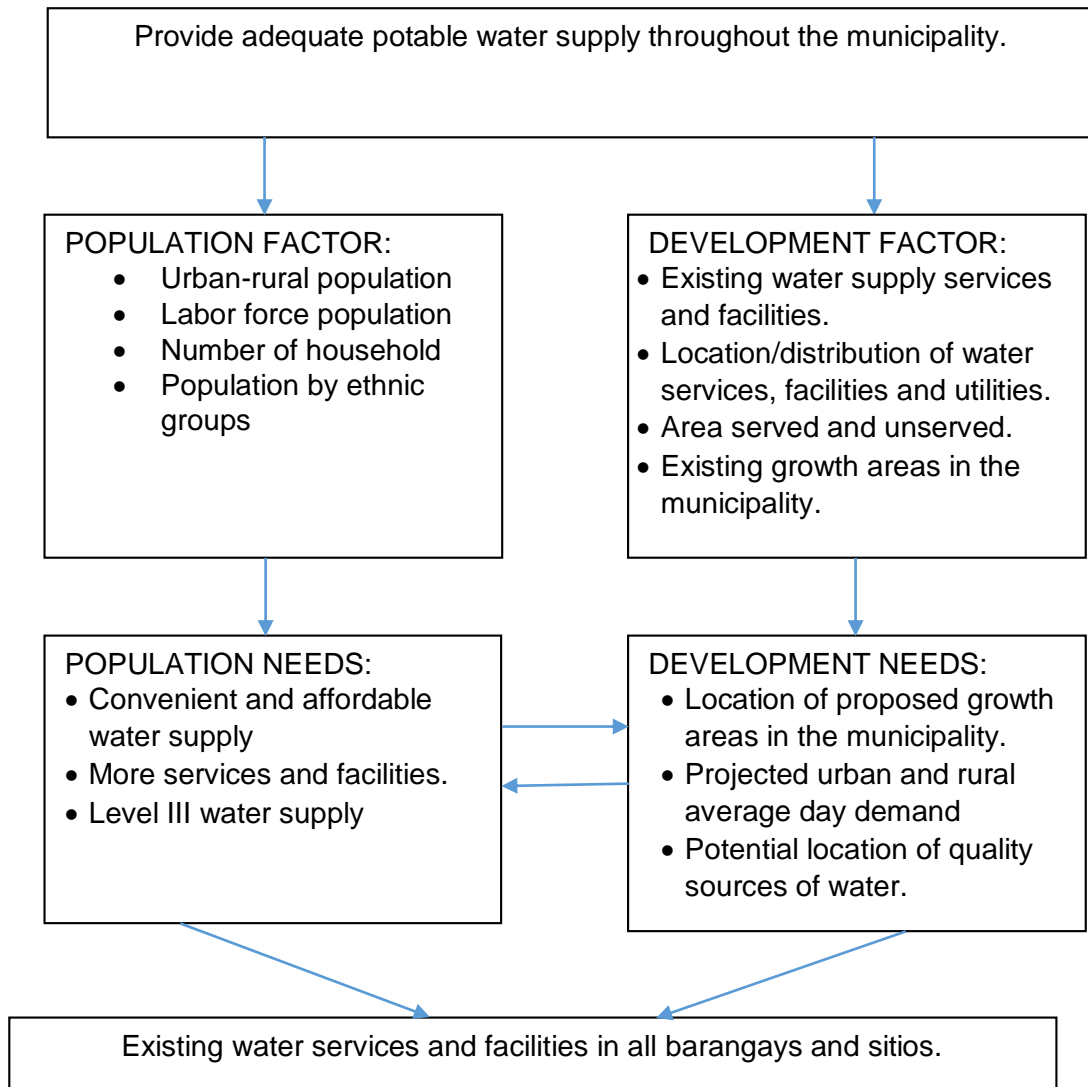
## D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
Inadequate potable water supply throughout the municipality	- Provide adequate water supply for domestic and other uses	- Identify water sources feasible for development. - Conduct an inventory of existing water system and upgrade them - Monitor conditions of existing water systems for upgrading.	- Formulate a Local Ordinance for the creation of the Local Water District complete with budgetary requirements. - Imposed penalties surcharges for non-payment of water consumption

		- Prepare an integrated water supply master plan	through an ordinance.
Absence of Local Water Utility Office	- Create a Local Water District Office	- Prepare a staffing pattern for the Water District Office - Prepare a budgetary proposal for the proposed water district	- Formulate a local ordinance for the creation of Local Water District Office
Low collection efficiency of water consumption payments	- Provide high collection efficiency of water consumption	- Enhance existing local ordinance on water rate and penalties	- Imposed penalties for late or non-payment of water consumption

### E. Situational Analysis Framework

#### SA FRAMEWORK



## 5.3.4 COMMUNICATION

### A. Situational Analysis

Nowadays, mobile communication is the most useful and in demand way to deliver information to other places and largely become a necessity by individuals. As specified in Table 3.118, there are four network communication towers installed in the municipality of San Fernando. The two towers are owned by Smart Telecom while the other three are owned by Globe Telecom. These telecoms also provide internet services which develop online transactions with government and private sectors to other municipalities, provinces and national authorities.

Broadcast and television media covers the whole municipality since its transmitter is located at the highest peak of Bukidnon at Mt. Kitanglad, Malaybalay City. No print media exist within the municipality, and are still dependent on national and some local newspaper from other areas outside the municipality.

To ensure the delivery of information and emergency transactions to 24 barangays of San Fernando, the Municipal Disaster Risk and Reduction Management Office had installed radio communication facility. This facility serves as the radio based of the hand-held radio distributed to 24 barangays.

Meanwhile, telephone or landline service is not yet available as a means of communication in the municipality. Since it is not yet feasible for some investors to invest due to the limited number of subscribers or the highest cost or investment is very high as compared to its demand.

**Table 3.118**  
**Type and location of Communication Facilities**  
**San Fernando, Bukidnon**  
**2018**

Type of Facilities	Location
Postal Services	Poblacion Halapitan
5 Cell Sites (2- Smart and 3-Globe)	Sitio Tuburan and Poblacion of Barangay Halapitan, and Sitio Palao of Barangay Mabuhay
Internet providers (Smart and Globe)	Sitio Tuburan and Poblacion of Barangay Halapitan
Broadcast and Television (Skydirect and Cignal channels)	Outside LGU, Mt Kitanglad, Malaybalay City
Radio Based	Municipal Disaster Risk Reduction Management Office
Hand-held Radio	All Barangays

Source: MEO

As of the present, postal services located within the poblacion, still accomodates national and international out-going mails coming from the 24 barangays. Based on 2017 to 2018 inventory of mails as shown on Table 3.119, the volume of mails received has decreased by 13.445. This is due to the presence of the cellular based stations that also offer the internet services via broadband connections. In terms of area coverage not all barangays is served by the cell sites.



Globe Cell Site at Sitio Palao of Barangay Mabuhay, San Fernando, Bukidnon

**Table 3.119**  
**Current and Projected Volume of Mails Received and Dispatched**  
**San Fernando, Bukidnon**  
**2018, 2020, 2021**

Year	Received	Dispatched
2018	34,078	24,916
2020	34,251	24,834
2021	29,495	25,311

Source: San Fernando Post Office

However, with the complete construction of national road traversing within the municipality and linking to the province of Davao, the next 10 years modern communication facilities will definitely increase its number to cater to the demand of subscribers in the remote areas. Postal services will operate up to the fullest and landline telephone services will be available in the urban core and its urbanizing barangays.



## B. Goal

Enhance communication services in the municipality.

## C. Problems, Causes and Impacts (Effects)

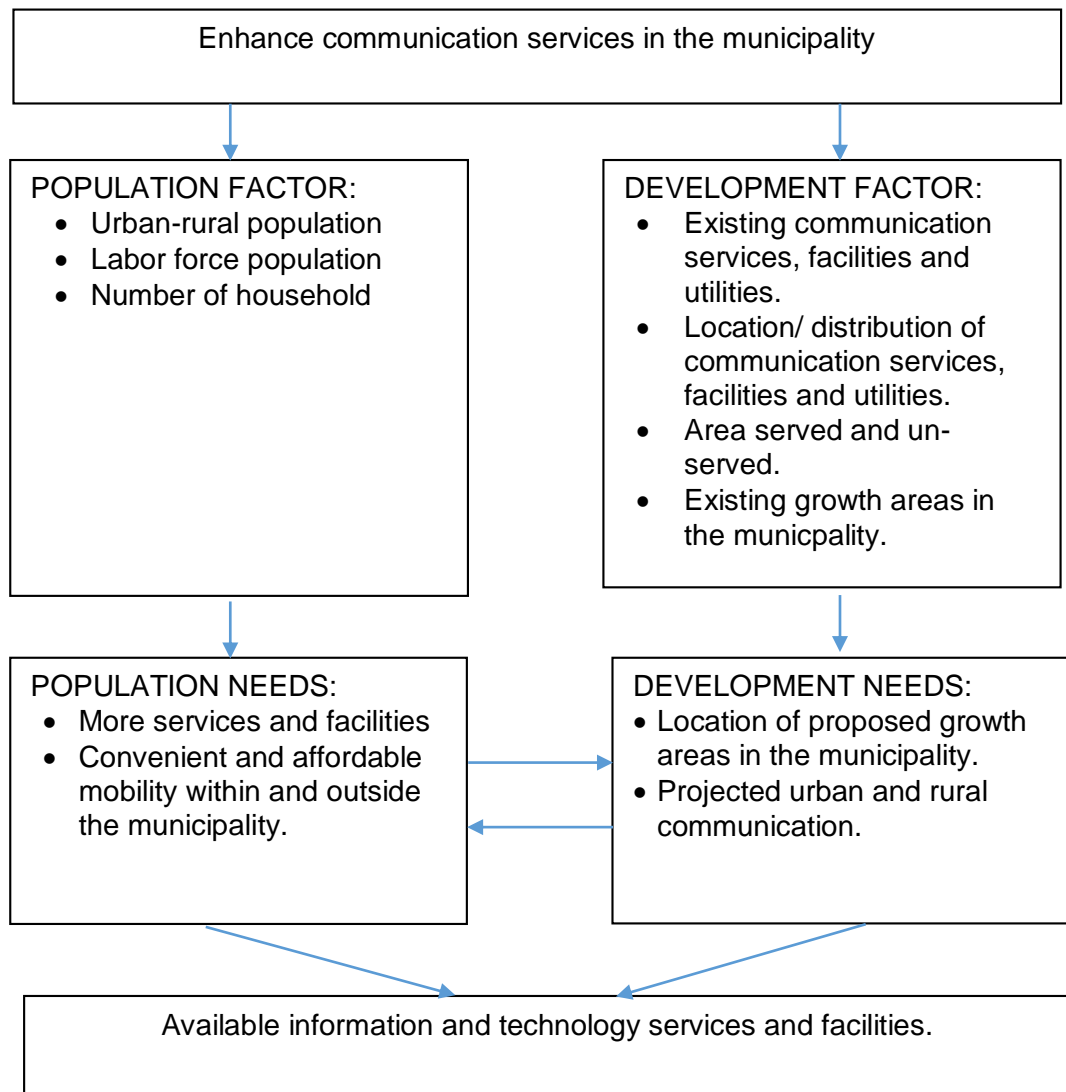
PROBLEMS	CAUSES	IMPACTS
Limited of communication facilities and utilities.	- Limited number of subscribers	- Slow socio-economic activities
Absence of landline telephone services and facilities.	- Relative peace and order condition.	- Low income.

## D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
Limited communication, facilities and utilities	- Provide adequate modern communication facilities/utilities	- Provide tax incentive to investors. - Identify feasible sites for communication facilities/ utilities	- Formulate a social acceptability resolution for prospective investors in accordance with zoning ordinance - Barangay council shall formulate barangay clearances in accordance with zoning ordinance.
Relative peace and order condition in some isolated hinterland barangays that are feasible locations of cell sites	- Maintain peace and order conditions in feasible sites for cellular base stations	- Assign PNP personnel strategic hinterland locations - Strength the CVOs. - Maintain existing urban-rural access roads.	- Barangay Council to assist private companies in providing securities to cell sites.

## E. Situational Analysis Framework

### SA FRAMEWORK



### 5.3.5 Solid Waste Management

#### A. Situational Analysis

In line with the national thrust of adopting an environment-friendly solid waste disposal system, the local government identified and developed a 1.7 hectares with disposal facility which includes Category 1 Sanitary Landfill, Material Recovery Facility and Composting Area to cater to the volume of solid waste generated by the population. This site is located more or less three kilometres from the urban area of Halapitan and is accessible by an all-weather, gravelled barangay road.

Using the standard per capita waste generation of 0.5 kilograms per day, the total domestic solid waste generated in 2018 reached 10,920.25 metric tons. As expected, the majority of the wastes come from the urban area and the rest are heterogeneously distributed to the other barangays. With the sparse population density of the population, domestic waste disposal are low compared to those generated in the more populated municipalities and cities in the province. Moreover, disposal practices in the rural barangays are still environment-friendly, which generally includes composting of biodegradable materials, and recycling/re-using plastic bags, bottles and other containers for domestic activities.

The LGU intends to implement waste diversion strategies through bricks making using shredded waste materials as additional composition since the MENRO has already purchased plastic shredder and glass pulveriser.

Solid waste management activities in the urban barangay consists of regular garbage collection by one full time mini-garbage/dump truck and three support ten-wheeler dump trucks during heavy generation of waste that happen during special activities and festivities. There is an existing material recovery facility building but without the needed equipments to make it functional.

The MENRO takes charge of the solid waste management activities headed by the Municipal Environment and natural Resources Officer. As of the present, there are private junkshops that help in the recycling and re-using of non-biodegradable wastes.

Although solid waste generation is still manageable, there is a need for more equipment, regular office with complete manpower compliment to respond to the management of solid wastes as shown in Table 3.120.

**Table 3.120**  
**Current and Projected Waste Generation**  
**San Fernando, Bukidnon**  
**2018, 2019-2028**

Year	Population	Waste Management (metric ton)
2018	59,837	10,920.25
2019	61,124	11,155.13
2020	62,438	11,394.93
2021	63,780	11,639.85
2022	65,152	11,890.24
2023	66,552	12,145.74
2024	67,983	12,771.89
2025	69,445	12,673.71
2026	70,938	12,946.18
2027	72,463	13,224.49
2028	74,021	13,508.83

Source: MENRO

## Current Solid Waste Management System

The municipality of San Fernando created and established its own Solid Waste Management Board which is chaired by the municipal mayor and consists of the following member: a) Sangguniang Bayan (SB) Chair on the Committees on Environment, Health and Sanitation, b) ABC President, c) Municipal Environment and natural Resource Office (MENRO) Head, d) Municipal Engineer's Office Head, e) Elementary School Principal, f) High School Principal, g) parents and teachers Association (PTA) President, h) Religious sector representative, i) Municipal Planning and Development Coordinator, and j) Municipal Health Office Head. Among the primary duties and responsibilities of the board is to develop, implement, and monitor and oversee the implementation of the Municipal Solid Waste Management Plan which shall ensure the long-term management of solid waste generated in the municipality and the barangays under its jurisdiction. The Board is composed of the following committees: a) education, b) engineering, c) enforcement, and d) equity.

Momentarily, there is no formal and systematic source reduction strategy that has been adopted by the LGU concerned. Mostly, source reduction is done at the household level. For instance, some bring their own eco bags or empty ice cream containers when doing marketing or grocery to avoid unnecessary packaging materials. A few residents also avoid disposable goods and products that are non-renewable such as plastics and cellophanes. These practices are mostly adopted by individuals who are more environmentally conscious and socially responsible.

## Waste Characterization

To determine the volume of waste generated, a waste characterization study was conducted inside the project area. Majority of the wastes produced by San Fernando are biodegradable/ compostable waste. This is around 56.4% of the total generated waste of the said sector. This is followed by residual wastes which comprised 29.10% of the total waste generated in the municipality. Only 14.30% of the wastes generated from San Fernando are residuals. Special waste comprises only 0.2% of the waste.

Table 3.121 shows the quantity of waste of San Fernando by source which resulted from its Waste Analysis and Characterization Study (WACS) in year 2015. As shown in the table, the market is the single highest source of waste in the municipality with 107.03 kg per day. This is equivalent to 39.06 metric tons (9MT) of waste per year. However, in terms of the overall waste, residential is the highest source of waste. This is equivalent to 2,790.20 MT of waste per year which is around 75% of all the annual waste from all sources in the municipality. In fact, even if we combine waste from both commercial and institutional establishments, this is only comprises around 23% of all the annual waste in the municipality. This means that residents of households should be the main target for IEC to further improve waste management in San Fernando.

**Table 3.121**  
**Quantity of Waste Disposed by Sector**  
**San Fernando, Bukidnon**  
**2015**

Sector	Generation per Waste Unit (kg)	Total Number of Units	Total Waste Generation per Day (Kg)	Total Waste Generation per Day (MT)	Total Waste Generation per Annum (Kg)	Total Waste Generation per Annum (MT)
Residential	0.13	58,803	7,644.39	7.64	2,790,202.35	2,790.20
Commercial	2.07	540	1,117.80	1.12	407,997.00	407.99
Institutional	7.92	166	1,314.72	1.31	479,872.80	479.87
Market	107.03	1	107.03	0.11	39,065.95	39.06
Others	0.88	123	108.24	0.11	39,507.60	39.51
<b>Total</b>	<b>118.03</b>	<b>59,633</b>	<b>10,292.18</b>	<b>10.29</b>	<b>3,756,645.70</b>	<b>3,756.64</b>

Source: MENRO

As shown in Table 3.122, biodegradables are the most type of waste generated in San Fernando which is around 56% of the total daily waste from all sources. However, the market is the highest source of biodegradables (90%) this is understandable since markets produce mostly food waste. Residuals are the second most generated type of waste in San Fernando with almost 30% of the total waste from all sources. Households and institutional establishments are the main sources of residuals in the municipality. Recyclables are the third most generated waste in San Fernando which comprises around 14% of the total daily waste from all sources in the municipality. Households produce the most percentage of recyclables compared to other waste sources. Special waste are the fewest type of waste at less than 1% of the total waste produced daily. Among all the waste sources, special waste are not generated in commercial establishments as well as the market.

**Table 3.122**  
**Quantity and Composition of Waste Disposed by Sector**  
**San Fernando, Bukidnon**  
**2015**

Sector	Average Daily Generation Rate by Waste Type (kg/day)								Total	
	Biodegradable		Recyclable (%)		Residual (%)		Special (%)		Kg	%
	Kg	%	Kg	%	Kg	%	kg	%		
Residential	4,902.05	53.50	1,233.99	16.10	2,303.54	30.10	14.81	0.10	7,644.39	74.27
Commercial	804.73	71.90	61.42	5.50	251.65	22.50	-	-	1,117.80	10.86
Institutional	734.03	55.80	167.73	12.70	403.95	30.70	9.01	0.70	1,314.72	12.77
Market	96.43	90.10	0.54	0.50	10.06	9.40	-	-	107.03	1.04
Others	70.75	65.30	11.07	10.20	26.20	24.20	0.22	0.20	108.24	1.05
<b>Total</b>	<b>5,798</b>	<b>56.30</b>	<b>1,474.75</b>	<b>14.30</b>	<b>2,995.40</b>	<b>29.10</b>	<b>24.04</b>	<b>0.20</b>	<b>10,292.18</b>	<b>100</b>

## Collection

Garbage collection in San Fernando covers eight urban barangays and 12 of the rural barangays of the municipality. The system adopts the communal method where common collection points are identified in public places. Households and other waste sources are required to segregate their wastes into three: biodegradable, recyclable and residual. In the case of households, only recyclables and residuals are being collected as biodegradables such as food wastes could be composted by themselves. There are also some households and commercial establishments that no longer include their recyclables for collection as they themselves sell these to junk buyers for additional income.

Households and public market lessees are free to choose proper containers such as cans, sacks, bags or bins that will facilitate sanitary, efficient handling, storage, collection, transport or disposal at least cost. The garbage collectors then collect the

accumulated wastes which are mostly segregated into recyclables and residuals. Food wastes from commercial centers (e.g. food centers, restaurants, canteens, etc.) are collected as fodder/animal feeds. Meanwhile, rural barangays of the municipality devise their own system of SMW such as provision of small-scale materials recovery facility where recyclables could be sold and backyard compost pits where biodegradables could be made into compost.

On the other hand, the present system of handling special wastes involves the close coordination between the MENRO and generators of such wastes. For instance, any individual or entity is prohibited to throw excess pesticides or wash pesticide containers in the river systems of the municipality. Instead, individuals or entities are encouraged to give or donate chemical containers to the MENRO for proper treatment and disposal. Recycling used motor oils and reselling car batteries are likewise practiced among concerned individual in the locality.

Some wastes are so hazardous and expensive to treat that priority attention should be focused on changing to processes that use substitute that are less hazardous, and to minimizing the quantities that are discarded.

Meanwhile, healthcare wastes are properly treated before finally placing them in the two LGU-operated septic vaults- one is placed in the LGU Rural Health Unit (RHU) and other is in its final disposal facility.

Meanwhile, only 20 out of the 24 barangays of the municipality are momentarily covered in the garbage collection service. The other four barangays which are currently not receiving collection service are those that are incidentally far-flung and are not really accessible by the collection vehicle because of distance and poor road network and condition.

## **Transfer**

The LGU does not operate a transfer station. Only segregated wastes from various sources are accepted for collection and transport to the MRF and controlled dumpsite utilizing the same equipment and staff described above. Recyclables, such as dry papers, plastics, metals/aluminum and glass are placed in the municipality's MRF while residual wastes such as sanitary napkins, disposable diapers, worn out rugs, cartons (which contains a plastic lining usually used for milk and juice containers), ceramics, candy wrappers/sachets and the like are disposed in its controlled dumpsite.

## **Processing Facilities**

The municipality of San Fernando currently operates a 1.7-hectare final disposal facility located in Sitio Malantao, Halapitan. The facility is secured with a perimeter fence to ensure that no scavengers would be able to operate in the area. Within the facility, a MRF, vermi-composting and nursery are maintained by the staff of the MENRO as shown in Tab13. The MRF serves as an area to further segregate collected wastes and recover recyclables such as PET bottles, and aluminium and tin cans from households, commercial centers and other sources. On the other hand, the vermin-composting facility is used for composting biodegradable materials into organic fertilizer which are used to sustain the nursery which contains various species of fruit and forest trees. The primary source of biodegradable materials for vermi-composting is the public market of the municipality as food wastes and other biodegradables from households are no longer collected by the garbage collection team. The table below summarizes the waste processing facilities owned by the municipality.

## **Final Disposal**

Momentarily, San Fernando is utilizing its Category 1 sanitary land fill in Sitio Malantao in Barangay Halapitan to finally dispose of its wastes. Only residual wastes collected from households and other sources such as soft plastics, sanitary napkins, disposable diapers, worn out rugs and the like are accepted for disposal. Dumped wastes could be covered with soil on a weekly basis. The 1.7 hectare is owned by the municipality and is manned on a 24-hour basis to deter entry of scavengers and burglars. Consequently, there are no scavengers operating in the site ever since. The area has also a tree nursery and mini forest park nearby to improve its aesthetics.

## **Special Wastes**

Based on the WACS conducted, the municipality generates 0.67 kg per day of special wastes. This comprised 0.04% of the total solid waste generated. This comes primarily from residential and institutional sources. At present, there is no systematic existing storage, collection, and disposal practices for special wastes generated in the municipality. For instance, the Rural Health Unit of San Fernando takes charge in the disposal of their hazardous waste through construction of a concrete septic vault. However, such vault is already full resulting to the making of an excavation for the dumping of its medical wastes. This excavation is properly marked to avoid untoward incidents like exhumation. On the other, only paper and other non-hazardous wastes are collected from this health institution.

Meanwhile, empty pesticide containers are also generated in the area as it is an agricultural municipality. These containers are used by some residents in fetching and storing drinking water. The MENRO and MHO staffs are hard pressed in convincing individuals to refrain from using such containers other than their intended purpose due to health risks involved.

## **Health Care Wastes**

There is a dearth of available information on the quantities of special wastes disposed in the area. However, the Municipal Health Office of San Fernando reported that an average of one kilogram of health care wastes is disposed daily from the rural health centers/units situated in the municipality.

## **Markets for Recyclables**

There is no junk shop that operates in the municipality. Scrap metals, appliances, furniture and fixture made of steel/metal or plastics and other recyclables have to be transported and sold to junk shops in Valencia City which is an hour away by vehicle from the municipality. There are however ambulant junk buyers that visit households from time to time. These junk buyers are mostly non-residents of San Fernando. In like manner, there are also no industries within the municipality that caters the utilization of recycled materials for whatever purpose or product.

## **Information, Education and Communication (IEC)**

Although an education committee has been created under the SWMB of San Fernando, the municipality does not have yet any formal IEC plan on SWM. However, informal IEC campaign has been done from time to time to increase awareness of the public particularly households and institutions in participating SWM program and activities of the municipality.

## B. Goal

Promote efficient and effective solid waste management

## C. Problems, Causes and Impacts (Effects)

PROBLEMS	CAUSES	IMPACTS
Growing solid waste	<ul style="list-style-type: none"><li>- Population growth</li><li>- Increasing infrastructures and road networks</li></ul>	-
Open dumping and burning of solid waste along roads, open fields, drainage, canals and waterways.	<ul style="list-style-type: none"><li>- Inadequate manpower services and facilities</li><li>- Inadequate support and attention of the greater public services</li><li>- Lack of clear responsibilities and strong political will in implementing what is good for people and the environment.</li></ul>	<ul style="list-style-type: none"><li>- Community garbage exposure</li><li>- Health risk</li></ul>
.Unmanageable solid waste disposal	<ul style="list-style-type: none"><li>- Lack of enough technical and engineering expertise</li><li>- Inadequacy of budgetary support to fully implement provisions of the law</li></ul>	<ul style="list-style-type: none"><li>- Disadvantage to municipality's capability evaluation</li></ul>

## D. Objectives, Strategies, Policies

PROBLEMS	OBJECTIVES	STRATEGIES	POLICIES
Growing solid waste	<ul style="list-style-type: none"><li>- Ensure cleaner surroundings in the entire municipality including its constituent barangays.</li></ul>	<ul style="list-style-type: none"><li>- Technical assistance for Household Level Recycling and Composting</li></ul>	-
Open dumping and burning of solid waste along roads, open fields, drainage, canals and waterways.	<ul style="list-style-type: none"><li>- Educate constituents of San Fernando on the rationale, theories and practices of Ecological Solid Waste</li></ul>	<ul style="list-style-type: none"><li>- Regular conduct of Information, Education, and Communication (IEC) campaigns.</li><li>- Legislation and enforcement of Local Solid Waste</li></ul>	<ul style="list-style-type: none"><li>- RA 9003 (Ecological Solid Waste Management Act of 2000)</li></ul>



	Management (ESWM)	management policies.	
	- Generate income from sales of raw recyclables and even crafts derived from the same	- Plan and implement income generating projects - Rewards and incentives	-
Unmanageable solid waste disposal.	- Turn waste into resource thereby helping slow down depletion of natural resources. - Protect the immediate environment and health of the public	- Collection and transfer. LGU to provide adequate garbage trucks to serve the 100% population - LGU to develop vermi-compost facility in order to accommodate the biodegradable from market wastes and street sweepings	-

## B. Situational Analysis Framework

### SA FRAMEWORK

