Attachment - C

Socio & Economic Survey

C.1 Background

"The Master Plan Study of Power Development in Palawan Province" was started by the JICA Study team from February 2003 in Palawan Province. One of the Study objectives is to formulate a Master Plan up to 2015, which is composed of a barangay electrification plan, an optimal power development plan, an implementation plan, database introduction, institutional and organizational arrangements and others, with adequate consideration given to the environment.

Electrification issues are related to not only technical factors regarding utilities and facilities, but they are also closely related to the users. Therefore, consideration of the socio-economic conditions of electricity users and potential users is indispensable for formulating such an energy master plan. Data and information on social and economic trends in Palawan takes on great importance in providing the basis for predicting the level of demand, the reliability of the needed supply, and the capacity to pay among households, as well as both the positive and negative impacts that will give us a rationale for electrification and provide us with lessons for future electrification.

Hence, quantitative and qualitative sets of data related to the socio-economic situation in Palawan were gathered and analyzed in the study with the cooperation of local consultants. The data is described in this technical report.

C.2 Objective

This survey was conducted to acquire and analyze comprehensive detailed data, information and documents on barangays in Palawan in order to properly reflecting the diversity of social and economic conditions of the local areas in the electrification master plan.

C.3 Framework of Socio-economic Survey

C.3.1 Study Methodology

This socio-economic survey consists of two parts: one is to target the all barangays in Palawan and the other is to target some sampled barangays.

The specific objectives of these two survey styles are as follows:

(a) Survey of all barangays: Collection and analysis of data, information and documents on socio-economic conditions for all barangays in Palawan for quantitative analysis that will lead to the Sample Barangay Survey;

(b) Sample barangay survey: Collection and analysis of more detailed data, information and documents on the sampled barangays in Palawan for qualitative and quantitative analysis that will provide useful indications for the master plan study of power development.

Specific data and information for the both surveys include 1) demographic, 2) social, 3) economical, 4) organizational, 5) infrastructure, and 6) electrification / energy concerns data and information.

C.3.2 Survey of all Barangays

The survey of all barangays focuses on a provincial-wide gathering of secondary data and other related documents necessary for conducting the sample survey. Secondary sources for the demographic and socio-economic data on the 431 barangays in Palawan were obtained from various government offices and project offices in Palawan, such as Department of Energy (DOE), Energy Unit of the Provincial Planning and Development Office (PPDO) in Palawan, PPDO in Palawan, Department of Energy (DOE) Palawan, National Mapping and Resource Inventory Administration (NAMRIA), National Statistics Office (NSO), Comprehensive Land-Use Plans (CLUP) of different Municipalities and Palawan Medium Term Development Plan.

Data and information were then entered in a comprehensive matrix form (refer to APPENDIX C-I) to indicate which information was available for the survey of all barangays. Raw data were processed using ranges, mean, frequency counts and percentages to indicate the emerging trends and patterns.

C.3.3 Sample Barangay Survey

The sample barangay survey is conducted in order to gather pertinent data and information which will allow for quantitative and qualitative analysis. In particular, the sample barangay survey is comprised of four survey methods. The characteristics of each method are shown in Table C.3.1.

Table C.3.1 Sample Survey Methods

For obtaining detailed quantitative data **Quantitative Survey**

Questionnaire Survey

- Purpose:
  To widely acquire quantitative and qualitative data from sample households chosen by systematic random sampling.
- Target:
  [24 barangays] *30 households in each barangay.

  * The households are selected at regular intervals -sampling interval- from a random starting point. The sampling interval at the barangay level is defined in terms of the number of households, because the field operation specified for the enumerator is to approach the household and get a representative member respondent.
- Topics and questions [See APPENDIX C-II]
  Various topics from "Household Identification (Section1)" to "Household's Desire For Services (Section26)".

For obtaining detailed qualitative data **Qualitative Survey**

Key Informant Interview (KII)

- Purpose:
  To acquire more intimate qualitative data that is difficult to obtain by conventional survey methods, such as literature searches or questionnaire surveys.
- Target:
  [12 barangays] Barangay captains, household heads (*representatives of rich, moderate, ad poor households), and heads of institutions providing electricity.

  * For differentiating the socio-economic statuses in the community, the household heads were chosen by the following criteria:
  (i) Rich - own lands and livestock, with generator and other amenities, have business
  (ii) Middle - farmers who own lands, have small business but lower income
  (iii) Poor - landless, "nakikitanim" (farm in other's lands), work as farm labor, usually indigenous peoples (Batak) and bare subsistence level
- Topics and questions [See APPENDIX C-III (a)]:
  Various topics from "Demographic Data" to "Energy & Electrification Profile and Concerns".

Focus Group Discussion (FGD)

- Purpose:
  To acquire qualitative data that is difficult to obtain by conventional survey methods, such as literature searches or questionnaire survey. In particular, 1) Draw insights on the community's perceptions, expectations, needs and demands pertaining to electrification; and 2) Gauge the community's absorptive capacity to maximize use of electricity for their socio-economic development.
- Target:
  [12 barangays] Around 20-25 community residents representing a cross section of the community.

- Topics and questions [see APPEDIX C-III (b)]:

  [To electrified barangays] 1) Impacts of electrification at the household and barangay level, 2) Problems people encounter concerning the present distribution and use of electricity, 3) Solution of the problems, 4) Management of electrification system in the barangay

  [To un-electrified barangays] 1) Reason for no electricity, 2) Problems, needs and concerns in the barangay, 3) Perceived benefits from electrification, 4) Perceived problems from electrification, 5) Willingness to pay for electricity, 6) Management of electrification system in the barangay.

Direct Observation

- Purpose:
  To watch people's usage of electric appliances and electrified facilities including street lights, and roughly understand the settlement pattern of houses and other facilities.
- Target:
  Some households or facilities (depending on procedure of questionnaire survey, KII and FGD).
- Topics and questions:
  Actual usage of electrification and spot maps including settlement pattern.

The Study team then selected 24 barangays as samples. We considered the following factors for selecting sampled barangays.

(a) Population size
(b) Electrification status
(c) Accessibility
(d) Proposal of energy unit for the PPDO in Palawan

The following characteristics and parameters derived from the survey of all barangays were considered for the selection of the 24 sample barangays at first;

1) Land area, 2) Population, 3) Density, 4) Energy level, 5) Number of households, 6) Number of households electrified, 7) Agriculture and fishing activities, 8) Literacy rate (10 years old and over), 9) Number of students in primary and secondary level, 10) Number of households owning house and lot, 11) Number of households renting house and lot.

An attempt to simultaneously analyze data variation in the determination of groupings that may be possibly used in the selection of the barangays was made using cluster analysis. The next step was to generate correlations among such characteristics. This was done as it was suspected that the variables considered are correlated and hence a meaningful subset with complete data can be used for the stratification of the barangays. From this viewpoint, population is correlated with almost all indicators except land area and density. This means that population can be taken to replace the other variables. Considering population data, the barangays were grouped into Low, Medium, and High categories using cluster analysis.

The next procedure for selecting sample barangays was based on the following factors;

1) Electrified EC-grid (barangay already electrified by EC-grid system), 2) Electrified non-EC-grid (barangay already electrified by mini-grid and stand-alone system), 3) Un-electrified EC-grid (barangays currently un-electrified, but will be electrified by EC-grid system in the future), 4) Un-electrified non-EC-grid (barangays currently un-electrified, but will be electrified by only mini-grid and stand-alone system in the future).

Moreover, some barangays, especially island-barangays, were removed from the list of candidate barangays in consideration of accessibility.

Finally, after considering the sample barangays proposed by the Energy Unit of the PPDO in Palawan, systematic random sampling was performed to decide the sample barangays.

Considering the above factors by using cluster analysis and cross-classification methods, 24 sample barangays were chosen as shown in Table C.3.2 and their locations are illustrated in Figure B.3.1.

Table C.3.2 Sampled Barangays

Barangay	Municipality	*[1]Electrification Status	Land Area (Km^2)	No. of Sample Households/ Total No. of Households	*[2]Qualitative Survey	Map Study
Electrified EC-grid						
Jose Rizal	Aborlan	E-EC, L2	30.76	24/261 (9%)		
Burirao	Narra	E-EC, L1	77.40	25/504 (5%)		
Calategas	Narra	E-EC, L2	70.04	24/791 (3%)		
Narra (Poblacion)	Narra	E-EC, L3	84.60	24/3013 (0.8%)	**X**	
Inagawan Sub Colony	*[3]PPC	E-EC, L1	No data	24/255 (9%)		
Manggahan (Poblacion)	PPC	E-EC, L3	0.10	30/270 (11%)	**X**	
Tagumpay (Poblacion)	PPC	E-EC, L3	0.013	28/237 (12%)	**X**	**X**
Tiniguiban	PPC	E-EC, L3	3.01	25/1419 (2%)		**X**
Panitian	Quezon	E-EC, L1	96.13	25/1332 (2%)		
New Agutaya	San Vicente	E-EC, L1	No data	24/406 (6%)	**X**	**X**
Electrified Mini-grid and Stand-alone						
Debangan	Taytay	E-NON-EC, L2	2.78	45/209 (22%)	**X**	**X**
Pularaquen	Taytay	E-NON-EC, L1	5.48	30/275 (11%)	**X**	**X**

Barangay	Municipality	*1Electrification Status	Land Area (Km^2)	No. of Sample Households/ Total No. of Households	*2Qualitative Survey	Map Study
Un-Electrified EC-grid						
Calatagbak	Quezon	UE-EC	28.86	24/297 (8%)	**X**	
Tagumpay	Roxas	UE-EC	44.75	26/491 (5%)	**X**	**X**
Un-Electrified Mini-grid and Stand-alone						
Igang-igang	Bataraza	UE-NON-EC	17.84	29/208 (14%)		
Santa Cruz	PPC	UE-NON-EC	19.40	30/162 (19%)	**X**	**X**
Tanabag	PPC	UE-NON-EC	60.68	28/91 (31%)		**X**
Aramaywan	Quezon	UE-NON-EC	99.41	25/596 (4%)	**X**	
Calumpang	Quezon	UE-NON-EC	76.72	25/335 (7%)	**X**	
Punta Baja	Rizal	UE-NON-EC	12.12	30/1907 (2%)		
Caramay	Roxas	UE-NON-EC	152.32	30/440 (7%)		**X**
Rizal	Roxas	UE-NON-EC	17.30	25/155 (16%)	**X**	**X**
Binga	San Vicente	UE-NON-EC	1.38	30/243 (12%)		**X**
Alacalian	Taytay	UE-NON-EC	32.28	30/320 (9%)		**X**

*1: Energy status ; E-EC : Electrified EC-grid E-NON-EC : Electrified mini-grid and stand alone system
UE-EC: Un-electrified EC-grid
UE-OFF: Un-electrified mini-grid and stand alone
Level 1 - At least 30% of the total number of households are electrified, but with only 6-hour power supply
Level 2 - At least 80% of the total number of households are electrified with 24-hour power supply
Level 3 - At least 100% of the total number of households are electrified with 24-hour power supply

*2: Qualitative survey ; X: KII and FGD were conducted

*3: PPC : Puerto Princesa City

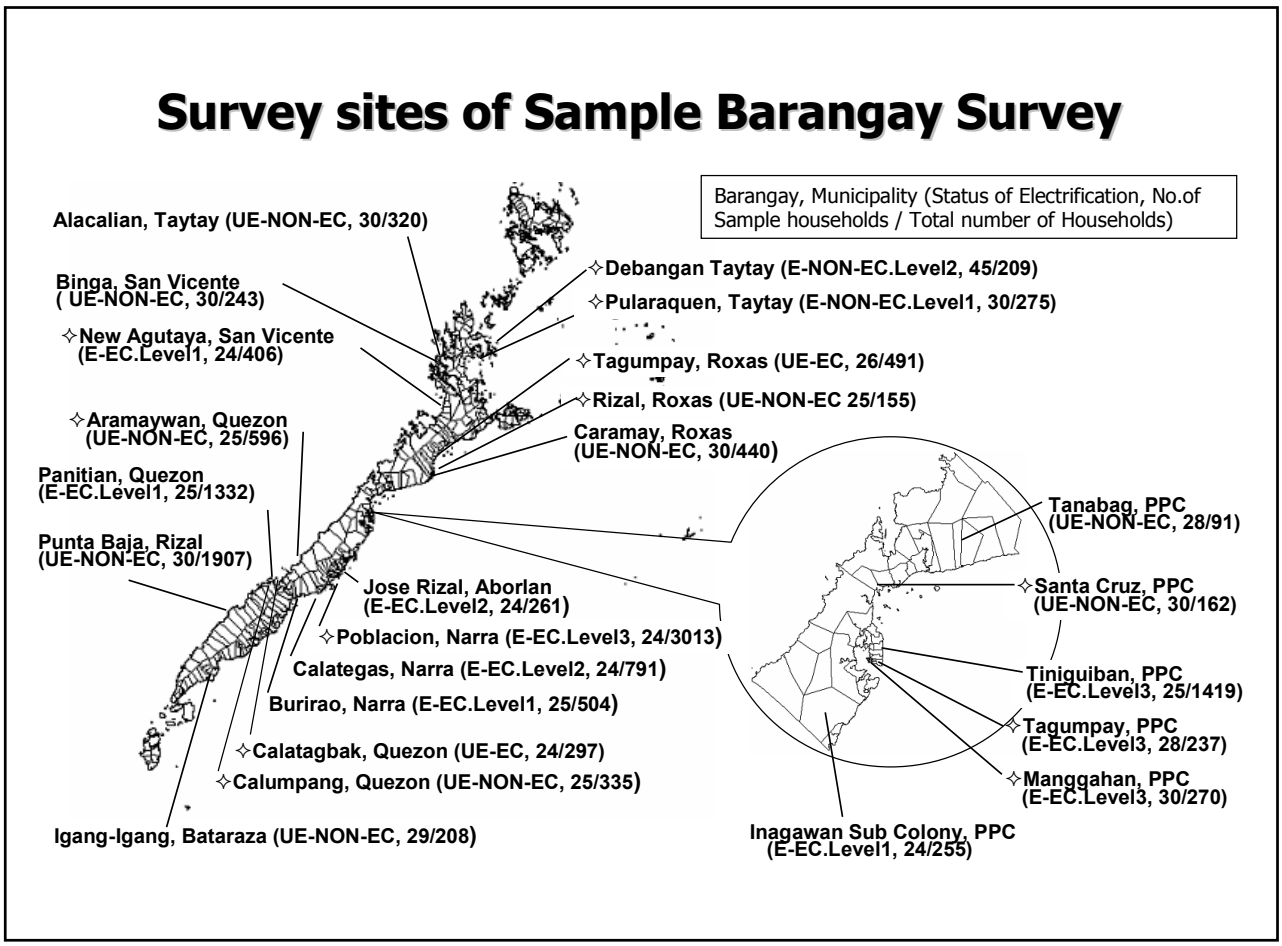


Figure C.3.1 Survey Sites in Sample Barangay Survey

Although a sample of 30 households per barangay were targeted for the questionnaire survey, the target size was not attained for some barangays due to rough terrain, heavy rains and thus the unavailability of transportation at the time of data collection.

C.4 Findings from Socio-economic Survey

C.4.1 Survey of all Barangays

The Study team visited several organizations and institutions to gather existing secondary data, such as Provincial Planning and Development Office (PPDO) in Palawan, Department of Interior and Local Government (DILG) in Palawan and Department of Energy. For the list of references for collecting existing secondary data, please refer to APPEDIX C-IV.

However, although it was a time-consuming job to collect and analyze various data in the survey of all barangays, there was not enough credible data due to inconsistencies in the measures, dubiousness of such data, obsolete data, lack of the data at the barangay level and other such problems. Therefore, the only selected characteristics were reorganized as seen in APPEDIX C-V.

C.4.1.1 Number of Barangays

There are 431 barangays in the 24 municipalities of Palawan. The number of barangays ranges from as low as 1 in Kalayaan to as high as 66 in Puerto Princesa. The mean number of barangays is 18 (Table C.4.1).

Table C.4.1 Number of Barangays per Municipality

Municipality	No. of Barangays	%
ABORLAN	19	4.4
AGUTAYA	10	2.3
ARACELI	13	3.0
BALABAC	20	4.6
BATARAZA	22	5.1
BROOKE'S POINT	18	4.1
BUSUANGA	16	3.7
CAGAYANCILLO	12	2.8
CORON	23	5.3
CULION	11	2.6
CUYO	17	3.9
DUMARAN	16	3.7
EL NIDO	18	4.1
KALAYAAN	1	0.2
LINAPACAN	10	2.3
MAGSAYSAY	11	2.6
NARRA	22	5.1
PUERTO PRINCESA CITY	66	15.0
QUEZON	14	3.2
RIZAL	11	2.6
ROXAS	31	7.2
SAN VICENTE	10	2.3
SOFRONIO ESPAÑOLA	9	2.0
TAYTAY	31	7.2
TOTAL	431	

Source: PPDO Energy Unit 2003

C.4.1.2 Land Area

Of the 431 barangays, 278 (65%) have relatively small land areas from 3.5 sq kms or less. Very few, less than 3%, have big land areas of 20 sq kms or more. The smallest land area of 0.0011 sq km is found in Barangay Seaside, Puerto Princesa City, while the biggest with 51.11 sq kms is found in Barangay Villa Liberate, El Nido. The mean land area is 3.5 sq kms (see Table C.4.2).

Table C.4.2 Distribution of Barangays based on Land Area

Range of Land Area (sq kms.)	Frequency	%
3.5 and less	278	65
3.6-19	118	27
20 and above	12	3
No data	23	5
Total	431	100

Source:PPDO-GIS,2000

C.4.1.3 Population

The mean population is 1,761. The population range is from 12 to 14,603 individuals. The majority of the barangays have populations of 3,000 or less (see Table C.4.3). The most populated barangay is San Miguel of Puerto Princesa City with a total population of 14,603. The least populated barangay on the other hand is Barangay V of Roxas with a total population of 12. The population distribution has a mean of 1,761. About 50 % of the barangays have a population of at most 1,322.

Table C.4.3 Distribution of Barangays based on Population

Range of Population	Frequency	%
801 and less	108	25.1
802-2199	214	49.6
2200 and above	109	25.3
Total	431	100.0

Source: NSO, 2000

C.4.1.4 Population Density

Based on the data of 431 barangays, the mean population density at the barangay level is 1,960 persons per sq km. This is considered relatively low, or sparse, and may suggest low concentrations of households or settlements in most barangays. The distribution of population

density per barangay (in number of persons per sq. km.) is presented in Table C.4.4. The densest population is found in Barangay Tangalaw, Puerto Princesa City (136,588 persons per sq km), while the least dense population is found in Barangay Sta. Lucia, Puerto Princesa City with a density of 1 person per sq km. The mean density of barangay populations is 1,960 persons per sq km. However, 50% of the barangays have at most 2,200 persons per sq km density and 52% of the barangays have at most 223 persons per sq km density. Hence, there are more barangays that have low-density populations and a few with high-density populations.

Table C.4.4 Distribution of Barangays based on Population Density

Range of Population Density	Frequency	%
30 and below	98	22.7
31-459	223	51.8
460 and above	59	13.7
No Data	51	11.8
Total	431	100.0

Source: Computed from the data on land area and population

C.4.1.5 Number of Households

Nearly 50% have a number of households ranging from 156 to 459. This is followed by 25.3% having 460 or more and 24.9% having 155 or fewer. The mean household population is 385. The lowest number of households, only 8, is found in Barangay Pag-asa, Kalayann; and the highest is 3,375 in Barangay San Pedro in Puerto Princesa City. Table C.4.5 gives the distribution by total number of households. The average number of households is 391.

Table C.4.5 Distribution of Barangays based on Number of Households

Number of Households	Frequency	%
155 and below	107	24.8
156-459	215	49.9
460 and above	109	25.3
Total	431	100.00

Source: PPDO Energy Unit 2003

C.4.1.6 Percentage of Households that Own or Rent House and Lot

Table C.4.6 gives the distribution of the barangays according to the percentage of households that own their house and lot. Table C.4.7, on the other hand, gives the percentage of households that rent their homes.

Table C.4.6 Distribution of Barangays by Percentage of HH that Own House and Lot

Range of HH Percentage	Frequency	%
50 and below	39	9.0
51-79	115	26.7
80 and above	110	25.5
No data	167	38.8
Total	431	100.0

Source: PPDO-GIS 2000

Table C.4.7 Distribution of Barangays by Percentage of HH that Rent House and Lot

Range of HH Percentage	Frequency	%
5 and below	109	25.3
6-19	40	9.3
20 and above	12	2.8
No data	270	62.6
Total	431	100.0

Source: PPDO-GIS 2000

Although many barangays have no data (around 40% of barangays for households that own houses and lots and around 60% for households that rent houses and lots), the average percentage of households that own their house and lot is 71% and the households that rent their house and lot is 7%. This tendency shows that many households in Palawan have their own house and lot.

C.4.1.7 Income

Table C.4.8 Distribution of Barangays by Household Income

Range of Household Income	Frequency	%
PhP 1500 and below	76	17.6
PhP 1501-4000	50	11.6
PhP 4001 and above	88	20.4
No data	217	50.4
Total	431	100.0

Source: PPDO-GIS 2000

The average household income per barangay is PHP 4,711. Around 30% of the barangay have average incomes of PhP 4,000 per month or less. However, around 50% of the barangays that have no data on the household incomes consist of more urbanized municipalities such as Puerto Princesa City. Hence, if more data on household incomes can be collected, the average household income per barangay would likely be increased. Moreover, if we can understand the income situation of more urbanized areas, the income gap between the rich in urban areas and the poor in the rural areas could be better clarified.

As seen in the data gathered for this survey of all barangays, there was lack of available and reliable data. Although it may be difficult to collect reliable data on income issues from the public, it is still necessary to continue to renew such data.

C.4.1.8 Education/Literacy

A person is said to be literate if he can read and write simple sentences and paragraphs. The number of children in primary and secondary schools represents the number of children between the ages of 7 to 16 who are either in primary or secondary school.

The barangay with the highest number of literate people in the age group of 10 years and older is Barangay Alfonso, Quezon. Sixty-five barangays have no literate people in the 10 years and older population. The average number of literate people in the 10 years and older population is 8,042. Fifty percent of the barangays have at most 229 literate people in this age group.

The highest number of children between the ages of 7 to 16 that are going to school is found in Barangay Poblacion, Narra. Remarkably, 67 barangays have no children going to school. The mean number of children in school is 250. In addition, fifty percent of the barangays have at most 164 children in school.

C.4.1.9 Energy Status

Table C.4.9 shows the distribution of barangays by energy status. 57% are already energized and 43% are still not energized. This means that energy needs are still relatively high in these areas. Table C.4.10 shows the distribution of the levels of energy for the 247 electrified barangays in Palawan. There are 103 (42%) that are Level Ⅰ energized, 96 (39%) that are Level Ⅱ energized and 47 (19%) that are Level Ⅲenergized.

Table C.4.9 Distribution of barangays by Energy Status

Energy Status	Frequency	%
Energized	246	57.1
Not energized	184	42.7
No data	1	0.2
Total	431	100.0

Source: PPDO Energy Unit 2003

Table C.4.10 Distribution of Barangays by Energy Level

Energy Level	Frequency	%
Level Ⅰ	103	41.9
Level Ⅱ	96	39.0
Level Ⅲ	47	19.1
Total	246	100.0

Source: PPDO Energy Unit 2003

Of the 246 barangays, about 31% have electricity for only 6 hours/day and usually only in the evening (6-12midnight). A few (7%) have electricity for 12 hours/day, but only at night. About 61%, however, enjoy electricity 24 hours/day. This has important implications on their socio-economic activities during both the daytime and nighttime.

Table C.4.11 Distribution of Barangays by Electricity Supply Hours

Energy Level	Frequency	%
6 hours	76	30.9
12 hours	17	6.9
24 hours	149	60.6
Others	4	1.6
Total	246	100.0

Source: PPDO Energy Unit 2003

(1) Number of households energized

Table C.4.12 shows the distribution of barangays by the number of households energized. In terms of the number of households energized per barangay, about 50% of the barangays have only a 100 or fewer such households. The barangays with more than 500 energized households are mainly located in Puerto Princesa, the capital city. Barangay San Miguel, Puerto Princesa City, the most populated barangay, has the highest number of households electrified (3, 417 households). Sta. Lucia, Puerto Princesa City had only one household electrified. The mean number of energized households is 164.

Most of the barangays were energized during the period between 1981 and 2000. Only a few have been energized since that period.

Table C.4.12 Distribution of Barangays by Number of Energized Households

No. of Energized HHs	Frequency	%
100 and below	132	53.6
100-500	87	35.4
500 and above	27	11.0
Total	246	100.0

(2) Trends by energy status

This section and Table C.4.13 present a cross-classification of the barangays according to the selected characteristics in the previous section and energy status. It should be noted that the statistics below are representative only of barangays with reported data for each characteristic.

(i) Land area:

Average land areas for the electrified barangays at Level I, Level II and Level III are 3.7 (Km^2), 1.8 and 0.5, respectively. On the other hand, the average for the un-electrified barangays is 5.2. This may indicate that electrification system is more prevalent in the small barangays than in the large barangays because expanding electric lines is easier.

(ii) Population:

Average populations for the electrified barangays with Level I, Level II and Level III are 1678, 1954 and 2637, respectively. On the other hand, the average population for the un-electrified barangays is 1475. This may show that the electrification system is developed at the barangays with higher populations or that electrification systems facilitate increases in population.

(iii) Population growth rate:

Average population growth rates for the electrified barangays with Level I, Level II and Level III are 3.5%, 3.5%, and 1.4%, respectively. On the other hand, the average rate for the un-electrified barangays is 3.3%. No specific trends can be seen from these figures.

(iv) Population density:

Average population densities for the electrified barangays with Level I, Level II and Level III are 18,752 (/Km^2), 29,132 and 14,581, respectively. On the other hand, the average at the un-electrified barangays is 4,686. It is clear that the population density at the un-electrified barangays is really low.

(v) Number of households:

Average numbers of households for the electrified barangays with Level I, Level II and Level III is 397, 446 and 630, respectively. On the other hand, the average at the un-electrified barangays is 307. This may show that electrification systems are developed at the barangays with many households or that the electrification systems facilitate the increase of the number of households.

(vi) Housing status:

Average percentages of households owning houses and lots is 74.4% (Level I), 70.5% (Level II) and 64.8% (Level III). Also, the average percentages of households renting houses and lots is 4.8% (Level I), 5.4% (Level II) and 13.2% (Level III). On the other hand, the average percentage of households owing houses and lots and households renting houses and lots for the un-electrified barangays is 72% and 5.7%, respectively. There are less households with their own houses and lots at the barangays that are highly electrified than at the barangays with other energy status.

(vii) Income.

Average household incomes at the electrified barangays with Level I, Level II and Level III is 4,677 (PhP), 5,124 and 4,418, respectively. On the other hand, the average for the un-electrified barangays is 5439. No specific trends can be seen from these figures.

In Primary and Secondary School: Average numbers of children in elementary school is 236 (Level I), 263 (Level II), 372 (Level III) and 179 (un-electrified). Average numbers of children in secondary school is 76 (Level I), 104 (Level II), 169 (Level III) and 58 (un-electrified). This may indicate that electrification systems are developed at the barangays with higher educational levels or that the electrification systems can contribute to the development of the educational system

Table B.4.13 Selected Characteristics and Energy Status

Energization Status	Land Area (Km^2) [PPDO-GIS, 2000]	Population [NSO,2000]	Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]
	Average						
Electrified: Level Ⅰ	3.7	1678.3	3.5	18752	393.7	74.4	4.8
Electrified: Level Ⅱ	1.8	1954.5	3.5	29132	446.4	70.5	5.4
Electrified: Level Ⅲ	0.5	2637.4	1.4	14581	630.1	64.8	13.2
Unelectrified	5.2	1475	3.3	4686	307.5	72	5.7
Energization Status	Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	No of Electrified Households [PPDO Energy Unit 2003]			
	Average						
Electrified: Level Ⅰ	4677.6	236.8	76.8	56.3			
Electrified: Level Ⅱ	5124.4	263.6	104.6	242.7			
Electrified: Level Ⅲ	4418.7	372.1	169.6	627			
Unelectrified	5439.3	179.4	58.8				

C.4.2 Sample Barangay Survey

C.4.2.1 Population

The electrified barangays are populated 70%-80% by individuals belonging to the productive group of those between the ages of 15 and 64, followed by those 14 and younger. Senior citizens account for only a very small portion (10% or less) of the population. This implies a higher demand on electricity for productive purposes.

Like the electrified barangays, the un-electrified barangays have the majority of their population belonging to the productive group of those between the ages of 15 and 64. But as compared to the electrified group, the percentage is a little lower at 50%-70%, with their younger age group of those 14 or younger gaining a 20%-40% share of the overall population. Senior citizens consistently account for only about 10% of the population.

C.4.2.2 Ethnicity and Migration

The Visayans tend to dominate the population of barangays in the northern part and those farther from Puerto Princesa City. In barangays found within the city, the population becomes more of a mixture of the Visayans and the Tagalogs. It is apparent though that the Tagalogs tend to dominate the business sector in the city. This could suggest that the population is most likely a mixture of various ethnic groups, especially in the city.

The electrified barangay captains interviewed noted that in-migration is more common than out-migration. They clarified, however, that the number of people in-migrating is rather insignificant. Those who migrate to the electrified areas usually do so in search of livelihood opportunities because this is where the businesses are located. It was noted that males tend to be more mobile and involved in migration than females.

The ethnic groups of Pala'wan, Cuyunen and Cagayanen are found mostly in inland un-electrified barangays. Visayan migrants such as Ilonggos and Cebuanos are found mostly in barangays of Quezon town. Unlike the electrified barangays, un-electrified barangays are inhabited mostly by indigenous Palaweños. Its migrants also consisted mostly of the Visayans and not the Tagalogs.

In-migration of people primarily from the Visayan regions dominates the area. This is usually brought about by outsiders buying lands in Palawan and eventually moving in to the area to take care of their purchased lots. The relatively cheaper price of lands in most areas of

the province has actually enticed a lot of outsiders and this precipitated the wave of in-migration now occurring in the area. Barangay Rizal in Roxas and Sta. Cruz, Puerto Princesa noted the occurrence of out-migration from their barangays to the town proper. The main reason are said to be a search for better livelihoods and to acquire better amenities in life like electricity.

C.4.2.3 Settlement Pattern

Settlement patterns have an influence on the future expansion of the electric distribution lines. If un-electrified houses are located far from the existing distribution lines, the stand-alone systems should be installed instead of expanding of the distribution lines, considering installation and maintenance costs. Therefore, it is important to ascertain the settlement patterns for each barangay. The Study team conducted a simple map study on 12 barangays by direct observation. The results of this simple map study are shown in Table C.4.14 and each rough map is shown in APPENDIX C-VI.

In the Philippines each "Municipality" consists of several "Barangays". "Barangay" is made up by several "Sitios", which are political units where a clustering of houses is situated. Also, "Barangay Center" is the smallest political unit or form of government. As shown in Table C.4.14, the average concentration ratio of households to the barangay center is 59%; 72% for the barangays electrified by on-gird, 42.5% for the barangays electrified by off-grid, 80% for the barangays that will be electrified by on-gird, and 54% for the barangays that will be electrified by off-grid. It is noted that fewer households are located near the barangay center in the barangays electrified by or will be electrified by off-grid systems than in the barangays electrified by or will be electrified by EC-grid systems. This tendency should be considered for future expansion of electrification.

The Study team could ascertain some of the tendencies regarding settlement patterns roughly through the socio-economic survey. However, the tendencies were obtained from the data that was limited in terms of the number of samples. As such, it will be necessary to conduct further surveys and more detailed map studies, not only for improving the precision of the data, but also for more effective use for other purposes.

Table C.4.14 Settlement Patterns

Barangay	Tagumpay	Tiniguiban	New Agutaya	Pularaquen	Debangan
Municipality/City	Puerto Princesa	Puerto Princesa	San Vicente	Taytay	Taytay
Electrification Status	Electrified	Electrified	Electrified	Electrified	Electrified
	EC-grid	EC-grid	EC-grid	Mini-grid and stand-alone	Mini-grid and stand-alone
Level	L3	L3	L1	L1	L2
Settlement Pattern					
Concentration ratio to the barangay center	75%	80%	60%	55%	30%
Description	The whole barangay is located within the city proper. The HH conentration is approximately 75% at 200 meters from the barangay center	HH concentration is approximately 80% near the barangay center/ Another 20% is located at 1km from the barangay center.	HH concentration near the barangay center is 60%. Other 40% of the total households are scatterd widely along the barangay road	Degree of HH concentration is 55% located within the barangay center. Other 18% are located approx. 3.2km, and other 10% are located approx. 6.4km from the center. Other HH are situated in island sitio.	Island Barangay. Settlement pattern is liner. The HH concentration is approximately 20% from the barangay center. Other households are located approx. 2.1km along the barangay road.
Barangay	Sta. Cruz	Tanabag	Caramay	Rizal	Binga
Municipality/City	Puerto Princesa	Puerto Princesa	Roxas	Roxas	San Vicente
Electrification Status	Unelectrified	Unelectrified	Unelectrified	Unelectrified	Unelectrified
	Mini-grid and stand-alone	Mini-grid and stand-alone	Mini-grid and stand-alone	Mini-grid and stand-alone	Mini-grid and stand-alone
Level					
Settlement Pattern					
Concentration ratio to the barangay center	60%	50%	40%	75%	55%
Description	HH concentration near the barangay center is 60%. Another 40% is near school.	HH concentration near the barangay center is 50%. Other 50% of the total households are scatterd widely and far from the center	HH concentration near the barangay center is around 30%. Other 60% of the total households are scatterd widely along the barangay road	About 75% of the total HH are concentrated at the barangay center	Approximately 55% of the HH are concentrated near the barangay proper. Other 15% are located approx. 3.7km from the center. Other 30% are located far area from the center.

Source: Qualitative Survey (Direct Observation)

C.4.2.4 Education

Most of the electrified barangays have schools for the elementary and high school levels. Tagumpay, a barangay in the city, even has a college. It was noted that the population of students has been increasing every year, with higher increases occurring at the elementary level. The lower rate of increase at the high school level could be attributed to the dropping out of school by a number of students as they move higher up the educational ladder. Among the electrified barangays where the qualitative survey was conducted, schools at all levels are energized to provide lighting, enable the use of electric fans and the operation of computers, except for the elementary school in New Agutaya.

All un-electrified barangays where the qualitative survey was conducted have only an elementary school and only the prospect for one high school in Aramayan, Quezon. No colleges could be found in these areas. There is generally an increasing enrollment at the elementary level. This implies that as the youth in these areas progress up the educational ladder, they move out to the Poblacion or adjacent barangays or towns where high schools and colleges are located.

C.4.2.5 Health and Sanitation

As expected, barangays within the city enjoy better health services as they have greater physical and political access to the city facilities than the others. The rest have to make do with the services available at their local barangay health station. As has been observed, the farther the barangay is from the capital city, the more mediocre its facilities and services become. Health stations are usually energized as the microscopes used for malaria testing have to be operated most of the time. It should be noted that malaria is quite prevalent in various areas of Palawan. Vaccines can also be stored at the barangay health stations once refrigerators become available and operational. Electricity would also make possible the operation of other medical devices and, thus, make the health services more responsive and efficient.

In terms of toilets, a large portion of the households have their own toilets and the most popular is the flush type. However, manual flushing is more common than the automatic type. Based on actual observations, the flush type toilets in barangays outside of the city are made of thick plastic-like bowls housed in an elevated cubicle. The elevation is meant to the enhance pull of gravity for easy flushing and, thus, save water.

While all barangays are supposed to have at least their mandated barangay health station, two of the un-electrified sample barangays, Rizal in Roxas and Sta. Cruz in Puerto Princesa

City, don't have any health stations. This is quite surprising since the two barangays are located in more accessible areas and are relatively nearer the city.

Similar to the electrified barangays, the manual flush type is the most common toilet type in these barangays. This is despite their water supply problems.

C.4.2.6 Water Supply

Since the electrified barangays are the more accessible ones, their water is usually supplied by the local water district and by private pumps. This indicates the people's capacity to maintain two sources of water and their tendency to have at least two co-existing sources of water to insure a continuous water supply.

Potable water comes from multiple sources: developed springs, deep wells, communal water pumps, creeks and rivers. Unlike the electrified barangays, the un-electrified barangays rely more on natural sources of water like rivers and creeks, especially for their crops. While they have communal pumps for drinking water, these are not adequate to meet their needs for farming. Hence, in most areas there is only one type of farming and this is done during the rainy season.

In one particular barangay of Rizal, Roxas, people clamored more for water than anything else. They reported the difficulty they encounter in obtaining water for drinking and for household chores, despite the fact that they are near a big river that even overflows during the rainy season. During summer months, they have to fetch their water from outside the barangay, which involves using a “jeepney” or boat ride to gather several gallons that will only last for a few days. On the possibility of a deep well pump, they noted that underground water in their area is not very potable as it has a "rust-like" taste. Also being in a high elevation, it would entail several pipes to reach the water table and the initial investment would be quite expensive. In other words, water problems are still one of the major issues confronting some barangays.

C.4.2.7 Housing

For all the electrified barangays there is a very high percentage of households that own both their house and lot. This indicates a higher level of security among households in terms of housing. Ironically, in the more urbanized barangays within the city, the number of those who rent their housing is growing. This could be explained by the fact that since businesses have eaten up large areas of land for commercial use in the city, fewer and smaller areas are now left for housing.

There is a high percentage of both house and lot ownership among the populace. This is despite their claim of being poor. People in un-electrified barangays at least have high security in terms of meeting this basic need for shelter. This same pattern has been observed for electrified barangays.

C.4.2.8 Social Welfare

Projects for social welfare include the care for the street children, medical/dental missions and anti-drug campaigns. These are sponsored by the Red Cross, missionary groups and the provincial government of Palawan. Two barangays did not specify any social welfare projects and explained this as being due to the absence of an NGO in their area.

Informants of the two barangays, Calatagbak, Quezon and Sta. Cruz, Puerto Princesa, sadly noted the absence of social welfare projects in their areas. The rest of un-electrified barangays where qualitative surveys were conducted, however, have been recipients of welfare services and projects such as water dam construction from World Vision, solar dryers and livelihood from municipal local government units (LGU), medical missions from NGOs and water supply from Red Cross and JICA. Being relatively more depressed than the electrified barangays, they tend to benefit more in terms of short-term social welfare projects such as medical missions.

C.4.2.9 Sports and Recreation

The most popular sport in the area is basketball, which is every Filipino's favorite, having been enhanced by the construction of basketball courts as pet projects of many politicians. For recreation, the “karaoke” or sing along bar is the heavy favorite, especially when electrification came into the area. This is actually part of the socialization schemes that evolved with the birth of new musical technologies – “videoke”. This has also provided an outlet for the Filipinos' penchant for singing.

Recreational activities in the area take the form of basketball, sing-alongs, volleyball and cockfighting. Due to limited or no recreational facilities in their barangays, those who can afford to usually go to Puerto Princesa City for recreation activities.

C.4.2.10 Protective Services

The crime rate was noted as being very low by the majority of the key informants. They further claimed that peace and order in Palawan is relatively high as compared to other areas in the country. As a proof, they claimed that no notorious crimes to date have been reported in the province, and only petty ones have so far been recorded. An exception is Barangay Manggahan which lies at the heart of Puerto Princesa. The barangay captain mentioned some unresolved crimes such as homicide. He attributed the moderately high occurrence of crimes in the area to the presence of businesses and marketplaces.

The occurrence of fire is rare. The abundance of forest though in the Narra area somehow results in forest fires during summer.

One notable feature of the un-electrified barangays is the very low or even non-occurrence of crimes. Respondents explain that since everybody tends to know everybody else, nobody dares do any harm in the community. Also despite the level of poverty that they face, they can manage to cope with whatever they have without engaging in criminal or illegal activities.

Fire occurrences are reported as being due primarily to forest or grass fires during the dry season, especially with the onset of El Niño.

C.4.2.11 Economic conditions

The data and information of economic condition is very important for demand forecasts and to understand the capacity to pay for electricity when making the power development master plan. However, there were difficulties in the collection of relevant data and information for this survey. That is because 1) people have no records of their income and expenditure conditions, 2) mainly people are engaged in job that are influenced by the weather and other factors, such as agriculture and fishing, and 3) people don't want to tell others about their economic situation. Therefore, although the Study team tried to ascertain the real intentions of the people by conducting qualitative surveys such as KII and FGD, it will still be necessary to conduct further investigations on this topic and then compare these results to other existing surveys on economic situations such as WB and USAID.

(1) Occupation of family members working/earning

Common sources of regular income in the barangays electrified by EC-grid systems are farming and fishing. Business and employment in government offices are dominant in the barangays located in the city. Typical of the entire group is their involvement in other irregular and additional pursuits of income such as driving, sewing/tailoring, carpentry, kaingin making, construction labor, renting and selling produce and wares.

Similarly, un-electrified barangays are basically farming and fishing communities. Rice and corn constitute the major crops with cashew serving as an additional line crop. Supplementing these regular income sources are copra making, charcoal making, tending sari-sari stores and working as hired labor in construction and other farms. Irregular income could hardly be recalled or estimated as they come so irregularly ("*paminsan -minsan*") during the off-planting season, which is during the summer months of April to June.

(2) Monthly household income and expenditure

Table C.4.15 shows economical data derived from qualitative surveys. Comparing their income and expenditure, households in the electrified and un-electrified barangays differ in absolute figures. Of interest is the fact that those in the electrified areas are spending almost 60% of their earnings, which indicates some substantive savings. For example, electrified barangays have an aggregated mean income of P 12,708 and only an aggregated mean expenditure of P 8,104. On the other hand, households in the un-electrified barangays with P 3,020 in mean income, spend an average of P2,687, which is almost their entire income. These figures imply that those in the electrified areas have higher disposable income and, thus, higher capacity to pay; while those in the un-electrified areas have very limited savings and, thus, very low or even no capacity to pay for additional amenities such as electricity.

Table C.4.15 Monthly Household Income and Expenditure

	Household Income		Household Expenditure		Electrification/ Energy Expenditure	
	Average	Range	Average	Range	Average	Range
Electrified	12,708	1,000-100,000	8,104	1,000-20,000	348	75 - 2,000
E-EC	21,916	1,000-100,000	9,375	1,000-20,000	226	
E-NON-EC	3,500	1,500- 5,000	6,833	1,500- 5,000	470	
Un-electrified	3,020	1,000- 7,000	2,687	1,000- 6,000	222	
UE-EC	2,250	1,000- 5,000	2,583	1,000- 5,000	166	
UE-NON-EC	3,791	1,000- 7,000	2,791	1,000- 6,000	279	

Source: Qualitative Survey

Tables C.4.16 (a) and C.4.16 (b) show the monthly household income patterns in electrified barangays and un-electrified barangays, respectively. From these data it should be noted that around 50-65% of households in barangays electrified by mini-grids and stand-alone systems and un-electrified are earning below P 1,500 a month, while the percentage of households with an average monthly income below P1,500 are only 35% in barangays electrified by EC-grid systems.

Table C.4.16 (a) Monthly Household Income Patterns in Electrified Barangays

Name of Sampled Barangay	Jose Rizal	Burirao	Calategas	Poblacioin	Inagawan	Manggahan	Tagumpay	Tiniguiban	Panitian	New Agutaya	Debangan	Pularaquen
Municipality	Aborlan	Narra	Narra	Narra	PPC	PPC	PPC	PPC	Quezon	San Vicente	Taytay	Taytay
Electrification status	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified mini-grid and stand-alone	Electrified mini-grid and stand-alone
Electrification level	Level 2	Level 1	Level 2	Level 3	Level 1	Level 3	Level 3	Level 3	Level 1	Level 1	Level 2	Level 1
No. of surveyed households/ Total household	24/261	25/504	24/791	24/3013	24/255	30/270	28/237	25/1419	25/1332	24/406	45/209	30/275
	%	%	%	%	%	%	%	%	%	%	%	%
Below P500	16.67	12.00					25.00	34.78	8.00	20.83	10.34	73.33
P 500-1000	4.17	4.00	16.67	4.17			3.57	8.70	72.00	4.17	3.45	13.33
P 1001-1500	4.17	8.00	12.50	4.17	8.33				4.00	12.50	10.34	6.67
P 1501-2000	12.50	8.00	12.50				3.57			4.17	10.34	
P 2001-2500		4.00			8.33				4.00	4.17	17.24	
P 2501-3000	8.33			12.50		3.45		8.70		8.33	10.34	
P 3001-3500	4.17		8.33				7.14		4.00	4.17		
P 3501-4000	12.50	4.00	4.17			3.45	3.57	8.70		12.50	3.45	
P 4001-4500		4.00				3.45		4.35		8.33		
P 4501-5000		4.00	12.50					4.35			6.90	
P 5001-5500	4.17		4.17	8.33			3.57			4.17	3.45	
P 5501-6000				4.17	4.17		14.29			8.33	3.45	
P 6001-6500	12.50		4.17	4.17	4.17		7.14					
P 6501-7000				4.17		3.45						
P 7001-7500							3.57					
P 7501-8000			4.17	8.33		6.90				4.17		
P 8001-8500							10.71	4.35			3.45	
P 8501-9000		4.00				3.45	3.57			4.17		
P 9001-9500								4.35				
P 9501-10000	4.17			4.17				4.35				
Above P 10001	12.50	12.00	16.67	37.50		13.79	7.14	8.70			10.34	
No response	4.17	36.00	4.17	8.33	75.00	55.17	7.14	8.70	8.00		6.90	6.67
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Below P1500	25.00	24.00	29.17	8.33	8.33	0.00	28.57	43.48	84.00	37.50	24.14	93.33
Average Below P1500 (exept the place where over 20% "no response")	36.58										58.74	

Source: Questionnaire Survey

Table C.4.16 (b) Monthly Household Income Patterns in Un-electrified Barangays

Name of Sampled Barangay	Kalatagbak	Tagumpay	Igang Igang	Sta Cruz	Tanabag	Aramayan	Calumpang	Punta Baja	Caramay	Rizal	Binga	Alacalian
Municipality	Quezon	Roxas	Bataraza	PPC	PPC	Quezon	Quezon	Rizal	Roxas	Roxas	San Vicente	Taytay
Electrification status	Unelectrified EC-grid	Unelectrified EC-grid	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone
Electrification level												
No. of surveyed households/ Total household	24/297	26/491	29/208	30/162	28/91	25/596	25/335	30/1907	30/440	25/155	30/243	30/320
	%	%	%	%	%	%	%	%	%	%	%	%
Below P500	8.33	15.38	65.52	24.14	33.33	4.00	16.00	10.00	16.67	24.00	3.33	16.67
P 500-1000	79.17	19.23	10.34	17.24	20.00	44.00	24.00	10.00	6.67	8.00	6.67	13.33
P 1001-1500		11.54	10.34	6.90	6.67	28.00	12.00	20.00	6.67	8.00	6.67	13.33
P 1501-2000	8.33	3.85	3.45	3.45	10.00	4.00	4.00	6.67		8.00	10.00	3.33
P 2001-2500	4.17	3.85		10.34	6.67	8.00	20.00	16.67		4.00	16.67	3.33
P 2501-3000		3.85	3.45			4.00	8.00	6.67	3.33		6.67	16.67
P 3001-3500				3.45	3.33	4.00	8.00			8.00	3.33	3.33
P 3501-4000				3.45		4.00		3.33			6.67	6.67
P 4001-4500										4.00	6.67	6.67
P 4501-5000				3.45						12.00	3.33	6.67
P 5001-5500										4.00	6.67	
P 5501-6000				3.45				3.33		4.00	6.67	
P 6001-6500										4.00	3.33	
P 6501-7000							4.00					
P 7001-7500												
P 7501-8000												
P 8001-8500												3.33
P 8501-9000											3.33	
P 9001-9500												
P 9501-10000												
Above P 10001			3.45	6.90				6.67	3.33	12.00	6.67	6.67
No response		42.31	3.45	17.24	20.00		4.00	16.67	63.33		3.33	
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Below P1500	87.50	46.15	86.21	48.28	60.00	76.00	52.00	40.00	30.00	40.00	16.67	43.33
Average Below P1500 (exept the place where over 20% "no response")	66.83		51.39									

Source: Questionnaire Survey

Considering the above data from qualitative and questionnaire survey, if people can spend around 10% of their income for electricity usage, estimated peoples' capacity to pay for electricity usage in un-electrified barangays may be below P150 as a reasonable payment and P300 as a maximum payment.

(3) Credit sources in the area

In the more urbanized on-grid barangays like Manggahan in Puerto Princes City and Narra in Narra, credit is usually available from formal sources like the Landbank, private lending agencies and cooperatives. But people in the less privileged barangays and those powered by mini-grid and stand-alone systems, tend to rely on personal sources of financing such as friends, relatives, "amo" or boss (e.g. banca owner) and barangay officials. This finding is supported

by similar data at the household level. Formal credit sources like banks are used by the rich and informal sources such as relatives and friends are used by the poor. This can be simply explained by the fact that the rich usually have assets and property, which they can use as collateral for loans, while the poor have only their word-of-honor to offer as collateral.

In un-electrified barangays, credit is used usually for purchasing farm inputs. This credit is obtained most often from informal sources such as relatives, friends, sari-sari storeowners, barangay captains and copra traders. Formal sources such as banks located in the town proper are also used, but by only a few. Cooperatives used to operate also as a source of credit, but these have all become dysfunctional due to the lack of repayment of loans by members.

C.4.2.12 Organizational Conditions

The number and types of organizations are indicative of the community's social capital and ability to manage projects. All of the electrified barangays so far indicated the existence of functional organizations addressing various concerns in their locality. These community-based organizations include the following: KISLAP (women), Senior Citizens, Samahan ng Mangingisda (fishermen), Citizen Anti-Crime Group, Ilaw ng Bayan (youth), Market Vendors Association, Lions Club and Charity Women's Foundation. Their memberships range from 20 to 50 members each.

The above organizations that remain functional to this day are important indicators of the community's ability to absorb various community-development project interventions later on. This finding suggests that people may be able to maintain an organization that will help maintain various kinds of projects.

A number of functional community organizations exist in this area. These are the Integrated Furniture and Farmers Development Association, Women's Club, Northern Palawan Community Development Foundation Inc., or NPCDFI, and the senior citizens organization. NPCDFI is being assisted by World Vision and is currently the one organization that is more visible and actively operating in the area.

The above organizations that remain functional to this day are important indicators of the community's ability to absorb electrification project interventions later on. This finding suggests that people may be able to maintain an organization that will help maintain their electric distribution.

C.4.2.13 Infrastructure Conditions

(1) Roads

Electrified EC-grid barangays tend to have longer stretches of concrete roads than the un-electrified barangays. For example, Manggahan, being at the heart of the city, has almost 90% of its road made in concrete. For the mini-grid and stand-alone barangays, an average of 7 to 10.5 kilometers of roads is earth-filled. Only short concrete portions of the road can be found along the highways leading to their barangays. This suggests that there is still a low level of road development in the barangays powered by mini-grids and stand-alone systems. This could have bearing on the progress of electrification in these areas as electrification plans have to follow the approved road plan for installation of electric posts.

Big portions of the roads, 5 to 20 kilometers, especially those going inward to the barangays, are earth-filled. Only a kilometer or two of the roads that are part of the highway going to the various barangays are made with concrete. This makes travel time a little bit longer and tougher from Puerto Princesa City to these barangays.

(2) Irrigation

Only in the two barangays of Agutaya, San Vicente and Narra, Narra do we find irrigation covering 300-1000 hectares of farmlands. In these areas, farmers can plant and harvest twice a year and can have higher income. The rest of the electrified barangays have no irrigation and, thus, have only one planting season (the rainy season). This means that they also have lower income as they resort to irregular odd jobs during the off-farm season.

Being on high elevation, most of the barangays are rain fed and not irrigated. For the barangays on lower elevation, the services of an irrigation system for about 250 hectares of their land is used. This is another disadvantage for the un-electrified barangays compared to the electrified barangays.

C.4.4.14 Environmental Conditions

Except for Barangay Manggahan, which is located at the heart of the city, all sample electrified barangays have important environmental features that make them potential tourist spots and areas for biodiversity conservation. Mangroves, coastal areas, forests and rivers lace the areas making the province a priority protected area in the country. This is the main reason why environmental concerns are quite high in this area as compared to other provinces in the country.

The level of awareness among people about environmental protection is high, especially among those residing in the coastal and upland portions of the barangays. Having the most at stake in maintaining the integrity of the environment, they are usually active members of community-based brigades that help in the enforcement of laws pertaining to environmental protection.

Ironically though, the general pattern in which they dispose of their batteries suggests a wanton dumping of these batteries with other garbage materials. On very rare occasions, they sell the car batteries to junk shops or bury them under ground. This suggests the need to further educate the people in the area on the proper disposal of their batteries, these being one of the constant commodities they will use for lighting.

Like other areas in Palawan, the un-electrified barangays are also blessed with rivers, creeks, mountains, mangroves, forest, mountains and sea coasts. These natural spots are subject of intensive protection and conservation by the LGUs at both the local and national levels. Hence, any development activities are rigidly and critically evaluated before they can be implemented in these areas.

Being un-electrified, a large portion of the population depends on dry cell and car batteries for short periods of lighting. When asked how these are disposed of, informants noted that people usually just throw them away together with other garbage or waste. Some just pile them up in their backyard. This merits attention as batteries can emit chemical substances that can harm people and the environment

C.4.2.15 Electrification and Energy Concerns

(1) Electric appliances

Appliances purchased and owned by households are shown in the Table C.4.17 (although such electric alliances are commonly used in electrified barangays, some households in un-electrified barangays are using them with generator sets and dry cell batteries). a percentage of more than 100 means that some households own multiple appliances. For example, it is reported that the better off residents use more than 5 bulbs for lighting while the poorer residents use only two. Aside from bulbs for lighting, the top three appliances usually purchased by the households, whether rich, middle income or poor, are television, electric fan and radio.

Television is a popular priority item because it is a medium for information, news & current events and entertainment. It is also a status symbol, especially for those in the rural areas. The

number of hours in which the television is used ranges from 2 to 6 hours a day, with an average of 4 hours for electrified households. Television viewing is usually from 6pm to 10pm. The number of hours is limited despite the presence of a continuous supply of electricity because most of the children are studying by that time and so are being kept away from the television sets.

Electric fan highly ranks as it gives residents "a little comfort/convenience in their home."

Radio, of course, is their companion medium, being very portable and allowing them to attend to household chores while listening to news, dramas or music. However, radios are often operated by dry-cell batteries, especially in rural barangays.

It can be noted that refrigerators are also very popular. For electrified households, refrigerators are used continuously for 24 hours a day to preserve their food stock. For un-electrified households, refrigerators are used only during the first few days of the week (2-3 days) when they have their full food stock for storage. As the stocks get lower, they just turn the refrigerators off to save electricity.

Moreover, in some cases in the un-electrified areas people don't buy these appliances even if they can afford them because of the limited electric supply they get from generator sets, or because of the total absence of electric power in other areas. But whenever electricity is continuously available, there must be a strong motivation for people to invest in various household appliances for reasons of convenience, recreation and prestige.

These appliances are usually purchased by households from Manila or Puerto Princesa. That is, electric appliances are not distributed widely in the local areas of Palawan yet and people are at a disadvantage in terms of purchasing their appliances. Therefore, it is assumed that growth in demand for electricity will not be expected even though some local areas are electrified.

Table C.4.17 Electric Appliances Owned by Households of Different Electrification Status (%)

Appliances	E-EC, L3	E-EC, L2	E-EC, L1	E-NON-EC, L2	E-NON-EC, L1	UE-EC	UE-NON-EC
Incandescent	117	56	81	0	7	15	14
Fluorescent	264	118	119	103	137	58	74
Energy saving lamp	89	33	80	7	3	12	9
BW TV	4	1	0	0	0	0	0
Color TV	94	32	41	17	40	4	17
Radio	59	21	35	33	37	42	36
VHS	12	3	19	10	0	4	2
VCD-DVD	27	20	6	3	17	0	8
Washing machine	52	20	29	0	10	4	3
Vacuum cleaner	2	0	0	0	0	0	0
Flat iron	62	26	29	0	7	0	2
Refrigerator	67	33	27	7	13	4	6
Rice cooker	16	6	2	0	0	0	0
Microwave oven	7	3	2	0	0	0	0
Electric fan	132	29	48	13	7	0	8
Video game	6	0	0	0	0	0	0
Karaoke set	12	17	13	0	17	31	8
Cell-phone charger	94	11	6	0	7	0	6
Electric tools	2	0	0	0	0	0	1

Source: Questionnaire Survey

Appliances purchased and owned by households of different socio-economic status are shown in the Table C.4.18. It can be seen that as the households become economically better off, the type and number of appliances bought increases. The richer households, as expected, purchase additional amenities that include flat irons, washing machines, karaoke sets, cellular phones, VCD/CD players, ovens, computers and air conditioners. Aside from the availability of electricity, the number of appliances depends on the socio-economic status of the households.

Table C.4.18 Electric Appliances Owned by Households of Different Socio-economic Status

Appliances	Rich		Moderate		Poor		Price Range (Peso)
	EC Grid	Non-EC Grid	EC Grid	Non-EC Grid	EC Grid	Non-EC Grid	
Television	X	X	X	X	X		6,000 - 45,000
Radio /cassette	X	X		X		X	250 - 750
VCD/ CD	X	X		X	X		2,000 - 4,000
Washing machine	X	X	X	X			5,000 - 15,000
Flat iron	X	X	X				300 - 1,500
Sewing machine				X			Unknown
Refrigerator	X	X	X	X	X		7,000 - 15,000
Oven	X						1,000 - 3,000
Electric fan	X	X	X	X	X		200 - 1,500
Air conditioner	X						10,000 - 25,000
Karaoke set		X		X	X		3,000 - 7,500
Cellular phone	X						2,000 - 6,000
Computer	X						15,000 - 45,000

Source: Qualitative Survey

(2) Plans to buy appliances in the future

The results (see Table C.4.19) of the survey on electrical appliances that households plan to buy in the future show the popularity of recreational and communicative appliances, such as color TVs, VCD/DVDs, karaoke sets and radio/cassette players. Also, washing machines, electric fans and refrigerators are extremely popular. The differences in the orders of preference among the electric appliances that households plan to buy based their different electrification status also provide some interesting indications. For the un-electrified EC-grid barangays, the top electrical appliance identified by households as being the one they intend to buy is color TV (83%). This was followed by radio/cassette player (42%), washing machine (42%), refrigerator (42%) and VCD/DVD (41%). Among the households in the un-electrified mini-grid and stand-alone barangays, color TV was the most frequently mentioned item that they plan to buy in the future (75%). This was followed by refrigerator (47%), VCD/DVD (46%) and washing machine (44%). This clearly shows that the electric appliance that people will want to buy the most after electrification must be the color TV (except for lighting).

Table C.4.19 Electric Appliances that Households Plan to Buy in the Future

Rank	E-EC, L3	E-EC, L2	E-EC, L1	E-NON-EC, L2	E-NON-EC, L1	UE-EC	UE-NON-EC
1	VCD/DVD (46.2%)	Color TV (63.1%)	Radio/Cassette (63.1%)	Color TV (66.7%)	Electric Fan (56.7%)	Color TV (82.5%)	Color TV (74.5%)
2	Washing Machine (40%)	Washing Machine (52.2%)	Color TV (52.2%)	VCD/DVD (63.3%)	Color TV (50.0%)	Radio/Cassette Washing Machine (42.2%)	Refrigerator (46.7%)
3	Microwave Oven (39.1%)	VCD/DVD (51.3%)	Washing Machine (51.2%)	Electric Fan (60.0%)	Refrigerator (46.7%)		VCD/DVD (45.5%)
4	Color TV (37.4%)	Refrigerator (48.5%)	Electric Fan (38.1%)	Refrigerator (50.0%)	Washing Machine Flat Iron Karaoke Set (36.7%)	Refrigerator (41.9%)	Washing Machine (44.4%)
5	Electric Fan (35.1%)	Electric Fan (47.3%)	VCD/DVD (34.8%)	Karaoke (36.7%)		VCD/DVD (41.1%)	Radio/ Cassette (42.1%)

Source: Questionnaire Survey

(3) Energy usage

As shown in Table C.4.20, it is clear that many people own and use kerosene for lightning, even if their area is electrified. One of the reasons for this tendency may be that people are using kerosene to saving the time of electric usage for when an unannounced brownout happens. Also, the table shows the spread of the usage of dry cell battery. These are mainly used for electric torches. Another noteworthy point is the usage of electric small-scale gen-sets in un-electrified barangays. Some people are enjoying the benefits brought by electricity, although some believe that the electric voltage from gen-set is low and inadequate for running various appliances.

Table C.4.20 Source of Electricity and Lightning used by Households (%)

	E-EC, L3	E-EC, L2	E-EC, L1	E-NON-EC, L2	E-NON-EC, L1	UE-EC	UE-NON-EC
Kerosene	51.0	98.6	90.5	80.0	93.3	100.0	97.6
Dry cell battery	28.4	38.9	45.9	73.3	83.3	53.1	62.1
Candles	52.0	4.2	1.4	3.3	10.0	2.0	2.4
Charcoal (for ironing only)	2.0	9.7	1.4	26.7	10.0	4.1	7.5
LPG	4.9	0.0	0.0	3.3	0.0	0.0	2.4
Car battery	0.0	0.0	1.4	6.7	23.3	2.0	3.2
Electric gen-set	2.0	1.4	0.0	53.3	40.0	12.2	26.5
Solar PV system	0.0	0.0	0.0	13.3	0.0	0.0	1.6
Micro-hydro	1.0	1.4	0.0	0.0	0.0	0.0	0.0
Electricity from grid	82.4	59.7	51.4	0.0	0.0	0.0	7.5

Source: Questionnaire Survey

From the results of the questionnaire survey, the average monthly lightning expenditure of households in un-electrified EC-grid, mini-grid and stand-alone barangays were P166 and P279, respectively. Current lighting expenditure patterns of un-electrified barangay are shown in Table C.4.21. It is clear that the majority of people are spending below P200 or between P200 and P400 for lighting their expenditure. This expenditure includes the price of kerosene and dry cell batteries for electric torch.

Table C.4.21 Current Lighting Expenditure Patterns in Un-electrified Barangays

Name of Sampled Barangay	Kalatagbak	Tagumpay	Igang Igang	Sta Cruz	Tanabag	Aramayan	Calumpang	Punta Baja	Caramay	Rizal	Binga	Alacalian
Municipality	Quezon	Roxas	Bataraza	PPC	PPC	Quezon	Quezon	Rizal	Roxas	Roxas	San Vicente	Taytay
Electrification status	Unelectrified EC-grid	Unelectrified EC-grid	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone
Electrification level												
No. of surveyed households/ Total household	24/297	26/491	29/208	30/162	28/91	25/596	25/335	30/1907	30/440	25/155	30/243	30/320
	%	%	%	%	%	%	%	%	%	%	%	%
Below P200	83.33	38.46	82.76	48.00	67.86	76.00	48.00	50.00	26.67	48.00	36.67	56.67
P 200-400	16.67	3.85	10.34	20.00	14.29	16.00	44.00	33.33	13.33	8.00	30.00	20.00
P 401-600	-	3.85	-	4.00	3.57	4.00	8.00	13.33	6.67	-	10.00	6.67
P 601-800	-	3.85	-	4.00	-	–	–	3.33	3.33	-	10.00	3.33
P 801-1000	-	-	-	-	-	–	–	-	–	-	–	3.33
P 1001-1200	-	-	-	-	-	–	–	-	–	-	–	–
P 1201-1400	-	-	-	4.00	-	–	–	-	–	-	3.33	–
P 1401-1600	-	-	-	-	-	–	–	-	-	4.00	3.33	3.33
P 1601-1800	-	-	-	-	-	–	-	-	-	-	–	-
P 1801-2000	-	-	-	-	-	–	-	-	-	-	–	-
P 2001-2200	-	-	-	-	-	–	-	-	-	-	–	-
P 2201-2400	-	-	-	-	3.57	–	-	-	-	-	–	-
P 2401-2600	-	-	-	-	-	–	-	-	-	-	–	-
P 2601-2800	-	-	-	-	-	–	-	-	-	-	–	-
P 2801-3000	-	-	-	-	-	–	-	-	-	-	–	-
P 3001-3200	-	-	-	-	-	–	-	-	-	-	–	-
P 3201-3400	-	-	-	-	-	–	-	-	-	-	–	-
P 3401-3600	-	-	-	-	-	–	-	-	-	-	–	-
P 3601-3800	-	-	-	-	-	–	-	-	-	-	–	-
P 3801-4000	-	-	-	-	-	–	-	-	-	-	3.33	-
Above P 4001	-	-	-	-	3.57	–	-	-	-	-	3.33	-
No response		50.00	6.90	20.00	7.14	4.00			50.00	40.00	-	6.67
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Below P400	100.00	42.31	93.10	68.00	82.14	92.00	92.00	83.33	40.00	56.00	66.67	76.67
Average Below P400 (exept the place where over 20% "no response")	100.00		80.12									

Source: Questionnaire Survey

Regarding the issue of problems encountered with current energy sources, especially small-scale gen-sets, people responded in the following manner. The first problem deals with the limited number of houses that can be served by the generators. These are usually those houses within and around the immediate vicinity of the owner of the generator set. This is understandable since connections entail wiring and the more remote a house is, the longer the wiring and the more expensive a connection becomes. Respondents have also observed that electric voltage from generators is low and inadequate for running other appliances. This leads to frequent fluctuations that could damage appliances. This could be another reason why households don't usually depend

on power from generators for their appliances. A bigger and more recurrent problem is the poor management of the generator sets leading to frequent loss of service. Operators, whether they are the barangays or private owners, can hardly provide the funds needed for their maintenance. This may be attributed to a lack of professional management skills for running the operation as a business. This assumption is supported by the relatively low and friendly rate owners charge the consumers. When generators break down, they are merely stocked up and kept unused until the money for repairs is made available. Such a situation can run for weeks and in some cases the generators still had not resumed operation at the time the study was conducted. Moreover, a breakdown leads to unannounced brownouts that the consumers resent because of the adverse impact on their regular activities and whatever small business they might be operating. The respondents have also observed that the capacity of the generators diminishes every time it rains. On the other hand, notable is the absence of any problems related to cost. This is perhaps an indication that un-electrified households find their current rate fair enough and are more than willing to pay in exchange for a commodity they find very useful.

(4) Problems encountered on electrification

When asked about problems encountered with electrification, respondents from on-grid households have articulated the following three problems; 1) Charging of Power Purchase Adjustment (PPA), 2) Recurring voltage fluctuations, and 3) Unannounced brownouts. The PPA is a popular acronym among the respondents. But when asked what they know about it, no one was able to fully explain it. All they knew is that this it is being applied unfairly to the electric consumers, which is partly correct. They also took note of the voltage fluctuations that can damage household appliances, especially the fact that these fluctuations are difficult to monitor and control from their end.

Although there has been no reports of destruction caused by such fluctuations yet, respondents are wary that their appliances may be affected next. Being mostly in the business sector, respondents feel bad about the unannounced brownouts basically because of its adverse effect on their business. Also, they consider this as a sign that maintenance is not being performed well by the power distributor and that they are being shortchanged in terms of their payments.

Respondents from mini-grid and stand-alone powered households, on the other hand, enumerated a longer list of problems, as they are dependent on other energy sources for electricity. These problems related to mainly using generators are; 1) Only accessible houses can be served, 2) Low voltage is generated, 3) Poor maintenance/poor management, 4) Capacity is lessened during rainy days, and 5) People's inability to pay.

The above factors regarding problems encountered with electrification are related to the impacts of electrification that will be mentioned later.

(5) Perception on impacts of electrification

People's perceptions of the impacts of electrification will provide useful indications that will provide us with a rationale for electrification and teach us lessons for future electrification. According to the results of this socio-economic survey, positive impacts of electrification were easily recognized by most respondents. (Recognition of positive impacts was almost 100% for various aspects). Electricity is regarded as a very positive technology/service in general. Almost nobody complains about electricity itself, which absolutely makes people's life more comfortable. If properly distributed and managed, electricity is beneficial to the people.

On the other hand, there were fewer perceptions of the negative impacts of electricity, as seen in the results of questionnaire survey. (Recognition of negative impacts ranged from 0% to around 80% for various aspects). Therefore, electrification has enormous significance in making people's life more comfortable. An aggregate picture of the impacts of EC-grid electrification based on the qualitative survey, such as the responses of the barangay officials, the household informants and the participants in the FGDs, is summarized below (see Table C.4.22).

Table C.4.22 List of Impacts of Electricity based on Qualitative Survey

Positive Impacts	
Livelihood	- Commodities (fish, food) can be stored longer as ice can now be manufactured - More varied livelihood opportunities - Faster movement of goods and services
Business	- Faster transactions - Repairs can be done - Will attract more investors
Education and Communication	- Computers can be used - Better lighting and more time for study - Faster communication
Household chores	- Acquisition of appliances and gadgets that will shorten time for household chores - Comfort and convenience (electric fan, TV, refrigerator)
Peace and order	- Fewer stand-bys - Fewer accidents thanks to streetlights - Fewer fire hazards
Health	- Operation of microscopes - Vaccines can be stored at the barangays - Better and more efficient health services
Recreation	- Additional and more varied recreational activities
Community activities	- Community feasts and celebrations are more joyous - Meetings can be held at night
Others	- Faster house construction - Population control
Negative Impacts	
- Electric consumption is an additional expense leading to higher household maintenance. - Additional activities and recreation will make the barangay a little noisier especially at night. - Careless use of electricity could cause fires. - Benefits of electrification can be a pull factor for in-migration of outside people who may later on compete for control of production and the economy in the area.	

Source: Questionnaire Survey and Qualitative Survey

Positive impacts in the electrified barangays

From the results of the qualitative survey, electrification has been seen as an important factor for production activities. For most of the electrified barangays, electricity gives rise to the proliferation of business enterprises and the necessary support infrastructure and services, thus, increasing livelihood opportunities. Also, it is often cited that electricity allows for the preservation of caught fish (including the establishment of ice plants) and the repair (welding) of machines/farm implements. For example, an ice plant is seen as a boost to the fishing industry.

One sector that would benefit a great deal from electrification is education. With better quality lighting, students can study better and for longer hours. The advantages of information technologies such as computers could also be explored to enhance the academic performance and social contacts of students. Communication is another area that electrification helps to improve. People can now communicate faster and more efficiently because of cellular phones, handheld radios and even satellite phones for those who can afford them.

Household appliances powered by electricity generally make life more convenient for the barangay residents. People appreciate the comfort and conveniences brought about by being able to use electric fans when it is hot, drink cold water, watch television or movies, engage in more hours of varied recreational activities and make household chores a lot easier through the use of washing machines and electric irons. Reduced consumption of fuel wood because of electricity was also noted in the sample barangays.

In addition, electrification has been perceived by respondents as an effective deterrent of crime as evidenced by low crime rate in the said areas. With the probable emergence of other recreational and productive activities, the so called “stand-by” will be minimized. Streetlights will also help prevent accidents. With the shift from home made lamps and wicks, fire hazards will also be lessened.

For an area with a high prevalence of malaria, electricity would be of much help in the operation of microscopes, which are basic equipment in the early detection of the disease. Vaccines can also be stored at the barangay health stations once refrigerators become available and operational. Electricity would also make possible the operation of other medical devices and, thus, make the health services more responsive and efficient.

Recreation is also another area impacted by electrification. Informants noted that their activities, particularly at night, have changed since they acquired TVs, VCDs and karaoke sets. They have also increased their activities as they can now visit friends, relatives as well as attend socials and meetings at night. As for community events such as fiestas, electricity has made

them more colorful and joyous. As a minor but interesting opinion, it was also mentioned that women were becoming more conscious of their "beauty" because of electrification. This, of course, was in relation to the livelihood opportunities arising from electrification, such as the establishment of beauty parlors and salons. Electrification has an influence on people's minds, too.

A response from an FGD noted how mu ch electricity can speed up construction work for houses and buildings in the area. With mechanized tools, a lot can be accomplished in a day and with a smaller amount of human resources.

Negative impacts in the electrified barangays

The negative impacts of electrification are far outweighed by the positive ones. The downside to electrification that the people were most aware of was the bigger household expense from having electric appliances and lighting fixtures. They were also wary that additional activities and recreation would make the barangay a little noisier, especially at night. The other impact was that careless use of electricity could possibly cause fires and other accidents. In-migration or the settling of squatters in the electrified barangays was another disadvantage that was mentioned. Brownouts are common and usually occur without prior notice. Fluctuation in the power supply is also common in the barangays that are 100% electrified. These problems usually damage the appliances and disrupt business transactions. To minimize these negative effects, residents would buy generators or batteries as alternative power sources.

The qualitative survey yielded several measures that the people adopted to address the negative impacts of electrification. Households that feel the financial burden of electricity are quite keen in taking measures that will help them reduce their consumption and eventually lower their bill. The following responses are common among all groups; 1) Regulate/shorten, time of usage of bulbs and household appliances, 2) Turn off lights when not in use, 3) Let children study before night time, 4) Reduce the number of bulbs used.

Shortening the time of usage takes varied forms. For examples, the refrigerator is turned off at night and when its load is no longer full. Ironing of clothes is done once or twice a week in bulk. The television is turned on only at specified times and at set durations.

Though many households use more than one bulb for lighting, most of these are turned off when not in use. Also, some informants reported telling their children to accomplish their assignments in school while there is still available day light so that they will not have to compete for lighting at home during night time. Power fluctuations were dealt with by using step-ups and transformers. The people tried to prevent fires and other accidents by checking

their connections regularly and making sure there were no octopus connections. Noise arising from electrification (when people got together, usually with singing and drinking) was addressed quite diplomatically by just reminding people about their limits.

Perceived positive impacts in the un-electrified barangays

The benefits from electrification that the largest number of respondents saw were in the areas of livelihood and income-generating opportunities, communication and convenience in doing household chores with the use of electrical appliances. Some of the income-generating opportunities identified were the setting up of machines or welding shops for repairing farm implements, food processing plants, ice plants and furniture shops.

Community people also saw the importance of connectivity through cellular phones, radios and the mass media. The fact that streets would be well-lighted at night was also important to the people. With regard to the education-related benefits, respondents realized the importance of electricity to their children's study habits, their computer education, as well as extended class hours for those who need to attend night classes.

Male participants playfully emphasized the importance of recreational facilities, like karaoke joints, after a full day's work or a night of fishing.

Electrification was also seen as a possible population management strategy because people would have more and varied recreational facilities.

Perceived negative impacts in the un-electrified barangays

The main problem noted by the respondents is the inability of people to pay the monthly bill. They can foresee that once electricity becomes regular, there will be the tendency to acquire electric appliances and gadgets that would consume more power. This would, of course, mean higher monthly fees on their part, although the electric fee may be reduced along with the increased power demand. Based on their current situation, where many can hardly cope with the monthly fee of only P60 per month for the use of a generator, they fear that this might become a big problem later on.

They feel that a sense of discipline has to be instilled first among users before a full-scale electrification program is implemented. Also, such a tendency would give rise to frequent brownouts. They were also wary of accidents arising from faulty wiring.

More activities among EC-grid households across all economic classes would be affected without electricity; whereas those mini-grid and stand-alone households have only lighting to lose. Foremost among these is their business operations. For these households, a brownout of

just a few hours can mean losses, especially if they are engaged in selling perishable goods, or are operating machines that rely on electricity such as welding machines.

Other activities include children's study, household chores and recreation like watching television. While these three are not perceived as critical, households still find them as important having become used to the convenience they have learned to enjoy with the coming of electricity to their homes. Another notable activity that would be affected is the rendering of health services. Respondents noted that with their location being so far from the town proper where good health services and facilities can be found, emergency treatments needing electricity would suffer.

C.4.2.16 Willingness to pay for electricity

Questionnaire survey results are shown in tables C.4.23 (a) and C.4.23 (b). The tables reveal that almost all are willing to pay, although lower than what they are currently spending on electricity.

Only those with un-electrified mini-grids and stand-alone systems were willing to pay the same amount as they are presently spending for electricity. When asked how much each respondent is willing to pay with the current monthly lighting expenditure serving as a reference, 61% of the electrified EC-grid households responded they are willing to pay an amount lower than their current monthly lighting fixtures if a new source of electricity were to be provided. 60% of the households in the electrified mini-grid and stand-alone barangays likewise expressed a willingness to pay an amount lower than the current monthly lighting expenditures.

The highest percentage of households (43%) in the un-electrified EC-grid barangays expressed that they are willing to pay the same amount as their current monthly lighting expenditures. Sixty-seven percent of the households in the un-electrified off grid barangays expressed that they are willing to pay lower than the current lighting expenditures.

Table B.23 (a) Willingness to Pay in Electrified Barangays

Name of Sampled Barangay	Jose Rizal	Burirao	Calategas	Poblacioin	Inagawan	Manggahan	Tagumpay	Tiniguiban	Panitian	New Agutaya	Debangan	Pularaquen
Municipality	Aborlan	Narra	Narra	Narra	PPC	PPC	PPC	PPC	Quezon	San Vicente	Taytay	Taytay
Electrification status	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified EC-grid	Electrified mini-grid and stand-alone	Electrified mini-grid and stand-alone
Electrification level	Level 2	Level 1	Level 2	Level 3	Level 1	Level 3	Level 3	Level 3	Level 1	Level 1	Level 2	Level 1
No. of surveyed households/ Total household	24/261	25/504	24/791	24/3013	24/255	30/270	28/237	25/1419	25/1332	24/406	45/209	30/275
	%	%	%	%	%	%	%	%	%	%	%	%
same	29.17	40.00	25.00	25.00	29.17	13.33	23.08	8.00	60.00	4.17	23.33	40.00
more than	-	8.00	-	4.17	-	6.67	30.77	-	-	4.17	6.67	3.33
lower than	66.67	48.00	70.83	70.83	70.83	33.33	42.31	-	32.00	12.50	70.00	53.33
no response	4.17	4.00	4.17	-	-	46.67	3.85	92.00	8.00	79.17	-	3.33
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source : Questionnaire Survey

Table C.4.23 Willingness to Pay in Un-electrified Barangays

Name of Sampled Barangay	Kalatagbak	Tagumpay	Igang Igang	Sta Cruz	Tanabag	Aramayan	Calumpang	Punta Baja	Caramay	Rizal	Binga	Alacalian
Municipality	Quezon	Roxas	Bataraza	PPC	PPC	Quezon	Quezon	Rizal	Roxas	Roxas	San Vicente	Taytay
Electrification status	Unelectrified EC-grid	Unelectrified EC-grid	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone	Unelectrified mini-grid and stand-alone
Electrification level												
No. of surveyed households/ Total household	24/297	26/491	29/208	30/162	28/91	25/596	25/335	30/1907	30/440	25/155	30/243	30/320
	%	%	%	%	%	%	%	%	%	%	%	%
same	70.83	23.08	34.48	28.00	46.43	36.00	24.00	20.00	23.33	24.00	23.33	33.33
more than	8.33	30.77	6.90	12.00	7.14	16.00	-	-	23.33	20.00	10.00	13.33
lower than	20.83	42.31	58.62	56.00	32.14	48.00	72.00	80.00	50.00	56.00	66.67	46.67
no response	-	3.85	-	4.00	14.29	-	4.00	-	3.33	-	-	6.67
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

From the perspective of the qualitative survey, respondents said that people would be willing to pay between P100 and P150 per month for a regular supply of electricity, with emphasis on the adjective "regular".

In addition, the great majority of respondents recommended the collection of dues by an authorized fee collector who would conduct house-to-house collection. They also explained that people are not likely to pay regularly if they themselves have to go to the collection office to pay because this is viewed as an additional burden on their time and resources.

C.4.2.17 Household Desire for Services and Barangay Needs

(1) Household desire for services

Electricity is only one of the needs people consider indispensable for their life and aspire for in the future. That is, there are various prioritized aspirations in each household. Therefore, if the aspiration of electrification is weaker than other aspirations, the expansion of the electrification system to un-electrified barangays will be difficult or electric consumption will not increase so much in electrified households. It is very important to consider the households' intentions and their desires for services in the power development master plan. Table C.4.24 shows a prioritized ranking of the services people want.

Table C.4.24 Prioritized Rank*[1] of Services People Want

	Average Rank	E-EC, L3	E-EC, L2	E-EC, L1	E-NON-EC, L2	E-NON-EC, L1	UE-EC	UE-NON-EC
House ownership	2.1	1	1	1	4	4	2	2
Water system	2.6	2	2	4	2	3	1	4
Electricity	2.7	4	4	3	3	1	3	1
Educational facilities	7.4	6	8	9	8	6	8	7
Irrigation	6.4	6	7	6	6	8	5	7
Road, bridge, and other infrastructure	5.4	6	6	5	5	8	3	5
Public transportation	7.7	6	10	7	8	8	6	9
Health facilities	6.1	5	5	7	6	6	8	6
Toilet	7.9	6	9	9	8	5	8	10
Job opportunities	2.7	3	3	1	1	2	6	3

*1: 1=highly desired , 10 = least desired

Source: Questionnaire Survey

The top three recurring needs, from the perspective of the barangay officials interviewed and based on an aggregated rankings are water system, electricity, and roads. Water system tops the list and according to informants, they can bear having no electricity but not without water, especially potable water.

They further explained that people would not be able to appreciate the value of electricity if they don't have water. With a proper water supply they would have better health, use good health as a capital for their livelihood, gain more adequate income, and at that points perhaps they would bother with having electricity.

Then, although there was not such a strong aspiration from the opinion of households, barangay captains see roads as an important infrastructure next to electricity. The other items such as schools, health facilities and agricultural support services are seen as lower priorities, but are still items they would also like to address.

(2) Barangay needs

The top two services needed by the community, which surfaced during the qualitative survey, were the need for electrification and the provision of potable water.

Electricity was desired mainly to light up and speed up development of their respective barangays, as well as to speed up communication. Electrification would allow the community members to acquire cellular phones and regularly charge their batteries. Also, a continuous and regular supply of electrification is highly required.

The need for potable water, on the other hand, was a frequently expressed need because residents had to pay for the "delivery" of their drinking water taken from springs/sources that were quite a distance from their houses.

All told, the community's main concerns were electrification, need for potable water and need for additional income and livelihood opportunities. Also, these un-electrified barangays were far from the main road network, hence the communities wanted to be better connected to the national highway for easier transport of their produce.

The need for public transport thus popped up a number of times in relation to this desire. They also emphasized that a good road network would allow for immediate response to emergency situations, especially health-related emergencies.

In the fishing communities, people also voiced a desire to have the following structures built in their communities: 1) an ice plant to prolong the shelf-life of their catch; 2) a pier for faster and easier transport of produce; 3) a breakwater to avert loss of land mass and flooding in the community during the rainy season; and 4) a light house to guide fishermen at night and during bad weather. The "lighthouse" in Rizal at the time of the study was the tallest tree in the school yard.

Other opinions regarding prioritized services for each electrified barangay derived from qualitative surveys such as KII and FGD include: 1) Irrigation, 2) Livelihood opportunities, 3) Schools, 4) Health centers/hospitals, 5) Markets, 6)Ice plants, 7) Ports, 8) Gasoline stations and 9) Dump sites.

C.5 Final Comments

Although it was a time-consuming job to collect and analyze various data in the survey of all barangays, there were not enough credible data due to inconsistent measures, dubious o data, obsolete data, a lack of the data at the barangay level and other such problems. Therefore, it is necessary for both central and local governments to gather more socio-economic data not only for this kind of master plan study, but for other purposes as well. Especially, the Community-based Monitoring System Database that PPDO in Palawan is updating gradually should be further enriched in the future.

Also, the data derived from the sample barangay survey mentioned above must have pertinent variables representing the socio-economic trend of Palawan. However, it will still be necessary to conduct further investigations covering a larger number of barangays in the future, especially for the barangays in the southern part that presented security problems for conducting the investigation.

Although there were some limitations to this survey, we can still provide some comments that will be considered important in terms of the socio-economic topics based on the several findings outlined above. They are summarized as 1) Whether electricity users and potential users have enough disposable income for purchasing various electric appliances, 2) Existence of economic activities with enough infrastructure, and 3) Existence of social facilities.

C.5.1 Whether electricity users or potential users have disposable incomes

For electrifying the un-electrified barangays, especially for increasing the household electrification ratio, it is important to consider whether or not the electricity users or potential users have enough disposable income for purchasing various electric appliances. The users usually start to use electricity for lightning, but this is not enough for increasing the consumption of electricity and for providing drastic impacts on their life. For this purpose, it is necessary that people strongly feel the convenience offered by using various electric appliances. That is, whether or not people have enough disposable income is one important factor for making and implementing an electrification master plan.

In this survey, we could obtain the data on people's income and expenditure and the electric appliances households own or plan to buy in the future. From these data, the trigger for introducing electricity and increasing electric consumption is seen as the typical electric appliances making people's lives more enjoyable (e.g. TVs and radio/cassette players) and more convenient (e.g. refrigerators and washing machines).

However, on the other hand, income versus expenditure indicates that many households are still at the subsistence level. The data on assets reflect that households have relatively large

investments. For example: households in the electrified on-grid system have large household and farm investments. In fact, many respondents interviewed own their home and farm lots. That means that the market economy system that enables people to have disposable incomes needs to be more developed in rural areas of Palawan.

Considering the economic situation, it is still necessary to conduct further research as to whether or not people have the capacity to buy such electric appliances, can accept the daily expenditure including the electricity bill and can easily access stores where these appliances can be bought.

C.5.2 Relationship to the economic activities with enough infrastructures

Whether or not regional industry and commerce are active is another important factor for electrification. However, inadequate infrastructure stands out as the principal cause limiting economic development. In the case of the rural poor, inaccessibility causes difficulties in product processing and marketing, thereby resulting in lower farm income. Moreover, a lack of road access and good transport facilities blocks access to the market and supplies, limits opportunities to determine their own marketing time and subsequently reduces returns to on-farm activities which hinders social and economic development. Electrification brings in improved telecommunications systems that serve as early warning devices for producers. It enhances the empowerment process through informed decision making.

Such a scenario is encountered in rural electrification. Several conditions make it difficult for power companies to put up infrastructure: 1) the archipelagic nature of the province, 2) the distance of the houses in the barangays from the main thoroughfares, and 3) the distance of houses in the rural areas from one another. Certainly distance alone is not the sole determinant. As is evident in the data sets, several barangays are on grid with lines running across their domain and yet still need electrification services.

Electrification should be synchronized with road network developments. This concern needs to be addressed clearly in the master plan for the electrification program.

C.5.3 Existence of social facilities

The existence of social facilities requiring the usage of electricity, such as schools and hospitals, is also important for electrification. That is because electrification can have a strong impact on a large number of people in those facilities and so a large consumption of electricity can be predicted.

However, we could not get enough data on social facilities and their degree of need to be electrified. Such viewpoints should be developed for further research on electrification plans.

APPENDIX C - I

Whole Barangay Survey Data Matrix Form

APPENDIX C-I : Whole Barangay Survey Data Matrix Form

PARAMETER		MUNICIPALITY OF						
		MUNICIPALITY OF	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.
DEMOGRAPHIC CONDITIONS								
1	Land Area (km^2), (NSO, 1997)							
2	Location							
3	Accessibility							
4	a. distance from Puerto Princesa City, km (PPDO, 1997)							
	b. distance from Poblacion, km (PPDO, 1997)							
5	Boundaries							
	Number of Sitio/Purok per barangay							
	a. Name of Sitio/Purok per barangay							
6	Topography							
7	Climate							
8	Total Bgys							
9	Population (NSO, 2000)							
10	Population Growth Rate (%), (NSO, 1995-2000)							
11	Population density (computed)(2000)							
12	Population by age group							
13	Total household population (2000)							
14	No of HH (PPDO Energy Unit, 2002)							
15	Ave. Household size(2000)							
16	Household Expenditure							
17	Ethnography							
	a. Agutaynon							
	b. Aklanon							
	c. Antiquino							
	d. Bicolano							
	e. Bisaya							
	f. Cagayanon							
	g. Caray-a							
	h. Cebuano							
	I. Cuyuno							
	j. Ilocano							
	k Ilonggo							
	l Muslim							
	m Palawan							
	n Tagalog							
	o Tagbanua							
	p Waray							
	q Others							
18	No of immigrants/% Immigration							
19	Age distribution							
	a Below 18							
	b 18-40							
	c 41-65							
	d Above 65							
20	Sex distribution							
	a Male							
	b Female							
21	Religious ratio							
	a Christian Catholic							
	b Other Christian							
	c Others							
22	Settlement pattern							
	a Clustered							
	b Unclustered							

Attachment -C
Socio & Economic Survey

PARAMETER			MUNICIPALITY OF						
			MUNICIPALITY OF	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.
23		Environmental concern							
	a	Threat to land use conversion of prime agricultural land							
	b	Increased rural population							
	c	Conflict in suitability to actual land use							
	d	Mangrove forest protection							
24		Fertility							
25		Mortality							
26		Morbidity							
SOCIAL CONDITIONS									
1		Education							
	a1	School							
	b1	Level							
	c1	With or without energy							
	d1	Trend of enrolment ratio							
	e1	Trend of academic achievement							
	f1	Trend of study hours							
	g1	Education programs/projects							
	a2	School							
	b2	Level							
	c2	With or without energy							
	d2	Trend of enrolment ratio							
	e2	Trend of academic achievement							
	f2	Trend of study hours							
	g2	Education programs/projects							
	a2	School							
	b2	Level							
	c2	With or without energy							
	d2	Trend of enrolment ratio							
	e2	Trend of academic achievement							
	f2	Trend of study hours							
	g2	Education programs/projects							
	b1	Number of Children in Elementary Level							
	c1	Nymber of Children in Secondary Level							
		Total Number of Children in School							
2		Health and Sanitation							
	a	No of health facilities							
	b	With or without energy							
	c	Purpose of energy (for those with energy)							
	d	Toilet facility being used							
		Open-pit							
		Antipolo-type							
		Water-sealed							
	e	Kind of water supply							
		Shallow well							
		Deep well							
		Improved spring							
	f	Health program/project							
		Barangau health station							
		Nutrition							
		Maternal and child care							
		Dental health							
		Manpower development							
		Rural Health Unit							

Attachment -C
Socio & Economic Survey

PARAMETER			MUNICIPALITY OF						
			MUNICIPALITY OF	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.
	g	% of HH w/ access to safe water (PPDO-GIS, 2000)							
	h	% of HH w/ access to sanitary toilet (PPDO-GIS, 2000)							
	I	% of HH w/ access to garbage collection (PPDO-GIS, 2000)							
3		Housing							
	a	Tenurial Status							
		% of HH occucying own house and lot							
		No of HH occucying own house and lot							
		% of HH occucying own house and rent lot							
		No of HH occucying own house and rent lot							
		% of HH rent house and lot							
		No of HH rent house and lot							
		No of HH occup rent-free lot with owner consent							
		% of HH occup rent-free lot with owner consent							
		No of HH rent-free house and lot with consent							
		% of HH rent-free house and lot with consent							
		No of HH with other tenure status							
		% of HH with other tenure status							
	b	Farm / Lot Tenurial Status							
	c	Housing program/project							
	d	% of HH not living in makeshift housing (PPDO-GIS, 2000)							
4		Social Welfare programs/projects							
5		Sports and Recreation							
	a	No. of television							
	b	No. of video							
	c	No. of radio							
	d	No. of computer							
	e	No. of bookstores							
	f	No. of sports and recreation centers that are electrified at night							
		- Time of recreation							
6		Protective Services							
	a	Crime rate							
		% HH with no member as victim of crimes							
		% HH with no member as victim of armed encounter							
	b	Fire rate							
	c	No of street lights							
ECONOMIC CONDITIONS (PPDO-GIS 2000)									
1		Income sources							
	a	Crop production (2000 GIS-PPDO)							
		No of HH in Agriculture							
		Total Volume Produced (Kg)							
		Total Volume Sold (Kg)							
	b	Fishing							
		No. of HH engaged in Fishing							
		Volume sold from Fishing activity							
	c	Livestock production							
	d	Salaries and wages							
	e	Entrepreneurial							
	f	Government subsidies							
	g	Others							
2		Ave annual HH income (PPDO-GIS 2000)							
	a	Crop production							
	b	Fishing							
	c	Livestock production							

PARAMETER			MUNICIPALITY OF						
			MUNICIPALITY OF	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.
	d	Salaries and wages							
	e	Entrepreneurial							
	f	Government subsidies							
	g	Others							
	h	Total							
3		Annual HH poverty threshold							
4		% HH below poverty threshold							
5		Ave annual HH energy expenditure							
6		Employment ratio (PPDO-GIS, 2000)							
7		% Underemployment (PPDO-GIS, 2000)							
8		% of children below 15 yrs old in employment (PPDO-GIS, 2000)							
9		Type and no. of commercial establishments							
	a	Agri. Fishery and Forestry(1997)							
	b	Mining and Quarrying							
	c	Manufacturing plant(1997)							
	d	Elec. Gas and water							
	e	Wholesale and retail trade							
	f	transport storage & Communication(1997)							
	g	Community, soc. & pers. Services(1997)							
10		Per capita income(1990)							
	h.	Lodging houses							
	l	Bakeries							
	j	Others							
11		% Employment/sector (PPDO-GIS, 2000)							
	a	Agriculture, Fishery & Forestry							
	b	Industry							
	c	Services							
ORGANIZATIONAL CONDITIONS									
1		Inventory of NGO's, PO's and Cooperatives and Membership							
2		No. of cooperatives							
3		No. of water committees							
4		No. of NGOs							
5		% HH with one member in community organization							
INFRASTRUCTURE CONDITIONS									
1		Barangay Road							
2		Road density (length/ sq km)							
3		Length of Asphalted/paved road							
4		Length of dirt road							
5		Water supply							
6		No. and type of irrigation facilitiy							
7		No. of docks/piers/ports							
8		Infrastructure program/project							
ELECTRIFICATION AND ENERGIZATION									
1		Classification of geopolitical unit							
2		Status of Energization							
	a	Date of enegrization							
	b	No. of energized units (bgy/sitio/mun)							
	c	No of HH (PPDO Enrgy Unit, 2002)							
	d	No. of energized HH							
	e	Responsible agency/institution							
	f	Mode of energization							
	g	NEA target for electrification							

Attachment -C
Socio & Economic Survey

PARAMETER			MUNICIPALITY OF						
			MUNICIPALITY OF	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.	Brgy.
	h	Utilization of energy							
	I	% of HH with access to electricity							
3	General Statistics								
	a	Gross revenue							
	b	MWH purchased							
	c	MWH sold							
	d	% systems loss							
	e	Ave. system rate (P/KWH)							
4	Connection per type of consumer								
	a	Domestic-residential							
	b	Industrial							
	c	Commercial							
	d	Public building							
	e	Street lights							
	f	Others							
5	Energization data/Exisitng energy source								
	a	Electricity							
	b	Kerosene							
	c	LPG							
	d	Oil							
	e	Charcoal							
	f	Wood/bamboo							
	g	Others							
6	Past power supply program/project								
7	Future power supply program.project								
8	Existence of facility that socially needs to be electrified								
9	Distance from existing main cable to each non-electrified geoploticial unit								
10	Price of electric appliance								
	a	TV							
	b	VHS							
	c	Refrigerator							
	d	Rice cooker							
	e	Electric fan							
	f	Others							

APPENDIX C - II

Questionnaire Sheet for Sample Barangay Survey

OBJECTIVE:	**APPENDIX C-II SOCIO-ECONOMIC SURVEY FOR RURAL ELECTRIFICATION IN THE PROVINCE OF PALAWAN**	*Confidentiality:*
This survey is designed to obtain comprehensive information in order to reflect the social and economic situation of households in the Palawan electrification master plan.		JICA guarantees that the information collected through this instrument will be confidential and will only be used for the said purpose.

Date:	Enumerator: PRINTED NAME OVER SIGNATURE

SECTION 1. HOUSEHOLD IDENTIFICATION

1.1 Municipality	MUN	
1.2 Barangay	BGY	
1.3 Sitio	SIT	
1.4 Type of Barangay: [1]= Electrified on-grid [3] = Non-electrified on-grid [2]= Electrified off-grid [4] = Non-electrified off-grid	TYPE	
1.5 Household Identification Number	HNO	

1.6 Respondent Information

Must be household head or Spouse

Respondent's Name:

Surname: [V16a] _____

Given: [V16b] _____

Middle: [V16c] _____

Age (years): [V16d] [_____]

Gender: [V16e] [_____] 1 = Male 2 = Female

Ethnicity: [V16g] [_____]

[1] Agutaynon	[5] Kagayanon	[9] Taong Bato
[2] Bisaya	[6] Palawan/Pinalawon/Palawanon	[10] Cebuano
[3] Hiligaynon/Ilonggo	[7] Tagalog	[11] Cuyunun/Cuyunan
[4] Ilocano	[8] Tagbanwa	[12] Others

1.7 Number of household members: [V17] [_____]

1.8 Occupation of the household head [V18]] [_____]

Code: [1] = Government official/employee
[2] = Professional
[3] = Businessman/trader
[4] = Private employee
[5] = Overseas worker
[6] = Labor/unskilled worker
[7] = Retired/Pensioner
[8] = Farmer
[9] = Fisherman
[10] =Others, specify _____

1.9 Does any of member of your household is keep a record of household income and expenses? *(If so, please check the account book if possible)* [V19]] [_____]

Code: [0] = NO [1] = YES [who is keeping?]

1.10 Housing Characteristics

1.10a Construction Material of the House [V110a] [_____]

[1] = Galvanized iron/Aluminum
[2] = Tile/Concrete/Clay tile
[3] = Half galvanized iron and half concrete
[5] = Cogon/Nipa/Anahaw
[6] = Asbestos
[7] = Makeshift/Salvaged/Improvised materials

[4] = Wood [8] = Others, specify _____

1.10b Type of ownership of house [V110b] [_____]

[1] = Owned/being amortized [4] = Being occupied for free without consent of owner
[2] = Rented [5] = Others, specify
_____
[3] = Being occupied for free with consent of owner

1.11 Business in the House

1.11a Is any part of your house used for business activity or commercial purposes? [V111a] [_____]
Code: [0] = NO, go to SECTION 2 [1] = YES

1.11b If part of the house is used for business activity, please indicate type. [V111b] [_____]
Code: [1] = Hair salon or barber shop [6] = Handicraft making
[2] = Restaurant/carinderia [7] = Grain milling
[3] = Bakery [8] = Repair shop
[4] = Sari-sari store [9] = Others, specify _____
[5] = Furniture making/Carpentry shop

If the responding household is engaged in more than one type of business, enter the one that generates the most income for the household.

Standard codes: 66 = None 77 = no response 88 = don't know/uncertain 99 = not applicable

SECTION 2. DEMOGRAPHIC CHARACTERISTICS

LINE NUMBER	*Who are the members of this household as of August 1, 2003 ?* LIST IN THIS ORDER (FAMILY NAME, FIRST NAME) • Spouse of Household Head • Never-married children (oldest to youngest) • Ever married children and their families (oldest to youngest) • Other relatives of head • Non-relatives of head (INCLUDE: babies, elderly persons and members temporarily away on vacation, on business, in the hospital, etc.)	*What is _____'s relationship to the household head?* ENTER CODE LISTED BELOW	*What is _____'s age as of his last birthday ?* IF LESS THAN ONE YEAR OLD, ENTER 0.	*GENDER* 1 MALE 2 FEMALE	*What is _____'s marital status ?* ENTER CODE 1 Single 2 Married 3 Widowed 4 Divorced/Separated 5 Others 6 Unknown	*What is _____'s religious affiliation ?* ENTER CODE LISTED BELOW	*What is the highest grade/year completed by _____?* ENTER CODE LISTED BELOW
	(V2a)	**(V2b)**	**(V2c)**	**(V2d)**	**(V2e)**	**(V2f)**	**(V2g)**
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							

ARE THERE MORE THAN 15 MEMBERS IN THIS HOUSEHOLD ?

1 Yes (USE ANOTHER QUESTIONNAIRE)

2 No

Codes for Relationship to HH Head (M2)

1 Head	11 Father
2 Spouse	12 Mother
3 Son	13 Brother
4 Daughter	14 Sister
5 Stepson	15 Uncle
6 Stepdaughter	16 Aunt
7 Son-in-law	17 Nephew
8 Daughter-in-law	18 Niece
9 Grandson	19 Father-in-law
10 Granddaughter	20 Mother-in-law

0 Non-relative

Codes for Religious Affiliation (M6)

0 None
1 Roman Catholic
2 Aglipay
3 Islam
4 Iglesia ni Cristo
5 Protestant
6 Others

Codes for Highest Grade Completed (M7)

0 No grade completed
1 Pre-school

Elementary	High School
11 Grade 1	21 1st Year
12 Grade 2	22 2nd Year
13 Grade 3	23 3rd Year
14 Grade 4	24 4th Year
15 Grade 5	25 Vocational
16 Grade 6 or 7	

College
31 First Year
32 Second Year
33 Third Year
34 Fourth Year
35 Fifth Year
41 College Graduate
42 Post Graduate

SECTION 3. FARM AND HOUSEHOLD ASSETS

	ITEM	QTY	MODE	VALUE Php	ITEM	QTY	MODE	VALUE Php
	Major farm assets/investments				Major Household Assets			
	V3a	V3b	V3c	V3d	V3e	V3f	V3g	V3h
1	Farm Land				Homelot			
2	Farm building				House			
3	Trucks				Car			
4	Fence				Jeep/Owner			
5	4W Tractor				PUJ			
6	Hand tractor				Tricycle/Motorcycle			
7	Farm work animals				Computer			
8	Seeder				TV			
9	Harvester				VCR/VCD			
10	Thresher				Radio/Stereo			
11	Crop dryer				Refrigerator			
12	Grain mill				Microwave oven/Range			
13	Cart				Cell phone			
14	Trailer				Washing machine			
15	Water pump				Others, specify			
16	Plow							
17	Sprayer							
18	Others,specify							
19								
20								
21								

MODE: [1]= Bought [3] = Given/inherited [5] = Own constuction
[2] = Barter/in kind [4] = Won from raffle/lottery [6] = Others, specify

SECTION 4. INCOME AND EXPENDITURE FROM AGRICULTURAL ACTIVITIES

4.1 What is the total area of your farm in hectares?
(conversion: 1 ha = 10,000 sq. meters) [V41] ☐

4.2 What is the tenancy status of the land that you farm?
[1] = Owned [4] = Use land for free
[2] = Rented [5] = Land mortgaged to the family [V42] ☐
[3] = Tenancy/shared tenancy [6] = Others, specify _____

4.3 What is the main type of irrigation in your farm?
[1] = Rainfed [4] = Tubed/piped well
[2] = Open well [5] = Gravity water/Irrigation [V43] ☐
[3] = Stream, river, lake [6] = Others, specify _____

Section 4. Income and Expenditure from Agricultural Activities , continued ...

Income by Type of Crops Planted for the Past Twelve Months

	Type of crop planted		Area planted (ha.)	Farm Income: Number of cropping seasons per year	Farm Income: Average prod'n. per cropping (kg.)	Farm Income: Average quantity sold per cropping (kg.)	Farm Income: Total sales (Php)	Farm Expenditure: Fertilizer	Farm Expenditure: Hired labor	Farm Expenditure: Chemical, e.g. herbicide and pesticide	Farm Expenditure: Equipment & land rental	Farm Expenditure: Fuels for tractor or shredder	Farm Expenditure: Others, specify
4.4	Palay												
			V44a	V44b	V44c	V44d	V44e	V44f	V44g	V44h	V44i	V44j	V44k
4.5	Corn												
			V45a	V45b	V45c	V45d	V45e	V45f	V45g	V45h	V45i	V45j	V45k
4.6	Coconut												
			V46a	V46b	V46c	V46d	V46e	V46f	V46g	V46h	V46i	V46j	V46k
4.7	Potato,tubers,root crops & bulbs												
			V47a	V47b	V47c	V47d	V47e	V47f	V47g	V47h	V47i	V47j	V47k
4.8	Vegetables												
			V48a	V48b	V48c	V48d	V48e	V48f	V48g	V48h	V48i	V48j	V48k
4.9	Fruit bearing trees/banana												
			V49a	V49b	V49c	V49d	V49e	V49f	V49g	V49h	V49i	V49j	V49k
4.10	(Enter name of crop)												
			V410a	V410b	V410c	V410d	V410e	V410f	V410g	V410h	V410i	V410j	V410k

4.11 How much did you earn (in pesos) from the sale of agricultural and forest by-products during the past 12 months?	

Agricultural by-products may include coconut shell, charcoal, coconut wine/vinegar, rice bran, etc. Forest products include fuelwood, bamboo shoot, mushroom, etc. collected from forestland.

SECTION 5. INCOME AND EXPENDITURE FROM LIVESTOCK AND POULTRY PRODUCTION

	Type of animal	Farm Income				Farm Expenditure				
		Number of heads raised	Quantity sold (heads)	Average price per head (Php)	Total sales (Php)	Feed	Hired labor	Veterinary supply and/or service	Stocks	Others, specify
5.1	Swine									
		V51a	V51b	V51c	V51d	V51e	V51f	V51g	V51h	V51i
5.2	Chicken									
		V52a	V52b	V52c	V52d	V52e	V52f	V52g	V52h	V52i
5.3	Cattle/Carabao/Horse									
		V53a	V53b	V53c	V53d	V53e	V53f	V53g	V53h	V53i
5.4	Goat									
		V54a	V54b	V54c	V54d	V54e	V54f	V54g	V54h	V54i
5.5	Ducks									
		V55a	V55b	V55c	V55d	V55e	V55f	V55g	V55h	V55i
5.6	Turkey									
		V56a	V56b	V56c	V56d	V56e	V56f	V56g	V56h	V56i
5.7	Others, specify									
		V57a	V57b	V57c	V57d	V57e	V57f	V57g	V57h	V57i

5.8 How much did you earn (in pesos) from the sale of the above livestock by-products during the past 12 months?
Livestock by-products may include eggs, milk, skin, feathers, chicken manure, etc.

SECTION 6. INCOME AND EXPENDITURE FROM FISHING

6.1 During the past 12 months, did you and your family engage in fish production? Code: [0] = NO, ***go to SECTION 7*** [1] = YES	V61	
6.2 What type of fishing are you engaged in? Code: [1] = Cage/Fish pond, ***go to Q6.3*** [3] = Both, ***go to Q6.3 and Q6.4*** [2] = Open sea fishing, ***go to Q6.4***	V62	

6.3 Cage/Fish Pond ONLY

6.3a On the average, how many times per year do you harvest fish?	V63a	
6.3b What is the average weight(in kg.) per harvest?	V63b	
6.3c On the averge, how much (in pesos) do you usually earn from the sale of fish per harvest?	V63c	
6.3d On the average, how much (in pesos) do you usually earn from the sale of fish per year?	V63d	

6.4 Open Sea/Lake Fishing ONLY

6.4a On the average, how many times per month do you catch fish?	V64a	
6.4b What is the average weight (in kg.) per catch?	V64b	
6.4c On the average, how much (in pesos) do you usually earn from the sale of fish per catch?	V64c	
6.4d How many months in a year do you catch fish?	V64d	
6.4e On the average, how much (in pesos) do you usually earn from the sale of fish per year?	V64e	

6.5 Cash Expenditure for Fishing

6.5a Fingerlings	V65a	
6.5b Feeds	V65b	
6.5c. Hired labor	V65c	
6.5d Land/Boat rental	V65d	
6.5e Fuel and oil	V65e	
6.5f Others, specify _____	V65f	

SECTION 7. OTHER HOUSEHOLD CASH INCOME AND EXPENDITURE

7.1 Other Cash Income (including Government subsidy /remittance from relatives, gambling /lottery, etc.)

7.1a How many contributed cash income from non-farm sources during the past 12 months?

7.1a1 How many of them are household members?

7.1a2 How many of them are non-household members?

L	Household Member (Write Actual Name)	Gender [1]=Male [2] =Female	Age(yrs)	Type of Work	Status	Estimated Annual Value (Php)
	7.1b	7.1c	7.1d	7.1e	7.1f	7.1g
1						
2						
3						
4						
5						
6						

7.1 Household Expenditure (Estimated Annual Expenditure)

L	Expenses	Estimated Amount (Php)	Expenses	Estimated Amount (Php)
	7.2a	7.2b	7.2c	7.2c
1	Food: Cereal		Education: Tuition	
2	Meat		Allowance	
3	Fish		Books & school supplies	
4	Clothing		Medical	
5	Utilities: Water		House rent	
6	Electricity		Taxes	
7	Cooking fuel		Vices (cigarette, gambling, alcohol, etc.)	
8	Groceries		Electric appliances (TV, radio, fan, etc.)	
9			Special occasions	
10			Others, specify	

SECTION 8. HOUSEHOLD CREDIT: STANDING AND HISTORY

8.1 Are you aware of any credit sources in your area? [V81]

8.2 Did you yourself avail of credit/loan in 2002? [V82]

8.2a If no, why not? [V82a

8.2b If yes, fill up the table below.

	Source	Amount	Purpose	Date Granted	Interest Rate	Amount Due	Amount Paid	Collateral
	8.2b1	8.2b2	8.2b3	8.2b4	8.2b5	8.2b6	8.2b7	8.2b8
1								
2								
3								
4								
5								
6								

Source:
[1] = Bank [7] = Traders
[2] = Coops [8] = Landowners
[3] = Associations [9] = Input Dealers
[4] = Priv. Money Lenders/ [10] = NGO
Lending investors [11] = Others, specify
[5] = Friends/Relatives
[6] = SSS/GSIS/PAG-IBIG

Purpose:
[1] = Farm Production [7] = House Const./Repair
[2] = Farm Improvements [8] = Others, specify
[3] = Household Consumption
[4] = Medical
[5] = Education
[6] = Business investment

Collateral:
[66] = None
[1] = Land
[2] = House
[3] = Appliances
[4] = Vehicles
[5] = Others, specify

SECTION 9. SOURCES OF ELECTRICITY FOR LIGHTING AND OTHER ENERGY APPLICATIONS

In the next questions, we would like to learn about the different types of fuels you use for lighting in the household. Do you use any of the following as your source of electricity and lighting in your household?

Note to the interviewer: Be sure to mention all fuel types since there is a need to capture the overall household electricity demand.

CODE: [0] = NO
[1] = YES

9.1	Kerosene	V91	
9.2	Dry cell battery	V92	
9.3	Candles	V93	
9.4	Charcoal (for ironing only)	V94	
9.5	LPG	V95	
9.6	Car battery	V96	
9.7	Small scale power generator (electric gen-set)	V97	
9.8	Solar PV system (electricity from the household-owned solar PV system)	V98	
9.9	Micro-hydro system	V99	
9.10	Electricity from the grid	V910	
9.11	Others, specify	V911	

SECTION 10. KEROSENE

10.1	During the past 12 months how often did your household use kerosene for lighting? Code: [0] = Do not use kerosene for lighting, go to SECTION 11 [1] = Used sometimes/seldom (minsan/bihira) [2] = Always (palagi/madalas)	V101	
10.2	On the average, how many liters of kerosene does your household usually buy per purchase?	V102	
10.3	What percentage of the kerosene bought per purchase is used for lighting?	V103	
10.4	On the average, how much does your household spend on kerosene per purchase?	V104	
10.5	On the average, how many total days does your typical purchase of kerosene last?	V105	
10.6	On the average, how much does your household spend on kerosene per month?	V106	
10.7	How many simple wick kerosene lamps (gasera) does your household have? (Enter "0" for none, and "99" for Q10.7a, then go to Q10.8)	V107	
10.7a	On the average, how many hours per day does your household use simple wick lamp?	V107a	
10.8	How many regulated wick lamps does your household have? (Enter "0" for none, and "99" for Q10.8a, then go to Q10.9)	V108	
10.8a	On the average, how many hours per day does your household use regulated wick lamp?	V108a	
10.9	How many pressurized kerosene lamps (hurricane lanterns, e.g. Coleman, Petromax, Butterfly) does your household have? (Enter "0" for none, and "99" for Q10.9a)	V109	
10.9a	On the average, how many hours per day does your household use pressurized lamps?	V109a	

SECTION 11. DRY CELL BATTERY

11.1	During the past 12 months did your household use dry cell battery for the following applications such as flashlight, radio, cassette, etc.? Code: [0] = Do not use Dry Cell Battery, go to SECTION 12 [1] = Used sometimes/seldom (minsan/bihira) [2] = Always (palagi/madalas)	V111	
11.2	On the average, how many dry cell batteries does your household buy per purchase? Enter the number of dry cell batteries bought regardless of size	V112	
11.3	On the average, how much does your household spend on dry cell batteries for each purchase	V113	
11.4	On the average, how many total days does your purchase of dry cell batteries last?	V114	
11.5	On the average, how much does your household spend on dry cell batteries per month?	V115	
11.6	How do you throw away spent batteries? [1] = throw with garbage [3] = give for recycling [2] = bury in pits [4] = others, specify _____	V116	

Appliance usage

	ITEM	Do you use dry cell battery for each of these devices? 0 = No 1 = Yes	No. of hours used per day	No. of batteries used to operate the device
11.6	Flashlight			
11.7	Battery powered lamp			
11.8	Radio and/or cassette			
11.9	Other appliance, specify _____			

SECTION 12. CANDLE FOR LIGHTING

12.1	During the past 12 months how often did your household use candle for lighting? Code: 0 = Do not use candle for lighting, go to SECTION 13 1 = Used sometimes/seldom (minsan/bihira) 2 = Always (palagi/madalas)	V121	
12.2	How many candles does your household buy per purchase?	V122	
12.3	On the average, how much does your household spend on candle for each purchase?	V123	
12.4	How many total days does your typical purchase of candles last?	V124	
12.5	On the average, how much does your household spend on candle per month?	V12.5	

SECTION 13. CHARCOAL

13.1	During the past twelve months, how often does your household use charcoal for ironing? Code: 0 = Do not use charcoal for ironing, go to SECTION 14 1 = used sometimes/seldom (minsan/bihira) 2 = Always (madalas/palagi)	V131	
13.2	How do you acquire your charcoal? Codes: 1 = Purchased, answer Q13.3a to Q13.3f and enter "99" to Q13.4a and Q13.4b 2 = Own produce, answer Q13.4a and Q13.4b and enter "99" in Q13.3a to Q13.3f 3 = Both produced and purchased, answer Q13.3a to Q13.4b 4 = Residue from used firewood, go to SECTION 14	V132	
13.3	For Purchased Charcoal		
13.3a	On the average, how many packs of charcoal do you usually buy per purchase?	V133a	
13.3b	On the average, how much (in pesos) do you spend per purchase?	V133b	
13.3c	On the average, how many days does each purchase last?	V133c	
13.3d	What is the average weight in kilogram per pack?	V133d	
13.3e	On the average, how much (in pesos) do you spend on charcoal per month?	V133e	
13.3f	On the average, what percentage of charcoal is used for ironing each month?	V133f	
13.4	For Own Produce		
13.4a	How many kilograms of charcoal do you produce per month?	V134a	
13.4b	What percentage of charcoal produced is used for ironing?	V134b	

SECTION 14. LIQUEFIED PETROLEUM GAS (LPG) FOR LIGHTING

14.1	During the past 12 months, how often does your household use LPG for lighting? Code: 0 = Do not use LPG for lighting, go to SECTION 15 1 = used sometimes/seldom (minsan/bihira) 2 = Always (madalas/palagi)	V141	
14.2	On the average, how many hours per day do you use your LPG for lighting?	V142	
14.3	How many kilogram of LPG tank (i.e. LPG tank size) does your household usually buy each typical purchase? Code: 1 = 7 kg. 3 = 50 kg. 2 = 11 kg. 4 = Others, specify _____	V143	
14.4	How much does your household spend (in pesos) for the typical LPG purchase?	V144	
14.5	How many days does each typical purchase last?	V145	
14.6	On the average, how much (in pesos) does your household spend each month for LPG?	V146	
14.7	In a typical month, what percentage of LPG is used for lighting?	V147	
14.8	Where do you obtain your LPG? Code: 1 = Within the barangay 2 = Town 3 = Others, specify _____	V148	
14.9	How far (in km.) is the source specified in Q14.8? (If less than 1 kilometer, indicate the fraction)	V149	
14.10	What is the mode of transportation? Code: 0 = None 3 = Jeepney/car 1 = Tricycle/motorcycle 4 = Animal/Animal driven 2 = Motorboat 5 Others, specify _____	V1410	
14.11	How much (in pesos) transportation cost(round trip) is incurred when purchasing LPG? (Enter "0" for no transportation cost incurred)	V1411	

SECTION 15. STORAGE OR CAR BATTERY USED TO SUPPLY ELECTRICITY AT HOME

15.1	During the past 12 months, did your household use car battery to supply electricity? Code: 0 = Do not use storage/car battery, go to SECTION 16 1 = used sometimes/seldom (minsan/bihira) 2 = Always (madalas/palagi)	V151	
15.1b	How many months has your household been using storage/car battery to supply electricity	V151b	
15.2	During the past 30 days, did your household use car battery to supply electricity? Code: 0 = No did not use 1 = Used as supplementary source of electricity, go to Q15.4 2 = Used as the main source of electricity, go to Q15.4	V152	
15.3	What are your reasons for not using car battery during the past 30 days? Code: 1 = Out of order 2 = Recharge is too costly 3 = No transportation 4 = Others, specify_____	V153	
15.4	How many storage/car batteries does your household have? If the household has more than 2 car batteries, ask only for the 2 most oftenly used car batteries. Please refer to the Storage Battery Rating Table.	V154	

	First Car Battery		
15.5a	What is the voltage of your First car battery?	V155a	
15.5b	What is the Ampere-hour of your First car battery?	V155b	
15.5c	How much does the First car battery cost?	V155c	

	Second Car Battery		
15.6a	What is the voltage of your Second car battery?	V156a	
15.6b	What is the Ampere-hour of your Second car battery?	V156b	
15.6c	How much does the Second car battery cost?	V156c	

15.7	How many months did your previous battery last? (Enter "0" if you did not own battery before)	V157	
15.8	On the average, how many hours per day does your household use the electricity from storage/car battery(ies)?	V158	
15.9	On the average, how many days per week does your household use electricity from storage/car battery(ies)?	V159	
15.10	On the average, how many times in a month does your household recharge your battery?	V1510	
15.11	How many days does the battery give you services before the next recharge?	V1511	
15.12	On the average, how much do you spend on recharging all your batteries each month?	V1512	
15.13	On the average, how much does each recharge cost (excluding transport cost)?	V1513	
15.14	How far (in km.) is the recharging station from your house? (If less than 1 kilometer, indicate fraction)	V1514	
15.15	What mode of transport does your household use to go to the recharge station? Code: 0 = None 3 = Jeepney/car	V1515	

	1 = Tricycle/motorcycle 4 = Animal/Animal driven 2 = Motorboat 5 Others, specify _____		
15.16	What is the average round trip transportation cost (in pesos) to the recharging station? Enter "0" for no transportation cost incurred.)	V1516	
15.17	What type of energy source does your battery charging station use? Code: 1 = Grid 3 = Micro-hydro 2 = Solar 4 = Diesel gen-set	V1517	

15.18 In what type of appliance is your car battery used most of the time?
Code: 0 = NO 1 = YES

15.18a	Black and white TV	V1518a	
15.18b	Colored TV	V1518b	
15.18c	Radio/casette	V1518c	
15.18d	Karaoke	V1518d	
15.18e	Lighting appliance	V1518e	
15.18f	Others, specify _____	V1518f	

15.19	How do you throw away broken or spent batteries? [1] = throw away with other garbage [3] = sell as junk [2] = trade for new battery [4] = others, specify _____	V1519	

SECTION 16. GENERATOR SET

16.1	Does your household use electricity coming from a generator set? Code: 0 = Do not use generator set, go to SECTION 17 1 = Use electricity from village/community gen-set, answer Q16.2 to Q16.8 2 = Use electricity from relative/neighbor gen-set, answer Q16.2 to Q16.8 3 = Use electricity from family-owned gen-set, go to SECTION 17 4 = others, specify _____	V161	

Household Uses Electricity from Village/Community or Neighbor/Relative Gen-Set

16.2	How many months has your household been using electricity from village or neighbor owned gen-set?	V162	
16.3	On the average, how many hours per day does your household receive electricity services from the above source?	V163	
16.4	On the average, how many days per month does your household receive electricity services from the above sources?	V164	
16.5	How many households including your household are sharing electricity from the same source?	V165	
16.6	How much (in pesos) does your household pay for electricity per billing period?	V166	
16.7	How many days does each bill cover?	V167	
16.8	How is your household charged for electricity bills? Code: 1 = Charged by number of light bulbs/tubes or appliances, answer Q16.10a to Q16.10d 2 = Charged by agreed fixed monthly fee, go to SECTION 18 3 = Other methods, specify _____	V168	
16.9	Who is maintaining gen-set? [1] = Barangay official [3] = Village/community resident [2] = Hired personnel [4] = Others, specify _____	V169	

Charged by number of load

16.10a	If household is charged/paid by number of light bulbs or tubes, how many light bulbs or tubes does your household have?	V1610a	
16.10b	How much (in pesos) is the average charge per light bulb or tube?	V1610b	
16.10c	If household is charged/paid by number of appliances, how many appliances does your household have?	V1610c	
16.10d	How much (in pesos) is the average charge per appliance?	V1610d	

GO TO SECTION 18

SECTION 17. ELECTRICITY FROM FAMILY OWNED GEN-SET (answered "3" in Q16.1)

17.1	How many units of gen-set does your household have?	V171	
17.2	How many months has your household been using your own electric gen-set to generate electricity for household uses?	V172	
17.3	What is the rating in KVA of your gen-set? If household has more than one gen-set (e.g. has spare gen-set) ask for the one that is used regularly or used most often.	V173	
17.4	During the past 60 days, did your household use gen-set to supply electricity? Code: 0 = No, did not use, go to Q17.6 1 = Used as supplementary source of electricity, go to Q17.6 2 = Used as the main source of electricity, go to Q17.6	V174	
17.5	What is your main reason for not using your gen-set during the past 60 days? Code: 1 = Out of order and repair is too costly 2 = Out of order and no repair man/service available 3 = Out of order and no parts available 4 = Operating and maintenance cost is high 5 = Others, specify_____	V175	

Acquisition Cost and Terms of Payment for Family Owned Gen-Set

If household has more than one gen-set (e.g. has spare gen-set), ask for the one that is used regularly or used most often.

17.6	What was the condition of the gen-set you acquired? Code: 1 = Brand new 2 = Used 3 = Reconditioned/re-manufactured	V176	
17.7	How much (in pesos) did you spend in purchasing your gen-set?	V177	
17.8	How many times does the household have to pay for the gen-set? If full payment was made when purchased, enter "1", write "99" in Q17.9 and Q17.10 and go to Q17.11	V178	
17.9	How much (in pesos) does your household have to pay per installment?	V179	
17.10	How many months does each payment cover?	V1710	
17.11	What do you think about the price of your gen-set? Code: 1 = Very expensive 3 = Right price 2 = Expensive 4 = Cheap	V1711	

Operating Cost of the Gen-Set

17.12	On the average, how much (in pesos) did your household spend on fuels in a month for your own electric gen-set to generate electricity? Fuel for gen-set can be used for many other applications such as, hand tractor, vehicle, and other machinery, therefore only ask respondentto give you the estimated amount of fuel that is used for gen-set to generate electricity only.	V1712	
17.13	What type of fuel does your household use for your gen-set? Code: 1 = Diesel 2 = Gasoline	V1713	
17.14	In addition to fuel, on the average how much (in pesos) does your household spend on labor, oil, and maintenance per month to operate gen-set? Interviewer asks for the average costs for expenses including oil,	V1714	

	maintenance costs, and labor. If owner-operated, do not add labor cost in the total monthly costs.		
17.15	Typically, when gen-set is on, how many households does your own gen-set supply electricity to? (Enter "0" if electricity generated from gen-set is used by responding household only)	V1715	

Repairs of Gen-Set

17.16	How many times did your gen-set break down from the time you bought it?	V1716	
17.17	During the past 12 months, how much have you spent (in pesos) in repairing your gen-set?	V1717	
17.18	During the past 12 months, when the gen-set broke down, which of the following parts have failed? Code: 1 = Dynamo 2 = Engine 3 = Voltage regulator 4 = Belt 5 = Others, specify	V1718	
17.19	Whenever the generator breaks down, how do you have it repaired? Code: 1 = Technician/repair person comes to our house to repair 2 = Take it to the repair shop 3 = Repair it by myself 4 = Others, specify	V1719	
17.20	What is the average cost (in pesos) of repair per visit? Or if you have repaired it by yourself how much did the repair/part cost?	V1720	
17.21	How far is the repair shop from your house? Enter "0" for reapir at home, then go to SECTION 18	V1721	
17.22	Which mode of transport does your household use to go to the repair shop? Code: 0 = None 1 = Tricycle/motorcycle 2 = Motorboat 3 = Jeepney/car 4 = Animal/Animal driven 5 Others, specify	V1722	
17.23	How much (in pesos) is the total transportation cost (to and from) for each repair? (Enter "0" for no transportation cost incurred.)	V1723	

SECTION 18. SOLAR PV SYSTEM

18.1	During the past 12 months, how often did your household use solar PV system? Code: [0] = Do not use solar PV system, go to SECTION 19 [1] = Used sometimes/seldom (minsan/bihira) [2] = Always (palagi/madalas)	V181	
18.1b	How many months has your household been using the solar PV system?	V181b	
18.2	What is the size (in Watt-peak, Wp) of the solar PV panel?	V182	
18.3	What is the rating (in Amp-hour) of the battery used for PV system?	V183	
18.4	On the average, how many hours per day do you usually use your PV system?	V184	
18.5	On the average, how many days per week do you usually use your PV system?	V185	

18.6	Who is maintaining the system? [1] = Household member [3] = Neighbor [2] = Hired personnel [4] = Others, specify _____	V186	
18.7	Did your PV system incur any repair in the past 12 months? Code: 0 = NO 1 = YES	V187	
	If yes, which part has broken down and by what reason? Code: 0 = NO 1 = YES Reason		
18.8a	Lamp	V188a	
18.8b	Charge/Discharge controller	V188b	
18.8c	Inverter	V188c	
18.8d	Solar panel/module	V188d	
18.8e	Ballast	V188e	
18.8f	Others, specify _____	V188f	
18.9	How much is the total cost (in pesos) of repair including materials and labor for the items enumerated above for the past 12 months?	V189	

18.10	What year did you acquire your PV system (e.g. 1990)	V1810	
18.11	How did you acquire it? Code: 1 = Loan/Rent to own ,answer Q18.12a to Q18.12e 2 = Cash payment, go to Q18.13 3 = Rented, go to Q18.14 4 = Through project, go to SECTION 19 5 = Others, specify _____ go to SECTION 19	V1811	

If Acquired Through Loan

18.12a	What is the total cost (in pesos) of your system?	V1812a	
18.12b	Have you paid off your loan? Code: 0 = NO 1 = YES		
18.12c	How much (in pesos) is your initial down payment?	V1812c	
18.12d	How much (in pesos) is your monthly amortization?	V1812d	
18.12e	What is the maturity (in months) of your loan? (enter "60" if more than 5 years) go to SECTION 19	V1812e	

18.13	If paid in cash, what is the total cost (in pesos) of your system?	V1813	
18.14	If rented, how much (in pesos) is the monthly rental?	V1814	

SECTION 19. MICRO-HYDRO SYSTEM (does not include battery charging station)

19.1	Does your household use electricity coming from micro-hydro? Code: 0 = Do not use, go to SECTION 20 1 = Use electricity from micro-hydro	V191	
19.2	In what year (e.g. 1990) was your household connected to the micro-hydro system?	V192	
19.3	Who owns the micro-hydro system? Code: 1 = Gov't./LGU 3 = Privately owned 2 = NGO 4 = Coop	V193	
19.4	How much (in pesos) do you usually pay per billing period for your electricity consumption from the micro-hydro system?	V194	
19.5	How many days does each billing period cover?	V195	
19.6	How many kWh does your household use in each billing period? Enter "99" if electricity is not charged by kWh consumed.	V196	
19.7	How many hours per day are electricity services from micro-hydro system available for use?	V197	
19.8	How many months per year does micro-hydro system provide electricity services?	V198	
19.9	During the dry season, is there enough amount of river water? [0] = Not enough [1] = Enough water	V199	
19.10	Does the operation of micro-hydro have some influence on the usage of river water for the daily life? [0] = No influence [2] = Yes, cite how _____	V1910	

SECTION 20. GRID SYSTEM

20.1	Does your household use electricity coming from the grid? Code: 0 = Do not use, go to SECTION 21 1 = Use electricity from the grid	V201	
20.2	Please enter the full name of the utility/electric cooperative providing the services? (Example, Palawan Electric Cooperative)		
	V202		
20.3	How many months has your household been connected to the grid?	V203	
20.4	How much did you pay (in pesos) for connection to the grid?	V204	
20.5	On the average, how many hours per day does your household receive electricity services from the grid?	V205	
20.6	On the average, how many days per month does your household receive electricity from the grid?	V206	
20.7	On the average, how much (in pesos) does your household pay for electricity per billing period?	V207	
20.8	How many days does each billing period cover?	V208	
20.9	How much (in pesos) is the charge per kWh?	V209	
20.10	On the average, how much (in pesos) does your household pay for electricity in a month?	V2010	
20.11	On the average, how may times per month did you have a break in the regular service, e.g. brownout? (Indicate number)	V2011	

SECTION 21. APPLIANCE AND LIGHTING FIXTURES USAGE

Line	Type of bulb/appliance	Number of bulbs/ appliance you have	Date of buying*	Price when bought*	Capacity/ Wattage	Average number of hours used per day	Source of electricity 1=Car/storage battery 2 = Gen-set 3 = family-owned gen-set 4 = Solar PV system 5 Micro-hydro system 6 = Grid system
1	Incandescent						
2	Fluorescent						
3	Energy saving lamp						
4	B & W TV						
5	Color TV						
6	Radio/Casette						
7	VHS						
8	VCD/DVD						
9	Microwave oven						
10	Washing machine						
11	Electric flat iron						
12	Vacuum cleaner						
13	Refrigerator						
14	Rice cooker						
15	Electric fan						
16	Karaoke						
17	Video game						
18	Electric machinery or tools						
19	Cell phone charge						
20	Others, specify						

* Write the date of buying and price when bought one line after another within the box for each unit of the appliance.

To the interviewer:
Please compute for the total monthly expenses of the household for lighting fuels from Section 10 to 19. This will be used in SECTION 25.

Total Monthly Lighting Fuel cost (in pesos)	

SECTION 22. HOUSEHOLD ACTIVITIES

Please respond to the following questions by telling how frequent the household does the activities listed. Choose from the responses below.

Code: 0 = Never (means not doing the listed activities)
1 = Sometimes (means doing the listed activities occasionally)
2 = Always (means doing the listed activities most of the time)

The following questions refer to any form of electric lighting as well as non-electric lighting.

22.1	Does the household leave lighting on throughout the night for security purposes?	V231	
22.2	Does the household leave lighting on throughout the entire evening for livestock/crops?	V212	
22.3	Do your children study at night?	V213	
22.4a	Do you often socialize with friends, relatives, or neighbors?	V214a	
22.4b	In the daytime, the evening, or at night?	V214b	
22.4c	And where? [1]= inside house [2] = friend's house [3] = park [4] = restaurant [5] = church [6] = mall [7] = Videoke [8] = Others, specify _____	V214c	

SECTION 23. LEVEL OF KNOWLEDGE ON NEW AND RENEWABLE ENERGY (NRE)

I am going to discuss and explain the following NRE systems that can provide electricity for the whole community.

- Solar PV system uses the power of the sun to generate electricity
- Wind system uses wind to produce electricity
- Micro-hydro taps the running water from rivers and streams to produce electricity.
- Biomass uses agricultural residues such as rice hull, coconut residues, bagasse, animal wastes to produce electricity.

Now that you know how these NRE system operate to provide electricity, I am going to ask you if you have heard about these before this interview and from whom or where have you learned about them.

Code: 0 = NO
1 = YES, from newspaper or magazine
2 = YES, from radio or TV
3 = YES, from neighbors, friends, and relatives
4 = YES, from school
5 = YES, from other source, specify _____

23.1a	Solar PV system	V231a	
23.1b	Wind system	V231b	
23.1c	Micro-hydro	V231c	
23.1d	Biomass	V231d	

Preference for NRE

23.2	After knowing each NRE potential electricity source, which of the following systems would you prefer if your household were to be given electricity?	V232	
23.3	And why?	V233	

SECTION 24. HOUSEHOLD ATTITUDE/PERCEPTION

I am going to read to you the following statements concerning present energy use and other issues. Please tell me if you agree or disagree with these statements. Use the following codes for answer:
Code: 1 = Agree 2 = Disagree 3 = No opinion/don't know

For electrified household			
Positive impact			
V24.1	Because of good light, children are able to study more at night thus helping improve academic performance at school.	V241	
V24.2	Because of regular electricity service, news and information are accessible through TV, radio, and other multi-media.	V242	
V24.3	We don't use the hand pump anymore because we now draw water using electric pump.	V243	
V24.4	We now have more communication facilities between rural and urban areas like TV, radio, computer, etc	V244	
V24.5	Entertainment at home are now available thru TV or radio.	V245	
V24.6	We have more time and opportunity for recreation than before when we started to have electricity.	V246	
V24.7	There is increased gatherings at night in the religious and community facilities when the barangay started to be electrified.	V247	
V24.8	We have more convenience at home with electric lights and other home appliances (e.g. electric fan) than when we were using kerosene lamps.	V248	
V24.9	Community health services improved with increased lighting and accessible refrigerator storage for drugs and vaccines.	V249	
V24.10	There is lower risk of fire with use of electric lights than kerosene lamps.	V2410	
V24.11	Security of the home from thieves and crimes have improved with provision of indoor and outdoor lights at night.	V2411	
V24.12	There is increased productivity of home industries due to electricity, e.g. dressmaking, handicrafts, machine shops, etc.	V2412	
V24.13	Sales of stores are boosted by longer store hours because of available electric lights at night.	V2413	
V24.14	Agricultural productivity is improved with use of irrigation pump.	V2414	
V24.15	Processing of agricultural by-products have improved , e.g. rice polishing, because of accessible electric tools and machineries.	V2415	
V24.16	Income from fishing is improved because fish can now be stored in freezers.	V2416	
V24.17	Productivity of the youth is enhanced since they can now be employed in part time jobs like apprenticeship in machine shops, assistants in canteens, etc.	V2417	
Negative impact			
V24.18	Monthly electric bill is a financial burden for my family.	V2418	
V24.19	We cannot afford manufactured facilities that use electricity.	V2419	
V24.20	Budget allocation to basic needs like food, education, clothing and medicines are diminished due to rising electric bills.	V2420	
V24.21	Household members are forced to find work abroad to support the increased need of the household for convenience appliances, e.g. Microwave, etc.	V2421	
V24.22	There is increased risk to public health due to improper disposal of batteries used for the electric system .	V2422	
For non-electrified household			
V24.23	Presently, it is difficult for my household to get news and information.	V2423	
V24.24	Lighting with kerosene or diesel can cause health problems	V2424	

V24.25	I would rather wait for electricity from the grid than investing in electric gen-set.	V2425	
V24.26	I would rather wait for electricity from the grid than investing in NRE system.	V2426	
V24.27	Buying electric gen-set is one of my household's investment priorities.	V2427	
V24.28	Buying solar PV home system is one of my household's investment priorities.	V2428	
V24.29	Monthly spending for lighting fuel would be/is/was a financial burden for my household.	V2429	
V24.30	If someone/government/NGO were willing to lend me money to buy solar PV system, I would seriously consider it.	V2430	
V24.31	If solar PV were to become available widely in the market, I would seriously consider buying it even if I have to borrow money from someone.	V2431	
V24.32	If grid electricity were to become available, I would seriously consider connecting to the grid even if I have to borrow money from someone to pay for the connection.	V2432	
For both kinds of households			
V24.33	Compared to 10 years ago, life is better today.	V2433	
V24.34	For the above question, with or without electrification has a lot of influence.	V2434	

The following questions apply only to households with access to electricity such as gen-set, solar PV, micro-hydro, car batteries and grid. Otherwise, write "99" to these questions and proceed to SECTION 25.

24.35	Please answer whether the electricity supply which you are using now is: Code: 1 = Not enough for household need (kulang/hindi sapat) 2 = Just enough for household need (tama lang/sapat lang) 3 = More than enough for household need (sobra)	V2435	

24.36	The following is a list of possible reasons for a household to obtain electricity. Please tell me the reason why your household decided to obtain electricity. Code: 1 = Extremely important/extremely beneficial (napakahalaga) 2 = Important/beneficial (mahalaga) 3 = Not important/not beneficial (hindi mahalaga)		
24.36a	The reason why my household decided to obtain electricity is: For improvement of intellectual activities	24.36a	
24.36b	The reason why my household decided to obtain electricity is: For improvement of activities of daily living	24.36b	
24.36c	The reason why my household decided to obtain electricity is: For improvement of recreation (entertainment)	24.36c	
24.36d	The reason why my household decided to obtain electricity is: For improvement of social activities	24.36d	
24.36e	The reason why my household decided to obtain electricity is: For improvement of living conditions	24.36e	
24.36f	The reason why my household decided to obtain electricity is: For improvement of management in the emergency situations	24.36f	
24.36g	The reason why my household decided to obtain electricity is: For improvement of income generation activities	24.36g	
24.36h	The electricity we are using is cheaper than kerosene and other fuels.	24.36h	

SECTION 25. PREFERENCE, ABILITY AND WILLINGNESS TO PAY FOR ELECTRICITY

If electricity were to become available ....

25.1	What time of the day do you think electricity is most needed? Code: 1 = Whole day (24 hours) 3 = From 6 p.m. to 6 a.m. 2 = From 6 p.m. until 10 p.m. 4 = Others, specify _____	V251	
25.2	What type of payment would you prefer? Code: 1 = weekly 4 = Quarterly 2 = Monthly 5 = Others, specify _____ 3 = Bi-monthly	V252	
25.3	What form of payment do you want? Code: 1 = Cash 3 = Others, specify _____ 2 = In kind	V253	
25.4	According to what you have told me, your household currently spends about P _____ per month for lighting (add up all expenditure for lighting fuel from Section 10 to Section 19, if applicable) to provide energy to your household. If electricity were available in your area, how much are you willing to pay? Code: 1 = Same as current spending for fuels 2 = More than current spending foe fuels, go to Q25.5 3 = Lower than current spending for fuels, go to Q25.6	V254	
25.5	You said you are willing to pay more than P _____, please tell me exactly how much you are willing to pay per month?	V255	
25.6	You said you are willing to pay less than P _____, please tell me exactly how much you are willing to pay per month?	V256	
25.7	What mechanism of payment do you think is most convenient? Code: 1 = Through banks 4 = Through pre-paid electronic cards 2 = With a collector 5 = Others, specify _____ 3 = Pay to utility providing service	V257	

Do you have plans of purchasing any of the following electric appliances?
Code: 0 = NO 1 = YES

25.8a	Radio and/or casette	V258a	
25.8b	Black and White TV	V258b	
25.8c	Color TV	V258c	
25.8d	VHS	V258d	
25.8e	VCD/DVD	V258e	
25.8f	Microwave oven	V258f	
25.8g	Washing machine	V258g	
25.8h	Electric fan	V258h	
25.8i	Electric flat iron	V258i	
25.8j	Vacuum cleaner	V258j	
25.8k	Refrigerator	V258k	
25.8l	Rice cooker	V258l	
25.8m	Karaoke	V258m	
25.8n	Video game	V258n	
25.8o	Electric machinery or tools	V258o	
25.8p	Others, specify	V258p	

SECTION 26. HOUSEHOLD'S DESIRE FOR SERVICES

Which of the following services would you like to have first, second, third, etc.?
(Rank the services listed from 1, 2, etc.)

26.1	House ownership (magkaroon ng sariling bahay)	V261	
26.2	Water system (including clean potable water (Malinis na tubig inumin))	V262	
26.3	Electricity (Kuryente)	V263	
26.4	Educational facilities (paaralan/iskwelahan, guro, atbp.)	V264	
26.5	Irrigation (Patubig sa mga pananim)	V265	
26.6	Roads, bridges, and other infrastructure (Kalsada, tulay, atbp. Imprastraktura)	V266	
26.7	Public transportation (Pampasaherong sasakyan)	V267	
26.8	Health facilities (Klinika/center, doctor, nurse, atbp.)	V268	
26.9	Toilet (Banyo)	V269	
26.10	Job opportunities (Pangkabuhayan/trabaho)	V270	
26.11	Others, specify _____	V271	

APPENDIX C - III (a)

Key Informant Interview Guide

APPENDIX C-III (a)
SOCIO-ECONOMIC SURVEY OF BARANGAYS
Master Plan Study of Power Development in Palawan Province

Key Informant Interview Guide
(for Barangay Captain of Energized Barangays)

A. Personal Information

Barangay, Municipality : _____
Name : _____
Position : _____
No. of years in service : _____
No. of years residing in the barangay: _____

B. Barangay Socio-Demographic Data

No.of sitios : _____

Household population : _____

Population of individuals (if not available, get average household size) : _____

Settlement pattern (draw rough spot map below indicating where houses concentrate using the barangay hall and natural landmarks such as river, creek, or mountain as point of reference; also indicate relative location/distribution of electric posts):

Attachment - C
Socio & Economic Survey

Accessibility from Puerto Princesa : _____ kms. or ____ hours

Age structure of population (indicate percentage): ____ 0-14 years old
____ 15-64 years old
____ 65 years old and above

Gender ratio : ____ % Male _____ % Female

Ethnicity (indicate top three dominant ethnic group, i.e., Tagalog, Visayan, others) :
1. _____ 2. _____ 3. _____

Dominant religion : _____

Migration pattern - which is more pervasive, please check::

Trend	Gender		Age group	
	Male	Female	Youth	Adult
___ Out - migration				
___ In - migration				

Natural disasters that usually visit their area, please check :

Natural disaster	Frequency of occurrence (per month or year)	Damage caused
Typhoon		
Flood		
Earthquake		
Flashflood		
Fire		
Others, pls. identify		

Barangay projects related to electrification (especially participatory project)in the last five years:

Project Title : _____

Inclusive date: _____

Background (describe briefly):
_____
_____
_____
_____
_____
_____

Target group: _____

Agency providing the project and persons (or organizations) maintaining the project : _____

Impacts : _____
_____ß_____
_____
_____

Problems :_____
_____
_____
_____

(Note: Please use additional sheets for projects if necessary)

C. Social Services:

Education

No. of schools	Enrollmånt trend	Academic performance	Energized or not energized	Purpose of electricity
Elementary				
High School				
Vocational				
College				

Health and Sanitation

Type	Number	Energized or not energized	Purpose of electricity
Clinics/Brgy health station			
Hospital			
Others, pls specify:			

Toilet used (open pit, closed pit, flush type, etc., describe) : _____
_____ß_

Water supply (level I, II, or III, describe) :
_____
_____
_____

(I - developed spring with outlet, no distribution system; II-communal faucet or stand posts; III - with individual household connection or tap)

Attachment - C
Socio & Economic Survey

House and lot ownership:

Item	Ownership	
	Yes	No
House		
Lot		

Social welfare activities/projects (describe éf there are any):

Project Title : _____

Inclusive date: _____

Background (describe briefly):

_____
_____
_____
_____
_____
_____

Target group: _____

Agency providing the project and persons (or organizations) maintaining the project : _____

Impacts : _____
_____
_____
_____

Problems :_____
_____
_____
_____

(Note: Please use additional sheets for projects if necessary)

Sports and recreational facilities (especially indoor facilities bookstore, karaoke bar, movie theater, gyms, etc); enumerate : _____
_____
_____
_____
_____

Protective services:

Crime rate : _____

Fire occurrence (how frequent) : _____

D. Economic Conditions

Income Sources

Income amount	Income sources
Periodic/Regular income(per month): P _____	Regular source(s):
Irreguìar income (identify months of the year when they come): P _____ Months of the year:	Irregular source(s): Months of the year:

Ave. monthly household income : P _____

Employment rate: ____ %

Types and number of commercial establishments:

Type	Number	Energized or not energized	Purpose of electricity	Price of electric appliance bought for the establishment

Credit sources in the area: _____
_____ß_____
_____

E. Status of Organizations

Name of organization	Type (NGO, PO, or sector served)	Number of members	Status (functional or not functional)	Financial sources

F. Infrastructure

Roads

Type	Km stretch	Institution/Agency in charge of maintenance
Concrete		

Irrigation, hectarage covered : _____ hectares

G. Environmental Concerns

Eøistence of some important sites of environmental concern such as protected areas (natural parks, rivers, coastal or mangrove areas, etc.; identify and describe important functions - economic, ecological) :

_____
_____
_____
_____
_____ß_____
_____
_____

How are dry cell and car batteries disposed of? _____
_____
_____

H. Energization Profile and Concerns

Date energized: _____
Background (describe briefly how the barangay got energized) : _____
_____
_____
_____
_____
_____

No. or percentage of energized sitios out of tota l : _____
No. or percentage of energized households out of total : _____

Kind of electrification sysôem (type) : _____
_____
_____

Agency providing supply of electricity : _____
_____
_____

Attachment - C
Socio & Economic Survey

Average monthly bill for electric consumption: P _____

Electricity Utilization

Electric applianães used	Average number of hours used in a day

Preferred system for payment of electric bill (through collector or through payment centers or banks? why?

_____

_____

_____

Perception of the current system for payment of electric bill : _____

_____

_____ß_____

_____

Other energy sources, please check :

___ solar photovoltaic system
___ family owned generator set
___ communal-owned generator set
___ micro-hydro system
___ grid system
___ battery; (storage and/or car battery)
___ others, pls. identify : _____

Major impacts of electrification in the barangay :

_____
_____
_____
_____
_____
_____
_____

Problems encountered with electrification:

_____
_____
_____
_____
_____
_____
_____

I. Others

Decision-making system at the barangay level (please describe):

_____
_____
_____
_____
_____

Necessary services for the barangay

1. _____
2. _____
3. _____
4 _____
5. _____

Basis for Classification of Households:

a. well-off :

b. middle-class :

c. poor household :

SOCIO-ECONOMIC SURVEY OF BARANGAYS
Master Plan Study of Power Development in Palawan Province

Key Informant Interview Guide
(for Barangay Captain of Un-energized Barangays)

A. Personal Information

Barangay, Municipality : _____
Name : _____
Position : _____
No. of years in service : _____
No. of years residing in the barangay: _____

B. Barangay Socio-Demographic Data

No.of sitios : _____

Household population : _____

Population of individuals (if not available, get average household size) : _____

Settlement pattern (draw rough spot map below indicating where houses concentrate using the barangay hall and natural landmarks such as river, creek, or mountain as point of reference; also indicate relative location/distribution of electric posts):

Attachment - C
Socio & Economic Survey

Accessibility from Puerto Princesa : _____ kms. or ____ hours

Age structure of population (indicate percentage): ____ 0-14 years old
____ 15-64 years old
____ 65 years old and above

Gender ratio : ____ % Male _____ % Female

Ethnicity (indicate top three dominant ethnic group, i.e., Tagalog, Visayan, others) :
1. _____ 2. _____ 3. _____

Dominant religion : _____

Migration pattern - which is more pervasive, please check::

Trend	Gender		Age group	
	Male	Female	Youth	Adult
___ Out - migration				
___ In - migration				

Natural disasters that usually visit their area, please check :

Natural disaster	Frequency of occurrence (per month or year)	Damage caused
Typhoon		
Flood		
Earthquake		
Flashflood		
Fire		
Others, pls. identify		

Barangay projects related to electrification (especially participatory project)in the last five years:

Project Title : _____

Inclusive date: _____

Background (describe briefly):
_____
_____
_____
_____
_____
_____

Target group: _____

Agency providing the project and persons (or organizations) maintaining the project : _____

Impacts : _____
_____
_____
_____

Problems :_____
_____
_____
_____

(Note: Please use additional sheets for projects if necessary)

C. Social Services:

Education

No. of schools	Enrollment trend	Academic performance	Energized or not energized	Purpose of electricity
Elementary				
High School				
Vocational				
College				

Health and Sanitation

Type	Number	Energized or not energized	Purpose of electricity
Clinics/Brgy health station			
Hospital			
Others, pls specify:			

Toilet used (open pit, closed pit, flush type, etc., describe) : _____
_____

Water supply (level I, II, or III, describe) :
_____
_____
_____
(I - developed spring with outlet, no distribution system; II-communal faucet or stand posts; III - with individual household connection or tap).

Attachment - C
Socio & Economic Survey

House and lot ownership:

Item	Ownership	
	Yes	No
House		
Lot		

Social welfare activities/projects (describe if there are any):

Project Title : _____

Inclusive date: _____

Background (describe briefly):

_____
_____
_____
_____
_____
_____

Target group: _____

Agency providing the project and persons (or organizations) maintaining the project : _____

Impacts : _____
_____
_____
_____

Problems :_____
_____
_____
_____

(Note: Please use additional sheets for projects if necessary)

Sports and recreational facilities (especially indoor facilities bookstore, karaoke bar, movie theater, gyms, etc); enumerate : _____
_____
_____
_____
_____

Protective services:

Crime rate : _____

Fire occurrence (how frequent) : _____

D. Economic Conditions

Income Sources

Income amount	Income sources
Periodic/Regular income(per month): P _____	Regular source(s):
Irregular income (identify months of the year when they come): P _____ Months of the year:	Irregular source(s): Months of the year:

Ave. monthly household income : P _____

Employment rate: ____ %

Types and number of commercial establishments:

Type	Number	Energized or not energized	Purpose of electricity	Price of electric appliance bought for the establishment

Credit sources in the area: _____
_____
_____

E. Status of Organizations

Name of organization	Type (NGO, PO, or sector served)	Number of members	Status (functional or not functional)	Financial sources

F. Infrastructure

Roads

Type	Km stretch	Institution/Agency in charge of maintenance
Earthfill/gravel		
Concrete		

Irrigation, hectarage covered : _____ hectares

G. Environmental Concerns

Existence of some important sites of environmental concern such as protected areas (natural parks, rivers, coastal or mangrove areas, etc.; identify and describe important functions - economic, ecological) :

_____
_____
_____
_____
_____
_____
_____

How are dry cell and car batteries disposed of? _____
_____
_____

H. Energization Profile and Concerns

Energy sources used for electricity:

___ solar photovoltaic system
___ family owned generator set
___ communal-owned generator set
___ micro-hydro system
___ battery; (storage and/or car battery)
___ others, pls. identify : _____

Problems encountered with current energy sources: _____
_____
_____
_____
_____
_____

Attachment - C
Socio & Economic Survey

Activities needing electricity : _____

Perceived benefits from electrification : _____

Perceived problems of electrification : _____

Steps being undertaken to acquire electrification : _____

Constraints in acquiring the needed electrification : _____

Perception of people's capacity to pay: _____

Suggestions on the set up for managing electric supply and distribution :

I. Others

Decision-making system at barangay level (please describe):

_____
_____
_____
_____
_____

Necessary services for the barangay

2. _____
2. _____
3. _____
4 _____
5. _____

Basis for Classification of Households:

a. well-off :

b. middle-class :

c. poor household :

SOCIO-ECONOMIC SURVEY OF BARANGAYS
Master Plan Study of Power Development in Palawan Province

Key Informant Interview Guide
for PALECO and Electric Coop Key Officials

A. Personal Information

1. Name: _____
2. Position/Designation in the coop: _____
3. Office/Agency/Organizational Affiliation: _____
4. No. of years in service: _____

B. Electrification and Energization Profile

1. Extent of coverage of electrification service (cite actual figures or percentage)

Municipality (N=24) : _____
Barangay (N=431) : _____

Urban : _____
Rural : _____

Upland : _____
Lowland : _____
Coastal : _____

Sitio : _____
Households : _____

2. General Statistics

Gross revenue : _____

MWH purchased : _____

MWH sold : _____

System loss (%) : _____

Peak load (kw) : _____

Load factor (%) : _____

Collection rate (%) : _____

Average system rate (P/kwh) : _____

3. Connection per Type of Consumer :

Type of consumer	Number	MWH monthly consumption
Domestic- Residential		
Industrial-Commercial		
Public Buildings/Offices		
Streetlights		
Others		

4. Electrification Programs and Projects

Past:_____

_____

_____

_____

_____

_____

_____

Future :

_____

_____

_____

_____

_____

_____

_____

5. Problems Encountered:

_____

_____

_____

_____
_____
_____
_____

Distance from the existing main cable of each non-electrified surrounding barangays. (Estimate in terms of meters, kilometers or number if houses)

_____
_____
_____
_____
_____
_____
_____

6. Perception of :

   a. Demand for electricity (high, moderate, or low ; describe factors for demand)

_____
_____
_____
_____
_____
_____
_____

   b. People's capacity to pay (high, moderate, or low ; explain factors affecting capacity to pay)

_____
_____
_____
_____
_____
_____
_____

Additional Notes (Please attach additional sheets if necessary):

SOCIO-ECONOMIC SURVEY OF BARANGAYS
Master Plan Study of Power Development in Palawan Province

Key Informant Interview Guide
(For Selected Household Heads Representing Well Off , Middle, and Poor Households)

A. Personal Data

Name : _____
Sitio, barangay., municipality : _____
Age : _____
Gender : _____
Educational attainment : _____
Civil status : _____
Occupation : _____
Length of stay in the barangay: _____

B. Family Data

Number of members in the family: _____
Number of family members in school (elem., high school, college):

Level of schooling	Number
Elementary	
High School	
College	

Number of members working/earning: _____
Occupations where earning members are employed: _____
_____

With housekeeping book : ___ Yes ___ No

Average monthly household income (including Government subsidy /remittance from relatives, gambling /lottery, etc.) : P _____
Periodic (regular) income : P _____
Irregular income : P _____

Average monthly household expenditure: P _____
Periodic (regular) expenditure : P _____
Irregular expenditure : P _____

Credit sources in the area : _____
_____
_____

Appliances owned and purchase cost (including the place where these were bought)

Appliances owned	Purchase cost	Place where bought

Energy sources for major activities:

Major activities	Energy source
Lighting	
Cooking	
Irrigation	
Other activities, pls. specify:	

C. Electricity Consumption and Utilization (for energized household; skip this part for un-energized household)

Date household was energized : _____

Agency providing electric supply : _____

_____

Benefits derived from use of electricity :

_____

_____

_____

_____

_____

Appliance use:

Appliance	Number of bulbs (if applicable)	Wattage	Brand name	Ave. no o hrs used/day	Date of Buying	Price (at time bought)

Electricity cost-saving measures: _____
_____
_____
_____

Major activities that will be affected without electricity: _____
_____
_____
_____

Problems encountered in use of electricity: _____
_____
_____
_____

D. Electricity Concerns (for non-energized household)

Energy sources used for electricity : _____
_____
_____

Problems encountered with current energy sources: _____
_____
_____
_____

Activities needing electricity : _____
_____
_____
_____

Perceived benefits from electrification: _____
_____
_____
_____

Perceived problems of electrification: _____
_____
_____
_____

Steps being undertaken to acquire electrification :
_____
_____
_____

Constraints in acquiring the needed electrification :
_____
_____
_____

Willingness to pay :_____
_____
_____
_____

E. Others

Decision-making power for various activities

Activity	Decision-maker	Reasons
Household expenditure		
Farm/occupation		
Children schooling		
Health		
Purchase of appliances		
Payment of bills		
Community involvement		
Others, pls. identify:		

Necessary services for the barangay

3. _____
2. _____
3. _____
4 _____
5. _____

Basis for Classification of Households:

a. well-off :

b. middle-class :

c. poor household :

APPENDIX C - III (b)

Focus Group Discussion Guide

APPENDIX C-III (b)
SOCIO-ECONOMIC SURVEY OF BARANGAYS
Master Plan Study of Power Development in Palawan Province

FOCUS GROUP DISCUSSION GUIDE

Objectives:

- Draw insights on the community's perceptions, expectations, needs, and demands pertaining to electrification
- Gauge the community's absorptive capacity to maximize use of electricity for their socio-economic development

Participants:

FGDs will be administered to a group of 8 -10 people representing groupings that will indicate possible differences in terms of socioeconomic contexts. Representations will be any of the following:

Parameters	On-Grid	Off-grid
Energized vs. non-energized	Energized	X
Upland vs. lowland vs. coastal/island	X	X
High income vs. low income	X	X
With pubic utilities vs. without public utilities	X	X
Urban vs. rural	X	X
Farming/fishery/forestry vs. employed in govt. services	X	X
Migrants vs. indigenous	X	X
PO members vs. non-members	X	X

Special FGDs will also be done exclusively for women and youth.

Due to time limitation, whatever groups can be arranged and made available at one time will be gathered and FGDs will be conducted simultaneously. Team of three will be in-charge of the FGDs

FGD Process Guide for Facilitators and Question Guide
(Note: Those in bold letters are instructions for facilitators)

Materials to be Used:

For this exercises, pentel pens, brown/Manila paper, meta cards, and masking tape will be prepared. Meta cards in various sizes and colors will be used to for easy codification of responses (such as blue for positive impacts and red for negative impacts; green for benefits and yellow for problems, etc.).

a. For Energized, three categories of respondents that could possibly be arranged at one time: (as there will only be three staff at one time).

- What are the impacts (both positive and negative) of electrification at the household and community levels? **(Facilitator should probe which sector benefited or suffered most and why)**
- What problems do you encounter concerning present distribution and use of electricity? **(Should include problems on distribution, utilization, loss/leakage, ability to pay, mode of payment of bills, maintenance, etc.)** How do you think they can be solved? Participants may draw a problem tree and a solution tree for this part.
- How do you think you can contribute to the better management of electrification system in your area? (**Probe responses and categorize later**)

b. For Non-energized, three categories at one time

- Why are you still not energized ?
- If you are to prioritize the following, how will they be ranked (i.e., 1,2,3 etc., from 1 as the lowest to an increasing order)? Why? **(Write all the items below on meta cards and let the FGD pax rank them on a brown paper. Let a pax-rapporteur jot down the reasons for their ranking.)**
  - Water supply
  - Electricity
  - Educational facilities
  - Irrigation
  - Roads, bridges and other infrastructure
  - Public transportation
  - Health facilities
  - Toilet
  - Job opportunities
  - Others, specify
- You may draw a scenario of your community once it gets energized. Based on this drawing, what needs do you think will be met by electrification? Or what are your perceived benefits from electrification? **(Encourage participants to draw and to label properly their perceived benefits from electrification)**
- What are your perceived problems from electrification?
- How much are you willing to pay for electricity per month?
- How do you think you can contribute in the better management of electrification system in your area?

APPENDIX C - IV

List of References for Whole Barangay Survey

Attachment - C
Socio & Economic Survey

APPENDIX C-IV List of References for Whole Barangay Survey

1.	Comprehensive Land Use Plan (CLUP) of the Municipality of Busuanga, Palawan: 2001-2009
2.	Draft Municipal Land Use Plan of the Municipality of Brooke's Point
3.	Comprehensive Land Use Plan of Puerto Princesa City, Palawan
4.	Comprehensive Land Use Plan & Zoning Ordinance of the Municipality of Cuyo, Palawan: 2001-2005
5.	Municipal Comprehensive Land Use Plan of the Municipality of Dumaran, Palawan: 2001-2010
6.	Comprehensive Land Use Plan of the Municipality of Taytay, Palawan
7.	Comprehensive Land Use Plan and Water Use Plan of the Municipality of San Vicente, Palawan: 2001-2010
8.	Provincial Physical Framework Plan/Comprehensive Provincial Land Use Plan 1996-2002
9.	Medium Term Development Plan 2003-2012
10.	2000 Annual Report: Municipal Government of San Vicente, Palawan
11.	Human Development Report 2000: Province of Palawan
12	MIMAP-CBMS Form 3: Purok Tally Sheet
13.	AED-P –Field Visit Report for Palawan Market Package
14.	Philippine Rural Off-Grid Electrification Pre-Investment Study
15.	Project Brief –Proposed WB-funded Rural Power Project
16.	CY 2003 Energy Programs and Projects
17.	Members Policy Manual
18.	PALECO Statistical Reports
19.	Existing Infrastructure Provision for Power
20.	2002 Status of Electrification
21.	Status of Electrification, BISELCO
22.	Socioeconomic and Physical Profile, Quezon, Palawan
23.	Bataraza Situation Analysis
24.	Palawan Community, Targets for Electrification
25.	Total Population, Household Population & Number of Households by Province, City, Municipality & Barangay as of May 1 2000
26.	Municipal Profile of Narra, Palawan
27.	Accessibility Conditions 2001
29.	Barangay Profile of San Vicente, Roxas, Palawan
30.	Energized/Unenergized Municipalities & Barangays per Municipality 2002
31.	Prevailing Prices for the Different Home Appliances
32.	Feasibility Study for a Project to Provide Environmentally Friendly Electricity Services to Off-Grid Communities in the Province of Palawan
33.	Market Assessment for Rural Electrification –Final Report
Other relevant references	
1.	Area, Population, Population Density & Land Use by Barangay 1990
2.	BISELCO Financial & Statistical Report 2002
3.	Busuanga Island Electric Cooperative, Inc. –Status of Electrification
4.	BISELCO Organizational Chart
5.	Untitled, Maps
6.	Concept Paper: Busacay Island Electrification Project
7.	PALECO Financial & Statistical Report
8.	National Mapping and Resource Inventory Administration (NAMRIA) Administrative Map of Palawan Province, 1992

9.	Database, Health Facilities and Classification, 2000
10.	Database, Fisheries (18 municipalities) PPDO-GIS, 2000
11.	Database, Agriculture (18 municipalities) PPDO-GIS, 2000
12.	Health and Nutrition, PPDO-GIS, (21 municipalities)
13.	Literacy and Education PPDO-GIS (21municipalities)
14.	Municipal Data
15.	Physical Characteristics and Land Area
16.	NSO Demography
17.	Security and Shelter
18.	Bountiful Palawan, 1991
19.	PCSDS Data Bank, Distance from Barangay to Poblacion/Municipality, 1991
20.	Barangay Accessibility Survey, 2001

APPENDIX C - V

Selected Characteristics
from
the Whole Barangay Survey

Attachment - C
Socio & Economic Survey

APPENDIX C-V Selected characteristics from the whole Barangay survey

	Municipality	No. of Barangay		Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
1	Aborlan	19	1	Apoporawan	NA	NA (missing 19 Barangays)	0.87	816	0.5	937.9	168	60.54	2.72	NA	100	44	Unenergized			NOT ELECTRIFIED
	①Total Land Area 90.88Km^2		2	Apoc-apoc	NA		0.614	974	2.4	1586.3	221	NA	NA	11471	NA	NA	30	24	PALECO	LEVEL I
	②Total Population 25540 [NSO 2000]		3	Apurawan	NA		31.714	2522	3.43	79.5	540	91.18	7.35	10432	67	28	15	6	BCS	LEVEL I
	③Average Population Growth Rate 3.38 [NSO 1995-2000]		4	Barake	NA		1.206	679	6.74	563	140	NA	NA	8434	NA	NA	Unenergized			NOT ELECTRIFIED
			5	Cabigaan	NA		21.788	1409	5.08	64.7	322	78.41	NA	NA	252	64	63	24	PALECO	LEVEL I
	④No of Households 5702 [PPDO Energy Unit 2002]		6	Culandanum	NA		19.881	854	3.68	43	169	79.77	1.16	1260	133	60	Unenergized			NOT ELECTRIFIED
			7	Gogognan	NA		0.476	369	2.5	775.2	122	59.09	4.55	NA	68	25	12	24	PALECO	LEVEL I
	⑤Average Household Income 7612 [PPDO-GIS 2000)		8	Iraan	NA		2.802	1188	0.5	424	315	NA	NA	4561	NA	0	92	24	PALECO	LEVEL I
			9	Isaub	NA		1.903	1314	3.68	690.5	400	66.06	2.87	NA	380	152	189	24	PALECO	LEVEL II
	⑥No of Electrified Households 2215[PPDO Energy Unit 2003]		10	Jose Rizal	NA		1.205	965	3.61	800.8	261	NA	NA	25778	NA	0	157	24	PALECO	LEVEL II
			11	Mabini	NA		0.234	306	3.3	1307.7	137	80.56	11.11	NA	68	29	54	24	PALECO	LEVEL II
			12	Magbabadil	NA		0.704	882	3.5	1252.8	243	88.07	2.75	NA	135	69	103	24	PALECO	LEVEL II
			13	Plaridel	NA		1.904	1750	1.33	919.1	538	57.59	1.48	NA	409	76	364	24	PALECO	LEVEL II
			14	Ramon Magsaysay	NA		0.028	1745	NA	62321.4	399	NA	NA	3369	NA	NA	107	24	PALECO	LEVEL I
	%o f Households with access to safe water 77.29 [PPDO-GIS, 2000]		15	Sagpangan	NA		1.315	1238	9.12	941.4	356	93.63	NA	950	166	50	Unenergized			NOT ELECTRIFIED
			16	San Juan	NA		1.156	2228	5.63	1927.3	516	77.88	4.4	1335	683	226	460	24	PALECO	LEVEL III
	%o f Households with access to Sanitary Toilet 69.7 [PPDO-GIS, 2000]		17	Tagpait	NA		0.252	804	0.79	3190.5	173	NA	NA	11893	NA	NA	72	24	PALECO	LEVEL II
			18	Tigman	NA		0.675	1426	3.02	2112.6	292	79.23	5.77	NA	214	105	107	24	PALECO	LEVEL II
	Employment Ratio 75.68 [PPDO-GIS, 2000]		19	Poblacion	NA		0.077	1876	1.25	24363.6	390	52.35	2.35	4252	217	99	390	24	PALECO	LEVEL III
						Total	88.804	23345	60.06	104301.3	5702	964.36	46.51	83735	2872	1027	2215			4
	% of Employment in Sector 56.38 (Agriculture, Fishery & Forestry), 8.4 (Industry), 35.22 (Services) [ ]					Average	4.7	1228.7	3.3	5489.5	300.1	74.2	4.2	7612.3	220.9	68.5	147.7			6
																	4/19 (Unenergized)			7
																				2
2	Araceli	13	1	Balogo	NA	NA (missing 13 Barangays)	1.23	517	-0.93	420.3	91	91.35	NA	12678	63	21	Unenergized			NOT ELECTRIFIED
	①Total Land Area 17.67Km^2		2	Dagman	NA		0.6975	773	1.68	1108.2	164	23.15	1.85	NA	92	22	Unenergized			NOT ELECTRIFIED
	②Total Population 10894(NSO 2000)		3	Dalayawan	NA		0.966	418	-1.33	432.7	78	66.67	1.28	NA	74	22	Unenergized			NOT ELECTRIFIED
			4	Lumacad	NA		0.97	656	1.11	676.3	100	79.63	18.52	18558	89	40	Unenergized			NOT ELECTRIFIED
	③Average Population Growth Rate NA(NSO 1995-2000)		5	Madoldolon	NA		1.54	561	-3.2	364.3	79	89	1	9319	83	18	Unenergized			NOT ELECTRIFIED
			6	Mauringuen	NA		1.07	743	4.69	694.4	156	60	NA	1639	117	37	Unenergized			NOT ELECTRIFIED
	④No of Households 2142(PPDO Energy Unit 2002)		7	Osmena	NA		1.97	684	0.13	347.2	154	77.05	1.64	1726	113	24	Unenergized			NOT ELECTRIFIED
			8	San Jose De Oro	NA		0.25	307	-2.53	1228	49	92.54	NA	2621	240	97	Unenergized			NOT ELECTRIFIED
	⑤Average Household Income 5121(PPDO-GIS 2000)		9	Santo Nino	NA		1.59	394	6.76	241.5	91	83.33	NA	1998	50	14	Unenergized			NOT ELECTRIFIED
			10	Taloto	NA		4.37	559	1.9	127.9	109	86	NA	3272	58	20	Unenergized			NOT ELECTRIFIED
	⑥No of Electrified Households 371(PPDO Energy Unit 2002)		11	Tanintinan	NA		0.3	804	2.09	2680	159	92.68	NA	331	88	22	35	12	PALECO	LEVEL I
			12	Tudela (Calandagan)	NA		0.36	1822	-3.77	5061.1	328	NA	NA	444	92	50	38	12	BAPA	LEVEL I
			13	Poblacion	NA		0.25	2666	3.71	10664	585	68.47	3.39	3758	NA	NA	298	6	PALECO	LEVEL II
							15.5635	10894	10.31	24045.9	2142	909.87	27.68	56334	1159	387	371			10
	%o f Households with access to safe water 25.23 (PPDO-GIS,						1.2	838	0.8	1849.7	164.8	75.8	4.6	5121.3	96.6	32.3	123.7			2
																				1
	%o f Households with access to Sanitary Toilet 71.44 (PPDO-GIS,																			0
	Employment Ratio 90.38 (PPDO-GIS, 2000)																			
	% of Employment in Sector 74.66(Agriculture, Fishery & Forestry), 10.46(Industry), 14.88(Services)																			
																	10/13 (Unenergized)			
3	Agutaya	10	1	Algecerias	12	41(+missing 2 Barangays)	0.781	3433	18.94	4395.6	1011	NA	NA	2017	NA	NA	Unenergized			NOT ELECTRIFIED
	①Total Land Area 3.3Km^2		2	Concepcion	2		0.2149	2743	14.55	12764.1	677	35.24	38.11	6745	295	66	Unenergized			NOT ELECTRIFIED
	②Total Population 10422(NSO 2000)		3	Dilit	NA		0.5486	1417	0.04	2582.9	252	55	1	231	163	43	Unenergized			NOT ELECTRIFIED
			4	Maracanao	1		0.0982	219	-3.52	2230.1	33	88.89	2.78	NA	42	18	Unenergized			NOT ELECTRIFIED
	③Average Population Growth Rate 7.53(NSO 1995-2000)		5	Matarawis	NA		0.07	181	-0.11	2585.7	29	78.95	NA	175	18	13	Unenergized			NOT ELECTRIFIED
			6	Abagat (Pob)	9		0.0981	347	-3.56	3537.2	88	88.87	3.38	760	NA	NA	88	6	PALECO	LEVEL II
	④No of Households 2539(PPDO Energy Unit 2002)		7	Bancal (Pob)	2		0.22	244	1.28	1109.1	54	83.72	9.3	9102	32	23	54	6	PALECO	LEVEL II
			8	Cambian (Pob)	5		0.2034	350	-2.68	1720.7	94	NA	NA	528	NA	NA	94	6	PALECO	LEVEL II
	⑤Average Household Income 2208(PPDO-GIS 2000)		9	Vilafria	3		0.5093	592	0.34	1162.4	120	64	NA	218	54	17	Unenergized			NOT ELECTRIFIED
			10	Vilasol	7		0.5476	896	-0.76	1636.2	181	NA	NA	103	NA	NA	Unenergized			NOT ELECTRIFIED
	⑥No of Electrified Households 236(PPDO Energy Unit 2002)						3.2911	10422	24.52	33724	2539	474.67	54.57	19879	604	180	236			7
							0.3	1042.2	2.5	3372.4	253.9	67.8	10.9	2208.8	100.7	30	78.7			0
																				3
																				0
	%o f Households with access to safe water 45.04 (PPDO-GIS,																			
	%o f Households with access to Sanitary Toilet 58.88 (PPDO-GIS,																			
	Employment Ratio 89.43 (PPDO-GIS, 2000)																			
	% of Employment in Sector 80.28(Agriculture, Fishery & Forestry), 5.23(Industry), 14.49(Services)																			
																	7/10 (Unenergized)			

Attachment -C
Socio & Economic Survey

	Municipality	No. of Barangay		Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
4	Balabac	20	1	Agutayan	11	78(+missing 10 Barangays)	4.29	482	-0.04	112.4	109	100	NA	1187	103	23	Unenergized			NOT ELECTRIFIED
	①Total Land Area 0.58Km^2		2	Bancalaan	NA		4.39	6435	5.79	1465.8	1332	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
	②Total Population 25257(NSO		3	Indalawan	6		4.7	925	9.12	196.8	192	82.07	NA	1211	125	43	Unenergized			NOT ELECTRIFIED
	2000)		4	Catagupan	12		5.03	1189	1.98	236.4	302	NA	NA	1036	149	60	Unenergized			NOT ELECTRIFIED
	③Average Population Growith Rate		5	Malaking Ilog	7		4.09	663	3.03	162.1	147	88.06	NA	306	110	23	Unenergized			NOT ELECTRIFIED
	4.98(NSO 1995-2000)		6	Mangsee	2		0.131	6143	-0.11	46893.1	940	94.38	5.63	NA	110	16	Unenergized			NOT ELECTRIFIED
	④No of Households 5057(PPDO		7	Meiville	12		2.07	884	11.02	427.1	205	NA	NA	2970	NA	NA	Unenergized			NOT ELECTRIFIED
	Energy Unit 2002)		8	New Cagayacillo	NA		12.23	882	0.07	72.1	179	69.89	NA	106	158	29	Unenergized			NOT ELECTRIFIED
	⑤Average Household Income		9	Pandanan	4		4.2	532	3.64	126.7	118	69.26	17.78	1296	164	40	Unenergized			NOT ELECTRIFIED
	1876(PPDO-GIS 2000)		10	Pasig	NA		0.02	294	0.06	14700	81	7.77	20.39	2878	68	19	Unenergized			NOT ELECTRIFIED
	⑥No of Electrified Households		11	Rabor	NA		2.41	361	0.11	149.8	81	100	NA	850	17	3	Unenergized			NOT ELECTRIFIED
	264(PPDO Energy Unit 2002)		12	Ramos	13		3.29	1381	2.66	419.8	270	90.76	NA	2600	215	119	Unenergized			NOT ELECTRIFIED
			13	Salang	7		4.79	1977	5.14	412.7	430	83.07	1.6	1189	342	53	Unenergized			NOT ELECTRIFIED
			14	Sebaring	4		0.519	786	10.74	1514.5	184	60.678	29.06	361	54	40	Unenergized			NOT ELECTRIFIED
	%o f Households with access to		15	Pobiacion 1	NA		0.04	184	-2.61	4600	40	91.46	NA	NA	27	13	39	6	PALECO	LEVEL II
	safe water 27.23(PPDO-GIS,		16	Pobiacion 2	NA		NA	289	-0.8	NA	55	88.37	NA	3808	38	12	50	6	PALECO	LEVEL II
	%o f Households with access to		17	Pobiacion 3	NA		NA	321	3.37	NA	69	65.57	14.75	1852	65	30	58	6	PALECO	LEVEL II
	Sanitary Toilet 43.37(PPDO-GIS,		18	Pobiacion 4	NA		NA	400	7.86	NA	102	63.38	14.08	6187	50	28	64	6	PALECO	LEVEL II
	Employment Ratio 88.79(PPDO-		19	Pobiacion 5	NA		NA	352	-2.43	NA	81	92.31	7.69	1118	60	23	28	6	PALECO	LEVEL II
	GIS, 2000)		20	Pobiacion 6	NA		NA	777	-0.83	NA	160	92	NA	2940	25	34	25	6	PALECO	LEVEL I
	% of Employment in Sector						52.2	25257	57.77	71489.3	5057	1339.028	110.98	31893	1880	608	264			14
	76.83(Agriculture, Fishery &						3.5	1262.9	2.9	4766	252.9	78.8	13.9	1876.1	104.4	33.8	44			1
	Forestry), 4.85(Industry),																			5
	18.31(Services)																			0
																	14/20 (Unenergized)			
5	Bataraza	22	1	Inogbong	16	150	3.39	2740	8.76	808.3	653	68.75	4.17	9807	256	60	34	24	PALECO	LEVEL I
	①Total Land Area 0.96Km^2		2	Marangas (Pob)	3		4.9	5286	5.93	1078.8	1102	78.72	7.38	NA	839	427	476	24	PALECO	LEVEL II
	②Total Population 41458 (NSO		3	Bono-bono	12		3.95	2259	2.34	571.9	517	73.02	0.23	16987	297	91	Unenergized			NOT ELECTRIFIED
	2000)		4	Malihud	5		3.71	1249	4.41	336.7	294	67.68	NA	9530	111	54	Unenergized			NOT ELECTRIFIED
	③Average Population Growith Rate		5	Bulalacao	4		4.74	1477	7.71	311.6	294	47.58	0.37	8472	180	44	Unenergized			NOT ELECTRIFIED
	4.48 (NSO 1995-2000)		6	Tarusan	7		6.46	2662	1.3	412.1	587	49.45	NA	NA	198	51	Unenergized			NOT ELECTRIFIED
	④No of Households 9544 (PPDO		7	Colandanum	7		5.17	2788	11.15	539.3	708	83.91	0.18	NA	332	179	Unenergized			NOT ELECTRIFIED
	Energy Unit 2002)		8	Sandoval	8		5.03	1971	3.96	391.8	462	96.57	2.86	5889	211	81	Unenergized			NOT ELECTRIFIED
	⑤Average Household Income		9	Iwahig	13		4.69	1623	4.26	346.1	379	69.36	13.97	NA	163	29	Unenergized			NOT ELECTRIFIED
	12624(PPDO-GIS 2000)		10	Igang-igang	7		1.78	945	2.19	530.9	208	64.06	NA	9535	162	28	Unenergized			NOT ELECTRIFIED
	⑥No of Electrified Households		11	Sarong	8		3.06	1399	5.1	457.2	333	88.22	NA	19446	182	10	Unenergized			NOT ELECTRIFIED
	510(PPDO Energy Unit 2002)		12	Ocayan	13		3.07	1412	6.86	459.9	310	83.49	2.49	9487	225	54	Unenergized			NOT ELECTRIFIED
			13	Rio Tuba	7		6.3	7663	4.54	1216.3	1582	39.7	1.71	NA	830	364	Unenergized			NOT ELECTRIFIED
			14	Taratak	6		5.34	1422	2.5	266.3	323	86.3	4.07	NA	149	56	Unenergized			NOT ELECTRIFIED
	%o f Households with access to		15	Sumbilling	6		5.92	1808	5.61	305.4	493	83.81	NA	14478	219	97	Unenergized			NOT ELECTRIFIED
	safe water 38.19(PPDO-GIS, 2000)		16	Sapa	3		5.81	951	2.72	163.7	254	89.77	2.27	15403	132	45	Unenergized			NOT ELECTRIFIED
	%o f Households with access to		17	Malitub	3		3.96	377	0.99	95.2	297	100	NA	6655	20	25	Unenergized			NOT ELECTRIFIED
	Sanitary Toilet 44.67(PPDO-GIS,		18	Tagnato	3		1.76	538	-1.34	305.7	108	93.33	1.33	9469	115	60	Unenergized			NOT ELECTRIFIED
	Employment Ratio 82.71(PPDO-		19	Puring	4		2.23	594	-3.49	266.4	144	90.67	NA	28461	89	9	Unenergized			NOT ELECTRIFIED
	GIS, 2000)		20	Bulilluyan	4		2.45	1181	11.96	482	222	74.5	NA	NA	75	9	Unenergized			NOT ELECTRIFIED
	% of Employment in Sector		21	Tabud	7		4.27	696	0.22	163	154	47.06	4.9	11722	79	15	Unenergized			NOT ELECTRIFIED
	70.01(Agriculture, Fishery &		22	Tagolango	4		7.65	417	2.13	54.5	120	77.5	NA	NA	20	1	Unenergized			NOT ELECTRIFIED
	Forestry), 9.41(Industry),						95.64	41458	89.81	9563.1	9544	1653.45	45.93	175341	4864	1789	510			20
	20.5(Services)						4.3	1884.5	4.1	434.7	433.8	75.2	3.5	12524.4	221.1	81.3	255			1
																				1
																				0
																	20/22 (Unenergized)			
6	Brooke's Point	18	1	Pobiacion 1	3	126	0.8	4934	5.03	8223.3	1037	NA	NA	16939	648	277	1076	24	PALECO	LEVEL III
	①Total Land Area 836.5Km^2		2	Pobiacion 2	7		2	3378	0.84	1689	1143	NA	NA	3408	444	226	1143	24	PALECO	LEVEL III
	②Total Population 48928 (NSO		3	Amas	5		0.07	1472	1.69	21028.6	306	NA	NA	NA	247	47	Unenergized			NOT ELECTRIFIED
	2000)		4	Aribungos	7		0.09	3790	1.38	42111.1	781	NA	NA	2815	503	190	140	24	PALECO	LEVEL I
	③Average Population Growith Rate		5	Barong-barong	6		0.014	3088	1.6	220571.4	579	NA	NA	10324	562	159	234	24	PALECO	LEVEL II
	N/A (NSO 1995-2000)		6	Calasaguen	6		0.12	2231	0.66	18591.7	437	NA	NA	3988	363	115	128	24	PALECO	LEVEL I
	④No of Households 10608 (PPDO		7	Lmulod	9		0.07	1363	0.41	19471.4	301	NA	NA	8434	157	48	Unenergized			NOT ELECTRIFIED
	Energy Unit 2002)		8	Ipilan	7		0.01	4349	3.13	434900	904	NA	NA	5282	592	195	241	24	PALECO	LEVEL I
	⑤Average Household Income		9	Mambalot	9		0.08	1830	0.83	22875	362	NA	NA	12077	278	98	100	24	PALECO	LEVEL I
	6390(PPDO-GIS 2000)		10	Oring-Oring	6		0.015	1470	9.53	98000	336	NA	NA	13814	209	45	17	24	PALECO	LEVEL I
	⑥No of Electrified Households		11	Pangobilian	10		0.02	6150	7.91	307500	1195	NA	NA	588	1067	331	528	24	PALECO	LEVEL II
	4031(PPDO Energy Unit 2002)		12	Salogon	8		0.07	2910	4.6	41571.4	632	NA	NA	2997	390	106	78	24	PALECO	LEVEL I
			13	Smariniana	9		0.047	1986	5.09	42255.3	459	NA	NA	5076	NA	NA	76	24	PALECO	LEVEL I
			14	Saraza	4		0.039	2170	0.9	55641	442	NA	NA	718	392	92	26	24	PALECO	LEVEL I
	%o f Households with access to		15	Tubtub	8		0.006	1223	1.05	203833.3	234	NA	NA	225	NA	NA	37	24	PALECO	LEVEL I
	safe water 72.49(PPDO-GIS,		16	Maasin	6		0.06	2744	5.05	45733.3	627	NA	NA	13236	326	144	164	24	PALECO	LEVEL I
	%o f Households with access to		17	Marnit	10		0.09	1974	3.51	21933.3	428	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
	Sanitary Toilet 57.1(PPDO-GIS,		18	Malis	6		0.05	1866	2.97	37320	405	NA	NA	3327	217	51	43	24	PALECO	LEVEL I
	Employment Ratio 82.07(PPDO-						3.451	48928	56.18	1643249.1	10608	0	0	102244	6395	2124	4031			3
	GIS, 2000)						0.2	2718.2	3.1	91291.6	589.3	#DIV/0!	#DIV/0!	6390.3	426.3	141.6	268.7			11
	% of Employment in Sector																			2
	71.7(Agriculture, Fishery &																			2
	Forestry), 3.98(Industry),																			
	24.32(Services)																3/18 (Unenergized)			

Municipality	No. of Barangay		Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density ($/Km^2$) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
7 Busuanga	16	1	Bogtong	NA	16(+missing 12 Barangays)	3.32	620	-10.29	186.7	98	48.51	NA	1937	93	19	35	24	PALECO	LEVEL III
①Total Land Area 40.88Km^2		2	Buluang	NA		2.88	2199	33.74	763.5	666	48.02	23.81	3275	190	40	21	24	PALECO	LEVEL II
②Total Population 16287 (NSO		3	Cheey	NA		12.5	1893	25.22	151.4	532	48.9	2.84	224	178	54	Unenergized			NOT ELECTRIFIED
2000)		4	Concepcion	6		1.6	855	-0.03	534.4	138	52.91	3.17	2505	155	35	95	24	PALECO	LEVEL II
③Average Population Growth Rate		5	Maglalambay	NA		0.84	931	0.75	1454.7	154	81.68	0.76	8756	150	17	Unenergized			NOT ELECTRIFIED
0.55(NSO 1995-2000)		6	New Busuanga	NA		2.46	1140	10.37	463.4	250	49.24	4.06	1275	159	62	71	24	PALECO	LEVEL I
④No of Households 3937(PPDO		7	Old Busuanga	NA		2.8	639	-0.28	228.2	145	63.97	2.21	1240	114	31	38	24	PALECO	LEVEL I
Energy Unit 2002)		8	Panlaitan	NA		0.24	2224	0.13	9266.7	653	82	1	3731	172	47	20	6	BCS	LEVEL I
⑤Average Household Income		9	Sagrada	4		1.97	939	-16.94	476.6	154	NA	NA	3769	NA	NA	42	24	PALECO	LEVEL I
2923(PPDO-GIS 2000)		10	Salvacion	4		3.43	2023	20.42	589.8	545	55.15	3.62	1254	355	205	235	24	PALECO	LEVEL II
⑥No of Electrified Households		11	San Isidro	NA		0.52	711	-17.45	1367.3	87	71.55	NA	4004	140	38	20	6	BCS	LEVEL I
670(PPDO Energy Unit 2002)		12	San Rafael	3		1.97	524	2.2	266	76	75.95	3.8	139	77	23	35	24	PALECO	LEVEL II
		13	Sto Nino	NA		1.11	801	13.35	721.6	213	74	NA	265	41	3	38	24	PALECO	LEVEL I
		14	Burabod	NA		1.65	332	-15.44	201.2	46	76.62	3.9	5092	89	25	Unenergized			NOT ELECTRIFIED
%o f Households with access to		15	Halsey	NA		NA	855	-0.03	NA	85	40.91	NA	8442	102	10	Unenergized			NOT ELECTRIFIED
safe water 55.53(PPDO-GIS,		16	Quezon	NA		3.73	NA	NA	NA	95	NA	NA	864	NA	NA	20	6	BCS	LEVEL I
%o f Households with access to						40.82	16686	45.72	16671.5	3937	869.41	49.17	46772	2015	609	670			4
Sanitary Toilet 82.56(PPDO-GIS,						2.7	1112.4	3	1190.8	246.1	62.1	4.9	2923.3	143.9	43.5	55.8			7
Employment Ratio 85.61(PPDO-																			4
GIS, 2000)																			1
% of Employment in Sector																			
58.2(Agriculture, Fishery &																4/16 (Unenergized)			
Forestry), 10.48(Industry),																			
18.42(Services)																			
8 Cagayancillo	12	1	Bantayan	1	24	0.06	312	0.59	5200	35	98.11	NA	73	60	29	21	6	PALECO	LEVEL II
①Total Land Area 1.54Km^2		2	Calsada	1		5.03	201	1.35	40	26	92.31	NA	56	32	17	24	6	PALECO	LEVEL II
②Total Population 6348 (NSO		3	Convento	5		1.84	321	0.12	174.5	44	70.45	2.27	59	41	18	41	6	PALECO	LEVEL II
2000)		4	Lipot North	1		0.24	234	4.04	975	32	NA	NA	NA	NA	NA	26	6	PALECO	LEVEL II
③Average Population Growth Rate		5	Lipot South	1		0.23	182	9.62	791.3	20	88.89	5.56	18	20	3	12	6	PALECO	LEVEL II
-1.12(NSO 1995-2000)		6	Magsaysay	3		1	1464	-8.15	1464	202	56.52	NA	155	228	116	Unenergized			NOT ELECTRIFIED
④No of Households 903(PPDO		7	Nampio	3		1.36	616	3.29	452.9	92	87.23	NA	53	122	21	Unenergized			NOT ELECTRIFIED
Energy Unit 2002)		8	Nusa	1		0.73	541	5.5	741.1	88	92.77	6.02	158	67	25	Unenergized			NOT ELECTRIFIED
⑤Average Household Income		9	Sta. Cruz	3		2.78	1016	0.58	365.5	148	98.7	NA	111	175	63	30	6	BCS	LEVEL I
98(PPDO-GIS 2000)		10	Tacas	1		0.31	177	-9.09	571	23	100	NA	29	23	7	23	6	PALECO	LEVEL II
⑥No of Electrified Households		11	Talaga	3		5.34	984	1.05	184.3	153	62.14	2.14	282	161	42	30	6	BCS	LEVEL I
225(PPDO Energy Unit 2002)		12	Wahig	1		0.42	300	6.69	714.3	40	87.8	2.44	85	48	23	18	6	PALECO	LEVEL II
						19.34	6348	15.59	11673.9	903	934.92	18.43	1079	977	364	225			3
						1.6	529	1.3	972.8	75.3	85	3.7	98.1	88.8	33.1	25			2
%o f Households with access to																			7
safe water 19.98(PPDO-GIS,																			0
%o f Households with access to																			
Sanitary Toilet 79.91(PPDO-GIS,																			
Employment Ratio 81.64(PPDO-																			
GIS, 2000)																			
% of Employment in Sector																3/12 (Unenergized)			
88.79(Agriculture, Fishery &																			
Forestry), 3.67(Industry),																			
26.93(Services)																			
9 Coron	23	1	Banuang Daan	6	148(+missing 1 Barangays)	4.099	546	2.23	133.2	103	99.07	NA	NA	63	10	20	6	BCS	LEVEL I
①Total Land Area 94.52Km^2		2	Brgy.1	1		0.069	2419	1.94	35058	520	58	8	NA	387	183	520	24	BISELCO	LEVEL III
②Total Population 32243(NSO		3	Brgy.2	1		0.003	712	-0.11	237333.3	228	64.18	20.9	NA	124	73	228	24	BISELCO	LEVEL III
2000)		4	Brgy.3	1		0.002	556	-1.61	278000	253	47.06	37.5	100	95	41	253	24	BISELCO	LEVEL III
③Average Population Growth Rate		5	Brgy.4	1		0.014	586	1.57	41857.1	136	40	9.6	6896	85	40	129	24	BISELCO	LEVEL III
3.58(NSO 1995-2000)		6	Brgy.5	1		0.05	2246	6.53	44920	570	65.73	11.89	1497	394	142	434	24	BISELCO	LEVEL II
④No of Households 7128 (PPDO		7	Brgy.6	3		2.45	955	0.2	389.8	179	30.7	NA	2763	163	49	108	24	BISELCO	LEVEL II
Energy Unit 2002)		8	Bintuan	7		20.85	1603	3.24	76.9	391	62.39	0.9	261	230	52	98	24	BISELCO	LEVEL I
⑤Average Household Income		9	Borac	NA		3.5	1651	1.03	471.7	351	92.48	NA	NA	208	105	105	24	BISELCO	LEVEL I
2227(PPDO-GIS 2000)		10	Buenavista	15		1.71	705	8.01	412.3	157	95.88	NA	NA	96	15	20	6	BCS	LEVEL I
⑥No of Electrified Households		11	Bulaiacao	6		2.26	2045	2.46	904.9	432	56.9	NA	NA	358	26	30	6	BCS	LEVEL I
3085(PPDO Energy Unit 2002)		12	Cabugao	3		5.26	1696	6.17	322.4	339	47.88	NA	NA	179	22	20	6	BCS	LEVEL I
		13	Decabobo	21		3.25	810	6.47	249.2	161	91.28	NA	875	124	22	20	6	BCS	LEVEL I
		14	Decalachao	6		11.36	1167	8.93	102.7	282	55.61	0.45	1017	151	20	92	24	BISELCO	LEVEL II
%o f Households with access to		15	Guadalupe	2		5.41	1468	3.52	271.3	321	58.54	NA	NA	217	45	122	24	BISELCO	LEVEL II
safe water 65.27(PPDO-GIS,		16	Lajala	5		1.53	1233	9.09	805.9	328	49.82	NA	NA	156	21	77	4	)GY, GENSET & BCS	LEVEL I
%o f Households with access to		17	Malawig	12		0.775	538	4.29	694.2	116	92.16	0.99	NA	94	4	20	6	BCS	LEVEL I
Sanitary Toilet 43.81(PPDO-GIS,		18	Marcilla	5		5.6	944	0.65	168.6	193	66.13	NA	380	162	25	20	6	BCS	LEVEL I
Employment Ratio 74.89(PPDO-		19	San Jose	13		5.22	922	4.33	176.6	200	76.14	NA	NA	147	18	20	6	BCS	LEVEL I
GIS, 2000)		20	San Nicolas	6		11.69	1707	3.72	146	306	56.31	2.77	6257	229	63	98	24	BISELCO	LEVEL II
% of Employment in Sector		21	Tagumpay	8		1.48	4779	3.47	3229.1	964	25.81	6.7	NA	895	282	631	24	BISELCO	LEVEL II
56.96(Agriculture, Fishery &		22	Tara	5		1.06	1070	5.36	1009.4	232	NA	NA	NA	NA	NA	20	6	BCS	LEVEL I
Forestry), 11.02 (Industry),		23	Turda	18		7.24	1885	3.74	260.4	366	95.17	NA	NA	325	57	Unenergized			NOT ELECTRIFIED
32.02(Services)						94.882	32243	85.23	646993	7128	1426.64	99.69	20046	4882	1315	3085			1
						4.1	1401.9	3.7	28130.1	309.9	64.8	10	2227.3	221.9	59.8	140.2			12
																			6
																			4
																1/23 (Unenergized)			

Attachment -C
Socio & Economic Survey

Municipality	No. of Barangay		Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km²) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
10 Culion	11	1	Balala	NA	50?	NA	669	0.1	NA	162	NA	NA	NA	NA	NA	178	12	BISELCO	LEVEL II
①Total Land Area 187.8Km²		2	Baldat	NA		NA	434	4.52	NA	98	NA	NA	NA	NA	NA	17	12	BISELCO	LEVEL I
②Total Population 14302 (NSO 2000)		3	Binudac	NA		NA	2034	12.29	NA	400	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		4	Culango	NA		NA	265	2.51	NA	45	NA	NA	NA	NA	NA	39	12	BISELCO	LEVEL II
③Average Population Growith Rate 1.89 (NSO 1995-2000)		5	Galoc	NA		NA	1174	3.97	NA	240	NA	NA	NA	NA	NA	20	6	BCS	LEVEL I
		6	Jardin	NA		NA	986	-2.97	NA	173	NA	NA	NA	NA	NA	103	12	BISELCO	LEVEL II
④No of Households 3421 (PPDO Energy Unit 2002)		7	Libis	NA		NA	1145	-0.11	NA	248	NA	NA	NA	NA	NA	155	12	BISELCO	LEVEL II
		8	Luac	NA		NA	1091	0.44	NA	712	NA	NA	NA	NA	NA	20	6	BCS	LEVEL I
⑤Average Household Income N/A(PPDO-GIS 2000)		9	Malaking Patag	NA		NA	1335	-1.15	NA	246	NA	NA	NA	NA	NA	23	12	BISELCO	LEVEL I
		10	Osemna	NA		NA	4169	2.4	NA	895	NA	NA	NA	NA	NA	270	12	BISELCO	LEVEL II
⑥No of Electrified Households 1022 (PPDO Energy Unit 2002)		11	Tiza			NA	988	-2.2	NA	202	NA	NA	NA	NA	NA	199	12	BISELCO	LEVEL II
						0	14302	19.8	0	3421	0	0	0	0	0	1022			1
						NA	1300.2	1.8	#DIV/0!	311	#DIV/0!	#DIV/0!	NA	#DIV/0!	#DIV/0!	102.2			4
																			6
%o f Households with access to safe water NA(PPDO-GIS, 2000)																			0
%o f Households with access to Sanitary Toilet NA(PPDO-GIS,																			
Employment Ratio NA(PPDO-GIS, 2000)																			
% of Employment in Sector NA(Agriculture, Fishery & Forestry), NA(Industry), NA(Services)																			
																1/11 (Unenergized)			
11 Cuyo	17	1	Balading		3 59(+missing 1 Barangays)	0.268	842	2.87	3141.8	175	96.97	NA	NA	114	48	Unenergized			NOT ELECTRIFIED
①Total Land Area 5.73Km²		2	Bangcal	4		0.46	1118	0.84	2430.4	303	73.87	14.57	NA	170	84	303	24	PALECO	LEVEL III
②Total Population 18257(NSO 2000)		3	Cabigsing	7		0.18	1653	2.15	9183.3	366	83.26	4.29	NA	180	98	363	24	PALECO	LEVEL III
		4	Caburian	2		0.211	443	-0.27	2099.5	102	78.89	2.22	NA	63	39	Unenergized			NOT ELECTRIFIED
③Average Population Growith Rate 1.81(NSO 1995-2000)		5	Funda	3		0.327	476	2.68	1455.7	96	66.67	18.39	NA	78	38	Unenergized			NOT ELECTRIFIED
		6	Lagaoriao	3		0.063	565	1.38	8968.3	114	89.09	10.92	NA	91	40	62	24	PALECO	LEVEL II
④No of Households 4036 (PPDO Energy Unit 2002)		7	Lubid	4		0.39	715	2.1	1833.3	166	91.85	1.48	NA	120	30	Unenergized			NOT ELECTRIFIED
		8	Manamoc	5		0.9	1601	2.02	1778.9	317	85.6	6.17	NA	325	157	77	8	BAPA	LEVEL I
⑤Average Household Income N/A (PPDO-GIS 2000)		9	Pawa	3		0.94	1493	1.16	1588.3	291	93.89	NA	NA	230	127	220	24	PALECO	LEVEL II
		10	San Carlos	3		0.77	1322	-0.24	1716.9	256	98.35	NA	NA	223	97	216	24	PALECO	LEVEL III
⑥No of Electrified Households 2496(PPDO Energy Unit 2002)		11	Suba	4		NA	2541	7.4	NA	529	91.89	3.22	NA	290	111	343	24	PALECO	LEVEL II
		12	Tenga-tenga	NA		0.03	816	2.9	27200	343	58.96	15.67	NA	110	89	343	24	PALECO	LEVEL III
		13	Tocadan	1		0.7	336	0.26	480	66	100	NA	NA	48	29	43	24	PALECO	LEVEL II
		14	Caponayan	3		0.387	1023	-0.14	2643.4	213	90.5	NA	NA	181	24	Unenergized			NOT ELECTRIFIED
%o f Households with access to safe water 29.43(PPDO-GIS,		15	Catadman	3		0.079	995	3.27	12594.9	210	58.15	32.07	NA	136	65	178	24	PALECO	LEVEL III
		16	Maringian	6		0.94	1333	-1.63	1418.1	276	98.45	1.55	NA	205	120	193	24	PALECO	LEVEL II
%o f Households with access to		17	Lungsod (Pob)	5		0.111	985	0.54	8873.9	213	79.4	6.53	NA	158	82	155	24	PALECO	LEVEL II
Sanitary Toilet 80.81(PPDO-GIS,						6.756	18257	27.29	87406.7	4036	1435.58	117.08	0	2722	1278	2496			5
Employment Ratio 73.34(PPDO-GIS, 2000)						0.4	2028.6	3	10283.1	448.4	84.4	18	NA	160.1	75.2	208			1
																			6
% of Employment in Sector 42.73(Agriculture, Fishery & Forestry), 14.42(Industry), 42.86(Services)																			5
																5/17 (Unenergized)			
12 Dumaran	18	1	Bacao		6 61(+missing 3 Barangays)	1.43	1086	0.89	759.4	215	27.78	2.78	8525	40	8	45	6	BCS	LEVEL I
①Total Land Area 43.5Km²		2	Bohol	12		1.93	1096	1.17	567.9	215	88.46	NA	1286	24	17	100	6	BGY.GENSET	LEVEL II
②Total Population 18616 (NSO 2000)		3	Calasag	6		0.356	144	-3.85	404.5	28	83.89	2.78	5488	26	8	20	6	SHS/BCS	LEVEL II
		4	Capayas	5		4.27	1055	-4.24	247.1	200	47.78	NA	7288	65	22	Unenergized			NOT ELECTRIFIED
③Average Population Growith Rate 3.52 (NSO 1995-2000)		5	Catep	NA		10.37	498	3.92	48	96	86.49	NA	975	37	15	20	6	SHS	LEVEL I
		6	Culasian	NA		2.3	509	0.64	221.3	104	73.83	NA	1048	20	4	45	6	BCS	LEVEL II
④No of Households 3389 (PPDO Energy Unit 2002)		7	Danleg	11		2.1	1527	3.32	727.1	272	100	NA	2018	22	12	45	6	BCS	LEVEL I
		8	Poblacion	4		4.2	1235	3.76	294	250	90	NA	373	43	21	58	6	BAPA	LEVEL I
⑤Average Household Income 4047 (PPDO-GIS 2000)		9	Itangil	4		1.51	1693	9.12	1121.2	398	100	NA	NA	17	6	20	6	SHS	LEVEL I
		10	Ilian	7		5	1336	13.9	267.2	262	95	NA	3374	12	12	Unenergized			NOT ELECTRIFIED
⑥No of Electrified Households 448 (PPDO Energy Unit 2002)		11	Magsaysay	5		2.19	1021	9.12	466.2	226	56.67	6	7150	33	10	20	6	SHS	LEVEL I
		12	San Juan	7		1	723	1.32	723	144	95	1	2043	16	8	Unenergized			NOT ELECTRIFIED
		13	Santa Teresita	7		1.7	1758	4.38	1034.1	344	80	1	9528	8	3	75	6	BAPA	LEVEL I
		14	Santo Tomas	4		1.32	972	2.46	736.4	207	65	NA	3193	38	10	Unenergized			NOT ELECTRIFIED
%o f Households with access to safe water 31.21(PPDO-GIS,		15	Tanatanaen	NA		2.2	1254	7.61	570	281	90	NA	NA	11	3	Unenergized			NOT ELECTRIFIED
		16	Santa Maria	5		10.5	709	8.17	67.5	147	92.86	1	4379	25	11	Unenergized			NOT ELECTRIFIED
%o f Households with access to						52.378	16616	61.69	8254.9	3389	1242.56	14.56	56688	437	170	448			6
Sanitary Toilet 72.28(PPDO-GIS,						3.3	1038.5	3.9	515.9	211.8	77.7	2.4	4047.7	27.3	10.6	44.8			7
Employment Ratio 85.96 (PPDO-GIS, 2000)																			3
																			0
% of Employment in Sector 72.59(Agriculture, Fishery & Forestry), 8.51(Industry), 18.86(Services)																			
																6/16 (Unenergized)			

Municipality	No. of Barangay	Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
13 El Nido	18	1 Aberawan	8	99	2.95	930	1.31	315.3	222	50	NA	6462	161	17	100	6	SHS	LEVEL II
①Total Land Area 465.1Km^2		2 Bagong Bayan	5		1.78	869	6.48	488.2	199	77	1.5	1515	298	86	100	6	SHS	LEVEL II
②Total Population 27029 (NSO 2000)		3 Barotuan	5		3.56	1708	2.7	479.8	370	86.15	NA	13795	234	46	Unergized			NOT ELECTRIFIED
		4 Bebeladan	5		2.96	1785	4.38	603	331	66.15	NA	7332	415	112	Unergized			NOT ELECTRIFIED
③Average Population Growth Rate 4.25 (NSO 1995-2000)		5 Bucana	8		1.62	3945	4.98	2435.2	821	35.95	0.71	10666	NA	NA	Unergized			NOT ELECTRIFIED
		6 Buerna Suerte	5		0.92	1761	5.81	1914.1	397	NA	NA	NA	NA	NA	178	6	PALECO	LEVEL II
④No of Households 5732 (PPDO Energy Unit 2002)		7 Corong Corong	6		1.98	733	4.16	370.2	153	NA	NA	NA	NA	NA	17	6	PALECO	LEVEL I
		8 Mabini	5		3.15	937	0.9	297.5	183	74.29	1.71	3586	172	38	Unergized			NOT ELECTRIFIED
⑤Average Household Income 5842(PPDO-GIS 2000)		9 Maligaya	1		0.18	914	10.57	5077.8	231	NA	NA	NA	NA	NA	81	6	PALECO	LEVEL II
		10 Manlag	4		1.9	1493	2.93	785.8	295	77.21	NA	1330	222	66	Unergized			NOT ELECTRIFIED
⑥No of Electrified Households 558 (PPDO Energy Unit 2002)		11 Masagana	4		1	921	7.65	921	265	30.22	7.69	6316	112	53	82	6	PALECO	LEVEL II
		12 New Ibajay	10		4.94	2355	4.7	476.7	452	34	2	1033	298	105	Unergized			NOT ELECTRIFIED
		13 Pasadena	5		4.48	1214	-1.93	271	223	NA	NA	NA	NA	NA	Unergized			NOT ELECTRIFIED
		14 San Fernando	3		1.95	1445	3.53	741	310	NA	NA	NA	NA	NA	Unergized			NOT ELECTRIFIED
%o f Households with access to safe water 31.79(PPDO-GIS,		15 Sibaltan	4		30.89	1214	1.3	39.3	248	NA	NA	6928	153	88	Unergized			NOT ELECTRIFIED
		16 Teneguiban	9		34.67	2789	7.44	80.7	613	4.29	NA	5306	269	92	Unergized			NOT ELECTRIFIED
%o f Households with access to Sanitary Toilet 77.84(PPDO-GIS,		17 Villa Libertad	8		51.11	1188	3	23.2	247	NA	NA	NA	NA	NA	Unergized			NOT ELECTRIFIED
		18 Villa Paz	4		26.9	818	2.36	30.4	172	0.69	NA	NA	114	39	Unergized			NOT ELECTRIFIED
Employment Ratio 84.6(PPDO-GIS, 2000)					176.94	27029	72.27	15350.2	5732	535.95	13.61	64269	2438	722	558			12
					9.8	1501.6	4	852.8	318.4	48.7	2.7	5842.6	221.6	65.6	93			1
% of Employment in Sector 78.08(Agriculture, Fishery & Forestry), 9.99(Industry), 13.44(Services)																		5
																		0
															12/18 (Unenergized)			
14 Kalayaan	1	1 Pag-asa	NA	NA (missing 1 Barangays)	NA	223	-9.15	NA	8	NA	NA	NA	NA	NA	8	6	GENSET	LEVEL II
①Total Land Area 0.00025Km^2															0/8 (Unenergized)			0
②Total Population 783 (NSO 2000)																		0
																		1
③Average Population Growth Rate N/A (NSO 1995-2000)																		0
④No of Households 8 (PPDO Energy Unit 2002)																		
⑤Average Household Income N/A (PPDO-GIS 2000)																		
⑥No of Electrified Households 8 (PPDO Energy Unit 2002)																		
%o f Households with access to safe water NA(PPDO-GIS, 2000)																		
%o f Households with access to Sanitary Toilet NA(PPDO-GIS,																		
Employment Ratio NA(PPDO-GIS, 2000)																		
% of Employment in Sector NA(Agriculture, Fishery & Forestry), NA(Industry), NA(Services)																		
15 Linapacan	10	1 Barangonan	NA	108(+missing 1 Barangays)	0.95	541	4.65	569.5	121	NA	NA	582	NA	NA	20	6	BCS	LEVEL I
①Total Land Area 155.21Km^2		2 Cabunlawan	4		0.47	567	0.25	1206.4	97	NA	NA	868	NA	NA	20	6	BCS	LEVEL I
②Total Population 9198 (NSO 2000)		3 Calibang-bangan	12		0.35	654	5.27	1868.6	127	NA	NA	596	NA	NA	20	6	BCS	LEVEL I
		4 Decabaitot	12		0.46	412	5.32	895.7	83	NA	NA	NA	46	3	20	6	BCS	LEVEL I
③Average Population Growth Rate 4.82 (NSO 1995-2000)		5 Marq-yogroyog	18		2.27	1129	9.17	497.4	222	NA	NA	5902	NA	NA	20	6	BCS	LEVEL I
		6 Nangalao	14		0.57	1247	4.14	2187.7	229	36.88	5.67	NA	120	18	Unenergized			NOT ELECTRIFIED
④No of Households 1913 (PPDO Energy Unit 2002)		7 New Culaylayan	15		2.09	652	3.35	312	137	77.24	NA	NA	145	19	20	6	BCS	LEVEL I
		8 Pical	7		1.18	870	2.34	737.3	184	NA	NA	4671	NA	NA	20	6	BCS	LEVEL I
⑤Average Household Income 2630 (PPDO-GIS 2000)		9 San Miguel	16		3.55	2546	4.82	717.2	576	NA	NA	3181	NA	NA	365	12	BISELCO	LEVEL II
		10 Nicolas	12		3.58	580	9.53	162	137	NA	NA	NA	NA	NA	20	6	BCS	LEVEL I
⑥No of Electrified Households 525 (PPDO Energy Unit 2002)					15.47	9198	48.84	9153.8	1913	114.12	5.67	15780	311	40	525			1
					1.5	919.8	4.9	915.4	191.3	57.1	5.7	2630	103.7	13.3	58.3			8
															1/10 (Unenergized)			1
																		0
%o f Households with access to safe water 84.91(PPDO-GIS,																		
%o f Households with access to Sanitary Toilet 42.31(PPDO-GIS,																		
Employment Ratio 62.85 (PPDO-GIS, 2000)																		
% of Employment in Sector 83.33(Agriculture, Fishery & Forestry), 1.71 (Industry), 14.94 (Services)																		

Attachment -C

Socio & Economic Survey

Municipality	No. of Barangay	Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
16 Magsaysay	11	1 Alcoba	1	47	0.15	408	3.41	2720	67	74.29	11.43	261	55	21	Unenergized			NOT ELECTRIFIED
①Total Land Area 2.77Km^2		2 Balaguen	7		0.3	1700	2.25	5666.7	348	92.28	2.25	255	318	135	170	24	PALECO	LEVEL II
②Total Population 10855 (NSO		3 Canipo	3		0.25	1045	0.62	4180	190	92.39	NA	73	168	148	Unenergized			NOT ELECTRIFIED
2000)		4 Cocoro	6		0.2	850	-1.55	4250	165	89.13	NA	457	190	71	Unenergized			NOT ELECTRIFIED
③Average Population Growth Rate		5 Danawan	3		0.25	666	1.05	2664	302	93.33	NA	201	190	65	122	24	PALECO	LEVEL II
0.32 (NSO 1995-2000)		6 Emilod	4		0.2	535	0.53	2675	114	86.09	NA	123	78	38	99	24	PALECO	LEVEL III
④No of Households 2369 (PPDO		7 Igabas	6		0.35	984	-1.18	2811.4	197	96.35	1.04	4133	160	90	119	24	PALECO	LEVEL II
Energy Unit 2002)		8 Lacaren	3		0.2	425	-1.27	2125	78	74.42	NA	781	57	37	52	24	PALECO	LEVEL II
⑤Average Household Income 1239		9 Los Angeles	2		0.78	930	0.68	1192.3	193	79.89	5.43	5780	127	78	176	24	PALECO	LEVEL III
(PPDO-GIS 2000)		10 Lucbuan	6		2.85	1462	0.12	513	308	69.69	NA	382	238	144	179	24	PALECO	LEVEL II
⑥No of Electrified Households		11 Rizal	6		4.11	1880	0.32	457.4	407	90.96	4.52	1186	277	172	285	24	PALECO	LEVEL II
1202 (PPDO Energy Unit 2002)					9.64	10885	4.98	29254.8	2369	938.82	24.67	13632	1858	999	1202			3
					0.9	989.5	0.5	2659.5	215.4	85.3	4.9	1239.3	168.9	90.8	150.3			0
																		6
%o f Households with access to																		2
safe water 56.64(PPDO-GIS, 2000)																		
%o f Households with access to																		
Sanitary Toilet 72.97(PPDO-GIS,																		
Employment Ratio 79.87(PPDO-																		
GIS, 2000)																		
% of Employment in Sector																		
48.61(Agriculture, Fishery &																		
Forestry), 11.4(Industry),															3/11 (Unenergized)			
39.99(Services)																		
17 Narra	22	1 Antipuluan	4	112(+missing 1 Barangays)	0.01	3929	8.57	392900	973	26.95	2.19	NA	600	280	452	24	PALECO	LEVEL II
①Total Land Area 0.77Km^2		2 Aramaywan	9		0.04	3073	4.66	76825	658	68.87	NA	NA	341	171	191	24	PALECO	LEVEL I
②Total Population 56845 (NSO		3 Bagong Sikat	4		NA	975	4.61	NA	328	78.35	1.37	NA	278	137	172	24	PALECO	LEVEL II
2000)		4 Batang-batang	4		0.08	1607	5.33	20087.5	226	85.88	NA	NA	192	66	Unenergized			NOT ELECTRIFIED
③Average Population Growth Rate		5 Bato-bato	NA		0.08	1607	NA	20087.5	351	NA	NA	NA	NA	NA	110	24	PALECO	LEVEL II
N/A (NSO 1995-2000)		6 Buririao	6		0.08	2250	5.67	28125	504	74.84	0.42	NA	358	143	125	24	PALECO	LEVEL I
④No of Households 13105 (PPDO		7 Caguisan	4		0.01	1045	4.52	104500	250	63.76	0.46	NA	156	53	Unenergized			NOT ELECTRIFIED
Energy Unit 2002)		8 Calategas	7		0.07	3892	5.41	55600	791	77.33	1.94	NA	501	156	343	24	PALECO	LEVEL II
⑤Average Household Income N/A		9 Dumaguena	7		0.05	3191	1.48	63820	682	95.46	0.17	NA	472	234	175	24	PALECO	LEVEL I
(PPDO-GIS 2000)		10 Elvita	4		0.02	812	3.01	40600	161	62.11	NA	NA	162	68	37	24	PALECO	LEVEL I
⑥No of Electrified Households		11 Estrella Village	6		0.06	979	1.96	16316.7	206	93.44	2.19	NA	358	174	60	24	PALECO	LEVEL I
7145 (PPDO Energy Unit 2002)		12 Ipilan	4		NA	1195	3.71	NA	259	99.18	0.41	NA	93	29	37	24	PALECO	LEVEL I
		13 Malatgao	6		0.02	1945	1	97250	387	64.97	2.26	NA	276	151	99	24	PALECO	LEVEL I
		14 Malinao	6		0.07	2375	3.97	33928.6	553	60.59	2.23	NA	412	150	266	24	PALECO	LEVEL II
%o f Households with access to		15 Tacras	4		NA	1425	2.65	NA	227	82.49	NA	NA	135	53	98	24	PALECO	LEVEL II
safe water 85.19 (PPDO-GIS,		16 Taritien	3		0.01	946	5.83	94600	308	84.62	1.05	NA	199	80	71	24	PALECO	LEVEL I
%o f Households with access to		17 Teresa	3		0.05	698	1.17	13960	203	40.11	NA	NA	121	44	68	24	PALECO	LEVEL II
Sanitary Toilet 73.26(PPDO-GIS,		18 Tinagong Dagat	3		0.01186	1596	2.8	134570	145	95.46	0.17	NA	450	200	NA			NA
Employment Ratio 75.9 (PPDO-		19 Poblacion	7		0.08	10818	1.9	135225	3013	59.12	9.16	NA	1386	821	3013	24	PALECO	LEVEL III
GIS, 2000)		20 Panacan	8		0.01	6644	2.16	664400	1442	42.13	6.87	NA	1115	511	983	24	PALECO	LEVEL II
% of Employment in Sector 55.93		21 Princess Urduja	8		0.02	4354	5.46	217700	1021	76.69	2.36	NA	715	319	581	24	PALECO	LEVEL II
(Agriculture, Fishery & Forestry),		22 Sandoval	5		0.01	1104	1.82	110400	417	67.35	2.87	NA	339	264	264	24	PALECO	LEVEL II
9.53(Industry), 34.02(Services)					0.65186	46876	54.52	1831082.8	13105	1499.7	36.12	0	8659	4104	7145			2
					0.04	2566.4	3.7	122152.4	595.7	71.4	2.3	NA	412.3	195.4	376.1			8
																		10
																		1
															2/22 (Unenergized)			

Attachment -C
Socio & Economic Survey

Municipality	No. of Barangay		Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
18 Puerto Princesa City	66	1	Babuyan	NA	49 (+missing 56 Barangays)	1.48	1704	4.72	1151.4	393	NA	NA	NA	NA	NA	100	6	GENSET	LEVEL I
①Total Land Area 254Km^2		2	Bacungan	11		40.14	3406	3.84	84.9	835	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
②Total Population 161912 (NSO 2000)		3	Bagong Bayan	NA		9.18	534	1.55	58.2	134	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		4	Bagong Pag-asa	NA		0.0044	2078	2.13	472272.7	445	NA	NA	NA	NA	NA	445	24	PALECO	LEVEL III
③Average Population Growth Rate 6.6 (NSO 1995-2000)		5	Bagong Sikat	NA		0.084	6365	6.53	75773.8	1428	NA	NA	NA	NA	NA	1428	24	PALECO	LEVEL III
		6	Bagong Silang	NA		0.15	3602	13.09	24013.3	887	NA	NA	NA	NA	NA	887	24	PALECO	LEVEL III
④No of Households 38148 (PPDO Energy Unit 2002)		7	Bahile	NA		13.83	1932	2.09	139.7	405	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		8	Bancao-bancao	NA		3.8	8078	7.16	2125.8	2051	NA	NA	NA	NA	NA	1344	24	PALECO	LEVEL II
⑤Average Household Income N/A (PPDO-GIS 2000)		9	Mangingisda	NA		0.3	855	3.87	2850	676	NA	NA	NA	NA	NA	105	24	PALECO	LEVEL I
		10	Binduyan	NA		8.97	780	9.71	87	185	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
⑥No of Electrified Households 26427 (PPDO Energy Unit 2002)		11	Buenavista	6		8.27	2114	7.38	255.6	161	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		12	Cabayugan	NA		12.29	1031	2.97	83.9	480	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		13	Concepcion	3		6.41	1357	1.67	211.7	212	NA	NA	NA	NA	NA	66	4	BGY. GENSET	LEVEL II
		14	Inagawan	NA		0.711	3548	6.96	4990.2	306	NA	NA	NA	NA	NA	215	24	PALECO	LEVEL II
%o f Households with access to safe water: NA(PPDO-GIS, 2000)		15	Inagawan Subcolony	NA		NA	1200	NA	NA	255	NA	NA	NA	NA	NA	38	24	PALECO	LEVEL I
		16	Irawan	6		2.4	568	3.87	235.8	815	NA	NA	NA	NA	NA	507	24	PALECO	LEVEL II
%o f Households with access to Sanitary Toilet: NA(PPDO-GIS,		17	Iwahig	NA		7.28	1419	NA	194.9	181	NA	NA	NA	NA	NA	141	24	PALECO	LEVEL II
		18	Kalipay	NA		0.00557	566	NA	101615.8	153	NA	NA	NA	NA	NA	153	24	PALECO	LEVEL III
Employment Ratio NA (PPDO-GIS, 2000)		19	Kamuning	NA		1.7	1419	NA	834.7	336	NA	NA	NA	NA	NA	124	24	PALECO	LEVEL II
		20	Langogan	NA		15.3	1346	NA	88	334	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
% of Employment in Sector (Agriculture, Fishery & Forestry), (Industry), (Services)		21	Liwanag	NA		0.0045	1574	1	349777.8	534	NA	NA	NA	NA	NA	534	24	PALECO	LEVEL III
		22	Lucbuan	NA		1.36	1216	6	894.1	249	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		23	Luzviminda	NA		1.49	2793	16	1874.5	582	NA	NA	NA	NA	NA	248	24	PALECO	LEVEL II
		24	Mabuhay	NA		0.0018	1073	1	596111.1	223	NA	NA	NA	NA	NA	223	24	PALECO	LEVEL III
		25	Macarascas	4		4.14	1275	NA	308	278	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		26	Magkakaibigan	NA		0.0056	313	NA	55892.9	87	NA	NA	NA	NA	NA	87	24	PALECO	LEVEL III
		27	Maligaya	NA		0.0058	344	NA	59310.3	69	NA	NA	NA	NA	NA	69	24	PALECO	LEVEL III
		28	Manalo	NA		2.13	1692	6	794.4	366	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		29	Mandaragat	NA		0.1	8422	3	84220	1923	NA	NA	NA	NA	NA	1923	24	PALECO	LEVEL III
		30	Manggahan	4		0.197	1332	NA	6761.4	270	NA	NA	NA	NA	NA	270	24	PALECO	LEVEL III
		31	Maningning	NA		0.1409	767	NA	5443.6	126	NA	NA	NA	NA	NA	126	24	PALECO	LEVEL III
		32	Maoyon	NA		3.011	994	6	330.1	193	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		33	Marufinas	6		13.041	548	NA	41.9	99	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		34	Maruguyon	NA		1.015	1381	1.61	1360.6	264	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		35	Masigla	NA		0.00314	417	-8.01	132802.5	81	NA	NA	NA	NA	NA	81	24	PALECO	LEVEL III
		36	Masikap	NA		0.00549	880	3.7	160291.4	210	NA	NA	NA	NA	NA	210	24	PALECO	LEVEL III
		37	Masipag	NA		0.00201	2098	0.49	1043781.1	355	NA	NA	NA	NA	NA	355	24	PALECO	LEVEL III
		38	Matahimik	NA		0.00709	2971	-1.85	419040.9	571	NA	NA	NA	NA	NA	571	24	PALECO	LEVEL III
		39	Matiyaga	NA		0.00646	321	-11.9	49690.4	65	NA	NA	NA	NA	NA	65	24	PALECO	LEVEL III
		40	Maunlad	NA		0.0322	3724	8	115652.2	930	NA	NA	NA	NA	NA	930	24	PALECO	LEVEL III
		41	Milagrosa	NA		0.0379	2406	NA	63482.8	572	NA	NA	NA	NA	NA	572	24	PALECO	LEVEL III
		42	Model	NA		0.0074	374	NA	50540.5	89	NA	NA	NA	NA	NA	89	24	PALECO	LEVEL III
		43	Montible	NA		6.78	212	NA	31.3	17	NA	NA	NA	NA	NA	17	24	PALECO	LEVEL III
		44	Napsan	NA		15.37	1917	NA	124.7	400	NA	NA	NA	NA	NA	15	6	BCS	LEVEL I
		45	New Panggangan	NA		5.66	542	NA	95.8	107	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		46	Pagkakaisa	NA		0.04	1740	1	43500	393	NA	NA	NA	NA	NA	393	24	PALECO	LEVEL III
		47	Princesa	NA		0.09	907	NA	10077.8	168	NA	NA	NA	NA	NA	168	24	PALECO	LEVEL III
		48	Salvacion	3		2.27	894	9	393.4	213	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		49	San Jose	NA		0.724	5209	NA	7194.8	1437	NA	NA	NA	NA	NA	929	24	PALECO	LEVEL II
		50	San Manuel	NA		0.522	4719	12	9040.2	1366	NA	NA	NA	NA	NA	467	24	PALECO	LEVEL II
		51	San Miguel	NA		0.354	14603	3	41251.4	3367	NA	NA	NA	NA	NA	3417	24	PALECO	LEVEL III
		52	San Pedro	NA		0.68	12127	10.9	17833.8	3375	NA	NA	NA	NA	NA	3375	24	PALECO	LEVEL III
		53	San Rafael	NA		8.94	1419	4	160.5	359	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		54	Santa Cruz	NA		2.9	580	5	200	162	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		55	Santa Lourdes	NA		2.927	3383	6	1155.8	875	NA	NA	NA	NA	NA	395	24	PALECO	LEVEL II
		56	Santa Lucia	NA		12.9511	135	0	10.4	16	NA	NA	NA	NA	NA	1	24	PALECO	LEVEL I
		57	Santa Monica	NA		0.717	8287	14	11557.9	2107	NA	NA	NA	NA	NA	1557	24	PALECO	LEVEL II
		58	Seaside	NA		0.0011	1544	1	1403636.4	327	NA	NA	NA	NA	NA	327	24	PALECO	LEVEL III
		59	Sicsican	NA		0.98	4341	8	4429.6	1036	NA	NA	NA	NA	NA	895	24	PALECO	LEVEL II
		60	Simpocan	2		6.35	914	NA	143.9	193	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		61	Tagabinit			3.6	1169	NA	324.7	243	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		62	Tagburos	NA		0.965	3555	10	3683.9	835	NA	NA	NA	NA	NA	496	24	PALECO	LEVEL II
		63	Tagumpay	4		0.0102	1083	1	106176.5	237	NA	NA	NA	NA	NA	237	24	PALECO	LEVEL III
		64	Tanabag	NA		3.88	412	45	106.2	91	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		65	Tanglaw	NA		0.02	2322	NA	116100	617	NA	NA	NA	NA	NA	617	24	PALECO	LEVEL III
		66	Tiniguiban	NA		3.01	6675	3.46	2217.6	1419	NA	NA	NA	NA	NA	1415	24	PALECO	LEVEL III
						238.69066	159492	240.94	5664912.5	38148	0	0	0	0	0	26427			20
						3.7	2416.5	5.4	87152.5	578	#DIV/0!	#DIV/0!	NA	#DIV/0!	#DIV/0!	574.5			5
																			13
																			28
																20/66 (Unenergized)			

Attachment -C
Socio & Economic Survey

Municipality	No. of Barangay	Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km²) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (#/km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owning House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
19 Quezon	14	1 Alfonso XII	NA	119(+missing 3 Barangays)	0.02	6735	-2.55	336750	1310	50.92	7.89	NA	1511	498	1310	24	PALECO	LEVEL III
①Total Land Area 0.94km²		2 Armayawan	9		0.08941	2988	4.14	30057.3	596	88.05	2.33	4870	414	131	Unenergized			NOT ELECTRIFIED
②Total Population 41693 (NSO 2000)		3 Bernig	NA		0.17	1614	4.67	9494.1	369	84.95	22.05	11450	224	49	15	6	BCS	LEVEL I
		4 Calatagbak	10		0.03	1351	5	45033.3	297	74.89	0.88	1825	108	17	Unenergized			NOT ELECTRIFIED
③Average Population Growth Rate 2.49 (NSO, 1995-2000)		5 Isuqod	10		0.05686	3140	1.24	55226.4	635	76.4	1.93	9555	448	98	Unenergized			NOT ELECTRIFIED
		6 Maasin	7		0.03	1734	3.33	57800	321	67.76	0.3	7951	255	64	Unenergized			NOT ELECTRIFIED
④No of Households 8694 (PPDO Energy Unit 2002)		7 Calumpang	12		0.08	1710	-0.31	21375	355	80.67	1.88	NA	301	74	Unenergized			NOT ELECTRIFIED
		8 Tabon	15		0.08	3257	3.03	40712.5	738	57.96	3.03	NA	384	67	57	24	PALECO	LEVEL I
⑤Average Household Income 9494 (PPDO-GIS 2000)		9 Taguisao	9		0.06	2537	8.84	42283.3	591	77.89	0.53	NA	347	123	Unenergized			NOT ELECTRIFIED
		10 Malatgao	14		0.0515	2124	4.6	41242.7	442	51.96	1.57	9829	309	77	Unenergized			NOT ELECTRIFIED
⑥No of Electrified Households 1628 (PPDO Energy Unit 2002)		11 Panitan	NA	15	0.1	6219	4.01	62190	1332	65.25	0.65	9891	868	278	183	24	PALECO	LEVEL I
		12 Pinaglabanan			0.04	2659	8.16	66475	694	56.93	9.45	22521	325	71	63	24	PALECO	LEVEL I
		13 Guinlogan	8		0.07	3819	2.59	54557.1	807	62.44	3.7	7757	697	274	Unenergized			NOT ELECTRIFIED
		14 Sowangan	10		0.06307	1782	3.09	28254.3	367	63.29	5.08	NA	245	63	Unenergized			NOT ELECTRIFIED
%of Households with access to safe water 24.29 (PPDO-GIS, 2000)					0.950594	41698	49.64	691351	8654	919.36	60.17	85449	84386	1664	1628			9
					0.1	2876.4	3.6	63867.8	632.4	65.7	4.3	9494.3	459.7	134.6	325.6			4
%of Households with access to Sanitary Toilet 15.14(PPDO-GIS, 2000)																		0
Employment Ratio 93.91 (PPDO-GIS, 2000)																		1
% of Employment in Sector 6.43 (Agriculture, Fishery & Forestry), 5.85 (Industry), 32.32 (Services)																		
															9/14 (Unenergized)			
20 Rizal	11	1 Bunog	NA	NA(+missing 11 Barangays)	9.58	1909	8.47	199.3	444	73.65	NA	13221	NA	NA	30	6	BCS	LEVEL I
①Total Land Area 125.64km²		2 Camposng Ulay	NA		14.93	1540	20.98	103.1	677	84.67	1.33	17493	NA	NA	15	6	BCS	LEVEL I
②Total Population 31745 (NSO 2000)		3 Candagawa	NA		9.03	4425	3.49	490	1054	93.46	NA	334	NA	NA	15	6	BCS	LEVEL I
		4 Canipaan	NA		10.69	1749	3.04	163.6	427	42.57	8.75	3846	94	30	Unenergized			NOT ELECTRIFIED
③Average Population Growth Rate NA (NSO, 1995-2000)		5 Culasian	NA		7.86	1488	8.36	189.3	316	83.01	1.31	13498	83	21	Unenergized			NOT ELECTRIFIED
		6 Iraan	NA		0.11	4509	5.22	40990.9	1042	36.62	62.88	NA	100	33	Unenergized			NOT ELECTRIFIED
④No of Households 8202 (PPDO Energy Unit 2002)		7 Latud	NA		0.08	1129	3.63	14112.5	277	96.68	0.47	NA	95	26	Unenergized			NOT ELECTRIFIED
		8 Panalingaan	NA		11.61	2547	12.49	219.4	662	81.21	NA	6390	90	24	Unenergized			NOT ELECTRIFIED
⑤Average Household Income 8568 (PPDO-GIS 2000)		9 Punta Baja	NA		12.12	7266	11.46	599.5	1907	58.14	23.26	1168	160	30	270	6	RIZAL LGU	LEVEL I
		10 Ransang	NA		18.18	3040	8.98	167.2	782	78.33	3.33	12809	20	13	Unenergized			NOT ELECTRIFIED
⑥No of Electrified Households 1153 (PPDO Energy Unit 2002)		11 Tabun	NA		12.54	2143	12.59	170.9	814	NA	NA	NA	73	12	30	6	BCS	LEVEL I
					108.73	31745	98.73	574057.7	9202	728.34	101.13	86950	715	188	360			6
					9.7	2885.9	9	5216.7	745.6	72.8	14.4	8666.8	89.4	23.6	72			5
%of Households with access to safe water 69.77 (PPDO-GIS, 2000)																		0
%of Households with access to Sanitary Toilet 93.91 (PPDO-GIS, 2000)																		0
Employment Ratio 95.3 (PPDO-GIS, 2000)																		
% of Employment in Sector 90.57(Agriculture, Fishery & Forestry), 7.43 (Industry), 12 (Services)																		
															6/11 (Unenergized)			

Municipality	No. of Barangay		Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
21 Roxas	31	1	Abaroan	NA	NA(+missing 31 Barangays)	9.07	3136	0.47	345.8	623	85.05	3.19	5065	642	247	66	24	PALECO	LEVEL I
①Total Land Area 122.02Km^2		2	Antonino	NA		8.05	801	-1.37	99.5	144	92.62	NA	2637	107	32	Unenergized			NOT ELECTRIFIED
②Total Population 47242 (NSO 2000)		3	Bagong Bayan	NA		10.6	812	1.28	76.6	174	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		4	Barangay 1	NA		0.02	3059	0.48	152950	625	60.49	6.83	17573	178	72	466	24	PALECO	LEVEL II
③Average Population Growth Rate 1.26 (NSO 1995-2000)		5	Barangay 2	NA		0.01	885	-0.84	88500	248	NA	NA	NA	NA	NA	248	24	PALECO	LEVEL III
		6	Barangay 3	NA		0.91	2317	6.34	2546.2	565	1.72	NA	17039	109	42	388	24	PALECO	LEVEL II
④No of Households 10194 (PPDO Energy Unit 2002)		7	Barangay 4	NA		1.33	4324	2.61	3251.1	920	41.32	4.65	3280	519	198	489	24	PALECO	LEVEL II
		8	Barangay 5	NA		0.07	12	-0.39	171.4	12	NA	NA	5066	NA	NA	Unenergized			NOT ELECTRIFIED
⑤Average Household Income 8149 (PPDO-GIS 2000)		9	Barangay 6	NA		0.01	540	-1.79	54000	100	NA	NA	NA	109	42	Unenergized			NOT ELECTRIFIED
		10	Caramay	NA		15.23	2163	-1.27	142	440	82.73	2.95	5482	213	102	Unenergized			NOT ELECTRIFIED
⑥No of Electrified Households 1996 (PPDO Energy Unit 2002)		11	Dumarao	NA		11.99	2242	1.83	187	445	81.89	1.62	13579	377	124	Unenergized			NOT ELECTRIFIED
		12	Iraan	NA		2.55	702	-0.78	275.3	142	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		13	Jolo	NA		2.53	699	0.38	276.3	158	83.56	NA	2750	25	13	Unenergized			NOT ELECTRIFIED
		14	Magara	NA		11.28	3702	0.14	328.2	743	88.19	1.38	6316	645	266	Unenergized			NOT ELECTRIFIED
%o f Households with access to safe water 36.37 (PPDO-GIS,		15	Malcampo	NA		3.58	1320	4.23	368.7	277	45	NA	1477	233	91	15	24	PALECO	LEVEL I
		16	Mendoza	NA		28.57	1197	2.21	41.9	256	59.17	NA	253	94	44	Unenergized			NOT ELECTRIFIED
%o f Households with access to Sanitary Toilet 77.6 (PPDO-GIS,		17	Narra (Minara)	NA		2.11	1178	2.11	558.3	266	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		18	New Barbaracan	NA		4.07	1923	3.46	472.5	403	NA	NA	12753	140	68	259	24	PALECO	LEVEL II
Employment Ratio 78.1 (PPDO-GIS, 2000)		19	New Cuyo	NA		3.04	1595	2.82	524.7	321	59.8	0.68	1900	313	136	Unenergized			NOT ELECTRIFIED
		20	Nicanor Zabala	NA		11.09	3059	1.71	275.8	329	NA	NA	1343	94	44	Unenergized			NOT ELECTRIFIED
% of Employment in Sector 59.36 (Agriculture, Fishery & Forestry),		21	Rizal	NA		1.73	777	2.02	449.1	155	NA	NA	7280	NA	NA	Unenergized			NOT ELECTRIFIED
		22	Salvacion	NA		1.71	532	-0.59	311.1	128	NA	NA	3376	233	91	Unenergized			NOT ELECTRIFIED
8.89 (Industry), 31.72 (Services)		23	San Isidro	NA		1.08	514	1.42	475.9	99	NA	NA	3398	94	44	Unenergized			NOT ELECTRIFIED
		24	San Jose	NA		1.07	1088	2.13	1016.8	211	NA	NA	10620	NA	NA	65	24	PALECO	LEVEL II
		25	San Miguel	NA		5.25	785	-0.4	149.5	179	69.18	0.63	1811	140	68	Unenergized			NOT ELECTRIFIED
		26	San Nicolas	NA		0.61	678	-2.86	1111.5	122	88.52	NA	NA	313	136	Unenergized			NOT ELECTRIFIED
		27	Sandoval	NA		3.85	1546	1.6	401.6	305	77.02	1.94	NA	94	44	Unenergized			NOT ELECTRIFIED
		28	Tagumpay	NA		4.47	2232	0.92	499.3	491	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		29	Taradungan	NA		5.04	926	2.26	183.7	199	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		30	Tintinan	NA		3.95	1311	1.79	331.9	278	87.4	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
		31	Tumarbong	NA		3.89	2794	1.84	718.3	632	NA	NA	NA	127	39	Unenergized			NOT ELECTRIFIED
						158.76	48849	33.76	311040	9890	1083.68	23.87	122997	4799	1943	1996			23
						5.1	1575.8	1.1	10033.5	322.3	67.7	2.7	6149.9	228.5	92.5	249.5			2
																			5
																			1
																23/31 (Unenergized)			
22 San Vincente	10	1	Alimanguan	6	87(+missing 1 Barangay)	2.99	2848	2.57	952.5	581	58.41	1.93	852	NA	NA	111	12	PALECO	LEVEL I
①Total Land Area 82.05Km^2		2	Caruray	7		33.07	3526	0.91	106.6	243	39.29	6.76	NA	NA	NA	Unenergized			NOT ELECTRIFIED
②Total Population 21645 (NSO 2000)		3	Kemdeng	22		4.92	701	2.45	142.5	732	66.19	NA	5073	587	198	Unenergized			NOT ELECTRIFIED
		4	New Agutaya	NA		4.21	2111	4.34	501.4	139	62.37	0.81	512	224	28	Unenergized			NOT ELECTRIFIED
③Average Population Growth Rate 2.17 (NSO 1995-2000)		5	New Villafria	8		NA	NA	NA	NA	406	NA	NA	NA	NA	NA	107	12	PALECO	LEVEL I
		6	Port Barton	21		22.77	4140	-0.12	181.8	819	39.25	2.78	2256	111	52	122	6	BAPA	LEVEL I
④No of Households 4174 (PPDO Energy Unit 2002)		7	Poblacion	10		2.7	3921	-0.58	1452.2	758	85.65	NA	2001	162	39	306	12	PALECO	LEVEL II
		8	San Isidro	5		4.21	1025	5.24	243.5	238	84.38	NA	4407	371	141	47	12	PALECO	LEVEL I
⑤Average Household Income 5316 (PPDO-GIS 2000)		9	Sto. Nino	1		2.99	951	6.53	318.1	185	84.39	2.95	4904	672	267	50	4	BGY. GENSET	LEVEL I
		10	New Canipo	7		2.75	2111	5.93	767.6	226	65.59	3.76	3920	652	304	Unenergized			NOT ELECTRIFIED
⑥No of Electrified Households 661(PPDO Energy Unit 2002)						80.61	21334	27.27	4666.2	4307	584.52	18.99	23925	2779	1029	743			4
						9	4266.8	5.5	933.2	783.1	64.9	5.4	5316.7	397	147	123.8			5
																			1
																			0
%o f Households with access to safe water 62.4 (PPDO-GIS, 2000)																			
%o f Households with access to Sanitary Toilet 63.56 (PPDO-GIS,																			
Employment Ratio 78.67 (PPDO-GIS, 2000)																			
% of Employment in Sector 63.32 (Agriculture, Fishery & Forestry),																			
6.09 (Industry), NA (Services)																			
																4/10 (Unenergized)			

Attachment -C
Socio & Economic Survey

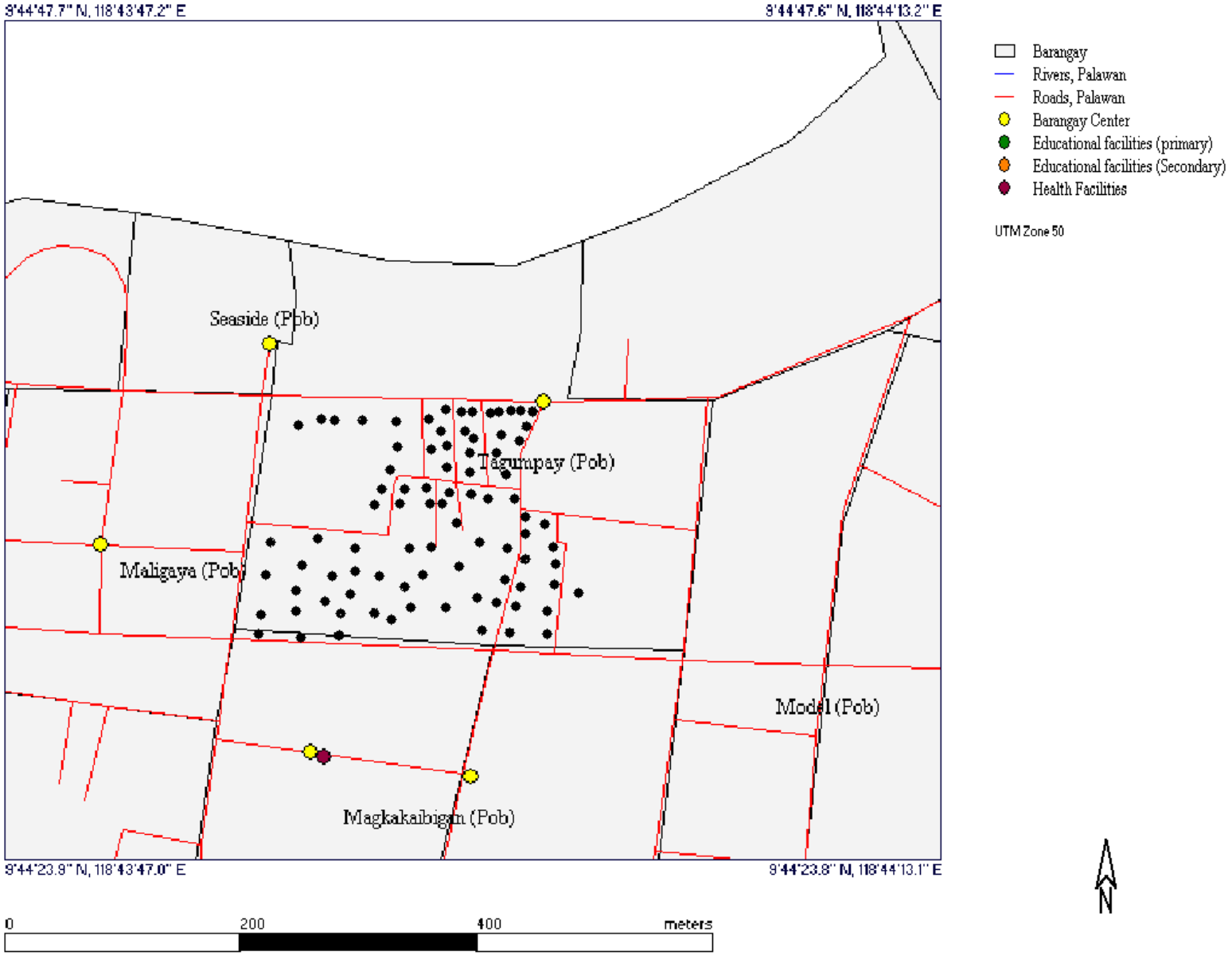
Municipality	No. of Barangay	Name of Barangay	No. of Sitio	Total No. of Sitio	①Land Area (Km^2) [PPDO-GIS, 2000]	②Population [NSO,2000]	③Population Growth Rate [NSO 1995-2000]	Population Density (/Km2) [Computed]	④No of HH [PPDO Energy Unit 2003]	% of HH Owing House and Lot [PPDO-GIS 2000]	% of HH Renting House and Lot [PPDO-GIS 2000]	⑤Household Income [PPDO-GIS 2000]	No of Children in Elementary Level [PPDO-GIS 2000]	No of Children in Secondary Level [PPDO-GIS 2000]	⑥No of Electrified Households [PPDO Energy Unit 2003]	Power Supply Hours [PPDO Energy Unit 2003]	System [PPDO Energy Unit 2003]	Status of electrification [PPDO Energy Unit 2003]
23 Sofronio Espanola	9	1 Abo abo	7	63	5.05	2434	4.06	482	628	NA	NA	NA	132	48	182	24	PALECO	LEVEL I
①Total Land Area 47.39Km^2		2 Iraray	5		3.5	2391	5.43	683.1	482	90.38	3.85	NA	NA	NA	Unenergized			NOT ELECTRIFIED
②Total Population 26801 (NSO		3 Isumbo	5		4.41	1794	-0.06	406.8	377	NA	NA	NA	NA	NA	56	24	PALECO	LEVEL I
2000)		4 Labog	7		7.35	5140	2.28	699.3	616	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
③Average Population Growith Rate		5 Panitian	12		7.94	4272	2.57	538	989	NA	NA	NA	385	98	Unenergized			NOT ELECTRIFIED
N/A (NSO 1995-2000)		6 Pulot Center	8		2.78	5318	4.77	1912.9	1,114	80.59	10.2	NA	924	319	764	24	PALECO	LEVEL II
④No of Households 5814 (PPDO		7 Pulot Interior	7		8.22	1736	4.1	211.2	390	73.58	25.19	NA	250	90	Unenergized			NOT ELECTRIFIED
Energy Unit 2002)		8 Pulot Shore	5		2.01	3716	1.6	1848.8	740	50	27.86	NA	700	224	151	24	PALECO	LEVEL I
⑤Average Household Income N/A		9 Punang	7		6.12	2170	NA	354.6	478	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
(PPDO-GIS 2000)					47.38	28971	24.75	7136.7	5814	294.55	67.1	NA	2391	779	1153			5
⑥No of Electrified Households					5.3	3219	3.1	793	646	73.6	16.8	#DIV/0!	478.2	155.8	288.3			3
1153 (PPDO Energy Unit 2002)															5/9 (Unenergized)			1
																		0
%o f Households with access to																		
safe water 95.07 (PPDO-GIS,																		
%o f Households with access to																		
Sanitary Toilet 65.26 (PPDO-GIS,																		
Employment Ratio 52.84 (PPDO-																		
GIS, 2000)																		
% of Employment in Sector 58.49																		
(Agriculture, Fishery & Forestry),																		
11.36 (Industry), 30.15 (Services)																		
24 Taytay	31	1 Abongan	10	92(+missing 14 Barangays)	3.09	3757	3.93	1215.9	764	73.61	4.6	NA	127	35	Unenergized			NOT ELECTRIFIED
①Total Land Area 138.91Km^2		2 Alacalian	7		2.85	1557	0.08	546.3	320	NA	NA	NA	168	48	Unenergized			NOT ELECTRIFIED
②Total Population 53657 (NSO		3 banbanan	7		5.52	1608	1.17	291.3	284	98.76	0.62	NA	744	315	45	6	BCS	LEVEL I
2000)		4 Bantulan	9		16.29	1608	-3.62	98.7	300	72.39	0.61	1892	NA	NA	Unenergized			NOT ELECTRIFIED
③Average Population Growith Rate		5 Baras	NA		1.95	388	-2.88	199	70	73.81	8.66	3022	180	20	Unenergized			NOT ELECTRIFIED
2.64 (NSO 1995-2000)		6 Batas	3		4.09	1543	2.48	377.3	187	NA	NA	243	NA	NA	Unenergized			NOT ELECTRIFIED
④No of Households 10083 (PPDO		7 Bato	3		4.77	901	-1.08	188.9	437	76.02	1.75	15535	161	22	Unenergized			NOT ELECTRIFIED
Energy Unit 2002)		8 Beton	15		0.46	1284	-1.8	2791.3	205	NA	NA	NA	446	109	45	6	BCS	LEVEL I
⑤Average Household Income 5251		9 Busy Bees	5		1.4	892	3.07	637.1	165	NA	NA	3970	NA	NA	20	6	SHS	LEVEL I
(PPDO-GIS 2000)		10 Calawag	9		9.17	3752	2.66	409.2	765	NA	NA	NA	144	70	20	6	BCS	LEVEL I
⑥No of Electrified Households		11 Casian	2		2.49	2294	-1.3	921.3	398	NA	NA	NA	NA	NA	45	6	BCS	LEVEL I
10825 (PPDO Energy Unit 2002)		12 Cataban	3		7.33	760	6.3	103.7	184	NA	NA	NA	NA	NA	20	6	SHS	LEVEL I
		13 Debangan	5		0.58	1232	5.65	2124.1	209	NA	NA	NA	NA	NA	45	6	BCS	LEVEL I
		14 Depla	1		1.76	804	6.68	456.8	199	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
%o f Households with access to		15 Libertad	NA		4.09	1635	9.18	399.8	353	46.24	1.64	12540	NA	NA	Unenergized			NOT ELECTRIFIED
safe water 30.29 (PPDO-GIS,		16 Liminangcong	5		6.85	4104	-0.37	599.1	754	33.98	NA	NA	NA	NA	300	12	BAPA	LEVEL II
%o f Households with access to		17 Meytegued	2		3.78	NA	2.79	NA	173	79.9	NA	NA	90	59	Unenergized			NOT ELECTRIFIED
Sanitary Toilet 54.31 (PPDO-GIS,		18 Minapla	NA		1.17	543	5.12	464.1	151	63.58	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
Employment Ratio 80.97 (PPDO-		19 New Guinlo	NA		4.59	3150	6.25	686.3	633	9.62	NA	1653	444	192	Unenergized			NOT ELECTRIFIED
GIS, 2000)		20 Old Gunlio			2.25	659	4.65	292.9	131	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
% of Employment in Sector 72.52		21 Paglaum	NA		22.54	1713	1.21	76	317	86.07	NA	NA	199	24	Unenergized			NOT ELECTRIFIED
(Agriculture, Fishery & Forestry),		22 Paly (Paly Island)	NA		0.42	1355	3.02	3226.2	267	81.36	18.64	1485	198	58	Unenergized			NOT ELECTRIFIED
8.08 (Industry), 19.39 (Services)		23 Pamantolon	NA		8.03	1165	1.91	145.1	197	NA	NA	8830	322	62	Unenergized			NOT ELECTRIFIED
		24 Pancol	NA		8.37	1937	2.34	231.4	398	NA	NA	3610	239	95	Unenergized			NOT ELECTRIFIED
		25 Poblacion	NA		5.44	6612	8.35	1215.4	1625	NA	NA	NA	746	333	688	12	PALECO	LEVEL II
		26 Pularaquen	6		5.48	1359	1.17	248	275	NA	NA	2680	NA	NA	20	6	SHS	LEVEL I
		27 San Jose	NA		7.16	1512	1.19	211.2	294	75.65	0.87	12626	NA	NA	Unenergized			NOT ELECTRIFIED
		28 Sandoval	NA		5.61	1008	0.96	179.7	174	NA	NA	NA	99	24	Unenergized			NOT ELECTRIFIED
		29 Silanga	NA		2.37	769	5.26	324.5	155	NA	NA	NA	303	110	Unenergized			NOT ELECTRIFIED
		30 Talog	NA		9.04	917	4.81	101.4	174	NA	NA	179	NA	NA	Unenergized			NOT ELECTRIFIED
		31 Tumbod	NA		2.36	1288	1.75	545.8	267	NA	NA	NA	NA	NA	Unenergized			NOT ELECTRIFIED
					161.3	52106	80.93	19307.8	10825	870.99	37.39	68265	4610	1576	1248			21
					5.2	1736.9	2.6	643.6	349.2	67	4.7	5251.2	288.1	98.5	124.8			8
																		2
																		0
															21/31 (Unenergized))			

APPENDIX C - VI

Settlement Pattern in Barangays

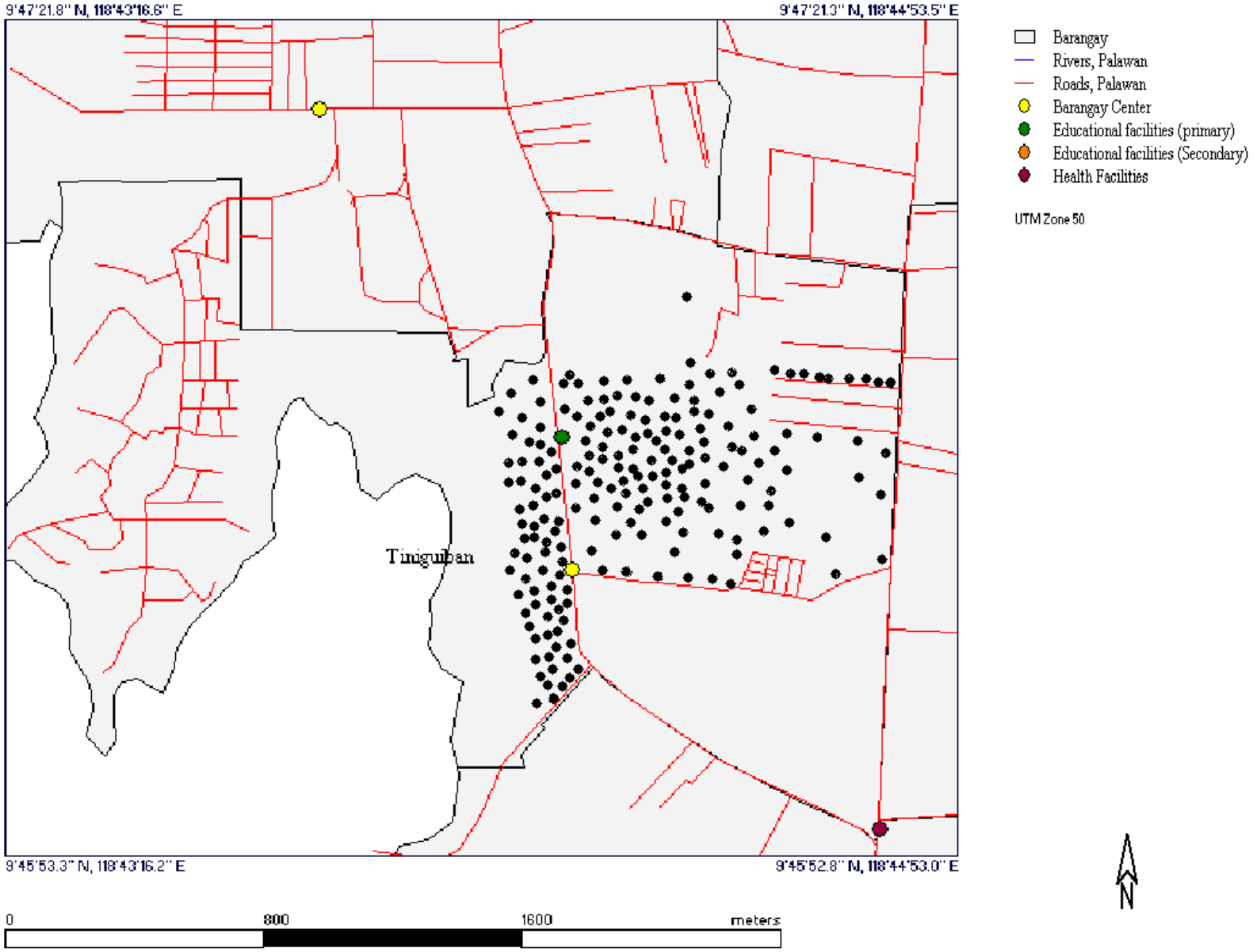
Attachment - C
Socio & Economic Survey

APPENDIX C-VI (1) Settlement Pattern of Tagumpay, Puerto Princesa



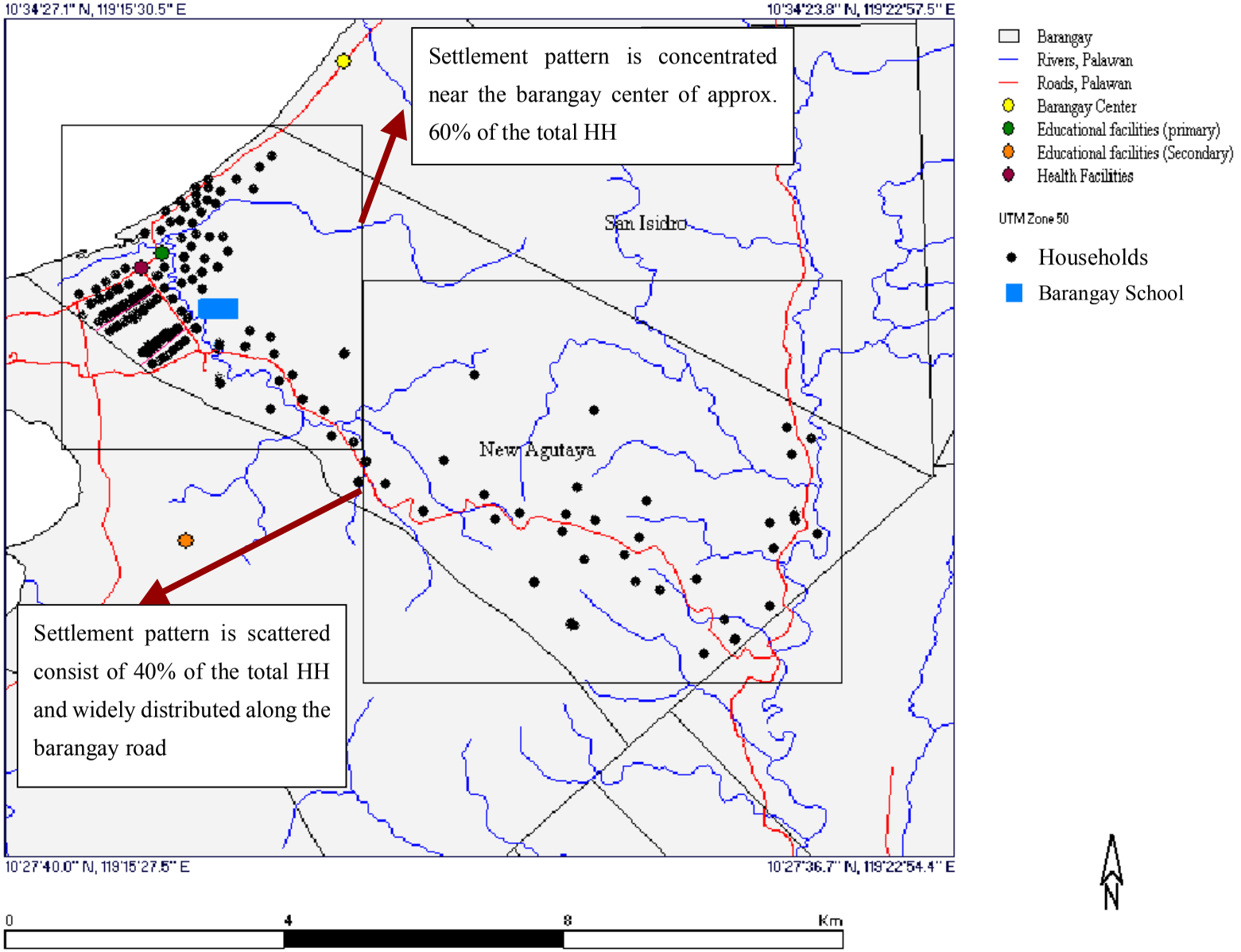
Source: Qualitative Survey (Direct Observation)

APPENDIX C-VI (2) Settlement Pattern of Tagumpay, Puerto Princesa



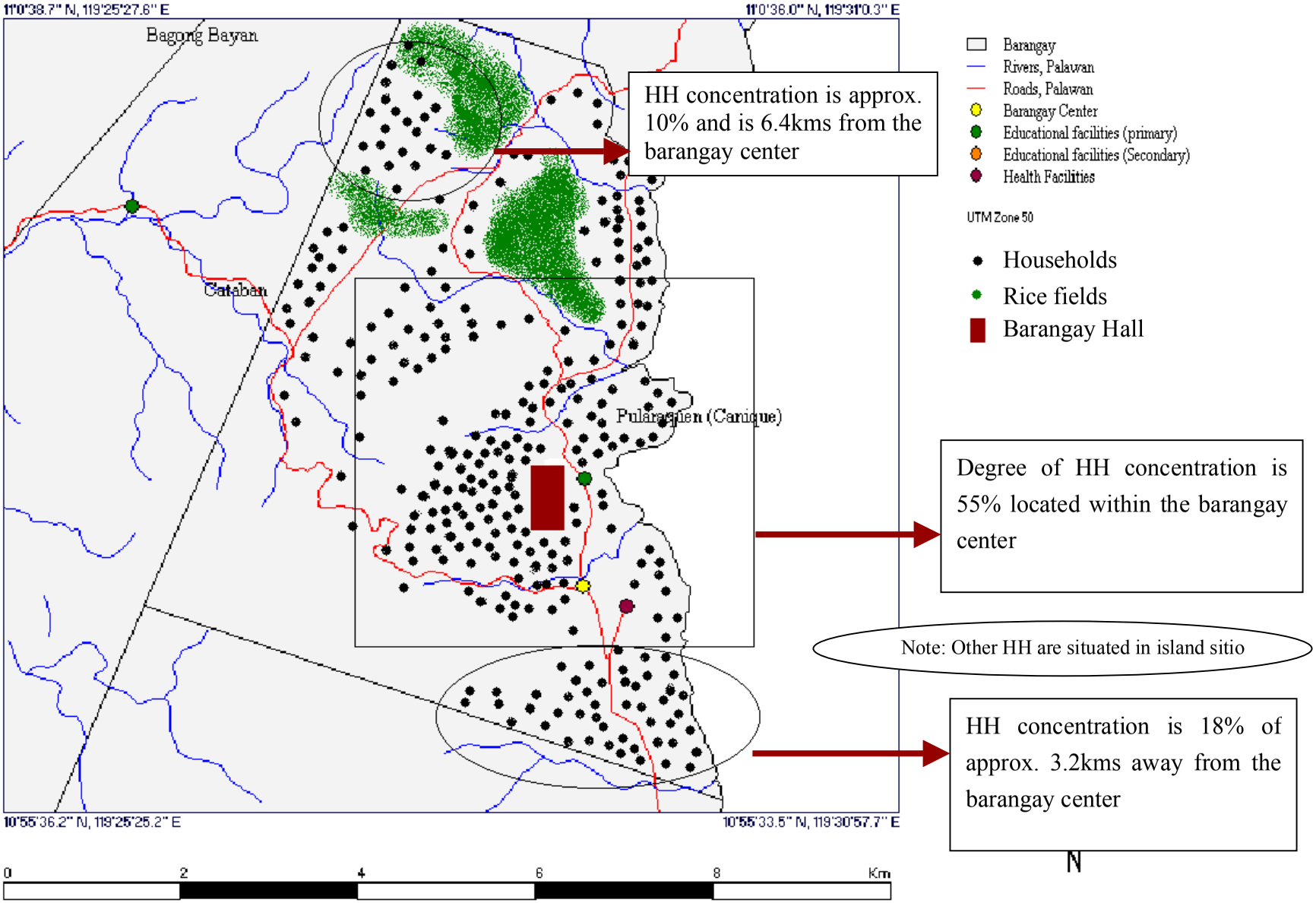
Source: Qualitative Survey (Direct Observation)

APPENDIX C-VI (3) Settlement Pattern of Tagumpay, Puerto Princesa



Source: Qualitative Survey (Direct Observation)

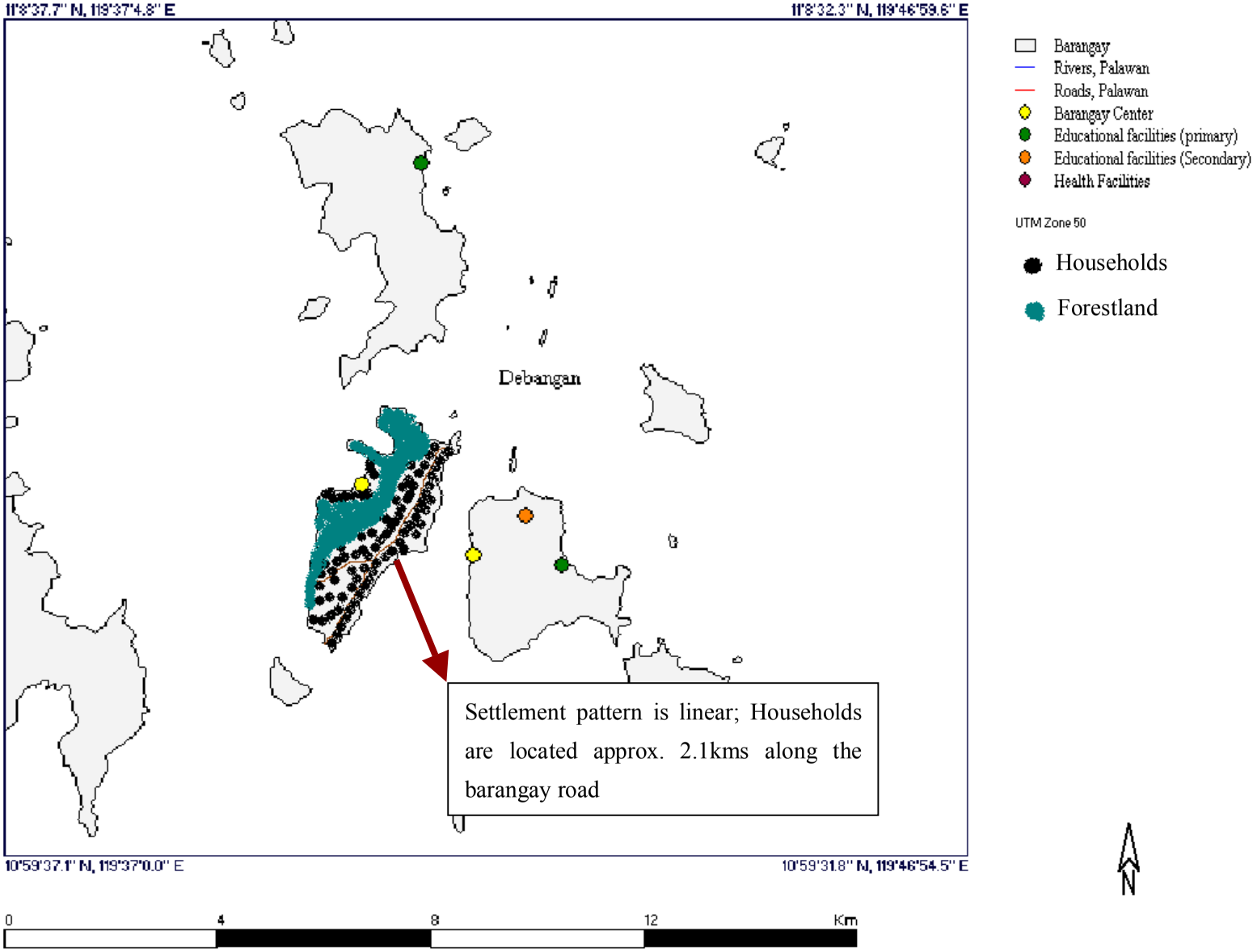
APPENDIX C-VI (4) Settlement Pattern of Tagumpay, Puerto Princesa



Source: Qualitative Survey (Direct Observation)

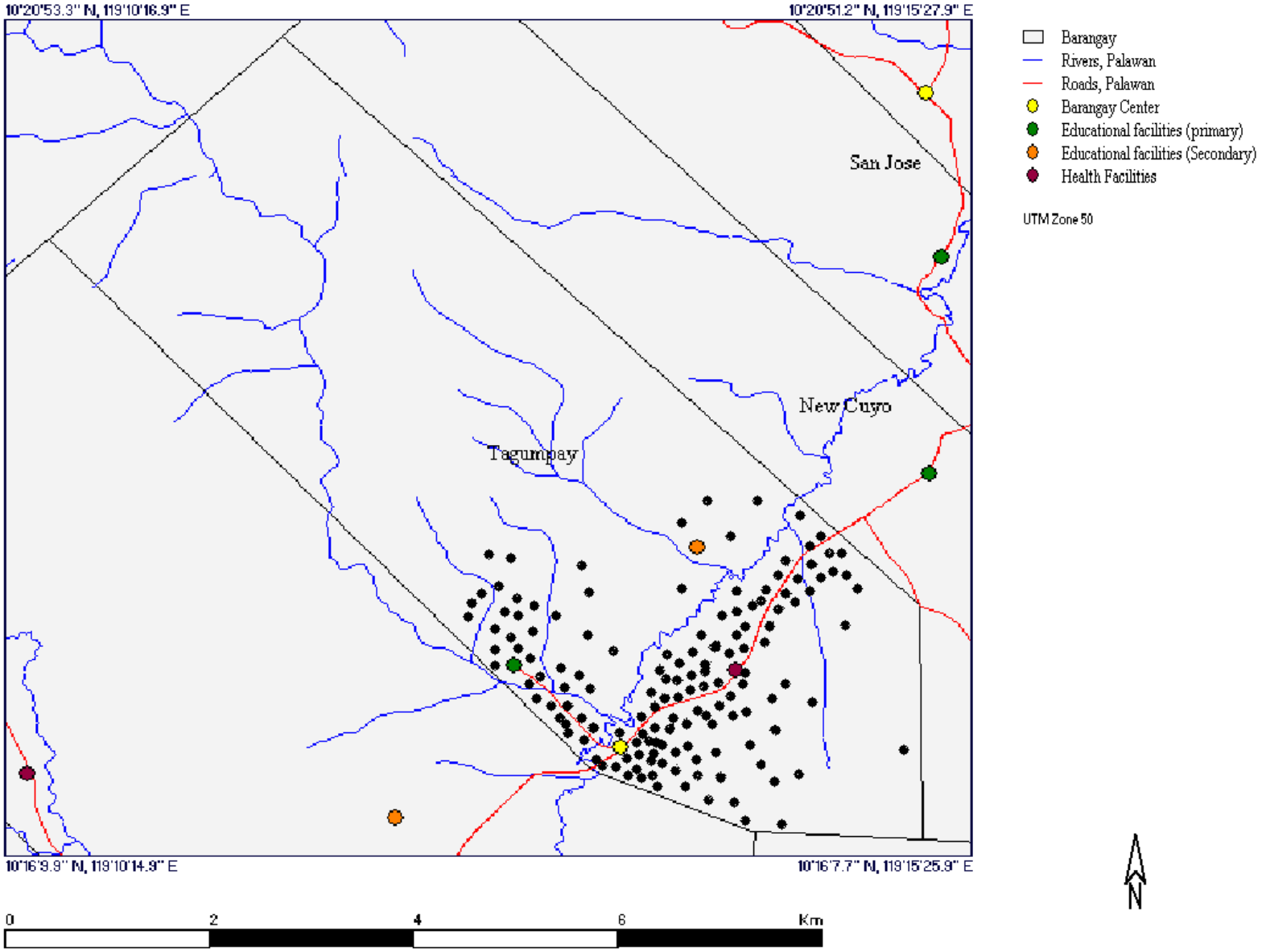
Attachment -C
Socio & Economic Survey

APPENDIX C-VI (5) Settlement Pattern of Tagumpay, Puerto Princesa



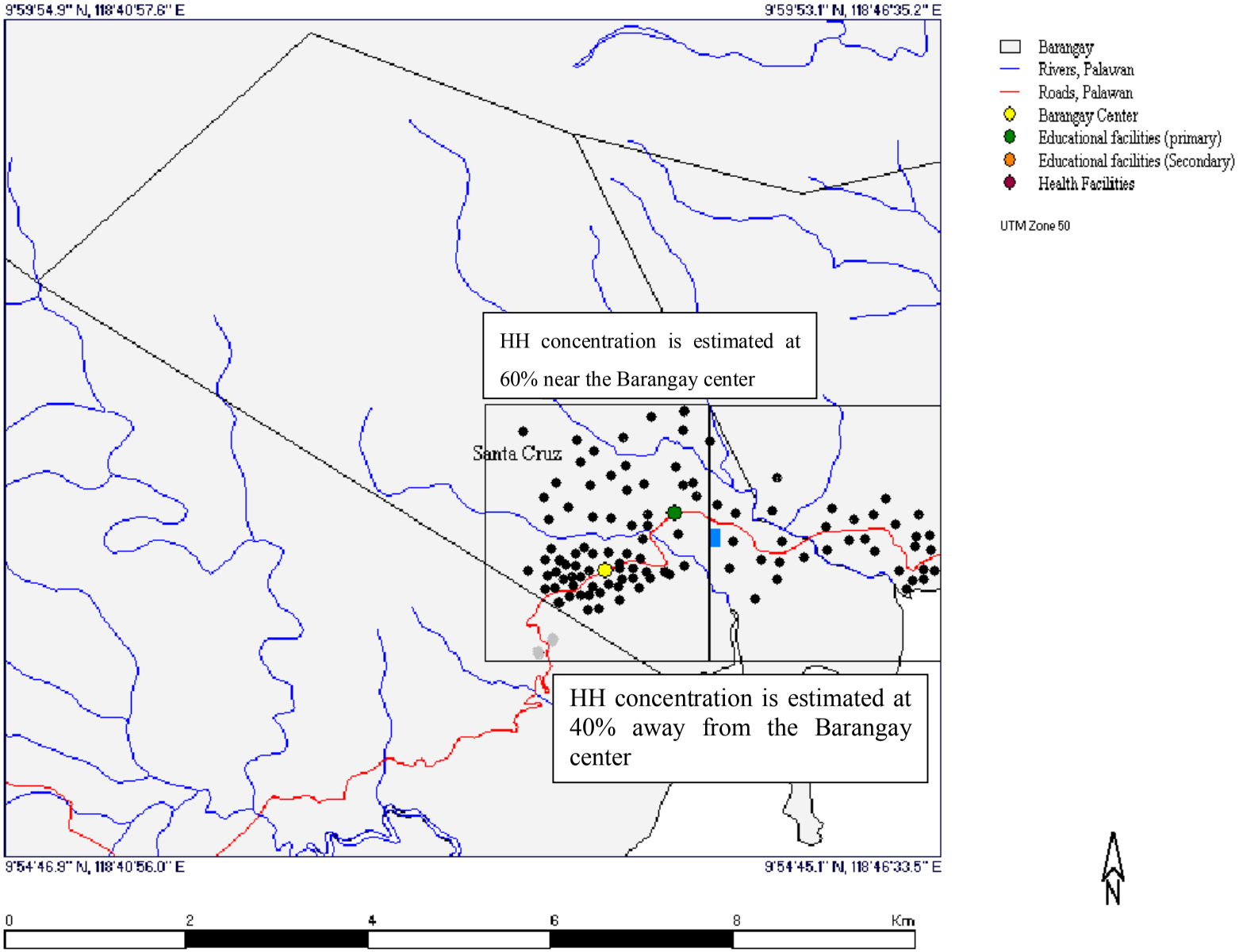
Source: Qualitative Survey (Direct Observation)

APPENDIX C-VI (6) Settlement Pattern of Tagumpay, Puerto Princesa



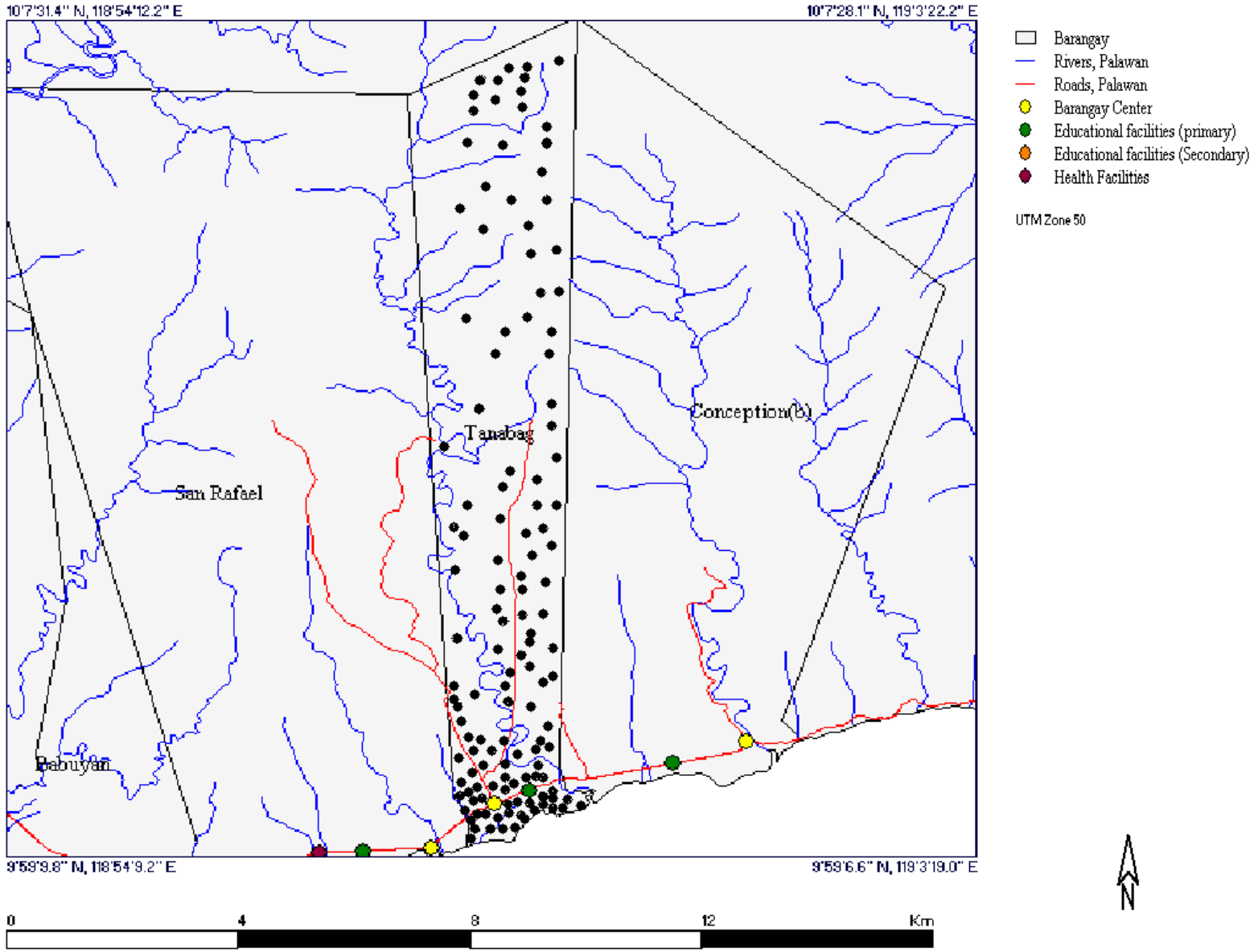
Source: Qualitative Survey (Direct Observation)

APPENDIX C-VI (7) Settlement Pattern of Tagumpay, Puerto Princesa



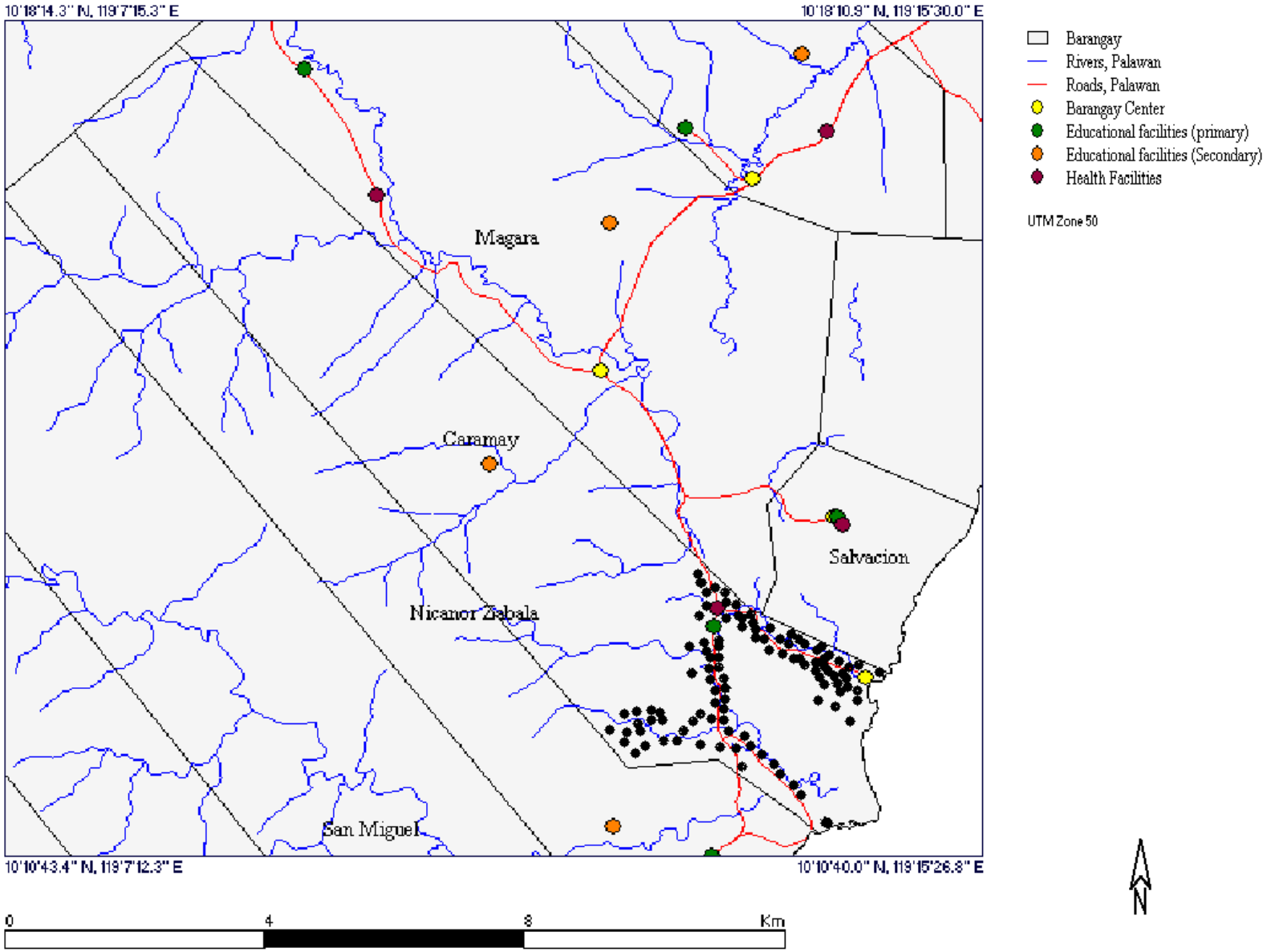
Source: Qualitative Survey (Direct Observation)

APPENDIX C-VI (8) Settlement Pattern of Tagumpay, Puerto Princesa



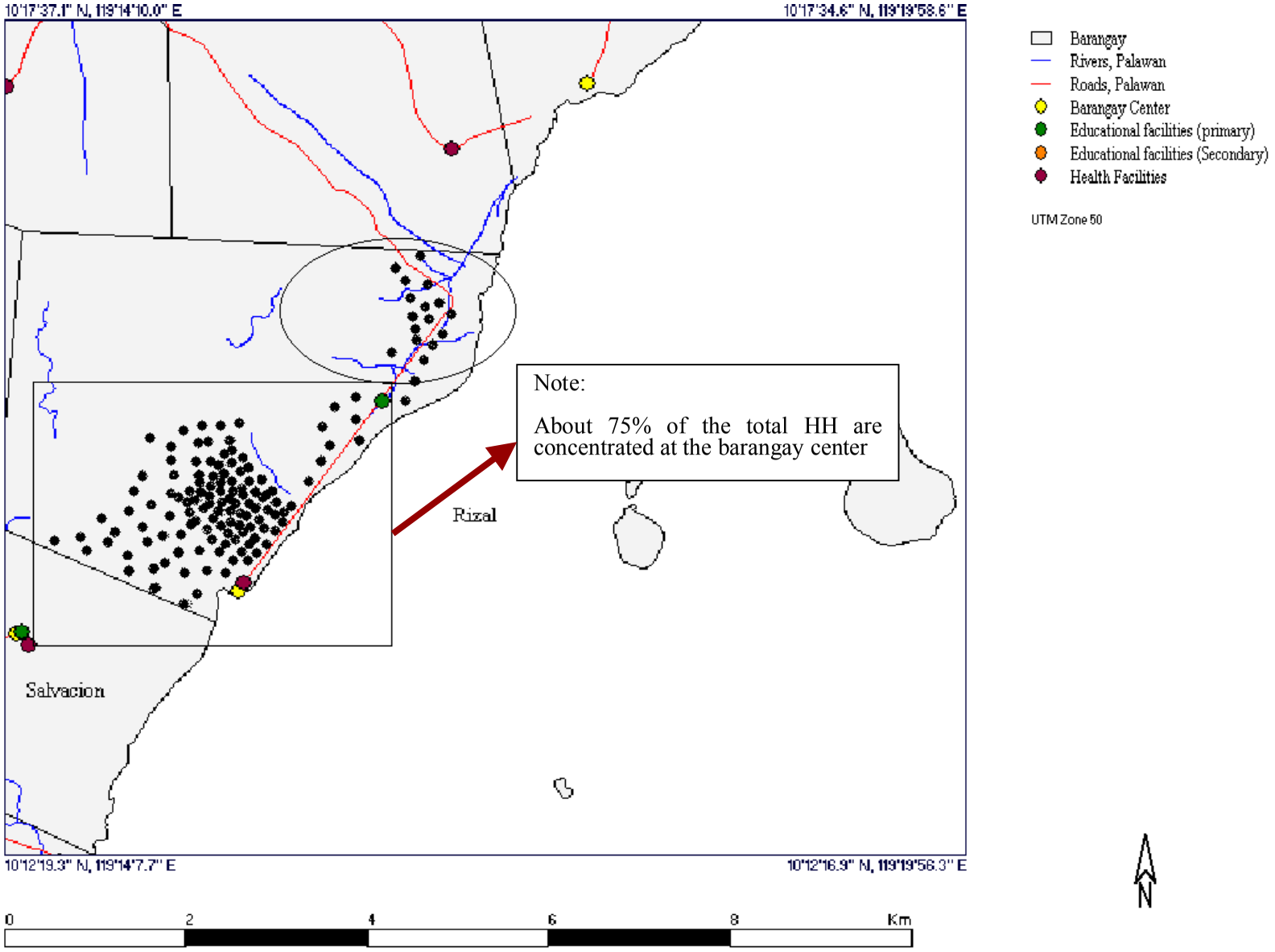
Source: Qualitative Survey (Direct Observation)

APPENDIX C-VI (9) Settlement Pattern of Tagumpay, Puerto Princesa



Source: Qualitative Survey (Direct Observation)

APPENDIX C-VI (10) Settlement Pattern of Tagumpay, Puerto Princesa



Source: Qualitative Survey (Direct Observation)