

**SEAPRAP RESEARCH
REPORT NO. 43**



**POPULATION MOBILITY BY RURAL ELECTRIFICATION
IN THE KHON KAEN AREA OF NORTHEAST THAILAND**

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Part I

Background

1.1 Introduction

Initial efforts in extending electric utility facilities to rural areas by the Provincial Electricity Authority were made in 1970 and have been progressing without undue emphasis at a rate of approximately 500 villages per year. The number of villages electrified each year up to 1970 was approximately equal to the number of new villages being formed each year; therefore the process of electrifying all villages in the country has been simply a process of staying even with the new villages formed. Recognition of this situation resulted in efforts to study the problem and develop solutions which could be considered by the Royal Thai government. A Plan in which great emphasis would be placed on the electrification of rural villages was developed and identified as the Thailand Accelerated Rural Electrification. By July 1971, the Royal Thai Government approved in principle this program which included the ultimate goal of total electrification of rural Thailand and the development of a Plan through which the program could be executed. In August 1973, the government approved the Plan through which the accelerated program was to be accomplished. The Plan included the objective of total electrification of all rural villages in 25 years; a short range program of 5 years in which approximately 3,600 villages, in the northeast provinces, would be electrified and the stipulation that a feasibility study should be performed for the first 5-year program. The Plan was later modified to accommodate more provinces outside the Northeast, and the approximate total number of project villages is almost 5,000.

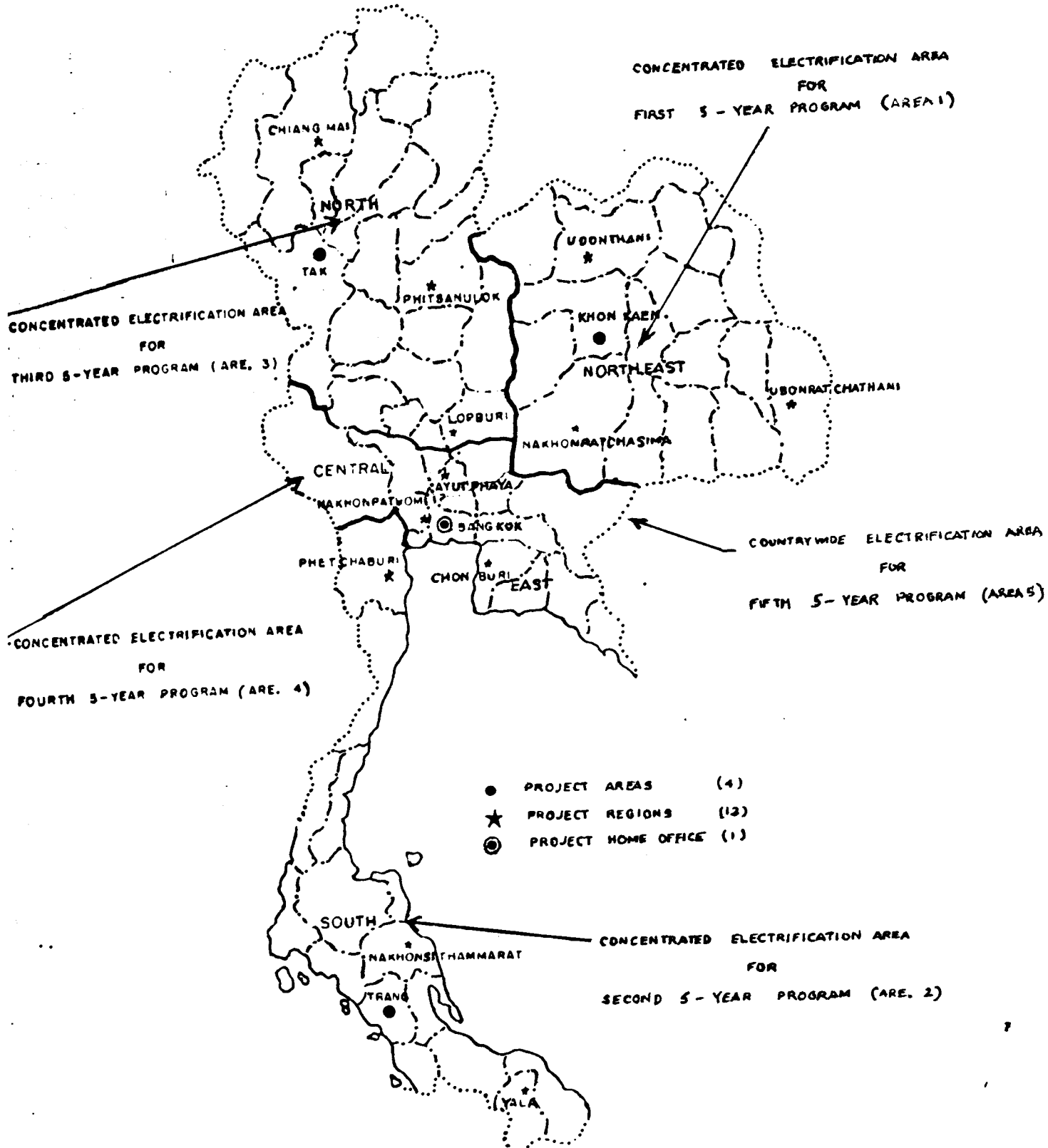
The fourth National Economic and Social Development Plan constantly emphasizes the dual concern for economic and social benefits. It is not always clear, however, that the fourth Plan itself, or the various government agencies associated with the fourth Plan, appreciate the dual nature of rural electrification. The investment in rural electrification, it must be reiterated, has two distinctly different kinds of pay-off: both social and economic. Even if rural electrification was considered unprofitable from a business point of view in the short term, rural electrification is essential to modernization of the rural sector.

But even if it were not, the social benefits alone, particularly in conjunction with a water supply program, might justify an expansion program of rural electrification. One chapter of the Fourth Plan states: "The major objective of the Fourth Plan is to restructure the economic and social systems to suit the changing economic situation." It then goes on to list the major objectives of the Fourth Plan (1977-1981):

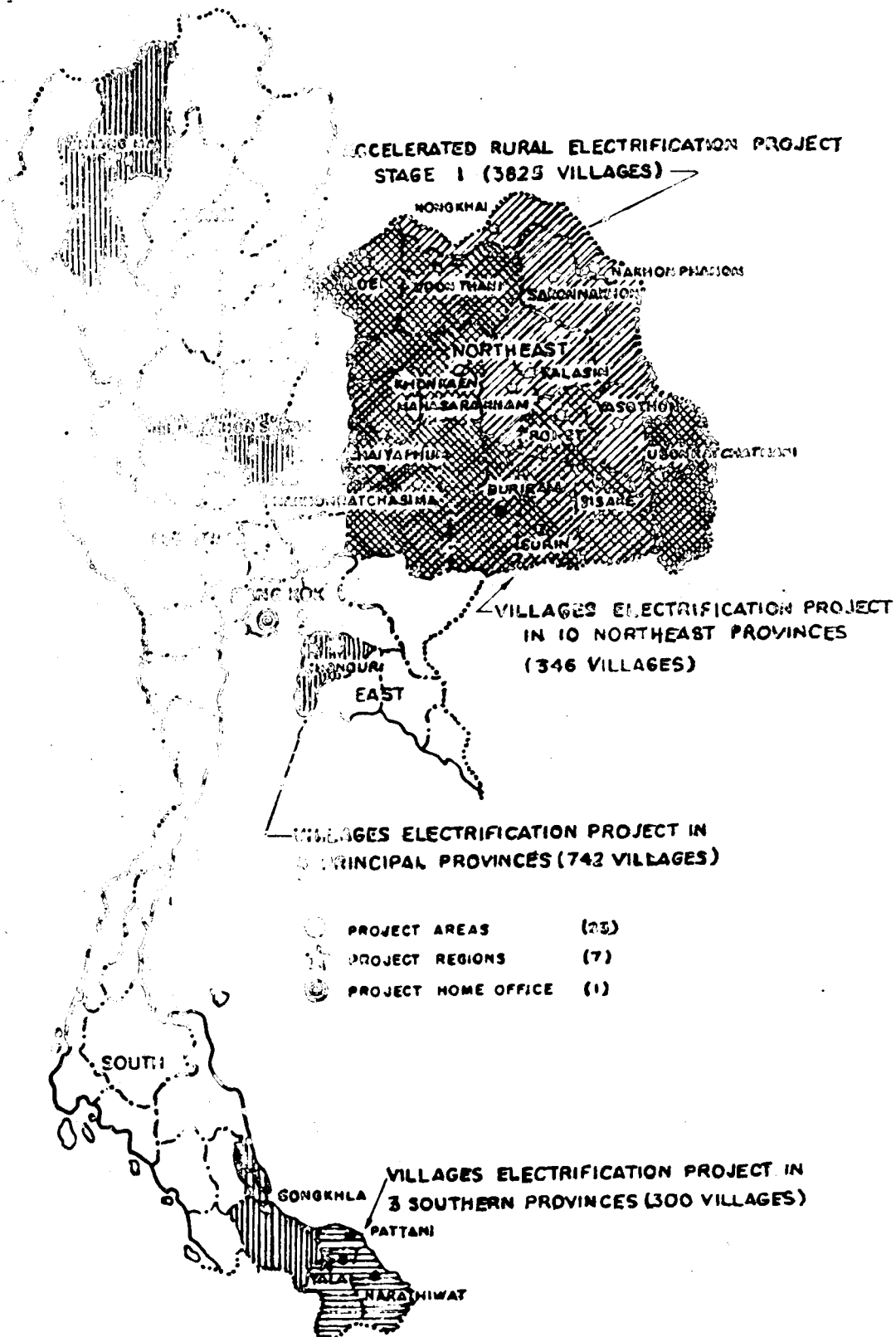
1. To Accelerate Economic Recovery
2. To Reduce Income Disparities
3. To Reduce Population Growth Rate, Improve Manpower Quality and Increase the Level of Employment
4. To Improve the Management of Basic Resources and Rehabilitate Environmental Conditions
5. To Strengthen National Security Management

Water and power are necessary to modernize Thai agriculture, that is, to restructure the economic and social systems in the sector involving the majority of the population. When agriculture is modernized, it will become more productive, thus raising the level of living in the rural sector. Social justice, presumably, means both higher incomes for the rural populace, and a greater share for them in the amenities of urban life. Both will be achieved by rural electrification, though they may be long-term effects.

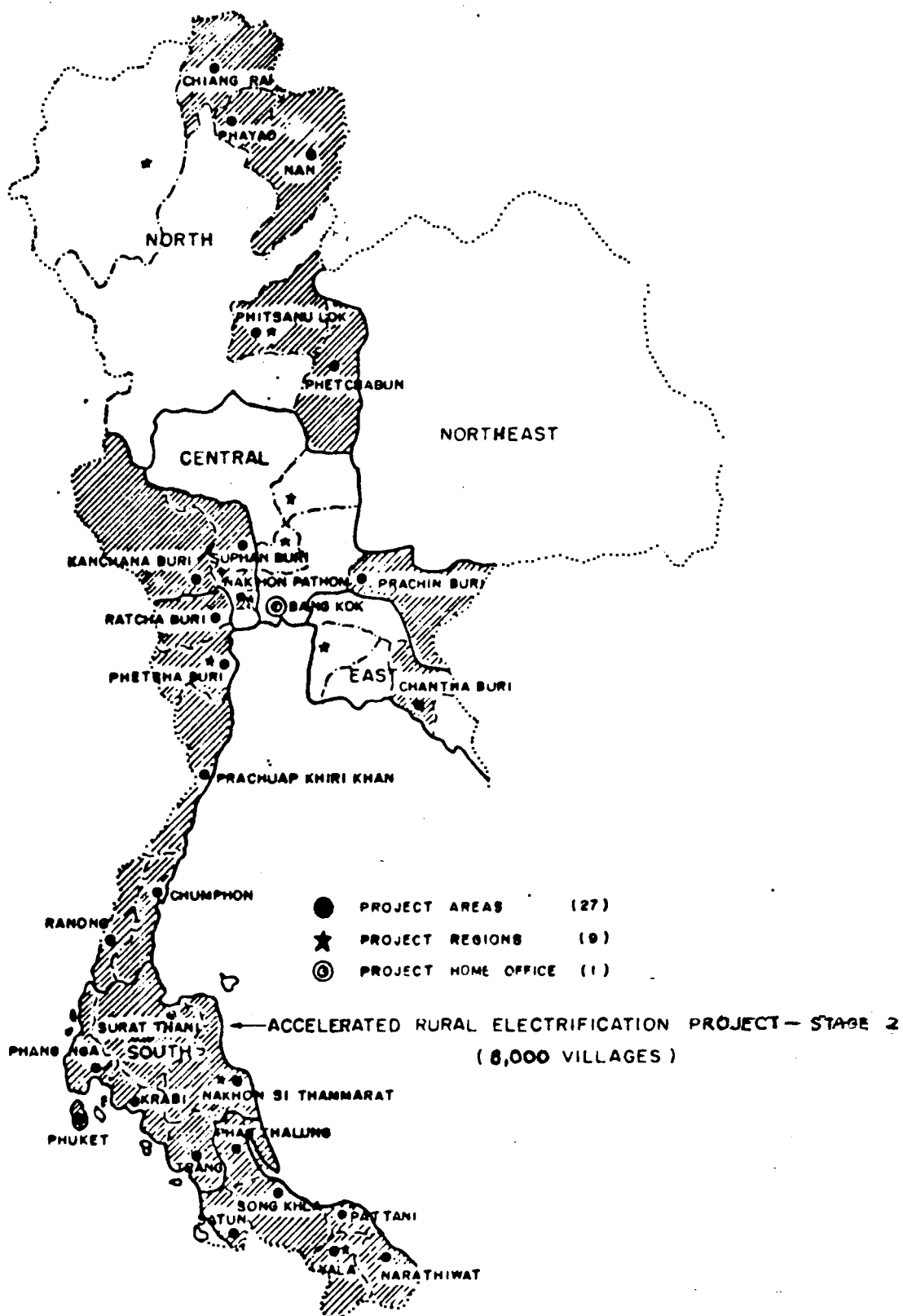
RECOMMENDED
PROJECT SUBDIVISION FOR 69 PROVINCES
TOTAL 15-YEAR PROGRAM OF THAILAND ACCELERATED RURAL ELECTRIFICATION



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PROPOSED
PROJECT AREAS (27 PROVINCES)
FOR
SECOND 5-YEARS PROGRAM OF THAILAND ACCELERATED RURAL ELECTRIFICATION
(8000 VILLAGES)



1.2 The Objectives of the Study

The provision for electrical facilities is usually regarded as part of the basic government infrastructure. But it should also be regarded as a social-overhead investment, using this term to mean a government subsidized investment that will enhance social welfare, but may not have a measurable financial or economic return. It is in this sense that the indirect, intangible social benefits of rural electrification contribute significantly.¹

In terms of the Royal Thai Government, the objective of electrification is clear: to strengthen economic, social and political stabilities of the rural populace by recognizing electricity as one of the five basic infrastructures, together with the irrigation system, road system, public school and health center. In terms of the research proposal, the objective of this study is also clear: to follow up what happens socially after electrification. On the one hand, the economic impact has been investigated frequently and is widely known quantitatively. On the other hand, the social impact, which can only be measured qualitatively, has rarely been done and is virtually unknown to outsiders. Therefore, this social mobility investigation will include observations of changes in population, culture, education, health, occupation and employment, through intensive focussing on the subject of population.

Therefore, it is my intention to take a close look by observing social changes in the population of Northeastern Thailand, the area of the first five-year program for large-scale national accelerated rural electrification. This study of population impact by rural electrification in Thailand focuses on the following topics:

1. Education
2. Marriage and family planning
3. Mortality
4. Occupation
5. Health
6. Domestic possessions (electricity)
7. Migration
8. Communication
9. Belief and Religion
10. Political activities and participations.

4. 54

¹ National Plan for Thailand Accelerated Rural Electrification February 1973.

As indicated in the introduction and objectives, rural electrification is the main component of rural development by the Royal Thai Government. Economic development by electrification has been proven successful in many developing countries like India, Philippines, Taiwan and Singapore. But has social development by electrification been successful? Are there any significant implications or any adverse effects at all? Of course we know by our own experience that electrification will eventually improve the social life of the rural populace. But how does it develop and at what cost? Should we observe its changes and movements, so that we will be better able to cope with related situations in the future? In particular, it will be very useful to the Government in planning future rural electrification sub-programs. All concerned government agencies will be able to plan their programs to supplement the mobility of rural electrification, for example, the family planning office, education department, health department, public welfare department, culture department, labor department, local administration department, community development department, land reform department or even the religion department.

In many developed countries, electrification advanced the rural areas economically, while neglecting the traditional way of life, and now there are regrets over the vast social changes. We, therefore, should try to solve the consequences, if any, of rural electrification.

Thus, it is my intention to investigate this matter closely by observing the social changes in the population of the Northeast, the area of the first five-year program for large-scale national accelerated rural electrification in Thailand.

1.3 The Scope of the Study

Villages in Thailand are really rural structures. Rural areas are classified as the physical areas outside the cities, towns or municipalities. In terms of political administration, urban areas (more developed) are counted by households numbers only. In the rural areas (less developed), people live in groups called villages. The following gives the significant statistical data of the Rural Northeast so that the scope of the study will be appreciated:

<u>Item</u>	<u>Statistics</u>
Area	174,300 Km ²
Population	13.0 million
Households	190,000

<u>Item</u>	<u>Data</u>
Provinces	16
Electrified Province Centers	16
Districts	190
Electrified District Centers	180
Communes	1,640
Electrified Commune Centers	400
Villages	19,700
Electrified Villages	2,000

The sampling design will cover:

<u>Item</u>	<u>Location and sampling</u>
Province Name	Khon Kaen
District Name	Muang
Village Name	Ban Thum
Village Size	2,697 households 17,303 population

1.4 Research Methodology

From my survey, I separated villages in the Tambon Ban Thum (see attached table) into 3 groups by electrification factors. The first group of villages have been electrified since 1972. They comprise four villages totaling 931 households.

The names are:

Ban Thum I	(212 households)
Ban Thum II	(202 households)
Ban Thum III	(258 households)
Ban Thum IV	(259 households)

In these four villages, ten per cent (93 households) were sampled, and interviews were conducted using pre-arranged questionnaires.

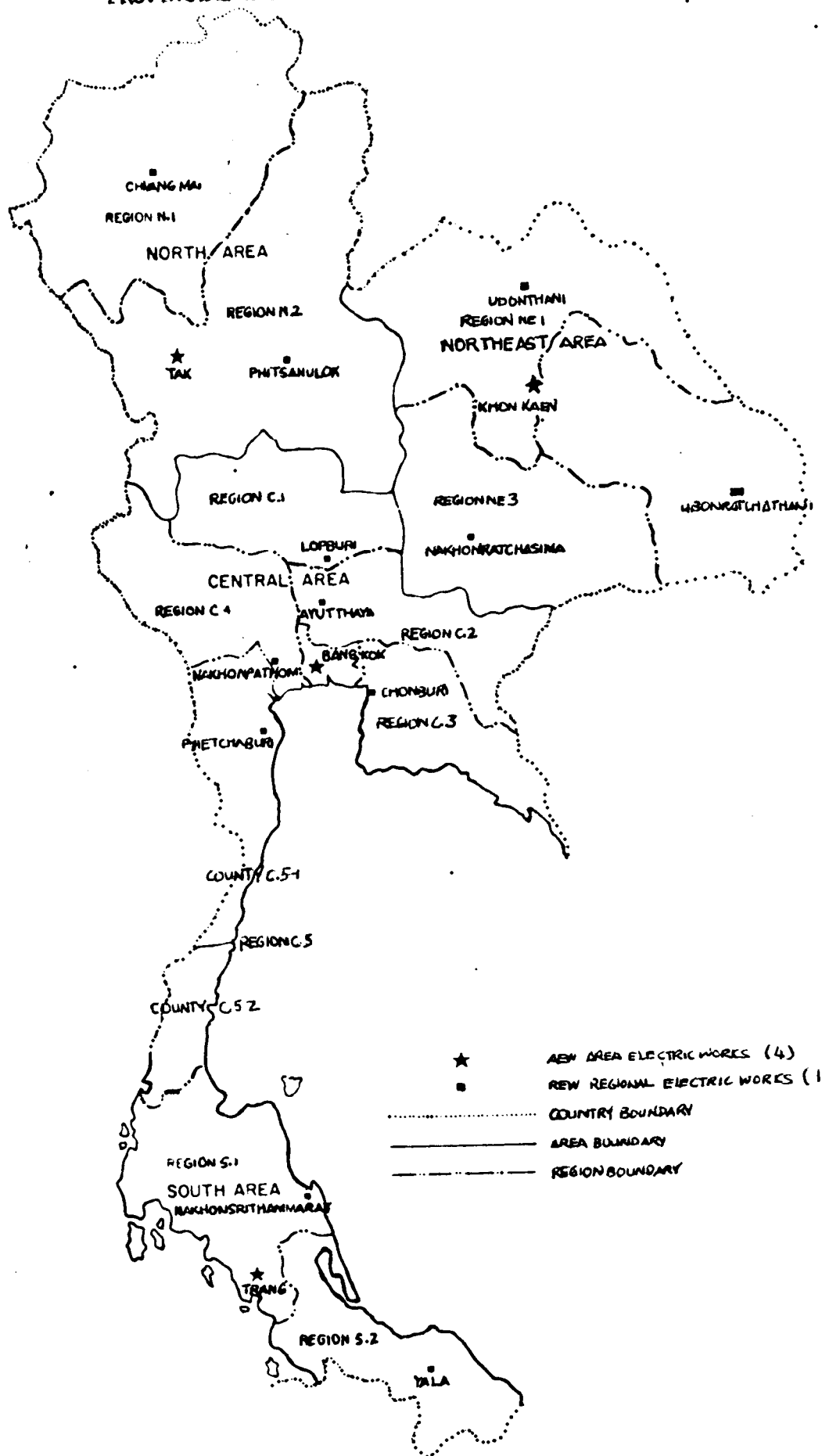
The second group of villages, electrified since 1977, (by ARE 1 Project) comprise eleven villages totaling 1,653 households.

The names are:

Nong Loub	(250 households)
Pa Chad	(103 households)
Dang Yai I	(137 households)
Dang Yai II	(87 households)
Nong Koi	(181 households)
Muang I	(207 households)
Muang II	(190 households)
Dang Noi I	(145 households)
Dang Noi II	(175 households)
Kud Nang Tui	(61 households)
Nong Kung	(117 households)

In these villages, I made a sampling of ten per cent (165 households) for comparison with the first group which had been electrified five years earlier to see the differentiation in social aspects by the input of the electrification factor. This means that households number 5,10,15,20 ... and so on, either electrified or unelectrified, will be contacted for comparison purposes. This scope of data gathering is very well-covered and very reasonable in terms of sampling theory.

OPERATION AREAS AND REGIONS PROVINCIAL ELECTRICITY AUTHORITY



1.5 Characteristics of Villages under Study

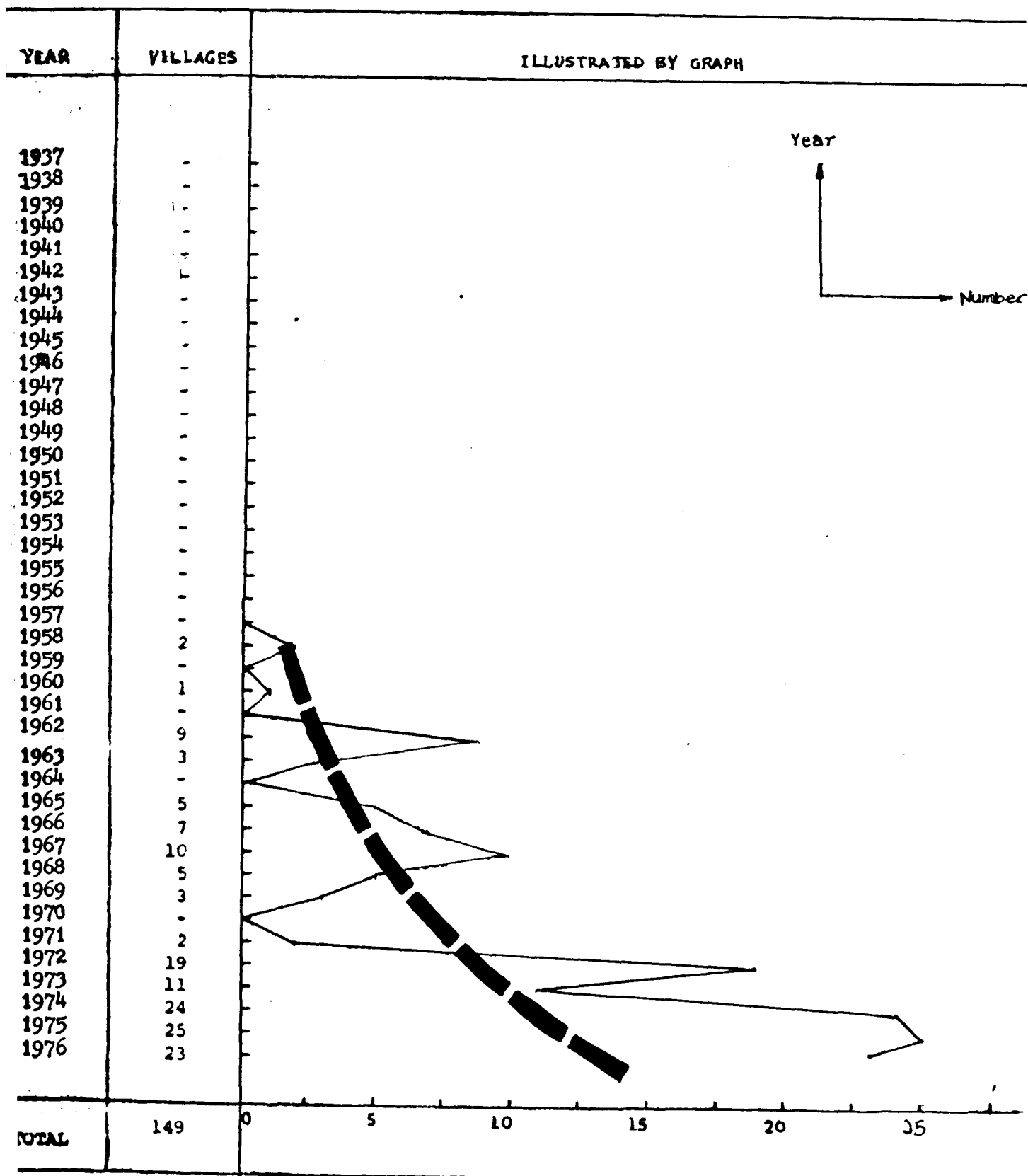
Reasons for selection of Ban Thum as an ideal village for a case study are:

- (i) The village is a reasonable distance from the Provincial center of Khon Kaen (about eleven kilometers west). Also Khon Kaen is the center of the Northeast in almost all aspects: government administration, physical location, communication link, social and cultural blend, etc. It can be said that Khon Kaen represents Northeast Thailand.
- (ii) The village is reasonably connected to the Study Headquarters in Bangkok. We can fly directly from Bangkok in one-and-a half hours to Khon Kaen Provincial Center, or drive on the Friendship Highway in six hours. For monitoring purposes, this is ideal.
- (iii) Last, but most important, Ban Thum is a reasonably good-sized village, which has useful data for the study in almost all aspects: electrified and non-electrified groups, electrified six years ago or one year ago, fertile and non-fertile lands, rice to upland crops, developed and non-activity, mix of people from many parts of the Northeast, etc.

This tambon (composed of villages) includes seventeen villages, four of them electrified since 1972, eleven villages electrified in 1977 (Rural accelerated program), only two of them non-electrified. The following data explains village names, number of households, number of population, and electrification status.

<u>Number of Villages</u>	<u>Tambon (Commune Name)</u>	<u>Village Name</u>	<u>Households</u>	<u>Population</u>	<u>Electrification Status</u>
17	Ban Tum	Tum 1	212	1,446	E 1972
		Tum 2	202	1,395	E 1972
		Tum 3	258	1,549	E 1972
		Tum 4	259	1,623	E 1972
		Nong Loub	250	1,708	E 1977
		Pa Chad	103	693	E 1977
		Dang Yai 1	137	887	E 1977
		Dang Yai 2	87	525	E 1977
		Nong Goy	181	1,135	E 1977
		Muang 1	207	1,230	E 1977
		Muang 2	190	1,302	E 1977
		Lao Kwean Hug	90	540	Non-E
		Dang Noi 1	145	1,024	E 1977
		Dang Noi 2	175	1,024	E 1977
		Kud Nang Tui	61	418	E 1977
		Nong Kung	117	654	E 1977
		Non Sawan	23	154	Non-E

SUMMARY
NUMBER OF VILLAGES ELECTRIFIED BY YEAR
KHON KAEN PROVINCE



Part II

Results of Study and Impact of the Rural Electrification Program

2.1 General Description of Informants

Table 1: Sexes of the informants

<u>Sexes of informants</u>	<u>Group I</u>	<u>Group II</u>
Male	68.0	55.88
Female	32.0	44.17
Total	100.0	100.0

This Table shows the percentage of sexes for Groups I and II. Of all the informants (who are either wives or husbands), male informants account for 60 per cent in Group I and 55.88 per cent in Group II, whereas female informants account for 32 per cent in Group I and 44.17 per cent in Group II, respectively.

Table 2: Age Group of the Informants

<u>Age group of informants</u>	<u>Group I</u>	<u>Group II</u>
15-25	4.0	6.13
26-35	18.66	17.79
36-45	34.66	20.24
46-55	18.66	25.76
56-65	14.66	17.79
66-75	9.33	11.04
76-85	-	1.22
Total	100.0	100.0

This Table shows that the highest response to our enquiries in Group I comes from the age group of 36-45 years (i.e. 34.76 per cent), whereas in Group II, from the age group of 46-55 years (i.e. 25.76 per cent). However, the average age of the informants in both groups was computed as can be seen from the following tables.

Table 3 (i): Average Age of Informants (Group I)

<u>Ages</u>	<u>f</u>	<u>x</u>	<u>fx</u>
16-25	3	20.5	615
26-35	14	30.5	427
36-45	26	40.5	1035
46-55	14	50.5	707
56-65	11	60.5	665.5
66-75	7	70.5	493.5
76-85	-	-	-
N = 75			$\Sigma fx = 3407.5$

$$\bar{x} = \frac{\Sigma fx}{N} = \frac{3407.5}{75} = 45.43$$

The average age of the informants in Group I is 45 years.

Table 3 (ii): Average Age of Informants (Group II)

<u>Ages</u>	<u>f</u>	<u>x</u>	<u>fx</u>
16-25	10	20.5	205.0
26-35	29	30.5	884.5
36-45	33	40.5	1336.5
46-55	42	50.5	2121.0
56-65	29	60.5	1754.5
66-75	18	70.5	1269.0
76-85	2	80.5	161.0
N = 163			$\Sigma fx = 7731.5$

$$\bar{x} = \frac{\Sigma fx}{N} = \frac{7731.5}{163} = 47.43$$

The average age of the informants in Group II is 47 years.

Table 4: The Number of Members in the sampling households in Group I and Group II

<u>No of members in the households</u>	<u>Group I</u>	<u>Group II</u>
1-5	52.66	31.71
6-10	46.0	65.82
11-15	1.33	2.45
Total	<u>100.0</u>	<u>100.0</u>

This Table shows that in Group I, 52.66 per cent of the informants have about 1-5 members in their family, and in Group II, 31.71 per cent of the informants have the same number of members in their family. But Group II has the highest percentage of informants (i.e. 65.82 per cent) having about 6-10 members in their family when compared with Group I, which accounts for 46 per cent for the same family members.

Table 5: Patterns of the Family (Nuclear or Extended)

<u>Pattern of the Family</u>	<u>Group I</u>	<u>Group II</u>
Nuclear	64.0	53.98
Extended	36.0	46.02
Total	<u>100.0</u>	<u>100.0</u>

This Table shows that the majority of the informants in Group I and II live in the nuclear family, which accounts for 64 per cent in Group I and 53.93 per cent in Group II respectively. Only 36 per cent of the informants in Group I and 46.02 per cent of them in Group II live in the extended family.

2.2 Education Impact

Table 1: Percentage of the Education Level of the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Never went to school	15.9	20.8
Lower grade 4	14.7	12.1
Finished grade 4	46.8	46.9
Higher than grade 4	7.7	4.5
Higher than grade 7	14.9	6.7
Total	<u>100.0</u>	<u>100.0</u>

The results in the above Table show that Group II has a higher percentage of people who never went to school than Group I. The percentage of those who finished grade 4 is almost the same, but of those who completed higher than grade 4, and higher than grade 7, more are in Group I.

Table 2: Percentage of the two groups, comparing their ability in reading among households who finished grade 4

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Very good	76.0	60.1
Poor	20.0	31.3
Unable to read	4.0	4.3
No response	-	4.3
Total	<u>100.0</u>	<u>100.0</u>

The purpose of the enquiries as shown in this Table is to know the reading ability of the two groups; and the responses show that in Group I, three-quarters can read (i.e. 76 per cent) whereas in Group II, more than a half (60 per cent) can read.

Table 3: Percentage of the two groups, comparing their ability in writing among households who finished grade 4

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Very good	74.7	54.0
Poor	18.7	36.2
Unable to write	6.7	6.1
No response	-	3.7
Total	<u>100.0</u>	<u>100.0</u>

The purpose of the enquiries in this Table is the same as in Table 2, but it is concerned with writing ability. The result is similar to that for reading ability. In Group I, 74 per cent have the ability to write, whereas in Group II, only 54 per cent have.

Table 4: Comparing reading habits among the households of the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	68.0	44.2
No	30.7	55.2
No response	1.3	0.6
Total	<u>100.0</u>	<u>100.0</u>

From this Table, it is shown that there is a substantial amount of difference in habitual reading between the two groups. In Group I, 68 per cent read habitually, while in Group II only 44 per cent do. Habitual reading means the daily habit of the householders to read books, magazines, newspapers and/or various periodicals.

Table 5: Preferred time for reading by the respondents in Table 4 who read habitually

<u>Time of reading</u>	<u>Group I</u>	<u>Group II</u>
Night time (by using electricity)	72.5	67.6
Day time	27.5	32.4
Total	<u>100.0</u>	<u>100.0</u>

This Table shows that Group I has a higher percentage (72.5 per cent) of the households spending their night time in reading than has Group II (67.6 per cent)

Table 6: Percentage of householder's expectations on their children's future education

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Every one	88.0	58.9
Not every one	6.7	25.3
No response	5.3	15.8
Total	<u>100.0</u>	<u>100.0</u>

This Table indicates that the expectation of the householders on their children's education, which they believe to be important, is somewhat different between the two groups. In Group I, the responses show that majority of the households (88 per cent) expressed their strong faith in education for their children in the future. But in Group II, the percentage of those who believed so is lower than in Group I (i.e. 58.9 per cent). Despite their considerable difference, the two groups show that the majority of the householders have a great expectation for their children's future education.

Table 7: Comparing the percentage of the householder's expectation on their children's future occupation

<u>Types of occupation</u>	<u>Group I</u>	<u>Group II</u>
Farmer	5.3	14.7
Government official	64.0	42.3
Lawyer	1.3	0.6
Employer	2.7	1.2
No response	26.7	14.1
Total	<u>100.0</u>	<u>100.0</u>

From the investigation, it is shown that in both groups the householders have great hopes for their children's occupation in government offices. The percentage of the householders having such an expectation is higher in Group I (i.e. 64 per cent) than in Group II (i.e. 42 per cent).

2.3 Marriage and Family Planning Impact

The following questions were asked of the householders with a view to finding out the situation and facts on their marriage age, actual number of children, ideas about number of children, birth control, and ideas and practices of family planning. The objective was to assess the difference between the two village groups, the first of which was electrified almost six years before the second one, and to see whether there is any difference between them with regard to practices and beliefs. In addition, one of the most important tasks of this investigation was focused on finding out the real situation which directly affects the birth-rate of the people in Northeast Thailand. Statistically, the Northeastern part of Thailand has the largest proportion of population (i.e. almost half of the entire population in the country lives there); and the birth-rate is the highest (4.5) compared with other parts of the country. This problem of over-population has led to the decision by the Royal Thai Government (RTG) to go to the Northeastern area first for the Rural Electrification program.

Table 1: Comparison of marriage Age between Group I and Group II

<u>Age Group</u>	<u>Group I</u>	<u>Group II</u>
15-20	33.33	42.33
21-26	45.33	42.33
27-32	12.0	6.74
33-38	5.33	3.06
Unmarried	-	1.22
No response	4	4.29
Total	<u>100.0</u>	<u>100.0</u>

From the above Table, the average of age at marriage of Group I is 23 years.

$$\bar{x} = \frac{\sum fx}{N} = \frac{1644}{72} = 22.83$$

The average age in marriage of Group II is 22 years.

$$\bar{x} = \frac{\sum fx}{N} = \frac{3331}{154} = 21.63$$

Table 2: Comparison of number of Children between Group I and Group II

<u>Number of Children</u>	<u>Group I</u>	<u>Group II</u>
0-3	45.33	39.8
4-7	40.0	39.2
8-11	13.33	17.8
12-15	1.33	1.8
Single	-	1.22
Total	<u>100.0</u>	<u>100.0</u>

From Table 2, the average number of children of Group I is four persons.

$$\bar{x} = \frac{\sum fx}{N} = \frac{324.5}{75} = 4.33 \text{ or } 4$$

The second Table shows that the average number of children is 5 persons.

$$\bar{x} = \frac{\sum fx}{N} = \frac{765.5}{161} = 4.75 \text{ or } 5$$

From Table 1, we have found that between the two villages electrified in 1972 and in 1977 respectively, the average age of marriage is almost the same. There is only one year difference. The average age of marriage in Group I is 23 years and in Group II is 22 years.

In Group I, 42 per cent of those aged 15-20 years got married, whereas in Group II only 33 per cent of the same age groups got married. This means that there is not much difference in the average age of marriage between the two groups; Group II has a higher percentage of those who get married at a younger age than has Group I.

Also, Table 2 compares the number of children of the householders between the two groups. In the first group, the percentage of the households having one to three children worked out to be forty. Comparatively, the percentage of the households in the two groups having 4-7 children worked out to be almost the same. That is, Group I has 40 per cent and Group II has 39 per cent. But there is a vast difference in the percentage of families having 8-11 children, which is 13 in Group I and 18 in Group II. From this investigation it can be rightly said that the number of children is definitely different between the two sample villages, which they were electrified at different periods of time.

Table 3: Comparison of the idea on number of children both the two groups have at the present time

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Sufficient	40.0	38.65
Too many	46.67	31.29
Unsufficient	12.0	23.31
No answer	1.33	3.07
Not knowing	-	3.68
Total	<u>100.0</u>	<u>100.0</u>

When analyzed in terms of the idea of having children at the present, from the percentage of Table 3, the householders in the two groups have different ideas. In Group I, 46 per cent of the householders said that they had too many children, whereas in Group II, only 31 per cent replied that they had too many.

Table 4: Comparison of the percentage of spontaneous abortion of married women in Group I and Group II

<u>Times of Abortion</u>	<u>Group I</u>	<u>Group II</u>
0	70.7	60.0
1	18.7	19.4
2	8.0	15.5
3	1.3	1.8
4	-	1.8
No answer	1.3	0.6
Total	<u>100.0</u>	<u>100.0</u>

This Table shows that there is not much difference in spontaneous abortion of the married women in the two groups. For one spontaneous abortion happening to the married women in both groups, there was almost the same percentage. But Group II has a substantially higher percentage of two spontaneous abortions.

Table 5: Percentage of Live-births in the two groups

<u>Number of Live-births</u>	<u>Group I</u>	<u>Group II</u>
0	1.3	7.4
1-3	44.0	28.2
4-6	21.3	25.8
7-9	24.0	23.3
10-12	8.0	11.6
13-15	-	2.0
No answer	1.3	0.6
Total	<u>100.0</u>	<u>100.0</u>

The above Table shows that Group I has the highest percentage of 1-3 live-births (i.e. 44 per cent) and 21.3 and 24 percentage of 4-6 and 7-9 live-births respectively.

In Group II, the percentage of live-births of the group 1-3, 4-6 and 7-9 is almost the same (see the table).

Table 6: Comparison of the percentage of the births still alive at present

<u>Number of Still-Alive Births</u>	<u>Group I</u>	<u>Group II</u>
0	1.3	8.0
1-3	49.3	32.5
4-6	29.3	29.4
7-9	16.0	23.9
10-12	2.7	3.7
13-15	-	1.8
No answer	1.3	0.6
Total	<u>100.0</u>	<u>100.0</u>

Group I has the highest percentage of the still alive births at the numbers of one to three (i.e. 49.3 per cent), whereas Group II has a lower percentage (i.e. 32.5 per cent). The number of still alive births ranging

from 4 to 6 numbers per household in both groups is more or less the same (see the table). But significantly enough, the households having 7-9 still alive births shows Group II with a greater percentage than Group I (also see the table).

Table 7: Comparison of ideas on birth control between the two groups.

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Agree	78.67	65.03
Disagree	9.33	9.20
No answer	-	4.29
Do not know	12.0	21.47
Total	<u>100.0</u>	<u>100.0</u>

Table 7 shows that 78.67 per cent in Group I agreed in practicing birth control whereas only 65.03 per cent in Group II did. This shows that both groups have been aware of the benefits of birth control. However, in the villages first electrified, there is a higher percentage of practicing birth control.

Table 8: Comparison of the percentage of knowledge on the method of birth control in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Aware	84.0	65.6
Unaware	14.7	30.1
No response	1.3	4.3
Total	<u>100.0</u>	<u>100.0</u>

The response shows that the number of householders in Group I knowing the technique of birth control is greater than in Group II (i.e. 84 per cent in Group I and 65.6 per cent in Group II). More interesting is the fact that the percentage of the householders unaware of the birth control technique is greater in Group II than in Group I (see the table).

Table 9: Comparison of the percentage of use of any contraceptive method by the women in the fertility period in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Using	77.41	63.64
Not Using	12.90	31.82
No response	9.68	4.54
Total	<u>100.0</u>	<u>100.0</u>

Table 9 shows that Group I has a higher percentage of those using certain contraceptive methods (i.e. 77.41 per cent), than that of the householders in Group II (i.e. 63.64 per cent).

But in Group II, there is a higher percentage of those not using any contraceptive.

2.4 Mass-Communication Impact

Table 1: Comparison of habitual listening to radio

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Listening regularly	92.67	80.37
Not listening	6.0	19.02
No response	1.33	0.61
Total	<u>100.00</u>	<u>100.00</u>

The results in Table 1 above show that there is a substantial difference in the percentage of habitual listening to radio by the people in the two groups. In Group I, 92.67 per cent of the responses listened to radio regularly, whereas in Group II, 80.37 per cent did. Of all the mass media, radio is the most popular medium of communication that brings in news, ideas and initiative.

Table 2: Comparison of the percentage of the programs to which the people in two groups listen

<u>Items of Programs</u>	<u>Group I</u>	<u>Group II</u>
News	57.1	47.4
Education	20.6	15.0
Music and Plays	11.1	6.0
Moh Lam (Folksongs)	11.1	25.6
Others	-	3.8
Total	<u>100.0</u>	<u>100.0</u>

This table shows the comparison of the percentage of people listening to such programs on radio as news, education, music, plays and folksongs (Moh Lam). News is the most attractive program for the people in both groups. However, in Group I, there is a higher percentage (57.1 per cent) listening to news than in Group II (47.4 per cent). The educational program is second to the news program in attracting people, 20.6 per cent in Group I.

Table 3: Comparison of habitual watching on television

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Watching television	57.3	39.7
Not watching	42.67	60.31
No response	-	-
Total	<u>100.0</u>	<u>100.0</u>

Between the two groups, habitual watching on television is to some degree different. Group I has a higher percentage watching television (i.e. 57.3 per cent), whereas Group II has a lower percentage (i.e. 39.7 per cent). This Table shows, however, that television is becoming increasingly popular among the villagers. Next to radio, television is the most effective means for mass-communication.

Table 4: Comparison of the percentage of television programs in which the people in both groups are interested

<u>Items of Programs</u>	<u>Group I</u>	<u>Group II</u>
News	23.1	14.1
Education Program	41.0	28.0
Boxing and Games	28.2	48.0
Folk Play	7.7	7.0
No response	-	2.8
Total	<u>100.0</u>	<u>200.0</u>

This Table shows the percentage of the popular television programs watched by the people in the two groups. Education programs are watched by most of the people in Group II (i.e. 41 per cent), but this program is not so attractive to the people in Group I (i.e. 28 per cent in Group II watch Education programs). Boxing and games programs attract a large number of people in Group II (i.e. 48 per cent) but the programs attract 28.2 per cent of the people in Group I.

Table 5: Comparing the habit of reading newspapers

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Reading regularly	56.0	36.81
Not reading regularly	44.0	63.19
Total	<u>100.0</u>	<u>100.0</u>

The above results shows that newspapers are one of the most effective mediums of communication. Regular reading of the newspaper enriches the people with new knowledge and information about various subjects such as politics, economics, world situations, and so on. The Table shows that Group I has a higher percentage who regularly read newspapers (i.e. 56 per cent), whereas Group II has a lower percentage (i.e. 36.81 per cent). More significant is the high percentage of the people in Group II who do not read newspapers regularly (i.e. 63.19 per cent). This fact shows the great impact of electrification upon the villages.

Table 6: Comparison of the percentage of communication with the capital of the country (Bangkok) by the people in both Groups.

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	61.3	36.8
Never	38.7	63.2
Total	<u>100.0</u>	<u>100.0</u>

This Table shows that there is a higher percentage of communication with Bangkok by the people in Group I (i.e. 61.3 per cent), when compared with Group II which has 36.8 per cent.

Table 7: Reasons for going to Bangkok by the informants in two groups

<u>Reasons for Visiting</u>	<u>Group I</u>	<u>Group II</u>
Holidays	21.7	20.0
Visit to relatives	47.8	33.3
To work there	17.4	23.3
To perform religious function	-	18.3
Others	13.1	5.0
Total	<u>100.0</u>	<u>100.0</u>

This Table shows the reasons why the householders paid their visit to Bangkok. Most of them answered that they went to Bangkok to visit their relatives. In Group I, 47.8 per cent answered accordingly, whereas in Group II, 33.3 per cent did. As for going to work in Bangkok, Group II has a higher percentage (i.e. 23.3 per cent), compared to Group I with a percentage of 17.4 per cent.

Table 8: Showing a realisation of the problem caused by illegal wood-cutting as expressed by the householders in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Realising	76.0	79.1
Not realising	22.7	20.2
No response	1.3	0.6
Total	<u>100.0</u>	<u>100.0</u>

In 1978, heavy floods had caused a great change to vast areas in the Northeastern part of Thailand. This Table shows the realisation on the part of the householders about the illegal wood-cutting. Most of the informants in both groups responded in a positive manner stating that they realised the havoc caused by illegal wood-cutting (see the table).

The economic and social benefits derived from electrifying rural areas have been normally greater than those which were originally anticipated or planned. A higher general level of living conditions, if other factors are

present, can be developed. First emphasis is normally placed upon improving productivity or equality of produced items. In developing nations, it is also possible to have a major social improvement in educational levels. An example of this is the institution of educational television as a communication medium through which rural areas may be given instructions in almost every conceivable facet of modern society, from personal health and hygiene to crafts and semi-technical vocational instruction, as well as the very basic instructions in languages, mathematics, etc. Such instructions can be implemented through local government-owned television sets located where group viewing is reasonably accommodated.

2.5 Types of Occupation and Economic Impact

Table 1: Shows the comparison of the percentage of those who are engaged in agricultural and non-agricultural types of occupation in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Agriculture	58.67	48.47
Non-agriculture	36.0	20.24
Both (Agriculture and non-agriculture)	5.33	31.3
Total	100.0	100.0

This Table shows that the bulk of the informants in both groups are engaged in agriculture. Group I, however, has a higher percentage of agriculturists (i.e. 58.67 per cent), whereas Group II has a lower percentage (i.e. 48.47 per cent).

Also, in Group I, 36 per cent of the householders are not engaged in agriculture, while in Group II, 20.24 per cent are not. With regard to those who are engaged in both agriculture and other careers simultaneously, Group II has a higher percentage (i.e. 31.3 per cent) than has Group I (i.e. 5.33 per cent).

Table 2: Comparison of the percentage of debt incurred by the informants in both groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	28.22	42.67
No	69.94	53.33
No response	1.84	4.0
Total	100.0	100.0

Group I shows a higher percentage (i.e. 33.33 per cent) of savings

when compared with Group II (which has about 20.25 per cent). The percentage not saving is very high in Group II (i.e. 76.07 per cent) and in Group I the percentage not saving is also high (i.e. 62.67 per cent). According to these figures, it can be said that most of the people are not fond of saving their money.

2.6 Health

Table 1: Comparison of health consciousness as upheld by the householders in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Healthy	89.33	73.77
Not Healthy	10.67	14.21
No response	-	1.09
Total	<u>100.0</u>	<u>100.0</u>

This Table shows the majority of the informants replying that they are healthy. Group I has a higher percentage of health consciousness (i.e. 89.33 per cent) than has Group II (i.e. 73.77 per cent).

Table 2: Shows the percentage of lavatory usage of the people in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	77.3	44.8
No	<u>22.7</u>	<u>55.2</u>
Total	<u>100.0</u>	<u>100.0</u>

The Table indicates that Group I has a higher percentage of those using lavatory facilities (i.e. 77.3 per cent) than has Group II (i.e. 44.8 per cent), conversely Group II has a greater percentage of those not using lavatory facilities (i.e. 55.2 per cent) than has Group I (i.e. 22.7 per cent).

Table 3: Shows the percentage of the people in both groups who go to such places as the Government Health Centre, private medical clinics, hospitals and medical shops for treatment when they get sick

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Government's health center	44.0	13.5
Private Medical clinic	29.33	12.9
Hospital	20.0	62.0
Buy medicine from shops	6.67	8.0
Others	-	3.7
No response	-	0.6
Total	<u>100.0</u>	<u>100.0</u>

The results in the above Table shows that the majority of the people in Group II visit the hospital for treatment when they are sick (i.e. 62 per cent) whereas in Group I, the majority go to the Government Health Centre (44 per cent). Also for treatment at the time of sickness, 29.33 per cent of the informants in Group I go to private medical clinics, while 12.9 per cent in Group II do so. A very small percentage of the informants in both Groups buy medicine from the medical shops for treatment by themselves (6.67 per cent in Group I and 8 per cent in Group II respectively) when they are sick.

Table 4: Comparison of the percentage of visits to the witchcraft-doctors and modern physicians at the time of sickness by the people in both Groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Witchcraft-doctors	-	0.6
Modern physicians	27.3	82.8
Both witchcraft-doctors & modern physicians	2.7	15.9
No response	-	0.6
Total	<u>100.0</u>	<u>100.0</u>

The results in Table 4 tells us that almost all of the informants in both groups visit modern physicians when they are sick. Group I has a greater percentage (97.3 per cent) of those visiting modern physicians at the time of their sickness compared with Group II (which has about 82.8 per cent). None of the informants in Group I have ever visited only a witchcraft-doctor for treatment of their sickness, but some of them (about 2.7 per cent) have visited both the witchcraft-doctors and modern physicians, whereas in Group II, 15.9 per cent of them have done so.

Table 5: Comparison of the percentage of the people in both groups who believe that vaccination can protect them and their children from illness

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	94.7	93.3
No	4.0	3.7
No response	1.3	3.0
Total	<u>100.0</u>	<u>100.0</u>

The above results show that in both groups almost all of the householders (94.7 per cent in Group I and 93.3 per cent in Group II respectively) believe in the effectiveness of vaccination against illness. Very few of them (i.e. 4 per cent in Group I and 3.7 per cent in Group II) do not believe so. From this Table we can say that there is no differentiation of the percentage between the two groups in this regard.

2.7 Migration Impact

Table 1: Showing the percentage of duration of stay for the first group in the villages which were electrified in 1972

<u>Response</u>	<u>Group I (electrified 1972)</u>
Stayed here since birth	76.0
Moved in less than 6 years ago	18.7
Moved in over 6 years ago	1.3
Total	<u>100.0</u>

Table 2: Showing the percentage of duration of stay for the second group in the village which was electrified 1977

<u>Response</u>	<u>Group II (electrified 1977)</u>
Stayed here since birth	75.3
Moved in less than a year ago	23.5
Moved in over a year ago	1.2
Total	<u>100.0</u>

Table 3: Comparison of the percentage of the causes for immigration among the people in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Marriage	64.28	69.56
Working	21.43	17.39
Others	14.29	13.05
Total	<u>100.0</u>	<u>100.0</u>

In both groups, marriage is the main cause for immigration. As shown in the Tanle, Group I has 64.28 percentage of immigration due to marriage, whereas Group II has 69.56 percentage for such a cause. In addition,

working and other causes account for migration, but their percentage is not so significant (see the Table).

Table 4: Showing the percentage of the householder's idea about emigration from their own respective villages in both groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	4.0	2.45
No	98.33	97.5
Do not know	2.67	-
Total	<u>100.0</u>	<u>100.0</u>

The response in the above Table shows that the majority of the householders in the two group do not have any ideas about moving away from their villages. There is a slightly higher percentage of those not having any ideas about emigration in Group II (97.5 per cent) than in Group I (93.33 per cent). Only 4 per cent of the householders in Group I show any tendency toward emigration and only 2.45 per cent in Group II show a similar tendency.

Table 5: Showing the percentage of families in the two groups whose members have moved to other villages or towns at the time of enquiries

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	12.6	18.3
No	87.4	81.7
Total	<u>100.0</u>	<u>100.0</u>

This Table shows that 12.6 per cent of the households in Group I have members who have moved out to other villages or towns, while in Group II there are 18.3 per cent of the households having members who have moved out.

Table 6: Showing the main causes for emigration among the members in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
For work	36.36	15.9
For higher education	6.06	1.4
For marriage	48.48	79.9
Others	9.09	2.9
Total	<u>100.0</u>	<u>100.0</u>

Work has caused 36.36 per cent of the members in Group I and 15.9 per cent of the members in Group II to move out of their villages. Higher education has attracted a very minimal percentage for emigration (i.e. 6.06 in Group I and 1.4 per cent in Group II respectively). However, marriage has formed a bulky percentage of emigration which turns out to be 48.48 in Group I and 79.7 in Group II respectively.

2.8 Domestic Possessions (Electricity)

Table 1: Shows the percentage of the people in both groups who possess radio sets

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	82.67	77.91
No	17.33	21.47
Total	100.0	100.0

The above Table shows that the majority of the informants in the two groups possess radio sets. Group I has a slightly higher percentage of those having radio sets (i.e. about 82.67 per cent) than does Group I (with 77.91 per cent). By comparison, the percentage of those not possessing radio sets is higher in Group II (21.47 per cent) than in Group I (17.33 per cent).

Table 2: Shows kinds of the radio sets (battery-operated or electricity operating) which the people in both groups possess

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Battery-Operating	39.0	74.3
Electricity-Operating	61.0	25.7
Total	100.0	100.0

Table 2 above shows that Group II has a higher percentage of the informants who possess radio sets operated with dry cells (battery) (i.e. 74.3 per cent) than does Group I (which has about 39 per cent). Conversely, Group I has a greater percentage of those possessing radio sets operated with electricity (i.e. 61 per cent) than does Group II (25.7 per cent).

Table 3: Shows the percentage of the people in both groups possessing soem other domestic electric appliances, such as television, electric fan, refrigerator, electric iron, water-pumping machine, sewing machine, etc

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Television set	32.67	4.29
Electric fan	79.0	21.04
Refrigerator	36.0	4.9
Electric Iron	54.67	11.0
Water-pumping machine	20.0	12.0
Sewing-machine	25.0	14.0
Total	<u>100.0</u>	<u>100.0</u>

Table 3 shows that Group I has a higher percentage (32.67 per cent) of people possessing television sets than does Group II (4.29 per cent), As regards other items, Group I also has a higher percentage than Group II (see the Table). This shows that the first electrified village has a higher standard of living than the later electrified village, especially with regard to such domestic possessions as television, a refrigerator, an electric iron, a water pumping machine, an electric fan and a sewing machine.

2.9 Religious beliefs and practices Impact

Table 1: Shows religious to which the informants adhere

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Buddhist	100	99.4
Christian	-	0.6
Total	<u>100</u>	<u>100</u>

Table 1 shows that between the two groups, there is no difference in religious beliefs and practices. In Group I, 100 per cent of the householders are Buddhists, whereas in Group II, 99.4 per cent are Buddhists and 0.6 per cent, Christians.

Table 2: Comparison of the percentage of frequency in performing religious activities at the Buddhist monasteries, especially on religious holy days by the householders in the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Frequently (on every religious holy day)	61.3	81.0
Not frequently	37.3	19.00
Never	<u>1.4</u>	<u>-</u>
Total	<u>100.0</u>	<u>100.0</u>

Table 2 shows that in Group II, 81 per cent of the householders engage themselves very frequently in religious activities by going to the Buddhist monastery on every religious holy day (Wan Phra). In Group I, 61.3 per cent of them do so.

Table 3: Showing the belief in the supernatural beings between the two groups

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	52.7	72.4
No	27.3	21.5
Not knowing	-	4.9
No answer	-	1.2
Total	<u>100.0</u>	<u>100.0</u>

This Table shows the percentage of the belief in superstition between the two groups. The reason for asking is to find out whether the primitive belief still prevails or whether the modern rational belief has been upheld by the people in the villages which have been electrified at different periods of time. Between the two groups, Group II shows a higher percentage with supernatural belief (i.e. 72.4 per cent), whereas Group I shows a lower percentage (52.7 per cent). The percentage of not believing in supernatural beings is 27.3 in Group I and 21.5 in Group II, respectively.

Table 4: Comparison of the percentage of help the householders in the two groups expect from various sources when they are in trouble

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
From supernatural beings	14.66	26.56
From government officials	54.67	69.94
Self-help	29.33	2.88
Not knowing	1.34	0.6
Total	<u>100.0</u>	<u>100.0</u>

In continuation of Table 3, we have in the Table 4 above that after electrification was introduced into the two villages at different periods of time, the informants showed greater belief in government aid even,

though they still believe in supernatural beings. Comparatively, Group I has a lower percentage of those expecting help from the government (69.94 per cent). But significantly enough, there is a greater percentage (29.33 per cent) of those helping themselves in Group I than there is in Group II (2.88 per cent). As regards the expectation of help from supernatural beings, Group II shows a greater percentage (i.e. 26.56 per cent), whereas Group I shows a smaller percentage (i.e. 14.66 per cent).

2.10 Participation in Political Activities

Table 1: Shows the percentage of the intention of the householders to exercise their franchise in general elections

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Yes	97.7	80.9
No	2.7	17.8
Not sure	0.6	2.3
Total	<u>100.0</u>	<u>100.0</u>

Table 1 above indicates that in both groups, the majority of the informants express their willingness to participate in political activities by exercising their franchise to elect their representatives to the Parliament. In both groups there is a slight difference in the percentage. Group I has 97.7 per cent of the informants who are willing to exercise their franchise, whereas Group II has 80.9 per cent.

Table 2: Shows conscientious concern of the householders in the two groups with unfair political practices engaged in by certain politicians, especially with regard to their offering incentives to those who vote for them at the time of election

<u>Response</u>	<u>Group I</u>	<u>Group II</u>
Wrong	88.0	83.4
Not wrong	6.7	10.4
Not knowing	5.3	6.1
Total	<u>100.0</u>	<u>100.0</u>

The study shows that the majority of the householders in both groups agree that offering incentives as a means to capture voting by the politicians at the time of election is conscientiously wrong; 88 per cent of the informants in Group I consider such a practice to be improper, whereas 83.4 per cent in Group II show a similar line of consideration.

Part III

Conclusion

From the results of the investigations which have been shown in various tables presented earlier on, we have arrived at the conclusion that the two groups show different tendencies toward varying aspects of life after their villages were electrified at different periods of time. Though the two groups are merely the selected samples for the study, the findings may be applied to all the villages in the Northeastern part of Thailand. This investigation mainly focused on the impact of rural electrification on education, family planning and other aspects of life of the householders in the two villages.

The question whether the large-scale investment was beneficial to society as a whole is widely debated. Rural electrification is only one of such large-scale investments. However, our findings regarding the impact of rural electrification on the socio-economic life of the rural villages have convinced us that this investment is not entirely fruitless, but it helps to a great extent in improving the lot of the villagers in many ways. The application of electricity for lighting the house, for example, though seemingly yielding a minimal benefit, is of great importance to rural folk. Some outside observers might not consider it to be significant, but it would be a great mistake to discount the psychic effect generated by the substitution of electric lights for the traditional lamps and candles.

It has been generally accepted that rural electrification has done a great deal to benefit the villagers as indicated in various tables earlier on. For example, the introduction of electricity to rural villages has helped in reducing the growth rate of population and in checking rural to urban migration. It also makes jobs available. To support this statement, and to determine the empirical facts, we have constructed sets of questionnaires on fertility, migration, employment, etc., and distributed them to the householders in two selected villages in Northeast Thailand, which was electrified at different periods of time. The results show that the rural electrification program has been substantially beneficial to the rural villages.

This factual evaluation of the rural electrification has induced the Provincial Electricity Authority to take various measures to step up the progress of electrification. The combination of short-term and long-term benefits appears too great to permit the program to continue at its present pace. Without acceleration the provincial Electricity Authority's obligation to provide electric services will not be fully met, nor will it be likely to be met within the foreseeable future.

Consequently, the researcher has no opinion against such a large-scale investment as rural electrification. She agrees with the Provincial Electricity Authority that rural electrification is part of overall rural development. This means that other rural development programs should not be minimized and that they should be given equal importance. Other rural development programs, as envisaged in this study, include:

- All types of irrigation programs, as well as domestic water programs.
- A program on cultivators' counselling with respect to land preparation and land-use.
- Normal agricultural extensions including modernization of agricultural techniques and new crop varieties.
- A program extending credit facilities;
- Regularization of land ownership laws.
- Provisions for rationalizing the price of inputs (e.g. fertilizer) and outputs (e.g. rice).
- Program for the extension of an all-embracing infrastructure.

Socio-economic benefits are not only derived from electrification but also from the above-cited programs which must be jointly carried out.

The role of existing mass media in various forms should be expanded to provide out-of-school education. Radio stations all over the country must be encouraged to broadcast informative programs to broaden the vista of knowledge of the population. The types of programs to be emphasized include those relating to occupations in rural areas, those which can influence people to be good citizens, and those which promote understanding in a democratic system. In this way, the socio-economic progress would be enhanced, thereby improving the standard of living of the people in rural areas as envisaged by the government policy makers and as expected by the rural people themselves.

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SEAPRAP

THE SOUTHEAST ASIA POPULATION RESEARCH AWARDS PROGRAM

PROGRAM OBJECTIVES

- * To strengthen the research capabilities of young Southeast Asian social scientists, and to provide them with technical support and guidance if required.
- * To increase the quantity and quality of social science research on population problems in Southeast Asia.
- * To facilitate the flow of information about population research developed in the program as well as its implications for policy and planning among researchers in the region, and between researchers, government planners and policy makers.

ILLUSTRATIVE RESEARCH AREAS

The range of the research areas include a wide variety of research problems relating to population, but excludes reproductive biology. The following are some examples of research areas that could fall within the general focus of the Program:

- * Factors contributing to or related to fertility regulation and family planning programs; familial, psychological, social, political and economic effects of family planning and contraception.
- * Antecedents, processes, and consequences (demographic, cultural, social, psychological, political, economic) of population structure, distribution, growth and change.
- * Family structure, sexual behaviour and the relationship between child-bearing patterns and child development.
- * Inter-relationships between population variables and the process of social and economic development (housing, education, health, quality of the environment, etc).
- * Population policy, including the interaction of population variables and economic policies, policy implications of population distribution and movement with reference to both urban and rural settings, and the interaction of population variables and law.
- * Evaluation of on-going population education programs and/or development of knowledge-based population education program.

- * Incentive schemes — infrastructures, opportunities; overall economic and social development programs.

SELECTION CRITERIA

Selection will be made by a Program Committee of distinguished Southeast Asian scholars in the social sciences and population. The following factors will be considered in evaluating research proposals:

1. relevance of the proposed research to current issues of population in the particular countries of Southeast Asia;
2. its potential contribution to policy formation, program implementation, and problem solving;
3. adequacy of research design, including problem definition, method of procedure, proposed mode of analysis, and knowledge of literature;
4. feasibility of the project, including time requirement; budget; and availability, accessibility, and reliability of data;
5. Applicant's potential for further development.

DURATION AND AMOUNT OF AWARDS

Research awards will be made for a period of up to one year. In exceptional cases, requests for limited extension may be considered. The amount of an award will depend on location, type and size of the project, but the maximum should not exceed US\$7,500.

QUALIFICATIONS OF APPLICANTS

The Program is open to nationals of the following countries: Burma, Indonesia, Kampuchea, Laos, Malaysia, Philippines, Singapore, Thailand and Vietnam. Particular emphasis will be placed on attracting young social scientists in provincial areas.

Applications are invited from the following:

- * Graduate students in thesis programs
- * Faculty members
- * Staff members in appropriate governmental and other organizations.

Full-time commitment is preferable but applicants must at least be able to devote a substantial part of their time to the research project. Advisers may be provided, depending on the needs of applicants.