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SOCIO-ECONOMIC FACTORS IN FARMER RESPONSE  
TO IRRIGATION IN NORTHEAST THAILAND

BY

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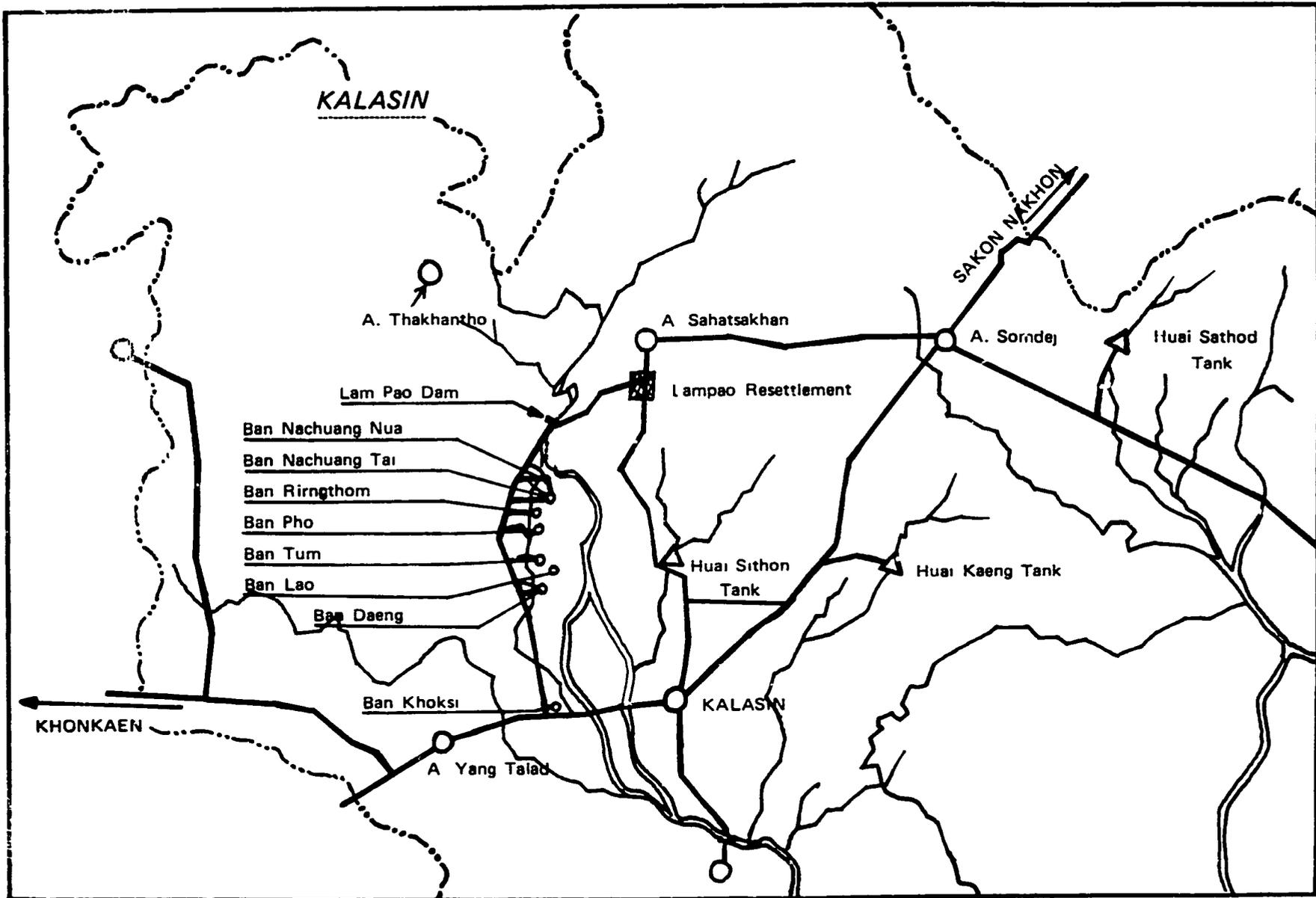
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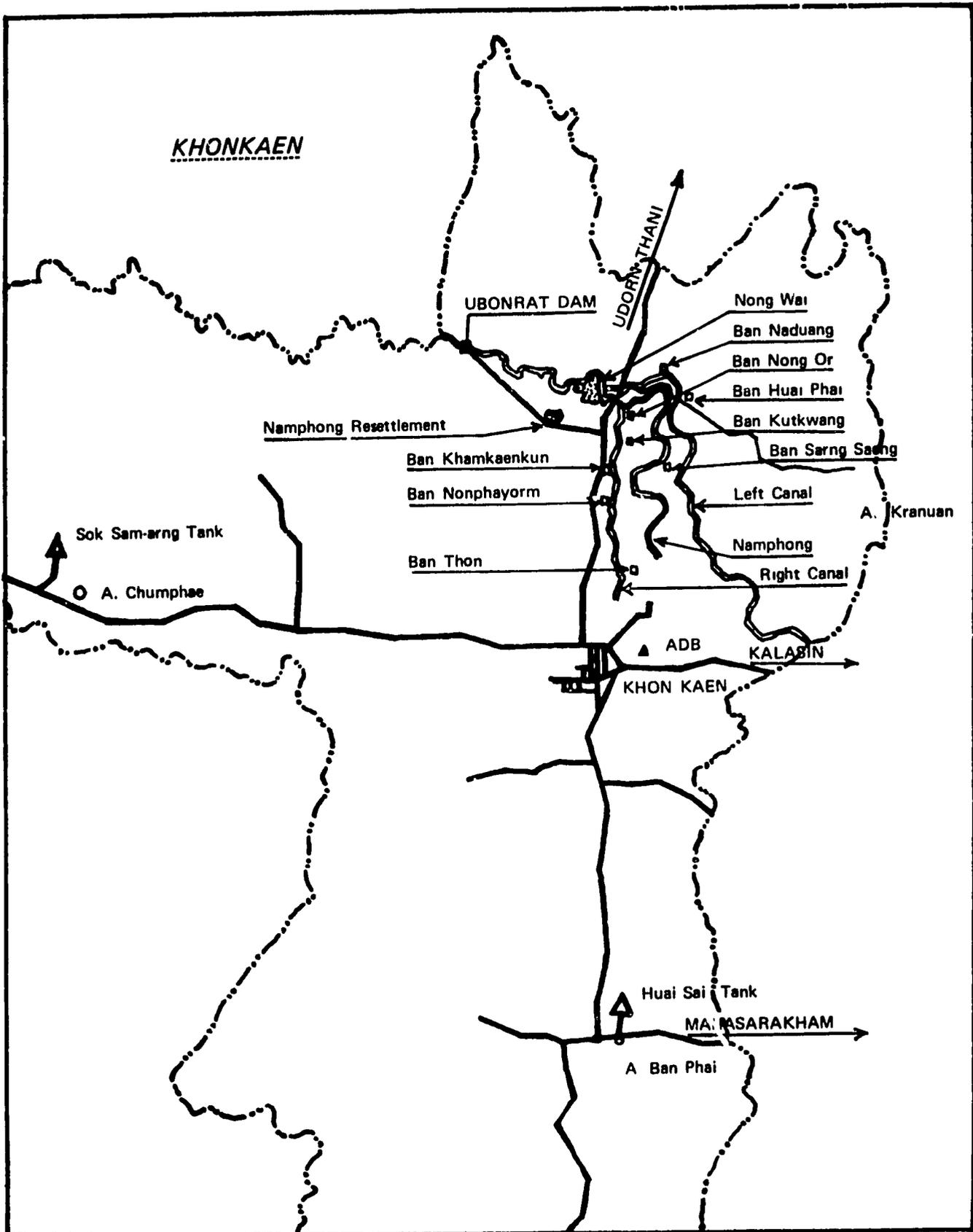
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## I

### INTRODUCTION

#### TERMS OF REFERENCE

The Mekong Coordinating Committee which was established in 1957 and which is composed of representatives of Thailand, Laos, Khmer Republic and Vietnam has been charged with the responsibility of formulating plans for developing the water and related land resources of the lower Mekong Basin. In discharging that assignment, the Committee has undertaken the preparation of a general framework plan for the Basin as a whole as well as the preparation of studies of individual projects. The feasibility study of the Pa Mong project has just been completed. This project will provide the potential for irrigating vast areas (2.5 million acres or more) in Northeastern Thailand and adjacent areas of Laos.

In connection with the review and appraisal of the Pa Mong report, two basic questions have often been asked: "If water were made available would the farmers use it for irrigation in the dry season as well as for supplemental water in the wet season?" There have been contrary opinions expressed by the experts on this point. The second question which is the corollary, asks "If the farmers do not accept irrigated second cropping, what are the culture variables that would inhibit the

acceptance of innovation in terms of an irrigated water system?

It was, therefore, concluded that the best way to answer these questions would be to study other irrigation projects that are now under development. There were several of these in Northeastern Thailand.

Until 1967 most advisors and researchers had been concentrating their efforts on the economic feasibility of Pa Mong. Later, Ingersoll presented in his first volume, the requisite parameters for effective irrigation operations involving the entire scope of Human Dimensions of a Mekong Development system. In his second opus, he presented a complete picture of the problems and social feasibility of a Mekong development system.<sup>(1)</sup> These two excellent tomes are the guidelines for an almost perfect irrigation system.

Needed now was a study of farmers' reactions to the extant system -- his verbal (attitudes) as well as his actual behavior. In my original contract, it was intended that I make an in depth study concentrating my efforts on the inter-actions of social, cultural and economic behavior patterns as they related to irrigated second cropping in only the Nampong area. When, very shortly, I discovered that only a small fraction of the potential second croppers were farming, I decided to expand my research to cover the Lampao area as well. During the course of my interviews I learned that many more farmers were intending to second crop in 1971, if the 1970 dry season farmers were successful. I was granted a seven months extension in order to investigate the variables

(1) Frutchey, Kardell and McAule carried out some specific socio-economic studies in various irrigation areas in the North and Northeast. (See bibliography).

which had motivated or inhibited these same farmers in the pursuit of their claimed intentions.

It was further desired by the Bureau of Reclamation, USAID, Bangkok, and by the Regional Economic Development offices that research also be carried out on such subjects as:

1. The Technical and/or administrative reasons why farmers have not enthusiastically accepted dry season cropping.
2. The degree of coordination and/or redundancy of effort between the various Royal Thai Government agents working with farmers in the irrigation areas.
3. Farmers' reactions to various problems involving Royal Thai Government assistance to irrigation and dry season cropping.
4. The quantity and quality of personal relationships between Royal Thai Government field workers and the farmers.
5. Communication methods for disseminating information to farmers.
6. A comparison of success of the larger dam projects as weighed against the success of the smaller and more inexpensive tank projects.
7. Recent attitudes of the farmers in the resettlement areas concerning socio-economic conditions.

#### THE SAMPLE

##### Khon Kaen Province

In the Nongwai area: Three villages on the right bank canal all of which were able to receive irrigation water for dry season cropping; one village on the right bank canal and two villages on the left bank canal all of which were not able to use canal water for dry season

irrigation; two villages off the main road and 8-10 kilometers from the canal, for the purpose of determining general awareness of, and attitudes towards the Royal Thai Government irrigation projects; a poor and moderately well-off village in the Ubonratana Resettlement area; one village in Ampoe Myang, utilizing river water for dry season cropping (for comparative purposes); one village in Ampoe Chumpae and one village in Ampoe Banphai, both allegedly utilizing canal water for dry season cropping - but whose sources are the small Royal Thai Government tanks (reservoirs).

#### Kalasin Province

In Lampao area: three villages on the right bank canal all of which were able to receive irrigation water for second cropping; <sup>(1)</sup> two villages on the right bank canal which were unable to utilize canal water for second cropping; two villages off the main road, 8-10 kilometers from the canal; two villages from the Lampao resettlement area; one village in Ampoe Myang and one village in Ampoe Kuchinarai, both alleged to be utilizing canal water for dry season cropping, but whose sources are the small Royal Thai Government tanks (reservoirs).

The FAO Pilot Demonstration Farm Project at Huajsithon in Myang Kalasin for comparison with the Israeli Pilot Demonstration Farm Project at Hakdokkeo in Vientiane province, Laos.

#### MCDUS OPERANDI

Semi-structured in-depth interviews and discussions were held in each village with the village headman, the head monk, the head school

(1) Banlao received water only in April 1970, too late for raising a dry season crop.

teacher, a respected village elder, and five-six farmers. Time was also spent observing farmer behavior at their fields and at meetings.

In Khonkaen province, discussions were held with personnel of: The University of Kentucky Advisory Team and the Livestock Breeding Station in Tha Phra; the University of Khon Kaen Agricultural Demonstration Station; the Rice Experimental Station; the Agriculture Experimental Station; the Seed Multiplication Station; the Range and Pasture Development Station; the Soil and Water Conservation Center; the World Bank and the Asian Development Bank.

Informal discussions were held with government officials working in the various agricultural extension and credit offices in both Khon Kaen and Kalasin provinces, as well as with officials at the U.N. projects at Hakdokkeo in Vientiane province, Laos, and Huajsithon in Kalasin province.

Many informal confabulations were had with scholars carrying out specific, yet related research projects in the Nongwai and Lampao areas.

In Bangkok, discussions were held with various officials at: the Mekong Secretariat, Division of Economic and Social Studies; the National Economic Development Board; the Royal Irrigation Department; the Land Development Department; the Bureau of Reclamation in USAID.

An interpreter-assistant was employed who spoke Northeastern Thai. Though the writer himself speaks the language, he felt that it would facilitate matters to employ an interpreter since note taking could be carried out concomitantly with the questions and answer sessions. Also, when village elders respond in slang, or with a mouth full of betel, the

clarity of the expression is not always at its best.

One village in the Nongwai area and one in the Kalasin area were selected for in-depth culture studies. Every aspect of the culture was investigated from birth control to the yu-fai.<sup>(1)</sup> The bulk of this information has not been included in the report since, as it turned out, it has had no significant influence on either accelerating or inhibiting the acceptance of irrigated second cropping.

In 1970, roughly three weeks of each month (February-November) were spent in the field. The remainder of each month was spent in Bangkok, writing up field notes and interviewing people in the various relevant Bangkok offices. In 1971, (January-June) only two weeks per month were spent in the field.

My study has been a replication, in part of research carried out by McDole, Kardell and Ingersoll, and having covered a wider sample in the Lampao-Nampong areas, my findings in general, have served to lend greater validity to theirs. A trained scholar spending seventeen months in the field leaves very few stones unturned, and though my research endeavors have uncovered no startling new facts, it does present an up-to-date account of irrigated second cropping activities and should quash the doubts of those who worried that there were inhibiting factors in Thai Northeastern culture that would result in large canal construction projects becoming white elephants.

As will become apparent to the reader, my objective was not the tangling with Royal Thai Government administrative problems so much as

(1) The custom of the mother roasting by the fire following the delivery of the newborn child.

with the farmers' reactions to these problems. By the same token, I was more interested in the farmers' reactions to crop prices than in the prices themselves and therefore, this report has eschewed, whenever possible, both the statistical aspects as well as the intricacies of administration insofar as they are concerned with second cropping. The farmer himself is not statistically oriented, and figures provided by him are very rough approximations. As to the resolving of administrative problems this can only be brought about by the Thai.

The reader may also comment on the paucity of recommendations appearing in the report. I am not one to treat symptoms. Excellent recommendations for symptom treating abound in the literature. I am one who believes in treating the source and this can only be accomplished by the Thai -- many of whom are well aware of both the problems and their solutions.

#### RATIONALE FOR THE ORGANIZATION AND FORMAT OF THIS REPORT

During the course of my research, I was continually questioned by interested professionals. I proceeded to reduce these questions into categories, and, in an eclectic format, have incorporated both their questions and my answers into this report.

The section on the Accelerated Rural Development roads was included because crops, markets and roads are all interdependent. Inasmuch as the contents of meetings are quite enlightening, providing insights into official-farmer relations, and since very few of my readers have had or will have the opportunity to sit in on such meetings, I have included several in this report in almost their entirety.

These meetings also demonstrate the gradually changing patterns of official-villager dialogue. The assortment of data in the appendix was included because it either sheds light on the farmer's capacity to reason, verbalize, perform, or because it is useful information for someone interested in a specific aspect of the area, e.g. the economist who might want to know the percentage of profit between the vegetable wholesaler (the farmer) and the retailer.

#### ACKNOWLEDGEMENTS

This final report is the fruit of a nineteen month contract between Rural Research Inc. and the Regional Economic Development section of the US Embassy, to whom I am indebted for having provided me with this excellent opportunity to become thoroughly acquainted with a multitude of farmers in the Northeast. I am indebted to Karl Lee of the Regional Economic Development office for his guidance and moral support along the way, and to the many farmers who gave me much of their time with little in return - those many farmers who always displayed their utmost courtesy and politeness to the foreign stranger who only eventually became their friend.

#### ABBREVIATIONS AND THAI TERMS APPEARING IN THE TEXT

100 sq. wa	=	1 ngan
4 ngan	=	1 rai
2.5 rai	=	1 acre
6.25 rai	=	1 hectares
1 kilometer	=	.625 miles
1 sq. kilom	=	175 rai
1 sq. mile	=	455 rai

1 tang = 10 kilograms  
100 tang = 1 kwian  
1 moen = 12 kilograms

Cangwat = province  
Ampoe = district  
Tambon = canton  
Ban = village

C.D. = Community Development  
A.D.B. = Asian Development Bank  
R.T.G. = Royal Thai Government  
A.R.D. = Accelerated Rural Development  
F.A.O. = Food and Agriculture Organization (UN)

II

SUMMARY

Observations - Conclusion - Recommendations (a few)

THE PRIMARY DETERRANT TO SECOND CROPPING LIES NOT IN THE CULTURE PATTERNS OF THE FARMERS, BUT IN THE ADMINISTRATIVE PATTERNS IN BANGKOK.

1. Aside from unsanitary eating habits resulting in the ingestion of debilitating parasites, there are no significant factors in North-eastern Thai culture that would inhibit the vast majority of farmers from working on the soil throughout the year. There is no belief on the part of the farmers that the Goddess of earth, water, rice or other crops will become overburdened, or the spirits angered should a second crop be planted. No agricultural rituals are practiced during the dry season. For example, there is no first plowing ritual, no homage paid to the earth goddess or the goddess of the rice bin, etc.

Local deterrants to second cropping have been primarily administrative and economic. Ranked in order of importance, these are:

- (a) The fear that there will be no market for their produce or that the prices offered will not adequately compensate them

for their expenditures of effort and funds.

A government subsidy marketing program such as the Agricultural Development Organization is providing for the farmers in Laos would be one solution.

The irrigation program today are micro-projects of the various involved Ministries rather than being closely tied in with a national program of agricultural development -- a program which could avert over production of any one crop in any one area. Markets are the sine qua non of irrigated dry season cropping acceptance. A doubling of output per rai is meaningless if it rots in the bins or is sold at a loss.

- (b) The fact that the majority of farmers (85%) do not own land where the gravity-flow water can be utilized.

Levying a water tax on all lands which are potential recipients of the present irrigation system would not only encourage farmers to rent unused land to the landless, but would also encourage their building the necessary sub-laterals.

- (c) The unavailability of credit for the purchase of needed inputs, especially chemical fertilizer.

Immediate credit from commercial banks, as opposed to delayed credit from red tape-ridden credit cooperatives would be a step in the right direction.

- (d) A fear that water will not be flowing in the canal when needed.

According to the Royal Irrigation Department engineers, this problem will be solved, once the canal has been completed. However, unless the farmers learn how to derive maximum usage from moderate amounts of water, there will not be enough water flowing in the canals to irrigate all fields during the dry season.

- (e) Competition from work available on canal construction and canal maintenance.

This deterrent will be mitigated once canal construction has terminated. Maintenance will continue but, will involve only a very small number of farmers.

- (f) Fathers-in-law who require all earnings to be turned over to them.

- (g) Reluctancy of farmers to utilize other farmers' land for second cropping for fear that should crops be late in ripening, they would be compelled to uproot them in order for the owner to be able to plow his rice fields.

This fear is based on the late delivery of water in 1969, 1970, and will be alleviated as soon as the canal is finished.

- (h) Some farmers (10%) do not want to rent from, or to utilize another farmer's land during the dry season because they are loath to expend money on fertilizers that enrich only the other man's soil.

- (i) A few farmers (5%) are not motivated by promises of economic gains from a second rice crop. They fear that either poorer

relatives will sponge off all of the excess, or that thieves will learn of the surplus and rob them.

(j) A few farmers (3%) are content with their status quo.

2. The farmer in the Northeast is "price-responsive". He needs no outside encouragement nor lectures on the potential benefits to be reaped from second cropping. Over 70% of the farmers are anxious to second crop. They will plant whatever they think will bring the highest price on the local market. The fabulous increase in kenaf and corn production during the years 1965-1970 lends testimony to this, while concomitantly demonstrating that the allegedly tradition-bound farmer is prepared to innovate, to radically change his farming habits if there is a profit in view.
3. Nearly all families have traditionally grown second crops on small plots of land ranging from ½ ngan to 1 rai, utilizing well, pond, swamp, or river water. When canal water becomes available, many of these same farmers will be able to increase their planted areas only three fold due to a shortage of available man power in the family. Hiring labor eats up profits, and few have the funds to hire. One solution for enlarging the second crop area is that being tried in the Asian Development Bank project in Khon Kaen; viz sponsored mechanization for leveling the land and plowing; the consolidating of the farmsteads; the employment of a ladder shaped irrigation system to allow for direct delivery of water to the farm plot and adequate drainage.
4. The farmers in Northeast Thailand are definitely not "lazy" as some

advisors and officials claim. Those few accused by their neighbors of being lazy, appeared to the writer as being rather in poor health and/or suffering from malnutrition. If farmers were provided with adequate technical know-how, moderate credit for the purchase of needed supplies, and guaranteed a fair price for their produce, it is the writer's conviction that all irrigable land would soon be utilized during the dry season.

5. The further off the main road the village, the more industrious the farmers, and the more willing he is to try second cropping if water and credit were available. These remote villages represent areas where the margin between subsistence and starvation is quite narrow, and where employment opportunities are few and too far away to permit returning to the village each day.
6. The Israeli project in Hatdokkeo (Laos) has demonstrated that if the farmers are required to pay for their supplies, they better apply themselves. Initially, the supplies were provided free and there was a tendency "to slack off". However, the government must be prepared to provide credit for all needed inputs, and to buy the produce at guaranteed prices.
7. When harvest yields are poor, farmers will hire out in the dry season rather than take a chance on re-couping their losses by planting a second crop. The risk is too great. If the monsoon rice crop is good, most farmers would prefer growing second crops rather than hiring out since the former would allow more freedom of movement; would require no expenses for transportation to and from work; would

not require their having to live away from home (jobs in Bangkok, Khorad, Udorn, etc.)

8. Nearly all farmers are in debt and regardless of how much they earn from second crops, most will remain in debt. Rising expectations, stores filled with "goodies", and the constant desire for more land combine to lead the farmer to further borrowing.
9. Children learn very little in school concerning agricultural practices. What little they learn is not carried back to the farm. In essence, the teachers try to discourage farming and to encourage the continuation of schooling with the ultimate goal being employment with the government. Nearly every positive attitude the village child holds concerning farming, as well as the techniques employed, are learned from parents and older siblings.
10. The traditional modus operandi of meetings held between officials and villagers is gradually eroding. The old formal uni-directional (up - down) lecture void of dialogue is giving way to informal exchange of ideas between officials and farmers. One problem still remaining is that of the language barrier between central dialect spoken by the officials and Northeastern dialect understood by the farmers.
11. There is a great deal of redundancy of effort among the various provincial agriculture offices, as well as there being a keen competition for: (1) personnel and membership; (2) commodities; (3) funds, and a gross inadequacy concerning all three. There is also, no coordination between agencies, each one anxious to maintain autonomy and to gain full credit for its activities.

The majority of extension-type workers are the first to admit that they have been inadequately trained. There is a need to not only increase the number of extension workers, but more important, the quality. Recruitment in the Agriculture Vocational Training Schools should seek out candidates: with rural backgrounds; with average rather than high scholastic records; who are not averse to working with dirty hands.

12. Economically as well as emotionally, the vast majority of the farmers now living in the resettlements are in much poorer straits than before. They are dependant on one crop (kenaf) which, should it fail, would leave them with neither food nor the where-with-all to purchase it.. These refugees are waiting for the time when they will have enough money to buy paddy land elsewhere and move out. Those living in the Nampong "resettlement demonstration" areas, who had had piped-in water, retting tanks. etc., had become somewhat resigned to their new environment until the pump broke down in April 1970 and has yet to be repaired.
13. Water for bathing and drinking must be hauled to the resettlers in the Lampao resettlement during the dry season. This same area has recently been infiltrated with insurgents who find the poverty-stricken resettlers grist for their propaganda mills.
14. Many of the original inhabitants in the resettlement zone are embittered because the new settlers represent a rival for uncleared lands which the former had planned to clear and offer to their children as a part of the inheritance system.

15. The canals in both the Lampao and Nampong areas were designed primarily for wet season rice cultivation and are not appropriate under the present set up for dry season cultivation since none provide for adequate drainage. This results in water having to remain in the farmers' fields until those at the end of the line have received theirs. The ladder design employed by the Agricultural Development Bank project (mentioned above) is one solution.
16. Canal maintenance cost will remain high inasmuch as the small budget allotted is adequate for treating symptoms only. For example, the 200,000 baht allotted for cleaning out the mud from the Nampong right bank canal this year will need to be doubled each pursuant year.
17. The cost of construction of the smaller reservoir (tank) projects is only 1% of the large reservoir projects (Lampao, Ubonratana, etc.), yet benefit 5% as many people. On the basis of cost-effectiveness alone, the Royal Irrigation Department should concentrate all its funds on these small sized projects, though close supervision of construction will be necessary to avoid the utilization of inferior materials.
18. The lack of adequate water during the dry season has always been a problem in Northeast Thailand. The canal system though not optimal in its utility is still welcomed by those who live on either side of it. Those on the high areas use it for washing, bathing, drinking and for watering their small vegetable crops by utilizing buckets or pumps. Those whose farms are on lower ground are, in

substantially increasing numbers, utilizing the gravity flowing water for dry season cropping.

19. Irrigation canals will play only a small role in changing the villager's way of life. On the other hand, the Accelerated Rural Development road program has brought about significant culture changes within a relatively short time e.g., an increase in mobility via frequent bus service; the ability to bring produce direct to the market as opposed to selling to middlemen at slightly lower prices; a steady supply of new products appearing in the small village shops; a wider selection of spouses; increased income for the wat, etc.
20. The status held by the monks is partially based on their avoidance of things mundane and many purists believe that this should remain intact, lest the influence of the wat become secular and lose its religious impact. I disagree. The monks are the first to admit that the profits from successful second cropping benefit the wat in the form of increased donations by the farmers. Therefore, I believe that their assistance in influencing farmers to adopt second cropping should be sought.
21. Fifteen percent of the women between the ages of 25-40 were practicing one form of birth control or another. Of the remaining 85%, 8 out of 10 wanted to practice but, claimed that they were afraid and/or that they could not afford to.
22. The various government research and experimental stations are serving very little practical functions. Their findings are not reaching the farmers. I would strongly recommend that all of these stations be moved to the villages where the farmers will benefit

directly.

23. The shelves are filled with excellent socio-economic research papers describing the farmers' needs, problems and aspirations. The literature is replete with recommendations. The time has come to stop all of this research, to synthesize all that has been written, and to initiate various action programs throughout the Northeast. There is one primary requisite, and paradoxically, it requires research. It must first be determined which species of crops can be economically grown in the Northeast; which of these crops are profitably marketable, i.e., where can markets be found?

III

THE CULTURAL FACTORS  
INFLUENCING SECOND CROPPING

As a part of my research, I probed all aspects of village culture in an attempt to determine which of these might inhibit and which might accelerate acceptance of irrigated second cropping. My probings uncovered very few factors which would significantly affect acceptance or rejection.

Religious Aspects: There are no fears that the Goddess of Earth, Rice or Water will be offended because of second cropping. The farmers feel no need to propitiate nor placate these persons as practiced during the wet season rice cycle. There is no fear of offending spirits as mentioned by Frutchey for farmers in North Thailand. There are no superstitions that negatively influence behavior towards second cropping.

The concept of fate (Kam) in the life of the farmer plays no negative role. Fate is always a post facto rationalization, and never an excuse for inactivity. The farmer never says, "It is not in my stars to earn more money so I will not waste time second cropping". However, if he has tried to second crop and the results are poor, he will say, "It was not in my stars to be successful this year".

Until recently, floods and diseases were believed to be part of the Cosmic order -- phenomena over which man had no control. These beliefs

are gradually being modified as the farmer sees that inoculations are controlling diseases, and that the dam projects are controlling floods.

The monks play an influential role in village life. However, to date, they have not tried to exert their influence on the farmers concerning the mundane project of second cropping. As a novice in the wat he learns that the material things in life are the bane of existence and the source of desire which leads to suffering. Farmers will tell you that a man who has spent a long time as a monk or novice does not become a good farmer. He will further tell you that the many who have joined the monkhood have done so in order that they may not have to farm.

Many of the older farmers spoke of irrigated second cropping as a means of gaining merit through the donating of a portion of one's earnings to the wat. The monks are well aware that the wat suffers if second cropping fails. In Kham Kaen Khun, as a result of a poor second crop this year, the wat Committee informed the abbot that he would have to limit the number of monks and novices admitted during this lenten period to 15 and 50 respectively; last year, there were 18 and 60, respectively.

Educational Aspects: The child learns nothing practical about farming in the formal school setup (see appendix III). Farming is never described by the teacher as being an honorable profession, nor is the student even told that he should be proud to be a farmer, that the farmer is the backbone of the nation, etc. On the contrary, the pupil is encouraged to study and to continue his education in order to escape the heavy chores of farming. "All the rice bins filled with gold are not

worth the brains in your heads". Once they have entered secondary school, only one child in ten returns to farming.

In primary school, grade I, the students are taught to plant flowers, hoe, weed and to apply organic fertilizer. Since their food supply depends on the quality of the soil, they learn about the importance of taking care of it. In second grade the students are taught a few of the various species of land and water plants, wet and dry season plants, the function of the roots, seeds, buds, leaves and the various uses of soil. Grade III goes a little deeper into the subject, and methods for proper animal breeding are briefly introduced. In the fourth grade, students learn about various foods and their benefits to the human body, the differences between plants and animals, the existence of microbes, bacteria and germs, and the preservation of natural resources.

However, very little if anything of what the student has learned in school concerning agriculture is carried over to his own farm. Children interviewed between the ages of 14-18 could remember nothing that they had learned in science class.

Everything that the farmer learns about traditional farming is learned by observation and by doing, with an occasional correction made by his older siblings or his parents. Experience has been gained through the long tradition of small garden second cropping, and rice farming.

There is definitely no correlation between level of education and readiness to accept innovation.

Technological Aspects: The farmers lack the technical knowledge needed for handling irrigated second cropping. His farming implements are not suited for working in the extremely hard soils of December-May.

Since extension workers are not available for guidance, trial and error methods are employed, with the farmer tending to resort to wet season irrigation methodology to the detriment of his dry season crops.

Sociological Aspects: The availability of work on canal maintenance, and canal construction has caused a labor shortage in a number of families resulting in the remaining members being able to double crop on only a relatively small area of land -- one or two rai. The custom of the son-in-law living with the bride's family and working for his in-laws serves as a deterrent to second cropping in that the son-in-law has little incentive to labor during the hot dry months since all profits will accrue to his parents-in-law. At best, he may be permitted to share the profits. It is only after he has raised children of his own that he may be allowed to keep his full earnings.

The patterns of inheritance have acted as a catalyst for harder application of efforts for second cropping only in the Resettlement areas. Here, farmers are anxious to make as much money as quickly as possible so that they can purchase and farm paddy lands, in order to move out of the resettlement, but primarily to obtain land which can be passed on to their progeny.

Inheritance: Concerning the custom of inheritance, there are many variations around a common theme. In general, every head of household is concerned about the number of rai that he will be able to pass on to his progeny. Since, in theory all should share equally, he must be able to own enough land to provide each of three, four or five off-spring with enough land to support his or her own family. The consensus of the

farmers was 10 rai per child as a minimum.<sup>(1)</sup> With an average of four children per family, this means that every head of household would need at least 40 rai, and since the average for Lampao-Nongwai is roughly 23 rai, there should, theoretically, be a deficit of 17 rai. However, several factors enter the inheritance picture to alleviate the problem. Generally speaking,

1. Each son who marries, goes to live with his wife's parents and since he provides labor for their fields, he will benefit from his wife's inheritance. In this way his own parents will not feel obligated to provide him with his full share or, as in many cases (especially among the poor), with any of his share.
2. Some daughters marry with government officials, soldiers, or policemen and move away with their husbands. Since the husband receives a regular salary the parents will not feel obligated to provide her with her full share, or as in many cases (especially among the poor) with any of her share.
3. Some of the children find salaried jobs as unskilled laborers while others become policemen or soldiers. Very few from this group return to farming. They too, may not receive their full share of the inheritance.
4. Others (10%) who have continued their education, become school teachers, nurses, medics or minor government officials, and do not return to farming, etc.

(1) The house and homestead will be passed onto the child (usually a daughter) who stays on and takes care of the parents in their old age.

In some cases farmers will provide children in these four categories with their inheritance with the understanding that if they are not really in need, they should make provisions for their less fortunate siblings, either by permitting them to buy up their share of the land at a low price or by letting them utilize the land at very low rents.

Though the percentage of the above four patterns is undoubtedly higher in the Lampao-Nongwai irrigation areas than in many other areas of the Northeast, due to good communication systems enabling villagers to travel and eligible salaried persons to travel to the village, it can be said that the parcelling of land among the progeny will not present any real problems during the next two or three decades.<sup>(1)</sup> One must also consider that the potential increase in output per rai due to technological innovations - improved seeds, fertilizers, multi-cropping, and mechanization, will mean that instead of considering ten rai as the minimal size, the farmer will soon be thinking in terms of five rai per child. In that case, there will probably be no worries concerning inheritance for farmers in the irrigated areas of Lampao-Nongwai for the next half century.

Psycho-Behavioral Aspects: There are two terms used by farmers to describe extremes in their fellow villager's agricultural behavior: lazy (khi-kiad), and industrious (kayan). A farmer who is called lazy is also considered an incompetent farmer. The industrious farmer is also aggressive and prepared to try new techniques. Many of the farmers who tried second cropping were referred to as being "kayan".

It has often been said that if the Thai farmer could raise twice as much on his rice plot, he would work only half as hard. This may have

(1) The inheritance problem in the resettlements is quite another story.

been true a decade or more ago, but with so many new "goodies" displayed in the town stores, and with available roads and bus service enabling the farmer to observe these goodies, his appetite for these material items has been whetted and his desire for increased income stimulated. I have met very few farmers who were satisfied with their economic status quo and these few, only among the elderly well-to-do.

Wealth brings a good deal of respect and prestige. It is a symbol of status. The wealthy are therefore covetous of their position and not willing to see others gain similar status. As a result, many of the wealthy farmers are not willing to loan or even rent large tracts of their canal-site land to farmers for more than one dry season for fear that the borrower might become wealthy over the course of several years.

We must remember that behavioral patterns are difficult to change in any culture. This reluctance to change is perhaps the one cultural phenomenon that was done most to preserve the human species, and we must not blame the farmer's desire to cling to tradition, on ignorance. For example, we know that the Asian squat toilet is much easier on the related bodily function than our own seat style. Yet, how many of us would make the change? Developing efficient second cropping habits and techniques will take time, most likely several years.

The Thai are very individualistic. The nuclear family is the economic unit and all activities have as their objective, the preserving of this small family. Since the struggle has been to keep one's head above water in a subsistence economy, there is little time or energy left for thinking about large scale cooperation, especially if it means personal sacrifice. The farmer's fight for survival places his own vested interests

above those of others.<sup>(1)</sup> As long as he continues to feel insecure, for whatever reason, cooperation and unselfish behavior will be difficult behavior patterns to inculcate into the Thai farmer's modus vivendi. The farmer is the first to admit that cooperation, even among close friends is a very difficult undertaking. (See p. 49).

Ingersoll, Frutchey and McDole speak of "shaming" as an important means of enforcing social sanctions. I have not found this losing of face to have been much of a deterrent to selfish behavior, at least, insofar as water pilfering and crop stealing are concerned. The water pilferers and crop stealers appeared to be impervious to "shame", and claimed they felt no guilt, since they were only doing what had to be done to save their families from possible starvation.

The universal feeling of "krengcai", the idea of not wanting to embarrass or inconvenience the other man, has a negative influence on the enforcement of rules and regulations set up by the various water users and credit associations. Many do not want to take disciplinary action against their fellow villager, especially when they feel that the guilty party has had some justification for his actions.

Economic Aspects: Most farmers are lacking funds for purchasing needed inputs such as improved seed, fertilizers, and insecticides. For example, many farmers have been aware of the profit to be made from coconuts. However, the termites have wrecked havoc in so many areas, that unless the farmer can afford pesticides, he is afraid to plant additional trees.<sup>(1)</sup> The soil is so poor in most of these areas that

(1) I facetiously suggested to one farmer that he purchase an anteater. He said that some villager would have it in his cooking pot before the first coconut appeared.

unless adequate amounts of chemical fertilizers are applied, the crops will not flourish. If the farmer cannot afford the fertilizer, he sees no reason to waste his time second cropping.

Traditional interest rates are so high as to inhibit borrowing for purposes of investing in a new technique about which the farmer knows so little. Prices in the market are not certain and are often low. At present canal related jobs are available and are the more lucrative alternative. Some are not interested in improving their status quo, claiming that relatives and friends would feel free to come and borrow the profits, which, in most cases, would never be repaid.

Land is the farmer's security. He will rarely part with it unless he is assured of being able to purchase other land with the proceeds, and if the land has been passed on to him by his parents he will sell only in desperation. Land sold is usually that which has been recently cleared. There is not only the belief that land, unlike crops, will always retain its value, but also a realistic fear that once land is sold, the money is soon dissipated. Insofar as canal-site land is concerned, the farmer is well aware of increased land values and believes that these values will continue to appreciate and thus will provide a tidy legacy for his children. Absentee landlordism was encountered in only one instance in the twelve villages of this study, and involved only ten rai.

#### Debts

A question frequently posed to me was, "Do you think that the farmer's desire to extricate himself from debt serves as a catalyst in motivating him to try second cropping?"

Information on individual debts is perhaps the most difficult to obtain, and as I became bogged down in circuitous ways of eliciting bits and pieces, I suddenly asked myself why was I bothering with detail at all? What I was interested in was determining to what extent second cropping was motivated by a desire to earn money for luxury purchases, or production in-put purchases, or repayment of high interest loans.

Farmers who borrow from close relatives are not usually charged interest if the amount is under 1,000 baht and the repayment promised immediately after the harvest. Interest on loans from friends ranges from 10-60% per annum. These loans, also, rarely exceed 1,000 baht. Wealthy villagers charge 5% interest a month and do not require a mortgage. If land is mortgaged, merchants charge only 5% interest a month. Otherwise, interest rates are 15% per month on short term loans (up to three months), 10% on long-term loans (one year). Kenaf merchants charge five kilo of jute per month per 100 baht. In 1971, this amounted to 12.5% per month.

Farmers claimed that with the profits from a good second crop at good prices the majority could pay off their debts after two years, providing no misfortune visited the family in the interim. Over the past few years, many farmers have been able to pay only the interest. The percentage of villagers in debt ranged from 30% to 90%. The percentages within this range correlated highly with distance from the main roads and the availability of water supply. There was no correlation between size of debt and number of rai of dry season crops cultivated. The mode for the amounts borrowed each year was 2,000 baht in the Lampao area, 3,000 baht in Nongwai, and ranged in size from 500 to 20,000 baht. Loans may

be formal with a written contract wherein the amount of the loan is specified as well as the amount of interest. Informal loans involve merely a signed IOU wherein the amount of the loan specified subsumes the interest.

If a farmer admits that he has borrowed 500 baht, he has probably borrowed twice that, but is ashamed to confess that he has had to do so. Further probing will show that he has not mentioned the three rai of land he is renting for 30% of the produce; the 100 baht worth of commodities on credit at the store for which he is being charged 10% interest a month; the gambling debt which commonly run as high as 500 baht and on which the interest is at least 10% and as high as 20% per month.<sup>(1)</sup>

Storekeepers claimed that 50% of their clientele bought on credit and that about half of these also paid half in cash. Credit is allowed to remain on the books until the harvest period. Those who are growing second crops are given only one or two months to pay if credit is taken during the dry season. Many of the canal construction workers bought supplies and food at the nearest village store on credit. The storekeepers lost a great deal of money since they could not afford the time running down the delinquents, most of whom were not from their village. One may wonder why the storekeepers had allowed credit to strangers. The explanation is that the canal officials asked them to do so, claiming that the workers had no money and would be paid at the end of the month; that they were helping to build the canal for their government; that the canal would bring wealth to the village.

(1) There is a large amount of heavy gambling and involves roughly 20% of the families in a village. Cards is the most popular form, but cock fighting involves the highest stakes.

Bicycles and motorcycles bought on credit, cost from 30% to 60% more than if bought for cash. Money put down at the time of purchase ranges from 20% to 50%. Payments are made each month for twelve months, and occasionally for two years.

Several farmers who had borrowed from government organizations at 1% a month, admitted to using the funds to pay off debts that were costing them much higher interest rates. On the other hand, it is not an uncommon practice for teachers to borrow money from the Teachers' Cooperative at 12% per annum and to loan it to farmers at 5-10% per month.

Some farmers borrow pigs or ducks. The repayment is usually half of the litter over the next several years. Others borrow the litters, raise the animals and divide the sales price with the original owner.

Following each interview I asked what they would do with the money were they to win 20,000 baht in the National Lottery. Most answered by only enumerating things to be purchased up to the 20,000 baht, i.e., land, cattle, a new home, etc. One in seven claimed that they would put a few thousand baht in a savings account. One in five mentioned a 10% donation to the wat. I would then always point out that none had mentioned repaying their debts. The comments at this were, in essence, "There is always something you need for which you will borrow money. Debts are with us as a part of life". One farmer replied, "Supposing I buy 10 rai of land, then I will need money to buy more buffalo. If I have more buffalo, I will need money for hiring labor. Next, I will want to buy more land", and the cycle begins anew.

The feeling of obligation to pay back interest free loans to relatives is weak. All those asked whether they would grow second crops for the purpose of paying back either non-interest or low interest loans replied in the negative. When reasons given for growing second crops were to pay off old debts, those referred to loans from middlemen or merchants where the interest ranged from 60 to 120% per annum. Only a small number of farmers claimed that getting out of debt had motivated them to grow second crops.

I hypothesize that the farmers, for the most part, will always be in debt. The problem, as I see it, is how to provide more government loans at 12% interest per annum in order to reduce the number of farmers dependent on loans bearing interest rates of 60-120%.

#### CONCLUSION

With the exception of one or two items of minor significance, I found nothing in Northeastern Thai culture that should inhibit the acceptance of dry season irrigated cultivation. All local deterrents were based on socio-economic factors, most of which were outside the farmer's sphere of influence or control. The primary deterrents to second cropping lie in the culture patterns of the administrators in Bangkok.

IV

VILLAGE LEADERSHIP

I have found that the village headman in villages of roughly 80 households or less reflects the degree of ambition of the villagers who elect him. When one finds an energetic headman, one finds the villagers are predominantly energetic. When one finds a quiet, introvert headman, the villagers are predominantly those who shun outside contacts and who wish to carry on in the traditional ways. In one village, for example, the head school teacher was castigating the headman as a lazy, good-for-nothing, gambler and claimed that the villagers had become gamblers and drinkers under the headman's influence. Further discussions with a few of the village elders, revealed that, on the contrary, villagers had always gambled and enjoyed themselves, and had elected the village headman primarily because he was one of them and would not interfere by trying to reform their ways.

In the larger more heterogenous villages the headman no longer reflect the village "modal personality" type, inasmuch as there are usually two or three different interest groups present. This is obviously true in cases where several villagers have been nominated as candidates for village headman. As so often happens, the elected village headman, represents a minority group within the total village

context and his duties become rather difficult to carry out. In one village in the Lampao area the vote for the three candidates in 1969 ran 58-49-39.<sup>(1)</sup> Since his assuming office, the headman claims that he has been able to obtain cooperation from only 40% of the villagers. The others continue to be a thorn in his side at all times. In this sense, the democratic principles do not function, in that the losing factions do not join in and back the winner, but regard him as a threat to their modus vivendi. Since he was not elected by their vote, why should they cooperate? Many will even suspect him of having bought votes.

(1) The speech of this Village Headman after the results of the elections were made known to all the voters -

Ladies and gentlemen:

I wish to thank you for stopping work and coming to the polls today. I never dreamed at all that there would be anyone to nominate me as a candidate for the elections. When the results came out like this, I could not help but be thankful to all of you for having such trust in me, and faith that I would carry out the good office of village headman. On being elected headman, my duty is not to look after each of your private households of this village. So, I would be most grateful if each and everyone would listen and respect my humble request to you to work together for the good and welfare of the village as a whole. If ever I should ask you to do anything that will bring both progress and happiness to the village, I request all of you to give me your full cooperation. If you fail to cooperate and will not listen to my request, then what is the use of your having elected me to look after your welfare? I am very glad that you have attended the polls and elected me to this important and honorable position for which I can only appreciate from the depth of my heart. Now, I wish to extend an invitation to all of you, the voters, the officials who comprised the committee to supervise the election, and all the other witnesses of this election, to a party to commemorate this auspicious occasion and to honor me. Come to my house now, and once again, my warmest thanks to you all.

Many village headmen will confess that they dislike their role but fear losing face should they resign. In the old days, they say, life was simple and responsibilities few. Today, life is so complex and responsibilities so many that one must neglect one's family and the rice fields. "The village headman is like a meat chopping block. Everyone takes a chop at him, the villagers as well as the government officials." At the monthly district meetings, he must make donations for this and that, in order to set a good example for the villagers. Each time the headman fails to bring about a settlement between two disputing villagers, and must refer the problem to the Kamnan, he loses face. As Chairman of the various village committees, he must devote a good deal of his time persuading reluctant, disinterested villagers to donate funds or labor to the various government sponsored projects. The recent influx of extension-type workers and their many agriculture projects have become his bete-noire. Since he often eschews these awkward tasks, he claims that an outsider, an official, would receive more cooperation from villagers since all would feel obligated, or feel it their "duty" to comply with the requests or demands.

The elders of the village claim that in the old days there was no need for leadership, and the village headman did nothing because there was nothing to be done. Today, these same elders say, that not only is there a need for leadership so that the villagers can learn new and better ways of doing things, but that there are now so many things going on that the villages need several active leaders.

Not uncommon are personality clashes between the village headman and the abbot, and/or head school teacher, and/or village elders. This divides village loyalties and village cooperation is difficult, if not impossible. A Community Development worker caught in one of these village situations gave up after two months and was transferred to another village where a similar situation existed. He doesn't dare ask for a second transfer and after nine months there, admitted that he has been able to accomplish very little, inasmuch as the system requires him to work through the village headman.

One village headman claimed that an easy going village with a good leader and a good abbot will cooperate very well and have no problems carrying out government initiated projects. "On the other hand," he continued, "you take village X down the road. The farmers there are individualistic, independent, not afraid of the big towns, always willing to try something new. This type of village can never cooperate. They will always be fighting with one another. The village headman must be a dictator to control them and you don't find many dictator types among Thai villagers. I would not like to be in his place. I know of many villages where the headmen are very stubborn and do what they want. They rarely listen to the wishes of the villagers. There too, cooperation is not possible, because most of the villagers won't listen to him either." So far, second cropping has involved no cooperation, each farmer working independently on his own plot. Even in the ADB project (see chapter XIII), no cooperation is required now that agreement to consolidate and reapportion land has been reached.

The Kamnans (Tambon chiefs) are village headmen in essence, with a few more responsibilities, more prestige, though not always more respect. Kamnan have the honor of sitting in the front two rows at the monthly district office meeting. In recent years they have been required to hold monthly meetings of the village headman, though in practice, these meetings are called only if there is a matter of extreme urgency. They are administratively responsible for 6-12 villagers but, the respective headmen carry out all the duties.

Theoretically, village headmen should screen all business destined for the district office through the Kamnan. In practice and for reasons of expediency, the Kamnan is frequently by-passed. He functions primarily as an arbitrator when land and family disputes are beyond the effective counsel of the village headman. I have heard of several cases where the Kamnan has expressly failed in trying to solve a problem, and referred the case to the District Officer in order to save the face of the village headman.

No matter how displeased villagers may be with a village headman or Kamnan, no one would dare to organize the villagers to have him removed. They "krengcai".<sup>(1)</sup> They may ignore him and utilize the services of the respected elders for advice and help. In one of the larger villages visited, the farmers were quite out-spoken in their dislike of the village headman because of his inertia. Said one farmer, "we have no road, no electricity, no water, because he will

(1) This word has no English equivalent. It connotes a feeling of not wanting to embarrass or put into an awkward position, the other fellow.

not raise his voice at the meetings. He is of the old generation.. today, we need an educated younger man who is not afraid of government officials." The villagers were making life so miserable for this particular headman that he was considering resigning for reasons of "ill health". The head school teacher thought that to help him to save face the villagers would elect his son.

The abbot (Head monk) if respected, can exert a great deal of influence on villager behavior and industriousness. He is often called upon to sit in on village meetings to lend an aura of sanctity as well as to serve as an impartial witness to decisions made. The monks should be encouraged to do more preaching on the merits of second cropping, inasmuch as they will also benefit. As the abbot at Kutkwang said "more income for the farmers means better wat maintenance". What he was also thinking yet did not want to verbalize, was the fact that more income for the villager meant more employment of monks at household rituals, and thus more income for the monks, and inasmuch as a portion of all money earned by the monks is voluntarily turned over to the wat, this would mean more money for wat construction.

Unfortunately, most of the rural wats are lacking monks with leadership abilities or with the capability of playing an influential role in the mundane lives of the villagers. Villagers are not always loath to criticize a particular monk. One farmer kept villifying the head monk, for his unpriestly behavior, but would not dare to take it upon himself to report this to the proper authorities. He was

informing me in the hope that I, as a non-Buddhist westerner, would report his story to the proper authorities.

The school teacher commands a great deal of respect, and thus is in an excellent position to influence the villagers. This is even more so of the head school teacher who usually serves on most village committees. He assists the headman by taking notes, explaining matters to the villagers by recapitulation, and by going about from house to house soliciting funds.

In each village there are respected elders who serve as covert leaders. They are often more influential than the village headman and can, if they choose, make life very difficult for the latter. Their advice is often sought and heeded by the villagers.

In addition to the various village leaders, there are the village experts who are respected for their skills and called upon to serve when needed: cooks, carpenters, those able to recite the proper rituals for the various rites of passage, those skilled in cutting out or painting decorations for the various wat festivities.

V

VILLAGE ORGANIZATIONS

The various government sponsored village organization members are elected by a popular vote of the villagers. In most villages, however, organizations exist in name only. In others, they are only moderately active. Since all government agencies have recently been concentrating in the Nongwai and Lampao areas, the organizations in the villages involved in second cropping have been receiving attention and of these, the Village Development Committee (Kamakanmuban) has received the most.<sup>(1)</sup> The nine members had met eight times in 1970, and by June 1971, had met an additional six times. To be eligible for membership, the farmer must be "wat going", moral, show administrative ability, and must have displayed an interest in the welfare of the village.

All village organizations show a heavy duplication of membership. The village headman, his assistant, the head school teacher, and one or two elders (covert leaders) are usually serving on all committees. The few other members vary. Ingersoll has frequently

(1) Piker (see bibliography) in 1966 claimed that the Thai government does not, of its own accord, reach down to the people, but that the people must go to the government. We can see that there have been many changes over the past five years.

pointed out, that villagers do not like formal organizations and meetings, and that they prefer to talk about problems on a person to person basis. Free food and rice beer are excellent inducements for getting members to attend meetings, but they do little to change the attitudes of the members concerning the meeting procedures. (1)

Villagers watch the progress made by organizations in other villages. If they deem that they have been beneficial, they may notify the village headman who will try to organize such a group in his own village. This at least, was the more common procedure insofar as the Farmers' Association and Credit Cooperatives were concerned, inasmuch as both provided a means to obtaining needed capital. The Credit Cooperative is a tambon level organization and permission for a village to join must be obtained from the district officer. This has never been an obstacle. The Credit Cooperative village unit is comprised of five people only, and there is usually only one unit per village.

Nearly all members of the various mutually-responsible type credit cooperatives have become disillusioned with, and wish to resign from these organizations. Most farmers feel ill-at-ease at the idea of borrowing money for which others will be held responsible for repayment. By the same token, farmers strongly dislike being held responsible for the other man's debt. "We have no means of making him pay". "The poor fellow can't pay even though he would like to". "Farmer X's debt has been due for over ... years, and in the

(1) However, many headmen stated that they enjoyed informal and semi-formal meetings among their own, i.e. where social class and linguistic barriers were absent. (See p.124)

meantime none of us can get a loan".

In the Nongwai area, members of the Water Users' Association are drawn from six adjacent villages. The village headman or the head school teacher is usually elected president. His two deputies and two assistants are also elected. The four committee members from Kham Kaen Khun were appointed by the president. The other committee members, two from each of the other five villages, were selected by their respective village headman. Seventy percent of the potential water users are members. The other 30% "are waiting to see how things go". The primary purpose of the Association is to create a legal body responsible for maintaining the canal. Other services theoretically provided are fertilizers on credit and at reduced prices; selling paddy in bulk to government purchasing offices; providing loans to members.

Members complain that the supply of fertilizer is never sufficient and that the government purchasing office has never enough money to buy their rice. Also, before fertilizer is ordered, one must wait for a truckload of orders to make it worthwhile, resulting in long delays for the early orderers. Since the organization is not officially registered, loans are not yet available.

In the Lampao area, every village has its own Water Users' Association which is independently operated. The irrigation officials, as in the case of Nongwai, serve as coordinators and are each responsible for 2,000 rai. The initiation fee for membership here is 10 baht vs. 20 baht in Nongwai. These funds are deposited in a savings bank at 3 1/2% interest per annum and will be used for

loans to the members. Most villagers suspected that only a very small fraction of the 1,500 members would benefit by these loans.

As to be expected many quarrels have occurred in both areas over water distribution, e.g. the farmers upstream blocking off water from those downstream; diverting water when not one's turn; opening and closing gates at will, etc. When infraction of the rules have occurred, the Water Users' Association has been powerless to take disciplinary action. At meetings, all agree on actions to be taken but "nothing ever happens".

As in other irrigation areas of Thailand, water control has and will continue to be a problem. Until the farmer is convinced that there will be water enough for everyone and available when needed, there will continue to be pilfering. The fine in the Nongwai-Lampao areas though steep (1,000 baht) has not been a deterrent inasmuch as there has been no efficient system for its collection.

In addition to the stealing of water there are other water utilization problems, and the story can become quite complex. One of these complexities can best be illustrated by a case I witnessed in one of the villages in the Lampao area in early September 1970.

Farmer A allowed the water to pass through his rice fields to reach the adjacent fields of farmer B. When the water had reached the critical level farmer A requested farmer B to have the water turned off. Farmer B refused, saying that he needed more water since his fields were slightly higher than those of farmer A. Farmer B told farmer A to drain off his fields, but farmer C refused to allow

any water to enter his fields. Farmer A had to make a special trip to the Kamnan's office before any action was taken to shut off the water. That night, it rained heavily and farmer A's rice was drowned. He claimed that this would not have happened were it not for farmer B. Farmer B claimed that he could not be held responsible for the rains. As a result of the rains farmer C's fields were also flooded. He accused farmer A of surreptitiously draining water into his fields at night and planned to sue. To add to the complexity, farmer A and farmer B are from different villages and from different tambons. The case was still pending at the district office in January of 1971.

The government officials, in their efforts to have as many farmers join their respective organizations as possible in order to make a large showing on the records, paint exaggerated pictures of the benefits to be gained by the members. The farmers join and then rapidly become disillusioned. The connotation of the words, committee, organization, association, when sponsored by the government, has left a bad taste in many a farmer's mouth.

The Village Health Committee is comprised of ten members, but activities are minimal. If there should be a latrine program, they would try to encourage the villagers to buy the materials and install them.

A few villages have a Youth Club under the auspices of the Department of Local Administration. The ten members are supposed to organize other groups of youths in the village, but project funds have never been adequate. The club's function is to teach manners,

morals, skills and animal husbandry. Meetings are theoretically, held once a month.

A few villages have a Women's Club where the women are taught weaving, sewing, cooking and nutrition. Each club had roughly 20 members. All women interviewed said that they had joined because they wanted to learn to sew. They already knew how to weave and cook, and as to nutrition "only the rich can afford to follow the advice".

Some villages have organized their own Women's Committee with a chief elected by the village women. Her responsibility is to organize the villagers to prepare food for the various wat festivals held throughout the year.

The Wat committee has been in existence for decades. Elder villagers, those who have served as monks themselves and are respected because they attend the wat on holy days and have shown interest in wat functions, are the ones elected to serve. They are usually in their late 50's or older. Women may also serve on the committee.

Each village has a school committee whose primary function is the raising of funds for school maintenance.

Most villages have Mutual Aid Groups (6-10 members) which organize and contribute labor for such functions as, house building, weddings, cremations, harvesting, and transplanting. However, the age-old custom of reciprocal help is gradually being replaced by wage labor, this is especially true in the case of plowing, transplanting and harvesting.

Every village has a one or two man Village Spirit Committee which is responsible for placating and paying homage to the village spirits, two or three times each year.

VI

VILLAGER AWARENESS OF PROBLEMS AND THEIR ATTEMPTS TO SOLVE  
THESE PROBLEMS THROUGH VILLAGE WELFARE COMMITTEE DISCUSSIONS

- Q. "Do you think that the farmers could do something for themselves in terms of self-help projects in order to cope with the felt-needs they have expressed and about which so much has been written?"
- A. In April, 1970, a Village Development Committee, comprised of some 20 members, met with the village headman and two C.D. workers at the Wat Sala. The purpose of this meeting was to discuss both village problems and the means of solving these problems. The farmers were divided into two groups of 10 men each and given 30 minutes to come up with what they considered a village problem of first priority. They were also asked to state the cause of the problem. Thirdly, they were to tell whether or not they could do anything on their own to solve the problem and if not, why not. They were then to offer one or two alternative solutions. Each group was to elect a group leader to chair the discussions. The village headman, his assistant, and the head school teacher, were asked not to participate in the individual group discussions but, to sit on the discussion panel.
- Group One offered as their first priority problem -- water. Their

spokesman outlined on the blackboard the following: We can do nothing about this situation because:

1. We lack the knowledge necessary to determine where to start digging a well.
2. Even if we were lucky enough to find water, we lack the knowledge necessary to determine the quantity and quality of stone and sand, and the size of the concrete sidings that would need to be placed in the well.
3. We lack the necessary knowledge of how to build a sanitary well.

Community Development Leader: "You have a dam near the swamp. How would you fix it -- with mud or concrete?"

Spokesman: "Concrete is stronger and lasts longer. But we don't know how to build a concrete dam. More important, we don't have the money."

Leader: "Concerning the concrete, you claim ignorance. I believe you know something about concrete. You have built concrete house posts and concrete floors. You really are ignorant only of the details.

Do you think you know how to cooperate with each other and not quarrel?"

Spokesman: "Yes, we can cooperate, but not very well."

Leader: "Do you not feel that this is your most important problem then?"

Spokesman: "No! It is of no use to cooperate if we do not have the tools or techniques. We need technicians such as yourself to help us. We need loans to purchase the needed materials."

Leader: "These are solutions and should be written on the blackboard."

The spokesman writes:

- Solutions:
1. Obtain credit.
  2. Seek technical help through the Village Headman.
  3. Seek better cooperation among villagers.

Leader: "Very good. Now let's hear from group two, please."

The spokesman from group II goes to the second blackboard and writes:

Problem: The dam is broken causing a shortage of water and much hardship to the villagers.

- Cause:
1. Lack of proper maintenance.
  2. Lack of knowledge how to repair dam.
  3. Lack of sufficient funds to repair dam.
  4. Lack of cooperation among the farmer.

Leader: "Was No. 4, your idea or did you get this from my talking with group one?"

Spokesman (smiling): "I heard you talking."

Leader: "Very good, at least you learn very quickly."

Solution:

1. Ask village headman to organize meeting with technicians and listen to their advice.
2. Try to raise funds in village.
3. Try to get loan from government.
4. Cooperate on labor needed.

COMMENTS

We see from the above that the villagers are capable of not only

verbalizing their problems, but are capable of organizing steps for the solution of these problems. What is important here, is that there is actually a sincere desire and willingness on the part of the villagers to solve their own problems. They realize their limitations, namely, technical know-how and funds. The only other problem that has become apparent is that of difficulty in obtaining village cooperation. The farmer is still an individualist who looks after his own. If the well or dam are not to his advantage, he is not interested nor willing to provide either funds or his labor. During the few days prior to a Wat festival one can see coordinated activities throughout the village. The merit gained is the motivating force and all are anxious to gain some.

Cooperation between good friends, the farmers will tell you, is not possible. There are constant and often quite heated arguments over pump use, water rights of way, utilization of a jointly rented tractor. In this last case, farmer A refused to share diesel oil costs with his friend farmer B, because the latter's house was a few hundred yards further from the fields than his own. Farmer B claimed that farmer A allowed his son to operate the tractor and that if any damage resulted, he would not share in repair expenses. Each suspected the other of renting out the tractor. The situation became so involved, that both farmers decided to give up the tractor, go back to utilizing their buffalo, and to resume their old friendship.

Farmers who claim that cooperation is only possible between close relatives, admit that even here problems would arise for both

cooperative pump utilization and land consolidation projects inasmuch as the plots of closely related farmers are rarely in contiguous areas.

VII

VILLAGER ATTITUDES CONCERNING PROGRESS AND INNOVATION

Q. "We often read that a people steeped in tradition are very reluctant to change their ways and to adopt new methods. What would you say were the attitudes of the Thai farmers concerning innovation, especially in the context of progress?"

A. Nearly everyone interviewed claimed that life today is better than it was 20 years ago. A few of the elders prefer the good old days when five satang bought a day's supply of needed items; when the woods were full of animals and roots for the hunting and digging; when children respected and obeyed their elders; when nearly everything one needed was available within a few kilometers of one's home.

Most elders however, prefer conditions as they are today, stating that in the old days: one couldn't leave the village in the rainy season; if a child fell ill, the chances of it living were slight; that if one were thirsty and though he had 100 satangs, he couldn't find water to buy. "Yes, the children today are not as well behaved and don't respect their elders,<sup>(1)</sup> but why should they, since they know so much more than their elders. They can read and write. They are not afraid to travel. They can go off and earn money to support

(1) One elder related that when you tell a child today to behave or the tiger will come and eat him, the child replies, "show me the tiger".

their parents."

For the villagers, a clinic, a laterite road, a latrine, a cement water storage tank, the canal, a brick house, a corrugated iron roof, western drugs, the transistorized radio -- all are welcomed symbols of progress.<sup>(1)</sup> Today the hopes of many villagers is to have electricity and for the 20-30 age group, a T.V. set and/or a motorcycle. These too, are symbols of progress. Villagers are sold on the idea of progress. Each time that a government official introduces a new program to a village, the speech is replete with the term "progress" (kwamcharoen). "To have cash available is progress", "to be out of debt is progress", "to put money in a savings account is progress", "to have water flowing by the fields all year round is progress", "to be able to hire out for wages is progress".<sup>(2)</sup> In the minds of the young, tradition is for the elders, progress is for themselves. For the elders, tradition is foremost, and though they accept the benefits of progress, these are primarily for their children. The elders say that they can take it or leave it.

However, for all villagers, money serves both purposes. With money one can purchase the things which symbolize progress. With money one can also purchase or acquire the symbols of tradition viz: an elaborate

- (1) A few years ago a cement latrine was THE symbol of progress and prestige. Today it is the cylindrical cement water storage tank. The higher the tank or the more tanks one has, the more prestige.
- (2) The old system of reciprocal farm labor is rapidly disappearing. In the Lampao-Nongwai areas, over 70% of the farmers hire some labor for either plowing, transplanting and harvesting.

cremation, ordination or wedding; greater merit through larger donations for wat maintenance and larger donations to the monks; bus or train tickets for visits to the holy shrines,<sup>(1)</sup> or to visit relatives in other provinces during the various life cycle rituals.

The canal is considered a key to money, either through hiring out for construction or maintenance, or by utilizing the water for either supplementing insufficient rain water or for growing cash crops in the dry season. This is the consensus of everyone, regardless of whether he himself has been able to use the water or not.

A higher education is also progress and a key to money. But farmers believe that very few have the mental capacity, and that even fewer have the money to provide for their children's higher education.

Two village headmen asked my associate to teach them how to set up an efficient record book for keeping vital and other village statistics. For them, an up-to-date method of record keeping showed progress. It also manifested a desire for innovation.

In June 1970 a prostitute from Udorn returned to her village (in the Nongwai area) to marry the head school teacher - a recent widower. She brought with her a small philco refrigerator, a fan, a T.V. set, an Am-Fm console model radio. She purchased a generator, strung up a few lights, and set up a coffee-whiskey shop. The villagers gather at her shop every night. Upon my last visit, in early 1971, she had started a small beauty salon. Village girls can now be seen going about their chores with hair curlers, painted finger and toe nails --

(1) One group of successful second croppers chartered a bus in March 1971 and took their families on a two day visit to a famous Buddhist shrine in Nakorn Phanom.

and that's progress? I prefer not to mention what the moral of this story is, but innovation of this type is not only readily accepted (even by many of the elders) it is eagerly sought.

Agricultural innovation would be as readily accepted if the farmer could see a monetary gain. Most farmers, when they can afford it, are eager to employ insecticides, fertilizers, improved seeds. They are prepared to plant a completely new type of crop, employing new farming techniques. In the Lampao second crop area most of the farmers were employing insecticides and chemical fertilizer. In the Nongwai area, very few farmers could afford fertilizer. Those who were employing fertilizer, were doing so sparingly because most were renting land and didn't want to improve the other man's soil. Some were saving the government-provided fertilizers for their own rice fields.

The farmer is cautious not fearful, of innovation. Let us consider the case of farmer Black. He has earned 500 baht from the sale of his rice crop. He is advised by the extension worker that if he invests 150 baht of his money on insecticide and fertilizer, he will be able to increase his yield by 50%. Farmer Black must then invest 30% of his total cash resources on a venture not knowing whether water will be available or whether he will be able to sell his crops at a profit. As he himself would say, "better a small fish on the hook, than a hundred big ones in the pond". Or as we would say, "better 4 1/2% from the bank, than 50% with Alaska Oil Exploration".

Farmers are price responsive. One must recall that without any government coaxing or prodding though strongly urged by private enter-

prise, thousands of farmers gave up upland rice farming to concentrate solely on kenaf, while thousands of others switched to kenaf on half of their fields. The story of corn, is a similar one, though not as pervasive. The farmer merely wants to see someone else take the risk first, and if the other farmer is successful, the wait-and-see-first farmer will be there next season doing the very same thing.<sup>(1)</sup> It must be noted that the best extension worker is the successful farmer. The innovator would like some guarantee that should his crops fail, or sell at a low price, the government will reimburse him for his losses. But, if he has some capital and feels that it is his duty to do as his government wishes, there are ample examples wherein he has invested his own money. Most farmers of course, need the capital to start innovating. But just as important as capital, is continued on-the-spot guidance by competent extension workers.

As one extension officer commented, "the first two years we had a very difficult time getting more than a few (the well-to-do) farmers to try the new methods. We bribed them with drinks and food, and promised we'd pay them from our own pocket if they lost money - we didn't really plan to do this, but we were desperate and needed to turn in a good report to Bangkok. This year (the third year) we have had more requests for advice and help than we can begin to handle... this office could use five more men... more equipment.. etc."

Farmers are beginning to realize that Chinese rice consistently

(1) In 1967 in the Huajsithon area only 30 rai were devoted to second cropping. In 1969 the number of rai had jumped to 180; in 1970 300.

brings a better price than glutinous rice<sup>(1)</sup> and many are planning to increase their usual ratio of rai planted from 1:20, to 5:20. Some said that they would like to grow more Chinese rice but, their parents-in-law were not willing. Those who object to this shift claim that if everyone were to grow the Chinese variety, there would be no one from whom the farmers could purchase their staple rice. They also reasoned that should everyone increase their production of Chinese rice, the price would drop below that of glutinous rice. Others claimed that the per rai yield of Chinese rice was not as good as that of the glutinous variety.

#### MECHANIZATION

##### Tractors

There has been a perceptible increase in the number of farmers hiring tractors. In 1970, during the months of February through May, two tractors were being rented on a 24 hour a day basis by villagers with land along the Friendship Highway from Khon Kaen to Nampong. In 1971, three tractors were fully employed along this same stretch of road. The tractors (belonging to a wealthy farmer from tambon Samlawn) were renting for 40 baht a rai. The owner had bought the tractors for 100,000 baht each. However, he paid 100,000 baht down and will be paying 15,000 baht a month for a two year period, thus bringing the actual cost to 460,000 baht. He claimed that the demand is such, that he could use three more tractors full time. He has had requests from

(1) In March 1970 glutinous rice and Chinese rice were selling for 65 and 90 satang a kilo respectively. In March 1971 glutinous rice and Chinese rice were selling for 45 and 65 satang a kilo, respectively.

over 2,000 farmers but, can provide services for only half this number. He employs nine drivers (each working an eight-hour shift) at 500 baht a month plus food and lodging. To rent a buffalo for the rice season costs the farmer about 35 baht a rai. The tractor does a more thorough, quicker job. Farmers are beginning to realize this and are coming to him from as far as Banphai to the south, and Chumphae to the west. Some farmers were employing his services for plowing fields for a second rice crop, and for plowing weeds under prior to the rainy season.

Since tractors (not bulldozers) charge much higher rates for plowing fields in which there are stumps, several of the wealthier farmers had planned to hire a bulldozer to level their fields to remove all stumps and ant-hills. Some didn't know how to procure one, others claimed there weren't enough for private hire.

#### Pumps

This year, the village headmen at all six villages had received several requests from villagers for assistance in buying pumps. The various credit cooperatives, according to the officials, had also received a proportionately higher number of requests for loans for the purpose of buying pumps. All of these requests were from farmers (with over 30 rai of land on the right bank of the canal) who were planning to use the pump primarily as a hedge against drought. Pump operations are considered too costly to make it worthwhile for second cropping. On the other hand, in Bansila, a canal village which is gradually changing from rice to vegetable cultivation, one out of

every three farmers owns and operates a pump.

### Fertilizers

With the exception of farmers on relatively good soil, all believed in the efficacy of fertilizers. The impediments to universal adoption are: The price and no capital for purchasing it; misuse, resulting in burning out of crops; using too sparingly so that they serve little purpose.

### Insecticides

Most farmers believed in the efficacy of insecticides. However, they are employed as a curative rather than a preventive.

### BIRTH CONTROL

- Q. "Your speaking of the farmer's ready acceptance of innovation, brings to mind another question. As you know, the food problem in Thailand combined with the anticipated increase in birth rate is expected to become a very serious one towards the end of the century. Do you feel that an immediate nationwide program of birth control would have any success in Thailand?"
- A. One often hears about the tremendous population explosion resulting in there being food enough to feed only half the population of Thailand by the year 2000. One is constantly reminded of the Malthusian law concerning the geometric growth of population and the arithmetic growth of food production. I personally am not so concerned as most and would formulate the Malthusian hypothesis in reverse. The new strains of seed, the eventual universal application of soil enriching fertilizers, the mechanization of farming combined with irrigation and double cropping, and the change from extensive to intensive farming,

not to mention the advances being made in synthetic foods, all these in combination, without a doubt, will result in perhaps a 300 to 400 percent increase in per hectare production, and this I predict within the next decade or two. If the present rate of population growth for Thailand is now 3.5% it would take another 80 years for population to exceed food production. Thus, the Malthusian theory must be re-evaluated in terms of modern agricultural science. Furthermore, I predict that the population growth rate in Thailand will drop to 2% by the end of the present decade. In all of the 20 or more villages which I visited during these past 18 months, I ended my interviews with the following questions:<sup>(1)</sup>

1. How many people in this village are practicing birth control?
2. How many would like to at this time but, are not?
3. Why aren't they?

Let me summarize my findings:

1. Over 15% (30% in several villages) of the women (ages 25-40) were practicing one form of birth control or another.
2. Of the remaining 85%, eight out of ten wanted birth control but were deterred by either lack of money or fear of the operation.<sup>(2)</sup> Their fears, in many cases, are valid. In others, they are based on mere rumor and superstition. A few women had heard stories of women hemorrhaging and dying as a result of the "ring" (diaphragm). These stories circulate

- (1) The questions were addressed to groups as well as individuals.
- (2) It is interesting to note that Ingersoll as recently as 1969 states (p.98 (S.F.)) that the villagers do not regard high birth rate as a problem, and that (p.228) they do not regard population control as being within their control.

rapidly and widely. The men were replete with stories of wives becoming quite promiscuous after their operations. This could well be, since the fear of becoming pregnant has kept many a village woman faithful.

The cost problem is not a realistic one. The cost of a hysterectomy is 500 baht; an ovcetomy 300 baht; the insertion of the "ring" 20 baht. Many had been told that the cost of this last was in the 100's of baht. The pills are only 60 baht for a one year's supply but usually not available locally. The coil is not available, unfortunately.

Many women who had tried the "ring" complained of frequent pain and bleeding. The doctors at the provincial hospitals claimed that this was due in part to faulty insertion on the part of the district clinic personnel and small private practitioners. On the other hand, the patients frequently do not bother to return for the needed periodic adjustment.

The Queen's mobile unit offers, among other various medical services, advice on, and supplies for, birth control. Whenever the unit appears at an ampoe seat, hundreds of villagers show up solely for the information and supplies. Many pay 5 baht for one month's supply of birth control pills, 70 baht for an injection that is alleged to prevent conception for a three month period, 10 baht for a month's supply of vaginal cream. Many ask for the "ring" for which they are instructed to go to the nearest hospital.

Condoms are expensive and farmers claimed that they are painful for the women. The men were unanimously opposed to having a vasectomy. Though this is a simple 20 minute operation and costs only 150 baht, the

village male ego would not hear of it. The primary reason was the belief that the operation would result in a loss of sexual drive and a loss of one's virility. A common response was: A man in another village (it is always the other village) who had had the operation, was able to have an erection but once a year. Many believe that the operation results in a serious loss of strength, so that one would have to hire labor to plow, transplant and harvest the rice. Several men claimed that they were true patriots and wanted to produce sons for their country.

The villagers have learned about birth control through the government radio announcements. If these were followed through, not by literature, which most farmers cannot read nor comprehend, but by mobile units with competent medical staff, I believe that within the next five years, over 90% of the women with four or more children, and over 75% of the women with three children, would be practicing birth control.<sup>(1)</sup> I do not believe, however, that village men will change their attitudes concerning the vasectomy.

#### CONCLUDING REMARKS

As to be expected, the elders are reluctant though not adamant about changing their ways. The young farmers are anxious for change. Many stated that as soon as they became the head of the household they would try this and that innovation, which now they were not permitted to do. The young and middle aged groups welcomed the opportun-

(1) Based on responses from women with two, three and four children only. Women with five children were 100% for birth control. Women with two children were 20% in favour.

ity to employ new techniques and commodities if they resulted in an increase in income. Their reluctance to accept innovation in the field of public health and sanitation is based not so much upon ignorance and tradition as upon economic factors: Few can afford a cement slab latrine; few can afford to purchase the charcoal needed to follow the recommendation of boiling one's drinking water. For similar reasons, few can afford fertilizers and insecticides.

The farmer is cautious, not fearful of innovation. Agricultural innovation is highly correlated with the amount of funds a farmer possesses and is willing to risk, and/or with the amount of funds or commodities the government is willing to provide the farmer. If failure is the result of nature or the farmer's error, these are no impediments to the acceptance of innovation. This is not so when failure is due to mis-information and neglect on the part of the extension worker.

Time is needed for the innovation plant to take roots. One must not forget that the now successful project at Chainat was started in 1957; that a decade later, the farmers had still not dug all of the required ditches; that by 1968 only 4% of the potential irrigable land was being utilized for second cropping.

VIII

THE ACCELERATED RURAL DEVELOPMENT ROAD PROGRAM

- Q. "You mentioned in your interim report that the Accelerated Rural Development road program was having a greater impact on changing customs and social values than the Nongwai and Lampao irrigation canal systems. Would you care to elaborate on this?"
- A. It is pre-mature to measure with any reliability, the extent to which the irrigation canals are serving as a catalyst for significant changes in customs and social values. I observed, however, several changing phenomena. A larger percentage of the young are gainfully employed today than was the case five years ago. They have steady employment on canal construction, for which they receive 300-400 baht each month (depending on the amount of overtime). Many are able to work, during the dry season, on canal maintenance for which they also receive approximately 300-400 baht per month. For the farmer, this is a great deal of money, the equivalent to the profits made from the sale of 70-80 tang of rice -- or the six months labor demanded for cultivating three rai of paddy in 1970. In terms of this year's government increase in wages from 12 to 22 baht per day for unskilled labor, monthly wages will be the equivalent to the labor required for

raising over five rai of paddy. Naturally, this source of income will dry up when canal construction is terminated in 1973. Maintenance jobs will continue but will employ only a relatively few persons.

During construction, the villages along the canal came into close contact with officials, engineers, surveyors, police, as well as with persons from other villages. The workers and officials frequently ate, and purchased articles in the villages closest to where they were working. These extended contacts did much to calm some of the fears villagers held towards strangers of Thai ethnic stock.<sup>(1)</sup>

Income from canal irrigated second cropping has not been significantly sufficient to bring about many social changes, since the numbers of farmers involved (to date) in second cropping is only a fraction of 1% of the potential benefactors once the canal is finished. Land values along the canal have increased over ten-fold. But this, again, will have little economic effect in the near future inasmuch as only a few canal-side plots have been sold, and nearly all farmers interviewed were planning to hold on to the land in order to turn it over to their progeny in the distant future.<sup>(2)</sup>

- (1) Strangers of western extraction appear not to arouse these fears, since villagers realise that they have not come to rob (they are already rich), nor report on illegal making of rice beer to the authorities, nor threaten nor steal their daughters. The villagers also believe that the presence of a foreigner may well result in the eventual appearance of a road, well, clinic, etc.
- (2) Since 1967 only 185 rai of canal-side land has been sold in the Nongwai area: only 343 rai in the Lampao area. 95% of the land had been sold to farmers from the immediate area, and of this, 90% to farmers in the same village.

Psychologically speaking, the canal has had a tremendous positive impact, not only on the villagers whose land is near the canal, but also on those villagers who use the water for bathing, drinking, etc. (See canals, p. 96 )

#### THE ARD ROADS

I had occasion to visit many villages six to ten kilometers off the beaten track - villages which I would normally not have visited were it not for the recently-built laterite roads leading to them. These roads have definitely brought about changes in the socio-economic lives of the villagers -- and all within a relatively short period of time.

1. Villagers, who only a few years ago travelled to the district seat or provincial capital town once or twice a year, are now shopping once and twice a month at these markets. <sup>(1)</sup>
2. The frequent exposure to larger towns has resulted in a rapid increase in "rising expectations" as villagers window-shop in stores filled with radios, T.V. sets, tape recorders, motor-cycles, etc.
3. Some villagers are now taking their meagre surplus produce to towns and marketing it themselves. Thus, by eliminating the middleman, they are getting a slightly better price. <sup>(2)</sup>

However, as one lady commented "Even if the price were the same, I would still go. I enjoy the outing, the news and gossip at

- (1) Long et al report (see bibliography) states that 74% had never been outside the ampee. My data for 1970 shows 20%, most of whom were over 60 years of age.
- (2) Though there has been much talk by agricultural economists for the need of all-weather roads, they overlook the fact that over 90% of all crops are sold during the dry season.

the market." And, when she returns to the village, she enjoys the group that gathers at her house in the evening to listen to her news.

4. "We felt isolated and stranded (kawawn kawai) especially in the rainy season", said one headman. "Now it is as though a door has been opened and we can leave our house at any time and take a ride to civilization."
  5. Villagers, who had never used western medicines or visited a government clinic, are beginning to do so.
  6. Merchants, who rarely came to these villages, are now coming daily, buying the villagers' produce as well as selling them articles brought from the provincial towns of Khon Kaen, Kalasin, and Udorn.
  7. With the many itinerant merchants peddling radios, many villagers have begun to look upon the radio as a necessity, rather than a luxury.<sup>(1)</sup> I recall a young girl who had departed for the fields to transplant rice. Ten minutes later she returned on the run. She had forgotten to take along her transistor radio. Her father commented that she could never go to work without it.
  8. Several merchants in the district seats claimed that the ARD roads have increased their business ten-fold.
  9. In one village (15 kilometers from the Chumphae-Khon Kaen highway, a truck would arrive once a month in the dry season to pick
- (1) In the Long et al report 1963 (see bibliography) he states that radios were owned by 14% of the farmers. My 1970 data shows 85%.

up kenaf. That was two years ago. The ARD road was completed in early 1970 and now, there is minibus service to and from Khon Kaen four times daily. In addition, one of the villagers has bought a large delapidated bus and derives a modest income carrying passengers and produce to Khon Kaen, or Chumphae.

10. The appearance of a government official in these remote villages, was once a rare occurrence. Now, they are arriving at the rate of one and two a month. I refer here to extension workers, community development workers, mobile health units, district and provincial officials on inspection tours, and even Bangkok officials. One village elder told us that "a high level government official had come to his village last month and had behaved very nicely. He wasn't at all "beng" (snobbish).
11. Access to villages and the resultant visits of government officials means to the villagers that "progress" has or will soon arrive. "Progress" in the form of wells, latrines, improved seeds, technological advice. As one school teacher stated, "The villagers here, now believe that the government has finally shown an interest in them. The officials now know that our village exists."
12. The wats in these villages, so long neglected because of village poverty, are having a new birth. In many of these remote villages, the yearly Thawd kathin festival is being sponsored by wealthy merchants from Khon Kaen and Kalasin which results in

thousands of baht in contributions for wat maintenance. Not only that, but many more villagers from other villages will be able to attend, since minibus service is available. Each attendant, means that much more in donations.

13. Greater income and greater access to wats combine to mean more merit making possibilities for the villagers, thus increasing their chances of a better life in their next reincarnation.
14. The larger wat festivals are not only bringing in people from much greater distances but also a greater variety of people. The choice of spouse, once restricted (generally speaking) to persons in neighboring villages, has been widened to other districts, even other provinces. Marriages between village girls and soldiers, policemen and Chinese merchants is no longer a rare occurrence, and whereas only a few years ago, Phu-Thai villagers in Kuchinarai and Sahatsaikan districts married only Phu-Thai, today, they are marrying with Thai-Lao. Thus, it can be said that the ARD roads are serving as a catalyst for the breaking down of ethnic barriers.
15. With increased wealth for the wat, better educated monks are no longer loath to spending a lenten period in these remote villages, resulting in more families encouraging their children to become novices in order that they may study with the more learned monks.

COMMENT

One can thus see from the above, that up until now, at least, the impact of the ARD road program is having a much greater impact on the socio-economic life of the villagers than are the canals. (1)

Unfortunately, there is always the other side of the coin.

1. ARD roads have increased C.T. infiltration and bandrity.
  2. In the dry season, the villagers' roadside home as well as his person are covered with red dust churned by the vehicles. Now, the farmer is asking to have the road within the village limits paved. In many areas, this is being done.
  3. Easy access to town is resulting in more frequent teacher absenteeism.
  4. Easy access to town is resulting in the younger members of the household frequently running off, thus shirking their respective duties in the home and farm, much to the consternation of the parents.
  5. Farmers are beginning to change their borrowing patterns. Instead of borrowing cash from wealthy villagers for the purchase of needed commodities, the farmers are purchasing these items on credit at district stores. There is the tendency to buy "a little more than one needs".
  6. Access to towns with their displays of luxury items is resulting in farmers' increased frustration and discontent with their
- (1) Culture changes are occurring even more rapidly among villagers living on the government-built highways, e.g. "Friendship Highway", etc.

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present economic lot. Some readers would place this item, and perhaps No. 5 above, in the list of positive attributes. Please, be my guest.

I.

POTENTIAL IRRIGATION PROJECT WINNERS

THE SECOND CROPPERS

- Q. "Concerning the many villages along the canal in the Nongwai and Lampao areas, we know that it would be unrealistic to expect at this time a 50% or higher farmer turn-out for second cropping, but can you give any explanation as to why the turn-out has been so small (less than .005%) after three years of available water?"
- A. 1. First of all let me say that visitors to these two areas see mile after mile of canals most of which contain some water, and naturally wonder why the fields are idle. A part of the answer is quite simple. Water can be seen, but no outlets have yet been constructed in most of these areas. Water is kept in the canal at a low level to balance the pressure and thus to help preserve the concrete sidings. As of June 1971 water had been provided to only a half dozen or so of the hundreds of villages which will receive water once construction of the two canals has been completed.<sup>(1)</sup>
- (1) Due to the original design, much of the canal even when completed will not be able to supply water to adjacent fields since it lies beneath the field surface level. (See p.159)

2. Most farmers do not own land near the canal and have shown little interest in the second crop projects. It must also be noted that most farmers are reluctant to improve another man's land (employing fertilizers) at the expense of neglecting their own.
  3. The farmer's fear that on rented or borrowed land, the land owners will destroy the crop if it is not harvested by the time they need to plow.
  4. Farmers with land along the canal who had considered pumping or bucketing water for second cropping, learned after the first two years that the water flow was erratic, unpredictable and were thus deterred from risking a second crop the following years.
  5. The increased number (compared with the rainy season) of insects, birds and rodents, and the lack of funds to purchase the needed insecticides and pesticides.
  6. The long periods of time that someone is required to remain at the field to protect the crops from damage, because buffalo are permitted to roam freely and thereby a constant hazard to the crops. <sup>(1)</sup>
  7. Promotions are made in Bangkok. Thus, there is little incentive for the almost forgotten extension-type worker to knock himself out to improve the lot of the farmers. If supplies, funds and
- (1) The buffalo in addition to its economic value, is to the Thai farmer as the dog is to the westerner. He is a pet, he has a personality, he is given a name, and is loved by all members of the household. The family would sell it, only if it were desperately in need of money. This means that free grazing will still present a hazard to dry season cropping for sometime after mechanized farming has become a common practice.

personnel are inadequate, it is the fault of the Bangkok office, and Mr X in Khon Kaen or Kalasin is not about to jeopardize his chances of promotion or transfer to a better locality by rocking the boat with letters of complaint. Consequently, he avoids, whenever possible, returning to the same village under such circumstances inasmuch as he is embarrassed and at a loss as to how to explain the situation to the farmers. In the many areas where the extension worker cannot visit and cannot provide the advice and needed inputs on a free or credit basis, the farmer who has neither sufficient capital nor the means of obtaining it at reasonable rates of interest is reluctant to waste his energies on a second crop venture needing new farming techniques, and for which the outcome is so nebulous.

8. The farmers' inexperience in the use of irrigated second cropping combined with a lack of constant on-the-spot supervision and guidance during the first two years, resulted in only a poor to moderate harvest, thus discouraging others from starting in the third year 1971. "Last year, the extension workers told us to go ahead and grow new varieties of vegetables but, then they left and never returned to show us how".
9. The financial inability of the farmer to purchase the necessary tools and agricultural inputs, combined with his fear of borrowing money at high interest rates for a venture for which success is so uncertain, has been an important deterrent against second cropping. The failure in Kham Kaen Khun, in 1971, was primarily

due to the farmers not utilizing fertilizers, since they could not afford to.

10. The very poor cannot afford to wait several months for the income derived from second cropping, but must fish, weave, and collect forest products to bring in more immediate remuneration.
  11. Some of the wealthy farmers who own land on the canal are happy with the status quo and are not willing to lend or rent out their land. According to several elders with whom I spoke, the reason for this was simply that they do not want to see others become rich and thereby threaten their status.<sup>(1)</sup> The rich will usually not charge the first year for use of their land. However, if they see a farmer earning good money, the following year they may charge 40-50% rent; they may encourage their close relatives to farm it; they may even farm it themselves. A wealthy farmer is held in high esteem and has status. Should others become rich, he would lose some of these attributes and so he zealously guards them.
  12. In the Lampao area, several well-to-do farmers claimed that the more money they made or the more rice they grew, the more problems they met. Relatives felt more at ease in asking for money and less guilty about not returning it. Insurgents learned about it and raided the rice bins. Thus, why bother to increase one's output by second cropping? Fifty percent of the sons-in-law interviewed
- (1) Some, inasmuch as fertilizer improves the soil, allow the farmers to use their land free of charge. Others, charge 50-100 baht a rai, depending on the potential profit of the crop grown.

claimed that dry season crop money went into the pocket of their in-laws, so why bother? Twenty-five percent claimed that they split profits with their in-laws. The remainder were allowed to keep the money themselves.

13. Only two or three farmers in the Nongwai area have managed to sell their produce in Khon Kaen, since the nearer villages of Bansila and Nonghin are the primary suppliers, and have the advantage of available bus service in the early hours of the morning. By the time the villagers from Nongwai arrive, the demand has dropped and the prices offered for the late supplies are too low to make the trip a profitable one. The farmers in the upper Nongwai area must depend primarily on markets at Nongwai and Nampong where the demand is limited. When one day I asked a farmer working in the fields how his crops were coming along, he replied that he could better answer me when he had returned from the market.

Q. "From your observations and interviews, do you feel that the farmers will take to second cropping or do you think that they have been coerced and are merely complying or acquiescing in order to please the officials?"

A. If we can define second cropping as the utilization of water for growing crops during the dry season, then it can be said that nearly every farmer in the Nongwai-Lampao areas has been doing so for generations. These traditional second crop plots range in size from ½ ngan to 6 ngan with the mode at 1 ngan.<sup>(1)</sup> Cultivated areas near wells, ponds

- (1) Each household will plant four or five from the following list:
- |             |                |                 |                         |
|-------------|----------------|-----------------|-------------------------|
| 1. Onion    | 6. Cabbage     | 11. Bell-pepper | 16. Parsley             |
| 2. Garlic   | 7. Cauliflower | 12. Basil       | 17. Bonarista bean      |
| 3. Cucumber | 8. Cow-pea     | 13. Tobacco     | 18. Green or Mummy peas |

and swamps are larger than those for which water must be carried long distances. It is interesting to note that in the irrigated areas of Nongwai and Lampao, the plots average only 6 ngan per family. The primary reasons for these small areas are:

1. A conservative appraisal of the benefits of irrigation on the part of the farmers who feel that they should "try it small" and see what happens.
2. The lack of adequate market outlets.
3. A number of these farm families have children working on canal construction, canal maintenance or hiring out in other areas, and so are left with a minimum of able farm laborers.
4. In some cases, the size of the area has been determined by the amount of free seed, fertilizer, and insecticide provided by the government.
5. Many farmers feel that second cropping on a larger scale than two or three rai is economically dangerous. One village headman stated the problem as follows: "If everyone grew five rai of cucumbers, to whom would they sell? If everyone grew three rai of cucumbers and could sell them, they would get such a low price that they couldn't pay themselves back for the fertilizer used."

There is no doubt that during the first two years the officials did some coercing combined with proffering exaggerated promises of high market prices for harvested crops, and thus were able to sign on farmers for their various agricultural projects. The means, in this case,

(1) (Contd.)

- |                    |                 |                   |                  |
|--------------------|-----------------|-------------------|------------------|
| 4. White greens    | 9. Bird-chili   | 14. Corn or Maize | 19. Seneon grass |
| 5. Chinese mustard | 10. Spur-pepper | 15. Coriander     | 20. Melons       |

perhaps justified the end, since most farmers today regard irrigated second cropping as a good method of increasing one's income. These same farmers always qualified their enthusiasm with comments such as: "If one can depend upon there being water in the canal". "If we can obtain credit for fertilizer". "If one can obtain help (advice and material) from the government". "If the rats, birds and insects don't eat up the profits". "If we can sell our crops at a reasonable price". The small number of farmers (predominantly from the Nongwai area) who felt that second cropping was of little use, qualified their responses with similar comments but, couched in the negative: "There are no markets for the produce", etc.<sup>(1)</sup>

Three village headmen explained that in order to persuade the farmers to try second cropping, they concentrate on those farmers who have shown initiative in the past and who can afford to suffer a small loss should things not go well. The un-cooperative are left alone in the hope that when they see success they will be shamed into joining the group. Often, the wives are appealed to. "A wife will start nagging her husband saying, "farmer Black made so and so much money while you earned nothing". "Actually, the farmers would grow anything they are told to grow", said one of the elders, "if the government would merely guarantee to buy what they can't sell on the market." One village headman claimed "I can organize the villagers, that is not difficult but, who will organize the markets?"

(1) Farmers in the Lampao area were more positive and optimistic. The Kalasin and Yangtalad markets were demanding more than they could supply.

In 1970 the Consensus in the six villages as to the reasons for the dichotomy of interest concerning second cropping was: 10% are too lazy; 10% are too tired or too old; 20% would prefer to hire out (usually the 20-30 age group); the remaining 60% would prefer to grow second crop. In this last group, 70% would prefer to grow vegetables and 30% would prefer growing rice. In 1971, the consensus concerning those who preferred hiring out had risen to 30% in both areas due to the poor second crop showing the previous year, and to the government's hiring for work on the new Lamdamnoi canal project in Ubon province.

Nearly all of the farmers in the 35-50 age group would prefer second cropping to hiring out. They admit that the monthly salary is convenient, but second cropping allows them to be their own master and provides more free time. Canal workers put in a six-eight hour work day. Second cropping requires only two-three hours per day.

One out of five innovators in the irrigated second crop projects in both Lampao and Nongwai were diligent young farmers. Many of them, women. Half of the innovators were farmers anxious to make a good showing for the benefit of the village headman - farmers who, I might add, had ample lands and funds so that they could afford to take a loss. The remainder were farmers who felt it their duty (nâ-thî) to comply with the requests of the government project officials.

Farmers who had been taken on tours of other canal irrigation projects in Northern and central Thailand, returned with ambivalent feelings. On the one hand, they were excited and enthusiastic about the potential incomes to be derived from irrigated second cropping,

and on the other hand, they were disappointed that in their own area the government has not provided an efficient cooperative, intensive extension services, as well as a market outlet with good prices for their produce. It was common to hear, "in Chiangmai they have.... while here we just...." or "In Chainat they have... while here, there is nothing".

Though unsuccessful the first two years, most farmers claimed that they had learned from their mistakes and were willing to try again the third year.<sup>(1)</sup> Since the government had supplied most of the necessary inputs, all they had really lost was their labor. Besides, many had shown a relatively good profit on certain crops (cucumbers and eggplant) and this success had encouraged others to try again in 1971, and others to try for the first time. The number of farmers who second cropped in 1971 was double that of 1970.<sup>(2)</sup> From conversations with farmers in both Lampao and Nongwai in late June 1971, I predict that this number will again double in 1972, provided that the government provides them with seeds, fertilizer and at least, promises of some or-the-spot guidance.

Despite the numerous obstacles to second cropping, in the three villages under study in Lampao which had canal water during the 1971 dry season, 187 families were double cropping on 265 rai - an average of six ngan per family. Every family grew about two ngan each of

- (1) In 1970 a great many farmers allowed the canal water to flood their fields in much the same way that they had used rain water in the monsoon season. Their vegetables were drowned. In 1971, they exercised greater caution, but were still utilizing too much water.
- (2) This includes families who hauled water or pumped water from the canal to water their adjacent fields.

peanuts, cucumbers and corn, and some also raised melons on one or two ngan. For those families short of laborers, hiring proved profitable. Labor costs were 7 baht a day vs. 10 baht in Nongwai. Bus service was available at all times so that there was no problem getting to the market early. Merchants also came to the villages to buy vegetables.<sup>(1)</sup>

In the Nongwai area in 1970, only twelve families grew second crops under the guidance of the Land Development Office. Despite the poor flooding of fields and poor drainage resulting in the drowning of the onion, garlic and peanut crops, not to mention the corn which made a very poor showing, nine of the twelve farmers volunteered the second year. In 1970, an additional 92 families reaped land and planted a few ngan with no government assistance. In 1971, there were over 170 families second cropping in the Nongwai area, some under the guidance of the Land Development office and other extension services, but mostly on their own. The lack of markets was the primary deterrent, according to those who did not second crop. Results in 1971 were poor, because the farmers could not afford the needed fertilizers.

Rice production in the 1970 dry season yielded a little more than half that of the rainy season, leading many farmers to believe that canal water does not have the nutrients of rainwater, and therefore, rice is not worth growing in the dry season. Some farmers, however, prefer rice cultivation with which they are familiar, to vegetable growing with the "difficult, progressive techniques". In Lampao, this year, some poor farmers with large families who owned no

(1) These merchants never order in advance, and offer their price only after they have seen the harvested crop.

land, rented or borrowed land near the canal and grow short maturing rice for their own consumption. All had one child working on the canal and contributing funds to support the family.

Some farmers stated that if they had to pay for all inputs, they would definitely not be able to make a profit and that as long as the government provided these ingredients, they would continue to raise second crops. These were farmers who had planted tomatoes and soybeans, both of which were sold at comparatively low prices.

The consensus of the village headmen (from 15 villages along the canal which had not as yet received water) when asked how many years it would be before all farmers with land on the canal would be utilizing their fields for second cropping, was five years from the time the water starts to flow. The first two years they estimated would show little success since the farmer would be learning new techniques. By the third year he would know exactly what he was doing. Two years of success and all the others would join. "Someone has to start", said one of the headmen. "When the others see that he is successful, some will start in, then others, etc., just as they did with kenaf. If dry season crops bring in good prices, you will see no fallow land anywhere."

X

DEFINITE IRRIGATION PROJECT LOSERS

THE RESETTLED (1)

Q. "Had conditions in the two resettlement projects improved during the interval between your first and second visits?"

A. Generally speaking, the answer is negative. My first visit to both the Nampong and Lampao Resettlements was in June 1970. My second and last visit was in June 1971. On my last visit I found that the people in my sample had become better adjusted and more resigned to their new way of life.<sup>(2)</sup> The casava and kenaf harvests had been good, the merchants came to their doorstep to purchase their produce, and the

(1) For a detailed study of these Resettlements the reader is referred to the Thomas-Block paper (see bibliography).

(2) As part of any water resources development project involving the construction of a reservoir, it is necessary to resettle those people who have lived in the reservoir area. As a general rule the best lands are found along the river banks. These are formed from alluvial deposits and they are flat -- thus ideally suited by position, texture, and fertility to the production of paddy rice. Unfortunately most of the areas with these types of soils have long since been occupied, and when the farmers are moved from the area to be flooded, it is necessary for them to move onto the uplands. These lands are steeper and have more surface relief. The soils are generally formed by the decomposition of the parent material in place and consequently they are not as fertile as the flat lands and they are of coarser texture -- more subject to erosion. Because of the relief, these soils are not suited for paddy rice production. Consequently, it is necessary  
(Contd)

younger farmers (18-30) claimed that life had become quite tolerable. They had cash, roads, frequent bus service, money in their pockets, and many had bicycles. To go out for a good time (paj tiaw) was a simple matter of hopping on one's bike or a bus. One indication of increasing prosperity is the fact that in June 1970, over 2,000-3,000 people were buying at the local stores on credit. In June 1971, the figure had dropped to 700-800, and though credit buying costs the purchaser an additional 10% a month, this has never deterred the needy.

In fact, many young men have been moving into the resettlements this past year. They work harder than their elders and are obviously prospering.

In May 1970 there were 42 villages in the Lampao resettlement. In May 1971 there were 64. According to the Director, many of these are refugees who couldn't make a go of it elsewhere. Others, are refugees in the 20-30 year age group, who had learned that despite a few hardships, life in the resettlement was not so bad after all.

The reservoir has enabled hundreds of refugees to change from farming to fishing as a livelihood. Those with whom I spoke said, in essence, that this type of work (fishing) was easier and more lucrative than farming. For the first time in their lives, villages within a ten kilometer radius of either the reservoir or the main road to the reservoir are being supplied with fish on a daily basis. The fish-

(2) (Contd.) for the resettled farmers to grow new crops -- crops in which they have no experience. Therefore, as one might expect the resettlement of displaced people in agriculture poses extremely difficult problems.

mongers who cater to these villages, have purchased small motorcycles on the back of which they have mounted a handmade ice chest. One monger claimed that he fills his ice chest four times daily and returns home with an empty box, having made a nice profit of 80-100 baht a day.<sup>(1)</sup> Each fishmonger has his own territory covering six-eight villages. The wholesale fish merchants do not sell along the way, but carry their produce directly from the reservoir to the Khon Kaen and Kalasin provincial markets.

All those interviewed felt that the schools and roads helped to compensate for the other hardships that had to be endured. Many lamented the fact that their village had no vat. This fact did not bother the younger generation at all.. their only worry was what they would do for money should cassava and jute prices drop or should the crop fail.

All of the above changes have been construed as improvements, and offered to me as evidence by the residents themselves. The elder members of the resettlement did not convey so happy a picture. The elders continue to worry over the inheritance for their children. "There are no fields to turn over to them." The elders were saving what little money they could, in the hope that eventually they could buy rice fields or woodlands and someday return to the old way of life. In cases where rice fields have already been purchased and where the family is too small to handle both areas, some have sold (clandestinely)

(1) Prior to moving into the resettlement, the farmers' average yearly per capita consumption of fish was 30-35 lbs. In 1970, it was double this amount

their kenaf plot in order to concentrate on their newly purchased rice fields. The homestead remains with the wife and younger children, or with a relative, should the wife be needed to help in the newly purchased fields. Others have turned over the rice fields to their children. On the other hand, the elder villagers in the Nampong resettlement who had piped in water, and who had been provided with water tanks for kenaf retting were relatively happy. That is, until April 1970 when the pump broke down and the farmers in villages 2, 3, 4, 5, 6 and 8 have been without water for two dry seasons. The pump as of June 1971 had still not been repaired. A few of the more industrious farmers, with the aid of the extension services, have done quite well raising fruits (tangerines, mangos), vegetables (cucumbers, corn, cowpea, onions and beans) and silk.

#### OTHER PROBLEMS

1. The inability of farmers to ret their kenaf due to a lack of water, results in a reduction in the price received of as much as 30%. When one considers 13 rai of kenaf producing 150 kilo a rai at 2.50 baht a kilo if properly retted, this is a loss of over 1,400 baht a season.
2. In the Lampao Resettlement this dry season, there was an acute water shortage, and though the government had trucked in water, the supply was barely enough for washing and drinking, let alone for watering their small vegetable plots. Many farmers even in normal years must walk three-four kilometers to obtain water.

The government has dug many holes in the area, but so far have not struck water.

3. A common complaint is that the rice the farmers buy from the sale of kenaf, is "sandy and dirty", "rice which the merchants could not sell elsewhere".
4. Many of the farmers would like to grow more lucrative crops but are lacking in technical know-how. They were promised help in 1969, but as of June 1971, no one had come. Yes, there are extension agents working in the Resettlements, but, how many farmers can two or three extension workers help in a season?
5. The Lampao resettlement area has been infiltrated, during the past two years, with insurgents who find the poverty stricken resettlers grist for their propaganda mills.
6. The resettlement staff at both Nampong and Lampao are in need of more trained agricultural technicians, more teachers, and another doctor for the clinic. The government promised more personnel in 1969, but so far no one has arrived.
7. Farmers must remain five years before they can receive title to their land. Thus it is impossible for them to receive any of the government low interest loans inasmuch as they have nothing to supply as collateral. Many have been forced to borrow at 5% interest per month.
8. Most refugees had spent their compensation funds by the end of the first year and had had to borrow in order to see their families through the second and third years. The fourth year

they were earning an adequate income from their crops. However, they will be spending the next few years paying back the capital and interest from these loans, so that it will have taken over six to seven years before the poorer refugees will have become solvent.

9. Many of the indigenous inhabitants in both resettlement areas are embittered because the new settlers represent a rival group for the uncleared lands which the former have planned to clear and present to their children as a part of the inheritance system. A number of the original inhabitants claim that a part of the 13 rai plots in some areas belong to them. They have issued formal complaints to the authorities. Of the 120,000 rai in the Nampong Settlement, 40,000 belong to indigenous farmers. The figure is much smaller in the Lampao area, though the exact figures were not available at the time of my last visit.

#### FINAL COMMENTS

Resettlement life is changing traditional residential patterns. Parents are encouraging their sons and daughters to find spouses among the surrounding rice farming communities. Good roads and bus service have made this a relatively easy task. The good transportation facilities also makes it convenient for parents to visit their married children. Formerly, the groom moved in with the wife's family and was allotted a piece of land to till for himself and his new family. Since no land is available for this purpose, the daughter who marries a rice farmer now moves to his home.

It is not uncommon to find, when talking with urban educated officials, that they regard the Thai farmer of the Northeast as an ignorant peasant, devoid of "deep emotions" and sentimental attachments, willing and able to adjust to any conditions, accepting hardships as a part of life -- a stoic and a fatalist. Many of these officials were not concerned over the plight of these refugees and were planning more large reservoir-dam projects which, they claimed, "would bring prosperity to untold thousands of farmers".

1. I have found these resettled peoples, and all Thai farmers for that matter, to be quite intelligent, despite their lack of formal education. It is fallacious to equate the level of intelligence with the level of formal education.
2. The refugees from the reservoir area were not willing to adjust to the hardships of life in the resettlement. It must be noted that 50% of the evacuees from Ubonratana and 60% from Lampao went elsewhere to renew their livelihood. Those that went to the resettlement did so out of necessity. For them, there was no choice. I think that one may safely say that most people in the world, if given no other choice, could adjust to the most gruelling of conditions. But to say that the farmers of the Northeast do so more willingly than others because they are devoid of the higher feelings of the educated urbanite is poppy-cock. I have watched one woman weeping because her child was sick and there was no bus to the clinic for another two hours. One of the storekeepers

at the Lampao resettlement market, told me that during the first year of the resettlement, men as well as women, would sit in front of her shop and openly weep at their plight. They missed their old homesteads, their close friends, the old village.<sup>(1)</sup> Are these manifestations of a people devoid of deep emotions and sentimental attachments? Hardly!

(1) Emigration from one's native village carries a negative valence. Farmers who emigrate, do so only out of economic necessity, as a last resort.

XI

SMALL AND LARGE IRRIGATION SYSTEMS

THE TANKS -- but you are not always welcome.

Q. "Do you feel that the tank projects are any more successful than the larger irrigation projects?"

A. I visited four tank projects. One at Ampoe Chumphae (Khon Kaen Province), one in Banphai (Khon Kaen Province), one in Kuchinarai (Kalasin Province) and one in Ampoe Myang (Kalasin Province). Considering that the cost of each of these smaller projects is roughly 1% of the cost of the larger projects, and the potential benefactors are roughly 5%, it would appear that on the basis of cost-effectiveness, they are the more practical solution if irrigation and not hydroelectricity is the primary objective. However, with the exception of Banphai, all constructions had employed inferior materials and the canals were totally inoperable in the dry season, and only partially operational during the monsoons. At Chumphae, the spillway had cracked two years ago and funds have not as yet been made available for repairs. At Huai Kaeng and Huai Satot both in Kalasin province, the cement linings had cracked in many places and the erosion had all but blocked the passage of water. Here, too, funds were not available

for maintenance and repairs.

Q. "What has been the reaction of the farmers to canal conditions in these tank areas?"

A. In Kalasin, the farmers are not only disgusted with the government, but also angry enough to state their disgust vociferously. "They have promised to repair it for years, and we are still waiting." "We will all be dead before they (government) come to repair it."

At Hua1 Kaeng, the complaints were that very few families were benefitting, only those few near the headwaters, and that during the dry season, only those families living around the reservoir. The villagers claimed they are corvèed each dry season by the district officer to clean out the dirt which then falls back into the canal as soon as the rains arrive. They also claimed that they had been instructed by the extension workers on how to dig the lateral ditches, which turned out to be much too narrow and therefore inadequate. Similar complaints were heard at the villages along the Hua1 Satot canal.

In Ampoe Chumphae, the farmers were bitter over the 25 baht they must pay each year for maintenance while not being able to use the water. Many complained that even before the spillway had broken, there was only a trickle of water during the dry season.

Q. "You paint a rather pessimistic picture. Were you not able to find some positive aspects in these tank projects?"

A. Yes, the reservoir are in all projects was being utilized during the dry season for fishing, retting kenaf, washing clothes and as a source for bucketing water to vegetable plots in adjacent areas. During the monsoon season a number of families with plots along the first few kilometers of canal were able to use the water during the monsoon season.

Concerning the tank project at Banphai, the story is entirely different. This tank project cost only 2.5 million baht.<sup>(1)</sup> It serves over 140 families working 300 rai in the dry season and 700 rai in the wet season. The reservoir also serves as a water supply for the Ampoe seat. Over 80% of the population of the two villages in the irrigation area are growing dry season crops. The areas cultivated range from 2 ngan to 30 rai per family. Of the ten families interviewed, only four were in debt. Two had hired labor to work their 10 and 30 rai, respectively, during this 1971 dry season. Average net profit from dry season cropping was 600 baht per rai. Gross profits per rai were: corn, 800 baht; cowpeas, 900 baht; peanuts, 1,100 baht; eggplant, 1,100 baht; cucumbers, 3,000-4,500 baht. One farmer is alleged to have made 30,000 baht profit between January and May 1971.

Q. "How do you account for the success of Banphai as contrasted with the obvious failure of the other three tank projects you visited?"

A. Firstly, I must point out that erosion and silting also occur in the Banphai project, but here, the farmers diligently take care of the maintenance. There were no inferior materials used in the original

(1) Half the cost of each of the other three tank projects.

construction. However, credit for success must be given to several sources:

1. The Ampoe Extension and Land Development workers who carefully explained the project to the villagers prior to its construction. The extension workers spent a great deal of their time working side by side with the farmers, which meant, unfortunately, that the other farmers in the Ampoe were sorely neglected.
2. An adequate amount of credit (relative to other areas) was made available. But credit, in this particular case, was not so important as
3. the example set by the two village headmen, and the respect and rapport which each of them had established with their respective villagers. The villagers were ready to follow his example.
4. The readily available market outlet. Everything the farmers produce can be easily sold at the Ampoe market. In fact, the merchants' demands have always been greater than the supply.

Though only 20 families tried dry season cropping the first year, 80 turned out the second year and over 140 families, this past year. Most of the farmers were employing both insecticides and chemical fertilizers. The farmers are so pleased with the results of dry season cropping that they have begun to plant fast maturing rice in June, so that they can have an early harvest and get started on their vegetables.

It must also be noted here, that in most villages, which I visited, the farmers claimed that one rai of vegetables was the maximum that one

farmer could handle on his own. Here, at Banphai some farmers were cultivating four and five rai single-handed, i.e. two people working 8 rai, three people working 13-15 rai. <sup>(1)</sup>

I attended a village wat committee meeting, wherein the decision was reached to construct a new sala <sup>(2)</sup> for which the share of the villagers alone would be 30,000 baht. "Two years ago", said the head school teacher, "the proposal would have been laughed at as an impossibility".

One villager when asked what motivated him to start second cropping this year, replied: "When you accompany your neighbor to town and see someone hand over ten of those pin- pieces of paper (100 baht notes), it stirs you up."

The reader must be cautioned (lest he become overly optimistic) that the first water flowed in the canals in 1966, so that it has taken five years for the total adoption of dry season cropping, despite good leadership and available marketing outlets.

Q. "What has been the reaction of the farmers in those villages which lie adjacent to the large canal projects of Nongwai and Lampao, to the canal network?"

A. Whether they connoted in the minds of the farmers a place to bathe, or wash clothing, a means of second cropping, an insurance against

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(1) I think however, that health also plays a role. The provincial health officers in both Kalasin and Khon Kaen reported to me that parasites in these two areas were 100% and liver fluke 70%, whereas in Banphai, the rate of liver fluke was 58%.

(2) A building on the wat compound where villagers gather to hear sermons on holy days.

drought or an increase in land values, every farmer expressed enthusiasm over the presence of the canals. Many farmers were disgruntled over their loss of land when the canal was under construction, but as soon as they saw their adjacent land going up in value, they were quite content.

The farmers welcome the income they are receiving while helping on the construction and maintenance of the canals. However, the farmers are not willing to contribute their labor for maintaining the laterals if their land does not benefit.

The canals have had two major effects on the traditional second cropping patterns: They have enabled more farmers to grow crops more conveniently, i.e. women now expend much less effort hauling water, and the corollary, the time saved by not having to haul water has been utilized in growing crops over larger areas.

However, it is in its psychological impact that the canals have had their largest effect both negatively and positively.

#### THE NEGATIVE ASPECTS

For the vast majority of farmers who live in canal-side villages but who will not benefit, the canals have created resentment and bitterness. Many farmers gave up their lands for the main canal and laterals only to discover that the water level would always be too low for them to benefit. They have also been paying the yearly water users' fees. They look upon this as deceit on the part of the government. These farmers now argue that the government should at least provide them with pumps as compensation. The government paid them compensation on an

average of 700 baht per rai, but to these farmers, this was highly inadequate. Farmers who wish to be compensated for lost lands have first to present a land title as evidence of ownership. Many farmers had none, and were advised to procure them as quickly as possible. To hasten the administrative process as much as 500 baht per title was paid. For those farmers who lost land at the location of the laterals, no government compensation was provided. The canals in many areas have split the farmers' fields in two. The bridges are distantly spaced. How does he get from his one field to the other?

The present canal system requires that water remain in the fields nearest to the canal until the furthest fields are flooded (see p.104). Thus, the first farmers are delayed considerably before they are able to continue their work.

Several villages only short distances away from the canal are resentful that the canal does not run past their village. They feel that the government has shown favoritism, and that to compensate them for not having the canal, the government should dig several wells for them or, at least build a laterite road, etc. This is one problem that must be considered. If the canal wins the hearts and minds of several thousand farmers while concomitantly embittering tens of thousands, does the waning allegiance of the latter create a significant danger?

#### POSITIVE ASPECTS

As to the positive psychological affects of the canal, the realization that water is always available, whether it be for crops or merely

for fishing, washing clothes, bathing or drinking, provides a feeling of security.

The majority of farmers evaluate the canal as: a boon for paddy cultivation in times of drought; beneficial when the rains are not timely; its utility in the dry season as secondary, and inadequate. Even the farmers whose lands are on the right bank of the canal are relieved to know that they can at least pump or bucket water to their fields, should the need arise. But for those whose lands are on the left bank and near the canal, they are a happy and changed group. As one farmer expressed it, and this applies to many others with whom I talked, "If the government keeps its word and sees to it that the canal is always filled with water, I and my children will have no more worries (concerning water) the rest of our lives".

I visited several villages along the canal in mid-August of 1970. The monsoon rains had not yet arrived. Most farmers were quite worried, some were desperate. Many were planning to send their older children to either Bangkok or Khorad to find employment since they believed a drought year was upon them. Some were planning to borrow money for the purchase of pumps. On the other hand, the farmers who had access to canal water, were sitting in their field shelters, smoking, laughing and talking. They were at ease and grateful. "This is like heaven", said one farmer. They had realized, for the first time, one of the most important benefits to be derived from the canal - a hedge against drought. The government was able to remedy nature's failings.

### PAYING FOR WATER

Seventy percent of the farmers interviewed thought that charges for water should be determined by the number of rai cultivated. Twenty percent felt that charges should be determined by the amount of water used, since various crops required varying amounts of water. Ten percent stated that water should be charged in proportion to the income received from the yield. All prefaced their statements with the sentiment that water should be free, but if charges had to be made, etc., etc.

In Myang Mee in Ampoe Nongkhai, the farmers were complaining that they must pay as much as 30 baht a rai for the government provided pumped water. When I asked them if they would prefer to pay and utilize the canal water, or not pay and haul the water, they all stated that they would rather pay. Further probing disclosed the fact that they had been told by the extension workers that 20 baht would be the cost of water per rai, and since it had been raised to 30 baht this year, they were afraid that it would be raised each year, and that this was actually the basis of their complaints.

I believe that if the farmers have a market with adequate prices (these farmers supply vegetables to Vientiane, Laos) thirty baht a rai for water will be acceptable. Note that in Hakdokkeo, the farmers are also paying 30 baht a rai for water and "willingly so".

### A COMMUNITY DEVELOPMENT RAISED TANK IRRIGATION PROJECT

Before closing this section, I would like to present another type of tank project which was initiated by the Community Development Department

in Ampoe Myang, Khon Kaen. This involved the construction of a large raised water-for-irrigation tank on the edge of the Nampong river. The cost (including the pump and piping) was 120,000 baht. All labor and lumber were donated by the villagers. Two kilometers of piping led from the tank to the 26 rai owned by 20 families. The plan was to add piping each year until the entire village had water. Construction, which took three years, was completed in early 1969. By 1971, the project had become defunct. Why?

1. The pump had broken down and no spare parts were available.
2. The pump was not large enough for the expansion of the project, and the Community Development Department told the farmers that they would have to buy a larger one from their own resources.
3. The villagers who had not yet had the use of the water refused to contribute towards a new pump, but were willing to contribute towards additional piping.
4. When told that the costs of operating the new pump would be 100 baht per family per dry season, many with land along the river, decided that it would cost them nothing to haul water, and dropped out of the project. Others claimed that the 100 baht would eat too much of their profits and were no longer interested.
5. The headman decided that since all villagers had contributed to the construction, and only a fraction were able to utilize the water, it would be only just to stop all operations, and thus avoid the constant bickering which was causing him to lose sleep.

Many of these same villagers are now waiting and hoping that the community development workers will change their minds and provide them with a larger pump.

Comment

I have concluded, as I have indicated in my earlier remarks, that the small tank projects, if properly constructed, would not only have the same results as the large dam projects but would be much less costly to build and maintain, thereby allowing many more to be built and providing water to a geographically wider range of people. One must not forget that so much expense is wasted in the larger canal projects by the lengthy portions of the canal which are too far below the field levels to be of any use for irrigation.

XII

TWO UNITED NATIONS SPONSORED IRRIGATION PROJECTS

Q. "You visited the FAO project at Huajsithon Kalasin several times, and the Israeli project at Hakdokkeo several times. How would you compare them as to techniques employed and subsequent results?"

A. To begin with, the factors common to both projects are: The availability of water for second cropping; foreign technicians on the sites at all times; farmers are ethnic Lao; demonstration plots are on the farmer's land; size of project is 300 hectares; drainage is a problem; each began in 1966. Variables between the two projects are:

<u>Hakdokkeo</u>	<u>Huajsithon</u>
200 families wet season	120 families wet season
200 families dry season <sup>(1)</sup>	27 families dry season
Literacy rate among farmers is 10%	Literacy rate among farmers is 20%
2% have had four years of education	57% have had four years of education
No competition from labor available off the farm	Competition from labor available off the farm.

(Contd.)

(1) A Lao project technician informed me that each year more and more of the older people were not growing in the dry season due to fatigue.

<u>Hakdokkeo</u>	<u>Huajsiton</u>
Grow rice, peanuts and corn, and a great deal of tobacco.	Grow kenaf, rice and corn.
Sufficient water and no delays in delivery.	Too little water for farmers at far end of the line, and delays in delivery.
Water is pumped from river.	Water is gravity flow from canal.
Farmers pay for water.	Water is provided free.
Farmers pay for fertilizers and seed.	Fertilizers and seeds provided free.
Farmers work on plots for no wages but can use seeds.	Farmers hired to work on demonstration plots.
Grow rice in dry season.	Grow no rice in dry season.
One Lao technician for 30 families.	One Thai technician for 15 families.
Plots = 6-20 rai, average = 10 wet and dry season.	Plots average size: 11 rai - dry season; 18 rai - wet season.
Yearly operating budget (exclusive salaries), is kip 13,000,000 (\$26,000).	Yearly operating budget is 2,000,000 baht per year (\$100,000)

The Israeli advisors are convinced that if farmers are required to pay for all inputs (there must be adequate funds made available for credit) they will apply themselves more diligently than if all inputs are provided free of charge. The farmer's personal investment provides the incentive to work hard in order to re-coup expenditures and still gain a profit. This is the underlying philosophy behind the modus operandi at Hakdokkeo.

From interviews with a dozen farmers, all spoke in glowing terms

about the project. They felt that what they earned they had paid for with their own money and hard work. At Huaisithon, half of the 12 farmers interviewed found things to complain about. Water flows by every ten days. "How can we tell our crops to stop growing for nine days?"; some fields receive water between noon and 1.00 o'clock when it is much too hot; often the water flows so slowly that it takes all day to irrigate one rai, yet the officials asked us why we were so lazy and didn't grow four rai."

I believe that since the government had promised to provide all things free of charge, the farmers expected the system to run smoothly with a minimum of effort on their part. It is true that farmers all feel, and rightfully so, that water is God's gift to man and should be free. What the farmer in Thailand must be taught is that he is not paying for water as such, but for the convenience of having it when he needs it.

Many reports that I have read emphasise the need to have the farmer feel that the various development projects are their own, so that they may feel a vested interest in their success. I find that this is not necessary. The farmers in the above two projects expressed a definite vested interest in the outcome and all claimed that these were projects initiated and operated by their respective governments.

XIII

THE ASIAN DEVELOPMENT BANK IRRIGATION PROJECT

Q. "What can you tell us from your brief observations and talks with the farmers concerning the possible success of the ADB project in Ampoe Myang, Khon Kaen?"

A. It is really too pre-mature to come to any definite conclusions about this project since it is only in its incipient stage. I would like, however, to first present the objectives of the project, and then to present a brief history of the project as seen through the eyes of the village headman at Bandawn-yang.

TERMS OF REFERENCE OF THE ADB PROJECT

In areas of rain-fed systems of agriculture, farmers naturally select the lands that are relatively flat and which are located in the lowest profiles, where rain water can flow from one paddy field to the next. Farmers all grow basically the same crops, viz: rice, and they follow the same planting and harvesting schedule. Since rice thrives on water it is unnecessary to provide a drainage system. For should the water remain in the fields past the time the rice has ripened, it can still be harvested from boats, as indeed it is in many areas of Southeast Asia!

In light of this traditional rice cultivation method, the agencies

responsible for the construction of irrigation projects in Southeast Asia have not provided more than the main canals along with the primary distribution system. They assume that the farmer will do the rest, e.g., construct the secondary and tertiary canals, level their fields, and provide their own drainage system. In other words, the farmers are expected to carry out all necessary land preparation and development. This is falacious planning. The farmer's sole experience has been with rain-fed agriculture, and he neither knows anything about preparing fields for irrigated upland crops, nor anything about drainage systems. In 1970, in Nongwai, the farmers assumed that if one planted rice on the low land and allowed water to flow from one field to the other with no provision for drainage, one could duplicate this process with beans, cucumbers, peanuts, etc. Obviously, it didn't work, and many of the initial efforts at dry season irrigation ended in failure because of this ignorance.

The ADB experts concluded that the fields must be prepared in such a way that the timing of the water flow, as well as the amount of water applied could be controlled for the specific crop to be planted. It was also concluded that the irrigation system should be designed in such a way as to insure that each landowner would be able to water his fields and drain them at will. To accomplish this goal it was deemed necessary: to consolidate all farmland units; to level the land; to put in the necessary supply and drainage canals. This is the major innovation of the ADB Pilot Irrigation Project.

Other related aspects of the project include the providing of extension advisory services on all aspects of irrigated agriculture, credit, farm supplies, marketing information, and technical assistance. Once the program is completed, a farmer in the project will be enabled to grow any crop that he chooses and at any time of the year. The new system will free him from the inflexible modus operandi existing under a rain-fed agriculture system. He will be a free agent able to respond to market conditions.

#### THE HEADMAN'S STORY

" In April 1970, several officials from the Land Development Office came and surveyed an area of some 600 rai near the canal. They worked for two months but told no one why they were there. In September, they returned and explained to me that the government was planning a pilot project to help the farmers in my village to earn more money. The Land Cooperative, they said, would supply the heavy equipment to level and clear the land. The Royal Irrigation Department would dig the ditches, rebuild the bunds, supply all needed fertilizers, seeds, insecticides, plowing and harrowing. They would dig fish ponds, supply grass for our buffalo to eat, and if we needed money, they would provide loans at low interest, 1% a month.

They asked me to call a meeting of all those farmers who owned land in the pilot area. The meeting was held in December. We were shown a map of the area and asked to point out where our respective farm plots were. I don't think that any of us could read the map, but we

pointed to the areas, very roughly speaking. Many of the farmers had two plots and had difficulty finding them on the map. They explained the project again to all of us, but none of us really understood what it was all about. We were worried that the top soil would be removed, and we didn't like the idea of giving up our land to let someone else use it. I mentioned these things to the officials and they assured us that our original plots would be marked on the map and that we would get them back in a few years (if we still wanted them) after the pilot project was over. As to the top soil, they assured us that it would all be pushed back onto the land. They showed us movies of similar pilot projects from other countries. They told us that we would each receive a title for our new plot and that it would cost us only 65 baht each. We wondered if this meant that we would no longer have titles to our old plots. Most of the farmers however, were thinking that they would have both.

We were told that we must sacrifice some land for roads and ditches, but that we would be compensated by the increase in land values and the additional income from the sale of our crops. They promised to take us to Chainat to see the successful pilot project there. We were promised water even on our uplands, and this seemed to convince many of us that it would be worthwhile signing up for the project. We all signed, but none of us really knew what we were getting into. When these phuyai (big wigs) come around, one really doesn't have much choice. All of us felt that we must help our government. (Thus, the project was considered as something the government wanted and the farmers were in a sense coerced into going along with it). After we had signed the paper, they told us

that we would be very happy and might be able to buy our wives a gold chain by the end of the year. No need to tell you about the meeting in Khon Kaen in April, since you were there."

(My assistant, Mr Sarot, attended this meeting, the contents of which are presented here, in essence, and almost in his own words).  
Attendance: 48 farmers in the project; representatives from the Land Coop., Land Development, Fisheries, ADB, Credit Coop., Land Coop., Land Department, Livestock Department, Technical Planning, and one Royal Irrigation Department engineer. Some officials who were to come did not because "they were very busy".

Chairman: Good day ladies and gentlemen. We are going to use 600 rai in this project and that is why we have so many agencies represented. We must all cooperate with one another.<sup>(1)</sup> We chose Ban-Khota and Bandongyang villages because we found that the villagers are intelligent, cooperative and not poor. We started out with 300 rai, but now we have plans for 600 rai. The government has spent millions of baht already and wants to see it a success. So, instead of planting just rice, you must plant other crops. These other crops need less water than rice, and the water system can provide enough for dry season crops. The advisors will tell you what is best to grow but you are not forced to take the advice. If you need money you can borrow from the bank. But, all the land in the project must be planted.

Farmer A: It depends on what we want to plant. Some of us will borrow money, some of us will not. We all know that we will all plow.

(1) All talks were in central Thai dialect.

Chairman: Well, anyway, if you have to borrow you go to the bank. The government cannot do everything for you. Now let all the officials here tell what they do.

Agric. Coop Rep: We will show movies and distribute pamphlets. We will teach you how to organize a Cooperative. Our job is to educate the members on how other farmers in other countries farm.

Marketing Coop. Rep: We advise on marketing and production. The farmers' eyes and ears are not big enough yet to understand and know. Some farmers think and talk and never do. Some do, but never think. We technicians have studied and know what to do. We can help you to think and help you to do. Some farmers wait too long before they do and then it is too late. Some grow rice because they want to make rice whiskey. They are sure of rice but, afraid of other crops. I saw in other places in Thailand farmers get rich on other crops but, never rich on rice. The only person who can really help you is yourself even though God helps those that help themselves. We can only introduce ideas and advise. You must think about feeding your children, clothing them, educating them.

Fisheries Rep.: If you want to raise fish, we will help you. The kind of fish you want to raise is up to you. If you don't know how, we will teach you. The kind of fish we have are good tasting and can be raised locally. Are there any questions?

Farmer B: I agree to plow and help dig ditches. But to dig fish ponds, we would need b' ; equipment. (He is cut short by Land Dev. Rep.)

Land Dev.Rep: My people plan to start helping in May. But we are not sure if you really understand what is going on. After the canal and ditches are completed we will work with you. If you plant rice on three rai you won't have enough to eat for your family. We can help you to plan what to grow so you can get money to buy rice enough for your family. You would have to plant ten rai of rice to have enough to eat. As you know, rice is only selling for 50 satang a kilo. Other crops are selling much higher. After the rice season, you are free for a long time. You should plant something. If you want to use your buffalo, o.k. But, if you want to use a tractor on hard soil, we can provide it for you for 10 baht a rai, or 12 baht if the soil is too hard. I think your soil is very hard, but I'm not sure. A commercial tractor will cost you 35 baht a rai. Any questions? ... no questions. -

Chairman: The government will not make a profit on this project.

Nampong Engineer: I provide the water for your canal. ADB has made the design and will give advice on this project. The Irrigation Department will level the land, make ditches and roads so you can get your vegetables to market. The Land Cooperative Department will help you decide what is best to grow. The Extension Office is testing the soil right now, and will continue testing always. We are cooperating with each other so that you can grow crops all year round and get rich.

Livestock Rep: We can help you to raise better animals. Teach you to grow pasturage and can provide a bull for breeding and chickens.

You should begin to use tractors instead of buffalos for plowing.

Village headman Phut will now talk with you a few minutes.

(Mr Phut stood up in place and addressed the farmers).

Phut: We have learned how to form a group so, we should form a group.

We took a tour to Chainat and saw what they have done. We can do better than that. If we need a tractor, we, as a group, can borrow money from the bank.

Farmer B: We have buffalos. We don't need a tractor. (There is five minutes of talking among themselves on buffalos and tractors).

Farmer C: We should plant rice in the wet season and other crops in the dry season.

Phut: Some of us, if the land is not good for rice, should plant other crops. If the soil is good for rice, then rice should be planted. If no water is available, how can you plant rice?

Farmer C: After the rice season, we can plant what we like.

Farmer A: We really only worry about the market. Whatever the government wants us to do, we don't mind doing. But we must worry about selling.

Chairman: Costs should be the responsibility of farmers. They can borrow from the bank. (He does not answer farmer A's worry).

Farmer B: What costs are you talking about?

Chairman: Hiring labor, or animals, land titles, or whatever the advisor suggests.

Land Dev. Rep: We usually take 60 days to get a title deed. But for you, we will only take 30 days. But you must stay in your village when

you know we are coming or we cannot get your signatures and you waste our time. The deed will cost you only 70 baht (up five baht, already). We are improving land so you can grow a good crop. We will provide water to come to your fields by gravity flow so that you do not have to carry the water and pour it on. So please cooperate with us and try to make this project successful.

Chairman: Any questions? If no questions then...

Agriculture Ext. Officer: Many people have talked to you today. If you have any questions or ideas please come to my department and I will explain it all to you. Our plan is this: Suppose a farmer has three rai. Then one ngan should be for an animal shelter, one rai for pasture, one ngan for vegetable garden, one ngan for fish pond, one ngan for fruit trees, one ngan for your home.

Farmer A: We already have our home, why should we have to build another on this new area?

Extension Officer: If you don't like this idea, you don't have to follow it. Do any others not like this idea? Do you have any suggestions that are better?

Farmer A: We have vegetable plots already, we are concerned with rice -- only rice.

Farmer B: Well, maybe a small garden would be all right. (He tries to please speaker).

Chairman: When we are ready to start the project we will discuss this again. But, remember, we must all cooperate with one another.

The government is spending a lot of money for you and you must know they don't have much, so you must all cooperate. Since government has little money, you farmers must also contribute some money to the project as well as your labor.

Farmer C: This is the first time that I hear about us farmers having to pay for this project.

Chairman: Have you ever planned ahead? Do you never think ahead?

Farmer C: No, I never thought about having to pay.

Farmer B: I will work with my labor, that is worth money.

Chairman: Will anyone pay some expenses when the planting begins?

Woman Farmer and several others: We will give our labor.

Chairman: You may have to hire labor.

Farmer C: If it is only two-three rai, we can do it ourselves.

Chairman: We have chosen your village because you farmers have enough money. You can do as you please but, you must follow our advice and suggestions as to what to grow.

Farmer C: What should we grow and how can we pay for it?

Chairman: It depends on the soil, and paying will be shared by all.

Credit Coop Rep: We can give some loans, and the banks can give some loans.

Woman Farmer: No! We don't want to borrow, because we may find no market for our crops.

Chairman: The government is here to help you choose the right crop to plant so that you can sell on the market. Rice at this time, is not a good crop. The price is too low. So, if you plant only rice

you will remain poor. ADB is here to help you to get good results. Your government has done the big job. You farmers must do the small jobs. The Agricultural Bank will help you. The government is worried about the future of the Thai farmers, believe me.

Farmer A: When will your work be finished so that we can start planting?

Chairman: Don't worry, everything will be ready before the rains arrive.

At that time we will meet again with you and help you to plan and produce good crops and get good results. Are there any questions? If not then I thank you for coming to the meeting.

\* \* \* \* \*

(Back to the Village Headman's Story)

"It is now June and the rains are here and the fields are not ready. We have all lost much sleep. Everyone is confused. We signed up for the project in November and then were told only in January that we would not have our own land to cultivate. This made us very angry. We didn't know even which plot of land we were to work until two weeks ago (late May). We all thought that we would have our own plots but that their shape would be changed to form an even square. We thought that we might lose a small section at one end, but gain it back at the other end. The government, when they started bulldozing from their map, were bulldozing the land of farmers not even in the project. Now, people in the project have part of their land outside the area and people not in the project, have land in the project. No one is willing to exchange land.

Also, the government said that all people owning originally three

plots of land would get first choice of the new plots, all with two plots next choice, etc. This has made many farmers angry. Farmers whose land was close to their homes are now far from their homes. Others who were far are happy because they are close. The villagers are driving me crazy with their complaints. They have threatened not to grow anything this season. The government has threatened to stop the project unless we cooperate. The project is one big headache. Even if we cooperate this year, the farmers threaten to go back to their original land holdings next year. The few farmers outside the project are complaining that they are not allowed to plant their own rice fields (ranging from 1 to 5 rai) which are inside the project. Oh, it is chaotic. I wish that I could resign as village headman.....

(As of July 15th, the farmers had transplanted their rice into the new area, and on the surface, all appeared well.)

According to the ADB project advisor, he was led to believe by his counterpart from the start, that all was well, that the farmers knew the conditions and had signed up in full agreement. In actuality, the farmers were painted a rosy picture and given only half the facts. They signed primarily because they wanted to help their government when asked to do so. The project got off to a slow start. When by mid-December, the land surveys had not yet been completed, the ADB advisor went out himself and started surveying. He endeavoured to get things moving and came to Bangkok to request that the bulldozers and grading equipment be sent up immediately, warning that speed was essential if the project were to be ready by the onset of the monsoons. His

request was expedited. The farmers had been promised a trip to visit the successful irrigation project at Chainat. When no action had been taken by the end of January, the ADB advisor made all arrangements himself and the farmers visited the project in February. For these three actions, the ADB advisor was accused of interfering in the project and of going beyond his duties as an Advisor. His dismissal from the project was the next step.

From the ADB advisor's frame of reference, he was responsible for his Firm's reputation which hinged on the success of this pilot project. He was also concerned about the farmers' welfare. He said that he would feel responsible if, come June, the farmers had no fields on which to plant rice. Is he guilty of overstepping the bounds of his job description? Can one be held responsible for the completion of a project by a certain date while serving merely as an advisor? The implementation of the entire ADB project raises many questions which should be answered in the name of pilot project administrative expediency.

XIV

VILLAGER-GOVERNMENT CONTACTS

MEETINGS

Q. "Is there much exchange of ideas or any dialogue at these monthly meetings of the district chiefs with the village and tambon headmen?"

A. I can best answer that question by presenting here the contents and proceedings of just one of several meetings I attended, this one on April 3, 1970.<sup>(1)</sup>

The headmen began arriving (on motorcycle, bicycle and bus) at 9.00 a.m. They formed into small groups and chit-chatted about crops, markets, weather, wat festivals, etc. At about 9.30 some moved into the meeting hall, took a seat and read the newspaper, or went over some official papers they planned to submit for signatures after the meeting. On this particular day, the District Chief (Nai Ampoe) was half an hour late, having been delayed by a land dispute which two tambon heads could not handle and so had brought to him for final decision.<sup>(2)</sup> He stood in front of the assembled group and called the meeting to order. He then

(1) In Nampong, the monthly meetings are held on the third day of each month and are scheduled for 10.00 a.m.

(2) Of every twenty village disputes referred to the headman for arbitration, eight must be taken to the tambon chief; of these eight, one will need to be referred to the District Officer.

began to read from the following agenda:

1. A government census will be taken in all villages this month, involving every household. You will all cooperate and assist the census people in any way that is needed.
  2. The cost of fertilizer sold on credit by members of the Private Irrigation Associate should be collected and turned over to the Ampoe by the 10th of this month. You have had three months to do this and none of you has brought even one satang, so get busy.
  3. The local maintenance tax should be collected this month in accordance with the assessment notice which you received last month. Do not forget that the official receipt book, which you have, must be written in triplicate. The first copy you will give to the taxpayer, the second you turn over to the Ampoe along with the tax money, whereas the third copy you keep for your own records. <sup>(1)</sup>
  4. Receipts for the school fee should be submitted to the Ampoe for reimbursement. (Only the school teachers, Tambon medics, village headmen, and their assistants are entitled to this reimbursement).
  5. The religious propagation team from Khon Kaen will be visiting every village next month to preach sermons on how to lead a normal proper life; how to encourage your children to continue
- (1) The topic of maintenance tax had to be raised again at each monthly meeting, through January 1971. In the August meeting, the District Chief said he should fine the headmen but, that he felt sorry for their poverty. He warned the headmen in the September meeting that he would not be patient much longer.

their schooling; how to get the villagers to cooperate in welfare projects. You should show them every courtesy and provide facilities as needed. (1)

6. The Public Health Department will also be visiting numerous villages in order to survey your village needs. Please cooperate with these people. (2)
7. The military will be recruiting all males born in the year 2492 (1949). Anyone failing to answer the recruitment notice will be fined 50 baht. If any boy is sick at that time, his parents must notify the authorities in writing. Any student who has received military training during this school year should submit evidence.
8. The village headman magazine (printed and distributed by the Ministry of Interior) is issued monthly and has arrived. Will all Tambon chiefs pick up enough copies to distribute to all headmen in their jurisdiction. (3)

- (1) The team did not actually show the villagers how to cooperate, but merely warned them that they must do so.
- (2) Contacts with this type of visiting official had, until a few years ago, carried a negative valence among the villagers in that the farmers were obliged to prepare foods and drinks for the "guests". The preparation required a good deal of his time, as well did the actual visit -- time at which the villager was ill-at-ease, tense. This has changed considerably in recent years. The visits are made at more opportune times, the officials frequently contribute towards the meal and drinks, the atmosphere is much less formal, even informal, and the visits often result in programs which benefit the village.
- (3) All village headmen are required to pay 12 baht a year for their subscription.

9. I might just remind you, that only after we receive the maintenance tax, can we allocate the appropriate amounts to each village. You are all competent people or you would not have been elected, nor would you still be headman. Headmen are an honorable group. I implore you to collect this money right away. The government has increased your pay by 100 baht. You should show your gratitude by carrying out your duties promptly and be proud to cooperate with your government. If any villagers are stubborn and selfish about these taxes, report them to me immediately. But ask them at least three times before you report them. Without this tax our communities will remain backward and a shame to the people who visit our country.
10. I will now announce the election of new village headmen. (He read off the names and the villages they represented. Everyone clapped as the four stood up in turn.)
11. Are there any questions? There were no questions.
- The Nai Ampoe left and the headmen slowly dispersed.

One notices that dialogue is wanting. Communication is one way - from up to down. Village problems are not raised, nor any discussion of problems requested. Michael Moerman<sup>1</sup> claims that the village headmen serve as the synaptic leaders in that he serves as the synapse for economic, political and social transactions between village and nation. It would appear from the meeting described above, that the District Chief is the real synaptic leader inasmuch as: one, the village leaders

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1 - See Bibliography

are actually villagers and these meetings are the milieu in which information is passed from government to villager. Two, only a small proportion of the ten items on the agenda was later transferred to the villagers, though here, I speak from experience in only eight of the eighty villages represented at the meeting. Most items on the agenda referred to only a small percent of the villagers. No meeting is called of the villagers for relay of these items, those concerned being notified on an individual basis.

\* \* \* \* \*

Q. "Are all meetings held between government officials and villagers conducted in similar fashion to the monthly district meetings?"

A. Fortunately, they are not. Though the traditional formality of the District Meetings has been preserved, the extension service ad hoc type meetings, are rather informal. I am going to present here the proceedings from two other meetings which I attended. The first a Tambon committee meeting held at the Nampong School house on June 1970, in which the chairman was the Tambon chief, the head school teacher serving as secretary.<sup>1</sup>

1. Chairman: The main purpose of this meeting is to discuss expenditures of fiscal year 1971 as related to our government's subsidy of 10,000 baht which, as usual, has been cut down (all laugh), this time to 5,000 baht. These funds are intended for community

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<sup>1</sup>This can not really be called a meeting between officials and villagers, but does serve as a transition from the district level meetings to the two examples which follow.

development projects and can be requisitioned next September. Our job, today, is also to think of ways of supplementing this money from donations from the villagers. I am proposing that this money be used for building an annex to the Ban Fakpong school and that every family be asked to make a donation. We have discussed this informally before and most of you are in agreement. Are there any questions?

Village Headman A: I have already talked it over with my villagers and most have agreed to donate 5 baht. Some villagers with no children have not agreed.

Headman B: I, too, have talked it over with my villagers and most have agreed to donate 5 baht.

Headman C: My villagers have decided to consider this donation as a form of merit making and have thus agreed to ask for no refund. In the future, they agree to raise their own funds for their own village development projects.

Village headmen D, E and F made similar responses.

Headman G: We have donated a great deal, and have received nothing in return. We will donate no more to projects from which we do not benefit.

Chairman: This is a democracy and we will then vote on the resolution to have each household in our Tambon donate 5 baht for the school. (A vote was cast and the results on the resolution were passed by a vote of eight for, and one against).

2. Chairman: I would like to remind you that at our last meeting (he looks at the minutes handed him by the head school teacher) we resolved the following: That every village headman agrees to bear expenses for each community development film showing, in terms of cost of bulb for the movie projector, spare parts, generator and diesel fuel -- the cost estimated at 100 baht for each night; that each headman is to arrange to rent a mini-bus to transport the projectionist and speakers to and from his village.
  3. Do not forget that next month there is a training program for all village headmen. The purpose is to teach you all how to conduct a meeting in a democratic fashion and how to record the minutes correctly.
  4. Do not forget to submit to me recommendations on salary increments for the tambon medics.
  5. Do not forget to collect the local maintenance tax so that allocations can be made on time for the community development project.<sup>(1)</sup>
  6. As to the potable water project that we discussed three months ago, and the deepening of the pond project which we discussed two months ago, the village headmen should procure a counterpart fund for any allocation received. I will see the District Chief for more details, next week.
- (1) The reader will note that this announcement was made two months after the final warning of the District Officer. I might add here, that in November the maintenance tax was again on the Tambon committee agenda.

I know that you all are anxious to get back to your rice fields, so are there any questions?

Village Headman G: How can I convince my villagers to donate 5 baht?

Chairman: I heard you sold enough kenaf last year to build the school annex yourself (all laugh). You go back and ask them again.

The meeting is adjourned.

At this meeting, we witness some humor, dialogue and the members are relaxed. There would have been more dialogue had it not been the plowing season, at least, this was related to me by one village headman who also admitted that he enjoyed these meetings and felt that others did too. My later interviews corroborated his views.

I presented the above meeting in order to show how villagers act at a meeting when among their own. Actually, there is very little discernible difference in the following meeting despite the fact that some relatively high level officials had called the meeting, and were present.

The following is taken from my own notes of the meeting in Kham Kaen Khun in June 1970. The meeting was held for the purpose of discussing the need to place refugees from the Ubonratana dam reservoir area on an officially "unclaimed" area of woodland near a pond unofficially "claimed" by the villagers of Kham Kaen Khun. The meeting was held in the Wat Sala. The abbot had been asked to attend. The presence of the abbot serves two primary purposes. It lends an aura of sanctity to the meeting while concomitantly allowing for an impartial witness to what is being discussed and to agreements reached.

The government officials were from the Self-help Resettlement office of the Public Welfare Department. The villagers were comprised of the village headman, the head school teacher, the two assistant headmen and twenty landowners -- three of whom were women.

The officials sat on chairs facing the villagers who sat on the floor. The Chairman was from the Welfare Department. He called the meeting to order and began (in central dialect)<sup>(1)</sup> by presenting the sad plight of those who had lost their homes and lands because of the reservoir. He explained how many had been provided for at the refugee resettlement center, but that many new refugees had arrived and the government was having difficulties finding suitable land on which to resettle them. He went on to explain that the new government policy was to seek woodland areas unclaimed and uncleared even though claimed by villagers; that these woodlands were the property of the government and have been illegally encroached upon by the villagers over the past several decades; that to cut down on expenses, the government had started with areas near good roads; that each refugee family would receive 15 rai of woodland which they would clear themselves.

"The problem", he continued, "is that you all claim that much of this land belongs to your village, or to you personally; that you have cleared some areas, and begun clearance on others. We are here, today, to try to determine who is and who is not entitled to this land and what is to be done. Our report will be sent to the Land Reform

(1) Several of the villagers confessed that they had taken a few drinks prior to coming to the meeting so that they would have fewer inhibitions when they wanted to talk in the central dialect. As Farmer A said, "After a few swallows, I don't mind making mistakes".

officials at the Changwat office. We are talking about some 1,200 families. Now, any of you are eligible to become a member of the settlement regardless of whether you have NS3 documents or not.<sup>(1)</sup>

Roads will be built after permission is obtained from the land owner."

Farmer A: -(interrupting). I have heard that you people have gotten signatures from land owners without their really wanting to sign. Who would want a road going through his rice fields?

Chairman: That is not so. We have never, as far as I know, ever cut a road through a farmer's land without first obtaining his permission. And he is always compensated, I might add. Now, we don't want to make anyone unhappy and if it gets too complicated we will look for another solution. That is why we are here today.

Farmer A: One road you people built passes through the paddy fields of Nopayom village, and the people there are very unhappy. I know, because my son lives there.

Chairman: I was told that it passes through the swamp only.

Farmer A: The farmers there claim that you ordered that the road be built and they were powerless to counter-mand your order, and so they consented. Is this so or not?

Chairman: We never "order" anyone, we always ask. In the case of the new roads, if the owner has a NS-3 title he will have nothing to worry about. The road will have to by-pass his land.

(1) A SK-1 document is merely a claim to work the land and to pass it on to one's progeny. A NS-3 entitles one to use the land as mortgage or to sell it to another. This last document requires that a survey be made and costs the farmer anywhere from 100 baht to 500 baht depending on the size of the property and the mood of the Amphoe official.

Farmer A: If the landowner has to obtain a NS-3 document he has to spend a lot of money. He has to hire an official to make a survey of the land, etc., because the NS-3 document has changed with each new sale.

Chairman: The NS-3 document is your evidence. Without it, how can we know whose land it is?

Farmer A: Yes, that is true for sure. But the title is expensive, at least for us poor farmers.

Chairman: Land, anywhere, must have evidence to show the actual ownership. A receipt of the local maintenance tax, however, does not show any evidence. If you pay such a tax for woodland areas, it would be an injustice to others. You should pay tax only on land which is fit for cultivation.

Headman: The Ampoe authority told us that tax should be levied on any kind of land whose owner is willing to pay for it and thus call it his own.

Chairman: The Ampoe officer's concern is to get as much tax paid as possible. In principle, however, only land fit for cultivation should be taxed.

Headman: This is news to us, and very confusing. If a villager owns land already, can he be eligible to get a share of the allocation of 15 rai in the resettlement?

Chairman: Not unless he owns less than 15 rai.

Farmer B: If he has land but no NS-3 title, then would he be eligible?

Chairman: Our aim is as follows:

1. We will not interfere with farmers' land if they have a NS-3 title.
2. We will not interfere with land for which there is a SK-1 title.
3. If any part of the land with SK-1 title, however, is not cultivated, i.e. woodland, we would feel justified in allocating it to the settlement.
4. We will not interfere with the land having SK-1 title which was issued before 2509 (1966).
5. We will not interfere with land cultivated prior to 2507 (1964), even without SK-1.

Farmer: If our land, having a SK-1 title before 2509 (1966) is only half cultivated, will the other half (woodland) which we are planning to cultivate this year be exempted? Some of us have been too busy trying to earn a living from our few rice fields.

Chairman: If the woodland on the west of the state highway has SK-1 after 2507 (1964) or on the east of the highway but not beyond the railway track before 2509 (1966) we also will not interfere. We will compensate you for any land we use for roads by allocating new land.

Headman: Well, that is better than no compensation. (All laugh). What about the qualifications of the settlement member?

Chairman: 1. Members must meet the qualifications as stipulated in the Self-Help Settlement Act B.E. 2511 (1968).

2. The people of Khon Kaen province will have priority over others.

3. Those of the neighboring provinces will have next priority.

Farmer B: Is it true that consent must be first given before the road can be cut through anybody's land?

Chairman: Yes, we must first get permission in writing from the landowner.

Farmer B: I, too, heard many complaining that the officials had them sign their consent without their really knowing what they were signing.

Chairman: Do you really believe someone would sign his name carelessly like that?

Farmer B: It was rumoured that someone had fooled the villagers in order to gain some money.

Chairman: Nonsense. The officials have their salary. It would be a criminal case to fool anyone. Besides, any work done must be supervised by different levels of the government. The high ranking officials have men assigned to carry on follow-up on all projects, and they cannot be fooled easily by their subordinates because everything must be done with supporting evidence. (Several farmers begin to talk among themselves).

Farmer A: We work on the land for our living. Some of the lands have no documents of ownership because we have had no time nor money to get them.

Chairman: It is the duty of every landowner to obtain a document of ownership. Usually if a road is cut through any land, that land will have an exit to the market and consequently the value of the land on either side will increase later on. This land reform program cannot be arranged in a speedy way because the authorities must first be sure that it does not encroach on the villagers' land. But if it has to pass over any land, the owner will have first priority over the others in the selecting of the newly-allocated land.

Farmer C: Is it possible to sell that land which will have been allocated to me?

Chairman: No, the government gives you land to work on in order to earn your living. But later on, after 15 years from the date you receive the land title deed from the government, you will have the right by law to sell it.

Farmer D: 15 rai is really not enough land to earn a living, if you have five children, as I do.

Chairman: Come now, 15 rai is more than enough; if you are diligent you can work on three crops a year.

Farmer D: I want to sell my land so that I can migrate to Chieng Rai and buy land there cheaply.

Chairman: Ha! Who told you that you could buy land there cheaply? Cheap land is not always good land. The people there are no fools. Even here, good land costs a lot. Only fools dream of good land far away. We allocate to each member or family, 15 rai. If his

son comes of age and gets married we will allocate him another 15 rai. Speaking of Chieng Rai, I have worked there on a settlement for six years. Over there the price of paddy is good. When the price is good how can you expect people to sell land to you cheaply? The only cheap land is land which you have encroached upon illegally and cleared. It is cheap because you didn't pay for it. But remember, that you have to spend money and perspiration to make it fit for cultivation. But during that time you will worry that you may be evicted by the forest officer and convicted and sent to jail or pay a large fine. Is that what you want?

Farmer D: (laughing). You have frightened me (all laugh). I wish to be a member. How much is the membership fee?

Chairman: You don't have to pay anything. You approach the settlement official for registration. But, beware of crooks. They will disguise themselves and fool you, and sell you land they don't even own.

Headman: What about the public land, what happens to it?

Chairman: Marsh, swamp, livestock grazing ground, they are all excluded in the land reform program.

Headman: But a member of the Water Users' Association must pay 20 baht a year as membership fee.

Chairman: Oh yes, I forgot about that and I'm glad you reminded me. Once you are allocated 15 rai you will have to pay 100 baht per rai (not more than 200 baht by law) by installment, i.e. at the third and fifth years. This will pay for facilities in the form of roads, wells, spillway, wat, school, etc. A member is eligible for

a loan to work on his land, for hiring labor, medicines, etc. In this way, he can start on his own footing. Formerly, when the Phra Buddha Baht settlement was organized by the Pibulsongkram government 20 years ago, none of the resettlers appreciated it. Now the land is worth a lot of money and no one is willing to sell it because it is productive and its produce can be sold at good prices at the Bangkok market.

Farmer C: It would be very kind of you if you could arrange for us to sell at the Bangkok market too. (all laugh).

Farmer C: If a road is cut through a cemetery, will new land be allocated for it? What about the livestock grazing ground?

Chairman: Certainly, we will have to find a new place for the cemetery. Our aim is to provide land for the poor and landless families to make a living, a place where no thieves will come, where no criminal offences will occur to disturb the peace.

Farmer C: That sounds like nirvana<sup>(1)</sup> (all laugh). If we reserve land for the livestock grazing ground, how can you allocate land for the poor and landless families?

Chairman: In that case, I will propose to the Ampoe authorities to preserve some land as a livestock grazing ground.

Farmer B: If I go to live in the settlement what facilities will you arrange for me?

Chairman: You will be allocated 15 rai. But, you will have to build your own house or shed or shack, as you like, and maybe, dig your

(1) The Buddhist heaven

own well. Our budget is limited. Usually, however, we have a budget for building wells, spillway, etc., for the members. We also provide loans to help you get started. Some settlements have provided each family with a loan of 6,000 baht. So, if you are diligent, you will be able to repay us after the second year. Remember that a lazy fellow cannot earn a good living anywhere, except maybe in the United States. (All laugh). Some families started their new life with only 126 baht by hiring out their own labor and growing guava. After several years, their entire fields were filled with guava. Now, the family can earn a good living by guava alone. Some started with 20 baht and a loan of 1,000 baht for making charcoal. The loan was repaid within one year. God helps those who help themselves.

Farmer A: He must have borrowed at no interest. (All laugh). If the road should cut through land without the owner's consent, what can he do?

Chairman: We will compensate him by allocating him land as we did at the Ubonratana dam where land was expropriated.

Farmer A: There are many plots of paddy land owned by many people where the road could be extended on and on, if the government decided to do so.

Chairman: In that case, we will stop it and make it a dead end. But if it leads to the highway, the land through which it passes will fetch a high price. It is up to the land owners to decide upon it. Take your time when it comes to making a decision. A hasty "no"

may not be in your best interests. Isn't that so?

Woman Farmer: If the SK-1 land is for the most part woodland can it be cleared into cultivable land before you move in?

Chairman: That would be illegal and would lead to your being convicted of perjury.

Farmer D: The SK-1 document I have shows 20 rai. The cultivable land is only 10 rai, whereas the other 10 rai is made up of woodland.

Chairman: You will have the rights to 10 rai only.

Farmer D: Can I give the 10 rai of woodland to my son as I had planned to do when he marries early next month?

Chairman: No, you cannot. But if your son is a family man, the settlement will allocate to him 15 rai. So he'll be five rai ahead.

Farmer D: But if I could give him the 10 rai, he'd be 25 rai ahead.

(All laugh).

Headman: I have 10 rai of cultivatable land but I cleared three rai of the indented land to make the whole plot rectangular. Can I have the right of ownership of these three rai?

Chairman: Yes, you can. But if it bulges out from the rectangular or square shape, you cannot.

Farmer B: I definitely don't want you to cut the road through my land.

Can you cut it along its fringe to make a curve to lead it elsewhere?

Chairman: No, in that case the road will bend this way and that way without end, like a vine around a tree.

Woman Farmer: Can you preserve our village woodland for us?

Chairman: That would be an injustice to the others. If you have woods, there will be robbers and thieves all over the place. You yourself will be their victim one day. Today, you have not had enough time to ponder over the case. It is better to think it over at your leisure and later report to the headman so that he may approach me about your decision. I am willing to come again at any time to give you clarification to your entire satisfaction. But try to be just. Think of the people who have no land at all.

Abbott: I have reserved 20 rai of land for the monastery by making signs and posts to demarcate the limits. Is that enough?

Chairman: If the land is upland and laterite where nothing can grow, we would have no objection to your having reserved it for the monastery. Are there any more questions? (He pauses a few seconds). The meeting is now adjourned.

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In 1968, Somporn<sup>(1)</sup> wrote that the government officials do not listen to the villagers but merely come, offer advice, and leave. The above meeting with humor and dialogue is highly indicative of the change which is slowly but surely coming about in the rural areas. I believe that on the one hand, the newly built roads are responsible, since farmers are travelling to urban areas and losing their timidity of urban dwellers and officials. On the other hand, credit must be given to a new breed of government official who "talks to", and not "down to" the farmers; a breed

(1) See bibliography

of officials which shows respect and listens attentively to the remarks of the farmers and is sincerely interested in their welfare. Perhaps this breed is to be found only in the Social Welfare and Extension services. Perhaps its members were always like that, and thus chose that branch of service.

However, the utilizing of the central Thai dialect in the Northeast still creates a barrier to better rapport, and after having experienced government-to-people meetings in which some officials were from the Northeast and spoke in the local dialect while others spoke in central dialect, I can validly state that farmers believe, respect, listen more attentively and respond more freely to the former officials than to the latter. (1)

Personality is perhaps even more important. The chairman of the above described meeting was quite successful, even though his delivery was in central dialect. He was an exceptional person. If the personality is not convincing, it is at least a gain in official-farmer relationships to put the farmer at ease by communicating in his own idiom. One solution would be to have the officials meet with only the headman and school teachers who know the central dialect, and then have this latter group relay the discussions to the interested villagers.

There are numerous farmers who dislike and avoid attending meetings called by the government officials. Claiming that at the first meeting

(1) I questioned the farmers as to just how much they understood when attending meetings in which central Thai was the medium for communication. The responses ranged from "a little", to "most", but never "all". The mode was "half".

they listen to promises of this and that, and at the second meeting they listen to excuses as to why the promises have not materialized. At the third meeting they learn that they must pay for all the things that were promised free, at the first meeting.

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TRACHOMA UNIT AT BAN KHAM KAEN KHUN ON MONDAY, 10 AUGUST 1970

The following is not an example of a government-to-people meeting but, an encounter. A mobile health unit arrived at one of the canal villages where I was present. The vehicle arrived at 10.00 a.m. The medical team went to the village headman's house where they spent a few minutes chatting. In the interim, a messenger was sent to notify the villagers. At 10.30 the villagers were told to line up and the chief medical man climbed upon the car hood and announced:

"We have found 50,000 cases of trachoma in Khon Kaen. We have been working in Khon Kaen province for one year. Your village will be the last one visited since we must now go to Ubon, where we will spend another year treating trachoma patients. Your government is doing this for its people.

"You people with trachoma, I will give you some advice. You should always wash your hands after touching anything. If you have tear dregs you should take care to wipe them off with a clean cloth or tissue. Don't ever wipe your eyes with your hands, unless you have washed them first. You should not sleep with others. Children should be protected from flies, since flies carry diseases. If you find a skin eruption in

the upper part of the eye socket you can be sure that you have trachoma. Now all of you, please register your house number, the names and ages of all your family. After that, we will examine your eyes, one by one. Please do not crowd around."

After the brief eye examination, a tube was handed to victims of trachoma with one of the following verbal instructions:

"You have a bad case of trachoma. You should go to the hospital to have it peeled off."

"Your eyes are infected. Use the lotion and ointment, given to you by your government free of charge, for five days."

"Your eyes are infected. Use the lotion and ointment, given to you by your government free of charge, for ten days."  
etc., etc. up to six months.<sup>(1)</sup>

The personnel climbed back into the truck and drove off. The entire visit (three hours including frequent breaks) was quite impersonal. No dialogue, no questions.

(1) Out of the 347 people examined, 11 were considered serious cases; 87 were considered to be in the incipient stages of trachoma, 249 were declared "negative".

RURAL GOVERNMENT INSTITUTIONS

AGRICULTURAL OFFICES AND LOAN INSTITUTIONS

Q. "You visited a number of governmental **Provincial and Ampoe** agricultural and credit offices and talked with the personnel. What were your findings concerning redundancy of activity and competency, respectively?"

A. I think that it would be useful here, to enumerate briefly some specific findings and then to offer some general comments.

The Provincial Agricultural Extension Office

This office, in operation since 1966, is responsible for four provinces - Mahasarakham, Loei, Kalasin and Khon Kaen. A staff of six officers (all graduates of universities), serve as advisors to all provincial extension services; supply lecturers to the district and provincial extension offices; supervise provincial and district extension operations; supervise all operations in order to meet requirements specified by the Bangkok office.

The primary focus in 1970-71 has been on second cropping. Projects are limited to only one village in Khon Kaen province and one

in Kalasin. Soil surveys are made and suggestions proffered as to what crops should be grown. From there, the Land Development Office assumes responsibility.

Problems as Proffered by the Personnel

1. An unrealistically strong desire on the part of the government to push rice cultivation.
2. An insufficiency of funds, equipment and personnel.
3. An overlapping of duties with other government agricultural offices, resulting in a wasted duplication of effort.
4. The inability of the staff to speak the local dialect.

The Provincial Extension Office (Kalasin)

has a staff of six who are indirectly responsible for over 800 villages. Their primary concern is pest and insect eradication. They support and backstop (when possible) all district extension requests. In 1970-71, they have been concentrating in those villages which have available canal water for dry season irrigation. In 1970 they had overseered the distribution of over 200,000 kilos of fertilizer (at 16% below market prices), 28 pumps and 28 insect sprayers. Two of them had been out in the field only twice in 12 months, the others were merely collecting loans.

Problems as Expressed by the Personnel

1. Too much time must be spent with administrative paper work.

2. Too much time is spent trying to collect loans due.
3. Supplies are never sufficient to meet demands.

#### The District Agriculture Extension Offices

These offices have only two extension workers each of whom has had three years training at an agricultural vocational school. The workers are each responsible for six tambons, or roughly 115 villages and, in 1970, were able to work with only 100 out of the roughly 8,000 farm families in their respective ampos. One, usually has a motorbike, the other, a bicycle but in the rainy season both must bus and then walk. Bus fare comes out of their own pockets. Their work consists primarily of introducing new rice strains, or encouraging the use of commercial fertilizers and of encouraging the growing of crops which the government has recommended. They spend only one morning with the assembled group of farmers and claim that they are fortunate if they are able to return to the same village for more than two or three follow-ups during the growing season. When they do return, they sense that the farmers are thinking "where were you when we needed you?", as in many cases they have. The district agriculture extension offices operate their own cooperatives. Members pay initiation fees of 15 baht. Fertilizers and seeds are offered at prices lower than those on the local market.

#### Problems as Expressed by the Extension Workers

1. Each time the extension workers return to a village after so long an absence, they have guilt feelings for having neglected the farmers.

2. The extension worker is frequently asked for advice on what is marketable, but never really knows - how could he under the present hit-and-miss type of unplanned production?
3. Though mutual cooperation agreements have been formalized, other agencies do not cooperate with them. For example, if a tractor is requested, it may arrive two months later. If water is requested, it may arrive 10 days later.
4. Villagers are selfish. Village A will block the water so that village B gets none. "We don't know how to handle this situation".
5. Seeds loaned are usually repaid but, loans for fertilizer are difficult to collect. In April 1971 the cooperative was 20,000 baht in arrears out of a total of only 30,000 baht in loans. This means very little funds are available for the requisitioning of needed fertilizer for farmers in other areas.
6. Much time is wasted walking from the farmer's first plot to his second plot, and sometimes to a third plot. Distances may be as much as two kilometers.
7. While one extension officer is in the field, the other is required to remain at the ampos office. In short, one man is handling the extension work for an entire district.
8. They are provided with only 15 days of Per diem and so cannot afford to travel as much as is needed. (Actually, with one man always in the office, this amount is adequate).
9. All feel that their vocational training has not prepared them adequately for the technical questions now being asked of them by

the farmers, especially in those areas where irrigated second cropping has begun.

The Nampong Farmers' Cooperative (started in 1950)

In each village where a cooperative exists, there are 15-20 families who form the cooperative group. Each member is responsible for the loans made by every other member. In June 1971 there were 71 such groups representing 68 villages out of a potential 350, or roughly 19%. Land must be mortgaged to obtain a loan. Average land holdings per member is 34 rai which means that the cooperative is not benefitting those farmers who need it the most. Loans range from 1,500 baht to 8,000 baht with the mode at 4,000 baht. Interest is 12% per annum.

The amount of a loan to a particular group, is based on the assessed value of the combined owned acreage. The assessment is from 50% (Khon Kaen) to 40% (Kalasin) of the sale value. This sale value is quite arbitrarily determined. A farmer says he's willing to sell for 3,000 baht but if someone were to offer him this amount, he usually would not sell. Assessment is based on the latest sales price. But the sale may have taken place two or more years ago. Also, the sale may have involved poor soil, upland, or land far from the canal.

The cooperative also provides credit to farmers in the form of fertilizers and insecticides. These commodities are loaned, and repaid in rice at harvest time. In 1970 the cooperative had more than 2,000,000 baht in outstanding loans with a delinquency rate of 50%. An official explained that each year the membership casualty rate is high since

farmers become "fed up" with having to bear the responsibility for the loans of others. The farmers are reluctant to put pressure on their fellow villagers, especially when they know that there is a valid reason for non-payment.

Problems as Stated by the Office Personnel

1. The time lag between the receipt of the request and delivery of the loan ranges from 20 to 60 days (vs. one day in Chiangmai). There are those who claim that money is being used along the way for private lending ventures.
2. Loans are not adequate to meet the needs of the farmers. Minimum need has been estimated at between 12,000 to 15,000 baht, especially when the purpose is for clearing land.
3. Delinquency rate deprives many innocent farmers from obtaining loans.
4. Silos would solve the cooperative storage problem in that they could then wait for better prices.
5. Of the ten purposes of the cooperative as listed in the Charter Outline, several have not been activated due to shortages of technically qualified personnel. These include: support for members to collectively sell or collect produce of members for further sale; the making available of tools for cottage industries; the propagating of improved techniques for these industries.

### The Banphai Cooperative

Before a district level cooperative can be formed, it must be able to show a membership of 20 groups, with a maximum of 20 members per group. This particular cooperative has had many problems, the most urgent one being a severe shortage of personnel, thus forcing it to consolidate its 20 groups into one large chapter. This amalgamation is in progress.

The cooperative provides fertilizer at reduced prices (90 baht vs. 110 baht on the local market) and "guarantees that a 50 kilo sack contains 50 kilos". "The farmers trust our cooperative." Fertilizers bought in town from the local merchants are often short-weighted. (I have heard this complaint from many a farmer).

Credit is limited to 12,000 baht maximum for group loans and to 2,000 baht for individual loans. All loans over 5,000 baht require the borrower to mortgage his land. Interest is 12%. Loans in 1970 amounted to 1,200,000 baht, 95% of the short term loans were repaid and 80% of long term loans -- a very good record. In the past years, only two farms have been commandeered because of unpaid loans. Approximately 45% of the members have received loans at one time or another -- another feather in their cap. However, in any one year, the ratio of members to those receiving loans is 15:1, and since only one in ten farmers in the district are members of the cooperative, this means that loans are available to only one in every 150 farm families in any single year.

### Problems According to the Staff Members

1. Loan requests far outweigh available cash. (But, this is universal).

2. Farmers are continually requesting a marketing and consumers cooperative which the Banphai cooperative officials are powerless to form.
3. Lag time between request and receipt of loans is too long (over one month). Unfortunately, many a farmer does not anticipate his needs and requests his loan only at the time of need. Others do not want to pay the extra interest on an early loan.

The Farmers Bank for Agricultural Cooperations and Credit (founded 1965)

This large organization has loaned out over 21,000,000 baht to over 8,000 families. Loans are limited to only those farmers who grow rice and can show evidence of a surplus of at least 100 tangs. The bank caters to the "middle income" farmer, so that once again we find the really needy farmer has been ignored. The bank also loans to smaller cooperatives at 11% interest per annum. This private bank has a large staff of experienced people and is thus in a better position to supervise and collect loans than are the smaller cooperatives.

The Agricultural Credit Bank

makes loans only to those producing kenaf and rice. In 1970, loans amounting to 9.6 million baht had been made to some 4,200 families. The amount of the loan cannot exceed 50% of the assessed land value of the borrower.<sup>(1)</sup> Only farmers with 25 rai or more have been the recipients, and the needy have had to do without. As with most other credit agencies

(1) Commercial banks usually evaluate at 25-30% of sale value.

loans for fertilizer, seed and labor must be returned within 12 months. Medium term loans, for animals, pumps and land purchases, must be repaid within three years with an installment made at the end of each intervening year. The borrower must be a member of a mutual guarantors group. Loans of up to 10,000 baht are made against the sale of crops. Loans against a mortgage reach as high as 50,000 baht. Unique, in this last case, is that the individual and not the group is held responsible. Delinquency in repayment is only 14% and only 3% of all applications have been denied.

#### The Agricultural Bank

makes loans to poorer families. No mortgage is required but, all must be members of the Agricultural Bank Cooperative (Klumlunkha thanakan). The bank has been unsuccessful in collecting debts and plans in late 1971 to require a farmer to mortgage his land. The landless were able to borrow up to 5,000 baht at 12% interest per annum; those with land, up to 30,000 baht. The bank has a relatively small, but well-trained staff.

#### Land Development Office Khon Kaen

is under the Ministry of National Development. The officers have had only three years vocational training. The supervisor has a Bachelors Degree from Kasetsart University, plus one year of training in the States. The primary functions of the office are to teach farmers erosion control and soil management. The criteria for selecting villages

for Land Development Office projects are:

1. The degree of cooperativeness of the farmers.
2. The lack or minimum number of stumps and anthills in the fields.
3. The proximity of the village to a main road (so that farmers from other villages can visit).

In the dry season, work is carried out on lowlands and in the wet season on uplands. An industrious farmer is chosen as the innovator, in the hope that others will follow his example and join the project. The advisors remain on a project for a period of two years. Seeds, fertilizers, pumps and tractor are freely provided only the first year. Several projects in scattered areas are in operation concomitantly. The Land Development Office Policy for 1970-71 has been to concentrate on villages with available canal water.<sup>(1)</sup>

I was impressed with the leadership qualities and dedication of all the personnel in this office. They were usually in the field and their behavior in the field situation was one exhibiting sincere interest, and hard work. Most important, they spoke the local dialect. The farmers liked them and spoke of them as being "one of us".

Problems as Related by the Staff

1. Shortages of equipment, funds, and personnel, results in very few farmers being reached each year - usually not more than 35 in the entire province.
- (1) By now the reader sees that many of the extension type organizations have all been working in the same very small area.

2. Difficulties in trying to convince farmers to innovate when the latter have no funds, no water, no markets.
3. Very little, if any, cooperation from the other extension services.
4. Bangkok had assigned them six time-consuming projects for 1970-71. Since they are a staff of only three,<sup>(1)</sup> for all of Khon Kaen province, they have had to spread themselves so thinly as to be ineffective in all areas.
5. Many farmers cooperate merely in order to comply, and unless constantly supervised, revert to their old practices, following the path of least resistance.
6. The poor have no time for second crops, they are too busy hiring out, fishing, or collecting food in the forest. Therefore, the projects are benefitting only the more well-to-do -- those who can afford the risks.

The Seed Multiplication Station (Department of Agriculture)

This station, located on the outskirts of Khon Kaen, serves four functions:

1. To provide improved seeds to farmers at greatly reduced prices.<sup>(2)</sup>
2. To provide demonstration plots at the farmers' fields.
3. To disseminate information on new planting techniques.
4. To perform research on experimentation plots within their compound.

(1) A young Peace Corp Volunteer joined the staff in 1971.

(2) Seed prices are 30% those on the local markets.

Problems as Expressed by the Personnel

1. Farmers must come to them for supplies, since their policy is not to distribute to the fields.
2. Since the Ministry of Agriculture Extension Services are competitors and receive the lion's share of seeds each year, their own stocks are never adequate, and most farmers who have taken the long trip to the station, more often than not, return home empty-handed. Of the 470 farmers who requested seeds in 1970, only 232 could be provided.
3. Demonstration plots are chosen near main highways, and thus the needy farmers living inland are once again ignored.
4. The station concerns itself with wet season crops exclusively.
5. 95% of their field work is within Ampoe Myang.

COMMENTS

As one can gather from the above run-down of institutions, there is a great deal of redundancy of effort among the various government agriculture offices, a keen competition for personnel, commodities, and funds and a gross inadequacy of all three. There is needless overhead and book-keeping, the latter resulting in the waste of thousands of man hours monthly -- hours that could be spent more profitably in the field. There is virtually no coordination between agencies. Each agency is struggling to meet the unrealistic quotas set up for them by their home offices in Bangkok. In the words of one official, "To meet these quotas, we need more miracle men and less miracle rice".

One finds the extension workers to have been inadequately trained. They are the first to admit that they are frequently a step behind rather than ahead of the farmers. The officials try hard but their frustrations are numerous and the rewards are few.

The credit cooperatives and agricultural banks are also competing with one another for members. All, in the name of solvency, are catering to the more well-to-do farmer to the detriment of the more needy. The government cooperatives have been in existence for 50 years and over half have reported failure. My experience in Vietnam as well as in Nongwai and Lampao has led me to the conclusion that cooperatives cannot be efficiently run by a bureaucracy and must be under private management, be it Chinese or Thai.

The seed multiplication station has been multiplying seeds for decades and yet not one farmer I interviewed had ever seen, let alone received any. Research continues, but stays within the confines of the station. In a similar vein, upland soils are being eroded and depleted of their nutrients by periodic flooding, over-grazing and deforestation. Yet, the best Thai soil scientists are not working towards bridging the gap between their theoretical training and the applied extensions of this training. For example, exotic grasses have been grown on government experimental stations since 1965, yet none of them can be seen on the village fields. It is true that a few farmers who visit the station are provided with seeds, but there is no follow through from there, the farmer being left to fend for himself.

The research literature going as far back as 1950, is replete with recommendations so enough said.

#### MISCELLANEOUS OFFICES VISITED

##### Namphong Canal Maintenance Office

The 1970 budget for maintenance was only 200,000 baht resulting in maintenance work having to be contracted out. As of March 1971, unskilled labor hired by the government must be paid a minimum of 22 baht a day. Contractors need not pay more than 12 baht. The farmers are thus the ones who have lost out and they are well aware of this.

To stem erosion, plans were made for planting grass on the canal banks. Since all funds this year were allocated for canal construction, there were no funds for erosion control. This is penny-wise pound-foolish inasmuch as the resultant costs of maintenance in the 1972 dry season will now be in the millions of baht. Erosion is progressing at the rate of 3,000 cubic meters per kilometer per annum. One farmer working one day can remove 2-3 cu. meters only. In addition, 50 cubic meters of cement slab for canal lining must be replaced yearly. Also needed (and not budgeted for) are more bridges over, and more roads along the canal to facilitate future maintenance, and to provide the farmer easy access to his split land holdings.

The tragedy of this situation is that the water flow in the canal must also wait for the budget, and once again the farmers are the ones

to suffer.<sup>(1)</sup>

Community Development Office Nampong (Ministry of Interior)

All staff members are graduates of the technical school of agriculture and have received an additional eight months of community development training.

The Community development worker's primary job has been to organize village Community Development committees. The director and his twelve assistants are each responsible for one tambon.

In 1970, Community Development Councils were organized in fourteen villages, and Self-help Road Projects started in eight. Unfortunately, since the farmers must employ their own tools, road maintenance and road construction can only be carried out following the first rains. This often interferes with the farmer's preparation for rice planting.

- (1) The engineer can design his canals to be constructed mainly on the surface of the ground or he can build them in the ground so that the water surface is about even with, or below the level of the adjacent fields. There are advantages and disadvantages to either procedure. With the surface canal, it is necessary to import fill material and there is always the threat of a wash-out or break in the canal. The need to import fill and the threat of breaks can be largely eliminated by building canals below the surface. This system however, complicates delivery of water, particularly to the up-hill side of the canal. Under this system it is also a common practice to spill the excavated materials on the banks of the canal. Until stabilized, such spoil banks are subject to erosion and the materials wash back into the canals, thus posing a problem for annual cleaning. Another problem encountered in this type of construction, when a concrete lining has been placed in the canal, is the phenomenon of a build-up of hydrostatic pressure from flood water on the up-hill side of the canal. The pressure can easily be enough to lift out sections of the lining. Once the entire canal has been constructed, this danger can be minimized by retaining water in the canal (the year round) to equalize the pressure.

The 1971 program in addition to roads, includes well digging. The Community Development Office supplies the cement casing, the village is to supply the labor.

Problems as Expressed by the Personnel

1. The difficulties encountered in attempting to convince farmers of the value of cooperation, especially the women. Compared with the men, they are more vociferous, negative, difficult to reason with and difficult to organize.
2. Once a road is built, the villages are unhappy unless it is laterited. Once laterited, they are unhappy unless it is surfaced.
3. Project villages are chosen near the main road, since no transportation facilities are available for the Community Development workers. Thus the remote villages, who are most in need, are ignored.
4. Last year's ampoe budget was only 200,000 baht. This amounts to 16,000 baht per tambon or 2,000 baht per project. Not much can be done with this small budget. For one particular school project in an insecure area, the government had promised 50,000 baht, but sent only 10,000 baht, resulting in the Community Development workers losing a great deal of face.
5. The workers feel that their youth is a handicap in trying to gain the confidence of the farmers.
6. Their training is inadequate resulting in the farmers lacking confidence in their "skills". As a consequence, the farmers "comply

with our wishes merely because we are government officials".

7. In-service training is only a few days each year and very little is taught that is of a practical nature.

#### Ampoe Education Office (Nampong)

District administration is under the Ministry of Interior. A part of the budget emanates from the Department of Local Administration, i.e. salaries for teachers, and materials for primary schools. Secondary schools fall under the jurisdiction of the Ministry of Education as do all school curricula.

#### Problems

1. Only 5-10% of the fourth year students (Pratom 4) continue their education. Only 60% of these go on to high school (matayom).  
The education offices believes that teaching agriculture in the elementary schools would be a waste of time, claiming that the pupils are too young. Matayom level schools, are another story, but once the pupil has gone that far, he never returns to farming.
2. Fourteen more schools are urgently needed, 120 additional classrooms in existing schools, and 120 more teachers. "These figures could be duplicated for all ampoes in Khon Kaen and Kalasin".
3. The ratio of teachers to students is 1:45 though government regulations stipulate no more than 1:35.

The Ampoe Clinics (2nd Class)

The staff is comprised of a health officer, his assistant, and a mid-wife; all speak the local dialect. Office hours are 8.00 a.m. to 4.00 p.m. Monday through Friday. All personnel have a matayom 6 education, plus one to three years additional training. In addition to their work at the clinic they travel from village to village giving inoculations and vaccinations. The clinic itself treats a dozen or so patients daily. However, on special occasions such as vaccination day, hundreds of villagers appear. There is no charge for either medicines or services.

Problems

1. Never enough medicines.
2. Shortage of staff.
3. Must cover too large an area in their field duties.
4. Farmers prefer the clinic to the local herb doctors but the distance is too great for most. The health officers do not make village calls and a sick man is naturally in no mood to travel. By the time the patient does arrive, his illness has usually progressed to the point where only a hospital can be of assistance. Thus, the clinic benefits only those farmers living in close proximity.

SOME GENERAL OBSERVATIONS AND PROBLEMS

1. A lack of constant supervision results in the mis-use of water, which in turn will result in there being no water available for anyone towards the end of the dry season. The farmers need someone to advise and work with them during the first year from beginning to end. Farmers, as would most people, follow the line of least resistance. If no one is present to supervise they will revert to those techniques with which they are more familiar, rather than travel far, which they must, in order to receive advice.
2. Though some officials have claimed that the dispersment of plots creates difficulties in guarding against foraging animals, pests and thieves, and also claim that this dispersment creates a large loss of valuable time for the extension workers who must walk from one plot to the other, I do not see this as an immediate problem for second cropping, since only one small plot is utilized by one family. The other plots are left fallow, rented or loaned to other families.
3. Each year, the farmers tend to grow those crops which sold well the previous year. As more and more farmers join the ranks of second croppers, and as they follow the example that proved successful the year before, the result will be a flooding of the market with identical crops and the concomitant lowering of the unit price. This was the case with Mung beans in 1969, with tomatoes in 1970, and with corn in 1971. Farmers are fearful that the success of cucumbers in 1971 will result in a rash of cucumber growing in 1972. In fact, of the 80 farmers interviewed in May-June 1971, well over half were

planning to expand by 50% their cucumber production. The various government agricultural officials are aware of the need for, at least, provincial level second crop planning but, the initiative must come from the highest administrative echelons in Bangkok. One solution to future internal market saturation would be to build canning or food processing plants. However, there is no need for these products internally, and the industry would have to depend on foreign markets which are quite unpredictable.

4. One of the basic problems is the lack of adequate and honest project orientation. The farmer is never told the entire story and what little he is told, is highly idealized. Government officials make many promises in order to placate the worries expressed by the farmers. These promises are not usually fulfilled and the farmer harbours his suspicions of government integrity for many years to come. For example, in the Nongwai area in 1970, the farmers were promised 250 kilos a rai and 4 baht a kilo if they would raise soy beans. The farmers received only 150 kilos a rai and only 2.50 baht a kilo. One cannot blame the officials entirely, since they themselves have never been provided with the over-all picture. They have often to act as salesmen for a product about which they know very little.
5. Farmers who visit government pilot farms and demonstration centers are impressed with both the quantity and quality of the crops. However, when told by the officials that they too can grow crops like these back on their own farms, they are not convinced. The demonstrations are successful say the farmers, because there is an abundance of water, fertilizers, insecticides, improved seeds, technicians and

and as many laborers as needed, "while we have only our families and our land".

The pilot projects and demonstration farms should be transplanted to the villages as was done in Hatdokkeo and Huaj Sithon. The benefits are accrued immediately to the involved farmers and in plain view of the entire village.

6. It is ironic that villages which have access to the canals, which have excellent roads to urban areas, which have witnessed a concentration of various government agencies providing services because of this easy access, are those which have also been provided with alternative means of obtaining income. This partially explains the relatively poor turn-out for second cropping. The corollary is that farmers removed from the main arteries of communication, who are harder working due to the necessity of having to make a living under more adverse conditions, do not have water available, and do not receive the needed government services. The leaders in these villages all stated that had the canal passed through their village every farmer, even the first year, would be growing one-two rai of dry season crops to supplement their meagre income. Poor communications deters their seeking and accepting employment elsewhere. If the worker cannot return home each day, most of his small wages would be expended on room and board.
7. Farmers are always in need of credit. The numerous credit organizations cannot meet even the minimum needs. Since commercial banks will loan money at 12% against a mortgage, and since all the credit organizations are competing for clients and expending a good

deal on overhead, I would think that more money would be available for loans and more quickly processed if the private banks took over, and the government credit organizations were abolished.

8. One often hears of the poor farmer being at the mercy of the middleman I heard no such complaints. The middleman came to the village and bought the farmers' produce, saving him a trip to town. Since many middlemen come, prices are competitive.<sup>1</sup> The middlemen loan money and provide it immediately. He brings medicines when needed. He makes contributions to the wat. He is thought to be a "Thai" (actually 70% are Chinese) since he speaks excellent Lao.

The urban rice millers, kenaf brokers and merchants are another breed. These people are known to be Chinese, are widely criticized for their constant exploiting of the farmer. Some of the more common examples proffered by the farmers are:

- A. The rice miller offers the farmer a price for his paddy to which the farmer agrees. After the paddy has been milled the miller claims that the rice is inferior and offers him a baht less per tang. The next time the farmer brings him a sample first and the price is agreed upon. However, after the milling, the miller claims that the milled rice is not the same quality as the sample and again offers a baht less per tang. One hears many similar stories about the kenaf crop.
- B. The radio announces that the government is buying paddy at X baht a tang. The farmer arranges to cart his rice to the distant purchasing center. He arrives only to discover that the government

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<sup>1</sup>Actual profits for the middleman are only 10-15% on dry season crops; 3-4% on rice.

has already purchased its quota and is buying no more for the next two days. A miller standing nearby approaches the farmer and offers him 50 satang - a tang less than the market price. The farmer is helpless. To cart the rice off to the market will cost him, and to cart it back to his village will cost even more. He sells to the miller and goes away embittered.

C. The farmer hears over the radio that the market price of paddy in Khon Kaen is X baht a tang. He takes his rice to the miller and is offered a lower price. "But, I heard the radio announcer state such and such a price". The miller's reply is "Well, then sell it to the radio announcer".

D. Merchants in trying to unload their surplus fertilizers stocks, sell them to the unwary farmers. Much of these fertilizers are not those designed for the crops being grown in the irrigation areas. This wanton selling combined with poor results has done much to discourage the use of fertilizer in many areas of the northeast. In addition, the bags are often short weighted.

9. One reads a great deal about the evil influence of corruption. Most of the farmers interviewed claimed that although they didn't like it, they were nevertheless resigned to the fact that this was a part of life. One can look upon it as a system wherein one pays for services rendered, be it for a land title, a job on the canal, or

an identity card, etc. Farmers will point out that one is bothered by the system only upon few occasions in one's lifetime.

The solution frequently proffered by the experts, is to raise the salaries of all government employees. I believe that this would have little, if any effect. The policeman on the beat earns a fraction of that earned by high ranking officials whose slate is not always clean. As G.B. Shaw is alleged to have said, "Show me a man that claims he has enough money".

#### Final Remark

My long experience in Vietnam, Thailand, Cambodia, and Laos has led me to conclude that farmers in all the riparian countries share common goals and aspirations. All share a common sense of reality. All are pragmatic concerning the gaining of their economic livelihood. We do not have to differentiate between the Thai and the Vietnamese farmer or fisherman, etc. All share similar concepts - all share a traditional modus operandi, and all want to raise their standard of living. Nearly all lack capital and most lack available markets.

SOME POST MORTEM THOUGHTS WORTHY OF  
CONSIDERATION

Many a foreign advisor, consultant, "expert" tend to think of officials in under-developed countries as personifications of the under-development syndrome and thus he is guilty of harbouring similar prejudices as those held by government officials toward the peasants. In both cases, this is their failing. The expert believes that he has been sent to teach the ignorant, and proceeds from this premise. He becomes overwhelmed by his own assumed importance. When in doubt about a particular problem, he asks another foreign expert, and only as a last resort will he turn to his counterpart, who more often than not, knows as much, if not more, than he.

Most advisors are new to this country and relatively ignorant of the culture patterns. Much of their basic technical knowledge has been gained from theoretical books and stateside or European experience and most of what they learn concerning their specialty (in so far as it is applicable to Thailand) is learned from the Thai. Another point to remember is that there are many Thai today who have Masters degrees, a substantial number have Ph, Ds. In addition, these Thai have had many years experience in their own culture and I believe that most of them are as qualified to handle the problems as the so-called "experts". Why are they not a part of the team?

Over the past several years, I have attended numerous meetings at which only western types were present - intentionally so. Problems were raised and discussions held and quite frequently the speakers were

talking in vacuo. "Well, Bill, we must get more information on that", or "John, let's do some research on that matter and see what you can dig up". On all these occasions there were competent Thai who had most, if not all, of the answers they were seeking. At one meeting recently attended, a member of the group would leave the room periodically, go down the hall, consult with his Thai counterpart and return with the answers. My question is, why wasn't his counterpart, or all counterparts for that matter, invited to attend the meeting?

I know of a Thai agriculture expert with 40 years in government service who knows his field from the grass roots to the highest levels of the administrative bureaucracy. Working in one of the UN offices in Bangkok, his primary function is to act as intermediary when his "western" colleague experts need to meet high level government officials. I could cite other similar situations. This mentality on the part of advisors is one of the major impediments to development in all developing countries.

The Thai have been well aware of this situation for many years. They have merely tolerated experts and advisors because of the project funds which accompany them. One Thai official told me that if the United States were sincerely interested in rapid development for Thailand, it would provide the funds and let the Thai run their own programs. He continued by pointing out the obvious, namely that with the \$80,000 that it costs USAID to send an advisor and his family to Bangkok for two years, the Thai could competently carry out all necessary socio-economic research for the next ten years. An American agricultural specialist told me that the Farmers Cooperative Handbook,

distributed to farmers in Connecticut in 1926, stated that adequate water, fertilizers, insecticides, credit, consumer and marketing co-operatives, and cooperation among the farmers, were the seven basic ingredients needed for increasing farmers' incomes. Further research carried out in the dust bowl of Oklahoma in 1936 came to the same conclusions. In 1946, Marshall Plan experts carried out costly research and wrote similar recommendations for Greece. In 1956, Laos was presented with similar recommendations and in 1966, research papers emanating from Thailand again repeated the cry.

In 1956, I attended an International Community Development meeting in Luknow, India, and listened to talk after talk concerning the felt-needs of peoples throughout Asia and listened to recommendation after recommendation concerning solutions. In 1964, a similar yet smaller conference was attended in Taiwan, and another meeting on rural problems in Southeast Asia was attended by the author in Bangkok in 1971. Research papers were read and quoted at all three meetings. The felt-needs and their solutions remained the same. Nothing had changed except the participants.

Though we can show that southwestern USA, central Luzon and northeast Thailand, do not share a common culture; that the people do not share a common personality nor common value system, we, at least, know enough at this time to predict that a success or failure of an irrigation project in any of these areas is determined by certain logical pre-requisites - the same seven that appeared in the 1926 handbook mentioned above.

I am convinced that more socio-economic research will serve no

practical function in future rural programs be it in the field of Community Development, Felt-Needs, Agricultural Irrigation, Roads, etc. Research has been academic rather than pragmatic. It has offered very little information that has not already been known, and has offered recommendations of such a vague or idealistic nature that no one could possibly act upon them. For example, in my readings, I have frequently run across each of the following phrases (my report, unfortunately, contains these too): "What is needed is more competently trained technicians"; "more cooperation is needed between the various involved field offices"; "marketing cooperatives are needed and would provide the farmers with a higher income"; "the extension field services need more and better trained staff"; "the farmers must be organized if irrigation is to be successful"; "the middleman must be eliminated", etc. etc. etc. And though these reports have told us what must be done, where, and by whom, to accomplish these goals, they have not told us how to motivate "whom" to take action, or how to motivate "whom's" Minister to take action.

Everyone has known for years that the soil at the Ubonratana Resettlement is poor; that yields from poor soils are themselves poor; that water is a problem; that an uprooted people are an unhappy people. The frequently seen recommendation, for example, to put the reservoir evacuees on good land is not realistic. Where does one find good land not ready occupied? If there were good land available, most farmers in the northeast would have moved onto it by now. To recommend increased use of fertilizer is unrealistic unless the government is willing to provide the credit needed for its purchase. Research

hasn't told us nor is it capable of telling us how to motivate government to provide credit.

Many westerners argue that recommendations are not followed because research reports are not read, but merely shelved. This is not the reason. The Thai are aware of all the facts and problems presented in these reports. They have been for years but, they also know that the basic problems are administrative and financial. If major changes are to occur, only high ranking Thai can initiate them. They are trying to find the solutions, but the Thai bureaucracy is a very rigid and solid piece of machinery and not easy to remodel. Here, as in most countries of the world, many decisions for action or in-action are based upon political or economic expediency and not on the potential discomforts which a particular group may suffer as a result of the decision.

I recommend that all future socio-economic research projects be very carefully screened if the ultimate purpose of this research is to shed light on development problems. All research recommendations ultimately lead up the same road, viz, that if action is to be taken the initiative for this action must come from the very highest echelon of Thai government.

BIBLIOGRAPHY

- Arneil, W.S. "Nampong Resettlement Project" ECAFE Committee for Coordination of Investigation of Lower Mekong Basin (mimeo).
- "Agricultural Commodities Projections for 1975-1985" FAO publication vol. I, Oct. 1966 and vol. II, August 1966.
- Ben-Nun, I. "A Study of and Recommendations for Self-help Settlement Projects" Lam Dor Noi Nam Pong and Ubonrat (mimeo) 1971.
- Bhatt, V.V. and N.A. Khan "A Framework for Planned Economic Development of Lower Mekong Basin Countries" United Nations: Asian Institute for Economic Development and Planning Bangkok 1966.
- Challinor, D. "Effects of Mekong Basin Development on the Vegetation of the Forest and Lakes of Thailand" (typed manuscript) 1970.
- Chamlong, ~~et al~~ "Investigation of the Health Problems in Association with the Construction of Dams in Northeast Thailand". Journal of the Medical Association of Thailand, vol. 5: no. 7, July 1967.
- Chamlong, Tohtong Report on Benchmark Agricultural Economic Survey of Thabo (Nong Khai) 1968. ECAFE, Committee for Coordination of Investigations of the Lower Mekong Basin, 1969.
- Cohen, Louis "Comments on Draft Amplified Basin Plan" Sept. 1970 (mimeo).
- "Community Water Supply". WHO Assistance to Research and Other Technical Services annex 3 B CWS/SA OFFREC 179 (mimeo).
- Coward, E.W. Jr. "The Differentiation of Synaptic Leadership in Rural Laos" mimeo for USOM, University of Pennsylvania, 1970.
- Coward, E.W. Jr. "Incipient Commercialization Among Farmers in Western Laos", Pennsylvania State University, 1970.
- "Draft Report on Socio-Economic Survey of Farmers in Huey Sithon, Kalasin 1967-70, UN-ECAFE July 1970.
- "Experimental and Demonstration Farms. A Summary of Operations for Irrigated Agriculture". UNDP/SF Project 191, Kalasin, Thailand 1965-68 (mimeo) 1969.
- Frutchey, Rose Socio-Economic Observation Study of Existing Irrigation Projects in Thailand. Prepared for the U.S. Bureau of Reclamation Bangkok, 1969.

- Goldsen, R. and Ralis, M. "Factors Related to Acceptance of Innovations in Bang Chan, Thailand;" Data Paper: Number 25, Southeast Asia Program, Department of Far Eastern Studies (Ithaca, New York: Cornell University, (mimeo) 1957.
- Hackenberg, R. "Mekong Main Stream Development: Plan or Gamble?" Institute of Behavior and Sciences University of Colorado 1970.
- Hackenberg, R. A Review of Human Dimensions of Mekong River Basin Development (by Ingersoll, J.) reviewed by University of Colorado, Denver (mimeo) 1970.
- Hunter, Guy "Assistance to Agricultural Development in Northeast Thailand, with Special Reference to the Use of Present and Potential Irrigation" (mimeo) Ford Foundation, Bangkok 1968.
- Ingersoll, J. The Social Feasibility of Pa Mong Irrigation: Requirements and Realities Bureau of Reclamation and USAID, Bangkok 1969.
- Ingersoll, J. Human Dimensions of Mekong River Basin Development - a case Study of Nampong Project in Northeast Thailand 1967-68, Bureau of Reclamations and USAID, Bangkok, 1968.
- Ingersoll, J. "Mekong River Basin Development: Anthropology in a New Setting". Anthropological Quarterly, July 1968, (symposium on anthropology in river basin development), Catholic University of America Press, Washington, D.C.
- Johnson, G. "Economic and Sociological Aspects in the Central Plains" (mimeo) USBR Bangkok, 1969.
- Kardell, M. Report of Socio-cultural Conditions in Nam Chi Area in Northeast Thailand. Research and evaluation section USAID Bangkok, October 1970.
- Kardell, M. Report on Socio-cultural Conditions in Nam Mun Study Area of Northeast Thailand USAID Bangkok, July 1970.
- Kardell, M. A Report on Socio-cultural Conditions in the Laos Study Area, Pa Mong Project, Lower Mekong River Basin; prepared for the U.S. Bureau of Reclamation (U.S. Department of Interior). Bangkok, 1968.
- Keyes, C. Peasant and Nation: A Thai-Lao Village in a Thai State; a thesis presented to the Faculty of the Graduate School of Cornell University. Ithaca, 1966.
- Hughes, Larson, et al "Thailand Agricultural Cooperatives - An Evaluation with Recommendations". USAID Bangkok, 1968.

- Kerefick, F.J. "An Analysis of the Operations and Management of the Accelerated Rural Development Program". USAID Bangkok, (mimeo) 1970.
- Long, J. et al "Economic and Social Conditions Among Farmers of Cangwat Khonkaen". Kasetsart University, Bangkok, 1963.
- Macaspac, I.S. "Comprehensive Economic and Social Development of the Lower Mekong Basin: Problems and Prospects". Indian Journal of Power and River Development, 1966.
- Macaspac, I.S. "Economic and Social Research for Lower Mekong Basin Development: Some Considerations for the Design of Future Programs". (mimeo) 1966.
- McDole, C. A Report on Socio-cultural Conditions in the Yang Study Area of Roi-Et in Northeast Thailand. United States Bureau of Reclamation and Research and Evaluation Division, USAID/Thailand, 1968.
- McDole, C. A Report on Socio-cultural Conditions in the Pa Mong Study Area of Northeast Thailand; prepared for USAID/Thailand, 1969.
- Mekong Committee Secretariat. "Statement on Principles and Policies For Resettlement and Settlement in the Lower Mekong Basin". (mimeo) 1968.
- Moerman, M. "A Thai Village Headman as a Synaptic Leader", The Journal of Asian Studies No. 28, 1969 p. 549.
- Moerman, M. Agricultural Change and Peasant Choice in a Thai Community. UCLA Press 1968.
- Ng, R. C. "Some Land use Problems of Northeast Thailand" (manuscript) 1969.
- Pa Mong Project Phase I Report Bureau of Reclamations USAID, Bangkok 1970.
- Pa Mong Project Phase II Report Appendix VI 1971 Bureau of Reclamation USAID, Bangkok 1971.
- Piker, S. B. "The Northeastern Village: A Non-Participatory Democracy" (mimeo) 1966 Bangkok, Thailand.
- Piker, S.B. "Sources of Stability and Instability in Rural Thai Society", The Journal of Asian Studies, Vol. XXVII, Number 4, August 1968, p. 79.
- Milton, J.P. "Pollution, Public Health and Nutrition Effects of Mekong Basin Hydro-Development" (typed manuscript) 1970.

- Schaef, C. Hart and Fifield, Russel. The Lower Mekong: Challenge to Co-operation in Southeast Asia, Van Nostrand Searchlight Book No. 12, 1963.
- Sewell, D. and White, G. "The Lower Mekong" CELP No. 558, 1966
- "Socio-economic Aspects of Fisheries Operations in the Nam Pong Reservoir" A Plan of Operation ECAFE (mimeo) 1969.
- Sommers, W.A. Provincial Administration and Local Government in Thailand USOM - Ministry of Interior 1968.
- Somporn, S. Toward Responsive Local Government in Northeast Thailand. USOM/Thailand, Research Division, 1968.
- Stent, James "Marketing Patterns in Northeast Thai Cangwat". USOM Bangkok, August 1968.
- Takahashi, A. "Modernization of the Peasant Community in Central Luzon" Symposium No. 54 Tokyo 11th Pacific Science Congress 1966.
- Talbot, Lee M. "Effect of Mekong Development on Biotic Factors" (mimeo) Smithsonian Institution, Washington, D.C. 1970
- "Technical Assistance to Thailand for Agricultural Development Programming in the Nongwai Pioneer Irrigated Agricultural Project". (mimeo draft) USAID 1969.
- Thomas, Ladd and Block "Land Resettlement in Northeast Thailand" Dekalb, Illinois (draft copy) SEADAG Grant June 1970.
- Wang, J.C. "Leading Impact for Agricultural Take-off in the Northeast", (mimeo) UNDP, Kalasin, 1968.
- Wang, J.C. FAO Technical Officer (Farm Management) Huey Sithon, Kalasin, Thailand. Semi-Annual Report (8 March - 30 September 1967) Experimental and Demonstration Farm for Irrigated Agriculture. Kalasin, 1967.
- "World Demand Prospects for Agricultural Exports of Less Development Countries in 1980" FAO Economic Report No. 60 USDA 1969.
- Yatsushiro, Toshio "Village Organization and Leadership in Northeast Thailand", USAID, 1966.

APPENDIX 1

This interview with a village herb doctor in Kham Kaen Phun has been included because it shows the rationale employed by this village doctor, and provides some insight into village logic.

Woman patient: Why can't my rash be cured quickly by the use of an ointment. I saw some in drug store in Nampong market.

Herb doctor: It won't cure because it will only peel off the outer cover of your skin. You have to use a tart or an astringent to nullify the poison in your body, such as the root of the dwarfed banana which should be applied on the irritated parts, and left to decay. The liquids from the decayed root will nullify the poison, you'll see. You cannot use the ointment to nullify the rash because it will peel off only the outer layer of the skin. The sickness is too deep. Smear this liquid only over the tumour or swelling on the skin. Add nothing more, and come back if you do not feel better after a few days.

Interviewer: Are you related to Uncle Pee, the other herb doctor?

Herb doctor: The father of Uncle Pee was considered as a brother or a very close friend. He was the one who taught my father, and my father taught me.

Interviewer: When a child is sick, such as this one, why is he not treated by modern medicine, say an injection which might cure

him in a very short time.

Herb doctor: No, an injection cannot be applied because the rapid healing of the fever may cause shock and he might die even by the time the injection needle has been withdrawn. Such a case happened to the elder brother of this child. He was afflicted by mumps and was treated by an injection which resulted in instant death at the time the needle was withdrawn.

Interviewer: Beside the herbs you have given this child both internally and externally, what else did you do to try to cure him?

Herb doctor: I made incantations.

Interviewer: What about lustral or holy water, did you try applying it?

Herb doctor: I make use of holy water only after I am sure when touching the child's head and his heels that they are cool. But I will not use it right away. I will give him the root solution for 7-8 days. I must observe his condition every day. I will ask his parents every day what is his condition, and whether or not he has cried and for how long? These conditions will help me to determine whether I should increase or stop giving him the herb solution and try another. There may be other symptoms which I will also have to consider.

Interviewer: What other symptoms did you take into consideration?

Herb doctor: I asked the child's parents about his excrement. I.e. whether it was dark or yellow. If it was a hard lump, and whether he went to the toilet frequently or infrequently. If the latter, I will give him a mild herb laxative to calm down the fever in the body.

Interviewer: What about food.

Herb doctor: Some kind of food may be wholesome, and others harmful. Sometimes the mere smell of something may be harmful. If his head and heels are not really cool enough, he will be forbidden to take a bath. One may wipe off his body with a damp cloth. I would be afraid that the fever in his body might rise higher and that he might suffer shock after a cold bath. The child might get shock and die instantly, if he should take a bath when the fever in his body is high.

Interviewer: What kind of medicine did you use to drive out the fever?

Herb doctor: I used two kinds of herbs: rangron and ya hair. When applied, the fever will be pushed out and the child will perspire and the disease will flow out freely. After that I will apply the cooling herbs to pull out the virulence of the fever. When the child perspires profusely his body will become cool and the fever will drop.

Interviewer: Has there been any interference of malevolent spirits.

Herb doctor: If there are convulsions but the body is cool, I may sus-

pect a malevolent spirit. In that case, I will first recommend to his parents to take him to the witch doctor who will exorcise the spirit after learning whether the spirit is the ancestors spirit, the house spirit, or the wood spirit. The witch doctor will appease the spirit by offering some special foods and by pledging to have the child become a novice once he is well.

Interviewer: What would you do if the child didn't get well after all your treatments, say after 10 days?

Herb doctor: Naturally, if my medicines have failed, and they often do, I would send the child to the clinic in Nampong. If he were very sick, I would send him to the hospital in Khonkaen. I have cured many people after the doctors at the Nampong clinic had failed. You know, much sickness is in the mind of the patient. They must have faith in my herbs.

## APPENDIX . . .

The following two descriptions have been presented here because they demonstrate: a) The amount of knowledge and ability possessed by the uneducated farmer; b) The farmer's ability to describe in ornate detail the operations he utilizes; c) The methods employed in selling his product.

The method of Mulberry production was explained to my assistant by a 55 year old woman from Kham Kaen Khun with only two years of schooling. The method of kenaf production was explained by a 50 year old farmer from Kut Kwang with only three years of education. The translation is mostly by my assistant.

MULBERRY GROWINGPreparation of Plot

Cut down the grass or weed in a selected plot with an area of one ngan or one-fourth rai. Sweep and pile it up for burning after allowing it to dry for a couple of days. Use a buffalo to plough it for just one morning for 3-4 hours. Leave it to dry for 4-5 days. Harrow it for another morning until it is properly porous and crumbling. Dig holes (about 1,000 holes per ngan) close together from 1 keup (8 inches) to 1 sok (20 inches). Put manure or dung underneath the hole and place the top soil over it.

### Planting

Ask a neighbor (friend or relative) for 200-300 trees about the size of a little finger or of a middle finger and tie them into 14-15 bundles. This is free of charge. Carry these bundles to the plot and cut each tree into 9-10 pieces with a length of 1 keup. Put 3-5 pieces into each hole and top it with the sub soil leaving the mulberry pieces at least 2 inches above the soil. Two (husband and wife) will take 3-5 days to plant 3,000 holes in a one-ngan plot of land.

### Planting Season

Mulberry trees are planted in the 6th-7th month (May and June) without any consideration whether it is done during the waxing or waning moon period. The most important thing is that it must be planted after the rain falls. If it is planted before it is raining it will wither away and die from the intense heat. After a month the trees will grow to a height of from 1 keup (8 inches) to 1 sok (20 inches) in accordance with the abundance of rain. The knots must be on the opposite side where the pieces are cut slantwise. About 3-4 knots must be underground leaving only 1-2 knot above ground. Cut down the grass or weed after the pieces are planted one month.

### Species of Mulberry

At present there are 3 pieces named Mon Noi, Mon Ta Dum and Thongkin. These species give a productivity suitable to the weather in general.

### Maintenance

When newly planted, attention must be paid to making the soil around the trees porous, very often getting rid of weeds, replanting new ones in place of dead ones. When fully grown, the soil around the trees must be raked to make it porous and the weeds destroyed twice a year; at the beginning and end of the rainy season. At the same time from one half to one basket of dung and manure should be put into each hole.

### Trimming and Pruning Mulberry Branches

It is necessary to have mulberry trees of high productivity. This is done by trimming and pruning them at least once a year at the beginning of the rainy season. They must be cut not more than 1 foot above the ground and must have at least 3 knots for their progress and growth.

### Diseases and Enemies of the Mulberry

. There are many kinds of diseases such as stalkboring worms which are a long-whiskered, hard-winged grub. The old ones will destroy the mulberry trees by gnawing the bark of either the stalk or the branch, on farms where mulberry trees are destroyed by this insect one can see the tree tops being broken and folded all over the place. This usually happens to mulberry trees of more than 2 years old.

### Prevention and Getting Rid of Diseases

Trimming and pruning of the mulberry branches should be made every year because the grub prefers to lay its eggs on the branches of trees from the time the tree is 6 months old. Insecticides should be used to destroy these eggs.

### Harvesting Mulberry Leaves

The farmers begin to pick up the leaves when the trees are 2-3 months old or when they are productive enough for picking. But the extension officials recommended that picking should be made when the mulberry trees are 8 months to 1 year old.

### Implements Used in Raising Silk-worms

There are 5 winnowing baskets of about 80 centimeters in diameter, 2 larger baskets of about 120 centimeters with about 1 cubic inch intersections all over; a  $4\frac{1}{2}$  foot shelf to lay the baskets on; a gossamer cloth to cover the baskets; knife and chopping block to slice mulberry leaves; baskets to pick leaves from trees; boxes to crush the leaves after picking. The feet of the shelves should have cups filled with water to support them and to prevent ants from climbing up. The shelves with the baskets should not be too close to each other, thereby allowing plenty of air to circulate. The pieces of cloth for covering the baskets should be white, of a very fine texture and very thin. They should always be washed and kept clean. The baskets for picking the leaves should not be used for other purpose which might bring disease to the

leaves and eventually to the silk worms. This is also true for the knife and chopping block. The leaves should be aired in the boxes before feeding the silk worms because heat from the accumulated leaves in the baskets will harm them.

#### Procurement of Silk Worm

Borrow 20-30 silk worms from a friend or relatives. After 7 days they will lay eggs. When the mother silk worms turn into butterflies they will be fed to the chickens. Do not disturb the eggs or move them about. This species of silk worm is the kind that can lay eggs throughout the year. It is distributed to the villagers by the Agriculture Silk Worm Multiplication Station. After 7 days from birth, the young silk worms will be fed shredded mulberry leaves. Fifteen mother silk worms, the eggs in one dish, will consume 15 leaves in about 7 days and another 30 leaves within 10 days. After 15-20 days the young silk worms will grow to a size where they will cover the whole length and breadth of the 80 cm.-diameter basket. After 1 month from birth the young silk worms will grow into mother worms. These mother worms will be put into a bigger basket with intersected cubicles. Each cube will hold 4-5 mother worms.

#### Life Cycle of Silk Worm

The life cycle starts from the egg which hatches into a silk worm. During the life of the silk worm, it will shed its skin 4 times. When the worm is old enough, it will spin a cocoon to cover itself. It will

then shed the skin and turn it self into a chrysalis living in the cocoon. After it completes its chrysalis life, it will turn into a butterfly and bore a hole to get out and breed. It will then lay eggs which will be hatched into worms in repeating the cycle. In the chrysalis stage in the cocoon and when it is a butterfly, it will not eat.

#### Culture of Silk Worm During Childhood

It is necessary to give special attention at this stage because the silk worm may or may not be in sound health and capable of withstanding disease. At this stage, it has to be fed with mulberry leaves in a sufficient quantity. It should be able to eat all the time. To protect against the leaves being dry and crisp and unfit for eating they should be kept in a box of banana spathe and covered by banana leaves to keep them cool and fresh. But the banana leaves must be opened to let air circulate among the mulberry leaves one hour before feeding the worms.

#### Culture of Silk Worm During Adulthood

The worms will grow up quickly if sufficient mulberry leaves are given them. At this stage the leaves can be given without needing to slice them or cut them into shreds. Also there is no need to feed them with young mulberry leaves since old ones will do. Since the need for leaves for the worm's consumption is great during its adulthood, a large quantity of leaves should be spread on the rush-mat and covered with the moistened cloth to keep them fresh for a very long time. At the same time more feeding baskets should be added so that the worms can grow with

more room and without being closely packed. On arriving at the cocoon building stage you will see that the silk worm will not eat food any more. Its body will look clear and transparent with a grain of fecal matter left close to the anus. The fecal matter is not hard. The worm will climb and here and there to find a place to build its nest or cocoon. The silk web will come out from its mouth. When the silk is ripe it should be taken from the feeding baskets and put into the partitioned basket so that it may build its nest or cocoon. The silk will build its cocoon in the basket over the next 2-3 days. Caution: Do not put the silk/<sup>worm</sup> into the basket too early because, it will not build its cocoon, and if the silk worm is picked up too late, it will probably build its cocoon in the feeding basket causing it to build a bad cocoon; sometimes it may spin some of its web in the basket and when it is picked up and put in the basket it will produce much less thread.

A problem that faces the farmers very often concerns the cocoon that is too tough to allow the thread to be drawn out. This can occur at the monsoon time when the worm is building its cocoon, because of the high moisture. This moisture can be driven away by applying heat. This is done by placing the basket under the ceiling and using the kitchen stove underneath to heat it.

Two to three days after the worm has built its cocoon, can be gathered and selected for keeping as breeders. The chrysalis in the cocoon will turn into a butterfly after 10 days and bore a hole to get out and lay eggs. Those left from the selection will be used for removing the silk thread. If there are too many worms it may be necessary to kill the chrysalis first. This you do only if you find that removing the thread

cannot be completed in time before the worm will turn into a butterfly. The killing of the chrysalis can be done by drying it in the sun. The chrysalis of the local breed silk whose cocoon is rather thin, will die after 2-3 days of drying, whereas that of the cross-breeds, whose cocoon is rather thick, must be dried in the sun for five or six days.

The striped fly will endanger the silk worm by laying eggs on it. After the eggs are hatched they will turn into worms which will bore into the silk worm until it is dead. Then the fly worms will get out and become flies. One fly can cause death to as many as 200-300 silk worms. It is one of the most dangerous enemies of the worm. Normally, the farmers protect the worms from this fly by covering the baskets with cloth. Special caution against flies is taken during the feeding time when the fly can slip inside. Some families feed the worm under a mosquito net to solve the problem. But the best way is to destroy the fly worms and chrysalis thereby decreasing the number of flies.

#### Removing the Thread

As already mentioned above the chrysalis in the cocoon will have a life span of 10 days when it will turn into a butterfly. It is, therefore, necessary to remove the thread before the butterfly will bore a hole and fly away.

#### Equipment for Removing the Thread

1. Silk thread-removal equipment.
2. Charcoal stove

3. Earthen or enamel pot for boiling the cocoon.
4. Cocoon washing brush made of straw ends.
5. Water bucket

#### Method of Removing the Thread

Boil water first. Put cocoons into the hot water for some time (2-3 minutes). Turn the cocoons to and fro or up and down so that they may be properly boiled all over. Brush them lightly and the thread will stick to the brush. Use your hand to gather the threads from the brush and draw them together to make the big thread first. This big thread is the outer-cover silk or soft down. The cocoons are taken out of the boiling pot after completion of removing the main thread. Put the new cocoons into the pot and remove the thread in the same way until there are no more left for that day. During the interval of removing the thread, you should pour in more water from time to time but do not let it boil. The thread obtained from this first removal is called third grade silk.

After removing the outer-cover silk in full you will come to the next stage, i.e. removing the inner-cover silk or the small silk. It is up to you to remove either the small or big thread but you have to consider the number of cocoons you will need. At this stage the farmer must take good care to join together the cocoons from time to time so as to obtain a continuous thread at all times. The cocoons will be left with only sheaths of a thin texture after all the threads have been removed. These sheaths covering the chrysalis will sink to the bottom

of the pot. When too many chrysalis are found to be at the bottom the farmer will take them out from time to time. The silk obtained is called the first grade silk.

Another method still popular is the removal of both the outer-cover and inner cover silk simultaneously without selecting whether it is of the outer cover or the inner-cover silk. By this way an expert will be able to remove a regular thread nearly as fine as the first-grade silk. The removal by this method is called that of the "combined" and produces a second-grade silk. After completion of the above, the thread will then be wrapped into a skin. The finished product is taken to a silk merchant in Khonkaen and if the price is not good, you pick up your silk and walk to the next merchant, etc., until the price is right. If no good price, take it back and tell the other villagers and save them a few baht bus fare.

## 2. Cultivation of Kenaf

Select the site of your upland farm with an area of 4 rai which you consider the most productive. In April or May, clear the land of weeds, try, if you have the strength, to dig out the old tree stumps, or burn them. The above will take two people, about 15 days. The buffaloes will plough the land for 4-5 days to bury the weed underneath and will serve as a green manure. Let it dry for 4-5 days so it will drive out the underground insects. Next, harrow for 6-7 days. After that it will take 3-4 days to spread the seed. Now, all you do is wait for the rains in May or June.

One month after the rains, the trees will be more than one foot in height. Weed out the grass for 9-10 days. In October they will be fully grown and ready to be cut down for retting. If they are not so productive three people can cut down 1-2 rai of trees per day; but if they are productive, 2-3 people can cut down only 1 rai a day. There is no need to dry them in the sun. After they are cut down they are tied into bundles and carried to the pond or swamp or retting tank or to a road ditch for retting. Trees with flowers and seeds are left alone and will be cut down later and left to dry in the sun for 9-10 days until the seeds are broken. The small seeds will be picked up and put into the bag to be kept at home or in the family bin or barn to be used next year.

The sticks will be retted for about 20 days, or until they rot. The rotted bark will be torn into shreds and left to dry in the sun. If the sun light is good the shredded bark will dry up in one day and can be kept in the house or family bin. If it is cloudy, it may take 2 days for the bark to dry. They are kept in the bin for 2-3 days, then bundled up for sale. One bundle weighs about 100 kilogrammes. If it is productive 4 rai will fetch 5 bales; but if it is otherwise it will produce only 2-3 bales. In some farm if the soil is fertile the output per rai is about 200-300 kgms. or 2-3 bales. After the bails are weighed the owners will be paid cash outright.

Next, you approach 2-3 middle men to ascertain the price. Sometimes, they come to you. Come back home to spread the news to the other would-be sellers. If they all agree to the price, one will be sent back to the middleman. If the price is confirmed and agreed upon he will come back with the buyer's truck to pick up the bales or bundles together with the owners. Price inquiry may first be made at the markets.

APPENDIX III

The translations of the science courses for classes Pratom 2, P3, and P4 are included to present the reader with some idea of what materials are covered.

FUNDAMENTAL OR BASIC SCIENCE  
(Translated by my assistant)

Second Year Primary School

Lesson I Plants

1. There are many kinds of plants.

Green particles, which can disperse when a stone hits them in the pond and thereafter can gather together again, are called duck weed. There are also water lettuce, water hyacinth, etc. in the pond which we call water plants. Duck weed cannot be grown on the high ground, because water plants have tender roots stem and leaves. When they are placed on the ground for a few minutes the leaves will get withered, the roots will also get withered and die. Plants grown on the ground, have hard and strong roots capable of piercing thru the underground and having durable trunk or stalk. These plants grown on the ground or on the wall, such as coconut, orange and tamarind trees, are called land plants. Orchid is neither land nor water plant. It grows formerly in the forest, but neither on land nor in water but clings to big trees. Betel Vine, long pepper (piper chaba) are plants that cling to big trees too.

2. Strange plants

When a plant is touched it will fold the leaves immediately. Such is called a sensitive plant with thorny stems and used in making medicines.

The top or pod of a scarlet gourd is a creeper with edible leaves and eaten as a vegetable. It has leaves and green sinews that wind around each other into many balls. These sinews are called "whiskers" or "hands". Scarlet gourd, pumpkin, itching vine are plants with "whiskers" or "hands" to cling to. A cactus is a plant full of thorns. Cassava is a plant with streaked or indented or serrated leaves like fingers. These plants have strange characteristics.

LESSON II

PLANTS IN THE RAINY AND DRY SEASONS

Trees grown in sand do not grow well.

Trees grown in clay do not grow well.

Trees grown in loose and friable soil, grow well.

Sandy soil allows water to flow fast, very quickly so that the tree's roots cannot suck up enough water for their own consumption when the soil gets dry already. Clay is the kind of soil thru which water can pass with great difficulty. When the tree is watered, water will make the surface muddy or sleeshy and the roots can scarcely suck in water. Loose and friable soil will allow enough water to flow fast in a suitable manner so that it is moist all over and allows the roots to suck up water always.

Water and moisture are two important factors for trees and plants in general.

1. Plants in the dry season.

In the dry season there is no more rain. Water contained in the different places will get dry. Small trees will get withered when their short roots cannot suck up water enough to feed their stalk or trunk. Grass which used to grow exuberantly on the lawn, paddy field dikes, fields, etc., will die in the dry season. Big trees' leaves will fall when they cannot get sufficient water to feed their stalk or trunk, but when their roots can suck up enough water they will produce young leaves which we call such a process "deciduous or putting forth new leaves or non-evergreen". The dry season is the season which plants do not grow because the soil is dry and the weather lacks dampness and moisture. We have to water trees very often in the dry season.

2. Plants in the rainy season.

In the rainy season rain falls very often. Rain brings moisture and makes the soil soft and wet. Plants with short roots can suck up water, plants which got withered throughout the dry season will bear young green leaves again. All kinds of plants will grow well in the rainy season. The farmers will, therefore, plough the paddy fields and grow paddy whereas the gardeners will grow various seed trees for transplanting.

Things Which the Students Should Do

1. Soak the root of the aromatic herb extensively used as a vegetable in red water for 2-3 days. How is the leaf of the said herb? Why?
2. Soak the white spotted leaf stalk or petiole of the china rose or chinese shoe flower (Hibiscus rosa sinensis ornamental bush with big flowers extensively planted for hedges) in red water for 2-3 days. What colour will the whiteness of the leaf turn into? Why?
3. Soak the withered-leaf leek or scallion or onion stalk for 2-3 hours. What will happen to the said leaf? Why?

LESSON III

SEED AND PLANTS BUDDING LEAVES

And Striking Roots

Some plants blossom and bear fruits with stores such as mango and tamarind. Beans and sweet basil must be grown by seed. Some plants do not need seed to grow on except by cutting branches and growing such cuttings or the shoots of bamboo, the sprouts of banana, etc.

1. Budding of seed.

The seed is a hard portion of the fruit. Some kind of fruits have single stone such as mango, coconut jujube, longan, etc. Some other kind of fruits have many stones such as lime, papaya, jack-fruit, sugar apple, orange, etc. When the seed grows, we see only young top or pod shooting out above the ground. In fact, there are many roots underground

which we cannot see and which are duty-bound to suck up water and fertilizer, viz. various minerals, and feed the top or pod. When the young top or pod grows up and have greener leaves there leaves will utilize sunshine to process food causing thereby in the top or pod being strong, robust and charged into stalk or trunk with a lot of branches.

## 2. Budding Leaves of plants.

When the seed grows or the cutting grows into a small tree with strong roots and green leaves, the roots will suck up food from the soil to feed the stalk or trunk. Soon the stalk will bud into a small knob or knot. The plant's knot is where it will bud into blossom or leaf. Each kind of plant has knots budding at different places. Bamboo, sugar cane, etc. have knots budding at the joints whereas sweet potato, potato, etc. have knots budding at the various creases of their body. Normally, when plants are alive, they will have their knots budding always. Knot which will bud into branches and leaves is called "Leafknot" whereas that which will bud into blossom is called "Blossom knot".

### Things which the Students Should Do

1. Cut the branch of the flowering shrubs much like the China rose or that of the bastard jasmine a popular night-scented flowering shrub and plant the cutting in the damp or moist place. How do you notice the said cutting?
2. Soak the black gram seeds and line them upon a wet paper for the night. How are they?

3. Select the big onion or leek or scallion and place it on the neck of the bottle with water full to the brim or neck so that its root may dip underneath the water. Leave it like that for 3-4 days. What will happen to the said onion?

#### LESSON IV

##### MULTIPLICATION OF PLANTS

1. Multiplication of plants means that plants will spread their seeds to be grown at new places.
2. Will the purchase of young trees from the market fair or the request for seeds from others to be planted in our village be the multiplication of plants? What are the things which help in the multiplication of plants?
3. How can the bird vine or squaw root or woody parasite plant grow upon the high branches of host-trees? What are the means of helping such multiplication?
4. How can a Bodhi tree grow upon the high pagoda? What is it that helps in the multiplication?

#### LESSON VIII

##### SOIL AND STONES

1. Soil is composed of fine particles of sand or stone and mixed with carcass of dead animals, plants, etc. piled up for a very long time.
2. Human beings must depend on the soil for building their living quarters and for cultivation.

3. Animals must depend on the soil because they must live on and underneath it and eat plants grown from the soil.
4. Plants must depend on the soil to grow up well.
5. Loose and friable land is very beneficial to us. We must keep it in a good condition always.
6. What do farmers and gardeners grow to feed us?
7. Why should rain water, flowing along the ground, be discoloured?
8. Is the colour of sandy soil be the same as that of clay?
9. Did you, students, ever see men digging up and selling top soil?  
If the top soil is exhausted do you think they can cultivate the land?
10. For what purpose did they construct dams closeby canals and ponds?
11. When the farmer did not get enough paddy from the cultivated land he complained that the land was unproductive. What does he mean?
12. You, students, have often heard that "the soil and rivers are our assets". Do you understand their meaning?

FUNDAMENTAL OR BASIC SCIENCE

Third Year Primary School

Lesson I - Organs of Plants

1. Roots: (a) Tap root (b) Rootlet (c) Hair root
2. Stalk: An organ that will raise branches and leaves to take in the sunshine and acts as a path for water and food which the roots suck up.
3. Leaves: An organ that grows along the branches. Normally the leaves have the characteristic of being flat and broad with a green colour. Their duty is to make up food and to breathe. It also processes oxygen, mineral salts, chlorophyll, water, carbon dioxide and starch.
4. Flowers: An important organ with the duty on reproduction. Plants are preferred to be divided into 2 species:
  - (1) Plants without flowers, considered low class plants, comprise of mushroom, mould, duck weed, fern.
  - (2) Plants with flowers, considered high-class plants are an important factor to our life. We depend on their fruits and seeds, as our food, viz.: Rice, corn, coconut, jack-fruit, orange, sugar apple, mango, etc.
5. Fruits: They are the ovary of the growing flower after the pistil has mixed with the pollen (stamens). Their main duty is to cover the stone or seed and to act as a carrier for the stone or seed to grow elsewhere. They have different characteristics: some have sweet flesh capable of being used as food; some have an outer cover that can float in water; some have a flying seed. When we buy fruits or take

them with us from one place to another it is equivalent to our broad-casting them by multiplication at other places.

6. Seeds: They are the outcome of the ovary and pollen (stamens) mixture. They grow inside the fruits.

## LESSON II

### ANIMALS

There are 2 species: (1) With *s.* backbone. (2) Without a backbone.

### ANIMAL BREEDING AND REARING

#### 1. Animal Breeding:

Select the breed. Choose the best characteristic, strong, quickly grown, more flesh or more eggs, more calves so that the owner may get more flesh and more eggs. Selection alone won't do. He must know how to rear and preserve good characteristic breeds as well.

#### 2. Rearing:

- (1) Ready to get rid of poor and unhealthy animals.
- (2) Find method to help good characteristic animals to get more reproduction.
- (3) Find method to improve the quality of animals.

#### 3. Stock-raising of fishes, chickens, pigs and ducks.

#### 4. Methods of catching animals:

- (1) Catching fresh-water fishes.

- (2) Catching sea-water fishes.
  - a. Trawl line and ordinary bag-net.
  - b. Drag-net or trawl-net.
  - c. Sea fishery or fishing stakes.
  - d. Tangkeh seine or bag-net.
- (3) Catching land animals.

### Soil, Minerals, Stones

#### 1. Benefit of soil:

- (1) Direct use in cultivation.
- (2) Produce of different kinds of soil:
  - a. Sandy soil or sand. It is not good to grow plants. In some parts of the northeast and south of Thailand soil is mixed with sand too much. It is easy to plough and harrow this kind of soil but rain water will flow and seep away very quickly. It is, therefore, not suitable for cultivation.
  - b. Clay: It can be moulded into many forms. So, we use it to make many kinds of utensils called "pottery".
  - c. White soil or kaolin similar to clay, is preferred to make only quality crockery such as porcelain.

BASIC SCIENCE

Fourth Year Primary School

Lesson I Environment

Environment that can be touched: (1) Living (2) Non-living

Living: (a) Animals with backbone. (c) Plants with flowers.  
(b) Animals without backbone. (d) Plants without flowers.

None-living:

(a) Outer characteristic: whether the outside is hard, liquid or gas divided by physics. Hard substance: Beeswax, candle, timber, stone, iron or steel, like sugar, salt, sand, etc.

Liquid: Water, fish sauce, mercury, perspiration or sweat, urine.

Gas: Air, oxygen, nitrogen, carbon dioxide.

(b) Division by benefits: Take by the advantages by which man makes use of them, sometimes called "Division by the characteristic of the 4 motives or causes", viz.:

1. Food: such as food and air we breathe to make us live.
2. Dwelling: that shed, house, floating house, brick building.
3. Clothing: clothes
4. Medicines: pounded medicine, solution, tablet, injection.

## LESSON II

CHARACTERISTICS OF EXISTENCE OF LIVING & NON-LIVING

1. Living things can move whereas non-living cannot move by their own.
2. Living things must take food whereas non-living need not.

~~List of food called by ordinary people: List of food called by scientists~~

- |                                 |   |                      |
|---------------------------------|---|----------------------|
| 1) Rice, sugar, bread           | : | Carbohydrates        |
|                                 | : |                      |
| 2) Meat, fish, egg              | : | Protein              |
|                                 | : |                      |
| 3) Lard, bean oil, milk, cheese | : | Fat                  |
|                                 | : |                      |
| 4) Vegetable, fruit, salt       | : | Vitamin and minerals |

Vitamin A prevents dim-eye disease. Vitamin B prevents headache and beri-beri. Vitamin C prevents blood oozing from the gums. Vitamin D prevents cartilage destruction.

3. Living things can breathe whereas non-living cannot breathe.
4. Living things grow from within whereas non-living grow from without.
5. Living things are productive whereas non-living are not.

## LESSON III

DIFFERENCE BETWEEN PLANTS AND ANIMALS

- |  |   |                                    |
|--|---|------------------------------------|
| 1. Plants have green colour on leaves, | : | 1. Some animals have green colour  |
| trunk and roots, called chlorophyll,   | : | on their body but not chloro-      |
| and use it to process food.            | : | phil or use it to process food.    |
|  | : |                                    |
| 2. Plants cannot move by themselves.   | : | 2. Animals can move by themselves. |

- |  |   |   |
|--|---|---|
| 3. Branches, stems and leaves, when cut, can grow.   | : | 3. Arm, legs, finger of animals, when cut, cannot grow. |
| 4. Important organs of plants are outside the body.  | : | 4. Important organs of animals are inside the body.     |
| a. Leaves to process food.                           | : | a. Stomack <sup>h</sup> to digest food.                 |
| b. Rim of leaf to breathe.                           | : | b. Lungs to breathe.                                    |
| c. Flower to reproduce.                              | : | c. Reproductive organ to reproduce.                     |
| 5. When plants die the flesh is still hard to decay. | : | 5. When animals die the flesh and skin can decay.       |

#### LESSON IV

##### WHAT BENEFITS HAVE PLANTS?

- |                                   |  |
|-----------------------------------|--|
| 1. Use as food.                   | 5. Use as fuels.                                   |
| 2. Use as clothing.               | 6. Use to make dye.                                |
| 3. Use to build houses.           | 7. Use to make medicine and health giving vitamin. |
| 4. Use to make household effects. | 8. Use to make goods.                              |

#### LESSON V

##### BENEFIT AND BAD EFFECT OF ANIMAL

- Benefits:
- |                                   |  |
|-----------------------------------|--|
| 1. Use as food.                   | 5. Use as beasts of burden.                        |
| 2. Use clothing.                  | 6. Use to help in cultivation.                     |
| 3. Use to make household effects. | 7. Use it to give delight, pleasure and education. |
| 4. Use as medicine.               |  |

- Bad Affects:
1. Destroy crops.
  2. Eat domestic animals.
  3. Carrier of epidemic.
  4. Cause men to be sick and to suffer various diseases.
  5. Annoy men.
  6. Cause damage to property.
  7. Cause men to die or get sick.

## LESSON VI

### MICROBES, BACTERIA & GERMS

What are germs? Some kinds are beneficial such as yeast or ferment. Some cause the different kinds of disease.

Prevention of disease:

1. Boil water or use rain water or put alum in clean water and dry it in the sun for a very long time until sediment sets in and then filter it many times and put in chlorine which will kill germs.
2. Anopheles are malaria carriers which should be destroyed by filling in stagnant water with earth or making culverts and by destroying empty tins and coconut shells so that water cannot be contained in them.
3. Flies are disease carriers which should be destroyed.
4. Rats are plague carriers which should be destroyed.
5. Everyone should have vaccine injection.

### Benefits of Microbes, Bacteria and Germs

1. Cause garbage to decay very quick.
2. Add fertilizer to the soil.
3. Cause yeast or ferment.
4. Make vaccines and medicines.

Bad Effects of Microbes, Bacteria and Germs

1. Disease
2. Cause food to be rancid and unfit to eat.
3. Cause household effects to become mouldy, musty.
4. Cause wounds to become full of puss or rotten.

LESSON VII

AGRICULTURE

1. Cultivation
2. Livestock Raising

Important Principle for Agriculture:

1. Growing plants.
2. Find ways and means to increase more produce.
3. Know how to apply fertilizer and tonic.
4. Know how to use medicine to get rid of disease.
5. Know how to maintain good breeds of both plants and animals.

LESSON XIV

1. Raising and cultivating animals and plants so that they may grow up well.
2. Maintenance of breeds means improving good characteristic plants and animals to grow in number.
  - (a) Plant cuttings from leaf, root, branch.
  - (b) Branch cutting.

- (c) Knot fixing.
- (d) Broadcasting seeds.
- (e) Maintaining plants seeds.

## LESSON XV

### PRESERVATION OF NATURAL RESOURCES

1. Preservation of water:
  - (a) Don't pollute water.
  - (b) Utilize water to the best advantage.
    - (b.1) Economize its use.
    - (b.2) Try hard to irrigate water by building a dam.
  - (c) Be diligent and industrious in digging the water way so that it may not be shallow.
  - (d) Try to help each other to preserve forests.
  
2. Preservation of Soil: Causes of unproductive or quality deteriorated soil:
  - (a) No more food or fertilizer.
  - (b) No soil covering plants.
  - (c) All top-soil has been washed away by flood.
  - (d) Selling top-soil in the field.

#### Method of Preserving Soil

1. Apply fertilizer or rotate crop.
2. Try hard to grow soil-covering plants.

APPENDIX IV

(Translated by my assistant)

New Land Development Units in 1971

- |                |            |                           |
|----------------|------------|---------------------------|
| 1. Chaiyaphoom | 3. Sisaket | 5. Nakorn Rajsima (Korat) |
| 2. Kalasin     | 4. Surin   | 6. Khonkaen               |

The Existing Provincial Land Development Units

1. Recommend the use of organic and inorganic fertilizers to enrich the soil by distributing them to the farmers, teaching their proper use and explaining their benefit so as to induce farmers to pay more attention to soil enrichment and to change previously held attitudes to those accepting more modern system of enriching the soil.
2. Recommend the use of lime to improve the soil which (in the North-east) is lacking in organic matter and fertility.
3. Recommend methods of producing and applying composting. The utilization of composting will improve the sandy soil condition which, in turn, should be able to retain water.
4. Recommend the proper storage and application of manure to enrich the soil, since many farmers raise animals but fail to make more use of the dung as fertilizer. Instead they store and apply it erroneously.
5. Recommend the planting of soil covering fresh manure plants by distributing them to the interested farmers so that soil maintenance may be propagated.

6. Distribute educational documents to the farmers and give them additional explanations so that they may properly understand them and thus be able to apply soil improvement techniques correctly.
7. Distribute farm records to farmers, and explain to them how to keep them and keep follow-up records. This will help to keep records of each farm's cultivation which will later be examined for further improvement and crop rotation.
8. Recommend to the farmers to utilize their leisure time in growing kitchen vegetables on the house compound instead of leaving it vacant: apply fertilizers, improve the soil to suit the plants. The remainder, after their own consumption, could be sold and preserved to minimize expenses and increase family income.
9. Recommend and propagate soil and water conservation with the cooperation of the soil and water conservation unit work on demonstration plot as an example to the farmers on how to terrace, to rotate crops as well as recommending proper methods of growing crops so as to prevent water and soil loss.

**Comments:**

Much of this ambitious program was not able to be carried out, due to a shortage of personnel and the consequent little time allowed for each farmer group.

Second Crops Grown in 1970 Dry Season  
At Kham Kaen Khun Village Left Bank Group  
(Under The Auspices of the Land Development Office)

First Experiment Guided by Officials

Landowner	:No. of: : Rai : : owned:	:No. of: : Rai : : planted:	:No. of: : Rai : : allo- : wed : : others: : to : : plant :	Kind of Crop
1. Mr. Boonlert Daengnoi	: 30 :	: 2 :	: 4.5 :	Vegetables, cucumber, beans, corn
2. Mr. Sing Bhupim	: 30 :	: 1 :	: 1 :	" " "
3. Mr. Pha Arngkham	: 5 :	: 1 :	: :	" " "
4. Mr. Choo Subin	: 5 :	: 1 :	: 1 :	Onion, garlic, green leaf
5. Mr. Choo Sisampan	: 12 :	: 1 :	: 1 :	" " beans
6. Mr. Vimai Puaphue	: 12 :	: 1 :	: :	" " "
7. Mr. Thi Maletkul	: 10 :	: 1 :	: :	" " "
8. Mr. Sing Daengnoi	: 9 :	: 1 :	: :	" " "
9. Mr. Lamai Budsorn	: 4 :	: 1 :	: :	Green leaf, cucumber, beans
10. Mr. Chai Khambeungklang	: 20 :	: :	: 1 :	" " "
11. Mr. Phong Wangsorn	: 4 :	: 1 :	: :	" " "
12. Mr. Ma Bualerng	: 4.5 :	: 2 :	: :	" " "
13. Mr. Dee Chanchami	: 2.5 :	: :	: 3 :	" 2 rai corn 12 rai
14. Mr. Samrit Phai Upakara	: 22 :	: 1 :	: :	" 10 rai fruit trees

Kham Kaen Khun Right Bank

Landowner	No. of Ngan	No. of Ngan	Kind of Crops
1. Mr. Buachand Sarukorn	2	-	Cucumber, onion, garlic tobacco
2. Mr. Sri Pravat	2	-	" " "
3. Mr. Sone Ritdum	1	-	" " "
4. Mr. Nong Toomphand (Headman)	2	-	" " "
5. Mr. Buasorn Khongpim	2	-	" " "

At Sahng-Saeng Village Group 7

Tambon Wang Chai

Landowner	No. of Rai	No. of Ngan	No. of Wa	Kind of Crop
1. Mr. Sa Rangsividh	1	-	40	Water melon, cow-pea, corn
2. Mr. Hao Chansen	1	-	60	" " " "
3. Mrs. Thongdi Chumvaengpi	2	-	40	" " " "
4. Mrs. Ta Khunneta	-	-	60	" " " "
5. Mrs. Pha Hongchai	-	-	60	" " " "
6. Mrs. Wanai Rangsioudh	-	1	80	" " " "
7. Mr. Prasad "	-	-	55	" " " "
8. Miss Noopit Daengnoi	-	1	15	" " " "
9. Mr. Thongbai Chumvaengpi	-	1	80	" " " "
10. Mr. Khamsai "	-	-	50	" " " "

APPENDIX

1. Vegetables in the Khon Kaen market come from Ban Phakhue Ban Nong Yai, Ban Phue of Tambon Phra Lub, Ban Nownthone, Ban Toom, Ban Don Bome of Tambon Myang Kow, Ban Sila, Ban Nong-Ta Nor, Ban Nong Hin, Ban Kotha of Tambon Sila. These three tambons are under the jurisdiction of Ampoe Muang, Changwat Khon Kaen. They supply vegetables for the people of Khon Kaen town proper throughout the year. Khon Kaen supplies cucumber, musk melon and watermelon to Vientiane via Nongkhai and Sri Chiangmai. Ban Phai supplies Manasarakhan with vegetables. Chumphae receives vegetables from Khon Kaen for its own consumption and supplies in exchange bananas, lemons, limes and mangos.
2. The prices of vegetables vary in accordance with the season. Prices are lowest in the cold season - highest in the rainy season - in between in the hot season.

July - 1970

Name	Buy	Sell
Mushroom	15.00 baht/kgm.	30.00 baht/kgm.
Tomato	8.00 baht/kilo	1.00 baht/3 small per.

This planting of soy-bean was encouraged by the Provincial Agriculture Officer who provided the farmers with:

1. A tractor to plough and harrow their land.
2. Seeds for growing in the dry season.
3. Chemical fertilizer to mix with night soil and cattle dung.
4. Pesticides
5. Pesticide sprayer
6. Agriculture advisor
7. Canal water
8. Guaranteed price of not less than 4 baht per kilogramme.

Fruit Trees

(Left Bank)

Landowner	No. of:			Kind of Fruit Tree
	Rai	Ngan	Wa	
1. Mr. Boonlert Daengnoi	3	-	65	Coconut, lime, orange, mango
2. Mr. Sing Bhupim	1	2	45	" " "
3. Mr. Choo Subin	1	-	-	" " "
4. Mr. Pha Arugkham	-	2	25	" " "
5. Mr. Choo Sisompan	1	-	5	" " "
6. Mr. Phan Kongmanggala	1	-	5	" " "
7. Mr. Na Soibun	2	-	-	" " "
8. Mr. Chai Soibun	3	-	-	" " "
9. Mrs. Thongdi Chumvaengpi	1	1	55	" " "
10. Mr. Sa Rangshivudh	4	2	-	" " "

Distribution of Second Crop (In Ngan) for 8 families in KKK, 1971

	Green Vegetables	Cucumbers	Onions	Cow peas	Tobacco	Soybeans
1.	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	8
2.	$\frac{1}{8}$	$\frac{1}{2}$	-	$\frac{1}{4}$	$\frac{1}{8}$	4
3.	-	$\frac{1}{4}$	-	$\frac{1}{4}$	-	4
4.	$\frac{1}{4}$	-	-	$\frac{1}{4}$	-	8
5.	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	-	4
6.	-	-	-	-	-	12
7.	$\frac{1}{8}$	$\frac{1}{8}$	-	$\frac{1}{8}$	-	4
8.	-	-	-	$\frac{1}{16}$	$\frac{1}{16}$	4

From Kutkwang 20 families planted soy beans.  
From Sahngsaeng 15 families planted soy beans.

Name	Buy	Sell
Sweet potato	3.00 baht/kilo	4.00 baht/kilo
Lemon grass	1.00 baht/8-12 pcs.	1.00 baht/6-8 pcs.
Onion Leaf	1.00 baht/32 pcs.	1.00 baht/16 pcs.
Bell pepper	1.00 baht/24 pcs.	1.00 baht/16 pcs.
Lime	1.00 baht/3-4 pcs.	1.00 baht/2 pcs.
Bird-chilli (fresh) (dried)	1.00 baht/40-60 pcs (big) 22.00-25.00 baht/kgm. 900.00 baht/gunny bag	1.00 baht/60-80 pcs. (small)
Jackfruit	14.00 baht/fruit	16.00 baht/fruit
Dried meat	2.00 baht/fruit or 22.00 baht/kgm	3.00 baht/pkg. 30.00 baht/kilo
Rambutan	3.00-4.00 baht/kgm.	4.00-5.00 baht/kgm.
Durian (med. size)	18.00 baht/fruit	20.00 baht/fruit.
Watermelon (dry season)	1.05 baht/fruit 300 baht/100 pcs	3.00 baht/fruit 4.00 baht/fruit
Onion leaf	3.00 baht/bundle	3.50 baht/bundle (30 stalks)
Eggplant (white or striped)	1.50 baht/kgm. 1.00 baht/14-16 pcs.	2.00 baht/kgm.
Cucumber (egg size)	2.00 baht/kgm.	2.50 baht/kgm.
Cow pea	5.00 baht/6 small bundles. 8.00 baht/100 pcs.	1.00 baht/12 pcs. 1.00 baht/8 pcs.
Limes	12.00-15.00 baht/100 pcs.	1.00 baht/8 pcs.
Bell-pepper	4.00 baht/kgm.	5.00 baht/kgm.

Name	Buy	Sell
Long stalk gourd	5.00 baht/6 bundles	1.00 baht/1 bundle
Ceylon spinach	1.00 baht/12 handfuls	.25 stg./2 handfuls
Pumpkin top	2.00 baht/5 bundles	.50 stg./1 handful
Cavilla top	.25 stg./5 handfuls	.25 stg./3 handfuls
Gourd top	.50 stg./5 handfuls	.25 stg./2 handfuls
Morning glory	.25 stg./5 handfuls	.25 stg./3 handfuls
Lotus stalks	1.00 baht/6 handfuls	.25 stg./1 handful
Wild betel leaf	.25 stg./3 handfuls	.25 stg./2 handfuls
Chinese mustard	1.00 baht/5 handfuls	.25 stg./1 handful
Water hyacinth top	.25 stg./3 handfuls	.25 stg./2 handfuls
Mint	1.00 baht/5 handfuls	.25 stg./1 handful
Basil	.25 stg./5 handfuls	.25 stg./2 handfuls
Phaktiew	.25 stg./5 handfuls	.25 stg./3 handfuls
Phak Yanang tops	.25 stg./5 handfuls	.25 stg./2 handfuls
Basil top	1.00 baht/5 handfuls	.25 stg./1 handful
Sweet basil	1.00 baht/5 handfuls	.25 stg./1 handful
Horse-tamarind pods	.25 stg./3 handfuls	.25 stg./2 handfuls
Kaffir lime leaf	1.00 baht/5 handfuls	.25 stg./1 handful
Long cucumber	1.00 baht/5 pcs.	1.00 baht/3 pcs.
Lemon grass	.25 stg./3 handfuls	.25 stg./2 handfuls
Rhizome	3.50 baht/1 kgm.	5.00 baht/1 kgm.
Galanga	2.00 baht/1 kgm.	.50 stg./1 pce.

Name	Buy	Sell
Kadong leaf	.25 stg./5 handfuls	.25 stg./3 handfuls
Musk-melon (striped)	1.00 baht/5 pcs.	1.00 baht/3 pcs. (small)
Dried onion	9.00 baht/1 kgm.	1.00 baht/1 bundle (sm)
Dried garlic	7.00 baht/1 kgm.	1.00 baht/1 bundle (sm)

M E A T

Name	Buy	Sell
Buffalo		
Draught animals	1,600.00 baht/head	
Culled animals	1 000.00 baht/head	
Cattle		
Draught animals	1,500.00 baht/head	
Culled animals	1,200.00 baht/head	
Pigs		
Weaners	200.00 baht/head	
Culled Sows	800.00 baht/head	
Poultry		
Culled hens	12.00 baht/head	
Chicken	12.00 baht/head	
Culled ducks	12.00 baht/head	
Chicken eggs	.20 stg./egg	.25 stg./egg
Duck eggs	.40 stg./egg	.50 stg./egg
Fish	5.00 baht/kilo	6.00 baht/kilo

30-40 stall buyers have bought the following from sellers of Ban Aew Thong, Ban Phen, Ban Paken, Ban Sila, Ban Kotha, etc: