

A PLAN AND METHODOLOGY  
FOR IMPACT EVALUATION OF THE  
NATIONAL RURAL DEVELOPMENT PROGRAM  
IN THAILAND

Warren Exo and Susan Exo

June 18, 1987

MEMORANDUM

June 18, 1987

TO: Dr. Sumet Tantivejkul, Assistant Secretary General, NESDB

THRU: Khun Pairoj Suchinda, Director, Rural Development Division

FROM: Warren Exo, Senior Advisor, RD/NE Project *W. Exo*

SUBJECT: A Plan and Methodology for Impact Evaluation in NRDP

Attached is a revised version of our report on impact evaluation, which we originally submitted on May 1, 1987. It reflects further work we have done and suggestions made by Khun Mana Siphikornkul in a meeting with him earlier this week.

I would like to make a few comments about this revised version of the report. First of all, I want to emphasize again that in accordance with our work plan, this report is a "plan and methodology." It is not an impact evaluation. It is a proposed process by which NRDC would undertake an impact evaluation study using its own resources. We have, however, made some requests for data to IPIED which could be used in the first steps of making an actual evaluation.

I would like particularly to highlight one addition to the report which was suggested by Khun Mana. We have added at the end an example of how the results of an impact evaluation study would be described, using the methodology we propose. We hope this will help in your understanding of how the process works.

I would like to stress one other point. In developing this methodology we have formulated the technical procedures so that they may be carried out using data that can be generated from the present NRD system. While it may be true that new types or categories of data could possibly serve to make the impact measurements more precise, we chose to rely to the maximum extent on data which is now collected (e.g., NRD 2C), or which can be derived from existing NRD system.

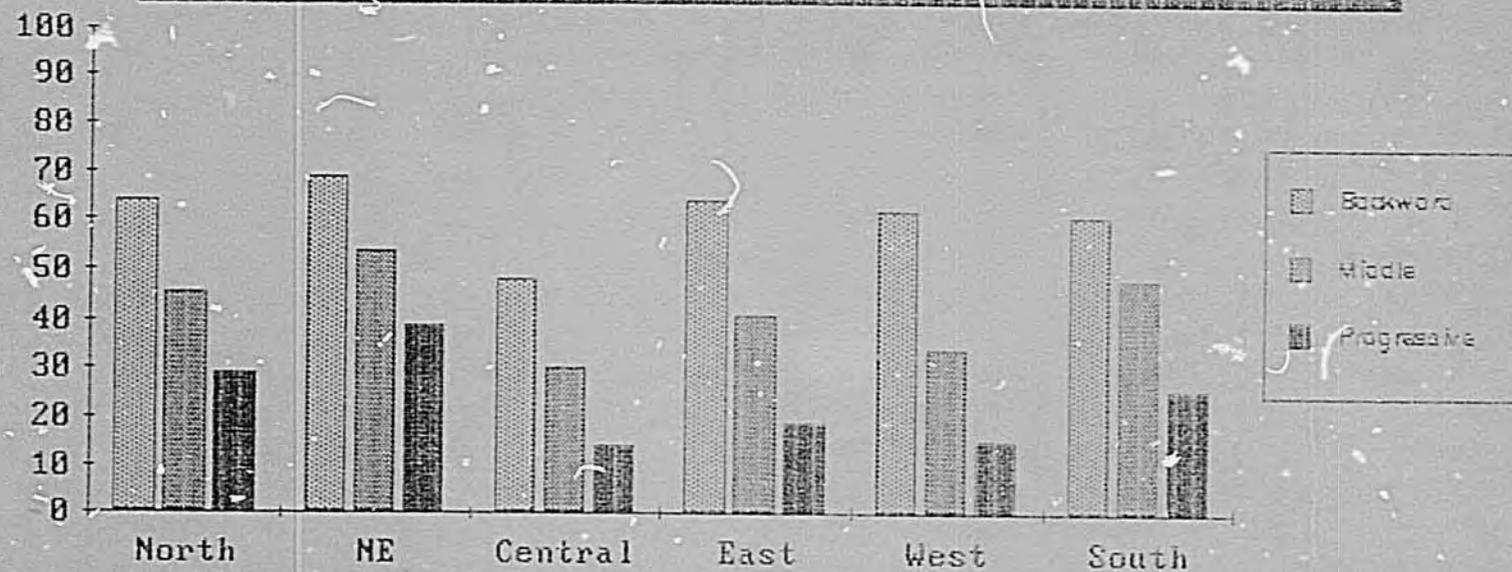
We hope with this new report to elicit your comments and suggestions. The report represents our best professional judgment, based on our knowledge and our understanding of the NRD information system and the data generated by it, of how a coherent, plausible evaluation of the impact of the NRD Program can be carried out. We recognize, of course, that you and your staff must decide how you wish to proceed, and whether some aspects of what we propose may need to be modified. We believe, nevertheless, that this is a practical methodology which will enable you and other senior officials to get the policy-oriented information which comes from impact evaluation.

We look forward to discussing the report with you and responding to any questions you may have.

# RURAL VILLAGE DEVELOPMENT IN THAILAND IN 1986

## By Overall Village Development Level and Region

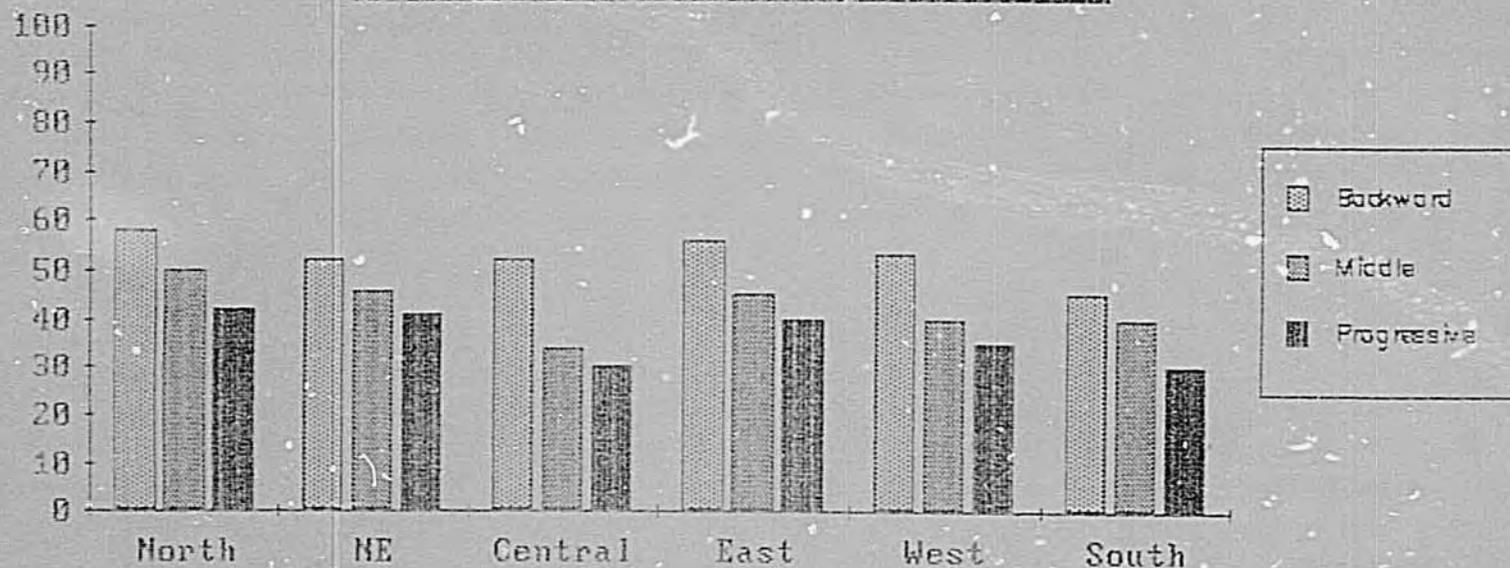
Percent of Households Without Adequate Drinking Water All Year



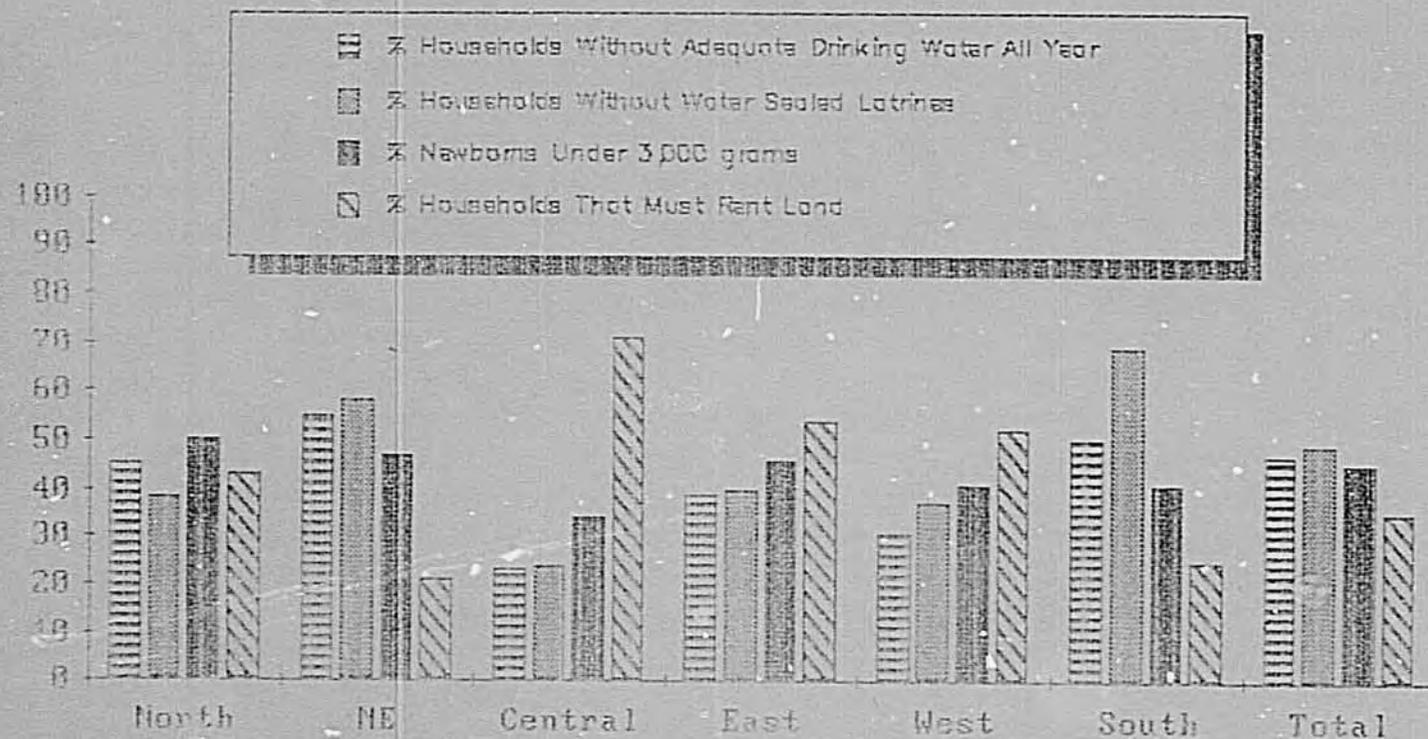
# RURAL VILLAGE DEVELOPMENT IN THAILAND IN 1986

## By Overall Village Development Level and Region

Percent of Newborns Under 3,000 grams



# RURAL VILLAGE DEVELOPMENT IN THAILAND IN 1986

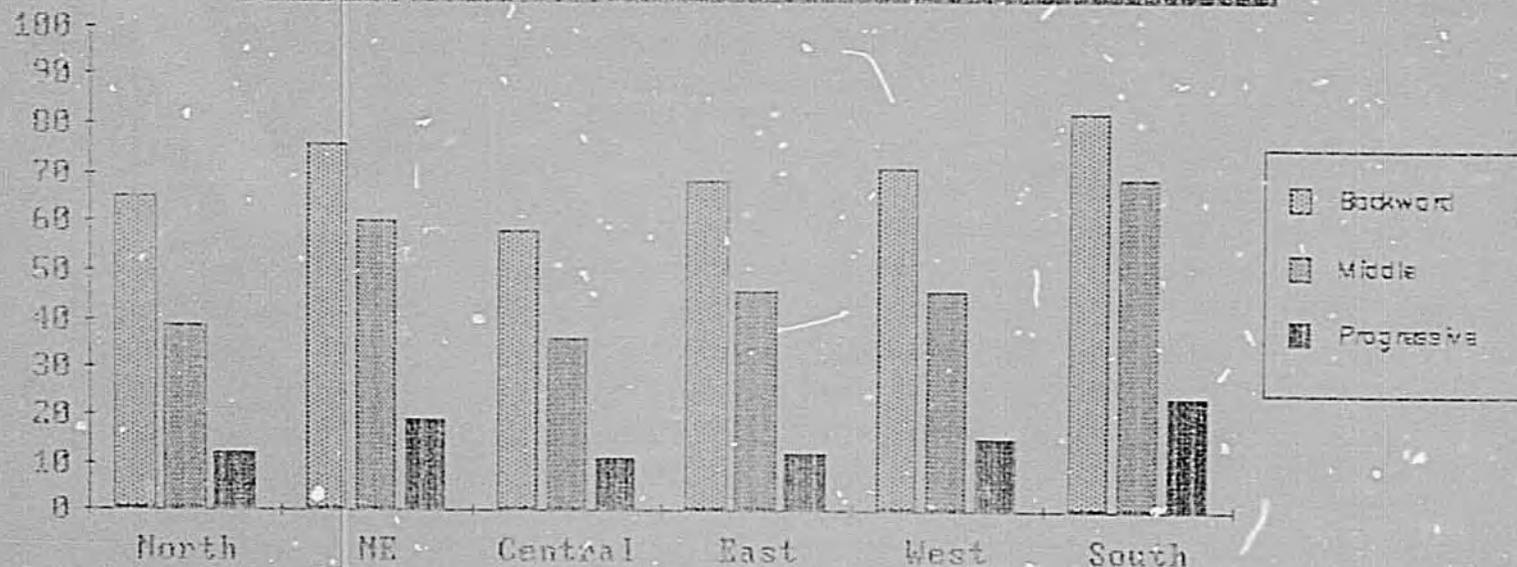


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# RURAL VILLAGE DEVELOPMENT IN THAILAND IN 1986

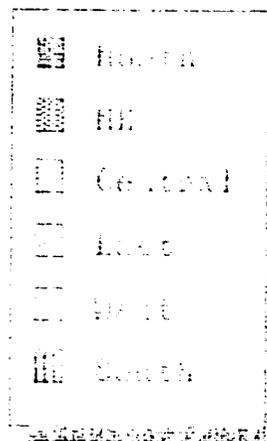
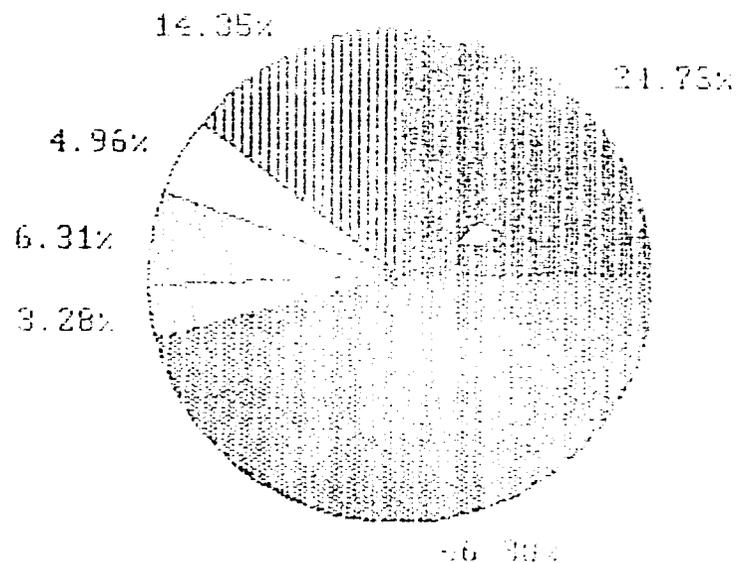
## By Overall Village Development Level and Region

Percent of Households Without Water-sealed Latrines



# RURAL DEVELOPMENT IN THAILAND IN 1986

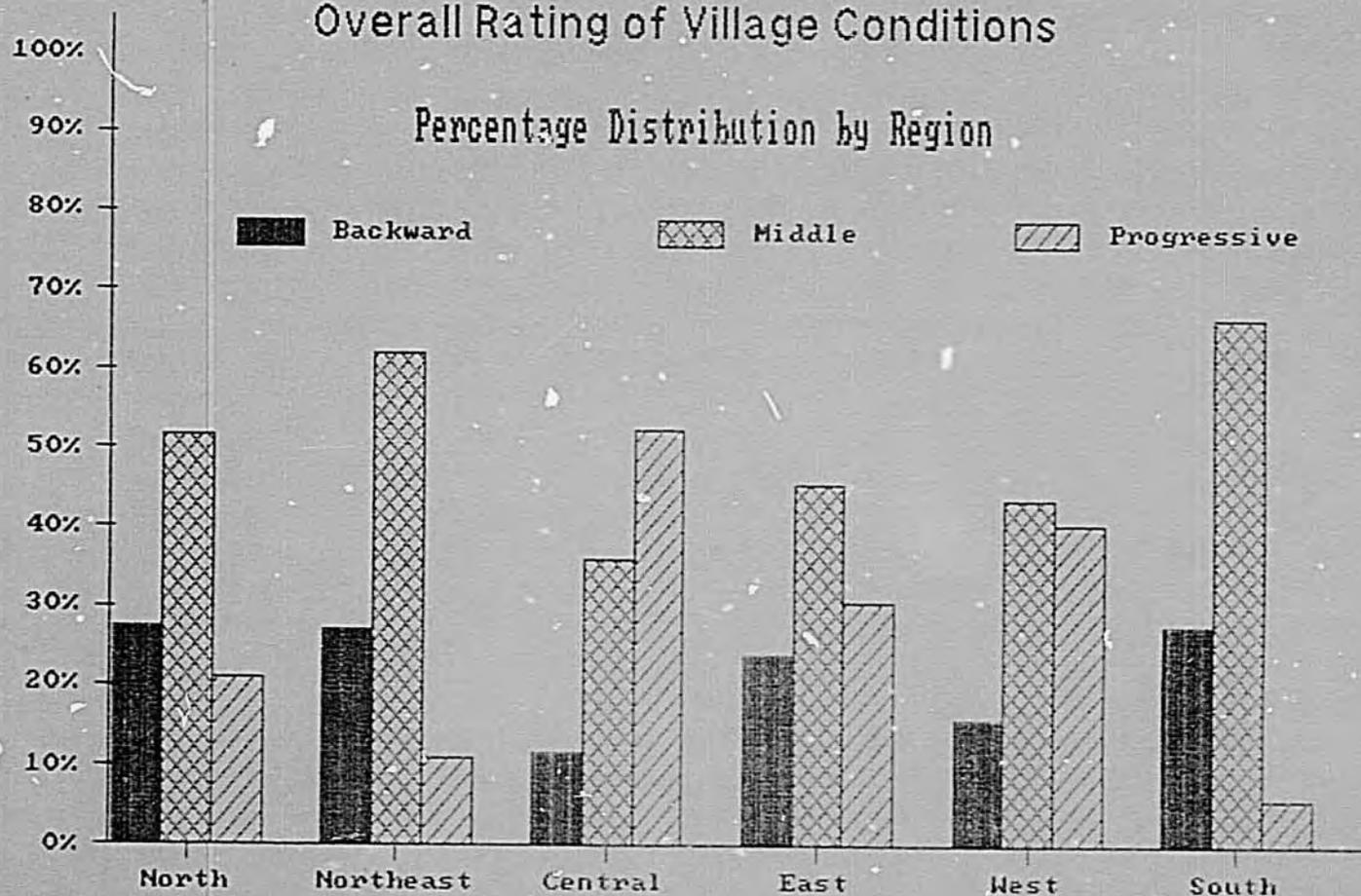
National  
Distribution  
of  
Households  
Without  
Adequate  
Drinking  
Water All  
Year



# Villages In Thailand in 1986

## Overall Rating of Village Conditions

### Percentage Distribution by Region



## MACRO-PLANNING INFORMATION FOR NRDP

### Four Main Issues :

1. Major Rural Development Problems.
2. What Programs/Projects to mobilize to address these problems.
3. How to distribute resources among Programs/Projects.
4. What basis for allocating resources to geographic areas.

### Purpose of Our Study

1. To show how these models can be developed.
2. Illustrate their presentation with actual and projected data.

### Contents of Study

#### Three categories of Macro-Planning information :

1. Self-Contained Models -- Where the development problem or need can be directly correlated with projects. Can show how a given investment in specific projects will reduce the problem. Examples :

Adequate Drinking Water

Water-Sealed Latrines

Availability of Electricity

Access Roads

2. Inferential Models -- Where it is possible to define the incidence and geographic distribution of development problem but where the probable effects of projects can only be assumed, or inferred. Examples :

Newborn Death Rates

Newborn Birth Weights

Inadequate Agricultural Water

Poor Soil Conditions

3. Descriptive Models -- In this category, the descriptor variables are used merely to measure the general or overall well being of a village, amphur, changwat or region. Examples :

Motorcycle Ownership

Households that must rent land

Household Roof Quality

Persons completing compulsory education

For each category or type of model the macro-planning information will show the "big-picture" view of development problems, by major geographic region. However, the data base methodology will also allow this to be presented by changwat or amphur, for purposes of comparative analysis. This information will give policy-makers and project managers a better macro-picture of the "development condition" of the country.

By monitoring changes in this "big-picture" information over several years, a better perspective can be given of the rate of change in the well-being of rural households.

## SUMMARY OF IMPACT EVALUATION PLAN

### PURPOSE AND USES OF IMPACT EVALUATION:

The purpose of this report is to present a plan and methodology for conducting impact evaluation studies in the National Rural Development Program. Since impact evaluation is concerned with the overall results of a program--in this case the NRD Program--the main users of the evaluation are intended to be those officials who are involved in establishing the policies for the program. Under the NRD Program, this includes the NRD Committee, and the principal staff agencies who serve the committee--most importantly the NRDDC. The impact evaluation will provide answers to several basic policy questions including:

1. To what degree has the well being of village households improved?
2. In what categories of well-being did the most significant improvement occur?
3. In what categories of well-being did the least significant improvement (or the most significant regression) occur?
4. To what degree did change in village and/or household well-being result from the NRD Program?
5. What factors appear to have contributed most to NRD Program projects which produced significant impacts?

### INFORMATION REQUIREMENTS FOR IMPACT EVALUATION:

1. A set of baseline data which will allow measurement of specific or overall change in the social, economic and/or environmental conditions of a village.
2. A measurable set of pre-existing conditions relative to the project or program which can be compared with post-project conditions.
3. An estimate, or a description, of the anticipated impacts of the project or program in economic, social or environmental terms.

### IMPACT ACTIVITIES:

Four activities are included in the proposal; although none of the activities by itself is an absolute descriptor of impact, together they provide a profile of development change in the country, some of which would be plausible to attribute to the NRD Program.

1. A description of change in rural conditions.

Population for Study: 12,500 Poverty Villages, 1981, 1983, and 1986; and all 55,000 rural villages, 1983 and 1986.

Data Requirements and Sources: Continuous variables from the Village Survey (NRD 2C). See Appendix A.

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Methodology: Tables and Graphs which show change over time. See Appendices B and C.

2. A description of the outputs or achievements of the projects in the NRD Program.

Population for Study: All projects of the NRD Program.

Data Requirements and Sources: Project specific data including sites, budgets and target and actual achievements. Data to come from the Changwat Plans.

Methodology: Tables which show project achievements over time and which link projects and expenditures with change in descriptor variables over time.

3. A comparison of the change in conditions in villages receiving NRD projects with villages which did not receive projects.

Population for Study: All 55,000 rural villages, grouped according to projects received.

Data Requirements and Sources: Continuous variables from the Village Survey (NRD 2C) and village project identification from the Changwat Plans.

Methodology: Tables and Graphs which compare villages with and without projects. See Appendix E.

4. Field studies to observe changes in depth and to investigate special situations observed in the statistical analysis.

Population for Study: To be defined by the statistical study, but focus on villages which show dramatic changes.

Data Requirements and Sources: Village Survey (NRD 2C) and village project data.

Methodology: On site field investigation by multidisciplinary teams.

#### EXAMPLE:

In order to illustrate the evaluation process, an example is presented of what the results might show from each of the four component activities, and how they fit together to provide an evaluation of the impact of the NRD Program. In this example, the health sector has been selected to illustrate the kind of information which can be derived from this evaluation methodology, and how it would be used. See page 23.

#### STEPS TO BE TAKEN TO COMPLETE THE EVALUATION:

A list of steps that must be taken before the evaluation can proceed is presented. See page 28.

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## 1 INTRODUCTION

*What's 20 done  
with this report  
after its accepted/revised  
by the proj. committee?  
handbook?  
training?*

The purpose of this report is to present a plan and methodology for conducting impact evaluation studies in the National Rural Development Program. The methodology proposed includes a set of four activities which can be used both to examine the progress of rural development in Thailand during the Fifth Plan and to set up a system to evaluate progress under the Sixth Plan. These four activities would: describe changes in rural conditions; identify the outputs or achievements of projects in the NRD Program; compare the change in conditions of rural villages which received NRD projects with those which did not; and utilize field studies to investigate special situations highlighted by the statistical analyses.

These activities are seen as an overall process to determine how the NRD program has affected the lives of rural people, and which parts of the program have been most effective in doing that. Each of the component activities serves a different purpose, and each is necessary in order to complete the overall impact evaluation. The technical procedures included in this methodology were developed so that they may be carried out using data that can be generated using the present NRD system.

*meaning  
present (84)  
indicators?*

## 2 DEFINITION

### 2.1 What Is Impact Evaluation?

Evaluation is a process for determining to what degree the results (whether intentional or unintentional) of a given effort have achieved the desired or target objectives. Evaluation, in other words, is a process of measuring the effectiveness of a project.

In measuring effectiveness, the first level of evaluation is the immediate result of the project. The results or effects of a project are measured against a set of pre-project conditions.

But there is another broader level of evaluation, which is the focus of this paper, and that is measuring impacts. This means determining to what extent project effects had the anticipated impact on the community. Impact evaluation is used to determine what changes a program caused in village conditions and to provide program feedback to project planners and managers. Thus, it is important to identify and assimilate both positive and negative results of impact evaluations for use in future policy and planning efforts.

## 2.2 Uses and Users of Impact Evaluation

Since impact evaluation is concerned with the overall results of a program--in this case the NRD Program--the main users of the evaluation are those officials who are involved in establishing the policies for the program. Under the NRD Program, this includes the NRD Committee, and the principal staff agencies who serve the committee--most importantly the NRDC. These bodies are concerned with knowing the answers to the questions which the impact evaluation is designed to address. These answers, produced by the methodology which is described in this report, will enable those policy officials and staff agencies to determine how effective the program has been in achieving its objectives.

## 2.3 Questions To Be Answered In NRDP Impact Evaluation

The definition of impact evaluation noted above can be translated from theory to practical use in the NRD Program by raising several basic questions which should be answered in an evaluation of the impact of the NRD Program. The key questions are:

1. To what degree has the well being of village households improved?
2. In what categories of well-being did the most significant improvement occur?

3. In what categories of well-being did the least significant improvement (or the most significant regression) occur?
4. To what degree did change in village and/or household well-being result from the NRD Program?
5. What factors appear to have contributed most to NRD Program projects which produced significant impacts?

*Comparable  
pre-post  
data needed  
for comparison  
they should  
show in which  
areas or impact  
data should  
be gathered?*

These questions can serve to evaluate the impacts of the NRD Program in both the Fifth and Sixth Plans by directing analysis to two populations:

1. Those villages targeted for poverty alleviation interventions during the Fifth Plan.
2. Rural villages generally, across the country during the Sixth Plan.

### 3 INFORMATION REQUIREMENTS FOR IMPACT EVALUATION

To effectively answer these questions several pieces of information are required. These include:

1. A set of baseline data which will allow measurement of specific or overall change in the social, economic and/or environmental conditions of a village. These baseline data should facilitate a measurement of change in the well being of village households. They should, for example, show what change is occurring in the level of health, income, education (literacy)--general well being.
2. A measurable set of pre-existing conditions relative to the project or program which can be compared with post-project conditions. These precondition measures should facilitate the investigation of a causal relationship between what is being measured with the results of a project aimed at improving that condition. For example, in order to know whether the introduction of new seedling varieties or application of manure resulted in an increase in rice yields, it is necessary to have preproject rice yield to compare with post-project results.

B

3. An estimate, or a description, of the anticipated impacts of the project or program in economic, social or environmental terms. As much as possible, these should be quantifiable so that the impacts can be related to the costs of the project. Where they cannot be quantified, proxy measures can sometimes be used.

#### 4 PROBLEMS IN MEASURING IMPACT

##### 4.1 General Difficulties In Measuring Impact

It is difficult to evaluate impacts. Often the impacts may be quite intangible, difficult to estimate in advance, and equally difficult to measure after the project is completed. In addition, the true impacts of a project or program may not occur for many years after the project intervention and thus not be visible when the impact evaluation is made. Finally, there are many outside factors which affect change in village conditions. For example, farm-gate commodity prices and unusual weather conditions can both have a major impact on village conditions, which may blur the cause-impact relationship of one particular program or set of projects. All of these factors make evaluation a difficult task which must be governed by very precise control techniques. However, there are two additional factors which make impact evaluation of the NRD Program even more difficult.

#### 4.2 The Complexity of the NRD Program

The NRD Program is a program to provide integrated rural development based on the realization that several factors of rural development are interrelated. It is an extremely varied and complex program whose projects range from building water jars to vaccinating children against measles to teaching people to read and write. While an integrated approach provides a logical and appropriate strategy for rural development, it also makes impact evaluation extremely difficult at the project level. For example, a project to teach people to read and write may not only have the direct effect of raising their literacy level; it may also indirectly have an impact on their health. Given this complexity, it is almost imperative that the impact of the NRD Program be evaluated as a program, in addition to individual projects. In this way, the evaluation can be used to complement immediate project effect evaluation which focuses on individual projects.

#### 4.3 Other Rural Development Projects

A further confounding factor in the evaluation of NRD Program impact is the fact that it operates in villages where other nation-wide or local programs to enhance rural development (REGP, NRD) may also be occurring. Therefore, it is quite

difficult to associate change in a village with the impacts of one program without having information about what else may have occurred in the village.

These kinds of complicating factors have been anticipated by experts in the field of evaluation of rural development projects. In fact, the World Bank in its Handbook on Monitoring and Evaluation of Agricultural and Rural Development Projects notes:

"Thus, it is usually impossible to establish, with full rigor, the causal chains that it is the job of evaluators to find. They will normally have to be satisfied with showing that it is 'plausible' that the project has had the impact expected, and that there have been no substantial adverse side effects to offset its benefits. The question then is: What is to be regarded as 'plausible'?"

## 5 PROPOSALS

### 5.1 Framework for Evaluation of Impact

The main questions to be answered in an evaluation of the impact of the NRD Program have been noted above. The difficulty of measuring impact has also been noted. This section describes an evaluation plan which will provide "plausible" answers to the basic questions, while also recognizing the limitations noted. Four activities are included in the proposal; although none of the activities by itself is an absolute descriptor of impact.

together they provide a profile of development change in the country, some of which would be plausible to attribute to the NRD Program. These activities are:

1. A description of change in rural conditions
2. A description of the outputs or achievements of the projects in the NRD Program
3. A comparison of the change in conditions in villages receiving NRD projects with villages which did not receive projects
4. Field studies to observe changes in depth and to investigate special situations observed in the statistical analysis.

Each of these four activities is designed to serve a particular purpose, as part of the overall objective of determining how the NRD program has affected the lives of rural people, and which of the component parts of the program has been most effective in doing that. Each of the component activities serves a different purpose, and each is necessary in order to complete the overall impact evaluation. Moreover, there are not present activities which can effectively substitute for those described in this methodology. Some activities presently planned or carried out could provide some of the inputs for the activities in this proposal. Where this is so, they should be utilized if they will provide the information which is needed in the use of this methodology.

After carrying out these activities, the NRDC would be able to describe to the National Rural Development Committee:

1. What has been the extent, makeup and distribution of changes in rural conditions.
2. What have been the outputs from projects in the NRD program which were intended to influence these changes.
3. To what extent the changes in rural conditions occurred in villages which received NRD projects as compared to those which did not.
4. How these changes have been observed and verified by actual field studies.

These evaluation activities do not attempt to group all measures or all villages in a single scoring system. One impact evaluation which attempted to look at rural development progress with such a scoring system was developed by Dr. Thanet Norabhoompipat at IPIED, Thammasat University. The studies suggested here are meant to supplement this scoring system, not to replace it, or to comment on it's usefulness.

## 5.2 Change in Rural Conditions

### 5.2.1 Description of Change in Rural Conditions

In this section a methodology is proposed which will provide a description of the change in conditions in rural villages in Thailand between 1981, 1983, and 1986, for a selected group of villages, and between 1983 and 1986 for all villages. Although it is not possible to make direct causal inferences from this description for reasons noted above, the description is valuable in defining need for development in Thailand and the changing

character of that need over time. This changing need provides the context for the NRD Program. Therefore, monitoring the changing level of need is critical to the Program and provides one of the only ways NRDC can judge whether its programs may be improving the well-being of the rural population of Thailand.

### 5.2.2 Population for Study

In 1981, an extensive survey was developed to collect data on 12,500 rural villages in Thailand designated as poverty villages and therefore as participants in the Rural Poverty Alleviation Program. In 1983 the survey was altered somewhat and the target population was expanded to include all 55,000 rural villages in Thailand. In 1986, the village survey was again altered, and the population again included all rural villages. Therefore, from the results of these surveys, it should be possible to measure change in the original poverty villages between 1981, 1983, and 1986; and in all rural villages between 1983 and 1986.

### 5.2.3 Data Requirements and Sources

The NRD Program in conjunction with IPIED at Thammasat University has developed indicators which categorize villages by level of development need. In 1981 and 1983, these indicators

consisted of 34 variables. For each variable a village was given a \*, \*\*, or \*\*\* rating, depending on the score of the particular variable (\*\*\* being the most developed). These \* ratings were to be used in the allocation of projects to ensure that projects were given to the most needy villages.

While it is not necessary here to discuss the value of particular indicators as measures of development need, it is important to note why this indicator system cannot be used in impact evaluation and, therefore, why it is not included in this proposal. In essence, the indicator system does not provide a fine enough distinction to accurately and acutely measure change in rural conditions. For example, if 10 percent of the households in a village in 1983 had water-sealed latrines, that village would have received a \* rating for the indicator on hygiene (the \* rating going to villages with fewer than half the households with water-sealed latrines). If, however, that village between 1983 and 1986, with the help of a rural development project, increased the number of households with water-sealed latrines to 45 percent, the village would show no change under the \* system because it would still have fewer than half the households with water-sealed latrines and would still receive a \* rating on the hygiene indicator. Thus, this system would not reveal actual progress being made.

To more acutely measure change in rural conditions, for this study methodology, a set of descriptors was chosen to be measured as continuous variables. They were chosen as a suggested set of important variables which define conditions in a rural village which can be quantified easily from data obtained in 1986 from the Village Survey (NRD 2C). They are not necessarily meant to form an all inclusive list of variables important to the NRD Program. At some point in the future, it may be desirable or necessary to collect new data for variables which cannot be derived from the present NRD 2C. The units of measurement vary; some measure change among villages, others measure households, or persons. In most cases the measure would be a percentage, however, numbers and average are also used. These variables cover a wide range of descriptors and include measures in infrastructure, water resources, health, production/income, and education/knowledge. The 27 variables suggested for measuring change are listed in Appendix A.

Since changes have been made in the village survey in each year it was taken, it may be that exactly comparable data are not presently available for all years. In cases where comparable data are not available, specific measures are still included to reflect what should be used as baseline data for the Sixth Plan against which change in rural conditions can be measured in the future.

#### 5.2.4 Methodology

For National consideration, it is suggested that change be measured and compared by region. However, the basic methodology could easily be modified to also compare progress by changwat. It is suggested that distinctions at levels lower than the changwat would not be meaningful for evaluation at the national level. However, there is no reason why this methodology could not be used by the changwat themselves to compare change in amphur or tambon.

Tables which illustrate the methodology for using the descriptors for making comparisons are included in Appendix B. In the actual study there would be one table for each descriptor. Appendix B contains sample tables for a few of the descriptors. In the tables the original poverty villages are aggregated by Region for 1981. For both 1983 and 1986, the poverty villages are again included separately in order to continue to measure change in these villages and to compare with change in other villages. The villages in a region are also measured as a total group so that change in all rural villages can be noted between 1983 and 1986, regardless of prior participation in the RPAP.

In many instances, graphic illustrations can be a more effective way to convey facts, especially when change over time is being measured. Appendix C includes a set of graphs based on

fictitious data which illustrate, for a few of the variables, the way in which data from this analysis could be presented. These graphs were produced with microcomputer software and could be easily duplicated with real data when it is available.

### 5.3 Achievements of Projects in the NRD Program

#### 5.3.1 Project Outputs

Just as important to the evaluation of the impact of the NRD Program as the measure of change in rural conditions, are the actual achievements of projects within the Program. How many fish ponds were built? How many old timber bridges were replaced? How many children were vaccinated against measles? These are all questions which NRDC should be able to answer to describe its past programmatic activities, and to provide a basis to explain progress in rural conditions.

#### 5.3.2 Population for Study

The population for this component would be all projects and subprojects (or activities) of the NRD Program. For historical records, the population would include the 33 projects of the Rural Poverty Alleviation Program. From 1986 onward, as the Sixth Plan began and the NRD Program was expanded, the population

would include all 156 NRD Program projects in the Ministries of Health, Agriculture and Cooperatives, Education, and Interior.

### 5.3.3 Data Requirements and Sources

The data necessary to complete analysis in this area would include information about projects. Measures would consist of the following:

1. Project Name
2. Activity Name
3. Problem or need to be addressed by the project (e.g. clean drinking water all year, water-sealed latrines, literacy, etc.)
4. Target area (e.g. Infrastructure, Water, Production/Income, Health, Education/Knowledge)
5. Number of Sites
6. Number of Units Affected (Villages, Households, Persons)
7. Site Budget
8. Total Project Budget
9. Target Achievements
10. Actual Achievements

This data could be obtained in one of two ways. First, it could be taken from the Changwat Plans (NRD 5) and aggregated by regional and national levels. This approach would retain the village identification with projects, which will be necessary for the next activity. Second, the departments offering NRD Program

projects could be asked to supply this information for each project. This second method would be far easier, but would not provide the village detail necessary to complete the next activity--comparing villages with and without project interventions.

#### 5.3.4 Methodology

Tables which illustrate the methodology for portraying and using the data and for making analyses are included in Appendix D. The first table is a simple list of projects and activities which would define at any point in time what has been achieved, what is going on currently, or what is projected for the future. The other tables are designed to link the projects and activities with the change in descriptors outlined in the section above.

These tables attempt to answer the following questions:

1. Within the three year time period between 1983 and 1986, what resources were used to achieve what targets (villages, households, persons)?
2. Were resources directed to areas of greatest need?
3. What was the effectiveness or efficiency in the use of resources, and how did the effectiveness vary by region?

## 5.4 Examination of Project Interventions

### 5.4.1 Villages With and Without Project Interventions

In this section a methodology is proposed to compare villages with and without NRD Program projects. The difficulty in assigning cause and effect in impact evaluation has been noted above. The isolation of the changes in villages with and without project interventions proposed in this section is an important step in the evaluation of the impact of the NRD Program. However, it must be emphasized that the variety of factors influencing village development in Thailand and the complexity of the NRD Program (with its varied and simultaneous project interventions) prevent direct conclusions of impact to be drawn about any one project. Nevertheless, this comparison is important to further research (through the field investigations proposed in the next section) which may help to isolate factors which have impact on village development and the role of the NRD Program in that development.

### 5.4.2 Population for Study

The population considered in this proposed study would include all 55,000 rural villages in Thailand. However, for purposes of analysis, villages would be grouped according to projects that they had received. Two groups would be formed for

each project examined: villages which received specific projects between 1983 and 1986 and villages which were similar in basic characteristics in 1983 but which did not receive that specific project.

#### 5.4.3 Data Requirements and Sources

To complete this activity, two sets of data will be required. First, some methodology will have to be devised to identify villages that received various project interventions. This identification could be made from the Changwat Plans (NRD 5) which lists all projects by village sites. Data files exist now for some of the projects in some of the changwats. Alternatively, departments could identify villages where projects have been placed and a village project file could be constructed. The second data set for this activity would be taken from the village survey (NRD 2C). The identification of similar villages in 1983 and in the 1986 comparison of villages with and without project intervention would be accomplished by the using the descriptor variables listed in Appendix A.

#### 5.4.4 Methodology

The methodology for this study involves a comparison using the descriptor variables listed in Appendix A of villages receiving projects with villages which did not receive projects between 1983 and 1986. For this National impact investigation it is suggested that data be aggregated by region or examined for the nation as a whole. This methodology will be limited to projects in the RPAP since the expansion of the NRD Program did not occur until 1986. First, all villages with a certain project would be profiled for village conditions in 1983 measured by the relevant descriptor variables. Next, a group of villages which matched those conditions in 1983, but which did not receive the particular project would be identified. Finally, for both of these two groups of villages, change in the relevant descriptor variables between 1983 and 1986 would be compared. In making this comparison, projects should not be considered which are distributed widely throughout the country and occur in nearly all tambon.

In addition to comparison of villages with and without specific project interventions, all villages receiving one or more project could be matched with villages which did not receive any projects. Change in all descriptor variables between 1983 and 1986 could then be compared for these two groups of villages.

Although this methodology could be used for any project under the Program, tables which illustrate output for two specific projects and for the overall comparison of villages with and without projects are included in Appendix E.

## 5.5 Case Studies

### 5.5.1 Field Investigation of Village impact

The statistical or numerical examination described above will provide a preliminary macro level analysis of the progress of rural development in Thailand. It will also provide some insight into the impact of the NRD Program on rural development progress. However, to understand in more depth the impact of the NRD Program on rural development progress, it will be necessary to make detailed field examinations and verification of the conditions revealed in the statistical evaluation. This type of field examination will serve two important purposes:

1. Field investigation will verify the findings of the statistical study. Most likely, the statistical examination will reveal areas where progress has been dramatic and other areas where regression in conditions appears to have occurred. It is critical to the continued viability of the NRD Program that both positive and negative findings be verified, examined in detail as to their accuracy and validity, and conclusions drawn as to why these changes occurred. It may be that the statistical findings are in error and have not accurately reflected change in village conditions as a result of NRD Program projects. Or it may be that conditions in villages have changed as a result of other project

interventions, other economic phenomenon, or extreme weather conditions. It will be critical to the measurement of impact to try to identify some of the other causal factors and the degree to which they influenced the change in village conditions.

2. Verification of the statistical findings will serve as a check on the validity of the data collection instruments, and perhaps suggest changes in these instruments and in survey methods which could help to improve accuracy in the future.

#### 5.5.2 Population

The population for this study would be defined by the statistical study. Villages should be selected for this field study only when the statistics revealed in the three other studies described above have suggested results which deserve further in-depth investigation. For example, villages which have shown dramatic progress in development and villages which have shown some regression would most likely be key villages to study in the field. Projects which seem to be associated with dramatic progress, and likewise, projects which coincide with regression in conditions, should also be studied in-depth at the village level.

### 5.5.3 Data Requirements and Sources

The data to be used in the field investigations would be determined after the statistical analysis, in order to determine patterns to be examined in depth. Most likely, the field study team would want to examine and verify both village survey data and project data during the field investigation. Care should be taken to develop standard data collection instruments in order to record factors which caused variations, so that each field study gathered appropriate and comparable information to be fed back into the evaluation process.

### 5.5.4 Methodology

Field investigations would best be carried out by multidisciplinary teams with expertise in identifying factors which influence rural development progress. Sites for field study would be suggested by the statistical study. The data collected from the field investigation should be systematically tabulated and analyzed. This is essential so that conclusions can be drawn from the field study about the accuracy and validity of the other evaluation components.

*Auth. Perry*

## 5.6 Limitations of the Study

Ideally, one would like to measure the development change in rural conditions and attribute that change to the project interventions. Because of the difficulties and obstacles which exist in drawing direct causal relationships between development conditions and specific project interventions, any study of impact evaluation has some inherent limitations. In the case of the NRD Program many factors, which have been noted above, will blur a direct connection. The methodology outlined above recognizes these limitations. Nevertheless, the use and extension of this methodology will provide policy officials with a good overall picture of rural development conditions and progress; and a workable approach to drawing plausible conclusions about the impacts of Thailand's national rural development programs. Moreover, the longer it is used in repetitive evaluations, the more valid will be the conclusions which can be drawn from this methodology.

## 6. SUMMARY AND EXAMPLE

The introduction to this report describes what impact evaluation is intended to do, who will use it and for what purposes, and the reasons for each of the component activities which make up this methodology. In order to illustrate this process more clearly, an example is presented below of what the

results might show from each of the four component activities, and how they fit together to provide an evaluation of the impact of the NRD Program. In this example, the health sector has been selected to illustrate the kind of information which can be derived from this evaluation methodology, and how it would be used. The data described in the example is not actual data; it was invented for purposes of this example. In addition, the analysis is abbreviated from what would be presented in a real, complete evaluation of the results of each activity. In reading the example, attention should be directed to the type of analysis presented, not the actual facts stated in the analysis.

#### 6.1 Change In Village Conditions

Based on the use of several health-related descriptor variables (selected from those in Appendix A), assume the results show that the overall health conditions of rural people have improved since the NRD Program began in 1981. These results show that newborn birth weights have risen, child death rates have declined, child and adult death rates from disease have fallen, and a major decrease has occurred in the incidence of malnutrition. All this is a positive trend, but policy officials may want to know more specific information. The methodology will produce this information. It could show, for instance, the following:

1. While the percentage of newborns below 3,000 grams has declined in all regions, much more dramatic progress has occurred in the Central and Southern regions than in other regions. The percentage below 3,000 grams in the North is significantly higher than in the other regions, and very little change has occurred there since 1981.
2. Newborn death rates have fallen throughout the country, but are still significantly higher in the Northeast than in the other regions, where they stood at 56 per 1,000 compared to the national average of 47.
3. Malnutrition rates have declined markedly during the evaluation period, particularly between 1983 and 1986. Level 3 malnutrition has largely disappeared and Level 2 has been substantially reduced. However, Level 1 malnutrition is still common, particularly in the Northeast, and in that region the rate of Level 2 malnutrition is nearly 3 times the national average.

(Note: In an actual evaluation process each of these narrative statements would be accompanied by one or more tables which present the information for each descriptor variable.)

Taken together, these results show that the health and nutritional status of rural people has improved considerably, though certain regions are better off; and that the rate of improvement has varied among regions. These descriptions suggest that NRD Programs to improve nutrition and protect against disease may have produced these significant results. They also suggest that future program efforts should be concentrated more intensively in the Northeast and Northern regions.

## 6.2 Project Targets and Achievements

Assume for this example that over the past five years there have been four health-related projects which were designed particularly to address the problems measured by the above descriptor variables:

1. Child and Maternal Health
2. Food for Nutrition
3. Disease Control (vaccination)
4. Primary Health Care

In this section there would be a set of tables, which showed for each of these projects a summary of the information on the target and actual achievements and budget expenditures by region. These tables would be accompanied by a narrative synopsis of the outputs and achievements of the projects. An example of this narrative for one project might be:

### Nutrition Project.

This project was implemented broadly throughout the country; however, more intensive activity and higher levels of expenditure were focused in the North than in other regions. The project included nutrition training for mothers, monthly weight recordings of newborns to age one year, and subsidies for nutritious food for primary school children. Over the past three years, this project provided these services to 2,450 tambon in 236 amphur. The total budget for the projects for three years (1984-86) was Baht 107 million or about Baht 14,500 per tambon per year.

### 6.3 Comparison of Villages With and Without Projects

To show the impact of the nutrition project in the villages where project activities were carried out, it is necessary to compare the change in the relevant descriptor variables in those villages with a set of similar villages where no nutrition project activities were implemented. This analysis would include a table which shows the change in the variables between 1983 and 1986 by each region of the country for villages with and without nutrition projects. This table might include the four variables mentioned above, all of which are influenced by changes in nutrition levels. The results of this analysis might show the following:

The results of this comparative analysis indicate that in all regions except the Northeast there were significant differences in the rate of improvement in villages which had nutrition projects in comparison with those which did not. This was particularly evident in the birth weights and the child death rate variables. In the Northeast, however, there was no consistently better improvement in the variables in those villages which had projects than those which did not. Since the pattern of improvement in villages with nutrition projects appears so consistently better throughout the country except in the Northeast, some other factors seem to be influencing this pattern in that region. A field investigation should thus be carried out to examine what these factors are and why they appear only in the Northeast.

Based on the above conclusions, the NRD Program concludes that budget allocation patterns should, therefore, be adjusted to provide this more intensive program in the Northeast and that 50 percent of nutrition project resources should be targeted to that region.

#### 6.4 Field Investigation

In the field investigation, a team would survey a sample of villages in the Northeast which received nutrition projects and a sample of villages in this same region which did not receive nutrition projects. This investigation might produce several findings. It may be that in villages which did not receive nutrition projects but had other projects not directly aimed at nutrition--such as village fish ponds and school ponds--nutrition levels were raised because of higher protein consumption. Or it could be the case that many villages which did not receive NRD Program nutrition projects had similar projects sponsored by NGO's.

#### 7 STEPS TO BE TAKEN TO COMPLETE THE EVALUATION

In order that the procedures noted above can be undertaken, the following steps need to be taken:

1. Questions from the NRD 2C must be compared for 1981, 1983 and 1986 to ensure that data from all three years are directly comparable. In cases where comparable data do not exist, changes will need to be in the descriptors; or in the years to be compared.
2. A computer file for statistical analysis must be defined which would specify for each descriptor variable the precise measurement required (e.g. number, percentage, etc).
3. Data must be collected on all 33 RPAP projects and all 156 current NRD Program projects, by region, including:
  1. Project Name
  2. Activity Name
  3. Problem or need to be addressed by the project (e.g. clean drinking water, all year, water-sealed latrines, literacy, etc.)

4. Target area (e.g. Infrastructure, Water, Production/Income, Health, Education/Knowledge)
5. Number of Sites
6. Number of Units Affected (Villages, Households, Persons)
7. Site Budget
8. Total Project Budget
9. Target Achievements
10. Actual Achievements

4. Villages with and without specific projects and with and without any projects will have to be identified so that correlation of project intervention with the descriptor variables can be calculated.

APPENDIX A

## VARIABLES TO BE USED IN MEASURING CHANGE IN RURAL CONDITIONS

### Infrastructure

1. Households without electricity
2. Villages without electricity
3. Villages without primary school in village or tambon
4. Villages without road to district
5. Villages without public transportation to the district all year
6. Households with thatched roofs

### Water

7. Households without Drinking water all year
8. Households without Domestic Water all year
9. Villages without adequate water for any of the following:  
second crop, short life upland crop, long life upland crop,  
vegetables

### Production and Income

10. Villages without agricultural credit source from a  
Production Saving Group, a Cooperative, BAAC, or a  
commercial bank
11. Avg. income per household for wage-earning households with  
only 1 occupation
12. Villages which lack water for dry season farming
13. Crop Production Yields
14. Average income from crop production
15. Villages with poor soil
16. Households that must rent land

### Health

17. Newborn death rate (number of deaths divided by number  
born)
18. Newborns under 3000 grams
19. Children with Level I Malnutrition
20. Children with Level II Malnutrition
21. Children with Level III Malnutrition
22. Children dying from disease
23. Adults dying from disease
24. Villages more than 1 hour from health center
25. Households without water-sealed latrines

### Education and Knowledge

26. Persons not completed compulsory education
27. Persons cannot read or write

APPENDIX 2

Villages Without a Primary School in the Village or Tambo

Region	1961						1966					
	Orig. POP Villages		Other Villages		Total		Orig. POP Villages		Other Villages		Total	
	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages
North												
Northeast												
Central												
East												
West												
Southern												
Total												

Villages Without a Road To The District

Region	1961				1963				1966					
	Orig.FOP Villages		Orig.FOP Villages		Other Villages		Total		Orig.FOP Villages		Other Villages		Total	
	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages
North														
Northeast														
Central														
East														
West														
Southern														
Total														

59

Households without Electricity

Region	1981				1983				1986					
	Orig. EOE Villages		Other Villages		Orig. EOE Villages		Other Villages		Orig. EOE Villages		Other Villages		Total	
	# of Hsehlds	% of all Hsehlds	# of Hsehlds	% of all Hsehlds	# of Hsehlds	% of all Hsehlds	# of Hsehlds	% of all Hsehlds	# of Hsehlds	% of all Hsehlds	# of Hsehlds	% of all Hsehlds	# of Hsehlds	% of all Hsehlds
North														
Northeast														
Central														
East														
West														
Southern														
Total														

2/9

Villages without Electricity

Region	1981				1983				1986				
	Orig. EOP Villages		Other Villages		Orig. EOP Villages		Other Villages		Orig. EOP Villages		Other Villages		
	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	# of Villages	% of all Villages	
North													
Northeast													
Central													
East													
West													
Southern													
Total													

8

APPENDIX C

# NATIONAL RURAL DEVELOPMENT PROGRESS BY REGION

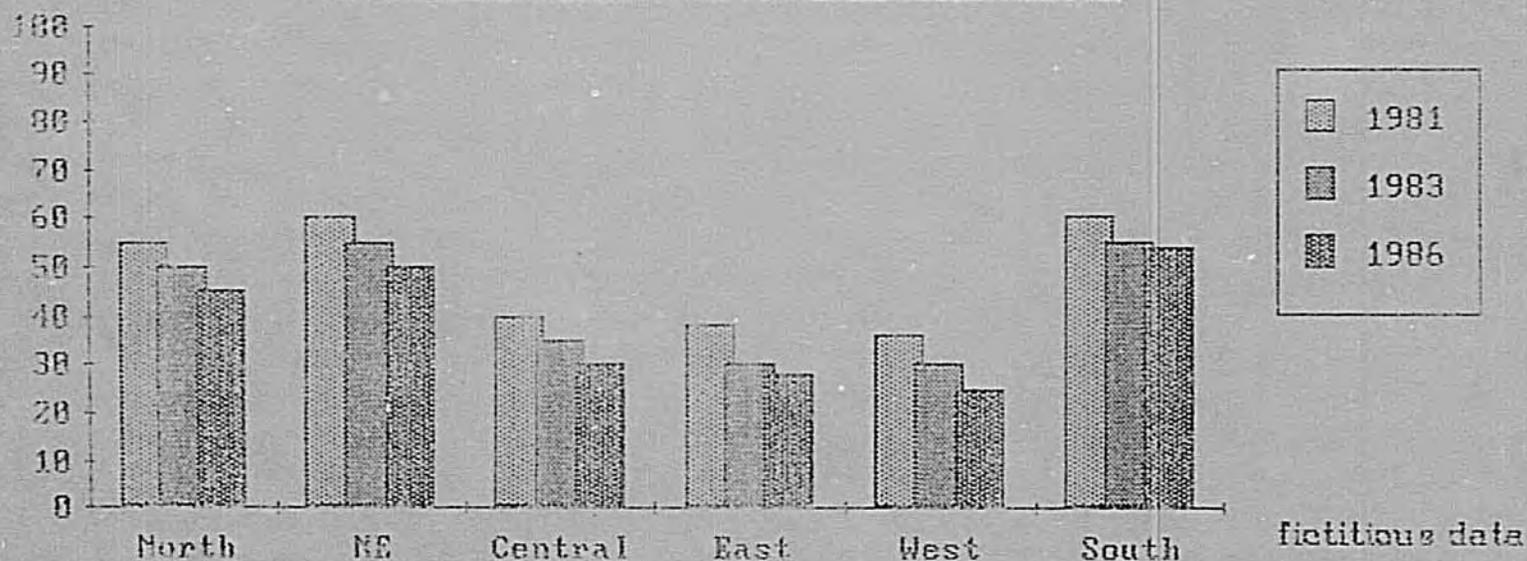
Percent of Households Without Water-sealed Latrines



fictitious data

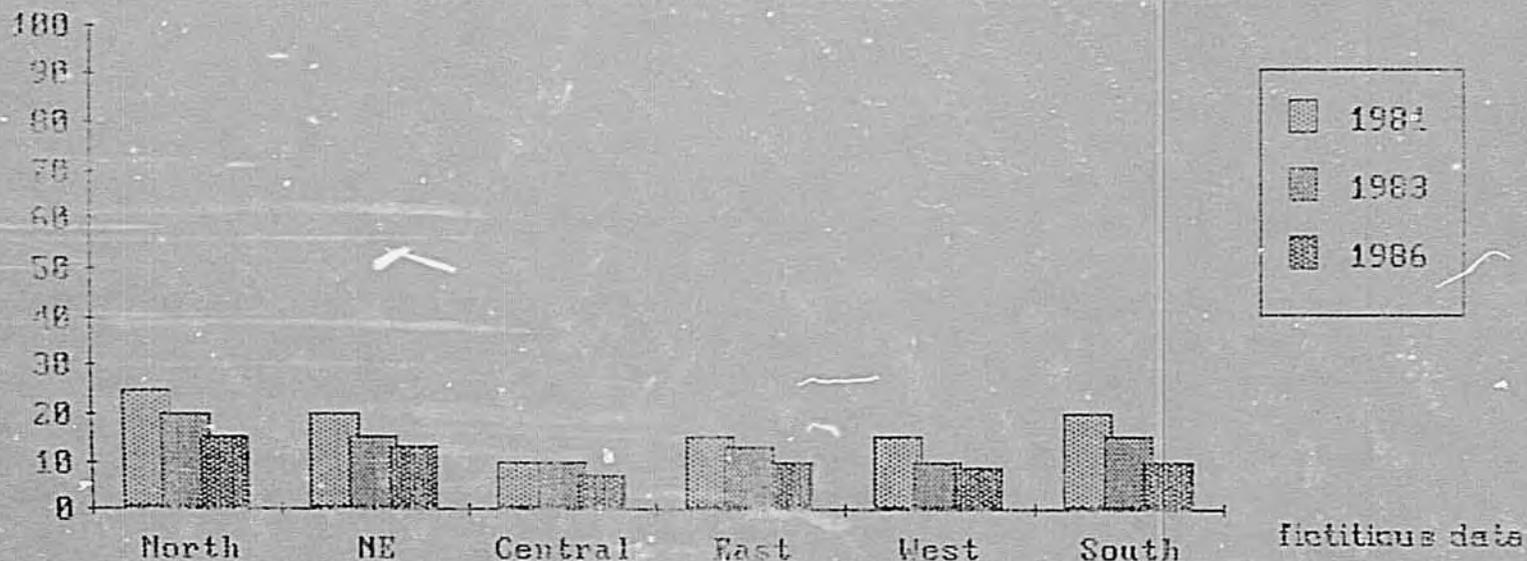
# NATIONAL RURAL DEVELOPMENT PROGRESS BY REGION

Percent of Villages Without Electricity

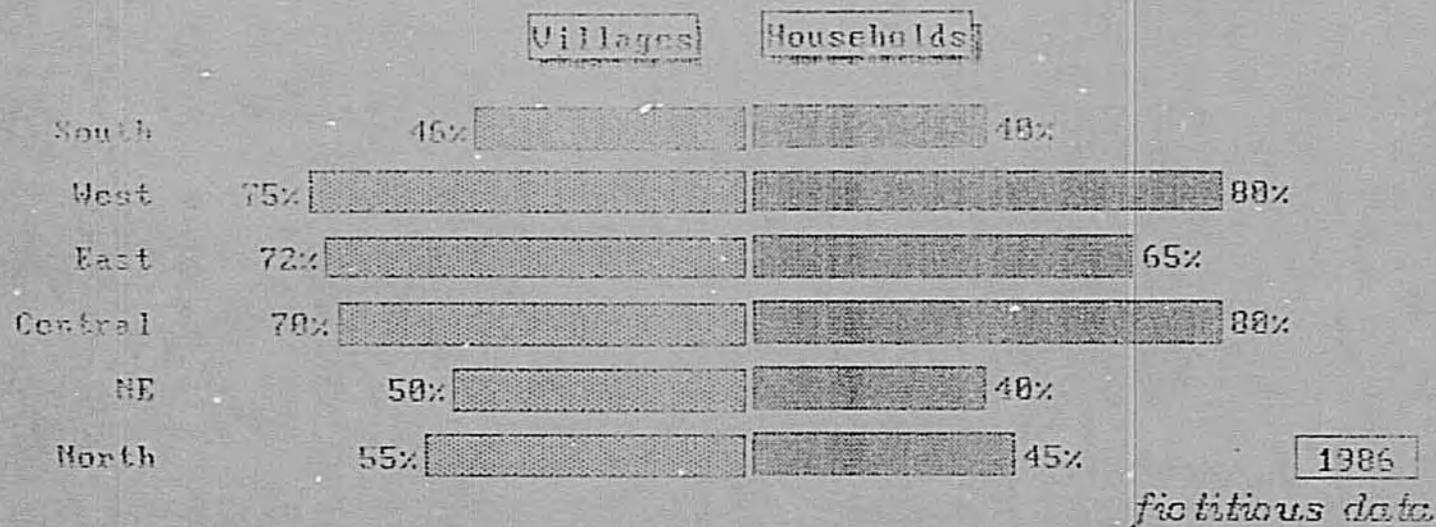


# NATIONAL RURAL DEVELOPMENT PROGRESS BY REGION

Percent of Villages without a Road to the District



## Percent of Villages and Households with Electricity



APPENDIX D

2

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Table to Illustrate Use of Project Resources to Meet Development Needs

(Separate table for each project or grouping of projects)

Example: Soil Projects

Region	1983		1984		1983, 1984, and 1985			
	Number of Villages with Poor Soil	% of all Villages with Poor Soil	Number of Villages with Poor Soil	% of all Villages with Poor Soil	Number of Villages with soil Impr. Proj.	Resources Spent on Soil Impr. Projects	Percent of all Resources Spent on Soil Impr. Proj.	Project Achievements as percent of Target*
North								
Northeast								
Central								
East								
West								
Southern								
Total								

\*Achievements averaged for all projects

Table to Illustrate Project/Activities Targets and Achievements

Project Name	Year				
Activity Name					
Problems or Needs to be Addressed					
Target Area					
Region	Number of Sites	Site Budget	Total Budget	Target Achievements	Actual Achievements
North					
Northeast					
Central					
East					
West					
Southern					
Total					

52

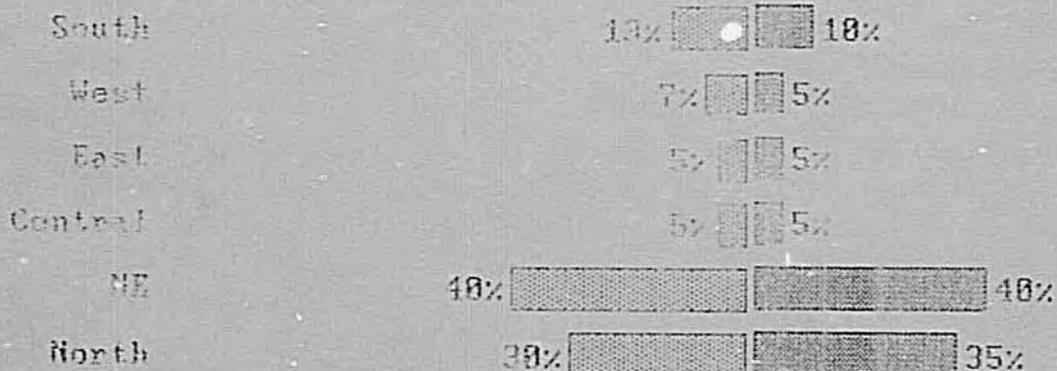
## Percentage Distribution of Villages with Poor Soil and Resources Spent on Soil Improvement Projects

% of all villages with poor soil

% of all resources spent

1983

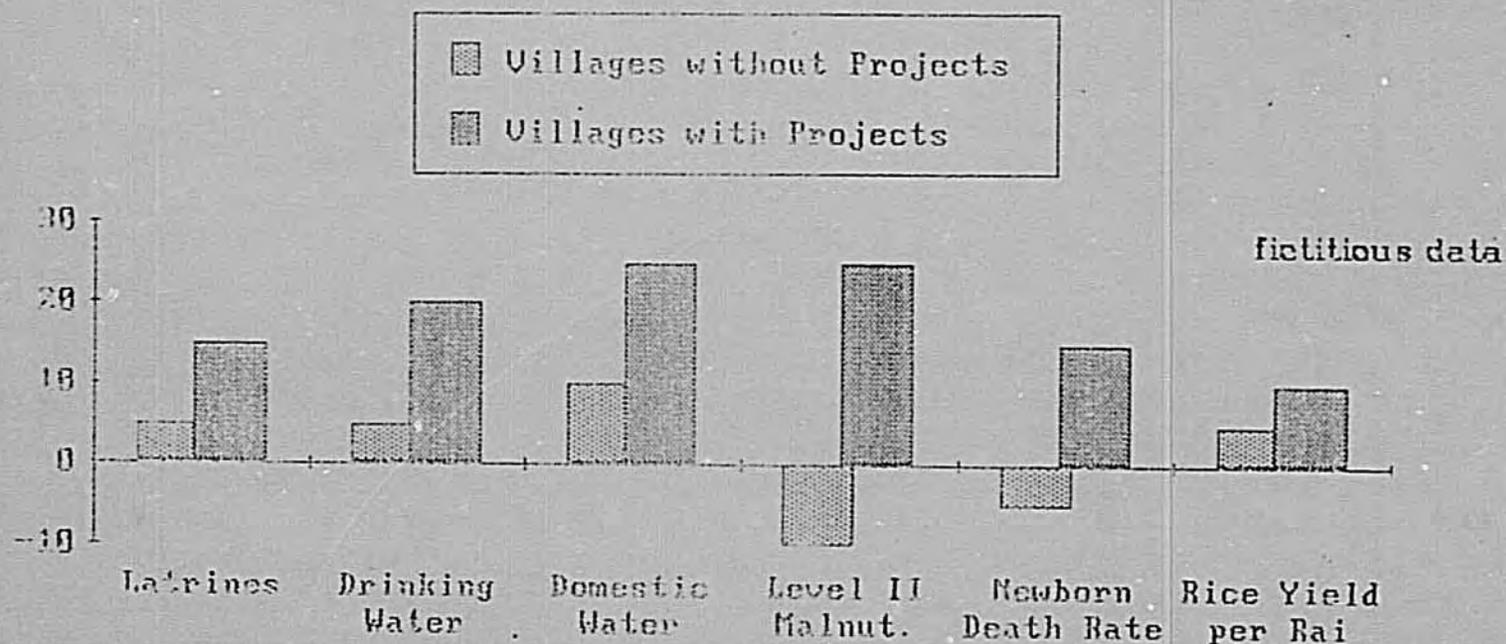
1983, 1984, & 1985



fictitious data

# NATIONAL RURAL DEVELOPMENT PROGRESS

Percent Change in Selected Indicators, 1983 to 1986



APPENDIX E.

Progress in Villages With and Without NRD Program Rural Development Projects

	Descriptor Value in 1983		Descriptor Value in 1986		Percent Change between 83 & 86	
	Villages Without Projects 1983-1986	Villages With Projects 1983-1986	Villages Without Projects 1983-1986	Villages With Projects 1983-1986	Villages Without Projects 1983-1986	Villages With Projects 1983-1986
Number of Villages						
Percent of households without electricity						
Percent of villages without school						
Percent of villages without road to district						
Percent of villages without public transportation to district all year						
Percent of households with thatched roofs						
Percent of households without adequate drinking water all year						
Percent of households without adequate water for domestic use all year						
Etc.						

(Note: Improvement would be represented by a reduction in the values between 1983 and 1986)

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Progress in Villages With and Without Multipurpose Rural Development (MRD-CDD) Projects

Descriptors	Descriptor Value in 1983		Descriptor Value in 1986		Percent Change between 83 & 86	
	Villages Without MRD-CDD Projects	Villages With MRD-CDD Projects	Villages Without MRD-CDD Projects	Villages With MRD-CDD Projects	Villages Without MRD-CDD Projects	Villages With MRD-CDD Projects
Percent of villagers without public transportation to district all year	1983-1986	1983-1986	1983-1986	1983-1986	1983-1986	1983-1986
Percent of households with thatched roofs						
Percent of households without adequate drinking water all year						
Percent of households without adequate water for domestic use all year						
Avg. income for wage-earning households with only one occupation						
Average rice yield						
Newborn death rate						
Percent of newborns under 3000 grams						
Percent children with Level I malnutrition						
Percent children with Level II malnutrition						
Percent children with Level III malnutrition						
Percent of children dying from disease						
Percent of adults dying from disease						
Percent of villagers cannot read or write						

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Progress in Villages With and Without Village Fisheries Projects

	Descriptor Value in 1983		Descriptor Value in 1986		Percent Change between 83 & 86	
	Villages Without Fisheries Projects 1983-1986	Villages With Fisheries Projects 1983-1986	Villages Without Fisheries Projects 1983-1986	Villages With Fisheries Projects 1983-1986	Villages Without Fisheries Projects 1983-1986	Villages With Fisheries Projects 1983-1986
Percent of households with thatched roofs						
Percent of households without adequate water for domestic use all year						
Percent of households without adequate water for agriculture use all year						
Average rice yield						
Newborn death rate						
Percent of newborns under 3000 grams						
Percent children with Level I malnutrition						
Percent children with Level II malnutrition						
Percent children with Level III malnutrition						
Percent of children dying from disease						
Percent of adults dying from disease						

104