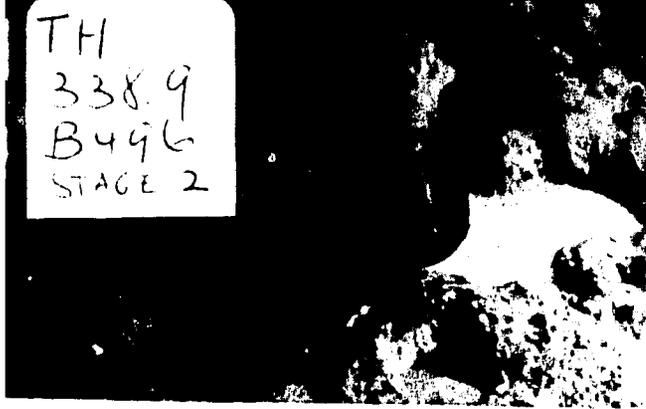
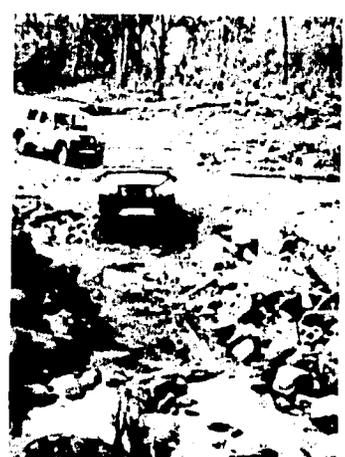


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**NORTHEAST
ECONOMIC
DEVELOPMENT**
PLANNING ADVISORY GROUP
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STAGE 2

A. I. D.
Reference Center
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PLANNING REPORT PROFILE OF NORTHEAST THAILAND AND REGIONAL OBJECTIVES



NORTHEAST ECONOMIC DEVELOPMENT

Planning Advisory Group

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February 15, 1970

M.L. Dej Snidvongs, Chairman
Northeast Economic Development Sub-Committee
National Economic Development Board
Bangkok

Dear M.L. Dej,

We are happy to submit to you the second of a series of planning reports which was prepared by the Louis Berger - Systems Associates Joint Venture together with Royal Thai Government counterpart staff in accordance with the NEED Planning Program. This program is sponsored jointly by NEED and the United States Operations Mission in Thailand.

The principal purpose of this NEED Planning Stage 2 Report is to:

- (a) bring together information collected to date by RTG staff and the consultants,
- (b) assess the information and activities in terms of their relevance to the Northeast plan,
- (c) spell out the principal objectives for each sector strategy,
- (d) establish the ground work for the methodology to be applied to the region as a whole after having established methodology at the micro level,
- (e) indicate some specific projects and programs commensurate with the foregoing, and
- (f) lay the ground work for organizational and procedural requirements that can make planning more influential.

Some of the statistical information and related materials are contained in a separate Appendix.

Again we should like to point out that this report represents the collaborative effort of many RTG agencies, although the participating consultants take all responsibility for interpretation and opinions expressed.

Sincerely yours,

The NEED Planning Advisory Group

Dr. Charles Stonier
Chief of Party

CS:sc

LOUIS BERGER INC. - SYSTEMS ASSOCIATES, INC.
Joint Venture

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This Stage 2 Report incorporates essentially all of the data and activities concerned with the NEED planning program up to mid-February 1970.^{1/}

The subsequent period - Stage 3 - will be devoted essentially to

- (a) data refinement and its impact on tentative conclusions reached,
- (b) exercise of these data in order to provide a regional analytical framework,
- (c) assignment of costs and budgets for the various proposals in Section Three below.

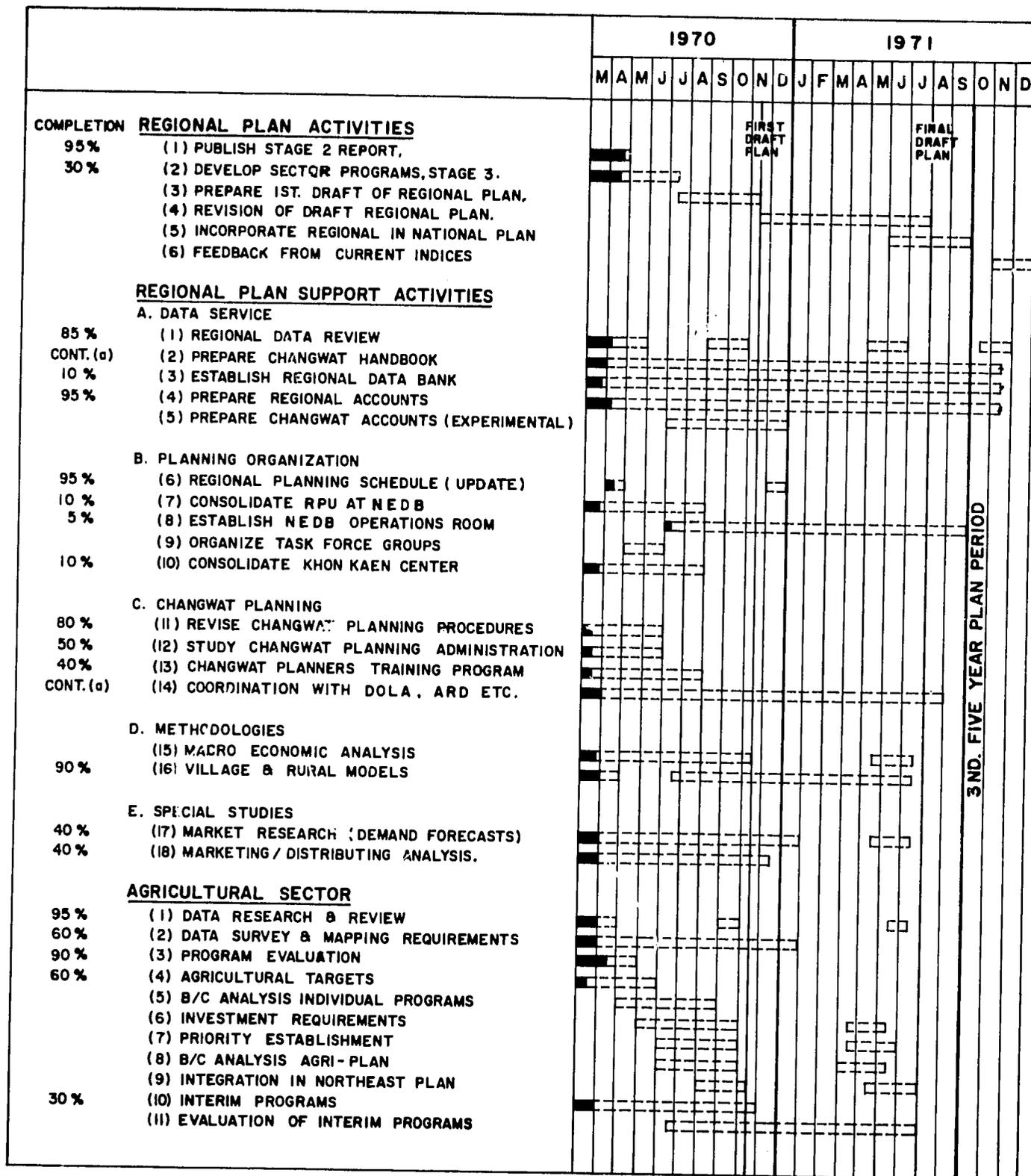
The proposed Stage 3 Report will, of course, also include amendments which are recommended by the NEED working group policy committees and others and thereby continue to improve the substance and form of the Northeast plan. The chief consideration here will be to adjust sector targets periodically in such a way as to make them as feasible and implementable as possible.

The following chart provides a synopsis of the balance of tasks and time schedules for the Northeast Five Year Development Plan.

1/

Regional accounts data were completed in early April at the time of actual printing, and have been included in the Appendix; these have not yet been fully analysed.

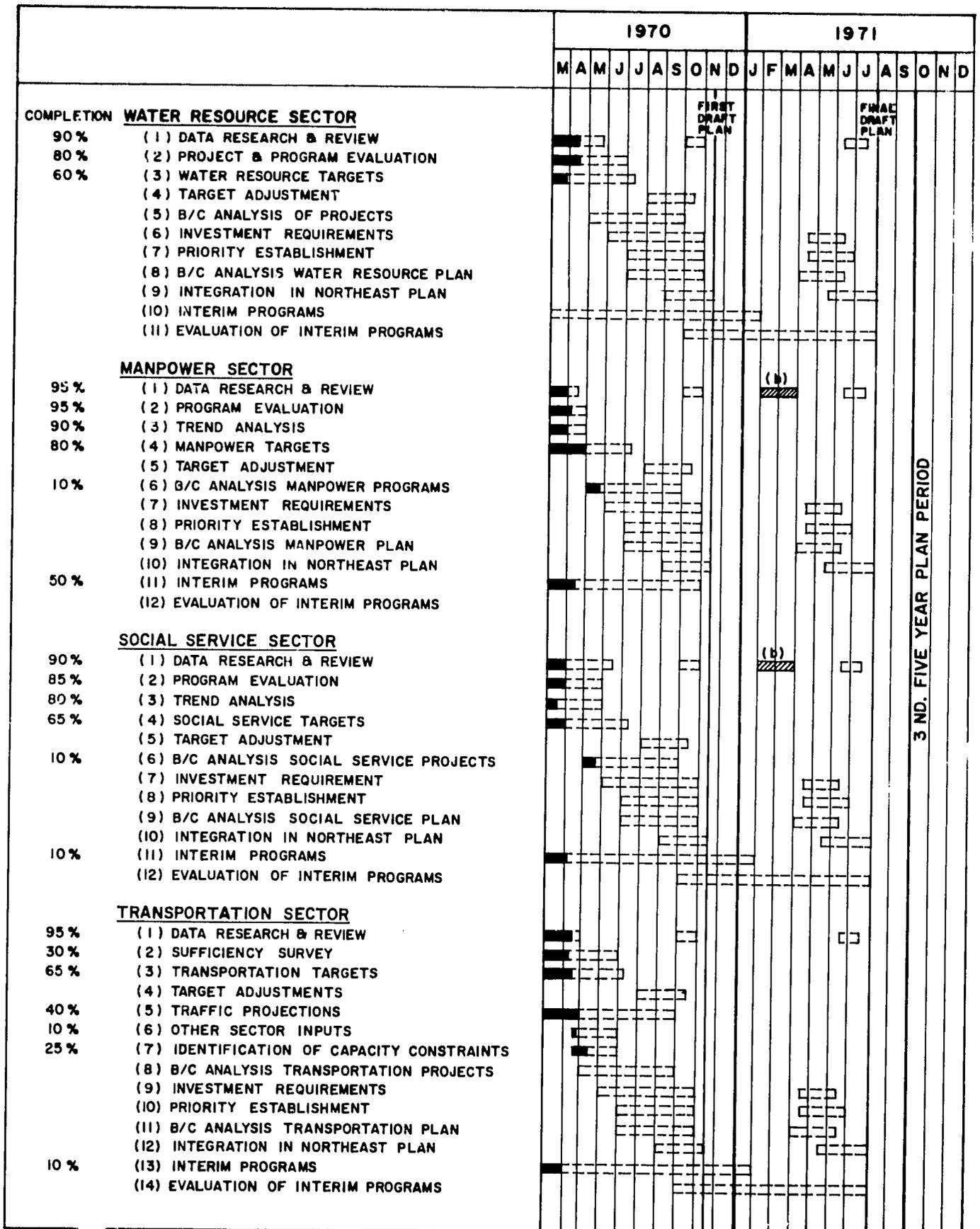
PLANNING SCHEDULE: NORTHEAST THAILAND (REVISED MARCH 31, 1970)*



(a) CONTINUING (b) FIRST 1970 CENSUS DATA REVIEW

* REVISED PRIOR TO ACTUAL PUBLICATION DATE OF THIS REPORT

* PLANNING SCHEDULE CONTINUATION



3 ND. FIVE YEAR PLAN PERIOD

(a) CONTINUING (b) FIRST 1970 CENSUS DATA REVIEW

* REVISED PRIOR TO ACTUAL PUBLICATION DATE OF THIS REPORT

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In addition the NEED PAG is assisted by Home Office staff as well as a large number of RTG officials from various agencies.

SUMMARY: SECTION (1)

RESTATEMENT OF OBJECTIVES AND SECTOR STRATEGIES

1.1 Reasons for Regional Planning

- 1.1.1 The basic reason for regional planning centers on the question of equity - i.e., permit each region to grow and narrow gaps between richer and poorer regions, as well as to reduce imbalance within the regions.
- 1.1.2 Focusing on the regions is more likely to achieve geographic specialization in each.
- 1.1.3 Regional planning is a first step in decentralizing planning administration.

1.2 General Guidelines for Planning the Northeast

- 1.2.1 Planning must be for people - e.g., farmers must participate in planning decisions.
- 1.2.2 Development must be related to natural resources.
- 1.2.3 Production must be related to marketability.
- 1.2.4 Development must be balanced among sectors; it must contain a financial plan and should be related to general fiscal policy.
- 1.2.5 Planning must consider some fiscal and administrative reforms.
- 1.2.6 Regional plans must be integrated with National Planning.
- 1.2.7 Planning must consider quality of environment and be guided by cultural, religious, ecological and other environmental factors.
- 1.2.8 Any regional planning methodology must be usable in the context of RTG institutions.

1.3 Basic Development Strategies by Sector - Primary emphasis is to raise agricultural output

- 1.3.1-5 Agriculture - due to institutional, fiscal and physical limitations carefully selected areas should be chosen for encouragement of agricultural output

Concentrate on inputs which will increase incentives for farmers to respond, including substantial improvement in extension services, credit availability, market information, etc.

Improve integration of the several development agencies.

- 1.3.6-8 Water Resources - get better use from facilities already provided. This includes more appropriate extension services for irrigation users.

Improve the basis for selecting village wells and potable water systems generally as well as improving utilization of existing systems.

- 1.3.9-12 Manpower - Accelerate training of agricultural technicians.

Extend some agricultural education below the secondary school level.

Consolidate farmer associations.

- 1.3.13-15 Social Services

Improve literacy and thereby absorptive capacity for improved rural technology.

Improve the level of training by generally improving education and health services; expand model school and health center programs.

1.3.16-18 Transportation

Concentrate on preserving existing network.

Coordinate transport requirements with agricultural and industrial output targets.

Consider new roads only in areas with determinable unexploited agricultural potential including perishables.

Encourage transfer of fuel and log transport from road to rail in the interest of road safety and conservation.

Coordinate road projects (maintenance and residual construction) with employment policy to cushion possible impact from a declining role of U.S. military in the Northeast.

1.3.19 Outputs from national plans and other research will supplement NEED plan requirements for sectors - including energy, communications and the general private sector - which are not now directly represented on the NEED organization.

Section 1 **RESTATEMENT OF OBJECTIVES AND SECTOR STRATEGIES**

1.1 Rationale for Regional Planning

1.1.1 The fundamental reason for establishing regional planning in Thailand centers on the question of equity - As demonstrated in Section 2, the Northeast of Thailand has not participated satisfactorily in the economic growth of the Nation as a whole; and one of the primary purposes of focussing on Thailand's development on a regional basis is to insure that each of the regions can be made to develop in accordance with its inherent economic advantages. Thailand is unique in this respect, because it is among the first developing nations to address itself to a problem which has been well identified on an international scale (notably in the recent Pearson Commission Report stressing the need to close the gap between rich and poor countries). In the same way, Thailand by establishing the NEED precedent, is attempting to close the internal gap between richer and poorer regions. Apart from making it possible to contribute thereby to the national economic welfare of Thailand, it is hoped also that a national development effort, especially for the rural areas, will act as an effective counter insurgency device, one that will increase political stability while making private investment more attractive at the same time.

1.1.2 Regional planning facilitates the establishment of attainable goals by emphasising the inherent economic capability of each region - This means that encouragement of economic development will be in accordance with geographic specialization to the extent that Thailand's regions are identifiable from the stand-point of geography, climate, drainage, soil characteristics and other physical features. At the same time it does not depart from including projects which may have been assigned on a regional basis in the past, but supplements this by striving for more definite output targets and by relating programs and projects to a regional sector context.

1.1.3 Regional planning represents the first step in decentralization of government planning administration - To the extent that it has been considered essential (see guidelines below) to encourage two-way communication between those responsible for planning and those for whom plans are prepared (viz. the farmer), the focus on regional planning should be of major significance by encouraging the basis for decision making and for coordination of projects and programs. Regional planning in effect will result in new institutions which could become more effective for both the planning and the implementation of development in the region. Implicit in this is a planning role for the changwat local administration within which the ability to program rural development at the micro level is to be encouraged. There is opportunity also to undertake comprehensive rural development of limited areas such as an Amphoe.

1.2 General Guidelines for Planning the Northeast - The guideline for Northeast development might be classified as institutional and methodological. The principal points raised here are in accordance with the NEED PAG Stage 1 Report, (July 1, 1969) and with the DTEC/NEDB Coordinating Group recommendations (May, 1969). They are also based on findings of numerous field investigations.

1.2.1 Planning must be for people, e.g., farmers must participate in planning decisions - The basis for development in the Northeast is essentially in agriculture. With 85% of the land owned and operated by individual farmers, it is necessary that the farmer has an understanding of the proposed agricultural development and that he participates and supports whatever is designed to improve agricultural productivity. Development plans, therefore, must be directed at rural settlements, rather than to an abstract agricultural sector per se. This is the key element in successful rural development.

1.2.2 Development must be related to natural resources - Though equity considerations may modify plans, they should be formulated on an understanding of the natural resources of the region. This implies a need to accelerate the acquisition of data on land capability and resource potential in all its aspects.

1.2.3 Production must be related to marketability - The primary emphasis for agricultural and related agri-business development, in order to establish a surplus economy in the Northeast, is by encouraging the private sector. The appropriate governmental input mix must consider (among others) the type of market information which can better indicate to farmers and other producers that their products can be sold at a reasonable price. It is futile, for example, to encourage extensive research for the improvement of growing crops when prospects for selling them may not be very good (e.g., sugarcane). A new unit at the Ministry of Economic Affairs has already been established in order to provide guidance to the private sector, including the farmer in order to make better decisions on production.

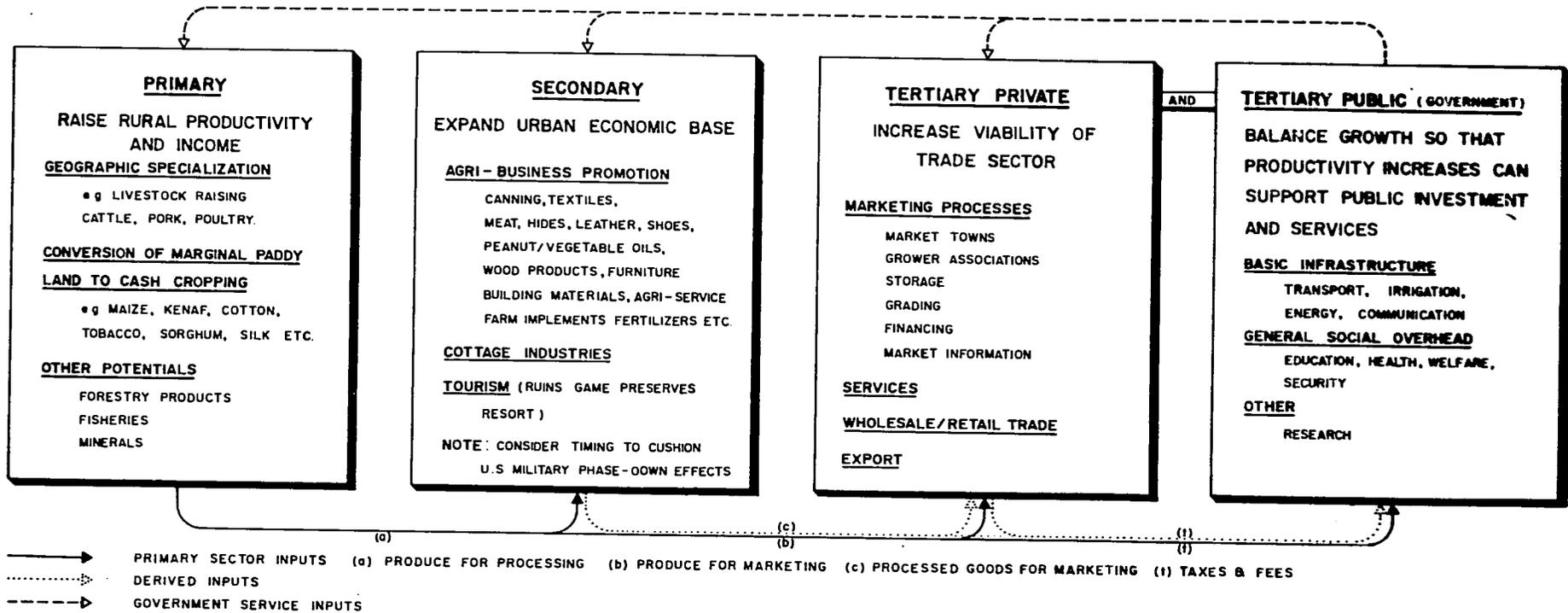
1.2.4 Development must be balanced among sectors - The approach to development is typically fragmented. Thailand is no exception. Independent action of ministries and other operating agencies create infrastructure and social overhead items without adequately considering their relationship to the actual output capability, especially in agriculture. Furthermore little thought is given how to preserve this infra-structure by relating the cost of servicing it to the government revenue potential based on the increases in actual GDP growth attributable to the infra-structure provided. The relationship of government investment to private output needs careful planning, for without it such investment may not only deteriorate for lack of maintenance funds, but may also be inflationary when Government production does not generate enough new private goods and services.

Northeast Thailand has already faced some of these problems as the Government input here has not been appropriate to increased agricultural productivity. From evidence available so far, the most successful type of approach to expanded output have been the comprehensive village community development type programs, such as at Sarapee; but critical limitations on manpower availability make it infeasible to expand this type of program on any large scale. Thus some of the infra-structure investment, especially all weather roads in the Northeast, has been premature in relation to feasible agricultural development objectives. It is, therefore, essential to provide this guideline for the third five year plan which would better relate government investments to agricultural and related output targets and thereby insure the governments fiscal ability to preserve them.

Chart 1-A illustrates the basic principle of balancing development outputs, whereby costs to the government are eventually recouped by increased productivity.

1.2.5 Planning must consider some fiscal and administrative reforms - The planning process cannot afford to shy away from some of the more serious institutional obstacles which now result in uneconomical use of

RELATIONSHIP OF ECONOMIC SECTOR DEVELOPMENT & BASIC OBJECTIVES NORTHEASTERN THAILAND



resources. This does not mean that it is necessary for planners to take on a collision course with ingrained, vested interests, but it does suggest particularly those types of fiscal and administrative reforms which are clearly necessary to accelerate development. This might include a better understanding of Government revenue - expenditure flow involving not only direct taxes, but also labor and in-kind payments by local communities. The administrative side involves mostly consolidation of programs and improved mechanisms for coordination (and planning).

1.2.6 Northeast Planning must be integrated with National Planning

- The Northeast, as one of Thailand's regions, must be related directly to development schemes of other regions. For example, if geographical specialization is to become viable in the Northeast it will collaterally become more interdependent with the rest of Thailand. For example, the Northeast should ultimately reach the stage of importing rice from other areas where rice can be produced more efficiently. As export to foreign countries shrink, some rice might be diverted to Northeast for consumption there, while the Northeast produces surplus kenaf, maize, sorghum and livestock products in sufficient quantities to take the place of rice which has traditionally earned foreign exchange for Thailand.

Furthermore, with anticipated increases in agricultural productivity as well as general population increases it will be necessary to plan for absorption of surplus manpower. This requires not only improvement of urban centers within the region, but planning for an urban industrial corridor which might extend roughly from Nakorn Sawan to Rayong in the Central Region. It would seem desirable to discourage migration patterns which concentrate primarily on the Bangkok metropolitan area, instead the establishment of new cities (e.g., Sattahip) should become integral to the nation's population and migration planning.

1.2.7 Regional, like any other planning must consider quality of environment - GNP or RDP figures are insufficient for the measurement of human welfare Cultural, religious, ecological and other qualitative

environmental factors must influence planning decisions. While difficult to quantify they must nevertheless be ascribed a leading role. Implicit in this is the strengthening of the health and education sectors.

1.2.8 Any regional planning methodology must be usable - The analytical frame work for regional planning must be regarded as a tool that can effectively assist in the regional allocation of resources. It must be adapted to some of the serious limitations that arise from insufficiency of data and the absorptive capacity of those responsible for regional planning, and must avoid the temptation of being excessively academic. It must restrict itself to what actually is quantifiable and then introduce non-quantifiable benefits as a second stage appraisal leaving flexibility for value judgements (See also Section 3.1).

1.3 Development Issues and Strategies by Sector - This section deals with general objectives and problems of each planning sector. It is expanded by more specific comments on project evaluation (Section 2.4) and preliminary sectoral targets (Section 3.2) and suggested programs (Section 3.3).

1.3.1 Agricultural Development Strategy: Basic Objective - Increased agricultural output in the Northeast can be achieved only through development of the farmer which in turn depends on strengthening institutions which will speed this process by means of general education, agricultural training, research, extension, communications and improved security.

1.3.2 Agricultural Problems in the Northeast

1.3.2.1 Agricultural productivity and farm income in the Northeast is generally lower than in other regions (or countries) for a number of reasons.

- (a) Farmers concentrate too heavily on rice production.
- (b) Limited general education.
- (c) Lack knowledge of modern methods due to inadequate extension service research programs and agricultural education.
- (d) Modern inputs too costly for typical Northeast farmer.
- (e) Markets are inadequately developed and marketing information is lacking.
- (f) Insufficient access to credit.

1.3.2.2 In addition the farm population is growing rapidly and is settling on lands of only marginal value. This exacerbates the problems listed in 1.3.2.1.

1.3.3 Selectivity - Because of limited resources and only partial knowledge so far of the actual soil capability in the Northeast it is suggested that only a few selected areas' be chosen for encouragement of increased agricultural output, particularly pilot projects involving new production and marketing techniques.

The criteria for selection of such areas should include:

(a) Availability of existing infra-structure (e.g., Nongwai) including roads and water supply.

(b) Knowledge of soil and climatic conditions conducive to increasing output.

(c) RTG capability to follow up with appropriate extension services and other aids to farmers including credit.

1.3.4 Basic Strategy for Solving Agricultural Problems

(a) Improve general education in rural areas and make it relevant to rural life.

(b) Improve agricultural education and training and make it available to the sons of farmers.

(c) Improve research and demonstration programs by making them relevant to Northeast farming.

(d) Spread knowledge from research through an effective extension system which employs men skilled in practical agriculture and able to communicate with farmers man-to-man.

(e) Make credit available to farmers for the purpose of introducing modern agricultural practices.

(f) Develop a comprehensive system of providing marketing information to farmers.

(g) Provide essential feeder roads to move agricultural products to market.

(h) Explain advantages of family planning and make birth-control information available to all villages through competent technicians.

1.3.5 Supplementary Comments on Basic Strategy for Agricultural Development

1.3.5.1 Increasing Productivity - To stimulate agricultural output in a developing economy some purchased input for land and for labor can be made on a limited scale such as the addition of one input such as fertilizer, improved seed variety, pesticide, etc. This is not to argue against the "package" approach, which has merits of its own, but the limitations of finance and technical personnel have, in most instances, directed a partial vs aggregate approach. This has been generally true of development programs in Thailand.

It is important to understand what inputs are being measured when there is a rise in productivity. No measure of partial productivity can indicate how much of the total change in output was attributable to a particular input. It is only partially correct, therefore, to say, as is so often done, that x kilograms of fertilizer increased y amount of production. If one is to calculate the net profit which this y production represents then the value of other inputs should be calculated: increased labor for tillage and especially harvest, as well as other ancillary inputs, such as water without which fertilizer alone is ineffective.

Since Northeast Thailand is likely to be approaching the limits of increasing production economically through expansion of land in cultivation within the next 10 to 20 years, it is advisable to stimulate production by increasing the productivity of land already in use. Programs could be started now that eventually make forest lands or jungle areas economically utilizable. For the present, from a strategy, point of view, emphasis should be on increased land productivity.

That much can be done to increase output is borne out by the following: In general, from a land point of view, the small farm is more

productive than the large. A recent publication of FAO indicates that Thailand is near the median that ranks 52 countries and regions of the world in gross agricultural output per hectare of agricultural land. With an index of 100 as the average for all countries, Thailand's index is a little more than 200, but the range is extreme. For instance, 19 countries fall below 100 and 10 are over 500. Taiwan, a noteworthy developing country, has an index value of more than 1,100; USA also has more than 1,000.^{1/}

On another measure of productivity--which tends to be more diagnostic and, at the same time--one which indicates that much is needed to improve the situation--is Gross Average Production (GAP) per active male employed in agriculture. This index ranges from an almost immeasurable value of about 10 in Thailand and Korea to over 750 in New Zealand, 650 in Australia, 500 in the United States and only a little under 350 in Canada. The average for the 29 countries in this grouping is approximately 35.

From a point of view of strategy, therefore, the latter indicates the need to emphasize institutional improvement (rural education and manpower training, experimentation and extension) as well as the importance of greatly increased expenditures for agricultural credit in order to assist especially the small farmer.

1.3.5.2 Agricultural Extension Service - Based upon a recent evaluation of the Agricultural Extension Service in three changwats in the Northeast, only a small fraction of the farmers are in touch with and influenced by the agricultural extension service. The average changwat has an agricultural officer and assistant in the changwat headquarters, and at most, one officer and assistant in each of the amphoes. If all the officers are included in the calculation, or 20 per changwat, and if the changwat has 120,000 farms, this gives an average of 6,000 farms to be covered by each officer.

The average amphoe officer has contact with 500 farmers annually through association meetings, and demonstration plots. If to this number there is added another 1,500 farmers with whom the extension services has only nominal contact, this would leave two-thirds of the farmers in each amphoe with whom the extension service has no contact. Most of these are farmers in the outlying villages.

A proposal to correct this situation is continued in Section 3.3.1.6.

1.3.5.3 Feeder Roads in Agriculture - It is necessary to insure that a proper relationship exist between cultivated agricultural area and the availability of transport - primarily highways, roads, and service tracks. The optimum relationship varies with several items including crop perishability. Lack of transport or high cost transport can inhibit a farmer in a conversion from subsistence to commercial agriculture.

A number of studies suggest that farmers who depend on animal powered transport must be able to make a round trip within daylight hours. Assuming ox-cart travel in generally flat terrain of Northeast Thailand, which at harvest time, is also dry, farmers more than 20-25 kilometers from a market collecting point would normally be discouraged from taking the necessary investment risk for converting to cash crops even, as with rice, of low perishability. For perishable crops which must be processed or consumed as soon as possible after harvesting this radius is much less - perhaps 3-5 miles if he is dependent on animal transport. Thus it is necessary to keep the farm to market road network well in mind in agricultural planning.

1.3.5.4 Livestock - Thailand's trend toward an increasing consumer demand for high protein food products can be expected to follow the patterns of all developing countries. With rising incomes of workers in the urban sector and increasing concentrations of population in the cities, both factors will influence the demand for more protein food products. The fact

that the agricultural population has not shared in the rise in household incomes will affect the trend in higher demands for protein products only in that the rise will not be as great as it might have been had all of the country's population shared in increased incomes.

Thailand, in common with most Southeast Asian countries, has little land devoted exclusively to livestock production. The FAO Indicative World Plan suggests that this country should have an annual growth rate of 4.2 percent in meat, 7.3 percent in milk, and 6.0 percent in eggs to meet the projected higher demand in the period 1962-1975 for more protein foods. However, there are resource and institutional constraints that will not allow Thailand to meet these projections, and the real growth has been estimated as low as 2.0 percent per annum.

Livestock production has traditionally played a secondary role in comparison to crop production, and the bovine has been primarily used to provide draught power. Any significant increase in bovine production, as well as swine, will depend upon two factors: more artificial pastures and forage feeds for the bovine population, and more increased use of by-products for swine feeding, as well as to provide supplemental rations for cattle and buffalo. Concentrate feeds and by-products are the answer to increased livestock production, even in the Northeast where much talk has been generated concerning its livestock potential. The alternative to increased local production is importation and since the higher elasticity for protein foods is already a fact, more aggravation of the balance of payments will ensue unless greater and more effective measures are taken to encourage domestic production. Section 3.3.1.1 and Appendix 3A suggest a program for livestock development.

1.3.6 Water Resources Development: Basic Objectives

1.3.6.1 Irrigation - A major objective of water resource development in the Northeast (as set forth before in the Second National Economic and Social Development Plan for the period 1967-1971) is to assist in

improving the productivity of the region's agriculture through making increased supplies of irrigation water available from both major reservoir facilities and from small storage tanks which are constructed in natural runoff catchment areas. Actual or implied corrolary objectives of the najor reservoir construction program are to:

- (a) Provide flood control benefit for down-stream reaches of the Mune, Chee, Song Kram and lesser rivers;
- (b) Generate Hydro-electric power where this is economically and physically feasible;
- (c) Enhance the region's fishery resources and its local water transportation potential; and
- (d) Provide a setting for water-oriented recreational activity.

1.3.6.2 Potable Water Supply - A second objective of proposed water resource development in the Northeast is the provision of an adequate supply of potable water to the urban centers and rural communities throughout the region.

1.3.7 Water Resources Planning Issues

1.3.7.1 Irrigation Dams - The strategy of involvement in water resources development planning established in 1968 placed major emphasis on increasing productivity. However, the aspect of strategy which has actually been given the greatest emphasis in recent years is that of designing and constructing a series of physically feasible water storage and delivery facilities with relatively minor attention being given to detailed planning for actual water use and to the implementation of programs to make such use possible.

In the case of major reservoirs included in the Second Five Year Plan, there has been understandable priority emphasis on constructing the most promising projects with respect to the indicated prospects for the storage of seasonal runoff and its ultimate use on.

irrigable land in downstream areas. However, only limited attention has been given to the economics of irrigation water use and to the identification of realistic long term water demand in reservoir planning activity.

All but one of these reservoirs are either completed or under construction; the last (Nam Yang) has been found to be financially unfeasible.

Basic strategy requires that no further reservoir construction be undertaken until full use is made and adequate financial plans for maintenance and operating cost etc. are complete covering by-products such as flood protection, local water use, navigation, recreation, etc. Successful water usage, i.e., its role in increasing farm income, will depend on supplementary programs especially in agriculture and manpower development.

1.3.7.2 Water Tank Program - Construction of water tanks by the RID in fiscal year 1969 was funded by about 59.1 million baht. The funding provided for fiscal year 1970 is about 103 million baht. This increase in funding offers promise of accelerating the rate of tank construction and is consistent with the goal of 1,000 such tanks in the region. Excluding ARD and CD projects there are now about 160 tanks in existence, most of which do not have water distribution facilities

However, as with the major irrigation projects the chief issue is to achieve more effective water utilization from tanks already provided. In fact, much of the previously adopted strategy (established in 1968) has been disregarded. Accordingly it would be of little purpose to accelerate water tank provision without appropriate measures to insure the development of know-how among farmers with regard to such matters as effective water distribution, system maintenance, double cropping, marketing, etc. It is this complementary effort which requires stressing.

1.3.7.3 Potable Water - The potable water development program for the Northeast was originally assigned the goal of providing by 1971, adequate and safe drinking water for 600 rural communities with an esti-

mated population of 1.5 million. However, on the basis of the historical rate of development it has been estimated that over forty years will be required to obtain full coverage of the region's rural population with potable water service. Although the program is being accelerated in fiscal year 1970, the strategy that seems most appropriate with regard to this program is that it be given increased funding and accelerated still more in the 1972-1976 period provided it is adequately intergrated with community training, health, and related programs. Forthermore, there is evidence that some local water supply systems have already become defunct for lack of maintenance and necessary logistical support, and this condition requires immediate attention and correction.

1.3.8 Basic Strategy for Water Resources Development

1.3.8.1 The strategy elements whereby the agricultural objective of water resources development planning was to be attained, as established in 1968, are still valid and include the following:

- (a) Review irrigation, drainage and agricultural development of the region with the objective of analyzing the implications of past experience for its future development;
- (b) Examine past priorities and emphasis as reflected in allocation for public investment in irrigation, drainage and agricultural development and assess their adequacy;
- (c) Examine and recommend a feasible agricultural production and cropping pattern, keeping in view the present and future availability of irrigation water during the dry season, export and domestic market prospects, agricultural extension and other field services;
- (d) Identify promising future investment programs and projects and conduct necessary feasibility analysis to develop the supporting data and detail for them.

While several of these activities remain to be completed it is important also to stress that the fundamental guidelines for water resources development should also include:

- (e) Emphasis on Water Utilization, both for agricultural (irrigation & animal) and household use;
- (f) Improved integration with:
 - i. Agricultural output targets for cash-cropping (including discouraging of rice growing where wet cultures are uneconomical) and livestock promotion;
 - ii. Proposed industrial uses where appropriate; and
 - iii. Health and other community development programs.

1.3.8.2 With respect to potable water a more systematic approach for the selection of village wells is in order. Better use of the following basic criteria is recommended:

- (a) Population
- (b) Population density
- (c) Distance from dry season water source
- (d) Community health standards
- (e) History of local conditions of drought
- (f) Likelihood of success in the development of usable groundwater supplies
- (g) Indicated interest on the part of local villagers in having a potable water supply and in effectively operating and maintaining a system.

1.3.9 Manpower Development Strategy: Basic Objective

1.3.9.1 The acceleration of productivity and economic development in the Northeast is not possible without vigorous manpower development programs

with high priority for agricultural specialists. Manpower strategy must aim at developing effective new programs, expanding successful activities and eliminating those which are not productive. At the same time there must be more attention paid to motivation.

1.3.10 Manpower Problems in the Northeast

1.3.10.1 Underemployment - More than 85 percent of the population in the region are engaged in agricultural occupations. They are chronically underemployed during the dry season, and since the farms are small most villagers live at a subsistence level. Period droughts still create health and nutrition problems.

1.3.10.2 Urban Employment Opportunities - Underemployment, combined with natural migratory patterns has resulted in the migration of farmers and village youths from rural to city areas. This, as a result, creates social and unemployment problems of the new class of city dwellers.

1.3.10.3 Low Productivity of Labor and Income - Although investment for economic development in the Northeast has been augmented in the past years, the production and income are still at a low level. Rice harvests in the Northeast - 1.6 tons per hectare - are less than 3/4 of the national average and although 38 percent of Thailand's farming families (owning 38 percent of the farm land) live in the Northeast, the region produces only 26 percent of the Kingdom's agricultural output. One half of one percent of the farmers in the Northeast use fertilizer compared with 12.7 percent in the central plains, although there is evidence of increasing use at the present time. Less than one percent use tractors or sprayers in the Northeast, while 14 percent of farmers in the central plains use tractors and 10 percent use sprayers.

1.3.10.4 Poor health of population - Malnutrition and protein deficiency are still common in the Northeast, while liver flukes, trachoma,

dysentery and hookworm remain major health problems. (See also Section 1.3.14.2 below).

1.3.10.5 High rate of Population Growth - The Northeast has an estimated 11 million inhabitants. With the exception of growth in some of the Northeast's cities per capita income has remained at about 1,200 baht since 1961. One reason for this income stagnation is the high rate of population growth, now estimated at 3.5 percent.

1.3.10.6 Inadequate Education System at all Levels - In the Northeast only 4 percent of the eligible children (i.e. those within the appropriate age level) are enrolled in Pratom 5-7, while only 4 percent of the eligible students are in Mawsaw 1-5. The quality of teachers is low; very few bright young people with 4-year degrees are attracted by the low pay scales.

1.3.10.7 Vocational Training - The quality of vocational training is low in all types of technical courses. Few teachers have had adequate training and practical experience: practice equipment is often outmoded, inappropriate for the purpose, or missing altogether, teaching materials are nonexistent or inadequate, and students frequently are poorly prepared for technical instruction. Several different government agencies are involved and there is little coordination of planning, objectives, equipment, or facilities among the various programs. Unfortunately, the emphasis is on industrial and commercial type training in this predominantly agricultural region.

Moreover, the formal vocational agricultural education schools can be entered only after 10 years of schooling making them virtually unattainable to village youth. Because farm boys generally cannot enter agricultural schools very few agriculture teachers, extension workers or other specialists have had any experience with farm work and are therefore unable to train farmers in modern agricultural practices. To correct this situation technical training in agriculture should be made available to boys with Pratom 4 schooling.

On-the-job training by private and government employers is not adequate. This type of training has proved its value in all developed countries and should be actively encouraged and assisted by the Thai government. No mechanism exists at present for coordinating training by educational institutions, government, and employers.

1.3.11 Obstacles regarding Manpower Shortages and the Utilization of Manpower in various Development Projects in the Northeast

1.3.11.1 Project implementation is often delayed because of lack of suitable manpower.

1.3.11.2 The ability to attract key workers to Northeast Development projects is directly related to the following factors:

(a) A nation-wide shortage of personnel in a number of key occupations including engineers, doctors, and other highly skilled workers and technicians. In this situation the workers in short supply tend to be attracted to private industry which pays several times as much as the government.

(b) For families, living in the Northeast has many disadvantages. Schools are not good, there are few cultural opportunities, and in many places homes are vulnerable to bandits and insurgents.

(c) Incentives provided by the government to overcome the disadvantages listed in (b) are not sufficient.

1.3.12 Strategy for Solving Manpower Problems

1.3.12.1 Develop agricultural technicians to introduce modern practices (See also Section 3.3.4) - The present system of training agricultural technicians needs to be changed. Universities and technical schools have failed to produce graduates who know practical farm management and operations. Nearly all the training has been theoretically oriented with the result that graduates are unable to demonstrate modern

farm practice to villagers. Correction of this situation depends on:

(a) recruitment of agricultural students with farm backgrounds and

(b) while working toward this long-run solution provide students with adequate amounts of practical experience in all farm operations.

Special attention should be paid to developing personnel capable of supervising the installation of irrigation systems to the farmers' fields.

Thailand needs to extend the agricultural training system below the secondary school level in order to produce modern methods. The best way of doing this more quickly is to give short term training to intelligent mature villagers with leadership qualities. The objective of this type of training would be to create a corps of village and tambon extension assistants to work with the regular extension officers. The trainees would be chosen by their own villages.

Another program for quickly transferring modern methods to Northeast agriculture would be to train farmers' sons at about 16 years of age in short-term courses (6 months to one year) on fertilizers, seeds, irrigation, crop selection etc. A beginning on such a program has been made at an experimental institution supported by the ILO.

1.3.12.2 Maximize employment on farms - For the foreseeable future, agriculture will have to be the principal source of employment in Northeast Thailand. Manpower policy therefore should be mainly directed at expanding farm employment. Fortunately, modernization of agriculture on small farms results in greater manpower inputs, contrary to what is often assumed. Manpower-displacing equipment cannot be used effectively on small farms, but fertilizers, insecticides, and irrigation is quite feasible as they bring increased demand for manpower. Irrigated farms engaged in double cropping are particularly heavy users of manpower.

1.3.12.3 Promotion of on-the-job training - Concomitant with increasing productivity on the farms will be development of derivative industry and commerce in the Northeast, particularly those enterprises having to do with servicing the agricultural community. These enterprises will of course need workers with non-agricultural skills. Existing institutions in the Northeast could supply some of the needed workers, but for others new training programs will have to be established. These programs should be set up as the needs arise. To anticipate the specific manpower demands and train the workers ahead of time is not feasible. The best way to develop the required workers would be for manpower authorities to assist newly established enterprises in recruiting and in setting up training programs.

1.3.12.4 Special employment programs - If increased farm and agribusiness employment does not absorb the growing labor force, the additional programs to absorb the surplus must be considered. Among the possibilities for these kinds of programs are road repairing and building, constructing and maintaining irrigation ditches, reforestation, maintenance of wells and reservoirs. For work in remote areas the government might consider organizing a work corps of young men with no regular employment.

1.3.12.5 Migration programs - If there is still a surplus of labor despite the operation of the foregoing programs, it will be necessary for the government to help workers seek jobs in other parts of Thailand. To do this it would be necessary to develop an effective system of labor market information based on a national network of employment service offices. Also planning an industrial belt in the Central region should be part of a long term program which includes absorption of surplus labor from the Northeast.

1.3.12.6 Family planning - It is recognized that all efforts at creating a rational human resources policy will fail in the long run

unless Thailand can significantly slow down its rate of population growth. It is difficult enough for agriculture and industry to provide productive employment for a slow-growing population. For a population growing at the rate of more than 3 percent a year, it will be impossible to provide enough jobs. If a huge manpower surplus with all the attendant problems is to be prevented, the highest priority must be given to population planning programs.

1.3.13 Social Development: Basic Objectives - The broad area of social services may be roughly divided into three categories namely: Education, health and welfare. Education and health are generally regarded as independent variables in any region as economic development cannot occur until given levels of literacy, education, and health have been reached. Welfare services are a concomitant of economic development though generally not a pre-requisite to it. Since welfare programs are designed to redistribute wealth or to maintain the unfortunate at a minimum level of well-being these services generally reflect the state of economic development rather than contribute to it.

Thus as a matter of basic development strategy it will be essential to influence those variables in the social service sector (e.g., education and health standards) which will most crucially affect rates of agricultural productivity.

1.3.14 Social Service Sector Problems

1.3.14.1 Literacy and Education - Data in the 1960 census show that approximately 25 percent of the population in the Northeast over 10 years of age is illiterate. There is a positive correlation between age and illiteracy and close to 90 percent of the population over the age of 60 is illiterate. These data raise serious questions with respect to the

ability of the masses to benefit from economic development projects which presuppose the ability to organize and perceive abstract concepts and to participate generally in complicated development schemes. They also suggest that specific development programs should focus on well selected target groups rather than the total population.

Statistics on education are more encouraging, but still far from ideal. Most of the children in the Northeast have a chance to attend the first four grades of elementary school. However, recent studies show that the quality of education is quite low as measured by teacher qualification, the quality of the physical plant teaching aids and so on. Moreover, data show that even after four years of schooling many students lose the ability to read and write after they leave school.

Educational opportunities beyond grade four are quite meagre. Only about 14 percent of children within the appropriate age groups are enrolled in Pratom 5-7 and only 4 percent are in Mawsaw 1-5. Moreover the present educational system is such that only a select few could attend school beyond grade four even if space were available. The necessity to pay room and board as well as other expenses such as uniform makes it unlikely that enrollments will increase.

1.3.14.2 Health - The health situation in the Northeast is also unsatisfactory as shown by data on morbidity and the number and distribution of health services, facilities and manpower. A recent WHO report on a health survey in 15 Northeast changwats (plus Chiengrai) shows that there is hardly a healthy person in the region.^{1/} Chronic conditions include intestinal parasites, dysentery, and inadequate diets. Near chronic conditions include Trachoma, Leprosy and Tuberculosis. These conditions result in part from established beliefs and practices which will continue to retard the adoption of recommended health practices until the beliefs are changed through education.

^{1/} J. Bierdrager and Z.J. Buzo, Report On A Health Survey of the Lower Mekong Basin New Dehli: World Health Organization Regional Office Far South-Easg Asi, 1968.

The Government with the assistance of WHO has set as a desirable goal one health unit, consisting of one first class health center, four second class health centers, and ten midwifery centers, to cover each population complex of 50,000 people. Each unit is capable of providing most preventive and curative services (except treatment of the most acute diseases). According to this plan the Northeast should have the following health centers: 1st class -144, 2nd class -576, midwifery 1,440. Actually there are 56 1st class centers, 306 2nd class centers, and 382 midwifery centers. This gives one indication of the development which must take place in this area alone. There are additional discrepancies in special programs which are equally as large and probably as crucial. Inadequate budgets and manpower are the primary factors preventing expansion. Given budget, manpower could be solved. However, under the present system not enough nurses and doctors can be trained and made available for the next five years. On the other hand the regional training center and midwifery schools can accelerate the supply of midwives and sanitarians.

1.3.14.3 Welfare - For all practical purposes government welfare programs in child support or social security common to developed countries do not exist in Northeast Thailand. Nor is there an indication that Thailand needs or could afford these programs at this time. There are welfare programs for the medically indigent which are operated by the health department. In addition the welfare department, the land department, the community development department and other agencies operate programs designed to help families help themselves through resettlement and other schemes. In addition, the community development department operate a multitude of programs commonly referred to as development activities. It is not presently known how many individuals and families need or are receiving the various forms of welfare services. It is clear, however, that certain welfare services should be continued and expanded, particularly those relating to self-help schemes and those which assist certain medically afflicted groups such as leper, the tubercular and so on.

1.3.15 Basic Strategy for Solving Social Development Problems

1.3.15.1 Education

(a) Establish schools within easy access to all students though Pratom 7.

(b) Provide as soon as practicable enough secondary schools to accommodate up to 25 percent of students who finish Pratom 7.

(c) Establish a system of scholarships based on prior academic performance, standardized tests scores and need to permit at least 50 percent of the students who finish Pratom 7 to attend secondary school, a technical school or a training college.

(d) Within the next two years develop in every changwat at least one model school system. This system should consists of one secondary school and a number of schools at a lower level. Provisions should be made to transport by bus students to and from school each day at no cost to students.

(e) Make provisions within the next two years to have any community which has a school assume either through contributions, or assessment the responsibility for the maintenance, and upkeep of the plant as well as some portion (say 10 percent) of the cost of supplies and so on.

(f) Begin immediately to train manpower needed for the school expansion by expanding and upgrading the training colleges in the area and at Khon Kaen University.

(g) Upgrade the teachers who are now employed through in-service training at the training colleges, or Khon Kaen University. This can be done through a series of extension courses and summer institutes.

(h) Increase support to the training colleges and Khon Kaen University to fund the establishment of an extension services for the purpose of upgrading teachers and providing services in curriculum development to schools in area.

(i) Introduce some agri-environmental content into early grade curriculum (e.g., creative agriculture, See also Section 3.3.4.3).

Note: The foregoing requires careful phasing in view of the priority used to train and improve quality of teachers and the paucity of available training aids.

1.3.15.2 Health

- (a) Recruit and train professional staff for all existing 1st class health station.
- (b) Develop full health units around all existing first class centers.
- (c) Develop over the next five years at least five 1st class health stations per year. No 1st class health station should be developed unless a full health unit can be developed around it. Ubol and Korat changwats should receive top priority since these changwats have the fewest number of 1st class health stations in terms of projected need.
- (d) Strengthen special programs particularly leprosy and TB Control by making more funds available for follow up and supervision of out patients.
- (e) Integrate special programs into the changwat health service through a formal structure rather than on an informal basis as now exists.
- (f) Develop in every community in which there is a health station, a voluntary association which will serve as a mechanism for securing support for the health station as well as a means to promote health education through the group approach.
- (g) Strengthen the maternal and child health program on the local level, with emphasis on family planning.
- (h) Institute a protein food program by cooperating with the Agricultural Extension Services and other agencies to promote the production of Protein foods, and by making available through the health stations high protein supplements such as fish meal, soy beans and so on at a nominal cost.

1.3.15.3 Welfare: Community Development

- (a) During the next two years develop a Model program in at least three changwats where villages compete with each other to solve their problems.

(b) Secure support for Community Development activities from the business community in each changwat.

(c) Emphasize the development of strong community organizations through leadership training.

1.3.15.4 Welfare: Health Related Services

(a) Provide a means to separate children of lepers from their parents especially while they are hospitalized either in foster homes or an orphanage.

(b) Provide transportation for treatment and cost of drugs to the medically indigent.

(c) Provide a high protein lunch using the protein supplements to children at school.

1.3.16 Transport Development Strategy: Basic Objective - The transport net work must be designed to support agricultural and related output objectives (See Agriculture Sector).^{1/}

1.3.17 Transport Conditions in the Northeast

1.3.17.1 Highway Network - At the present about 2,600 km. of paved highways and 1,000 km. of railroad comprise the arterial network in N.E. Thailand. About 1,400 km. of all weather laterite and gravel road exist as supplemental arterials. An estimated 3,500 km. of dirt road of highly variable quality and about 40,000 km. of earth tract comprise the feeder system.

1.3.17.2 Vehicle Fleet - The 1967 vehicle fleet consisted of 18,812 motorized, four or more wheeled vehicles, 26,235 motor-cycles and an unknown number of ox-carts and other non-motorized wheeled transport. (The

^{1/} The formulation of military objectives is beyond the scope of this report; it is assumed that policies to improve rural income include advantageous political and counter-insurgency effects.

number of ox-carts would be about 250,000 if the ownership rate was one ox-cart per 10 families. No inventory data on ox-carts exists.)

1.3.17.3 Sufficiency - Comparatively little of Northeast Thailand is more than a day's return journey by ox-cart to an all weather road or railroad and the largest proportion of this less developed area is mountainous and uninhabited along the western boundary of the region.

Until a region has been opened up to transport, other developmental inputs, either in Social Overhead Capital (S.O.C.) or Directly Productive Investments (D.P.I.) can have little impact. Once opened up, however, the social and economic impact of further transport investment will be heavily dependent on the mix of other S.O.C. and D.P.I. inputs. The optimum size of the road network will also depend on terrain and climate, dwelling or living patterns, cropping patterns and yields, and the number and type of various vehicles and the resulting traffic density.

Given a dominant goal of increasing productivity, land use patterns, cropping patterns, and crop yields will determine the optimum road network size from a developmental standpoint.^{1/} The latter items will heavily determine income which in turn will determine the vehicle fleet size. These therefore are the major variables which require projections.

It can probably be assumed that except for isolated resettlements, dwelling patterns in the Northeast will not change enough to matter from a transport viewpoint. Climate and terrain are taken as fixed.

For the moment there is no evidence that existing roads and other transport availability significantly impede economic development in the Northeast. Furthermore, present transport capacity can generally support substantial increases in agricultural production. Stagnation in the latter are largely due to other than transport factors.

^{1/} This optimum ratio will be minimum distance of road to cultivated area necessary to eliminate transport as a developmental constraint relative to other constraints.

1.3.17.4 Road Distance to Cultivated Area Ratios - The road distance to cultivated area ratio varies widely, depending on the mix of conditions, even in advanced agricultural nations.^{1/}

The existing ratio in Northeast Thailand depends on how one accounts for the considerable network of ox-cart tracks. Generally these tracks can also be negotiated during the harvest season by four-wheel drive vehicles. The terrain is mostly flat in the major areas of cultivation and the harvest occurs during the dry season. Much of the track network could be negotiated in the wet season merely by correcting isolated bottlenecks, i.e. the lack of a bridge or a low lying stretch of road.

1.3.17.5 Obstacles regarding transport sector strategy

(a) The availability of skilled manpower and financing to maintain the present road network is entirely inadequate.

(b) A well developed feeder road network is not feasible in the absence of local taxing powers which would enable local communities to finance local road maintenance and betterment without reference to higher authority. At the present no organization exists at either the local level or higher to conduct maintenance and no legal way exists to finance the cost of such an organization.

1.3.18 Principal Transportation Strategy Components - Construction investments in roads should presume a surface operational life consistent with the legal and administrative obstacles to local maintenance of local roads and to routine axle over-loading on all roads. Calculations are required also to estimate the financial cost of present institutional obstacles so that a beginning might be made to influence adjustments.

1.3.18.1 Intersectoral Coordination - Future transport development

^{1/} For example, in the U.S.A., the ratio varies from 1.7 : 1 in dry, generally flat Oklahoma, to 3.2 : 1 in the wetter or more hilly state of North Carolina when the unit of measurement is miles. In both these states, however, the network is considerably beyond the constraint level of agricultural development.

should be closely coordinated with agricultural and industrial input/output requirements and to general traffic demand.

1.3.18.2 Agricultural Potential - New construction and major upgrading of existing roads should be concentrated in areas with determinable unexploited agricultural potential including perishables.

1.3.18.3 Integration with Employment Policy - Residual construction and possibly expanded maintenance could be related to reducing unemployment if this follows a possible U.S. military withdrawal.

1.3.18.4 Improvement of Conservation of Road Network - Institutional procedures for conserving existing plant and facilities must be improved by

- (a) better enforcement of the traffic code, and
- (b) appropriate legal, fiscal, and organizational requirements for local feeder road maintenance.

1.3.18.5 Improvement of Road Safety - Dangerous or exceptionally heavy loading should be transferred to the railroad in the interests both of safety, road life and railway earnings. Gasoline, jet fuel, and logs are prime examples.

1.3.19 Basic Objectives: Other Sectors - Energy, communications and generally the private sector (including industry, especially agribusiness, and trades/services) have not been treated as part of the current report. There is no specific representation for these within the NEED program. However, outputs from national plans and specific demand and distribution research will supplement the NEED plan requirements for these sectors, especially with respect to livestock, forestry and other processed goods.

For the purpose of this section it may be noted that encouragement of the private sector - based on feasibility analysis of specific promotional schemes - is vital to the success of commercializing agricultural production in the Northeast, both for increased domestic consumption as well as for export; furthermore this is consistent with the fundamental objectives of geographic specialization and increasing per capita RDP in the region.

SUMMARY: SECTION (2)

DATA RESEARCH AND PROJECT REVIEW

2.1 Performance of the Northeast Economy

2.1.1 While the Northeast has one third of the nation's population, its share of all other resources (except unclassified land), inputs (except foreign aid) and especially outputs (except fresh water fish production) are below the population share, in some cases substantially so.

Substantial differences in economic performance and endowment exist between changwats (e.g. Srisaket vs Loei), and between rural and urban incomes generally.

Most Northeast shares are still declining indicating a rising income gap between the Northeast and the Kingdom as a whole.

2.1.2 Northeast share of agricultural production (about 3.5% per year growth in rice, about 2% in other crops) has remained at about 22.5% of the national production in the past decade.

The composite economic index reflecting the industry and trade sectors indicates the Northeast to have grown at an annual rate of about 11%, but from a very low base. It is only about 7.5% of the nation as a whole, with its share possibly falling.

2.1.3 Commodity flow data indicate that the Northeast exports up to 20% of its rice crop (but this is subject to wide annual fluctuations). The chief imports are fuel oil and general consumer goods, while livestock, lumber and construction materials are the chief exports.

2.2 Information concerning development budgets by region and by sector is in the process of being researched. This will locate specific deficiencies where they may exist.

2.3 Various data gaps exist especially in the fields of man-power development and employment. However there are sufficient data for the purpose of framing the general 5 year plan components for the Northeast.

2.4 Evaluation of projects and programs to date indicate that development expenditures in the Northeast are likely to fail in their intended objectives unless:

The incentives for farmers to increase production is improved. This requires that he be supplied with

- (a) The technical know-how to engage successfully in cash cropping by receiving appropriate assistance from agricultural extension services.
- (b) More accurate information as to the market (i.e., Saleability) of his intended crop.
- (c) An appropriate marketing organization that would assure him with a sufficient return for his effort - this includes a fair price, credit, possible price supports and security (freedom from exploitation).

Section 2 DATA, RESEARCH AND PROJECT REVIEW

2.1 Performance of the Northeast Economy - It is not necessary here to provide all of the descriptive information, concerning physical, demographic and other base economic data of the Northeast.^{1/} Instead a look at the Northeast economy is taken based on comparative data made available so far.

2.1.1 The Northeast's Share of the National Economy - In the following an appraisal of the Northeast's share of the entire kingdom is developed with the idea that this would provide a better understanding of what needs to be done in order to get the region to participate more equitably in the economy of the Kingdom.

Table 2-1 represents a summary of those data which could be supplied and they are divided into three categories:

- (a) Resources
- (b) Inputs
- (c) Outputs

Table 2-2 contains the equivalent details for the production of the major agricultural crops.

The foregoing (even though some data are not as accurate as might be hoped^{2/}) when integrated give a reasonably clear picture of the recent economic development of the Northeast. While there are some data gaps (especially in the employment and general manpower sector), where data would have been helpful in evaluating particular sectoral problems,

^{1/} The regional data bank at NSO is preparing a summary of the 15 Northeast Changwats including maps which will serve as a useful base information summary of the entire Northeast region.

In addition much useful information on the Northeast is contained in Phaichitr Uathavikul, "Regional Planning as a Tool for Development, N.I.D.A., September, 1969.

^{2/} For example, the data for maize production in 1960 as well as the entire series for fish consumption in the Northeast are suspect.

NORTHEAST REGION SHARE
AS PERCENTAGE OF WHOLE KINGDOM 1960-1968

| (A) RESOURCES | | | | | | | | | | (C) OUTPUTS | | | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1960 % | 1961 % | 1962 % | 1963 % | 1964 % | 1965 % | 1966 % | 1967 % | 1968 % | | 1960 % | 1961 % | 1962 % | 1963 % | 1964 % | 1965 % | 1966 % | 1967 % | 1968 % |
| 1. POPULATION | 34.2 | - | - | - | - | - | - | - | 34.0 | 25. GOVERNMENT REVENUE | - | - | 2.2 | 2.2 | 1.5 | 1.9 | - | - | - |
| 2. AREA | 33.1 | - | - | - | - | - | - | - | 33.1 | 26. BUSINESS TAXES | 5.4 | - | - | - | - | 2.6 | 2.9 | 2.7 | 2.6 |
| 3. FARM LAND | - | - | - | 33.6 | - | - | - | - | - | 27. PERSONAL INCOME TAX | 6.6 | - | - | - | - | 7.6 | 8.2 | 6.8 | 6.3 |
| 4. PADDY LAND | - | - | - | 37.5 | - | - | - | - | - | 28. AGRICULTURAL PRODUCTION | 26.0 | 32.0 | 26.4 | 28.8 | 27.0 | 24.2 | 27.5 | 22.5 | 22.5 |
| 5. UPLAND CROP LAND | - | - | - | 31.8 | - | - | - | - | - | 29. PADDY PRODUCTION | 27.4 | 28.4 | 33.1 | 32.5 | 28.1 | 24.2 | 30.2 | 22.5 | 28.5 |
| 6. FOREST LAND | - | - | - | 24.0 | - | - | - | - | - | 30. FOREST PRODUCTION | 19.1 | 20.6 | 22.7 | 21.9 | 21.5 | 19.5 | 21.0 | 20.7 | 22.0 |
| 7. OTHER LAND | - | - | - | 54.6 | - | - | - | - | - | 31. FRESH WATER FISH PRODUCTION | 33.0 | 37.0 | 42.2 | 39.5 | 38.1 | 49.0 | 53.2 | 50.9 | 52.7 |
| 8. MUNICIPAL POPULATION | 9.5 | - | - | 8.9 | 8.9 | 8.0 | 8.0 | 8.9 | 9.0 | 32. QUARRYING AND MINING | 3.7 | 3.7 | 3.6 | 4.3 | 6.3 | 7.4 | 9.9 | 11.8 | 12.3 |
| 9. LIVE BIRTHS | - | 32.0 | 31.4 | 33.3 | 34.2 | - | - | - | - | 33. OWNERSHIP & DWELLINGS (VALUE ADDED) | 15.5 | 15.3 | 15.1 | 15.0 | 15.0 | 14.9 | 14.8 | 14.7 | 14.6 |
| 10. DEATHS | - | 38.0 | 37.5 | 38.9 | 40.3 | - | - | - | - | 34. BANKING, INSURANCE, REAL ESTATE (VALUE-ADDED) | 2.5 | 2.6 | 2.8 | 2.9 | 3.0 | 3.2 | 3.5 | 3.9 | 4.0 |
| 11. RAILWAY LENGTH | 22.0 | 22.0 | 22.0 | 22.0 | 22.0 | 22.3 | 22.3 | 22.3 | 22.3 | 35. COMMERCIAL BANK DEPOSITS | - | - | - | - | - | 4.4 | 4.8 | 4.8 | 4.6 |
| 12. T.H.D. AND R.I.D. ROADS | - | - | - | - | - | - | - | - | 31.3 | 36. TRANSPORTATION & COMMUNICATION (VALUE-ADDED) | - | - | - | - | 9.0 | 9.8 | 10.2 | 10.7 | 11.0 |
| 13. TEACHERS | - | - | - | - | 28.8 | 28.5 | 28.2 | 28.0 | - | 37. RAILWAY FREIGHT LOADINGS | - | - | - | - | - | 14.8 | 12.8 | 15.8 | 15.7 |
| 14. SCHOOLS | - | - | - | - | 37.4 | 37.3 | 37.2 | 37.1 | - | 38. COMMERCIAL VEHICLE REGISTRATIONS | - | - | - | - | - | 13.1 | 13.2 | 10.4 | 12.8 |
| 15. SCHOOL ENROLLMENT | - | - | - | - | 31.1 | 30.8 | 30.4 | 30.4 | - | 39. POWER CONSUMPTION | - | - | - | - | - | 0.1 | 1.3 | 1.5 | 2.2 |
| 16. TELEPHONES | - | - | - | - | - | 4.4 | 4.8 | 6.1 | 5.2 | 40. GROSS DOMESTIC PRODUCT | - | 20.2 | 18.9 | 18.9 | 17.7 | 16.9 | 17.7 | - | - |
| (B) INPUTS | | | | | | | | | | 41. COMPOSITE AGRICULTURAL INDEX | 19.2 | 25.0 | 22.0 | 26.0 | 23.5 | 22.6 | 30.0 | 21.7 | 23.0 |
| 17. GOVERNMENT EXPENDITURE | - | - | 21.0 | 21.0 | 21.5 | 21.8 | - | - | - | 42. COMPOSITE GENERAL ECONOMIC INDEX | 7.5 | - | - | - | - | 7.1 | 7.3 | 7.6 | 7.5 |
| 18. 2 ND. PLAN DEVELOPMENT BUDGET | - | - | - | - | - | - | - | 20.7 | 20.7 | | | | | | | | | | |
| 19. PUBLIC CONSTRUCTION | 3.7 | 4.2 | 5.0 | 5.4 | 15.0 | 18.7 | 21.9 | 23.4 | 23.0 | | | | | | | | | | |
| 20. NEW ROAD CONSTRUCTION, T.H.D. & R.I.D. | - | - | - | - | - | 44.0(AV) | 44.0(AV) | 44.0(AV) | 44.0(AV) | | | | | | | | | | |
| 21. PRIVATE CONSTRUCTION | 15.6 | 15.3 | 15.1 | 18.0 | 17.1 | 19.7 | 17.0 | 16.2 | 15.3 | | | | | | | | | | |
| 22. NUMBER OF BUILDING PERMITS | 10.4 | - | - | - | - | 10.1 | 10.5 | 13.2 | 10.5 | | | | | | | | | | |
| 23. FOREIGN LOANS | - | - | - | 1.7 | 15.0 | 17.4 | 10.1 | 15.5 | 6.1 | | | | | | | | | | |
| 24. U.S. A.I.D. | - | - | - | - | - | - | 52.0 | 53.3 | 52.2 | | | | | | | | | | |

NOTE :

TOURISM EXPENDITURES IN THE NORTHEAST AMOUNTED TO LESS THAN 0.1 % OF THE NATION FOR THE PERIOD.

SOURCE : COMPILED BY NEDB AND NSO STAFF.

LOUIS BERGER, INC. - SYSTEMS ASSOCIATES, INC.

AGRICULTURAL PRODUCTION
NORTHEAST THAILAND AND WHOLE KINGDOM
1960 — 1968

| | | PADDY | MAIZE | SUGAR CANE | GROUNDNUT | COCONUT THOUSANDS OF NUTS; | CASSAVA | TOBACCO | COTTON | KENAF | KAPOK AND BOMBOX (IN SHELL) | BELL & BIRD PEPPERS | SORGHUM, MUNGBEAN, SOYBEAN, CASTERBEAN, SESAME, GARLIC, ONION, JUTE, RAMIE | VEGETABLES | FRUIT |
|---------------------------|--------------------------|--------------------|-------------------|-------------------|-----------------|----------------------------------|-------------------|----------------|----------------|-----------------|-----------------------------------|------------------------|---|-------------------|-------------------|
| | | METRIC TONS | METRIC TONS | METRIC TONS | METRIC TONS | 1 NUT = 1.25 KGS | METRIC TONS | METRIC TONS | METRIC TONS | METRIC TONS | METRIC TONS | METRIC TONS | METRIC TONS | METRIC TONS | METRIC TONS |
| 1960 | TOTAL NORTHEAST | 2,784,710 | 154,200 | 1,134,000 | 41,091 | 37,732 | 60,100 | 21,283 | 25,740 | 176,402 | 122,641 | 15,969 | 50,794 | 76,438 | 623,787 |
| | % NE/WK WHOLE KINGDOM | 29.3 9,508,063 | 28.3 543,935 | 21.1 5,382,274 | 270 152,025 | 11.1 340,316 | 4.9 1,222,337 | 28.7 74,092 | 565 45,486 | 97.3 181,306 | 16.6 740,087 | 3.8 47,244 | 21.7 233,542 | 16.5 462,388 | 29.2 2,135,007 |
| 1961 | TOTAL NORTHEAST | 2,819,167 | 75,607 | 873,142 | 35,290 | 40,376 | 56,571 | 18,114 | 15,152 | 324,071 | 113,478 | 22,849 | 55,394 | 92,032 | 820,904 |
| | % NE/WK WHOLE KINGDOM | 28.4 9,923,265 | 12.6 598,276 | 21.9 3,983,515 | 32.7 107,854 | 11.7 334,896 | 3.3 1,726,159 | 37.4 48,447 | 39.6 38,255 | 95.5 339,284 | 27.0 420,984 | 32.7 69,894 | 27.2 203,216 | 15.2 605,355 | 37.2 2,207,582 |
| 1962 | TOTAL NORTHEAST | 3,740,450 | 26,017 | 698,159 | 26,062 | 53,922 | 61,454 | 10,310 | 14,691 | 130,473 | 90,900 | 24,311 | 39,221 | 112,041 | 575,112 |
| | % NE/WK WHOLE KINGDOM | 33.2 11,261,700 | 10.2 665,429 | 21.1 3,154,000 | 23.2 112,406 | 15.0 359,411 | 3.0 2,077,000 | 21.5 47,944 | 35.6 41,308 | 97.3 134,048 | 17.3 528,062 | 34.2 71,113 | 15.8 248,631 | 14.9 751,650 | 25.2 2,282,757 |
| 1963 | TOTAL NORTHEAST | 3,981,743 | 64,459 | 1,021,897 | 37,672 | 57,998 | 92,262 | 13,638 | 13,546 | 204,290 | 138,933 | 29,433 | 42,762 | 159,743 | 665,286 |
| | % NE/WK WHOLE KINGDOM | 32.7 12,171,188 | 7.5 857,743 | 21.6 4,732,944 | 33.4 112,930 | 15.4 375,299 | 4.4 2,111,052 | 29.2 46,609 | 27.8 48,583 | 96.5 211,696 | 26.9 516,802 | 38.3 76,775 | 14.0 305,782 | 17.1 933,303 | 28.2 2,360,296 |
| 1964 | TOTAL NORTHEAST | 3,269,720 | 63,384 | 1,201,045 | 32,154 | 58,420 | 100,333 | 11,817 | 15,483 | 297,083 | 145,000 | 20,778 | 38,875 | 155,829 | 492,651 |
| | % NE/WK WHOLE KINGDOM | 28.2 11,599,925 | 6.8 953,125 | 23.6 5,074,200 | 26.8 119,846 | 16.3 358,938 | 6.4 1,556,750 | 18.8 62,803 | 31.5 49,138 | 98.0 305,091 | 25.8 561,818 | 29.8 69,655 | 13.1 298,917 | 18.4 847,786 | 20.2 2,440,357 |
| 1965 | TOTAL NORTHEAST | 2,697,048 | 69,228 | 986,172 | 35,122 | 59,634 | 167,478 | 14,668 | 15,865 | 521,078 | 145,500 | 20,634 | 45,065 | 146,261 | 532,063 |
| | % NE/WK WHOLE KINGDOM | 24.2 11,163,901 | 6.8 1,021,286 | 22.0 4,479,546 | 26.9 130,553 | 15.6 382,824 | 11.4 1,474,669 | 21.6 67,890 | 26.5 59,815 | 98.5 528,598 | 25.8 563,636 | 27.9 73,984 | 13.1 343,331 | 16.2 904,910 | 21.1 2,522,861 |
| 1966 | TOTAL NORTHEAST | 4,394,645 | 110,802 | 626,734 | 33,932 | 54,213 | 126,498 | 16,033 | 17,298 | 649,141 | 107,600 | 20,945 | 49,535 | 215,497 | 561,327 |
| | % NE/WK WHOLE KINGDOM | 32.6 13,500,000 | 9.8 1,122,399 | 16.4 3,828,834 | 15.4 219,948 | 15.5 349,634 | 6.7 1,891,701 | 19.9 80,620 | 19.4 88,810 | 98.1 661,371 | 21.7 496,364 | 21.6 97,113 | 10.6 467,075 | 15.6 1,365,198 | 21.5 2,607,886 |
| 1967 | TOTAL NORTHEAST | 2,636,190 | 121,237 | 589,324 | 31,684 | 51,800 | 157,298 | 16,924 | 20,871 | 389,485 | 90,992 | 19,325 | 41,517 | 229,590 | 586,587 |
| | % NE/WK WHOLE KINGDOM | 23.5 11,198,000 | 9.4 1,150,000 | 15.1 3,900,000 | 21.1 150,000 | 15.8 372,257 | 8.7 1,800,000 | 21.2 80,000 | 26.0 80,000 | 97.3 400,000 | 19.2 472,727 | 19.3 100,000 | 10.1 411,290 | 15.9 1,444,762 | 21.8 2,696,554 |
| 1968 | TOTAL NORTHEAST | 4,121,600 | 158,093 | 697,760 | 31,240 | 53,300 | 151,628 | 17,420 | 25,024 | 175,268 | 96,724 | 19,258 | 42,443 | 248,263 | 620,609 |
| | % NE/WK WHOLE KINGDOM | 33.2 12,410,000 | 11.7 1,350,000 | 15.6 4,485,000 | 23.9 130,700 | 15.7 337,729 | 9.0 1,680,780 | 20.5 84,800 | 26.3 95,040 | 95.4 183,594 | 20.3 476,036 | 18.2 106,100 | 10.4 409,099 | 16.4 1,511,221 | 22.3 2,788,237 |
| 1960-1968 9 YEARS AVE. | TOTAL NORTHEAST | 3,382,808 | 93,670 | 869,804 | 33,805 | 51,933 | 108,180 | 15,581 | 18,185 | 318,586 | 116,863 | 21,500 | 45,067 | 159,522 | 608,714 |
| | % NE/WK WHOLE KINGDOM | 29.6 11,415,116 | 10.2 918,021 | 20.1 4,335,590 | 24.6 137,362 | 14.6 356,812 | 6.3 1,726,716 | 23.6 65,912 | 30.0 60,715 | 97.4 327,065 | 22.0 530,279 | 27.1 79,098 | 13.9 324,209 | 16.2 982,526 | 24.8 2,449,060 |

SOURCE : DIVISION OF AGRICULTURAL ECONOMICS, MINISTRY OF AGRICULTURE.

LOUIS BERGER, INC. — SYSTEMS ASSOCIATES, INC.

FEBRUARY, 1970

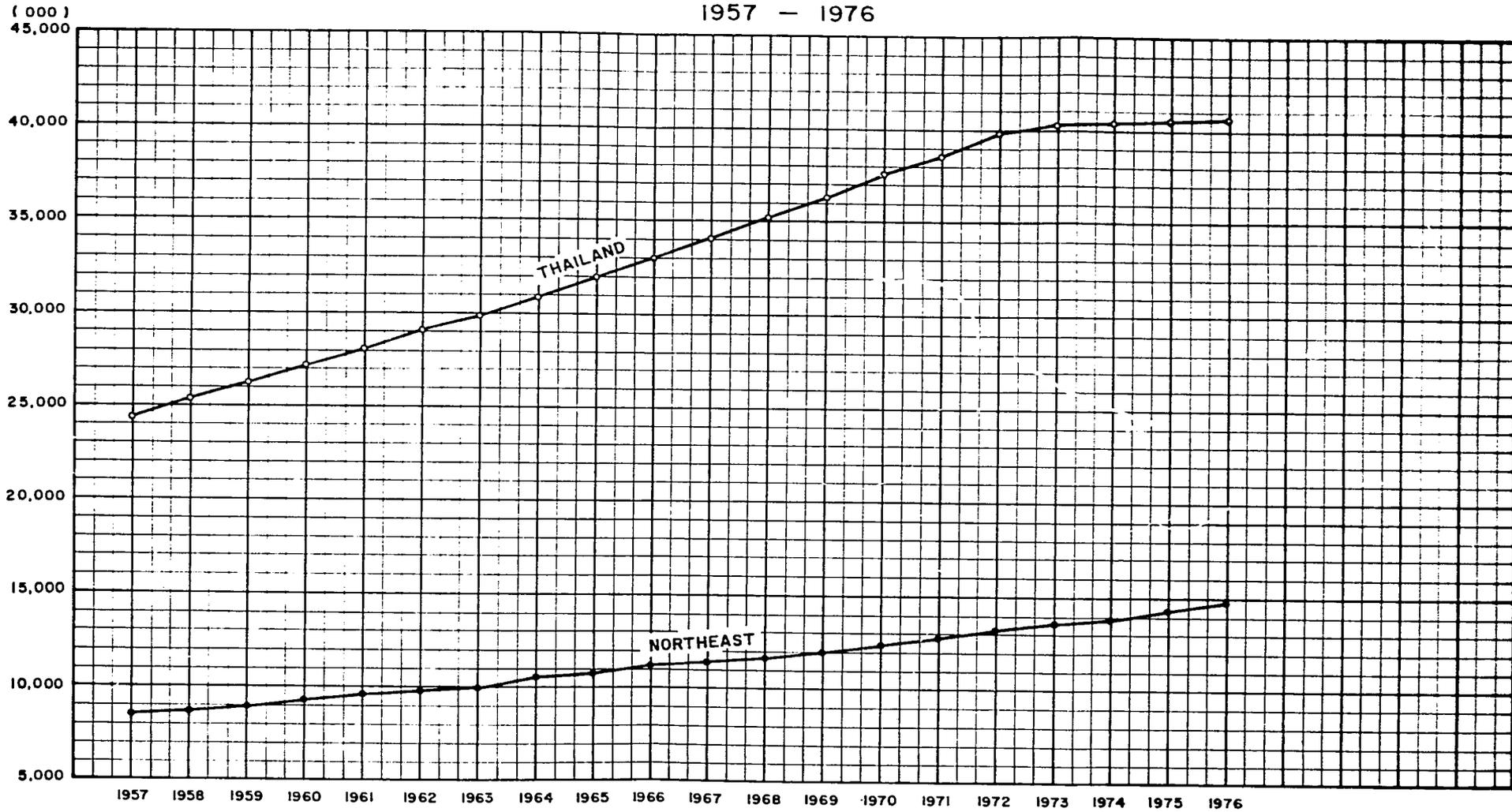
it is unlikely that an increase in data collection at this time would alter the basic conclusion that the results of the inputs into the Northeast over the last decade has been disappointing. However, additional refinements now in process may affect somewhat the magnitudes involved.

Thus it should be noted that the population's share (declining only slightly between 1960 and 1969, but expected to increase in the seventies, See Chart 2-1 is roughly 1/3 of the Nation's as is the land area in the Northeast. With few exceptions almost all other Northeast resources (except unclassified land) are below the population's share and in many cases significantly so. Categories including telephone, banking and power consumption, still in their infancies, range below six percent of the Nation's share. It is only in the category of fish production (and there is some questions about the validity of this particular series) where the share has significantly increased over the past 10 years (presumably due to the completion of major reservoirs). One might also point out that the Northeast has benefited by more than 50 percent of USAID's contribution to Thailand, although this is a relatively recent phenomenon and it is only beginning with 1969 that a more valid evaluation of its impact may be established.

In relative terms many of the shares are stagnating or even declining (e.g., total agricultural production and regional gross domestic product) which means that the composite wealth of the rest of the nation is increasing in relation to the Northeast. This is illustrated further in Section 2.1.2 below.

It should be pointed out that there are substantial differences within the Region which is not homogeneous. For example, Amphoe Pakchong in Korat and selected areas along the Mekong River are examples of relatively high concentrations of economic activity. Table 2-3 gives an indication of the differences in rice productivity. This clearly demonstrates again the low yields in the Northeast as a whole as well as the disparity between Changwats (e.g. Sisaket vs. Loei).

ESTIMATED POPULATION THAILAND & NORTHEAST THAILAND 1957 - 1976



SOURCE : ESTIMATES OF THE THAI POPULATION 1957-1976 AND SOME AGRICULTURAL IMPLICATIONS, KASSETSART UNIVERSITY-1969

The household expenditure survey of 1963 indicated substantial differences between rural and urban incomes in the Northeast - a disparity exceeding that in other regions; it is likely that this difference has increased since 1963 because of the relative stagnation of the agricultural sector contrasted with urban activities stimulated by military involvements.

Table 2-4 is illustrative of differences in the education sector with widely varying degrees of average literacy between Changwats in the Northeast. The illustrations following Table 2-4 represent some of the differences in facilities.

It is of course necessary for planning purposes to recognize particularly the differences in topography, climate, irrigability, etc.

2.1.2 Regional Economic Indices - In order to gauge the Northeast in relation to the other principal regions two sets of regional indices were prepared by the National Accounts Division. Again it was difficult to get all of the information desired in order to strengthen the analyses desired (especially in connection with employment). However, the results appear sufficiently useful to establish a regional planning frame.

2.1.2.1 An Agriculture Index (See Chart 2-2 and Appendix 2-A and 2-B for supporting data) for the Northeast shows its share of the total economy to have fluctuated between 19 and 30 percent between 1960 and 1968 and standing at 23 percent in 1968. It might be noted in passing that it has been the South which has declined in primary production during the period 1960 to 1965 although improvements have been indicated since then (See Chart 2-3).

TABLE 2-4

PERCENT OF POPULATION 10 YEARS OF AGE AND OVER LITERATE

15 Changwats: Northeast Thailand

1960

| Changwat | Percent Literate |
|-------------------|---------------------|
| Ubon Ratchathani | 81 |
| Nakhon Ratchasima | 75 |
| Khon Kaen | 76 |
| Udon Thani | 75 |
| Roi-Et | 84 |
| Sisaket | 69 |
| Buriram | 69 |
| Surin | 68 |
| Maharakham | 82 |
| Chaiyaphum | 77 |
| Nakhon Phanom | 66 |
| Kalasin | 75 |
| Sakon Nakhon | 77 |
| Nong Khai | 73 |
| Loei | 63 |
| (Total Kingdom) | 71) |

Note: There is a negative correlation between age and literacy in every province. Fifty percent and over of the Population age 65 and above is illiterate.

Source: Census of population 1960.

CONTRAST IN FACILITIES I



1



2

SCHOOL

- 1 SCHOOL NONG KAI
- 2 VILLAGE SCHOOL HOUSE
AMPHUR NONG BUA KHOK
CHAIYAPHUM

RELIGION

- 1 WAT SAKHON NAKORN
- 2 VILLAGE CHAIYAPHUM



1



2

ROADWAY

- 1 HIGHWAY BETWEEN SA-
KHON NAKORN-KALASIN
SLOPE NORTH OF
PHUPAN RANGE
- 2 TRACK INTO KHAO
PETCHABUN RANGE
N.W. CHAIYAPHUM



1



2



1



2

WATER

CONTRAST IN FACILITIES II

- 1 LAM THAKONG
RESERVOIR, KORAT
- 2 LOCAL STORAGE DAM
SARAPHEE
AMPHUR CHOKCHAI
EASTERN KORAT

HOUSING

- 1 VILLAGE HOUSING
AMPHUR PRAKOHN CHAI
BURIRAM
- 2 VILLAGE HOUSE
AMPHUR MUANG
SAKHON NAKORN
- 3 AMPHUR HOUSING
MUANG
KORAT



1

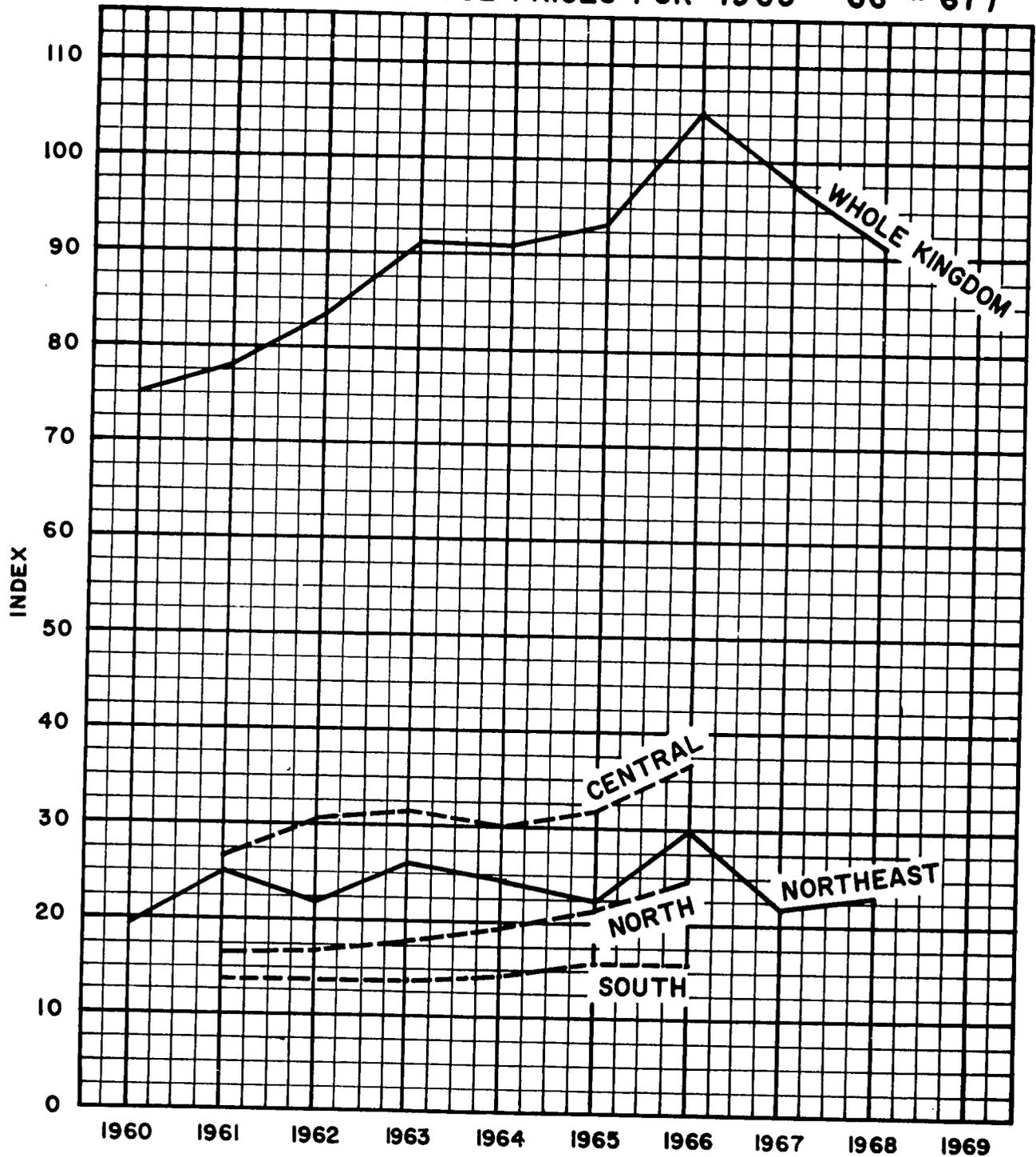


3



2

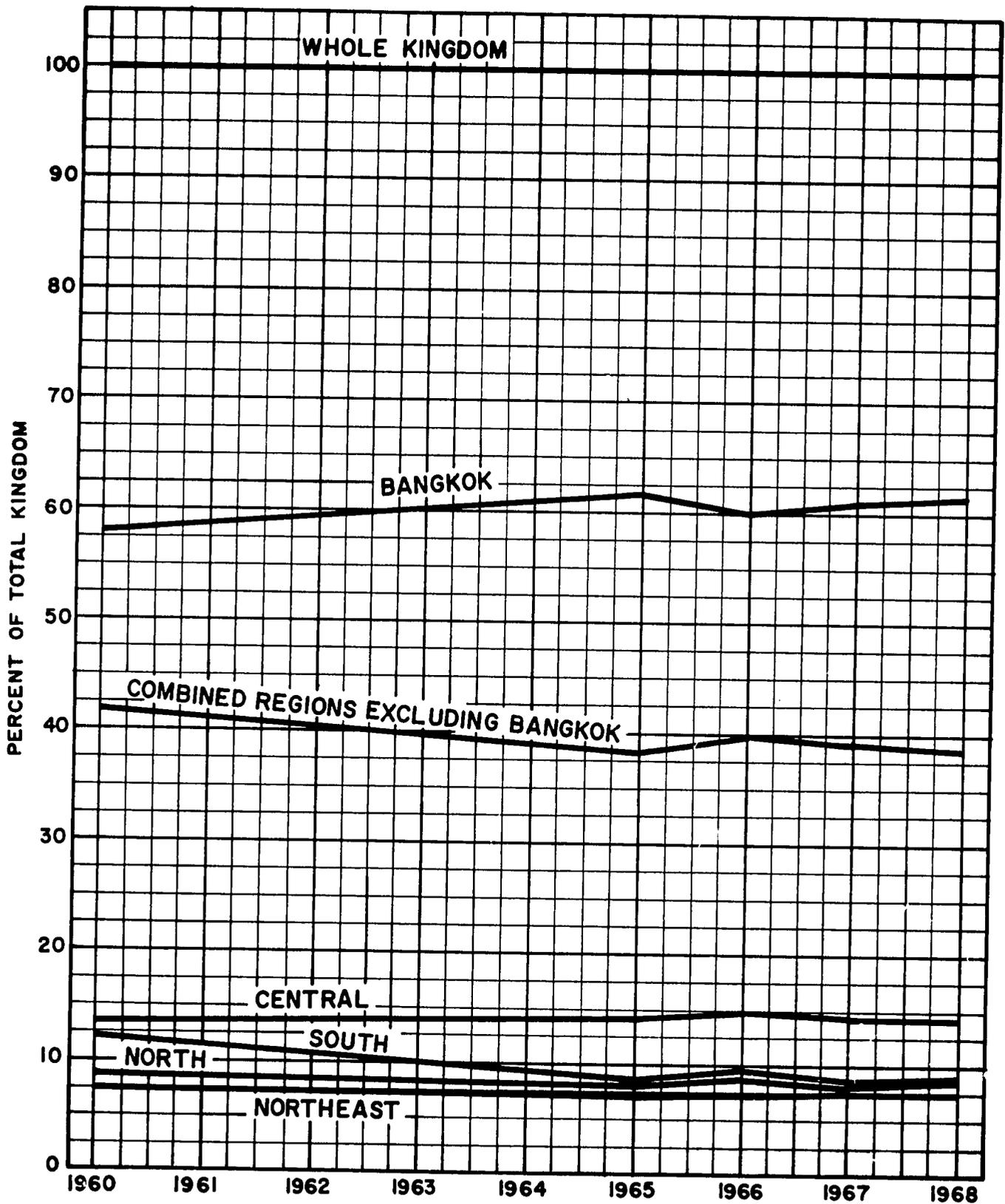
COMPOSITE AGRICULTURAL PRODUCTION INDEX
 BASED ON 100% FOR THE WHOLE KINGDOM
 (AVERAGE VALUE AT 1962 PRICES FOR 1965 - 66 - 67)



NOTE : DATA FOR REGIONS OTHER THAN NORTHEAST HAVE NOT YET BEEN ANALYZED IN THE SAME DETAIL. THE DOTTED CURVES ARE BASED ON REGIONAL DATA MADE AVAILABLE SO FAR.

SOURCE : BASED ON DATA COMPILED BY THE NATIONAL ACCOUNTS DIVISION, N.E.D.B.

COMPOSITE GENERAL ECONOMIC INDEX REGIONS RELATED TO WHOLE KINGDOM THAILAND 1960 - 1968



SOURCE : BASED ON DATA COMPILE BY NATIONAL ACCOUNTS DIVISION, N.E.D.B.

2.1.2.2 A Composite General Economic index was the second one to be prepared. Increases in the industry and trade sectors are indicative of the commercialization of primary resources (agriculture, forestry, minerals etc.); tourism and U.S. Military presence can also have a similar impact.

It is therefore the composite economic index reflecting other than primary activities which has special significance from a development standpoint.

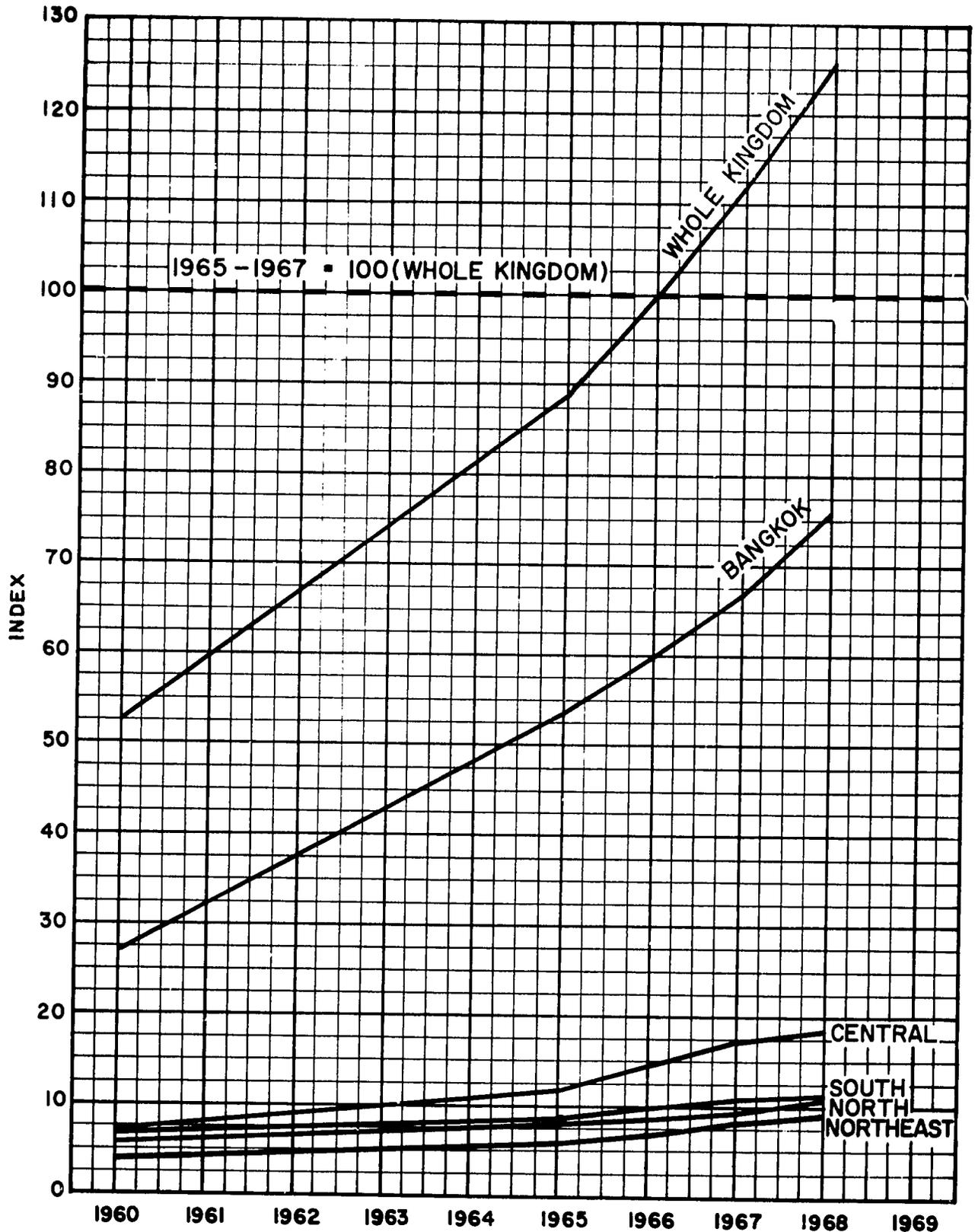
This index (See Chart 2-4 and Appendix 2-C for supporting data) has been rising rather sharply in the last decade in all regions, largely because it started from a rather low base at the beginning of the decade.^{1/} Indices of agricultural output reveal no equivalent dynamic growth.

In the Northeast while the rise in the composite economic index has been equivalent to the other regions' performance its share of the National total, however, is estimated to have remained at a low 7.5 percent between 1960 and 1968. In a self-contained region in order for secondary and tertiary activity to expand it is necessary to have this accompanied by increasing productivity in the agricultural sector. However, the Northeast (as the other regions) is not self-contained and it is possible to maintain a relatively independent relationship between agriculture, industry and services. The growth in the latter two categories has been undoubtedly influenced by the US military presence which has contributed inputs unrelated to the agricultural sector.

In the other regions where there has been a rise in the agricultural productivity, the expansion of industries and services can be more readily considered a direct consequence; and, of course, in the Bangkok/Thonburi metropolitan area, foreign exchange surpluses of the past decade have contributed heavily to the growth in secondary and tertiary activities. Here they have substantially exceeded those of the regions, so that the metropolitan area is still increasing its share of the economy thereby increasing income disparities and promoting a general dual economy in the Nation.

^{1/} The index components shown in Appendix 2-C have not been weighted this may be done later to see if the results differ significantly.

COMPOSITE GENERAL ECONOMIC INDEX THAILAND 1960 - 1968



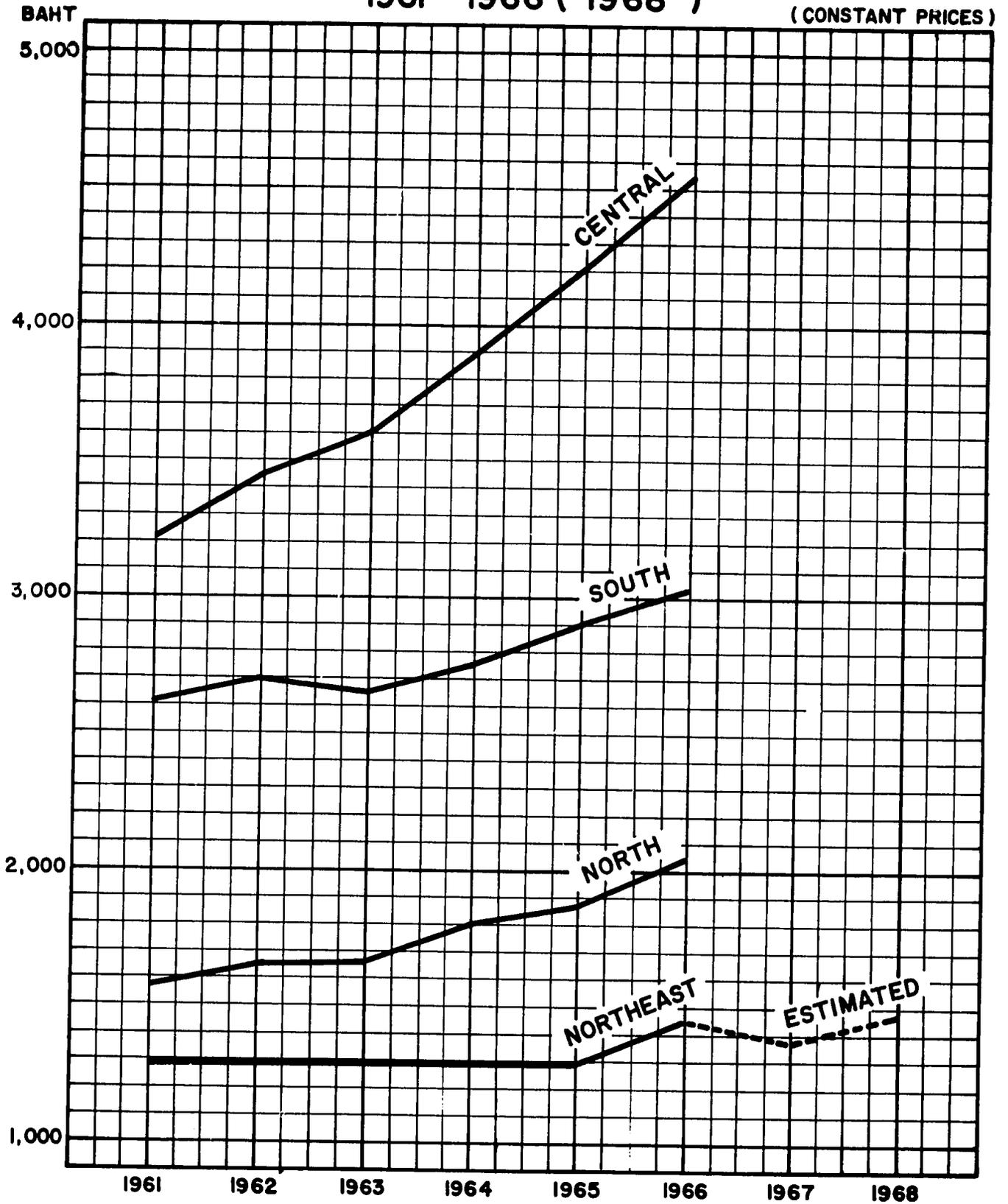
SOURCE : BASED ON DATA COMPILED BY THE NATIONAL ACCOUNTS DIVISION, N.E.D.B.

Chart 2-5 represents a summary table reducing the regional share to a per capita gross domestic product basis. This clearly shows that the Northeast is seriously lacking behind the rest of the economy and that the gap is still increasing. Some of the policy implications of this trend are discussed in Section (3) of this report. Additional information about the Region is given in Appendix 2-D, 2-E and 2-F.

2.1.3 Commodity Flow Data - Flow data concerning the Northeast are only fragmentary. Table 2-5 gives some data concerning selected commodity flows. This indicates that the primary import to the Northeast is fuel oil, used largely for military purposes. Based on estimates by the Ministry of Economic Affairs up to 20 percent of the Northeast's glutinous rice is exported with about half of this going to Bangkok and the other half to Laos. In turn the Northeast imports some non-glutinous rice, although in recent years increasing amounts of this variety have been planted by local farmers. 1966 - a bumper year for rice in the Northeast indicates 91,000 truck-loads (with about 80 percent originating in Korat and Udon) exported to Bangkok. Other principal exports from the Northeast to the Metropolitan Area include Forestry Product, Cement, Livestock and Maize.

PER CAPITA GROSS DOMESTIC PRODUCT

THAILAND REGIONS 1961 - 1966 (1968)



SOURCE : NATIONAL ACCOUNTS DIVISION, N.E.D.B.

TABLE 2-5

SELECTED COMMODITY MOVEMENTS

Northeast Corridor

(1966 and 1968)

Part (a): Railway Movements in Tons, 1968

| <u>Commodity</u> | <u>Northeast to Bangkok</u> | <u>Bangkok to Northeast</u> | <u>Northeast Intra-Region</u> |
|------------------|---------------------------------|---------------------------------|-----------------------------------|
| Rice | 20,000 | - | 10,000 |
| Fuel | - | 182,000 | - |
| Lumber | 14,000 | - | - |
| Logs | 10,000 | - | - |
| Maize | 30,000 | - | - |
| Livestock | 5,000 | - | 8,000 |
| Cement | 50,000 | - | 125,000 |

Part (b): Truck Movements in Truckloads, 1966

| | | | |
|------------------------|---------|---------|--------|
| Rice | 91,000 | 10,500 | 12,500 |
| Fuel | - | 471,000 | - |
| Forestry Products | 109,500 | - | 22,500 |
| Livestock | 65,000 | - | 1,500 |
| Construction Materials | 77,000 | 35,000 | - |

Source: Wilbur Smith - Lyons Associates Transportation Coordination Study,
USOM Thailand, 1969.

2.2 Budget Information - Knowledge of past public expenditures by sector and by projects which have been committed in the Northeast is desirable for a better understanding of and guidance to future development expenditures. Unfortunately, only fragmentary data are now available, although much of this subject is currently being researched.^{1/} The following refers to those data which have been accumulated so far.

2.2.1 General Comments - Table 2-6 provides some insights into the allocation of development funds estimated for the period 1967-1971. This indicates that at the national level a better balance between social services (33.8 percent of total budget) and hard infrastructure (48.7 percent of total budget) has been achieved compared with the Northeast. Here the corresponding figures are 20.1 percent and 72.0 percent respectively. This may be rationalized on the ground that the Northeast's development effort is more recent and that relatively expensive infrastructures had been lacking. However, considering the unsatisfactory results so far in terms of achieving greater income parity and related criteria with the Nation as a whole, this rationalization seems indeed premature.

Of even greater moment than the apparent intra-regional imbalance of public investment in the Northeast is the latter's share of the Nation's total development budget. With one third of the national population the Northeast received about 21 percent of the total development budget, 31 percent of the infra-structure budget, and a mere 12 percent for social services (although this includes a relatively satisfactory one third share of the public health budget). To the extent that particularly manpower constraints to development have been identified as most seriously affecting successful planning for the Northeast, the insufficiency of expenditures in the social service sector represents an acute deficiency.

^{1/} NIDA with Ford Foundation support will estimate the extent and composition of public development expenditures in the Northeast and other regions for the period 1960 to 1971.

TABLE 2-6

ESTIMATED DEVELOPMENT BUDGETS BY SECTOR

Northeast Thailand and Whole Kingdom

5 Years 1967-1971

| Sector | Northeast Thailand | | Whole Kingdom | |
|---|--------------------|--------------|---------------|--------------|
| | Million Baht | % of Total | Million Baht | % of Total |
| Community Facilities and Social Welfare | 358 | 3.0 | 10,270 | 17.8 |
| Public Health | 817 | 6.9 | 2,570 | 4.5 |
| Education | 1,211 | 10.2 | 6,605 | 11.5 |
| Social Service Sub-total | 2,386 | 20.1 | 19,445 | 33.8 |
| Agriculture | 551 | 4.6 | 2,272 | 4.0 |
| Power | 13 | 0.1 | 4,970 | 8.6 |
| Communications | 386 | 3.2 | 1,710 | 3.0 |
| Water Resources | 2,205 | 18.5 | 9,085 | 15.8 |
| Transportation | 3,475 | 29.2 | 15,390 | 26.7 |
| Special Projects (ARD.etc.) | 2,900 | 24.3 | 3,550 | 6.2 |
| Infra-Structure (Mostly Highways & Irrigation) Sub-total | 8,580 | 72.0 | 28,028 | 48.7 |
| Total | 11,916 | 100.0 | 56,425 | 98.1* |

* Commerce and Industry (1.9%) omitted.

Source: Comptroller General's Office
Bank of Thailand
N.E.D.B.
USOM, Bangkok.

The foregoing comments must be tempered by the supplementary requirements for data refinement and the absence of breaking out the foreign investment components, both grants and loans. However, the data are sufficiently indicative of the need to change the emphasis in public investment expenditures for the Northeast.

2.2.2. Sectoral Budgets - The following is an attempt to discuss whatever additional budget information has been made available to date.

The identification of agricultural budgets in general and particularly for the Northeast is difficult because there are many agencies which affect agricultural development and there is no administrative definition for such development. In many respects water resources projects, some transportation projects and others can be considered as being primarily for agricultural development purposes; sectoral planning for agriculture in effect must include all infra-structures and social overhead, and it is expected that agricultural manpower development will receive high priority with respect to the agricultural sector plan.

Work is currently also proceeding with respect to analysing education budgets for the Northeast and the appropriate comments (both for agriculture and education) will appear in a subsequent planning report.

Most of the social development activities are sponsored by various departments in the Ministry of Interior. Their budgets by region are part of the analysis sponsored by the NIDA - Ford Foundation joint research. Meanwhile budgets by region have been made available by the Public Health Ministry and for the Northeast this is discussed below.

2.2.2.1 Public Health - The Northeast regional health development budget for the period 1967-1971 contains three divisions based on departmental services. These are Ministry of Public Health, Office of the Under-Secretary, the Department of Medical Services, and the Department of Health. Each of these divisions contains budget projections for the various programs under the division. An examination of the budget shows

(See Table 2-7) that the Department of Medical Services and the Department of Health enjoy a projected budget increase each year during the period under consideration. With one or two exceptions this increase is shared proportionally by the various programs under each department. The one program under the office of the Under Secretary - Malaria eradication - has a projected budget decrease each year for the period under consideration. This is due to the decreasing incidence of Malaria and when this condition is eradicated in the future this program can be eliminated, of course.^{1/} The public health budget for the Northeast is relatively the most satisfactory as it represents about one-third of the proposed national budget for this purpose. At the same time it is doubtful that this will be sufficient to correct public health problems speedily in the Northeast, especially where there continues an acute shortage of doctors and facilities.

2.2.2.2 Highways - Some confusion exists in intra-agency accounting for highway expenditures. The Highway Department showed a developmental budget for the whole nation of 7.3 billion baht (or about \$350,000,000) for the planning period for the whole Kingdom. Of this nearly 6 billion baht was for national highways, 1.2 billion baht for provincial highways, and 135 million baht worth to be constructed by the Royal Irrigation Department. No regional breakouts are available for this data, however.

The most reliable expenditure data, even though only partial, comes from the Thai Highway Department. Table 2-8 below gives expenditure data 1965-1968 for THD's three Northeastern Districts and includes primary and secondary roads.

^{1/} Unless new malaria problems should arise from proposed tanks and storage dams which may have insufficient run-offs to prevent stagnant mosquito breeding water.

TABLE 2-7

PUBLIC HEALTH DEVELOPMENT BUDGET

Northeast Thailand

1967-1971

(Millions of Baht)

| Project | 1967 | 1968 | 1969 | 1970 | 1971 | Total |
|---|-------|-------|-------|-------|-------|-------|
| <u>Office of Under Secretary, Ministry of Public Health</u> | | | | | | |
| Malaria Eradication | 37.7 | 30.3 | 29.4 | 25.9 | 21 | 141.3 |
| Dept. of Medical Service | 42.1 | 54.3 | 65.5 | 77.1 | 88.6 | 327.9 |
| 1. Improvement of Provincial Hospital | 31.5 | 37.5 | 45.6 | 53.6 | 62.7 | 231.2 |
| 2. Setting up Regional Hospital | - | 2.5 | 2.9 | 2.9 | 1.1 | 9.4 |
| 3. Nurse College | 1.7 | 4.1 | 5.2 | 6.6 | 8.1 | 25.7 |
| 4. Neuropsychiatric Hospital | 8.9 | 10.1 | 11.6 | 13.8 | 16.6 | 61.0 |
| 5. Mobile Units | - | 0.1 | 0.2 | 0.2 | 0.1 | 0.6 |
| Dept. of Health | 43.2 | 51.0 | 54.7 | 59.7 | 65.6 | 274.2 |
| 1. Improvement & Extension of Public Health Stations | 13.0 | 15.8 | 17.5 | 19.7 | 22.7 | 88.7 |
| 2. Maternal and Child Welfare | 7.7 | 8.7 | 8.1 | 7.7 | 7.3 | 39.5 |
| 3. Tuberculosis Control | 3.9 | 3.8 | 4.8 | 5.5 | 6.9 | 24.9 |
| 4. Rural Nutrition | 1.3 | 1.6 | 1.6 | 1.7 | 1.8 | 8.0 |
| 5. Leprosy Control | 4.9 | 5.7 | 6.1 | 6.6 | 7.2 | 30.5 |
| 6. School Health | 0.6 | 1.2 | 1.6 | 1.9 | 2.4 | 7.7 |
| 7. Health Development | 2.5 | 2.6 | 2.8 | 3.1 | 3.3 | 14.3 |
| 8. V.D. Control | 1.3 | 3.1 | 3.4 | 3.7 | 4.1 | 15.6 |
| 9. Village Water Supply | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 29.0 |
| 10. Hemorrhagic Fever | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 2.3 |
| 11. Liver Flukes | 1.8 | 1.8 | 1.8 | 2.7 | 2.7 | 10.8 |
| 12. Family Health | - | 0.5 | 0.7 | 0.8 | 0.9 | 2.9 |
| Total | 120.0 | 135.6 | 149.6 | 163.0 | 175.2 | 743.4 |
| <u>Foreign Aid</u> | | | | | | |
| 1. Malaria Eradication | 34.1 | 26.3 | 7.9 | 4.3 | 4.3 | 76.9 |
| 2. Local Health Development | 14.7 | 7.7 | 7.9 | 4.3 | 4.3 | 38.9 |
| 3. Village Water Supply | 5.9 | 5.0 | - | - | - | 10.9 |
| | 13.5 | 13.6 | - | - | - | 27.1 |

Source: Ministry of Public Health

TABLE 2-8

THAI HIGHWAY DEPARTMENT DISTRICT EXPENDITURES

Northeast Thailand

1965 - 1968

(Million of Baht)

| <u>District</u> | <u>1965</u> | <u>1966</u> | <u>1967</u> | <u>1968</u> |
|-----------------|-------------|-------------|-------------|-------------|
| Korat | 12.8 | 10.1 | 17.6 | 16.0 |
| Khon Kaen | 10.4 | 10.1 | 14.0 | 14.9 |
| Ubon | <u>12.0</u> | <u>9.3</u> | <u>12.3</u> | <u>17.7</u> |
| | 35.2 | 29.5 | 43.9 | 38.6 |

Source: Appendix 3D, Vol. III Wilbur Smith/Lyons Associates
Transportation Coordination Study.

For the years 1965-1968 these expenditures total 142.7 million baht. Assuming the 1967/68 average of about 40 million baht were expended in 1969 the total becomes about 180 million baht.^{1/} This sum would account for only about 450Km. of primary highway, roughly one third of the distance completed or nearly completed).^{2/} This appears to indicate that foreign grants and loans are separately accounted for. A substantial proportion of Northeast primary and secondary road development has come from grants and aids. No information on overhead costs, methods of overhead cost allocations, if any have been uncovered.

2.2.2.3 Railways - In addition to the highway funding one might note the investment of approximately Baht 450 million for construction of the Korat cut-off (Gaeng Koi - Bua Yai) railway line. This represents the largest line and railway construction project in Thailand since

^{1/} Wilbur Smith also shows over 25% of this sum was spent on spare parts which seems grossly excessive.

^{2/} At a reported average of about 1,000,000 baht per Km.

World War II and was opened to traffic in 1968. No analysis of actual and anticipated benefits - other than those directly concerned with railway operation - has been made so far.

Note:- The budget information presented so far is quite incomplete and efforts are underway to present a more complete analysis in subsequent reports.

2.3 Principal Data Requirements and Gaps

2.3.1 Public Expenditures by Sector and Region - The major inputs such as agricultural production are known with reasonable certainty, but minor projects which yield inputs at the micro-level are scarcely known at all.

Two data collection and analysis programs should in the course of 1970 provide some very much more detailed background. First is the inventory of projects which has started as part of the Changwat planning program. Changwat Planning Officers will enumerate local development projects started during the last three years to determine their purpose, size, financing problems etc. Eventually the procedure will be extended to determining whether the purpose has been fulfilled. The second is the NIDA research project which was referred to in Section 2.2.

Because the Northeast has failed to respond satisfactorily so far to the inputs of the last decade, it is especially important to research past resource inputs in order to guide future development expenditures.

Through the NEED Program, the Thai Government has decided to make a special effort in the Northeast, and if this is to give the maximum benefit to the region while detracting only as much as is acceptable from the other regions and the country as a whole, then resource allocation for the Northeast must be carefully controlled within the agreed national framework. The following will outline the data requirements for the planning of the Northeast within such a framework.

2.3.2 Regional Accounts - A basic requirement is that national planners are able to allocate resources in line with national objectives. In most decisions of this nature considerations of equity, economic potential and political necessities, make it impossible for national planners to make allocations for one region without comparing it first

with the other regions of the country. Ideally from the national planning point of view a set of Regional Accounts more or less corresponding to the National Accounts is desirable, but from almost every consideration this has serious limitations. While a Nation can be treated as a closed system, a region of the country cannot. Although production and a great deal of ancillary data can be derived, it is quite difficult to determine inter-regional flows of capital and services and to a lesser extent of commodities. Long term migration and population movements can be measured from the national census and local registrations but other flows are much more difficult to define. It is not recommended that at this stage any large scale attempt is made to collect data relating to these flows. For the time being it should be assumed that they are unknown. Instead, it is suggested to concentrate for regional information on the following:-

- (a) Production estimates in the form of Gross Regional Products, classified in the usual fifteen groups and sub-groups. This work is now well advanced and requires some refinement. (See Appendix 2-B).
- (b) Improvement in the compilation of a composite economic index for each region; while acceptable so far, the most serious indicator and component now lacking is for industrial employment and trade statistics.
- (c) Recording, analysis and evaluation, of regional development projects, including particularly budget information.

2.3.3 Regional and Changwat Data Requirements - Analysis based on the foregoing is deemed sufficient to guide regional input requirements as well as to assess the performance of the region as a whole. However it should be noted that just as the National Accounts tend to hide the individual regional problems so the broad regional analysis does not bring out the intra-regional differences shown between Changwats. From an

economic standpoint local development projects must be consistent with local resources; for equity considerations one Changwat must not be neglected in comparison with others, and politically attention must be paid to internal and external pressures. As a result, one of the primary objectives of the NEED planning program is to make sure that local development projects reflect local requirements and the felt needs of the people of the area. Implicit in this objective is that Changwat Officials understand the peoples' needs and also have a knowledge of the resources in terms of money, manpower, existing infra-structure, as well as the natural resources which may be used to meet the needs. To do this there must be the necessary administrative machinery down to the local level and an appropriate information system. For this purpose the data which are used for changwat planning will generally be equally useful for regional planning. This is not only by aggregating changwat data to give the regional picture, but by showing important micro variations which may influence both the cost and benefits likely from plans developed for the region as a whole. Interrelationships exist between the various planning models involved in national planning, regional planning, the rural areas and the villages, and this is fundamental to ^{the} whole concept of the NEED program. An appropriate data system now being developed will reflect these inter-relationships (See also Section 2.1)

2.3.4 Sectoral Data Gaps - For several sectors a complete picture of development expenditures does not exist because the RTG internal accounting system does not reveal the desired information in adequate detail. Thus it is not always possible closely to compare planned expenditures with actual for the sector as a whole. This situation also reflects the large number of agencies involved in road construction. The maintenance of accurate project inventories and evaluation sheets should help to correct this deficiency (See also Section 4.1.7). The areas with the most significant shortages of data for planning purposes manpower and social services are discussed in greater detail.

2.3.4.1 Manpower Data Gaps - The lack of current employment (and unemployment) statistics has already been noted. Efforts to compile these on a regular basis are now in progress. However, many other aspects of manpower development remain to be clarified and it is suggested that an analysis of the supply of and demand for individual skills be undertaken.

As matters stand now, data on employment by occupation, the basis from which all manpower planning proceeds, are inadequate. In Thailand most occupational data are provided through household enumeration, coming either from the Census or from sample household surveys. Occupational data collected by household enumeration may be used for crude estimates of manpower and educational requirements but should not be used for specific manpower planning purposes.

The reason for this is that accurate occupational data cannot be collected from households. The respondent in household surveys is usually the housewife who often knows little about her husband's occupation, and inadvertently gives the wrong occupation. In addition to accidental misinformation there are deliberate distortions of answers to questions on occupations. For example, when the husband is a machinist's helper, the wife sometimes tells the enumerator that he is a machinist, because she wishes to raise the family prestige. In a similar manner, technicians are reported as engineers and clerks as office managers. On the other hand if the housewife is suspicious that the enumerator is a tax collector, she probably will downgrade the rank of her husband's occupation.

If a wife is vague about her husband's job she is even less certain about the occupations of other members of the household. In the case of relatives or roomers living in the household she may know very little about what they do and where they work.

Because of lack of knowledge, misinformation, and misunderstanding, information given by housewives on occupations is not trustworthy. This is often the case in developing countries where problems in household enumeration are compounded by enumerators with inadequate backgrounds collecting information from uneducated housewives totally unfamiliar with household enumeration and the concept of occupation. Even in western countries where census data has been collected regularly for many decades when it is necessary to have accurate information on occupations the data are collected by other means.

In general, the best way to get accurate information on occupational specialties is from employers. They know precisely what a man is being paid to do and have no ego-involvement in his job. It is also the employers who know most about general manpower information-shortage occupations, wages paid, long-run changes in demand, various sources of supply of skilled workers including informal training and foreign workers' adequacy of training programs, etc. Therefore, in order to have current information on various aspects of occupational specialties, it is essential to maintain communications with the nation's employers (private and government). Fortunately, systems of regular contacts with employers already exist in Thailand. The Labor Department, as an example, regularly canvasses private employers for information on employment, hours of work, salaries, labor turnover, and information on shortage occupations. With a relatively small expansion in the scope of this survey, it would be possible to provide a great deal of additional useful information which could be used both for manpower planning and implementation of manpower policies.

Government employers are canvassed regularly by NEDB in connection with both the annual plans and five-year plans. NEDB will soon be asking RTG agencies for information to be used in the Third Five-Year Plan. Carefully developing an appropriate questionnaire and by working closely with the RTG agencies on their responses, it should be possible to develop an accurate picture of the manpower situation among the government employers engaged in developmental activities. These data supplemented

by information from private employers would gradually build a solid body of knowledge on which manpower planning can be based.

Other sources, i.e., professional societies and registries, and the 1970 Census would have to be used for getting occupational data which cannot be easily collected from private or government employers, especially those relating to self employed workers like doctors, lawyers, consulting engineers, etc. Information on in and out of country migration of important groups of workers could be systematically collected by immigration authorities.

Thai manpower planners have been severely handicapped in evaluating vocational training and in estimating the supplies of trained manpower because of a lack of information on the workers entering the various trades and professions. The principal sources of information, statistics on the number of graduates from the various training institutions are generally inadequate, because there has been no systematic effort to estimate the proportion of graduates who actually enter the occupations for which they have been trained and perform satisfactorily. To assume that all of them enter is misleading because there is evidence of considerable attrition.

In order to make it possible to take attrition into account in manpower planning, regular follow-up studies of graduates of training institutions should be instituted, as was recommended in "Evaluation of Mobile Trade Training Units Program", DTEC. These studies could do much more than simply count how many graduates enter the occupations for which they were trained. Follow-up visits to employers could determine whether the graduates are adequately prepared for work compared with workers from other programs, those trained informally and those coming from outside the country. This information could be used to plan improvements in the

^{1/} See for example, Manpower Study on Machine Repair and Maintenance Industry, NEDB, 1966; Report to the Director General of the Labor Department Concerning Industrial Training in Thailand - Eugene Hood, U.S. Labor Department Industrial Training Consultant; and scattered follow-up studies of graduates of technical schools by the Department of Labor and the Ministry of Education.

existing training programs. In other words, such studies would serve two purposes, one to provide valid data on the supply of specialized occupational groups and, equally important, to provide a means for continuing evaluation of all training programs. Only by objectively evaluating the results of training programs is it possible to make them responsive to the needs of the country and to invest public funds more effectively.

2.3.4.2 Data Gaps: Social Services - The Department of Health in the Ministry of Public Health publishes an annual report which covers very briefly the accomplishments of various divisions in the department. Each division in this department regularly collects data on the incidence and prevalence of the various diseases with which they are concerned as well as the services provided. In addition the provincial health offices and some local health stations assemble data on services provided and the incidence of diseases. Unfortunately, these latter are not always easily obtained by others.

The Department of Medical Services does not publish an annual report. There are data from the WHO study on the characteristics of hospitals in the Northeast. However, apparently no attempt is made to keep these data up to date by showing changes in the use of hospitals, diseases treated and so on.

In view of the lack of current information on hospitals and the inaccessibility of some data collected by the Department of Health it is suggested that the Ministry of Public Health establish a repository to store the data collected by all divisions, that a system for the easy retrieval of these data be worked out, and that a budget be made available to support on some systematic basis the publication of data collected by the Ministry, as well as to support and encourage studies by Social Scientists and Public Health personnel in the social and cultural aspects of health, illness and medicine.

The educational planning office - Ministry of Education publishes an annual school and teacher census in connection with the

National Statistic Office. This census includes data on the characters of teachers, teacher's salaries, the number and distribution of schools, enrollment by sex and age, and so on. These data do not show attendance, or the quality of education which schools can deliver. Some attention should be given to such things as grading schools according to the qualification of teachers, the quality of the school plant, the quality of equipment, teaching materials, etc. After the method for classifying schools according to quality is worked out data should indicate the distribution of schools by classification, average daily attendance, and so on. This will permit a consideration of problems associated with both quality and quantity of education.

The Community Development Department, Ministry of Interior operates a research and evaluation division. This division collects data on the operational aspects of the program and occasionally attempts some form of evaluation. Data for operational purposes are generally adequate in this area.

2.3.4.3 Other Sectoral Data Gaps - Apart from the lack of information (or ready access to) concerned with budgets by region and by sector the following data - useful for planning purposes - should be made available on a continuing basis.

- (a) Migration data can be supplied more systematically from Amphoe registration records.
- (b) Road conditions made on the basis of periodic sufficiency surveys.
- (c) Water tank condition and utilization made on the basis of periodic inspection.
- (d) Commodity flow data can be gathered by including appropriate questions with regular traffic count surveys and by establishing a central file for commercial bills of lading and/or waybills. However, it is not essential to start this now, unless accommodations with police check points can be readily obtained.

Additional data requirements for the region and changwat are likely to become evident as the NEED planning process continues.

2.4 Project Evaluation

2.4.1 General Considerations - This section brings up to date information concerning projects in the Northeast which has been made available to the NEED program and which have been considered by consultant and counterpart staff. Again much of this information is incomplete at this time, while efforts continue to look at all relevant projects. A proposal for a more systematic recording of all projects by sector and by region is given in Section 4.8. Meanwhile the changwat planning staffs have been instructed to follow similar procedures.

The principal conclusion to be drawn at this time is that development expenditures in the Northeast are likely to fail in their intended objectives unless the incentive for farmers to increase production is improved. This requires that he be supplied with

(a) The technical know-how to engage successfully in second, cash cropping by receiving appropriate assistance from agricultural extension services.

(b) More accurate information as to the market (i.e., saleability) of his intended crop.

(c) An appropriate marketing organization that would assure him with a sufficient return for his efforts - this includes both a fair price and credit system (and possible price supports).

2.4.2 Agriculture - In view of the vital role of agriculture in the Northeast and the serious shortcomings of the critical role of agricultural extension services, this section is devoted to the latter. The following represents a summary of a position paper on this subject.^{1/}

2.4.2.1 Trying to inculcate in farmers a determined effort to improve the productivity of their enterprises, small as they might be,

^{1/} George W. Hill, "The Agricultural Extension Service," NEED PAG Staff Memorandum #30, 10 Feb. 1970.

through the adoption of improved farming methods and techniques, to the end that their standards of living might be raised, is the essence of agricultural extension. This integrated approach to rural development in Thailand only dates back to October, 1968, with the creation of the Department of Agricultural Extension. The new effort is having difficulty in becoming established because of the multiplicity of agencies each vying with the other to promote its individualistic aims under the guise of "extension."

2.4.2.2 Changwat Extension Officers, together with those in the amphoe, are cut from the same cloth as all other civil service employees in the Kingdom; consequently, they function chiefly as local administrators on the staffs of the governors and nai amphoes. If they are to be the change agents spearheading the campaign described in the previous paragraph, their function should be educational and not administrative or regulatory, and their orders should come from the Director General of the Extension Department.

2.4.2.3 Stemming from the Thai professional's notion that a farmer is a being of little significance, an erroneous civil service policy has developed which assigns no more than fourth grade agricultural officers to the amphoe level and mostly third grade to the changwat. Higher grades are reserved for Bangkok officials who are far removed from contact with the farmer. In Thailand, as elsewhere, the degree of stagnation that obtains in rural development efforts is directly proportional to the number and concentration of higher grade routine functionaries in the national offices.

2.4.2.4 When the professional staff of the Kingdom's Experiment and Research Stations joins forces with the Extension Service in scientifically -designed and correctly-executed demonstrations, at the farm level, experiments of the one are likely to lose their esoteric character and programs of the other will become more productive. Then, and only then,

will science be at the service of the farmer. And "demonstrations", whether made by Extension, Irrigation Department, Community or Accelerated Rural Development, will be lifted from their present low level of scientific content.

2.4.2.5 Farmer's associations promoted by the Extension Service, in common with amphoe farmers' groups, irrigation associations, cooperative organizations, and smiliar group activities, are directed and decreed into being. So long as they remain in control of those who "eat monthly money" they manage to hang together after a fashion. In those instances where no local, voluntary leadership has grown up to give the groups the vitality of self-propulsion, they lack effectiveness and stability.

2.4.2.6 The concept "self-help" organizations has degenerated into a misnomer. Until promotional effort through education succeeds government edict, there is little hope that significant development will result from their efforts.

2.4.2.7 The more distant a farm village is from the amphoe seat, the greater the probability that it will not be in contact with the Extension Service, or any other governmental development agency. Four-fifths of the farmers in the Northeast are estimated to be beyond the pale of the Service.

2.4.2.8 The most critical shortage of personnel in rural development - from the national planning level to execution in the amphoe - and in all agencies charged with the implementation of rural programs, are men (and women) with a knowledge of, or experience in, agriculture. A university degree, graduate or no, cannot be a substitute for experience. For the individual who would choose agriculture as his profession, this experience comes only from a knowledge of farming. It should be the rule to normally select fellowship candidates in agriculture from among those who have demonstrated their competence by having worked in the profession at the farm or

village level. To continue the current practice of selection of those who have merely indicated their potential by the yardstick of their classroom performance, is a futile exercise. It will but aggravate staffing problems of agencies already overloaded with functionaries unqualified to lead the rural economy to its sorely needed take-off point.

2.4.2.9 Multiplication of agencies, bifurcation and duplication of responsibilities - leaving no agency with sufficient authority to act - have characterized the policies of the government in its recent attempts to initiate rural development. To anyone who will take the time and make the sacrifice to work with, so that he can understand, the farmer at his level, it will become crystal clear that deterioration, not progress, is his fate unless appropriate institutional reform is brought about.

2.4.2.10 Economic growth, when it is combined with social change, induces development. In order that the farmer, in this case, partakes of this development he must be stimulated to be receptive to change and want to exercise initiative in making this change possible. A farmer, selected by the villages themselves, can become this animateur of change and be the spokesman for the villagers in determining the direction of this change. Given systematic training in the fundamentals of teaching improved techniques, he can work in the villages as and assistant to the amphoe extension officer. In the memorandum referred to^{1/} there is a description of how this animateur can be made available easily, quickly, and economically for every tambon in the Northeast. When this is done there will be development guided through an integrated Extension Service functioning as the single, unified agency charged with the promotion of economic and social change in rural Thailand.

2.4.3 Water Resources Projects - Because of more ready access to water resource development information it is possible to identify

^{1/} Ibid. p. 32 ff.

and discuss most on-going RTG project activities associated with actual or potential development of the water resources of the Northeast. These activities are in consonance with guidelines established by the Second National Economic and Social Development Plan and they all presently enjoy some measure of USOM funding support. Specifically eight project agreements concerned with water resources development in the Northeast are currently in effect (See Appendix 2-G). Seven of these are in some manner concerned with the actual construction of water supply and service facilities and one (Mekong Pa Mong Survey) is concerned with the long-range potential development over the next thirty years.^{1/}

2.4.3.1 Mekong Pa Mong Survey - In terms of the magnitude of total expenditure (and of USOM funding support) for water resources development activity pertaining to the Northeast during the decade ending with FY 1971, the Mekong Pa Mong Survey is the most significant item.

The overall target objective of the USOM-RTG project agreement for the Mekong Pa Mong survey is to investigate the economic and technical potential of the project. The specific objectives of the survey are to produce a Stage One Feasibility Report by 1971 which would describe the smallest economically viable project package involving primarily the production of power and "a reasonable amount of irrigation" (for Laos and Thailand) and to develop reconnaissance or less detail for the remainder of the potential multiple-purpose functions. Although findings to date indicate economic justification of constructing Pa Mong on the basis of power generation alone, the costs involved and the magnitude of the undertaking are such as to cast serious doubt on its early realization as a viable project. Since few inputs are relevant to Thailand's Northeast development for the 1972-1976 plan period most of the responsibility for general planning of the Mekong Basin will rest with the Mekong Committee.

^{1/} In addition the Lam Dom Noi project allocates 30 percent of its development budget for irrigation purposes, although this is essentially a NEA project.

2.4.3.2 Labor Intensive Water Development Project - This project has been in existence for only two years so it is the newest of the on-going water development activities in the Northeast. It constitutes a special aspect of the RID's well established program of water tank development. The RID started its tank development activity in 1951 and, as of January 1, 1969, had constructed 150 tanks with an estimated total storage capacity of almost 500 million cubic meters. An additional 10 tanks having a total estimated storage capacity of over 124 million cubic meters were either under construction or completed by June 30, 1969. These additional 10 tanks were included in the total of 32 which were programmed for the Northeast in the Second National Plan.

Impetus for the Labor Intensive Water Development Project came through its endorsement by the original Agriculture, Water Resources and Overall Planning Working Groups of the NEED Committee. Its objectives are three-fold:

(a) Acceleration of the tank program of RID by constructing twelve new water storage tanks and distribution systems in particularly sensitive areas of the Northeast during the five year period of the Second National Plan in addition to those specifically designated for construction under the Plan, with the provision that these new tanks would be small enough to permit their construction in approximately one year and with the maximum use of labor and minimum use of equipment;

(b) Rehabilitation and/or construction of distribution systems for 9 existing RID water storage tanks from which water distribution is non-existent or inadequate;

(c) Institution of a program for the proper utilization of the water newly provided by this project, both through the organization of water users associations and through agreement by the Ministry of Agriculture to provide extension services to the areas to be effected by the new tanks and distribution systems and by the rehabilitated distribution systems.

Item (c) is intended to insure that there will be an effective organization of water users which will attest to local recognition of the need for irrigation water and to the intention to make use of it when it becomes available. As of January 1970, water users organizations were in existence in the irrigation water service areas for eight of the nine tanks selected for rehabilitation work under the Labor Intensive Water Development Project. However, little progress has been recorded with respect to the establishment of such organizations in the potential service areas of the twelve new tanks which are proposed for construction. This situation indicates the possibility of continuing delay in such construction although the purchase of equipment spreads for this project is partially underway. Once the purchase of equipment has been consummated, USOM funding support will cease. It is considered appropriate that this take place although a carry-over effect will remain in that equipment provided the RID under this project will be available for continued use in the future. In order to get an accurate picture of the actual status of existing tanks, physical condition, usage and impetus on the farm economy, a survey is to be undertaken. From this it should be possible to determine the actual remedial action and its cost in order to improve utilization (See also Section 3.3.3).

2.4.3.3 Soil and Water Development Project - This project was initiated in FY 1964 with joint USOM-RTG funding. The activity target for this project (for which USOM support is to be phased out by June 30, 1970) is to raise the levels of living of villagers in the Northeast by assisting them to improve their utilization of both soil and water in the furtherance of agricultural production. The scope of local farmer needs encompassed by project activities is broad. It emphasizes research in soil survey and analysis, land capability classification and interpretation and in soil and water conservation; it provides assistance to villagers in the construction of numerous pit-type farm ponds and in the development of a number of small irrigation projects capable of irrigating up to 100 rai each and it assists the Department of Land Development to improve the capability of their

personnel to operate and maintain construction equipment and vehicles (supplied by USOM) and to improve capabilities in the identification of soil and water utilization practices which contribute to the most favorable, sustained level of farm income without depleting the soil.

So far it is too early to indicate definitely that these objectives will be reached by the target date of mid-1970; although cursory observation indicates at this time that they will not be attained.

2.4.3.4 The Potable Water Project

(a) Initial Phase - This project had its inception in FY 1966 when USOM funding support was made available to the Sanitary Engineering Division (SED) of the Ministry of Public Health to develop a Thai-managed and operated village potable water program in the security-sensitive ARD changwats. This project placed initial emphasis on developing Thai acceptance in planning, design and construction of approximately 250 water supply and purification systems serving 600 principal communities of over 500 but less than 10,000 inhabitants in the security sensitive areas at the Northeast. The project activity target is to strengthen the capacity of the RTG to respond effectively to the greatest single need of much of the Northeast rural population--adequate supplies of potable drinking water - and thus to provide a public service through which the village people can identify themselves with their government. In accomplishing this goal, the project would provide not only a significant number of newly developed potable water systems but also the technical and administrative know-how continually to expand the coverage of such systems, to maintain quality control and to operate successfully the systems for prolonged periods of use. It is expected that experience gained in carrying on the Potable Water Project will be of invaluable assistance to SED in the management and development of the National Rural Community Water Project, an ambitious undertaking of prolonged duration which has the eventual goal of providing potable water to more than 30,000 rural communities throughout Thailand during the next three decades.

During FY 1967, the first operational year of the project, emphasis was mainly placed on planning and designing standardized components of water systems, although five new plants serving for communities were in operation by the end of the year. By FY 1968, construction was in full swing, and 23 additional systems went into operation, making a total (old and new) of 67 plants serving 188 villages with an estimated population of over 200,000 in the Northeast. By FY 1969, 176 systems serving 587 rural communities with an estimated total population of 620,000 were in operation.

(b) Second Phase - The second phase of the Potable Water Project is a joint SED-ARD undertaking. It was initiated in 1969 with the stationing of well dwelling advisors at Khon Kaen, the delivery of six modern rotary-percussion well drilling rigs to SED's regional field headquarters there and the assembly of six 6-man ARD well drilling crews at Khon Kaen for training at the SED center. These crews were selected from the six original ARD changwats where their initial drilling efforts will be concentrated. The first well under this program was started in December 1969 in Khon Kaen Changwat. As drill crews attain a suitable level of knowledge and proficiency, additional drilling activity will be undertaken on a phased basis. The target goal of this deep-well drilling program is one production well per crew during the first three months of actual drilling, gradually increasing to an average annual production rate of 25 wells per crew or 150 wells per year for the six crews at the end of the first full year of operation of all crews.

Selection of drilling sites generally rests with the changwat governors and ARD field personnel. It is to be expected that priority is given to the villages having the greatest need for a dependable supply of potable water. However, it is suggested that the initiative for obtaining a potable water system should start with the villagers themselves, inasmuch as it is the villagers who eventually exercise the greatest influence with regard to the successful operation and maintenance of the system. Experience gained during the initial development phase of the effort to provide needy villages with potable water has shown that when a potable water system

has been installed more on a basis of security/sensitivity than on a demonstrated interest by the villagers concerned, an inefficiently operated system usually is the result.

However, in general there appears to be a lack of factual information as to the effectiveness of the community water system development program that has been of significance in the Northeast for over a decade, due in large measure to USOM support. Such support has been of substantial magnitude since 1966. An evaluation of this RTG-USOM development program was jointly made by USOM and DTEC representatives during the period, December, 1967 to August, 1968. Along with other items of comment, this survey pointed out the lack of a coordinated approach to community water supply development among the several RTG agencies involved in this activity. The survey also cited the need for derivation of information pertinent to this program; information which extends from basic hydrologic data gathering through the processes of site selection, physical system development and operation, maintenance and of water utilization. As in the case of the tank program, it would be desirable to have an on-site survey of the conditions, impact and maintenance requirements in order to guide future development expenditures.

2.4.3.5 The ARD Water Program - Although ARD has an involvement in the Potable Water Project as previously described, as well as in other types of small scale surface and underground water development projects, the predominant activity does not place heavy emphasis on facility construction. Rather, it is concerned with the training of ARD engineers and technicians as a means of strengthening ARD's surface water resource project planning and construction capability. A three-year training program for ARD field and Bangkok office personnel is being implemented beginning January 1970.

Inasmuch as ARD has a Water Resources Division and its water program appears destined to be carried on for some time in the future, this training program would appear to be essential. Upon its completion, the

capability of ARD personnel to plan, construct and operate small surface water storage facilities within the capacity limit of one million cubic meters established by joint agreement with the RID, should be greatly enhanced.

The future pattern of the ARD water program is expected to be similar to the role established in the past whereby ARD became involved in water resource development through the need to fill gaps within the total scope of the several Northeast water resource development programs previously administered by other agencies of the RTG. In fulfilling this role, ARD's area of interest has reflected more emphasis on localized and accelerated small scale water supply development than has been the case with the older established operating agencies such as the RID, the Sanitary Engineering Division of the Department of Public Health and the Department of Mineral Resources. ARD's water program came into being through emphasis on urgency in the development of water supplies in sensitive areas of the North and Northeast which were not being provided for. For the ARD water program to continue indefinitely, there is the essential requirement that it remain flexible enough to continue to fill gaps within the scope of total water resources planning. In theory at least, the established agencies are capable of fulfilling all the essential requirements of a comprehensive national water program. However, under any circumstances, water resources development work by ARD during the next few years is expected to account for a very small proportion (less than 10 percent of total ARD funding), and qualitatively, i.e., in terms of counter-insurgency impact, this may represent a very vital portion.

It appears likely that the ARD water program will place about the same priority emphasis on small pond construction in the future as in the past (160 ponds have been completed since 1966, 220 more are planned for construction in FY 1970 and an additional 270 are proposed for construction in FY 1971.

With regard to well development, ARD apparently intends to place continuing emphasis on the development of shallow, dug wells while,

at the same time, its deep well drilling program is accelerated. If the target goals for well development are attained by the end of FY 1971, the ARD well development program will have provided villages in the Northeast with approximately 2,400 wells by that date. At least ten percent of these will be of the deep, mechanically drilled category and in many cases they will constitute the foundation element of complete water systems which will serve more than one village.

In addition to the construction of surface ponds and the development of shallow and deep wells, the ARD water program for FY 1970 and FY 1971 will also include rehabilitation and deepening of existing surface storage facilities and a limited amount of canal and ditch construction. The total projected scope of work for the next two fiscal years represents an increase of almost 70 percent over the total effort in these categories which has been accomplished to date and the net result should be a relatively large increase in useable water supply from the existing facilities.

The results of this program will probably be evaluated essentially in political terms as the relationship between household water provision and increased economic productivity is likely to be at best marginal at the present time. Improvements in health, leisure standards are a social overhead consideration and the ability to pay for these by the local community will remain limited until substantial changes toward greater commercialization of the economic base have been achieved. Meanwhile, the central government (and donor agencies) will have to absorb the costs involved. It would seem desirable therefore to encourage local water use collaterally for other than household purposes (agriculture other than rice, livestock production etc.) so that greater economic returns can be induced. It is beyond the scope of this particular report to assess the ARD water programs in terms of their intended objective of improving the government's image and general security considerations.

2.4.4 Manpower Development

2.4.4.1 Vocational Training Programs - By far the largest government vocational training programs are those run by the Department of Vocational Education which will produce roughly 8,300 graduates from grades 13 and 15 in 1970 from a variety of technical courses. A number of RTG agencies train workers to fill jobs within their own agencies. The Ministry of National Development had 77 persons in training in 1968, 70 studying soils with the Land Development Department and seven training in Irrigation with RID. Two hundred thirty-nine students are in skills training courses in the Military Technical Institute. The Ministry of Communications has a large program, training about 700 in 1968 in courses lasting from one month to five years plus 200 a week in courses lasting two or four days. About 800 were in training with the Ministry of Industry in courses ranging up to three years in length, and from drivers to management in subject matters.

The Department of Community Development of the Ministry of Interior trains hundreds in agricultural and home economics short-term courses. Other training within the MOI is in a Youths' Vocational Training Centre of Bangkok/Thonburi Municipality (252 students in 1968). Vocational Training in the Department of Penitentiary had about 9,000 students in 1968, most of them in barbering. One of the most important programs was the MOI's National Institute for Skill Development which had about 350 trainees in 1968 in a wide variety of technical courses.

The Ministry of Justice and the Metropolitan Electricity Authority also had training courses, the former for training juveniles in carpentry, tailoring etc. and the latter training its own linemen and drivers.

Private vocational schools had 24,000 male and female students in training in 1968 in a wide variety of courses. The largest enrollments were in Shorthand, accounting and typing (5,300), hairdressing, barbering, dressmaking (6,100), and electricity, mechineshop and automechanics (2,500). Nearly three out of four students were in Bangkok-Thonburi.

2.4.4.2 Evaluation Difficult without Appropriate Data - The Manpower Planning Division of NEDB has requested RTG agencies to provide detailed reports on Northeast development projects, including information on outlays, objectives, staff, people trained, results of training etc., but the reports submitted in response to these inquiries have provided no data on benefits. Accordingly there can be no analysis of the effectiveness of these programs.

Some information is available on the number of students who graduate from various training programs, but these data are of little value in measuring the results of government expenditures, because so many graduates end up in unrelated lines of work. For example, if the objective of a program is to train machinists, the test of the program is the number of machinists hired and working effectively. A simple count of the graduates of the courses is not sufficient unless nearly all become bona fide working machinists. If 50 percent do not work as machinists the estimate is off by one hundred percent. If 90 percent do not make use of their training, which is alleged to be the case in many vocational training programs, data on graduations can only be misleading if training effectiveness is to be measured.

Apparently, neither NEDB nor the Budget Bureau have had much success in getting RTG agencies to provide the kind of information needed to evaluate projects. Consequently, existing programs preserve their shortcomings.

One of the few attempts at evaluation of training programs by the RTG was the DTEC-USOM study of the Mobile Trade Training Units. Although the report reached an overall favorable conclusion on this report, it pointed out that no follow-up studies of graduates had been made. Without such studies no one can truly judge the value of the programs.

NEDB will soon be asking RTG agencies to supply budget and program data for the next five year plan. With experience gained from previous five-year and annual plans presentations can be expected to be better than earlier ones. However, unless NEDB insists on comprehensive discussion of projects, it is not likely that there will be much improvement in the effectiveness of vocational programs.

Some conclusions nevertheless can be drawn from the data provided by the NSO labor force survey - This gives an indication of the effectiveness (or lack thereof) of training programs based on sampling the relationship between jobs held and the kinds of technical training received. The sample used here was for municipal areas taken in August - October 1968. Unfortunately the occupational categories in this survey are quite general so that direct comparison is difficult to make. However, enough data are available to make it possible to demonstrate that persons trained in vocational schools do not necessarily go into the occupations for which they are trained.

Only one specific occupation, carpentry, appears in both the vocational school statistics and the labor force statistics. Carpentry is the largest course of study in the Vocational Education Department Schools accounting for more than one-fifth of all the students. According to the labor force survey, in late 1968, only 600 males out of 52,500, then classified as carpenters had completed education in the upper secondary vocational school.^{1/} Yet in the School and Teacher Census, 1967 1,340 carpentry students were in the third year of upper vocational school. The same source indicates that 1,117 males graduated from the carpentry course in 1966. Over the last 10 years, there probably were about 10,000 carpentry male graduates. Since carpentry has been a basic course for many years there must have been additional thousands graduated before that.

Additional evidence that technical graduates of vocational schools do not always enter the occupation for which they are trained can be deduced from the fact that of 32,300 men in the NSO survey who reported themselves graduates of upper vocational schools, only 8,600 or a little more than one-fourth were in engineering and construction type occupations,

^{1/} Of the 52,500 carpenters reported, fewer than 5,000 had any secondary education and 11,000 had no formal schooling whatsoever. Thus students who receive formal vocational education must be aware of its futility when the job specification requires little or no education at all. Instead the vocational training seems to serve primarily the purpose of social mobility.

whereas two out of three men enrolled in these schools currently are in this type of training. More than one-third of the upper vocational school male graduates, according to NSO, were in clerical jobs but only one-sixth of the training given at the vocational schools are business courses.

Obviously, many graduates of technical courses are going into white collar jobs. When, for example, only a small fraction of the men trained as carpenters actually become carpenters, the government has wasted its efforts. The amounts involved are much greater than it seems from the numbers involved, because vocational school costs per student are roughly twice those in academic schools. Vocational schools have lower pupil-teacher ratios and much more equipment, and therefore use more space. Moreover, technical courses do not provide adequate training for white collar workers.

These facts suggest a compelling need for the government to reconsider its vocational training program. Assuming carpenters are essential to national development, should the government go on providing carpentry training in vocational schools when nearly all its effort is lost? Should it not consider other methods of training more in keeping with the realities of the employment situation.

Would it not be better to improve through in-service training the competence of those who are likely to remain at a skilled workers' social and economic level than to train students to grade 13 and 15 level who are almost certain to leave the occupation? Or, if this is not practical, should the government shift the resources invested in this type of training to general education or to a program for training agricultural extension assistants? These are broad policy issues which apply to the Northeast as well as the Nation and which require resolution promptly in order to conserve resources, i.e., to promote a manpower plan more directly compatible with actual needs.

2.4.5 Social Development Sector

2.4.5.1 General Education - Well over 90 percent of the children in the Northeast attend lower elementary school; about 15 percent attend upper elementary; and about 5 percent attend secondary school. The figures on enrollment, especially at the lower elementary level, do not give an adequate picture of the education system for at least two reasons. First, in some areas there is a big discrepancy between enrollment and attendance and a large proportion of students do not attend with any degree of regularity. Second, quality of education is deplorably low in some areas as indicated by large teacher student ratios, the poor qualifications of teachers, the lack of equipment, training aids etc.

Another index of quality is the literacy retention rate for those who terminate their education upon completion of lower elementary school. In every province in the Northeast a higher percentage of those age 10 is illiterate than those age nine. This percentage increases, moreover, until age 16, when a high percentage of teenagers leave their villages to seek employment in towns and cities. This indicates, of course, that the village school is no more effective than the village society in transmitting skills and less effective in this respect than the larger society.

Next to quality, the lack of educational opportunities beyond grade four is a most pressing need. Many of the development projects not only assume a literate population but one that can organize and assimilate elementary economic concepts as well. Therefore if a move is not made to raise educational levels among the next generation much of the development inputs will be lost. The development of educational opportunities requires at least three things: (1) building schools, (2) training teachers, and (3) making scholarships available to students who cannot otherwise afford to attend school. Present statistics indicate that the Northeast is not keeping up with population growth in any of the above. As a result the area is actually digressing in the stated government policy of reaching a seventh grade educational standard.

2.4.5.2 Public Health - Considerable strides have been made in the Northeast during the past four years as measured by the number of health stations constructed and the accomplishments of the special programs. During the past four years 916 health stations were constructed in the country as a whole; almost half, or 443, of these were located in the Northeast indicating a rising government commitment to this region. This gave the Northeast slightly over 1,000 health stations, compared to 782 in the North, 914 in the central region and 542 in the South.

It is difficult to evaluate the effectiveness of the special programs and the health stations without detailed statistics and benchmark against which accomplishment can be gauged. With respect to the special programs it is obvious that considerable progress has been made on those conditions which are endemic to the Northeast, as well as the special programs in general. Malaria is practically eradicated, for example, and some thought should be given to deploying some of the personnel and money from this program to other more pressing problem area. The Leprosy program continues to control the spread of this disease through early detection of cases, and the use of prophylactic drugs. Concurrently cases are being cured either in inpatient facilities or on an outpatient basis. However, the social stigma surrounding this condition is such that little in the way of effective social rehabilitation of cases can occur. Consequently once a person becomes a leper he is likely to spend the rest of his life as a ward of the state.

Statistics are not available to do an analysis of the accomplishments of health stations by type of region. Statistics from the first class health station at Ban Phai, changwat Khon Kaen show that this station and its two auxiliary second class stations rendered the following services during 1969:

- (a) Administered 65,000 immunizations of various kinds;
- (b) Treated 9,315 patients at the health station;
- (c) Examined 8,011 students for leprosy;
- (d) Surveyed 104,207 people for trachoma;
- (e) Examined 1,836 people in four villages for intestinal parasitias;

- (f) Delivered 299 babies;
- (g) Provided pre natal and post-natal services to over 1,000 mothers;
- (h) Examined 9,861 students as a part of the school health program; and
- (i) provided IUD'S or birth control pills to nearly 500 wives.

It should be stressed that this health station is situated in an amphoe seat and that it is a transportation center serving parts of Roi-Et and Mahasarakham provinces. As a result this station is atypical and serves more people than most other station.

The Health services, like all RTG agencies, experience persistent problems with respect to budget and manpower. In addition there are two sets of problems which impede the efficiency of the health service. The first has to do with the organization of the health service, and the second has to do with social and cultural factors in the population.

The social and cultural conditions in health and illness are perhaps the largest single factors in ill health in the Northeast. Because of ignorance, a preponderance of the population engages in practices daily which contribute to ill health. These practices revolve around food habits, sanitation practices, superstitions concerning the cause of diseases, and a belief in the strength of native medicine. These conditions can only be changed through education over a long period of time.

The problem of organization revolves almost entirely around the relationship of the special programs to the changwat health officer and the local stations. On the changwat level there are representatives of each of special programs and a changwat health officer. The changwat health officer supervises the local health stations and is attached to the Governor's office. The special programs are an extension of the program from Bangkok and have no direct administrative connection with the changwat health officer. At the same time, however, these programs operate out of the changwat health office and the local health stations. This creates a

situation in which the total health program has to operate without formal administrative connections among the various elements. As a result strong, well balanced programs at the local level occur primarily as a result of the charisma of the changwat health officer. This situation can be improved through a formal structure to integrate the special programs into the changwat health office.

2.4.5.3 Public Welfare - The program of the Social Welfare Department can be roughly divided into two categories, - Social Welfare Services and Land Settlement schemes. The social welfare services include: children and youth programs, family assistance, occupational assistance, welfare for the aged, welfare for the destitute, welfare for the disabled, welfare for the socially handicapped women (prostitutes), disaster relief, community services, social security and housing assistance. A description of each program is necessary in order to comprehend the range of social welfare services rendered. Space limitations allow for only cursory treatment here. Moreover, these services are designed for the most part for the Bangkok-Thonburi Metropolitan area. The extension of welfare service into the Northeast occurs through provincial welfare officers in nine of the 15 provinces, and through services offered in resident facilities in Nakhon Ratchasima and Nong Khai provinces. The resident facilities in Nakhon Ratchasima include a home for boys, a rehabilitation program for prostitutes, a home for aged men, and a home for aged women. The facility at Nong Khai is a home for boys which was originally established to accommodate children who were flood victims. At present it accommodates approximately 100 boys.

The land settlement activities are the largest single program of the Social Welfare Department in the Northeast. There are presently 53 land settlements. Fourteen are located in the Northeast. Hence, if the Bangkok-Thonburi area is excluded the Northeast is slightly better off than the rest of the country in terms of land settlements and provincial welfare offices. There are only 26 provincial welfare offices, for example, and nine of these are in the Northeast. However, these officers have no staff and provide very limited services at the local level.

2.4.5.4 Community Development - The Community Development Department provides a number of services to communities ranging from mobile trades training programs to leadership training. Leadership training is perhaps the most useful of services inasmuch as few villages have people who can assume leadership positions in local voluntary associations. Moreover, experience shows that only those villages in rural Thailand which have strong local leaders have been successful with the community development approach. No count of successful villages is available. However, it probably does not amount to 25 percent of the villages in which the community development program operates.

The following shows the number of changwats and other units covered by community development programs:

| | Changwats | Amphoes | Tambons | Groups | Villages | Population(1960) |
|-----------|-----------|---------|---------|--------|----------|------------------|
| Total | 38 | 160 | 1,459 | 1,556 | 14,845 | 10,233,166 |
| Northeast | 15 | 89 | 846 | 962 | 10,526 | 7,270,096 |
| Other | 23 | 71 | 613 | 604 | 4,319 | 2,954,070 |

The community development program has concentrated largely on the Northeast. All of the Northeast changwats have C.D. programs and a target of the C.D. Department is to cover every village in the area. This is perhaps an unrealistic target inasmuch as many villages are not amenable to the C.D. type approach. However, this does reflect the government's special concern with the Northeast. Ongoing planning and evaluation activities will provide a broader basis for appraising the effectiveness of these programs.

2.4.6 Transportation - With respect to the Thai Highway Department program, it is possible to report that planned construction targets in the Northeast, in terms of overall kilometers of roads, will be substantially accomplished. The plan called for 2,196 kilometers of new construction of National Highway of which 1,553 Km. were to be completed

within the planning period (1965-1971). This target will probably be reached and perhaps exceeded. Based on the best available estimates about 1,500 Km. have been or are nearly complete as of early 1970.

Many feeder, access, and other secondary roads have also been built outside the five year plan more or less under National Security budgets (MDU, ARD, etc.) along with other roads which are part of the budget for other development projects such as RID irrigation projects.

MDU has completed 668 Km. through 1968 with 367 more Km. under construction in 1969. ARD completed about 1,300 Km.^{1/} through 1968, but these roads were not formally part of the Development Plan published by NEDB, nor so far as has been determined, were monetary budgets ever formulated for these roads.

Project identification and evaluation for transport in order to be meaningful must essentially be integrated with the agricultural sector. It is clear, however, that transport investment impact on regional economic development has been oversold mainly because more fundamental obstacles to development were ignored or overlooked. While it is true that economic growth in advanced nations has a several centuries association with technological break-throughs in transport (steamships, railroads, automobiles, aircraft, missiles) these have largely influenced manufacturing, not agriculture once basic access at reasonable cost exists.

As indicated in other sections the existing transport network if adequately maintained, including railroads and highways (plus proposed waterway improvements) clearly poses no constraint to development in the productive sectors now contemplated in the next five year plan period.

2.4.7 Other Sectors - No information has been sought to date concerning projects in other sectors. Only two, rural electrification and postal services, are mentioned here briefly.

There seems to be some controversy concerning the rate of expansion of rural electrification. Evaluation needs to consider here

- among other elements - the impact and benefits related to expansion of radio and TV, the latter offering educational services which could influence farm output.

New post office buildings have been provided to all the amphoes. This appears somewhat extravagant. Extension of postal facilities might consider consolidating building requirements with railway, ETO, and general store offices.

Collaborative efforts with other agencies (ADB, Mekong Secretariat, Board of Investment teams, etc.) will provide additional information on programs affecting the industry, trade and other sectors not covered here.

SUMMARY: SECTION (3)

PRELIMINARY SCENARIO: NORTHEAST THAILAND 1972 - 1976

3.1 Plan Methodology Development

3.1.1 Elements for Regional Plan Frame:

(a) There is a serious imbalance within the public investment sector with over-emphasis on hard infrastructure and insufficiency in manpower and health sectors.

(b) Intersectoral gaps are reinforced by inter-regional gaps as the standard of health and education are below national standards.

(c) Previous studies suggest, given unfavorable incremental capital output ratios that major public investment efforts in the Northeast might seriously affect the overall development of Thailand by supplying resources to relatively non-productive efforts.

It is suggested therefore that public investment in the Northeast be guided by the following:

(d) Reduction of inter-regional (as well as intra-regional) gaps especially in connection with manpower development, conservation and health.

(e) Closing of inter-sectoral investment gaps by encouraging an appropriate balance among sector expenditures.

(f) Encouragement of selective agricultural schemes and the assignment of production targets based on marketability analysis.

3.1.2 Special techniques may be applied to micro-problems such as

(a) Special surveys (e.g., sufficiency survey for road transport network)

(b) Computer maps to identify readily inter- and intra-regional inequities

(c) Rural models which can assign priorities for local road construction and maintenance; determine optimum locations for storage facilities; select local water supply systems; and carry out other similar tasks.

(d) Village models which can deal in depth directly with local development problems.

3.1.3 Particular tools for Changwat Planning include

(a) Inception of programs in response to felt needs including definition and rationale.

(b) Coordination of all Changwat programs.

(c) Validation of program in relation to established criteria.

(d) Determination of feasibility financial plan.

(e) Assignment of priorities relative to total Changwat Plan.

3.2 Preliminary Target Estimates

3.2.1 General Agriculture

Rice production has increased at about the same annual rate as population (estimated 3.3 - 3.5%); other crops at about 2%. It is proposed not to influence directly the rice production rate but leave it to market forces as opportunities for cash cropping are expanded. The latter is proposed to be raised to 3½ - 4% p.a. by 1976.

3.2.2 Other Primary Sector

Livestock has grown at (est.) less than 2% - per year in the 1960ties. Subject to successful experimentation with feed lots, this should begin to grow by 4% p.a. by 1976 and more after that date.

Forestry products have expanded about 4.5%; expansion here will depend on improved management and conservation techniques.

3.2.3 Industry and Trade Sector

A rate of growth in the primary sector of $3\frac{1}{2}$ - 4% p.a. will sustain a growth rate of 8 to 9% p.a. in industry and trades, based on general Thailand experience and discounting U.S. military impact.

3.2.4 Other Sectors

Agricultural manpower development is the most critical in relation to improving and achieving agricultural growth rates. In the social services sector it is suggested that at least parity with the nation as a whole be achieved in terms of professional staff and facilities (except for the number of physicians and dentists, as it is unlikely that their shortage can be significantly reduced).

3.2.5 Comments

It is unlikely that the per capita income gap between the Northeast and Thailand as a whole can be reduced in the next plan period. However greater equity can be achieved in terms of

(a) Ownership and capital resources

(b) Raising the social services sector to national standards

(c) Successful promotional schemes in agriculture which can accelerate economic returns, especially after 1976.

(d) Creating job opportunities in other regions.

3.3 Suggested Projects and Programs for Northeast Compatible with findings to date

Substantial possibilities for resources exploitation exist, particularly in the field of livestock and forestry products. The major constraint to rapid development however is the lack of trained manpower and skilled management. This suggests only modest growth possibilities in the early stages (3 - 5 years) until human and physical input requirements are brought into balance.

3.3.1 Agriculture

(a) Livestock Feed Lot Experimentation. If successful this can lead to establishment of a major industry in the NE, including surpluses for export.

(b) Consolidation of existing experimental programs and proper marketing analysis to establish targets for beef, pork, poultry and fish.

(c) Promotion of Cash Crop in relation to available irrigation and extension service help, including Kenaf, Maize, Sorghum, Cotton, Tobacco, Silk, Groundnuts -

(d) Development of appropriate support activities including

Credit Expansion
 Price Supports
 Storage Silo and Cold Storage
 Market Towns
 Feed Mills
 Consolidation of Farmer Associations
 Documentary films and training aids to disseminate research results.

(e) Reorganization of Applied Agricultural Research through consolidation and integration, including assignment of responsibility for disseminating information to farmers.

3.3.2 Industry

(a) Forestry Products - pulp, furniture, handicrafts, construction materials, boat building.

(b) Agri-Business - livestock related: leather products, shoes, meat packing; canning fruits, vegetables, fish.

(c) Agri-input related: Fertilizers (Chemical and organic), pesticides, farm tools, tractor rentals and repair services etc.

(d) Tourist Promotion: Historic sites (about 170 archaeological sites in NE), feasibility of game preserves, artificial lakes as recreation centers.

(e) Industrial Estate Development in order to encourage more orderly urbanization where applicable.

3.3.3 Water Resources

(a) Get existing tanks on-stream where practicable (survey required to determine this).

(b) Supplementary irrigation on the basis of pump lift schemes and self-help local ponding.

(c) Expansion of community water supply systems - and improvement in coordination.

(d) Establishment of mobile units to instruct farmers in proper water usage, especially for irrigation.

3.3.4 Manpower Development

Priority given to improving training in agriculture

(a) Training for ultimately placing extension agents locally recruited into each tambon.

(b) Supplement training of existing extension workers.

(c) Introduce some agricultural vocational content into elementary schools.

(d) Revise curriculum relevancy to relate to rural environment as required.

(e) Introduce special scholarship program for NE students.

(f) Consolidate agricultural vocational schools and programs.

(g) Provide more school buses, training aids for both general and vocational education purposes.

3.3.5 Social Services

(a) Establish more concise resettlement plan procedures in connection with dam construction or relocation from more to less marginal lands.

(b) Supplement 4H Club Activities to provide training for youth during off-seasons.

(c) Promote Thai Volunteer program with focus on agricultural promotion and health programs.

(d) Expand Community Development self-help program.

(e) Expand Health Center Programs based on more local recruitment.

(f) Establish Family Planning Information Services.

(g) Correlate livestock, fish and dairy programs with improved nutrition.

(h) Establish more effective crime prosecution procedures to provide farmer with more secure environment (especially for livestock raising).

(i) Provide special rehabilitation programs for unskilled workers likely to be unemployed as a result of U.S. military cutbacks.

(j) Development program for surplus property disposal and uses in U.S. military impacted areas.

(k) Encourage urban planning and zoning controls.

3.3.6 Transportation

(a) Contract Road Maintenance to private sector.

(b) Provide Thai Language Maintenance Manuals.

(c) Pool maintenance equipment for all public works (roads, dams, land clearing etc.).

(d) Encourage greater practice of emergency road maintenance.

(e) Contract traffic code enforcement to Thai Highway Department.

(f) Improve short-term capability for constructing and maintaining feeder and inter-village roads.

(g) Relate possible new road construction to agricultural soils capability (e.g. Nakhorn Sawan to Bung Khan).

(h) Expand railroad tanker car fleet to increase road safety.

(i) Investigate feasibility of oil pipeline connection between Nong Khai road/rail head and Laos storage tanks (in lieu of proposed Mekong River Bridge).

(j) Suggest UNDP investigate extension of East-West highway to Port of Moulmein in Burma as a potential surface short-cut route between Southeast Asia and the West by instituting modern ferry services between Moulmein, Rangoon and Calcutta (Haldia).

3.3.7 Miscellaneous

(a) Support local Wat to encourage village development.

(b) Establish a Northeast (NEED) Development Corporation as a semi-public agency to promote investment (agri-business, industry and trade in the area).

Section 3 **PRELIMINARY SCENARIO: NORTHEAST THAILAND, 1972-1976**

3.1 Plan Methodology Development

3.1.1 Elements for Regional Plan Framework: Northeast Thailand -

The basic approach for establishing a regional framework suggested for the NEED effort is to consider both inter- and intra-regional parities by sector and to try to improve the Northeast's participation in the Nation's development.

3.1.1.1 Status of the Region - The regional profile of the Northeast indicates a lag in virtually all product series when the Northeast is compared to the rest of Thailand. This profile is based on the data discussed in Section 2 and supplemented in the Appendix to this report.

The foregoing has led to the following observations:

(a) There is a serious imbalance within the public investment sector with over-emphasis on construction of infrastructure and insufficiency in the manpower and health sectors.

(b) The inter-sectoral gaps are reinforced by inter-regional gaps as the standards of education and health are below national standards.

(c) Previous analyses, such as the unfavorable incremental capital output ratios suggest that major public investment efforts in the Northeast might impair the overall development of Thailand by supplying resources towards relatively non-productive efforts.^{1/}

3.1.1.2 Limitation of GNP or Per Capita Income Rates - In addition to the foregoing a note on domestic product accounts and growth rates is in order:

^{1/} See for example, Allen Goldstein and Roger Riefler, Northeast Thailand, An Economic Profile, USOM, Thailand, 26 Feb. 1968.

Apart from their unrepresentativeness in terms of modal distribution the principal deficiency of these economic measurements is that they fail to consider quality. The latter is particularly significant if political and counter-insurgency objectives are to be realized. Furthermore there is a tendency to assign abstract growth rates, such as 4.3 percent for the agricultural sector envisaged in the second five year plan, which have little chance of being achieved largely due to insufficient absorptive capacity. So far in the Northeast increasing productivity is likely to succeed only on a selective basis by training the required manpower on the one hand and establishing pilot community programs in areas with relatively favorable soil and water capability (such as are currently being investigated by the ARD COMPAC team).

One must also caution that the tendency to emulate the West may invite undesirable side effects. The latter is beginning to take stock of the high price involved in unlimited GNP aspirations. For example, automobile accidents, nervous break-downs and the general pollution of the environment, clearly negative factors, still show up without appropriate adjustments on the asset side in the form of psychiatric fees, automobile sales and general manufacturing output.^{1/}

Thailand still has a chance to avoid the pitfalls of indiscriminate economic growth. This has particular relevance in the Northeast as far as conservation of water and forestry resources are concerned, as well as the accumulating urbanization problems at Korat, Ubon and Udorn. One must make sure therefore that all programs or project proposals are truly related to the fundamental objectives of growth which include the reduction of poverty, more equitable distribution of rising incomes and increasing the opportunity of choice, especially the chance to change one's environment.

^{1/} The average U.S. workers now spends four of his forty productive years struggling between home and office, a phenomenon becoming increasingly apparent in Bangkok.

GNP rates need to be supplemented by a contentment index to guide development policy. Research on a world wide basis is urgently needed to qualify economic growth in terms of health and education standards, political stability, cultural stress and smiliar criteria.^{1/}

3.1.1.3 Suggested Public Investment Policy - To recapitulate: It is suggested that public investment in the Northeast be decided on the basis of the following:

(a) Reducing the inter-regional gap as indicated by the statistical profile of the Northeast and emphasise in particular manpower development, conservation and health measures.

(b) Closing the inter-sectoral investment gaps by the encouragement of better balance among government development expenditures.

(c) Encouraging selective agricultural promotional schemes within the context of the above and assigning to the Northeast production quotas which are based on marketability analysis.

In effect this means that principles of equity would be applied particularly in the social service sectors, while encouragement of economic returns (efficiency) will be more directly related to specific agricultural schemes. This would seek the dual benefit of improving quality of the environment, while encouraging a more favorable capital output performance.

It will be the task of the regional plan group to quantify the foregoing for specific plan application, including suggestions for appropriate alternatives. However, it must be emphasized that closing or reducing gaps does not simply mean shifting or increasing sector budgets. The real test involves the stimulating of programs with improved qualitative content. For example. more money for vocational training must include

^{1/} This might well demonstrate for example, that Northeast Thailand is better off than the Bangkok metropolitan area.

appropriate provisos to insure the desired structural changes required to make training more effective and meaningful.

3.1.1.4 Surveys of Resources - In addition, it is desirable to expedite surveys designed to assess existing resource capabilities and financial requirements to put these "on-stream". These include in particular

(a) Assessment of soils potentials. So far only Nakhorn Phanom, Sakhon Nakhorn and Roi Et have been mapped.

(b) A highway network sufficiency survey has been commissioned and data should be available in time for the Stage 4 (draft plan) report.

(c) Manpower availability for agricultural training will be determined from a forthcoming survey of civil service personnel by NEDB's manpower division.

(d) A physical inspection to appraise the condition and usage of water tanks and small dams is desirable to guide water resource development in the Northeast. (See also Section 3.3.3.1).

3.1.2 Methodology Considerations for Local Level Planning - All research by those participating in the NEED program up till now has shown that planning for the Northeast Five - Year Plan (1972 - 1976) will be limited to some extent by the data gaps which exist and cannot entirely be fulfilled by special studies or surveys. This is a serious problem and work is progressing to sort out precisely those data which are useful for planning, how they need to be manipulated mechanically and analytically, and how this work can best be adapted to the existing and proposed planning capability within RTG agencies.

3.1.2.1 Surveys - There is no particular problem in relation to special surveys and studies and several have been instituted; however, the next planning phases will pay more attention to the methodology of obtaining quicker answers to vital data requirements necessary for the evaluation

of overall budget costs, program benefits and priority assignments. With the sufficiency survey of the road network of the Northeast, a start has been made in developing a methodology.^{1/} It is essentially a "snapshot" census technique of the existing state of the network and its usage. Once the data are assembled it will still be necessary to make the best use of them. This requires specific models designed to answer planning questions such as: What priorities should be given to a number of competing road building projects? Where should agricultural storage facilities be built in relation to production areas markets? Where should wells be dug?

3.1.2.2 Computer Mapping - Mention should be made of the computerised mapping technique developed by Harvard University and extended by Dr. Ng of London University. Dr. Ng has demonstrated a large number of maps plotted by the computer, showing in pictorial form such quantities as population distribution, agricultural production, mail use and so on. The computer manipulated basic NSO data which was published in the Statistical Yearbook of Thailand, but it is proposed to widen the scope by using unpublished basic data.

Computerised mapping could become a helpful planning technique for both regional and local level planning as it can graphically represent regional relationships by using national map profiles as well as local differences by using regional map profiles.^{2/} Any inequities existing between regions or changwats can be quickly identified and this would be of substantial help to the planner.

3.1.2.3 Rural Modelling - The application of rural modelling to the Northeast is dependent on the cooperation of the operating agencies, particularly ARD. Sufficient use of these techniques has not yet been made,

^{1/} Other proposed surveys include the soils capability study, irrigation tank survey and the manpower utilization study.

^{2/} Given the availability of data this could be extended to Amphoe and Tambon profiles. NSO is now exploring the possibility of using the NSO computer to do work of this character.

though the validity of the approach has been demonstrated in the DATS (Developing Area Transportation Systems) study of Nong Khai. The program for rural roads in the Northeast has five-year targets as high as 1000 Kms. for some changwats. Though the construction period is not determined, and as the construction capability of the changwat is probably no more than 70 Kms. a year, and the "life" of rural roads is about 5 years, it is important to have a system of priorities based on probable road usage. The DATS type analysis, in particular the ECON program has this capability, and to minimize wastage of money and effort this modelling technique should be considered.

While the DATS type analysis is based on one particular aspect of the problem, it can also be iteratively used to give an understanding of multiple variables. The following is an example: The most desirable sites for drilling wells are dependent on a number of different factors:-

- (a) They will serve the maximum number of people.
- (b) The water obtained is fresh, and is at a depth that the drilling equipment will reach.
- (c) The well serves a social purpose and helps to reduce the distance that particular groups of people have to walk for water. (ARD have drawn 'iso-nams' which are lines of equal time that people must walk for water).
- (d) The well serves a particular political purpose in relation to areas where insurgency exists.

The method used to solve this type of problem is both computerised and manually operated and suggests a practical example of how planners can make use of alternative techniques to give the best answer to a problem.

3.1.2.4 Village Model - As part of the NEED program a village model (NEEDAC) has been developed. The model describes the village system in terms of its major elements:

- (a) Economic relationships
- (b) Social Services
- (c) Political realities

The village can be described in a series of activities and sub-activities (economic, social and political) and these are defined by resources available and the constraints placed on their use. The model is sophisticated, but can result in a deep understanding of the process of village development. Proposals will be made for exercising the model.

For all of the foregoing, including surveys, computer maps, rural and village models it remains to be determined to what extent their costs can be justified in the RIG planning context and what modifications may be appropriate.

3.1.3 Changwat Planning Tools - Chart 3-1 illustrates the process of Changwat Development Planning. The procedures include those to be performed at the Changwat, the Khon Kaen Center and at NEDB. The system has been developed over the last year and is described in the NEDB Changwat Planning Manual. Planning at the local level is a new concept in Thailand and it is to be expected that the system must be allowed to evolve to suit as closely as possible the particular conditions relating to Local Administration in Thailand.

Briefly the chart shows the formation of Economic Development Ideas through the consideration, by Local Administrative Agencies (including ARD), of the Peoples Wants and Needs, expressed through Tambon and Amphoe officials.^{1/} Essentially a set of five planning tools are recommended.

Planning Tool "A" will:

- Record sources of ideas
- Detail reasons for project
- Define project - estimate its magnitude.

^{1/} These procedures are similar to those required for general regional and national planning (See also Section 4.1)

The ideas developed from the people are listed with those from the Central Agencies after taking a preliminary look at the resources available.

Planning Tool "B" will:

Develop a coordinated view of all projects and programs within a Changwat and for directly related ones in surrounding changwats. From this geographical time series can be prepared.

The Changwat Project List by Sector and Agency obtained through the use of Tool "B" is then subject to analysis in accordance with criteria set by the policy document. "Planning Goals and Strategy".

Planning Tool "C" will:

Test proper assignment of projects in relation to criteria.

Concurrently Planning Tool "D" will:

Analyze financial requirements and feasibility.

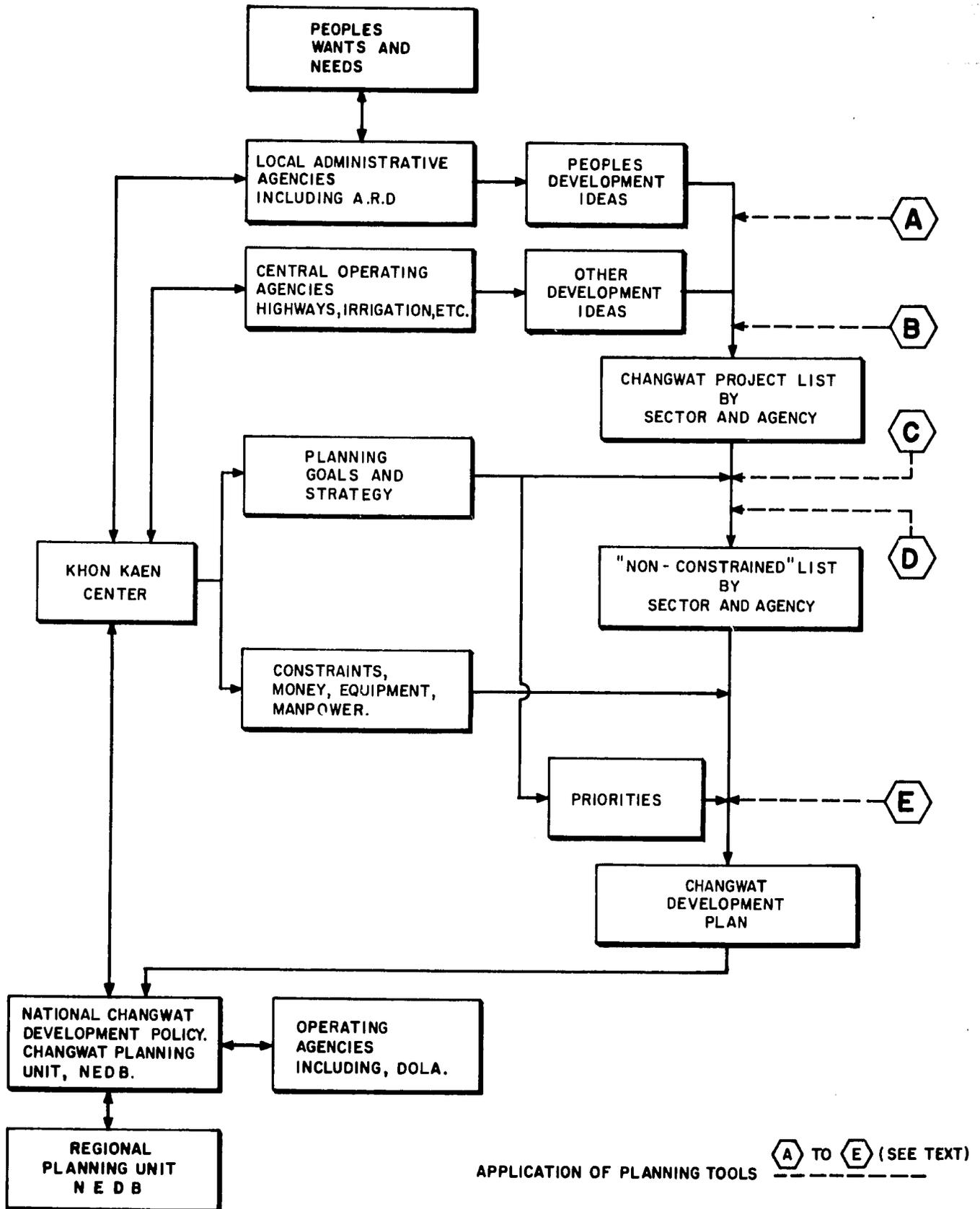
Finally, in line with the Goals and Strategy and the constraints in money, manpower and equipment, priorities will be drawn up, enabling the Changwat Development Plan to be formalized, and sent to NEDB for consideration and inclusion in the Regional Development Plan.

Planning Tool "E" will:

Assign priorities for programs and projects.

Implementation of changwat planning is now in process (See also Section 4.1.2 and Appendix 4-A).

CHANGWAT PLANNING AND USE OF CHANGWAT PLANNING TOOLS



APPLICATION OF PLANNING TOOLS A TO E (SEE TEXT)

3.2 Preliminary Target Estimates

3.2.1 General Agriculture - The basic pattern of agriculture in the Northeast has been one of general self-sufficiency in rice and widely fluctuating outputs of other cash crops with farmers being almost entirely at the mercy of the weather as well as an inadequate marketing system.

3.2.1.1 Paddy - It has been determined that the growth in rice production in the Northeast closely parallels population increases, with little change in per capita consumption over the past 30 years (See Chart 3-2). This rate of increase is possible to maintain during the next plan period both in terms of extensive and intensive cultivation since

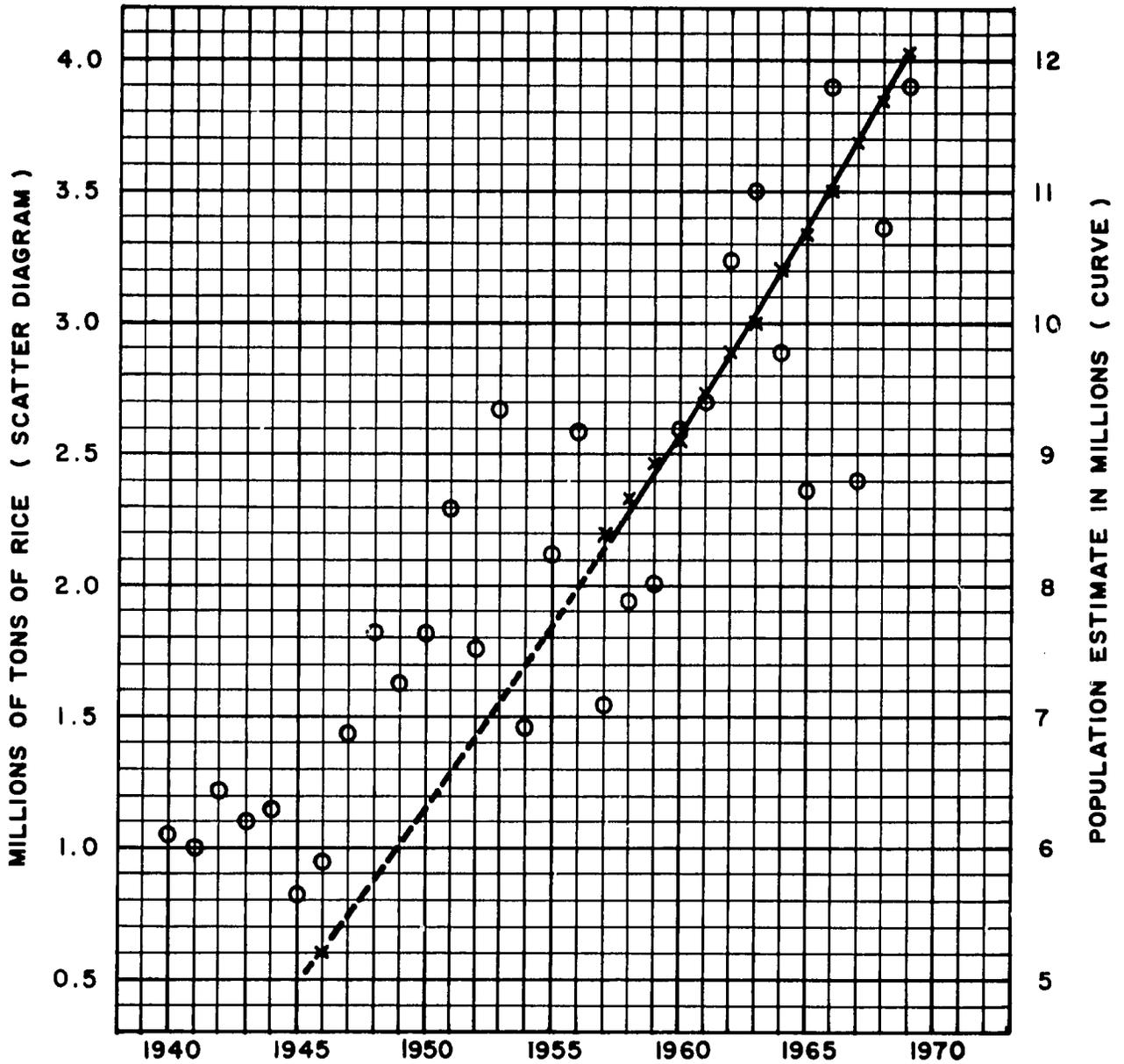
(a) Additional land for paddy production is available, although its quality is becoming increasingly marginal and

(b) Most of the irrigation schemes in the Northeast have not yet become operative. Furthermore the introduction so far of fertilizer, pesticides, mechanization, improved farm management and marketing - except for the Pakchong area in Korat - has been on a limited scale. Together with irrigation (where appropriate) the possibilities for intensified rice cultivation would seem to insure continued self-sufficiency in rice.

3.2.1.2 Cash Crops - These have increased overall at about two percent per year in the past decade and this rate of increase can be stepped up.^{1/} While more information is required on both the supply/location and the demand side it seems feasible to increase agricultural production from a physical standpoint and that farmers would respond, provided they were given appropriate support in terms of marketability, storage, credit, and possible price support. In addition improved water usage from irrigation and other technical

^{1/} Calculated from actual volume of production of crops, (Table 2-2); using value added data from the regional gross domestic product series (Appendix 2-B2b), the nine year growth rate is calculated at 1.7 percent per year.

RICE PRODUCTION AND POPULATION TRENDS NORTHEAST THAILAND 1940 - 1970



SOURCES 1) DEPARTMENT OF RICE, MINISTRY OF AGRICULTURE.
 2) PRADIT CHARSONBURI AND MELVIN WAGNER, ESTIMATES OF THE THAI POPULATION, 1947-1976, KASETSART UNIVERSITY, 1969.

inputs could substantially increase the rate of growth from the present two percent per year to $3\frac{1}{2}$ or 4 percent by 1976. However, the success of the latter will depend on

(a) The extent the government will influence population policy including migration. While "family planning" is likely to have little effect by 1976, even if started now, more favorable employment opportunities in other regions influence population trends in the Northeast. A decelerated population growth will obviously "release" land that might otherwise be used for paddy.

(b) Whether to discourage self-sufficiency in rice (regardless of population trends) to the extent that other areas of Thailand with higher yields and with shrinking export markets might not better sell some of their surpluses to the Northeast. This would permit geographic advantage to operate by encouraging more cash cropping. Given appropriate incentives, farmers in the Northeast can be expected to forego rice growing as has been experienced with the production of maize and to the lesser extent tapioca, tobacco and cotton.

(c) The speed in which the results of agricultural experimentation can be applied and

(d) The role of improvement in supplying appropriate agricultural extension manpower and other technical assistance.

Meanwhile, it is suggested, therefore, that market forces may be relied upon to adjust the growth rate of rice by encouraging alternative crops to be increased to a rate of $3\frac{1}{2}$ - 4 percent providing surpluses for other parts of Thailand and for export.

The main technical problems to be resolved here is to reduce the volatility of output in crops such as, kenaf, sugarcane, maize, cotton and tobacco, to establish specific output targets related to the results of on-going market studies, and to provide the required manpower to guide such development, especially at the tambon level.

The combination of a 3 - $3\frac{1}{2}$ percent growth of paddy and $3\frac{1}{2}$ - 4 percent growth of other crops will mean a gross domestic regional

production in basic agriculture of about 4,050 million baht for rice, and 3,200 million baht for other crops making a total of 7,250 million baht (constant 1962 prices) by 1976. This compares with 5,700 million baht estimated for 1969. This represents a conservative estimate and better results can be achieved especially if kenaf production can be stabilized.

Encouraging the commercialization of agriculture in the Northeast by mobilizing the typical small landholder would have the desired effect of increasing his ability to support local infrastructures and accumulating savings for investment to stimulate the industry and trade sectors. The latter have been largely supported in the past by investments from the Bangkok metropolitan area, which in turn benefits from most of the returns on these investments.

3.2.2 Other Primary Sector - Other primary activities will consist essentially of livestock and forestry product promotion.

3.2.2.1 Livestock - The rate of livestock development has been no more than about two percent over the past 10 years and its future expansion will depend largely on the success of pilot feed-lot operations (See also Appendix 3A).^{1/} Of all individual development potentials examined so far, livestock promotion, especially beef cattle and buffalo, shows the greatest promise for eventual large scale development. Meanwhile swine and poultry have shown modest success as alternative sources of income for Northeast farmers (e.g., Sarapee), however, additional fact finding is required to suggest specific growth rates at this stage.

3.2.2.2 Forestry Products - Output has risen an average of five percent per annum from 1960 to 1968. Expansion will depend on the application of research results and improved controls for conservation, replanting

^{1/} Even this rate of growth has been challenged as there is little control over illegal slaughtering and some officials at the Ministry of Agriculture believe there actually may have been a decline in the number of cattle in recent years.

and general management (See also Appendix 3-B). It is likely, however, that deforestation will curtail this growth rate. The role of the Government here, therefore, must be to provide and enforce the required controls, to encourage the appropriate research, and assist in dissemination of productive research results to the private sector on a more organized basis. More information on the status of forestry resources is being prepared.

3.2.2.3 Fish Production - This increased an estimated 16 percent per year 1965 - 1968 and this has been attributed largely to the opening of several new reservoirs during this time. This rate of expansion can be expected to decline because of evidence of over-fishing. However, with appropriate controls a 6 percent annual growth rate should be feasible for the next five years.

3.2.2.4 Minerals - The possibility of important increases in mineral exploitation appear remote at this time. Most of the Northeast's mineral wealth - excepting rock salt - is concentrated in Changwat Loei (See Appendix 2-f).

The principal task of the primary sector plan to be worked on during the next planning stage is to suggest specific crop, livestock and other output targets by location of production (changwat) based on market forecasts as well as available soils information.

3.2.3 Industry and Trade Sectors - The primary sector is treated as the chief independent variable. All other activities can be considered dependent (with the possible exception of health and education). The performance in the primary sector, especially in agricultural commercialization of crops, livestock and forestry product expansion, will directly influence the investment in the derivative industries and trade. If a four percent growth can be obtained in the primary group, it is then likely that the secondary and tertiary sectors can support eight or nine percent as has been the experience in Thailand as a whole.

During the sixties industry and trade in terms of regional domestic products have expanded at 11 percent in the Northeast. This rate is high, partially because of the low base from which it started and secondly, because of unusual inputs that are associated with military activities in the Northeast. If appropriate agricultural targets are realized, they could well substitute for the present non-agricultural impact on industry and would have the additional benefit of accumulating wealth within the region in contrast to the type of Bangkok controlled investment in the secondary and tertiary sector predominating at the present. The income and ownership disparities between regions would be reduced, which is not now the case. A 8-9 percent growth rate in industry and trade would mean a gross domestic product for the Northeast of 21,000 million baht, that is a per capita G.D.P. of 1,800 baht (at constant 1962 prices) by 1976. (1969 estimated 1,400 baht). However, primary sector expansion combined with a continued military presence could then boost the industry and especially trade sectors so as to achieve a capita G.D.P. above 2,000 baht by 1976.

To the extent that a substantial infrastructure is already available the public sector requirements for industry and trade promotion would be relatively small and consist largely of such items as municipal water supply, appropriate communications and possible tax incentives to stimulate industrial location.

3.2.4 Other Sectors - As noted before all of the other public sector activities here are considered to be dependent on the basic primary sector plan.

3.2.4.1 Irrigation - The foregoing means essentially that future irrigation requirements will be based on agricultural output targets. This would affect mostly systems which are already completed. The water tank survey will indicate how many of those provided can actually be put to proper use and what supplementary water facilities might be required. No additional major projects are foreseen to be necessary to meet agri-

cultural output during the third five-year plan period. Meanwhile, the Mekong Committee is studying water resource requirements on a longer range basis including projects which may be initiated during the next plan period.

3.2.4.2 Manpower - The critical element and major constraint is manpower and vocational training. Programs must be designed to support the agricultural base; it is considered feasible to provide agricultural extension service to every tambon by 1976. After this time the rate of increase in agricultural productivity might be accelerated at a level above four percent until all agricultural resources together with improved technology have been fully utilized.

3.2.4.3 Social Services - Targets for this sector are less dependent on the agricultural output per se, since equity considerations are predominant (See Section 3.1.1). However, here also better understanding of the rural environment as well as better inducements for professionals such as doctors, dentists, teachers, and CD workers to devote their careers to the Northeast is necessary.

The following summarizes the number of professionals or facilities required to raise the Northeast on a parity with the rest of Thailand.

(a) Physicians. There should be 661, but only 201 are currently employed.

(b) Dentists. Only nine dentists are reported to be resident in the Northeast. It has not been possible yet to determine a dentist/population ratio, but equity considerations obviously dictate a large increase.

(c) Nurses. Assuming the need for a constant Nurse/population ratio for the whole country, the Northeast requires 3,573 nurses or eight times more than the present 444 to give a total 4,017.

(d) Hospital beds. 2,537 more beds are required to reach the parity figure of 5,232.

(e) Third Class Health Stations. 96 more are required in addition to the existing 511 to give a total of 607 health stations.

(f) Teachers. The number of teachers in relation to the number of students is not a problem, but the distribution and quality is. The lower and upper local levels have a deficit, while private schools have a comparatively high teacher to student ratio.

(g) Schools. Schools in the Northeast tend to be smaller compared with the national average as the Northeast has 37 percent of the Nation's schools. But this, of course, tells nothing about their condition, facilities, use, etc.

This list does not consider improved standards which represent a national goal, especially in education. It is only in connection with health centers that adequate provisions are now envisaged by the Department of Health. Obviously much more needs to be done to approach parity - and while it is unlikely that this can be achieved with respect to the number of physicians and dentists, there must be firm policy commitments to achieve at least parity with respect to all other social sector requirements by 1976. The next planning stage will attempt to cost out such a commitment.^{1/}

3.2.4.4. Transportation - The sufficiency survey of the road network of the Northeast will determine the specific maintenance requirements. In order to preserve the existing transport network except for feeder roads no major construction is required to meet Northeastern development targets. Furthermore, consistent with the feasible development pace in agriculture (which is now essentially limited by manpower constraints) it is strongly urged that extravagant projects such as bridging the Mekong River at Nong Khai be postponed until a subsequent plan period.

3.2.5 Supplementary Comments on Plan Targets - This section on targets must be treated as preliminary as it reflects only the conclusions

^{1/} In some instances, such as community development, this commitment has already been made (See Section 2.4.5.4).

based on data collected and surveys made so far. As the data become more refined and more survey results are made available target estimates will be modified.

However, it should be noted at this time that the anticipated growth in the Northeast during the 1972-76 period, in accordance with targets that are at present considered feasible, will not match national growth and that the income gap between region and nation will therefore increase. This is not necessarily in conflict with the stated objective of narrowing regional gaps for the following reasons:

(a) The expanded agriculture and derived industry and trade envisaged in this section will result in greater equity in terms of ownership and capital resources, and improve the Northeast's standing in this respect.

(b) In the social service sector it is suggested that the Northeast be brought up specifically to national standards; and

(c) If the basic promotional schemes in agriculture, including livestock and forestry, as well as the required manpower program targets can be achieved by 1976, then it should be possible thereafter to accelerate economic growth at a higher rate than in the more developed regions.

(d) It is important to consider the basic economic health of the nation as a whole and to create job opportunities wherever they are feasible--barring an excessive concentration in the Bangkok metropolitan area. This will allow migration from areas of lesser to greater opportunity and improve income opportunities for the Northeast's rural population.

In the meantime, an effort will be made to calculate the input requirements if a higher than four percent agricultural growth rate is to be achieved prior to 1976 and to analyse the implications.

3.3 Suggestions for Project/Programs Compatible with Findings to Date - This section is designed to reflect the current thinking of the NEED agencies in connection with accelerating development in the Northeast. Therefore, a series of proposals for each Sector is given. These supplement some of the strategy proposals already made in Section 1.3. The Stage 3 Planning Report will appraise these in terms of budget requirements.

It may be noted that substantial possibilities for resource exploitation exist in the Northeast, especially in the field of livestock and forestry products. However, their promotion are subject to serious trained manpower and management constraints and their development must be initially modest until the human and physical input requirements can be brought into better balance.

The following outlines what constitute the principal elements of the Northeast plan as envisaged at this time.

3.3.1 Agriculture

3.3.1.1 Livestock Feed Lot Experimentation - A special proposal, which if successful could lead to a major livestock industry development in the Northeast is detailed in Appendix 3-A.

3.3.1.2 Consolidation of experimental programs, particularly livestock promotion (identification of Targets, Demand Estimates, Land Requirements, Entrepreneur Incentives), including buffalo, cattle, pork, poultry.

As programs are now administered, the Livestock Department in the Ministry of Agriculture operate stations in all changwats that offer breeding service in cattle and hogs; it does a minimum of breeding research, some pasture experimentation, and has an extension service. The Department of Land Development of the Ministry of Development has forage crop research stations in the Northeast and is doing some animal breeding as well. The Agricultural Vocational Schools have beef and dairy cattle herds; in addition

to their instructional functions, the schools are attempting elementary breeding trials. The Agricultural Extension Service and the Community Development Department both administer promotional programs in livestock, and so do some individual Changwat administrations (e.g., Loei). There apparently is no buffalo breeding program.

The multiplicity of activities is made more serious because of the absence of collaboration in these programs. Without a consolidation and unification of activities, targets cannot be identified, demand estimates completed, land requirements determined or entrepreneurial incentives established.

3.3.1.3 Cash Crop Promotion - Especially Kenaf, Maize, Sorghum, Cotton, Tobacco, Silk; (in conjunction with Market Research Unit, Ministry of Economic Affairs).

Rice paddy production in the Northeast increased 68 percent, using moving averages, for the period 1957-1959 to 1967-1969. In sharp contrast, the same measure for the kingdom as a whole showed an increase of 124 percent.

Kenaf increased a remarkable 1000 percent in the same period, although peak production was achieved in the 1965-1967 period. Production in 1968 was only 40 percent that of 1966, the peak year, and the production in 1969 was 60 percent.

Maize, the third largest income producing crop in the Northeast, experienced an increase of 115 percent in production in the decade 1957-1959 to 1967-1969. Maize production suffered a sharp decrease in 1961, from the previous year and did not fully recover until 1969 (although the 1960 data are suspect).

Of the three crops, maize is the only one that gives any indication of being better cared for, if the increasing productivity (yield per rai) is taken as the measure.

Productivity in kenaf reached its highest points in 1965 and 1966 with production reported at 225 and 226 kilograms/rai respectively for

these years. Productivity in 1968 and 1969 was only 83 percent of that in 1965 and 1966.

Through cooperative effort with the Ministry of Economic Affairs the demand potentials for these and other crops will provide additional guidelines as to which crops may be usefully promoted during the next plan period (1972-1976).

3.3.1.4 Support Activities - Designate Agencies to investigate and recommend programs that can reach and be understood by farmers involving:

- (a) Expansion of Credit
- (b) Price Supports
- (c) Storage (incl. Silo and Cold Storage)
- (d) Market Town Development (Principal and Subsidiary)
- (e) Feed Mills
- (f) Consolidation of Farmer Associations
- (g) Documentary films and other visual aids to disseminate research results of agricultural experimentation (Sarapee, Kalasin etc.)

Production and productivity (assuming the validity of the annual data) indicate the rural economy of the Northeast is merely "drifting" without direction and the land is used generally only to yield enough to keep soul and body together. Fertilizers are rarely used, either chemical or organic; home-produced seeds and traditional cultural practices are the vogue; the huge investments in irrigation construction and highway programs have so far made little or no impact on the farmer; the government credit, price support, storage, and technical assistance programs have not benefited the rank and file of the farm population.

A farm centered institutional program encompassing the foregoing list is urgently needed to bring the Northeastern rural economy to the take-off point. Besides financial support and greater numbers of technically trained personnel, this requires better qualified personnel and a change in institutional strategy that will allow activities to work at the village level.

3.3.1.5 Reorganization of Agricultural Research

(a) Consolidation of all research (crops, livestock, fisheries) into Ministry of Agriculture.

(b) Assignment of responsibility for information dissemination.

A special position paper on this subject is in preparation. Needless to say much of the research effort is wasted unless it is properly integrated with the agriculture plan targets.

3.3.1.6 Expansion of Agricultural Extension Service - As noted in Section 1.3.5.2 an estimated two-thirds of the farmers in the Northeast have no contact with extension services at the present time. Broadening the coverage of extension services is a most critical element in the goal of increasing agricultural output, especially in cash crops.

While the obvious remedy to correct this problem would be to have more extension agents there are neither men nor finances sufficient to recruit the necessary number of new agents for early increases in agricultural output. Therefore, other means must be formed to make the extension service more effective. Three proposals are suggested:

(a) Make more effective collaborative arrangements between all development agencies, such as the Royal Irrigation Department, Community Development, Land Development Departments, and Accelerated Rural Development. Because these agencies do not have enough professional staff in agriculture, more use should be made of the Amphoe extension officers to work through the irrigation associations, farmers groups, and community clubs sponsored by the separate agencies.

(b) Expand the number of youth clubs and farmers' associations so that Extension Service agents will have contact with more villages.

(c) Recruit and train mature farm leaders in each tambon who after a short but intensive training period could work as assistance to the Amphoe agents. After the tambon leader program becomes well established, then expand the effort so that he will have effective contact with

all larger villages of the tambon. A period of five years would enable the extension service to have a part time assistant agent helping farmers' associations in every village with at least 500 farmers each.

3.3.2 Industry - The industrialization of the Northeast is necessary if the area is to make the transformation from a traditional to a modern society. However, this can be expected to proceed only on a modest scale as the area lacks chiefly large markets, raw materials, skilled labor and capital, although the area does possess abundant unskilled labor.

Rice and sawmills represent the majority of industrial establishments.^{1/} However, food processing generally, animal feed, cotton and silk weaving, tobacco curing, meat processing are relatively wide-spread. In addition, jute mills, brick making, lumber and furniture manufacture, fruit canning and boat building represent some of the more specialized industrial activities in the Northeast.

Actually the industry - trade sectors are not specifically included in the present organization of NEED and therefore only cursory reference is made to some project proposals (except for forestry product development, See Appendix 3-B). Industrial promotion is being carried out by various agencies (ARD-COMPAC program, Board of Investment, etc.) which are considering the following principal industry groupings:

3.3.2.1 Forest Product Promotion - including pulp, furniture and handicrafts, etc. with special emphasis on conservation control and special tree planting schemes.

3.3.2.2 Agri-Business - (Determination of viable types and their suggested location); e.g., leather products, shoes, meat packing connected with livestock promotion; in addition, canning, including fruit, vegetable and fish products.

^{1/} Summary Data for the Northeast based on the Industrial Census of 1964 are in process of compilation at the NSO Data Bank.

3.3.2.3 Agri-input Oriented Business - Fertilizers (chemical and organic) pesticides, farm tools, tractor rentals and repair services, etc.

3.3.2.4 Tourist Promotion - Canvas of historic sites (about 170 archaeological sites in Northeast), feasibility of game preserves and artificial lakes as recreation centers.

3.3.2.5 Establishment of Industrial Estates - In towns which are suited to industrial development together with programs to provide assistance to new industry such as initial tax exemption, government assured loans where feasible, information on markets, supply of labor, raw materials and so on. The planning of industrial estates would also be an important element of town planning. A pilot project for Khon Kaen has already been recommended.

3.3.3 Water Resources

3.3.3.1 Intensive Survey of Irrigation Water Storage and Delivery Facilities - Every changwat in the Northeast has been provided with a number of water storage tanks in local catchment areas during the past two decades. In only two cases has the number been six or less and most of the changwats now have ten or more of these relatively small water storage facilities. Including those still under construction, they now number 160. Although 22 of the smallest were constructed for the primary purpose of providing water for domestic use, the great majority are expected to provide water for irrigation.

The cumulative capability of these irrigation tanks to support irrigation development is estimated to be upwards of 500,000 rai. In terms of actual water delivery and use to date, this service capability is believed to be highly theoretical. However, there is a general dearth of factual information as to the extent to which the tank construction program of both the RID and ARD has served to augment the utilization of the Northeast's water resources.



1

2

TOURISM

- 1 MEKONG RIVER
CHIENG KHAN, LOEI
- 2 KANG SAPEU, UBON
- 3 WAT THART PHANOM
AMPUR THART PHANOM
NAKORN PHANOM
- 4 PANOM RUNG, BURIRAM
- 5 WAT PRASAT
AMPHUR PRASAT, SURIN

WITH

170 ARCHAEOLOGICAL
SITES, FAMOUS TEMPLES,
NATIONAL FORESTS,
RIVERS AND DAM SITES,
THE TOURIST POTENTIAL
IN THE NORTHEAST
REMAINS ALMOST
WHOLLY UNEXPLOITED



3

5



4



The Northeast is expected to have at least six major irrigation water storage and delivery projects completed by the end of the third five-year plan period. At present, none of these projects are fully operational and their true potential for effective service is still a matter of conjecture. The more advanced of these project indicate some deficiencies in conceptual planning and in the design of water distribution systems which gives cause to question the basis for the irrigation water service capability which has assigned them during the planning process.

Therefore, in order for meaningful effort to be introduced into the agricultural development planning program for the Northeast, it appears essential that an intensive factual survey be made of the existing tanks and major irrigation to appraise their present degree of irrigation water service and the potential for such service which they might have under a comprehensive water development and utilization program. Survey results would then indicate more precisely what public expenditures can be justified for water resource development.

3.3.3.2 Priority Determination for Pump Lift and Distribution Systems to Irrigate Land Adjacent to Perennial Streams - A number of small, relatively simple irrigation water development projects which pump water from major river systems are scattered throughout the Northeast. These projects were planned and installed on a largely experimental basis and apparently are not supported by quantitative appraisal of their economic justification on the basis of feasibility investigations. The relative degree of success to date of these largely pilot undertakings is unknown. However, the National Energy Authority has a definite interest in pursuing larger-scale developments of this type, especially in the changwats of Nong Khai and Nakhorn Phanom.

It remains to be determined - in conjunction with establishment of specific crop targets and community water supply requirements - what specific applicability of such pumping systems is warranted.

3.3.3.3 Self-Help Small Ponds and Tanks for Local Irrigation - A USOM sponsored program for soil and water resource development by the Department of Land Development has been in effect since 1964. This has emphasized the training of individual farmers and DLD field teams in the identification of soil and water utilization practices. One of the specialized development activities of this program has involved the construction of small farm ponds and local water storage facilities in small catchment areas which can provide water to more than one farm. This development activity has been largely in response to local felt needs.

Subject to additional assessment of the effectiveness of this program, preliminary evidence indicates that use of small ponds on a self-help basis (as in tambon Sarapee) should be widely encouraged. However, the period of transition from relatively large inputs of USOM support to an eventual RTG funded and operated activity still needs to be carefully worked out.

3.3.3.4 Community Water Systems Based on Deep Wells and Similar Facilities - Improved coordination between the two agencies most concerned with community water systems (Accelerated Rural Development and the Division of Sanitary Engineering, Department of Health) has resulted in successful acceleration of this program.

Efforts are now in progress to determine more carefully the impact on local communities and to suggest a more systematic basis for priority assignment in the selection for locating these systems. Meanwhile the program is supported on the basis of social overhead responsibilities, including improvement of the RTG image, counter-insurgency, etc.

3.3.3.5 Water Usage Interim Program - In view of the heavy emphasis on accelerating expanded water usage from existing and coming water facilities especially for irrigation, it is suggested that available technical assistance be provided by a mobile team. This should include the following expertise:

(a) Land consolidation in order to get farmers to agree on the best land ownership distribution of irrigated lands and to draw up appropriately revised cadastral maps.

(b) Irrigation technology for advice on the operational and maintenance problems concerning water flows, drainage, dykes, etc.

(c) Information on the best use of water from a production stand point, including supplementary inputs such as fertilizer and extra manpower.

(d) Marketing information to guide farmers on the kind of crops likely to result in the greatest financial return.

This group should work with farmer association, individual farmers and local officials as required. Beyond this agricultural-vocational training programs suggested below should fill the manpower gaps for irrigation and farming technology on a longer range basis.

3.3.4 Manpower Development - Most of following recommendations are designed to improve the quality of agricultural training as priority manpower programs for the Northeast in the next five years should be concerned with development of new agricultural training programs and improvement of existing programs. No expansion should be planned for other manpower training programs except on an ad hoc basis to meet special situations. All training programs should be supported by monitoring systems by means of appropriate statistical and other techniques to assist in evaluating their impact on the development of the Northeast.

3.3.4.1 Training programs to provide

(a) Deputy Agricultural Extension Officer in each Tambon with trainees selected from Tambons and

(b) To expand "Sarapee" type programs. This is the most critical activity for successful development of the Northeast.

The foregoing is designed essentially to increase as rapidly as possible the number of persons with practical knowledge to transmit

technical information to farmers. By having the Tambons (Khamnan and Pooyaiban) select candidates for training, formal educational requirements may be waived in favor of leadership and communications ability which will have greater beneficial impact on the communities eventually to be served.

The availability of a sizeable cadre of practical agricultural technicians at various levels is the key element in extending the successful experience in the villages of the Shell Oil - CD. Sarapee project. The Sarapee approach holds great promise for raising agricultural productivity in the Northeast because it is relatively inexpensive.

3.3.4.2 Supplement training program to include existing extension workers and encourage "islands of excellence"

Many of the present extension workers could benefit from new training programs. In addition to the extension assistant training program, Northeast agricultural productivity would be enhanced by training farmers' sons in modern agricultural techniques. An experimental program of this type is now being carried out by the Community Development Department assisted by ILO and USOM. On the basis of experience gained in this program it should be possible to establish a number of similar training centers throughout the Northeast.

As now envisioned, each training center would consist of about 40 boys with elementary school education and a small staff of full and part-time instructors. Structures would be modest and all the students would commute to the center and supply their own food. The course would take about 5 months and would consist mainly of practical agriculture. Upon completion the boys would return to the family farms. Again priority must be given here to developing competent instructors.

3.3.4.3 Introduction of some vocational content with emphasis on agricultura in 4th and 7th grades, subject to availability of competent teachers.

The introduction into the elementary school curriculum of subject matter which pertains to rural life, health and farming is desirable.

This might include some "creative agriculture" (corresponding to creative art now frequently taught) and be fitted into the existing courses such as reading, writing and arithmetic. However, because of the shortage of competent teachers it will be necessary first to train new and reorient existing teachers. In developing such a program local and national school authorities would work closely with agricultural agencies.

3.3.4.4 Tighten up curriculum relevancy to relate to urban and especially rural environment as required. Maintain "open" class curriculum for academic and vocational options.

Again it must be noted that while suggesting introduction of agricultural content into the curricula of village elementary schools, it must be recognized that many schools are incapable of doing so because classes are too large and teachers are not qualified. Unfortunately these schools are likely to be located in the most backward areas, the ones with the greatest need for knowledge of up-to-date agricultural practices.

3.3.4.5 Scholarship Program for N.E. students (both for secondary and higher education).

In addition to making school work more relevant to the lives of all village students, the government should encourage the brightest children in the villages to pursue careers in agriculture and other fields. For gifted students government scholarships could be made available through the university level. Over the long run such a program could completely eliminate one glaring weakness in the existing agricultural school system - the lack of graduates with practical experience. Introduction of scholarships for able village children would be demonstrable proof that the government is concerned about the welfare of the people now and also about their future in general.

3.3.4.6 Consolidation of agricultural vocational schools and more realistic admission requirements (e.g. Burirum, Surin, Srisaket).

To improve quality it seems desirable, until more competent teachers and relevant training aids can be made available, to merge some of the present agricultural vocational schools into more effective units.

Over the long run consideration should be given to lowering the age of entrance to vocational agricultural schools and deemphasizing the academic programs. Originally these schools were set up to enroll students graduating from Pratom 4, but gradually the level was raised to Maw Saw 6. At this level, very few boys from the villages are able to enter the agricultural schools. A combination of a scholarship program (See 3.3.4.5) and a lowering of the age of entry would make it possible for many more village students to become agricultural specialists. These changes would result in building up a group of Thai agricultural technicians with practical backgrounds.

3.3.4.7 Supplement vocational and other formal training outside of the regular educational system - Under present conditions a competent work force cannot be developed quickly because

- (a) Competent teachers cannot be trained fast enough.
- (b) Schools themselves tend to be unfamiliar with the actual world of work.
- (c) Lack of finances prevents creation of a modern education system, one that is capable of adapting to changing technologies.

By having the formal education of fundamentals left to the regular school system, specialized training can be accelerated by using private and government employers (except for more advanced professions such as doctors, teachers, etc.); basically the schools would stay out of those fields where the employer, with government financial assistance, can do the better job.

Under such a system the government could shift its educational resources away from most of its vocational programs. Many of the

schools and teachers (with some retraining) could be shifted to academic programs. Students in vocational schools, almost none of whom go on to universities in the existing system anyway, could learn skills through training on the job. And these skills would, of course, be the ones needed by the employers.

Under the current employment system young people are selected for jobs largely on the basis of their educations. Very often the education has no relationship to interest in or the capacity to do the work for which the person is hired. An alternative to the present method would be a hiring system whereby boys and girls with basic education, say seven grades of schooling, are taken on by employers at age 16 or 17 at the lowest level in various categories and then trained on the job, or selected from the outside, on the basis of proven ability and performance. If a boy in a factory shows an interest in and capacity for mechanical work, for example, he would be selected for special training. By demonstrating an unusual aptitude for mechanics the same boy could eventually be assisted through engineering school, through cooperation of his employer and the government. Such an engineer is likely to be superior on the average to one who chose his profession on the basis of his father's wealth and personal desire for a high salary.

In government a young person rising from the lowest clerical position by being selected on the basis of merit for training and education could have his training tailored to the needs of his agency. By comparison, hiring a university graduate typically is a hit and miss proposition, both in terms of quality of the individual and the relevance of his training.

Obviously not all employers would be competent to undertake training. Those who had the best resources could be encouraged through government financial assistance or tax rebates to train many more workers than they need. Employers not capable of training their own workers could hire those who were not hired by the training company or those who preferred working elsewhere.

The foregoing requires much refinement, but actually it is already operational in a small number of private and government establishments.

3.3.4.8 Miscellaneous

(a) More school Buses for increased mobility and greater penetration of both day-to-day and special training purposes.

(b) Visual Aid support for all educational levels, including vocational.

(c) For additional programs to improve general education, See also Section 1.3.15.1.

3.3.5 Social Services

3.3.5.1 More concise resettlement planning and procedures, (especially in conjunction with dam and penetration road construction).

There are two types of land settlement programs. One is designed to provide land to persons who have not owned land before. The other is designed to provide land within a settlement scheme to persons who have been forced to move because of dam or road construction. As a rule all land settlements involve forest or other land which is unproductive and generally requires a tremendous amount of work even to permit the production of raw crops. As a result persons who receive land in a settlement scheme are faced with the problems of changing from a type of farming with which they are familiar to a different and often strange type of agriculture. This occurs simultaneously with the need to clear land, build houses, find a source of water and so on. Hence, all persons are faced with several years of extreme hardship in order to survive and make the necessary adjustments in farming, living and so on. In terms of relative deprivation those who have never owned land may not find these conditions any more undesirable than conditions they have known before. However, the farmers who have been moved from productive farms to such settlements - as happens in

connection with dam construction (e.g., Lam Dom Noi) - find the change degrading and frequently develop extremely hard feeling toward the government. In order to minimize these feelings and to enhance the success of settlement schemes, the government should use the most fertile land for resettlements and provide community services and facilities as well as agricultural and other change agents to assist the settlers in making the changes indicated by the new environment.

A review of resettlement requirements is being undertaken in connection with the survey on water facilities.

3.3.5.2 Supplement 4H Club Activities - The vast majority of young males terminate their education upon completion of grade four. These youths generally work around the farm during peak seasons and loiter around the village at other times until they reach the age to seek employment outside of the village or to make a farm of their own. As a rule there are no organized activities for this age group. Hence, the potential to impart knowledge and to capitalize on the organized efforts of this group through individual or collective activities is mainly lost. It may be assumed that most of these young men will eventually enter farming. This period in the life cycle could be effectively used to teach the principles of scientific agriculture to these men who could in turn demonstrate the principles to their village. In addition, a program of this sort would help to identify persons with leadership qualities who could receive training for special programs designed to improve village life.

This will require additional professional workers to organize and supervise the program. It might be given to the Agricultural Extension Service for administration.

3.3.5.3 Thai Volunteer Program (with focus on agricultural promotion and health programs).

The Thai volunteer program now involves several thousand young people who serve in various capacities usually in remote rural

villages. Most of these volunteers are university students and participate in the program during the long vacation only. The program offers the volunteer a chance to serve his country while becoming familiar with the problems which characterize rural areas. The benefits to the country in terms of manpower are probably nominal. However, the long range benefits in terms of breaking down rural-urban differences may be quite large.

The program could probably make a large contribution in terms of manpower if the term of service were lengthened to a year or longer. This would require specialized training for volunteers to enter certain jobs and a larger corps nowworker to supervise the program. This might also be coordinated with programs of field training for agricultural graduates and medical personnel who hope to go into community medicine.

3.3.5.4 Expansion of CD Self Help - Most efforts to improve the quality of village life has failed because they were designed by middle and upper class persons who were ignorant of village life and refused to make an effort to appreciate it. In addition, some programs have demanded instant results and it has been easier to do things for villages than to expand the effort to motivate village residents to do something for themselves. However, development which was planned and initiated by outsiders frequently amounts to little more than temporary disruption of village routine. After the change agent has gone the village settles down to its former cycle of activities and may or may not incorporate the change into it. Hence, if other changes are desired by change agents a similar process will be required to produce results.

A different approach to local development focuses on the building of local structures through which development may continually take place. This approach does not involve doing things for villages but assistance may be offered in the form of technical advice and assistance, the location of materials and so on. This approach thus focuses on the fundamental problems first of such things as motivating village residents, leadership training, and promoting cooperation. Once these fundamental

problems are faced back-up services are provided by the government and the village is ready to assume responsibility for its own development.

This latter approach is not fully appreciated even by some community development workers because of the frustrations involved in building community organizations where there is no tradition of such organizations. However, there are examples of such organizations that have emerged as a result of persistent effort and sometime unanticipated events. It is recommended that the community development program vigorously follow the second approach and that they study successful efforts to determine the most expedient methods for accomplishing desired results.

3.3.5.5 Health Center Expansion Based on More Local Recruitment -

The World Health Organization has conducted a study in the Northeast which shows that few people in the area are free of ill health. (See also 1.3.14.2). On the basis of this study the Health Department in the Ministry of Public Health has decided to build a first class health center at each amphoe muang, one second class health station in each tambon, and one midwifery center in each muban. A first class health station contains 10 beds for treating hospital patients, and provides all of the preventative services normally associated with public health programs. The second class station and midwifery stations are staffed with nurses and sanitarians only. Actually the WHO recommendation for one first class, four second class and 10 midwifery stations for each 50,000 population would appear more realistic especially with respect to midwifery stations.

The big obstacles facing the development of health centers to cover all of the Northeast in accordance with the foregoing goals are manpower and development funds. The manpower problem has been partially solved through the use of junior sanitarians and midwives who are usually recruited locally and trained in the regional training center or maternal and Child Health Center in Khon Kaen. Also some relief in development budget has come from contributions in local areas. As a means to permit more rapid expansion of health centers local areas should be called upon

to contribute a larger proportion of construction funds and asked to provide scholarships for local people to attend health related training programs. This may at least increase the present number of midwifery units from the present estimated 400 to at least 800 by 1976. (See also Section 1.13.15.2).

3.3.5.6 Family Planning Information Services - A population explosion in Thailand is imminent if the birth rate is not reduced. For the Country this means that the agricultural system will not be able to produce a surplus for export and the demand for schools and the social services will become a tremendous burden. To the individual family it means that there will be more demands with fewer resources to draw on.

The public health service presently operates family planning clinics under the auspices of the maternal and child health program. This involves the distribution of birth control devices and information with respect to family planning. Unfortunately family planning is not a national policy and the program only serves those who come to clinics seeking contraceptive devices and information. This means of course that those who need the information the most are unlikely to get it. What is needed is a vigorous program to promote family planning among the masses with a systematic effort to make contraceptive device available to those who choose to adopt them. This will not be possible until more funds are made available to expand the program.

3.3.5.7 Improve Nutrition (correlate with livestock, fish and dairy programs), including school lunch program. Since Thailand is a food exporting country it is generally assumed that there are no nutritional problems among the population. This is true for quantitative caloric requirements, but in a qualitative sense malnutrition is a persistent menace to the population. In most cases the major cause of malnutrition is not the absence of food stuff but the lack of knowledge about them and taboos against their use.

In the Northeast up to 80 percent or 90 percent of all calories are derived from one source-glutinous rice. Fish is the main source of protein and it is scarce during the dry season. Thus, the vast majority of all people in the Northeast live on the verge of protein malnutrition. While this contributes to disease among the total population it presents a crucial problem for the vulnerable population age groups, namely; children after weaning up to the age of four, and pregnant and lactating women.

The prevalence of diseases related to malnutrition is quite high. This results from the high intake of rice which has been leached of thiamine as a result of polishing by the rice mill, and the practice of soaking, washing and steaming during preparation. The nutritional problems in the Northeast can be divided into two groups. These are, (a) those that result from food habits and can be changed through education, and (b) those that relate to the scarcity of foodstuff and require the development of new sources of food. The latter relates to the lack of protein foods and requires the development of protein foods through agricultural programs. This is both an agricultural and a health problem and requires the concerted efforts of agricultural and health agencies to change. Since this is a long range proposition immediate steps are needed to supplement the diet to vulnerable groups with high protein food such as fish meal, soy bean meal and so on. These foods should be made available for purchase in the local market as well as by means of school lunch programs after educational programs have demonstrated their value.

3.3.5.8 Crime Prosecution especially to assist security for farmer and increase his incentives for cash crop, livestock and other commercial production. Crime or thievery is a serious constraint to agricultural development especially as regards livestock and crops which are easily transported. It is reported that farmers do not keep buffalo in some areas because of the crime problem. Rather they buy buffalo for draft animals at the beginning of the farming cycle and sell them after the crops have been planted. In another area it is reported that farmers

will not attend meetings at night as buffalo have been driven from the village by thieves when the farmers were away. Very often thieves are not apprehended. In fact some RTG officials contend that the police are involved in the crimes and that organized rings operate under the protection of police.

This situation must be corrected in order to develop a livestock industry to provide the protein which the country needs badly. This will require a commitment on the part of the provincial police to bring culprits to book as well as severe punishment to deter future crime of this sort. Finally if the police is in fact involved it must move quickly to rid itself of those who are dishonest. This is a most crucial problem especially in areas where the main contact which villagers have with the government is the police.

3.3.5.9 Special Rehabilitation Program for unskilled workers (male and female), especially those affected by U.S. military cutbacks. The Public Welfare Department presently operates rehabilitation programs for disadvantaged groups such as prostitutes, orphans and the handicapped. In addition, the Health Department operates rehabilitation programs for special groups such as lepers, and the mentally ill. At the same time the Labor Department, Community Development Department and a number of other departments are operating mobile or technical institute programs to train young adults in many trades. (See also Section 3.3.4).

The U.S. Military cutback will create unemployment in impacted areas. Those with skills for which there is a demand will quickly be absorbed into the labor market. Those without skills will either have to go into farming or seek some other type of unskilled employment. In either case they will face hardships adjusting to a new routine. Agricultural land is no longer plentiful and unskilled jobs are not likely to be available. The government should therefore offer assistance to the unskilled misplaced workers in the form of job training, plus temporary relief if needed for food, housing, medical attention and in some cases relocation.

This program will require a large training program, a relief program and a program to locate jobs in other areas of the country. The U.S. government has shown much interest in the effect of the military cut-back on Thai communities and would probably offer assistance in the program.

3.3.5.10 Surplus (U.S. Installations) Property Disposal and Uses in Impacted Areas - If and when the U.S. Military evacuates the bases which are now occupied in the Northeast there will be a substantial amount of vacant floor space in the towns as well as on the bases. This space can be used for a number of development purposes and steps should be taken now to determine the appropriate use of the space. The bases, for example, could be turned into industrial estates, trades training schools, technical institutes and so on. In the towns there are a number of hotels, night clubs, and massage parlors which will have no source of business. Some of these will be converted to other uses by enterprising businessmen. Other such as hotels will not be easily converted to business establishments and might be purchased by the government for use as hospitals, office buildings and so on. In order to avoid unnecessary waste and to plan for the orderly transition from military to other uses plans should be made for the use of surplus property when it becomes available. This planning might be done by a commission that would survey government agencies and the private sector to determine needs for space and the suitability of the available space for their needs.^{1/}

3.3.5.11 Urban Planning and Zoning - Many costly mistakes have been made in the past because of unplanned and haphazard growth especially in the urban areas. The growth of urban areas is expected to continue and perhaps increase in the future as a result of population growth and increased industrialization of the country. Moreover, the increased industrialization is likely to follow a different pattern than did past industrialization. Instead of being small family operated factories, the new industries are likely to be large and to require relatively large amounts

^{1/} See also "Policies to Cushion Eventual I.S. Military Cutbacks", NEED PAG staff memorandum # 9 , 2 May, 1969

of water, power, employees, vehicles, etc. As a result these factories will put pressure on local resources (street, waste disposal, etc.) and will produce noise, refuse, pollution and so on.

The characteristics of these industrial plants and the problems which accompany them will mean that the mixed industrial, residential neighborhood will no longer be desirable. Hence, restrictions will need to be placed on where industries can locate, where roads will be built, and so on. This will require new legislation. Creating a planning agency that will not only plan the ecological distribution of community institutions and facilities but will have power to enforce its decisions as well is also required. While this problem is most acute in Bangkok, it is desirable to avoid some of the mistakes already made in Bangkok in the cities in the Northeast.

Moreover as population increases there is a need to consider land use controls for rural areas as well. Especially with the relative scarcity of water, its provision and use may have to be confined to uses other than paddy land irrigation depending on which types of production can commercially yield the most in relation to the cost of supplying the water.

3.3.5.12 Suggested Priorities - Because of the diversity of subjects covered by the social services sector an outline of suggested priorities (preliminary) follows:

(a) Education

1. Institute scholarship program for children from poor families to permit attendance beyond grade four.
2. Develop model schools with bussing provisions. Start with one in an amphoe outside of a changwat capital.
3. Provide funds to Khon Kaen University to establish and Extension Education Center.
4. Formulate master plan for construction of upper elementary and secondary school.
5. Increase enrollment at training colleges to accommodate projected increase in manpower.

6. Upgrade present teachers through in-service training.

(b) Health

1. Staff all existing health stations.
2. Complete full health unit complex around all existing first class health stations.
3. Increase funds for home visits and supervision of TB and leprosy out-patients.
4. Develop auxiliary units around existing health stations.
5. Develop at least five new health units per year.
6. Promote National Policy to support family planning.

(c) Welfare: Community Development:

1. Start model community development program in at least one amphoe outside of changwat capital. Amphoe Ban Phai, Changwat Khon Kaen might serve as the Model Center since the Ministry of Public Health plans to develop a model health program there (similar to the Sarapee project at Chiangmai).
2. Shift emphasis to the development of community organization through leadership training.

(d) Welfare: Health Related:

1. Start high protein supplemental feeding of school children.
2. Provide cost of transportation and drugs to indigent TB and Leprosy patients.

3.3.6 Transportation

3.3.6.1 Contract Road Maintenance to Private Sector - This would bypass many of the administrative problems now curtailing effective maintenance.

It would also pin-point responsibility and permit payment of equipment operator wages high enough to attract competent operators and mechanics.

3.3.6.2 Establish Thai Language Maintenance Manuals For Equipment - Mechanics cannot read English which limits their capacity to follow the manufacturer's instructions on overhaul and repair.

3.3.6.3 Pool Maintenance Equipment for all public works (including road, dam, building construction, land clearing and general maintenance). Equipment "ownership" is widely dispersed and hence under-utilized. (Other factors, however, also contribute to under-utilization). This can be achieved by establishing appropriate Changwat Public Works Departments supplemented by inter-changwat pooling arrangements.

3.3.6.4 Greater Use of "Emergency" Road Maintenance - Only those sections made impassible by weather and use conditions need to be repaired instead of allocating maintenance on the basis of entire roads.

3.3.6.5 Contract Traffic Code Enforcement to THD - The problem of tea-money under the present arrangements encourages violation of the traffic code particularly with respect to axle loadings. However, those charged with enforcement must be paid enough so that the practice of tea-money can be discontinued and violations severely disciplined.

3.3.6.6 Improve short-term capability for constructing and maintaining feeder and inter-village roads - These should be adapted to oxcarts and motorcycles traffic; enabling legislation is required to include local participation for construction and maintenance.

3.3.6.7 Relate road alignment to soil capability - Requirements for new or improved roads (other than feeder) construction should be related to agricultural soils characteristics as this information becomes available. For example, improvement of the road between Nakhorn Phanom and Bung Kan

along the Mekong River may be justified if soils indicate a good agricultural potential for cash crops.

3.3.6.8 Expansion of Railroad Tanker Car Fleet - This is to replace road haulage of inflammables and to increase road safety and reduce road wear and tear.

3.3.6.9 Trans-Mekong Oil Pipe Line - Investigate feasibility of oil pipe line between Nong Khai highway/rail head and Laos storage tanks in lieu of proposed Mekong River Bridge.

3.3.6.10 Port of Moulmein - Extension of the East-West Highway (#12) which serves North and Northeast Thailand into Burma for a West Coast Port connection at Moulmein is at the moment not feasible for political reasons. However, as a potential short-cut for a surface route between Southeast Asia and the West it would save much cumbersome construction of the proposed Asia highway network by instituting modern ferry services between Moulmein, Rangoon and Calcutta (Haldia). This proposal is for consideration by the appropriate international agencies.

3.3.7 Miscellaneous

3.3.7.1 Wat as a Means to General Development - For the most part the rural areas in the Northeast are characterized by a lack of effective community organization at the village level. This results primarily from two factors. First, there is no tradition of cooperative endeavor through the group among Thai farmers. Second, the vast majority of Thai farmers lack natural or acquired leadership qualities and have not been able to sustain organizations which have been organized in the villages by the various RTG agencies. This is further complicated by the lack of professional leadership in the villages. Most villages have a wat and a school. However, school teachers frequently are not motivated to provide leadership for community organizations and those who are, have excessive demands made on them for support of a number of village committees.

Priests are primarily concerned with religious matters and seldom participate in activities which affect all areas of community life. In spite of this there is no organization that is a potentially greater force for community improvement than the religious order. Priests command the respect of all persons in the village, have the ability to influence decisions, and the senior priests know the needs, abilities and so on of village residents. Hence, the wat under the leadership of the abbot could become the chief center of community activities and the organization through which village residents could collectively set and accomplish village development goals such as road construction and maintenance, water systems, and so on.

A few priests are presently involved in community activities in the Northeast by their own choice. Others could be encouraged to assume leadership positions in secular affairs by such organizations as the community development program or other community action groups.

3.3.7.2 Housing and Social Services to Attract more Professional Residency - It is difficult to attract and hold civil servants in the Northeast. There are a number of reasons for this including among others: (a) the lack of good schools; (b) the inadequacy of health facilities and other social services; (c) the poor quality of available housing and (d) the lack of opportunities for additional employment to supplement one's income. The latter is most crucial with respect to medical personnel and highly trained civil servants who would ordinarily hold appointments with universities.

For the majority of civil servants who might be recruited to work in the area the crucial problems appears to be the lack of good schools and other social services including housing. As an immediate step to alleviate these problems model schools should be developed in each changwat and high quality housing provided for the incumbents of important positions.

3.3.7.3 Establishment of a NEED Development Corporation - A semi-public agency (with stock subscription by government, international lending agencies and the private sector) patterned after area development agencies in other nations (e.g., Brazil) could fill the role of coordination and promotion of agri-business, industry and trade in the Northeast. An investigation of the financial and institutional requirements of such an agency should be made.

Note The foregoing (Section 3.3) is not exhaustive. However, the next step (Stage 3 Report) is to determine budgets for each proposal, inter-relate the sectoral priorities and estimate the total development fund requirements, including ongoing and committed programs not specifically referred to here.

SUMMARY: SECTION (4)

INSTITUTIONAL ASPECTS OF PLANNING:

ORGANIZATION AND PROBLEMS

4.1 Regional Plan Units and Procedures

- 4.1.1 NEDB requires planning administration at the Center in Bangkok, as well as at the region.
- 4.1.2 The resident regional plan unit at Khon Kaen assists Changwats with their plans and routes information between Bangkok and Changwats.
- 4.1.3 The NSO regional data center is a fundamental component of the entire plan process. It prepares Changwat (and regional) atlases and handbooks and is responsible for data retrieval.
- 4.1.4 The National Accounts Division of NEDB develops a regional accounting System, general economic indicators and a composite index of economic activity.
- 4.1.5 The NEED Working Sub-Committees act as policy agencies to ratify or reject planning decisions.
- 4.1.6 A group of technically staffed task forces from all relevant RTG agencies and organized along functional lines actually prepares draft plans and programs. 10 such task forces have been recommended:
 - (a) Changwat Planning
 - (b) Basic Data and Accounts
 - (c) Market Research
 - (d) Plan Coordination and Methodologies
 - (e) Agriculture
 - (f) Water Resources
 - (g) Manpower
 - (h) Social Services
 - (i) Transportation and Utilities
 - (j) Industry and Trade
 - (k) Others as needed.

- 4.1.7 Program and Project Preparation requires a systematic laying out of all elements including basic survey, marketability, feasibility analysis, financial plan and collateral inputs.
- 4.1.8 Program and Project Approval needs to follow systematic procedures from inception to implementation involving NEDB review, plan integration, coordination, monitoring etc.
- 4.1.9 Operations Rooms to facilitate quick visual reference to the status of plan and program implementation should be maintained at NEDB, Regional Centers and Changwat Planning Offices.

4.2 Institutional Obstacles to Effective Planning Implementation

- 4.2.1 Planners must seek support for institutional reforms which can reduce the level of subjectivity in political decision making by tackling issues such as:
- 4.2.2 Marketing Practices
- 4.2.3 Problems in Absorptive Capacity
- 4.2.4 Duplication and Coordination Problems
- 4.2.5 General management and administration
- 4.2.6 Low Government Salary Levels
- 4.2.7 General Tax structure
- 4.2.8 Gaining a better understanding of the purposes of planning among those responsible for implementing plans
- 4.2.9 Objective analysis of the foregoing - with encouragement from donor and lending agencies-will strengthen planning effectiveness.

**Section 4 INSTITUTIONAL ASPECTS OF PLANNING:
ORGANIZATION AND PROBLEMS**

**4.1 Ongoing and Recommended Regional Plan Units
and Procedures**

4.1.1 NEDB Regional Planning Unit - For the National Economic Development Board to implement a policy of planned regional development it is necessary to have planning staff at two levels. Firstly within NEDB, the Regional Planning Unit prepares the overall Regional Plan within the National Plan framework. This requires close coordination between the staff working on regional problems and those working on the formulation of the National Plan. The various regions of the country are competing for the development funds which the government has to allocate, and in consequence regional plans are not independent but closely related to one another. The development potential of each region is investigated and exploited by its planners and social overhead requirements estimated in line with national plan guidelines. The final plan framework for each region is made by the combined national and regional planners determining trade-offs between the regions.

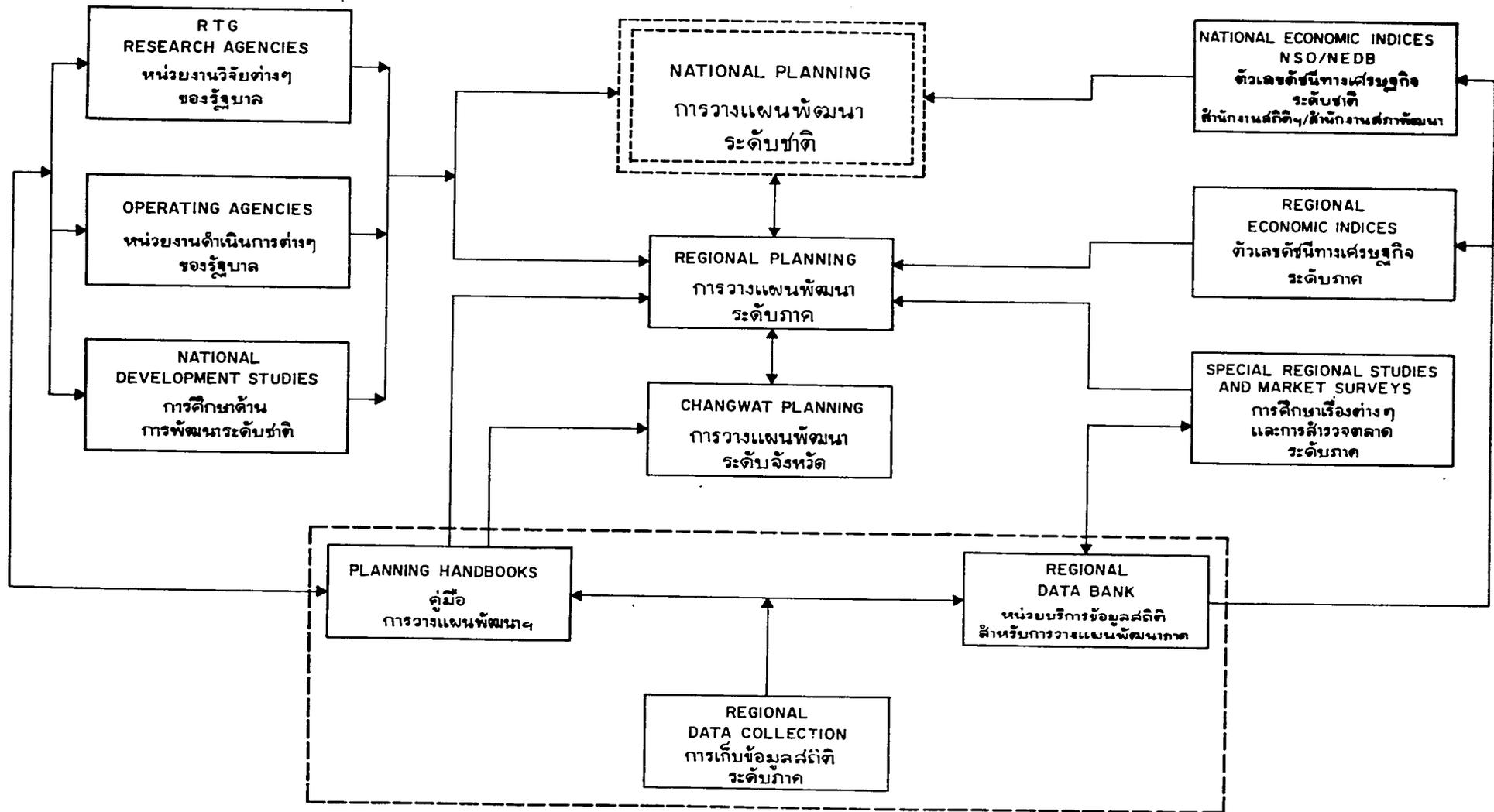
The diagram following (4-1) is a schematic of this process of national, regional and changwat planning. It shows the relationships between the NEDB planning units, the changwat planners, the government operating and research units, and finally the data gathering and analysis which is necessary for plan development and evaluation.

The Regional Plan is the framework within which each Changwat will prepare its own development programs. The planning process is not just one of dictating policy from above, but is a feedback process in which the needs of the changwats are expressed by the changwats themselves and incorporated in the regional plan as far as is practical.

SCHMATIC OF PLANNING INTERRELATIONSHIPS : NATIONAL-REGIONAL-CHANGWAT

CHART 4-1

ระบบความสัมพันธ์ของการวางแผนพัฒนาระดับชาติ - ระดับภาค - ระดับจังหวัด



4.1.2 The Regional Center and Khon Kaen - To ensure that the Changwats are given the best advice and that as the Changwat Plans are developed the Regional Planners are kept informed it is desirable to maintain a resident unit within each region.

The Regional Planning Center has been set up by NEDB for this purpose. The following diagram (Chart 4-2) is proposed as a model to detail the objectives, fundings and tasks of the Regional Planning Center. The functions are "up" and "down". "Up" from the Changwat Authorities to NEDB and the central operating agencies and "down" from the central agencies informing and helping the changwats officials.

The Regional Planning Center has made a substantial start in its work, and during January 1970 organized a Changwat Planning Seminar to initiate Changwat Planning in the Northeast. The first Edition of the Changwat Planning Manual has been published.

As a result of the initial experiences of the Regional Planning the Planning Manual is being revised. Amongst the practical steps taken to implement Changwat Planning is the preparation of an "Operational Plan for Changwat Level Development Planning".^{1/}

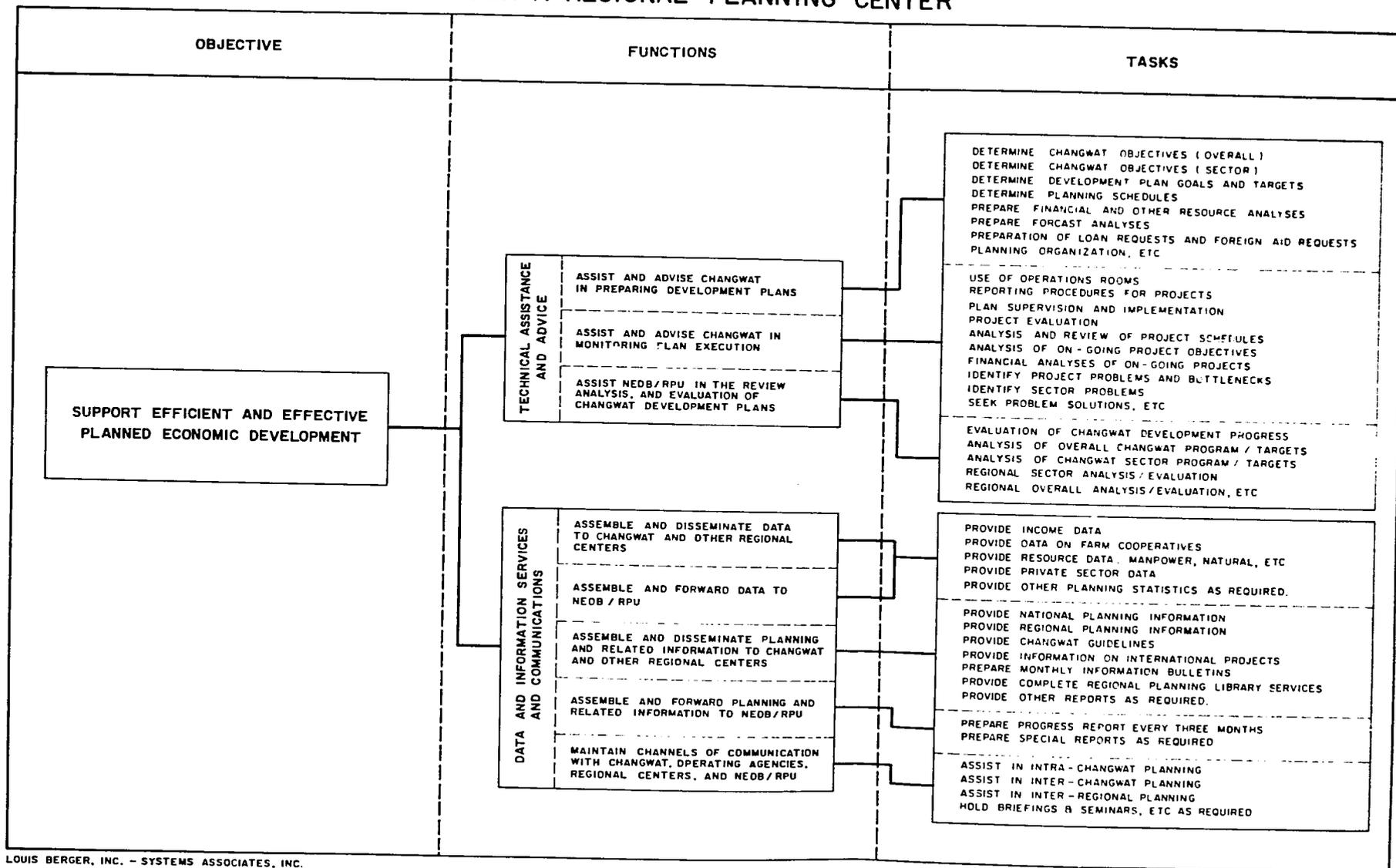
Interest in planning has been shown by other regions of the Country and a seminar will soon be held in Chiangmai for participants from changwats in the Northern and Western regions.

4.1.3 The NSO Regional Data Center - Fundamental to the concept of Regional Development planning is the correct use of data relating to the potential resources and the input to and output from the region. The Data Services for Regional Planning Unit was set up in the National Statistical Office as part of the NEED Program. The unit provides data describing each of the fifteen changwats in the Northeast. The data system for regional planning is depicted schematically in Chart 4-3. The Changwat

^{1/} This was prepared by Khun Pradit Daowchai stationed at the Regional Planning Center (See Appendix 4A).

SUGGESTED TASK - FUNCTION - OBJECTIVE RELATIONSHIP FOR A REGIONAL PLANNING CENTER

CHART 4-2



planning handbooks are in two parts, the first is the Data Book and the second the Map Book, as shown in the photographs. The data contained in the Data Books which is suitable for presentation on a map of the changwat is so presented.

An arbitrary choice of available data was made initially and groups have been compiled or adopted from many sources. Appendix 4-B contains a list of the current content, but is not intended to be in any way permanent, but flexible to reflect feedback from all agencies which use the data service. The practical aspect of this is that all data and maps are on loose leaves and can be replaced if out of date with a minimum of effort. Also, the data is mimeographed and the maps hand drawn so that there is no expensive printing or reproduction process. The economics of the system break down if more than a few, say five copies, of each Changwat Handbooks are made, but as they are essentially planning tools to be used by a few agencies there is no need to produce more than five, i.e., NEDB Regional Planning Center (Khon Kaen) the particular Changwat, Department of Local Administration with the master copy in NSO.

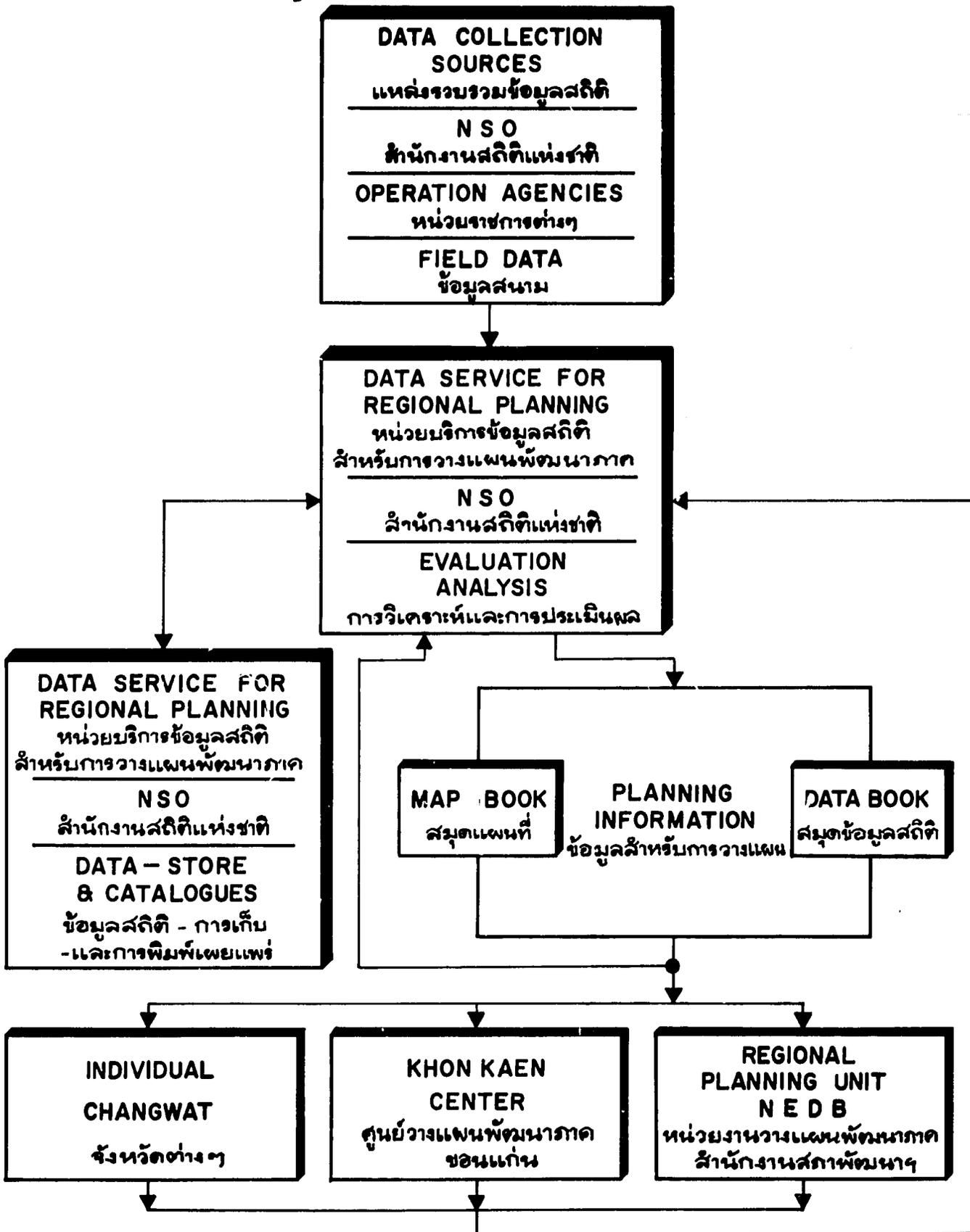
The storage and retrieval of primary data is a subject of great importance. At present it is stored in filing cabinets according to the groups of data in the Data Books. Whether (or not) to make this system more sophisticated and when must be considered soon.

4.1.4 Regional Accounting by The National Accounts Division

4.1.4.1 Gross Regional Product - The first task in regional accounting, for the National Accounts Division at NEDB is the preparation of a Gross Regional Product for the Northeast. After some delays, caused by the need to complete the National Accounts the work here has proceeded steadily and the GRP for the Northeast is expected to be completed by May 1970. It is hoped that the regional production figures can be disaggregated to determine changwat production figures. This is most important in the agriculture sector, where there are very large differences between changwat production, and productivity.

DATA HANDLING FOR CHANGWAT AND REGIONAL PLANNING

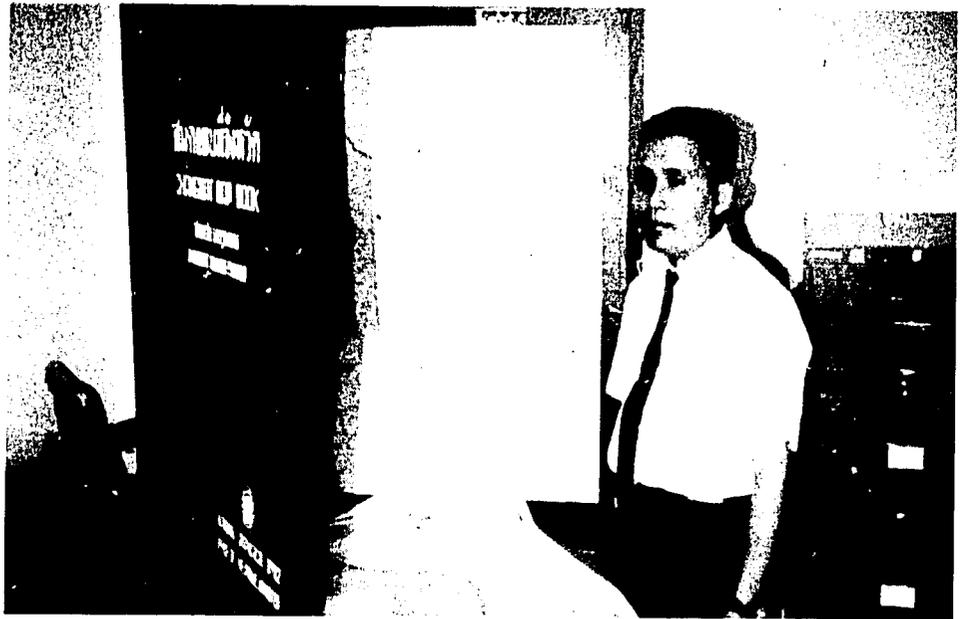
การดำเนินงานเกี่ยวกับข้อมูลสถิติสำหรับการวางแผนพัฒนาในระดับจังหวัดและระดับภาค



CHANGWAT PLANNING HANDBOOKS

PREPARED BY

NATIONAL STATISTICAL OFFICE



MAP BOOK

DATA BOOK



4.1.4.2 Composite Secondary Economic Index - The growth of the economy of the Northeast is mainly dependent on the output of the primary sector, agriculture, but there is an induced growth in the secondary sector and it is important to gauge this growth on a regional basis, for comparison with other areas and the Country as a whole. A sampling method has been devised which gives an index of secondary economic activity for the Whole Kingdom, the four regions, and Bangkok and Thonburi. The series used for the sample are:-

- Construction (Number of Permits)
- Commercial Vehicle Registration
- Power Consumption (Quantity)
- Railway Freight (Quantity)
- Commercial Bank Deposits
- Telephone (Number)
- Business Taxes (Value)
- Personal Income Taxes (Value)

The National Accounts Division has completed compilation of the series for the years 1960 and 1965 through 1968, and the secondary economic indices have been calculated for all the areas. In the first instance the power consumption figures, because of limited data and abnormally high growth rates in the Northeast, was not included in the calculation, otherwise each of the series was given equal weighting (See also Section 2.1.2 for results).

4.1.5 NEED Sub Committees - The NEED working groups or sub-committees are represented by NEDB and the various operating agencies. They are essentially policy committees which approve the substance of the planning issues. After reorganization into four new working sub-committees^{1/} it is now necessary that they convene more than about three times a year

^{1/} (a) Changwat Planning, (b) Agriculture & Water Resources,
(c) Social Services and Manpower, (d) Transportation

in order to keep informed of the planning progress toward the five-year Northeast development plan.

The present organization of the NEED is shown in Chart 4-4.

4.1.6 Inter-agency Planning Organization - In accordance with 4.1.5 above the primary task of the NEED and other regional committees to come is to establish policy guidelines. In addition inter-agency contact is essential at the actual working and plan preparation level. It has been recommended, therefore to establish ten special task force groups arranged along functional lines. Six of these task forces would be under the jurisdiction of the NEED Sub Committees (or other regional sub-committees if they are established), three others are to be sponsored directly by the NEDB and one by the Ministry of Economic Affairs.

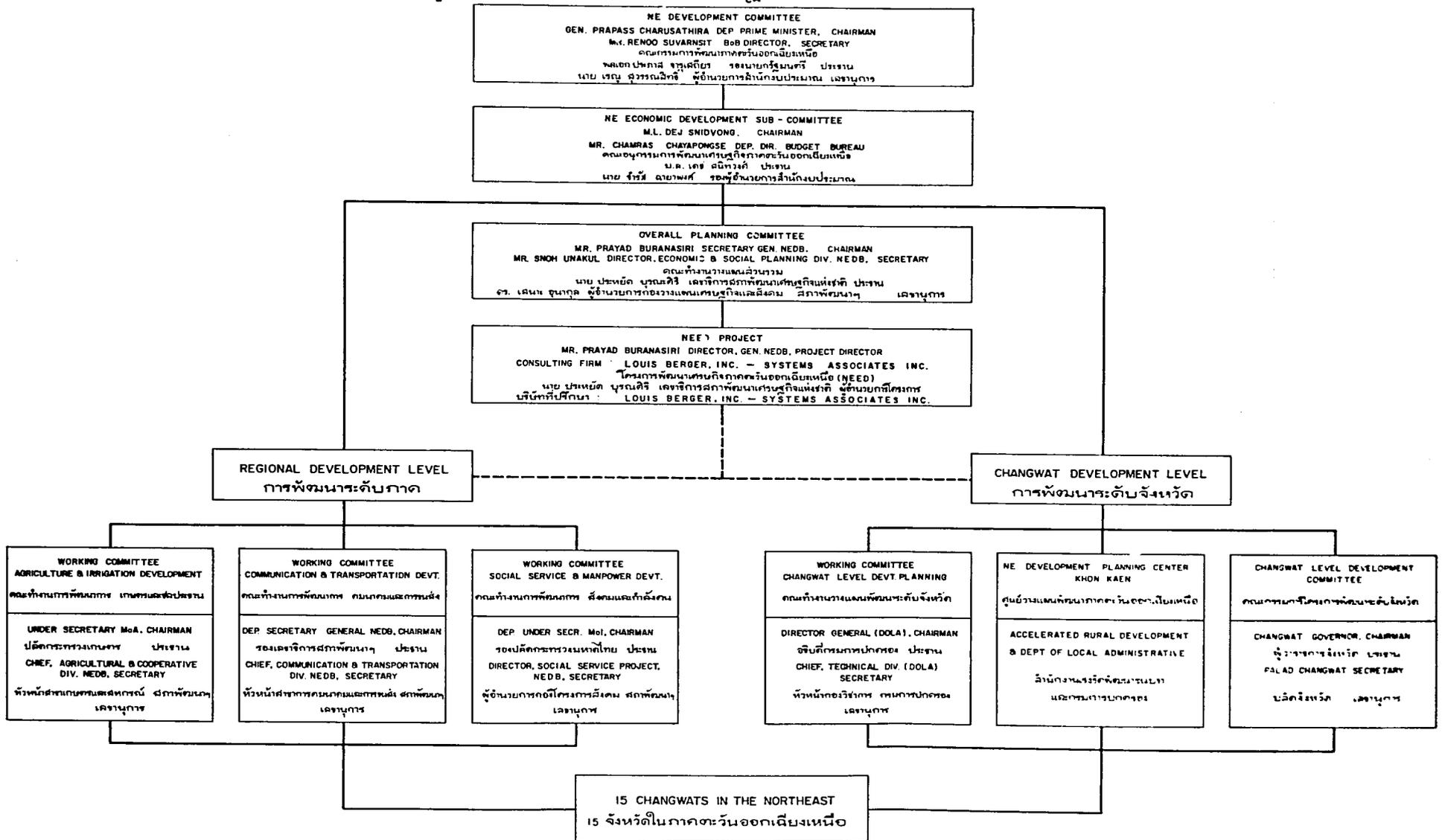
A task force arrangement as suggested here would satisfy the coordination and management functions essential to sector plan development. The latter is currently severely hampered by the multiplicity of agencies concerned with each sector as, for example, with agriculture. (See also Section 4.2). On the other hand, it must also be noted that it will take some time to get this planning organization fully on-stream. Several issues remain to be resolved.

One is the actual understanding of responsibility and authority of each of the planning sub-committees. Questions continue to arise in this respect, although it should be clear that planning as conceived by the RTG is an advisory function designed to provide a more objective basis for making decisions on resource allocation. In essence planning should ultimately assist the Bureau of the Budget in allocating its expenditures as economically as possible, as well as those requesting funds to prepare a more informative rationale for such requests. Meanwhile the NEDB's task is to evaluate each proposed capital request in relation to all sector plans and assign priorities accordingly.

Another problem concerning plan organization is staff availability. Ideally it should be possible to have a special task force for

NEED ORGANIZATION

แผนภูมิการวางแผนพัฒนาเศรษฐกิจภาคตะวันออกเฉียงเหนือ



each sector and for each region so as to make sectoral and regional planning feasible at the same time. However, this is not now possible, and it may be necessary to combine at least some of the NEED Sub-Committees with those responsible for the National Third Year Plan. If committees and task forces for national and regional planning are merged, it would have the salutary effect of drafting a national plan based directly on regional requirements.

Meanwhile, however, there must be a priority effort to satisfy regional needs in view of the increasing disparity in the nation's income and production trends between regions. The need for regional planning exists not only because of national equity and distribution problems, but is also based on (a) administrative considerations whereby regional development can be more readily implemented and (b) more effective communication between planning in Bangkok and planning at the Changwat level.

Each task force needs to be composed of technical persons from the appropriate ministries and other agencies and to be responsible for providing relevant plan inputs such as a data, project evaluation reports preliminary target setting, and other appropriate research needed for planning purposes. A description of proposed groups and their principal activities is given below (See also Chart 4-5).

The first four groups represent plan support activities:

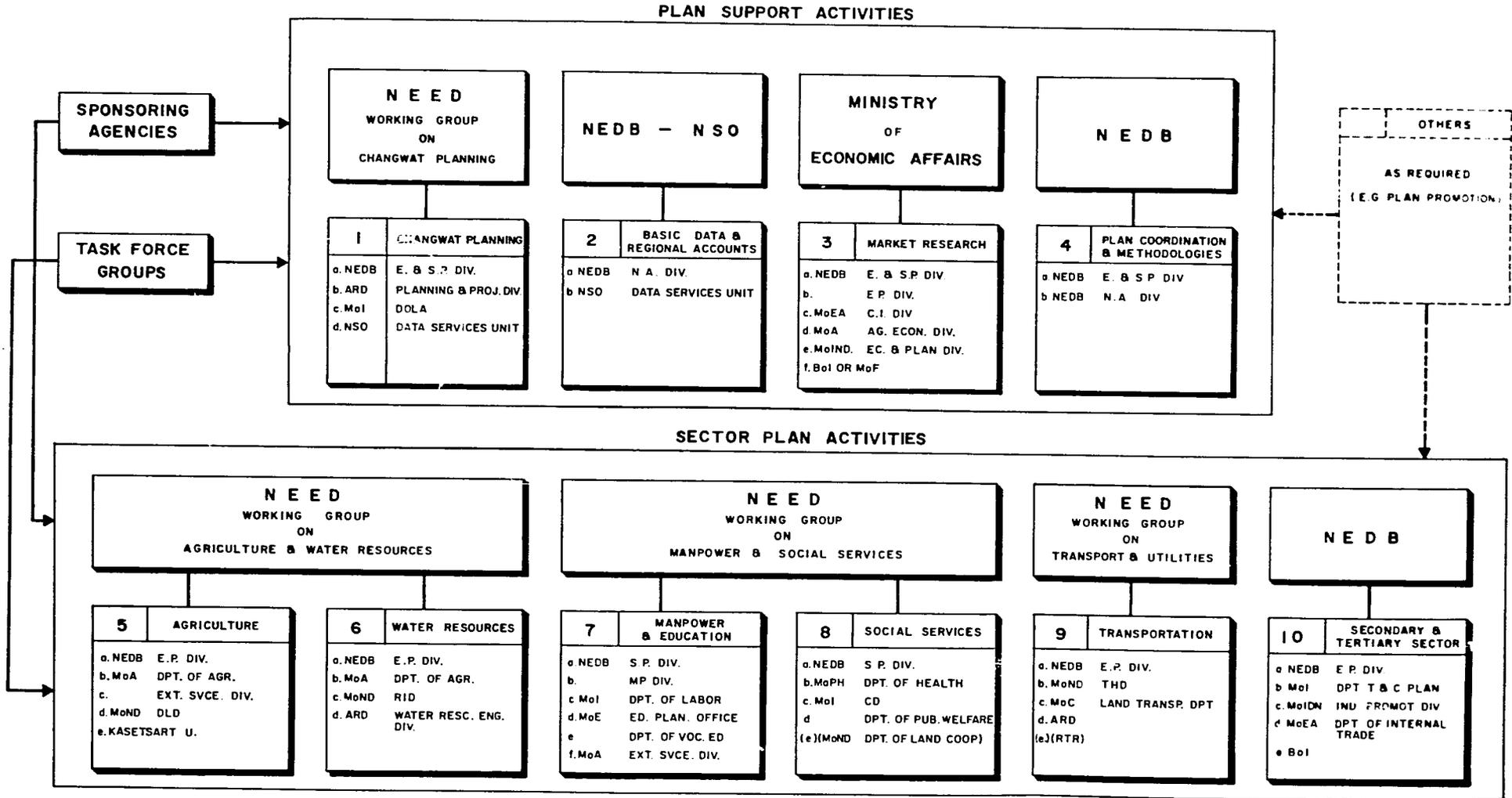
4.1.6.1 Changwat Planning - The work of this group involves coordinating the agencies involved with Changwat Planning, principally NEDB, ARD and DOLA. The mechanism for changwat planning includes:

(a) The use of a Regional Planning and Information Center at Khon Kaen which assists the planning staff in the Northeast Changwats to prepare changwat development plans.

(b) Coordination of changwat activities as the basic administration of the changwats is the responsibility of DOLA which will determine

SUGGESTED ORGANIZATION FOR PLAN PREPARATION NORTHEAST THAILAND

CHART 4-5



- NOTES:**
- GROUPS SHOULD MEET REGULARLY TO PRESENT WORK ASSIGNMENT AND PROGRESS REPORTS.
 - GROUPS SHOULD CALL ON ASSISTANCE FROM NONREPRESENTED AGENCIES AS NEEDED.
 - GROUPS SHOULD STRIVE FOR PERMANENT RELATIONSHIPS AND EVENTUALLY PLAN ALL REGIONS.
 - SPONSORING AGENCIES WOULD HAVE THE RESPONSIBILITY FOR COORDINATING WITH NATIONAL AND OTHER REGIONAL PLAN GROUPS.

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FEBRUARY, 1970

ways of modifying administration procedures to facilitate changwat development planning.

(c) ARD has the task of planning development projects for the changwat and is developing planning techniques to do this.

(d) NSO Data Services for the Regional Planning Unit have the task of compiling data for use in regional and changwat planning, and finally

(e) NEDB has overall responsibility for the Northeast regional development plan which takes into account the development needs of each of the changwats.

4.1.6.2 Basic Data and Regional Accounts Task Force Group - The major responsibility of this group is to:

(a) Determine the basic data which should be collected and compiled to meet the requirements of changwat and regional planning. The Changwat Planning Handbooks now being prepared by NSO contain data which have been compiled on the basis that NSO believes to be useful for planning.

(b) The National Accounts Division of NEDB in particular determines the basic data requirements of the data bank for regional planning.

(c) Preparation and improvement of regional accounting.

(d) Maintenance of regional economic indices.

4.1.6.3 Market Research - This task force should determine on a continuing basis:

(a) Internal and external demands over the next planning period for principal agricultural and livestock products as well as others depending on manpower availability.

(b) Output targets for each of these products. This represents the key element in plan preparation, for all other sectors are dependent essentially on basic agricultural output targets.

(c) An evaluation of existing institutional processes influencing the distribution of agricultural output.

The work of this group is useful not only for plan preparation but also for establishing general trade and export promotion policies.

4.1.6.4 Plan Coordination and Methodologies Task Force Group - This group is mainly concerned with two models:

(a) The macro-economic model for the region. The major problem here is to establish a workable form bearing in mind the fundamental difficulties of obtaining some data categories concerning an open system such as the region when compared with a relatively closed system such as the nation.

(b) The micro-model for village and for rural planning. The problems associated with the micro-village model are of a different nature and concerned with representativeness, cause and effect relationships, control of variables, etc. The modelling of a rural area has been considered, and it is anticipated that models embracing more than a single village will probably have less of the problems described than the micro village model per se. (See also Section 3.1.2)

4.1.6.5 - 10 Sector Plan Task Force Group - These six task force groups represent sector plan activity, including

4.1.6.5 Agriculture

4.1.6.6 Water Resources

4.1.6.7 Manpower

4.1.6.8 Social Services

4.1.6.9 Transportation

4.1.6.10 Secondary and Tertiary Sector - Work programs for each of these essentially include the basic steps for plan preparation such as data

analysis, project evaluation, target establishment and eventual benefit/cost analysis and priority assignments. This represents the core of the planning tasks.

So far the secondary and tertiary sectors (4.1.6.10) are not formally participating in Northeast planning although some suggestions concerning urbanization problems, in particular the impact of the U.S. military withdrawal from Northeastern cities have been made. Eventually this group may be merged with the market research unit as both will be largely concerned with the private sector and promotion of agri-business and other industries.

4.1.6.11 Other Task Force Groups - The need for other task force groups may arise as plan preparation proceeds. Among these, plan promotion may be in order to get a wider acceptance and understanding of the purpose and substance of regional planning in the Northeast.

4.1.6.12 Coordination of Advisory Services - Finally there is an urgent requirement to establish a coordinating or steering committee within the NEDB to request all team leaders and counterparts of all groups engaged in development work to integrate their activities. This is especially relevant to Northeast Thailand where there exists an unprecedented amount and diversity of technical advice.

4.1.7 Program/Project Preparation - Because there has been a tendency for projects not to fulfill their objectives (e.g., water tanks) because total responsibility for carrying them out remained unplanned an/or unassigned, procedures for program planning are suggested here.

The following chart indicates the steps required to draft a complete plan (sample) for each project or program proposal. The requirements will vary somewhat for each, but for illustrative purposes an irrigation scheme is selected. The principal plan components include the following:

4.1.7.1 Conception - A site is selected for the proposed project in response to a request for irrigation water.

4.1.7.2 Basic Survey - This includes determination of physical and financial feasibility suggesting alternatives where appropriate.

This must include consideration of

- (a) Relationship to planned agricultural output targets.
- (b) Possible by-products such as potable water supply, new recreation areas etc.
- (c) Anticipated impact on farm income
- (d) Marketability of new anticipated output including demand estimates and needed channels for distribution.

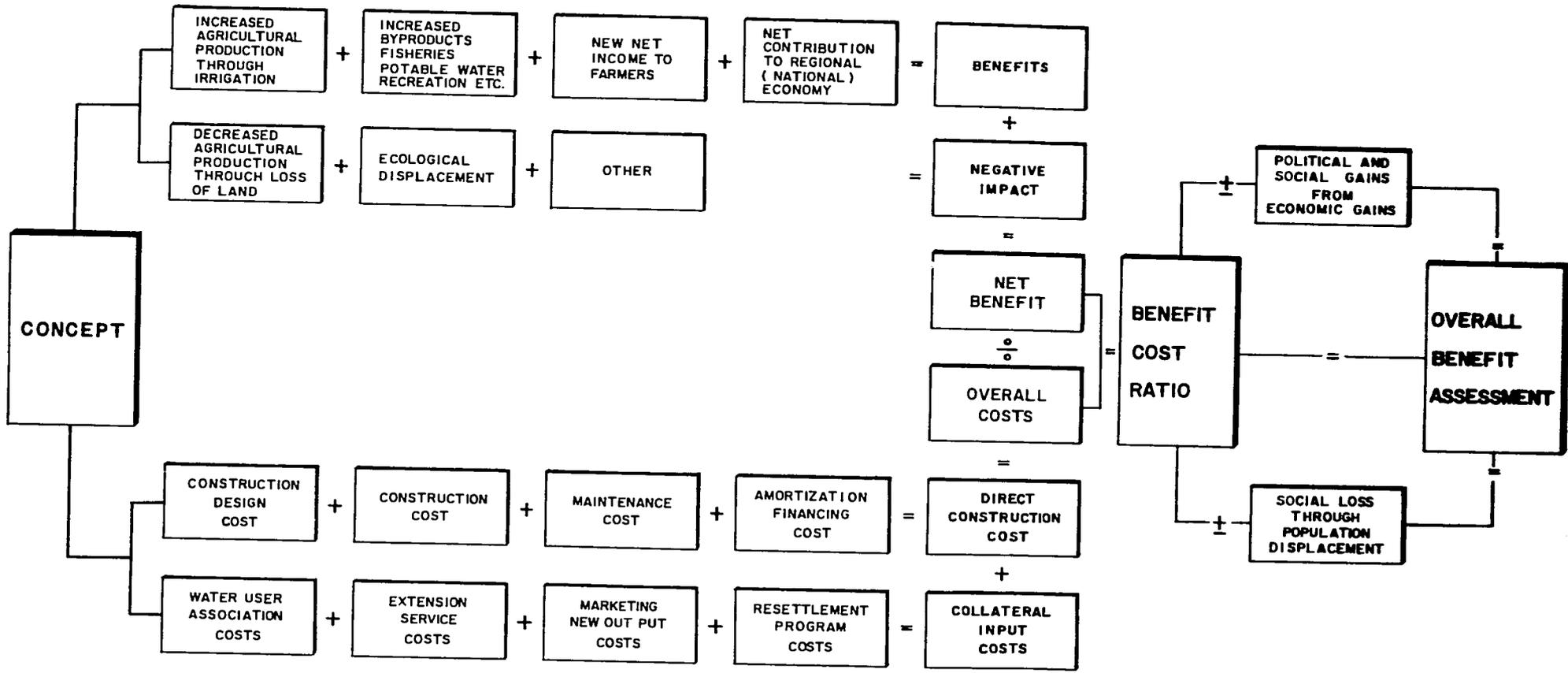
4.1.7.3 Collateral Input Requirements

- (a) Required Agricultural Extension Services to prepare farmer for proper application of irrigation water.
- (b) Appropriate communication with farmer associations to recruit support - formation of associations if not yet available.
- (c) Resettlement Program (if applicable) including Agricultural Extension Services if resettlement involves unfamiliar soils.
- (d) Establishment of Appropriate Marketing Facilities. This may include new storage transport credit and price support facilities.

4.1.7.4 Provision for Maintenance including requirements for

- (a) Manpower
- (b) Equipment

EXAMPLE OF TOTAL PROJECT PREPARATION
(E.G. IRRIGATION SCHEME)



(c) Facilities

(d) Depreciation

4.1.7.5 Provision for Financing - This includes a financial plan which must eventually rely on the increased agricultural output to support the project. Adequate credit provisions should be provided.

4.1.7.6 Design

4.1.7.7 Construction

Note: Most of the foregoing can proceed coterminously; but it is essential to schedule a project in such a way that benefits can be initiated as soon as possible (See also Chart 4-6).

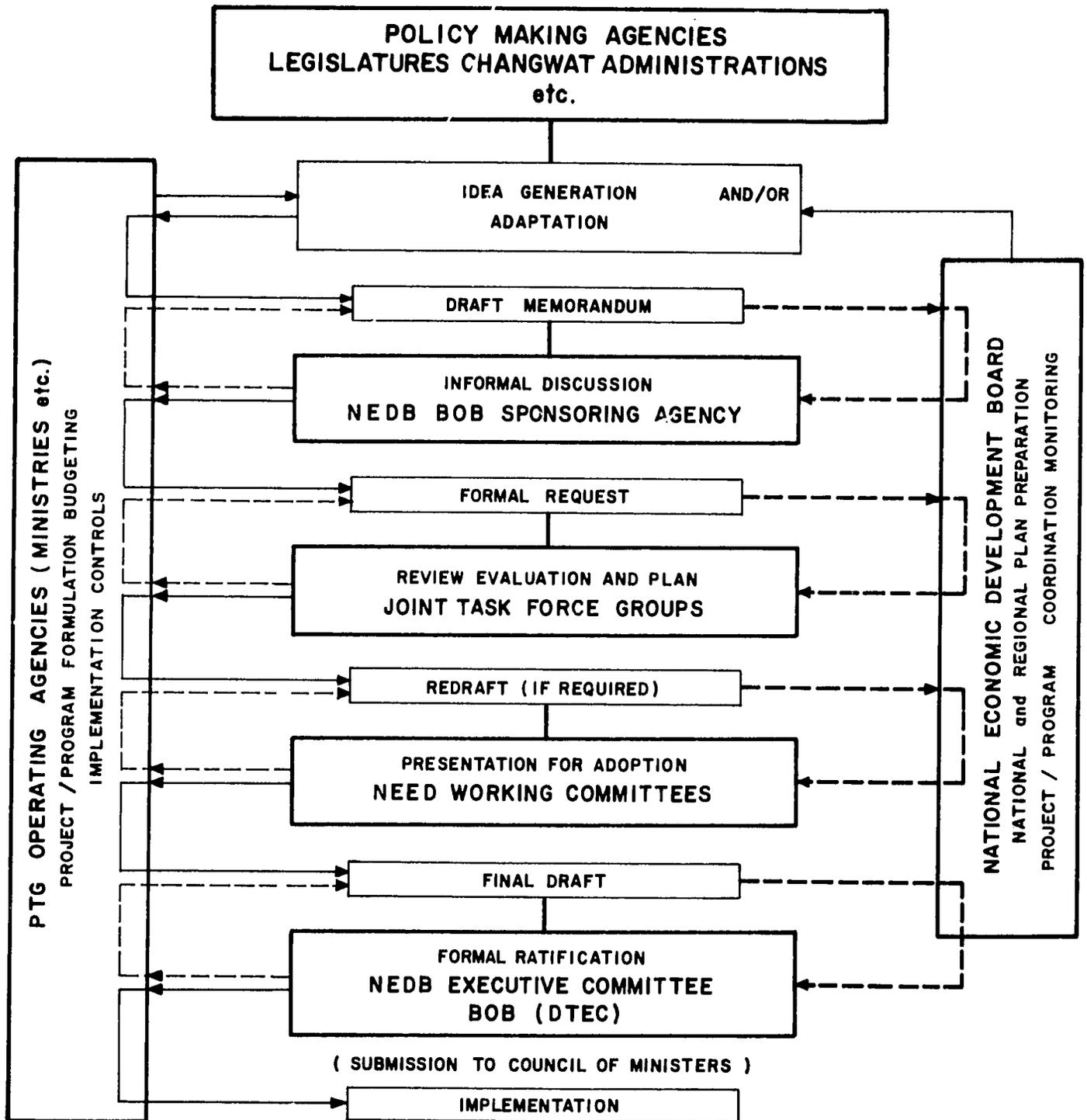
4.1.8 Procedures for Program/Project Approval - A suggested Routing of Project/Program Proposals and Plan Integration for Northeastern Thailand (and other regions) is shown in Chart 4-7.

The basic purpose of the chart is to indicate the relationship of project/program proposals to the regional and national planning process for which NEDB is responsible. This would include the following steps.

- (a) Idea generation and adoption. This can come from any agency, including Legislatures, Changwat Administrations, Operating Agencies, Ministries, NEDB, etc. It is submitted to the appropriate RTG agency for preparation of a
- (b) Draft Memorandum. An informal discussion among the sponsoring agency, NEDB and Budget Bureau representative should at this point provide basic guidelines. Following this a
- (c) Formal request is made and submitted to the appropriate task force group for review, evaluation and plan

SUGGESTED PROCEDURES FOR PROJECT / PROGRAM APPROVAL AND PLAN INTEGRATION

REGIONAL PLANNING - THAILAND



———> MAIN TASK FLOW
 - - - -> PROCESSING BY NEDB
 - - - -> MAJOR REVISIONS OR REJECTIONS

[] AGENCIES
 [] TASKS

integration. This will be referred back to the sponsoring agency for a

- (d) Redraft if required or, if not, presented directly for
- (e) Adoption by the appropriate NEED Working Committee. Once the latter has agreed to recommend (reject or modify) the proposal a
- (f) Final draft will be prepared by the sponsoring agency in order to present it for
- (g) Formal ratification by the NEDB Executive Committee, Bureau of the Budget (and DTEC where applicable) following which it may be submitted to the Council of Ministers if required. After ratification the proposal will be sent to the appropriate RTG agency for
- (h) Implementation
- (i) For monitoring purposes it is desirable that progress reports be made available to NEDB and line agencies on a quarterly basis so that up to date files on all capital expenditures can be kept.

Thus the foregoing is designed to clarify the role of the working sub-committees and the special task force groups. It should be noted again that planning is treated as an advisory function and that an orderly processing of programs and projects should accelerate their implementation. These procedures should be of particular help to both the ministries and other line agencies (e.g. changwat administrations) as well as to the Bureau of the Budget. While it is likely that some adjustments will have to be made as these procedures and other organizational matters are tested, out of this an on-going and complete national and regional planning machinery should emerge.

4.1.9 Operations Rooms - Planning needs an Operations Room where the facts and figures on which the planning is based, and on which projects

and programs are evaluated, can be displayed. The operations room must be more than a briefing room; it must be the workshop where planners can work with the latest available data, moreover it must contain and display up to the minute information. Frequently operations rooms fail in this respect because of inadequate staffing or because the procedures for supplying the staff with data is not clearly defined.

In practice, because space is always in short supply, an operations room is generally used as both a briefing room and a conference room. This has the advantage of keeping the planning mechanism in front of officials when they attend meetings and conferences. Because of the multi-purpose nature, there needs to be a small ante-room where the operations room staff can work while meetings are in progress. For the regional development program, an operations room is to be set up and maintained at NEDB; and, on an appropriate smaller scale, in each of the changwats, where it can also be used for other changwat operations besides development planning.

All of the available Changwat Planning Handbooks, both map books and data books will be on display in the NEDB Operations Room. Though some photographs will be shown, most displays consist of schedules and graphs representing current series of data of relevance to regional development as a part of national development. Particular series of importance for the Northeast are:-

Agricultural Production for Ten Major Crops by Changwat
Secondary Economic Index, including its individual
components,

Additional series now in preparation concerning local budgets, taxation, commodity movements, etc. can also be displayed as this information becomes available.

The schedule for the Third Five Year Plan will be a main exhibit with means of demonstrating the current status, whether behind or in front of time, of the major programs making up the plan. Records of

the evaluation of all projects are to be kept on the basis of a systematic and coded filing system. Individual projects at the Changwat level need not be recorded individually, but progress of each of the Changwat plans should be recorded and evaluated so that support can be provided when it is required.

4.2 Institutional Obstacles to Effective Planning Implementation

4.2.1 Introduction - It would be remiss to omit some discussion of the various institutional constraints which in the course of planning work have been observed and which need to be taken into consideration in order to strengthen the planning process. It should be noted that this is not intended to voice criticism of particular practices by both donor and recipient countries, but to point out that problems concerned with administration, management, coordination etc. are obviously not the exclusive province of the RTG. Any large endeavor is faced with these, and frequently collaborating agencies such as UNDP, USAID, World Bank and others concerned with developing nations reinforce their respective bureaucratic milieu by failing to tackle some of these issues for fear of offending host countries. In doing so, development may actually be retarded - therefore stimulating awareness of the existing problems which interfere with the spending of public funds more effectively is an important responsibility of the planner.

The principal categories discussed below are largely inter-related including management, organization, financing; for example, the absence of adequate marketing facilities, is in large measure due to fragmentation of responsibilities for planning implementation. Similarly it is likely that the deterioration of vital forestry resources (e.g., teak and rubber) is largely a management-control problem.

4.2.2 Marketing Structure Problems - While most development efforts have been geared to research and promotion of agricultural and other primary products, the physical and economic requirements for distribution of those products still leaves much to be desired. This is largely an organizational problem which needs to bring together farmer associations, better market information, appropriate storage facilities and procedures and additional definitive price supports (such as the present support program for export of maize to Japan) and credit programs and their administration where warranted. Improved incentives for

farmers are needed to accelerate cash cropping (as well as livestock, fish and forestry products output).

For example, the basis for much of the indicated disinterest on the part of farmers to use water for irrigation that is now available is reflected in national policy, particularly as it applies to price control and taxation on rice.^{1/} Until, and unless, there is sufficient economic incentive to stimulate the relatively heavy investment that irrigation and intensive land utilization requires, the bulk of the farmers in the Northeast are likely to continue to emphasize the production of food for family needs in contrast to growing produce for the commercial market. So long as this condition prevails, there is the likelihood that actual water use from facilities now in existence or under construction will fall far short of the projections of demand for irrigation water which constituted the primary basis for justification of these projects.

Government monopolies (such as in meat production) have a similar restraining effect, although this may be overcome if the benefits of the possible foregone output are clearly demonstrated. In the case of livestock reported instances of cattle and pig stealing have been cited as contributing toward the reluctance of potential breeders to risk expanding their activities.

However, the general agricultural marketing problem in Thailand has been receiving widespread attention, and a new market research unit at the Ministry of Economic Affairs is intended to deal with the market (and marketing) information gaps.

4.2.3 Limited Absorptive Capacity - Developing nations typically lack professional and skilled human resources to achieve proper organization and high productivity in most aspects of a country's life. Partly

^{1/} Although in the case of the Northeast the discouraging of more rice production in most areas may be desirable and pricing policy must be such as to stimulate more growing of kenaf, cotton, sugarcane, etc.

pressured by comparative statistics on GNP growth rates, school enrollment and labor statistics, etc. published by the United Nations, countries are frequently initiating programs (and backed by donor countries) which have little chance of success because of severe manpower limitations. Unfortunately Thailand has been no exception in the process of initiating programs which remain incomplete, not only because of lack of planning and coordination per se, but because of critical shortages of trained personnel.

In the Northeast this means essentially the inability of providing agricultural extension agents to help put the infra-structure to work (water tanks, highways, etc.).

Unfortunately the failure to train and provide appropriate manpower in developing nations produces several undesirable side-effects. One is the illusion of development which normally accompanies construction of facilities which in fact are not properly utilized; second, it encourages the manufacture of statistics which may be motivated more by bolstering a nation's ego, rather than making them more reliable for useful policy decisions; third, it tends to retard the reduction in the misuses of labor, such as child and certain types of female labor although this is a less well known phenomenon and may have only limited relevance to Thailand.

It is particularly in the manpower sector where objective information is the most difficult to obtain; fortunately an attempt to rectify some of the deficiencies by means of canvassing employers, including the government on manpower resources, has been started.

4.2.4 Duplication and Coordination Problems - Because of the widespread expansion of special agencies and programs each tending to deal with a limited development task, the problems of duplication of effort and consequent coordination problems have multiplied. There are, for example, 11 road construction agencies (although some control only access roads to their own installations) and planning for an integrated network and its maintenance requirements is virtually impossible under these circumstances.

Agricultural research is another example of excessive fragmentation and a special report on this issue is in preparation. Follow-on activities vital to successful planning (See also section 4.1.7) can obviously not be achieved unless a serious effort is made to integrate and consolidate activities. The following describes how duplication specifically is affecting development of water resources and social services.

4.2.4.1 Duplication in Water Resources Development - Activity in the Northeast deals primarily with the provision of adequate supplies of potable water to the urban centers and villages of the region and with the provision of water for irrigation of both wet and dry season crops.

There are at least thirteen agencies of the Royal Thai Government which are in some way presently involved in water resources development and use. (See Table 4-1). Yet, it is paradoxical that, along with a multiplicity of development programs which in some cases overlap with no clear definition of where the responsibility of one agency ends and another begins, there are also "gaps" within the sequence of activities wherein water is developed, distributed and put to eventual use. As a side aspect of this problem area, it is to be noted that there are seven entities within USOM which have field activities directly involved in, or associated with, water resource development in the Northeast. This raises an additional question as to the potential for problems of coordination. Thus effective support of RTG water resource development might be strengthened through appropriate close coordination among all (and possible merger of some) USOM water oriented activities.

Functional responsibilities among RTG agencies involved in water resource development indicate that each agency is presently free to establish its own plans, objectives and policies in the absence of coordination and cooperative effort with other agencies. This tends to foster the promulgation of narrowly conceived or partially completed plans and in a sense leads to compartmentalization of project planning and implementation. It also strains the demands on the available technically trained and experienced manpower.

TABLE 4-1

MINISTRIES AND AGENCIES CONCERNED WITH THE
DEVELOPMENT OF WATER RESOURCES

Royal Thai Government
1970

1. Ministry of National Development:
 - a. Royal Irrigation Department
 - b. Department of Mineral Resources (Groundwater Division)
 - c. Department of Land Development
 - d. National Energy Authority
 - e. Northeast Electricity Authority
2. Ministry of Interior:
 - a. Department of Public and Municipal Works (Provincial Water Supply Division)
 - b. Department of Local Administration (Bureau of Provincial Administration)
 - c. Department of Community Development (Regional Office)
 - d. Police Department (Border Patrol Police - shallow well development in villages of less than 500 people)
3. Ministry of Public Health:
 - a. Department of Health (Division of Sanitary Engineering)
4. Ministry of Defense:
 - a. Mobile Defense Units (MDU)
5. Office of the Prime Minister:
 - a. ARD (Water Resources Engineering Unit)
 - b. NEDB (NEED and Economic Projects Division)
which acts as general planning and coordinating unit.

Poor coordination seriously affects the operation and maintenance of facilities at the user end of the water supply and utilization chain. These essential activities require training in water distribution and management on the part of those individuals who are entrusted with the responsibility for control of water flow in the main conveyance and local delivery systems. They also require funding for routine expenses of operation and maintenance and for the replacement of items such as metal work and measuring devices which are subject to obsolescence. To the extent that public funds are utilized in creating water conveyance systems on a non-reimbursable basis, it appears proper that public funds also bear the full burden of keeping these systems in an efficient operating condition throughout the period of their useful life (a practice which is clearly being applied in the case of major storage facilities and diversion works).

Another result of inadequate coordination in connection with irrigation schemes is general lack of a clear-cut assignment of responsibility for useful assistance to farmers on the part of the RTG in the matter of effectively utilizing water delivered on a controlled basis. This is especially applicable to the Northeast where much of the irrigable land is subject to problems of topographic variation and marginal soil in the upland areas, while the low-lying lands in the river-valleys are subject to water logging if the all important element of adequate drainage is disregarded.

However, in general the problem of coordination is one affecting mostly small water schemes rather than the larger ones, and consequently this should be delegated to local administrations providing them with appropriate budgets and administrative controls and expertise.

4.2.4.2 Coordination Problems in the Social Service Sector - Institutional factors seriously impede the development of an effective planning organization for the social services as well as the development of the social services themselves. Of primary significance is the

excessive emphasis placed on bureaucratic boundary maintenance by the characteristics and role of the planning organization. Each of these are seen on a number of levels. Although this report is concerned specifically with the Northeast these factors are equally applicable to national planning and development.

Bureaucratic boundary maintenance as an impediment is seen in the extent to which emphasis is placed on structure rather than function in the accomplishment of services in the Northeast. For example, there are four departments concerned with land settlement schemes, two departments concerned with community development activities, and four departments concerned with general education. This situation makes it virtually impossible to plan for given services. Rather planning must be for the role of given departments in the delivery of specific services. Moreover since most departments are in competition with each other for funds to perform given functions it is even more difficult to get departments to meet together to formulate comprehensive plans for the delivering of specific services.

The emphasis on boundary maintenance is also seen within given departments. An excellent example of this is the Department of Health in the Ministry of Public Health. This department is charged with the responsibility for preventative health programs and involves a number of special programs. The special programs operate on the local level out of the changwat health office and the first class health centers. Several of the programs, such as TB control, Leprosy control, etc., operate both inpatient and outpatient programs. When outpatient programs are operated home visitors are employed to work out of the local health stations. This results in a program where a TB visitor may visit two patients in a village one week and a Leprosy worker may visit three patients in the same village the next week. Obviously savings could be made in personnel, transport, money, etc. if one visitor could perform the services for all of the special programs in his visit to the village. However, under the present administrative structure this does not seem to be feasible.

It is clear that excessive fragmentation and duplication of services among departments makes cooperation among programs within departments more difficult. Furthermore, the existing arrangement weakens any systematic central planning effort.

4.2.5 General Management and Administration - For the past twenty years foreign assistance in Thailand's development efforts (as in other nations) have tended to rely on an implicit premise dictated by conventions of diplomacy among nations, but not well related to the problems of practical development. The prevailing premise has been that lagging development reflects a shortage of infrastructural investment. The implicit premise is that management efficiency in governmental apparatus does not pose a major problem. In fact, however, mismanagement throughout public administrations has been the leading difficulty and will continue to be so as long as the causes of mismanagement remain uncorrected. The efficiency of physical inputs ultimately depends on management efficiency including appropriate communications with those who are to be the prime beneficiaries.

At most the foreign aid agencies have - perhaps inadvertently - promoted isolated reforms unrelated to any broad conception of what the overall management problem is, nor has any unified concept of improved public administration been available to them. In part the management issue in development assistance continues to be obscured by the after glow of the Marshall Plan. It is increasingly recognized twenty years later that physical reconstruction of war-torn nations which already have institutionally viable economies is relatively simple. But creating the viable institutions in less developed nations has proven much more difficult.

To raise the broad management issue bluntly violates normal diplomatic conventions. Such violations raise the spectre of interference in the internal affairs of one nation by another. Questions of sovereignty therefore arise in an era of anti-colonialism. Nevertheless, assistance by one government to another cannot avoid involvement; any time one nation

supports another national government it has become involved in that nation's internal political affairs. Ignoring the management component of involvement may avoid short term friction; but where mismanagement is serious, there arises a risk of wasted assistance and failure of foreign policy goals at the same time.

Applying these comments to the RTG more specifically one must conclude that the hierarchical structure, inadequate tax revenue base and consequent compensation level (See below), all tend to mitigate against effective resources management. It would be useful therefore with the guidance of donor agencies to encourage appropriate reforms which could significantly benefit all participating parties. This should be proceeding along with plan implementation.

4.2.6 Low Government Salary Levels - The well published low pay-scales for government officials, especially teachers, dampens enthusiasm, encourages job seeking in the private sector, turnover, multiple job-holding, and corruption.

For example, there cannot be an effective educational system with teachers getting as little as Baht 300.- per month. Highly paid teachers in the West are often driven out of the profession by the strains of large classes, unruly children, lack of support from administrators and the community etc. etc. How can there be any morale among teachers earning from 15 to 20 Baht a day? Bad as the situation is for civil service employees, it is worse for teachers.

It is not intended here to belabor the problems arising from corruption. Victims of avaricious and arrogant officials (or middlemen) obviously become potential converts or sympathizers with communism, since honest administration is an area where the communists have established a measure of credibility. However, the most important constructive approach to resolving issues of corruption which, for example, at the present time interfere with the farmers' incentive to grow second crops or to raise livestock, is to investigate the existing pricing and tax structure which

through appropriate reform could reduce one of the principal causes of corruption such as the low pay for public officials.

Development depends primarily on competent, dedicated personnel in government in order to provide the necessary leadership. Such personnel are a rare exception under a system which places such a low value on their work. As the lack of trained manpower has been highlighted as the most critical impediment to development, priority for remedial action is indicated here.

4.2.7 Inappropriate Tax Structure - The previous section represents one important manifestation of an inadequate system of Government receipts and disbursements. What is particularly important to the planning effort is that the development of cash cropping and other commercial activities in the Northeast, which are initially induced by public expenditures including foreign loans and grants, must eventually support all obligations incurred. One of the base components of plan preparation must include the long range financing and the eventual absorption by producers and distributors of the costs incurred on their behalf.

Furthermore, additional research is required as to the extent tax incidence (regressiveness) may or may not in fact impede the achievement of development targets. Future tax policy - in order to be integrated with development policy - will have to be guided by this.

4.2.8 Other Institutional Obstacles - This list of institutional constraints is not intended to be complete. Essentially only those which have been discussed with appropriate officials and have a bearing on Northeast development are considered. This includes in addition to those already mentioned.

A basic misunderstanding and distrust of planning, inasmuch as planning attempts to guide those accustomed to independent action. This requires a more concerted public relations effort in terms of informing those affected of the real purpose of planning (managing resources); however, broad acceptance of planning is not likely until some solid

accomplishments are recorded which will convince the highest policy makers of its utility. Meanwhile, planning officials themselves require direction in terms of utilizing their time with less emphasis on staff and committee meetings and more time for creative and analytical thinking and research that can produce needed factual reports and convincing recommendations.

Associated with the above is the need to change a syndrome of attitudes and work habits which prohibits innovations and runs counter to development in general. This syndrome is normally characterized by: (a) a tendency to accept the present system of political spoils as inevitable, (b) a tendency to avoid anything which threatens the present status system, even though it is known that the present system is inefficient, costly, and wasteful in terms of personnel and money, and (c) as a consequence of the above the practice whereby simple and conventional programs are specified as an answer to complicated development problems simply because the conventional programs do not threaten any of the existing hierarchial arrangements.

Fortunately in Thailand one can observe a comparative flexibility and adaptability among farmers so that given the appropriate mix of incentives and information, commercialization of agriculture appears quite possible.

4.2.9 Conclusion - The problems of properly lubricating the planning machinery could be discussed ad infenitum; however, they are not intended as an apologia for inaction. On the contrary, increasing awareness and a better understanding of their consequences are prerequisites to initiating remedial action. No major reforms are likely to happen in a short period of time. However, it is suggested that, as an integral part of improving the planning process and capability, appropriate research and fact-finding be continued (and expanded) as follows:

Systematic analysis of RTG management and fiscal problems designed to determine

(a) economic consequences of present shortcomings, especially as they affect development in the agricultural sector,

(b) cost and feasibility of any suggested management reforms,

(c) incidence of the present public revenue and taxation system and its role in development, including recommendations for improving the civil service compensation system.

(d) ways by which donor or lending agencies can assist in guiding and financing reforms.

The foregoing suggestions are clearly beyond the scope of work envisaged for planning in the Northeast.

However, more specific proposals for manpower development and marketing capability will form an integral part of the Northeast plan.