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INTERIM EVALUATION REPORT

For

Agricultural Extension Outreach Project

#493-0280

USAID/Thailand

Bangkok, Thailand

By

Dr. Richard A. Jensen

July 24, 1978

PROJECT EVALUATION SUMMARY
(Submit to MO/PAV after each project evaluation)

1. Mission or AID/W Office Name USAID/Thailand			2. Project Number 493-0280		
3. Project Title Agricultural Extension Outreach					
4. Key project dates (fiscal years) a. Project Agreement Signed May 31, 1977 b. Final Obligation Year 1978 c. Final Fiscal Input Year 1980 d. Final Fiscal Delivered Year 1980				5. Total U.S. Funding - life of project \$3,100,000	
6. Evaluation number as listed in Eval. Schedule 1 (Interim Evaluation)		7. Period covered by this evaluation From: Dec. 1976 Month/Year To: June 1978 Month/Year		8. Date of this Evaluation Review July 1978 Month/Day/Year	
9. Action Decisions Reached at Evaluation Review, including items needing further study 1. Replacement of VTR with another audio-visual methodology. 2. Include annual inservice workshop for Regional and Provincial Trainers. 3. Complete Training Needs Assessment (TNA) for all training sessions, consider replacing VTR Technical Assistance with TNA Technical Assistance. 4. Emphasis module development for Project with short term technical assistance provided. 5. Revise CPI Network with consideration to reduce scope for 3rd year (FY 1980) and expand Project to 5th year (FY 1982). 6. Develop Training Division of DOAE to coordinate training activities; consider Organizational Research effort of DOAE. 7. Study professional role of Subject Matter Specialists regarding training activities. 8. Obtain Technical Assistance Contractor Services Immediately.			10. Officer Or Unit responsible for follow-up USAID/RTG USAID/RTG USAID USAID USAID/RTG USAID/RTG USAID/RTG USAID		11. Date action to be completed FY 1980 FY 1979 FY 1979 FY 1979 FY 1979 FY 1980 FY 1979 FY 1978
12. Signatures:					
Project Officer Signature			Mission or AID/W Office Director Signature		
Typed Name Date			Typed Name Date		

Clearances:

Documents to be revised to reflect decisions noted page i:

<input type="checkbox"/>	Project Paper (PP)	<input type="checkbox"/>	Logical Framework	<input checked="" type="checkbox"/>	CPI Network
<input type="checkbox"/>	Financial Plan	<input type="checkbox"/>	PIO/T	<input type="checkbox"/>	PIO/C
<input type="checkbox"/>	PIO/P	<input type="checkbox"/>	Project Agreement	<input type="checkbox"/>	Other

"Agricultural Extension Outreach Project"

Interim Evaluation Report

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13. SUMMARY - Summarize in about 200 words the current project situation, mentioning progress in relation to design, prospects of achieving purpose, major problems encountered, etc.

The Agricultural Extension Outreach Project is design to expand and strengthen the extension staff of DOAE utilizing trainers in a scheme of transferring expertise from the National level to the village level extension agents. Over a four-year period, extension services will be expanded and up-graded in thirty-three provinces to meet the needs of 60% of Thailand's rural population. The Project is one element of a joint Royal Thai Government (RTG), World Bank (IBRD), and AID effort to strengthen and expand the Department of Agricultural Extension (DOAE) services to farmers in rural Thailand. The joint effort is entitled, "Thailand National Extension Improvement Project". The RTC efforts began in 1976 with Governmental budget approval, DOAE reorganization, and staff recruitment at the National level. The IBRD activities started in 1977 with signing of the loan agreement in May 1977 and ordering of equipment and vehicles.

The Agricultural Extension Outreach Project (hereafter called "Project") loan was signed May 31, 1977. (February 2, 1978 Action Memorandum for the Director). Project activities completed prior to loan signing include the following pre-service courses: (1) Train-the Trainers Course in December 1976 - January 1977 of 5½ weeks with 15 participants conducted by Mr. Robert Wesselmann and Mr. Duncan Fisher; (b) Four Amphur Extension Courses on Extension Methodology and Communications held between January 1977 and November 1977 of 1-2 week duration with a total of 117 participants conducted by National and Provincial Training Officers; (c) Amphur Extension Officer Course on Crop Technology in May 1977 of 4 weeks duration with 53 participants conducted by Trainers and Subject Matter Specialists; (d) Subject Matter Specialists courses on Crop Technology and Extension Methodology and Communications in September and October 1977 of 3 weeks duration with 15 participants conducted by researchers and trainers, and (e) Tambon Extension Agents courses on Extension Methodology and Communications and Crop Technology in July 1977 of 4 weeks duration with 391¹participants conducted by Trainers and Amphur Extension Officers*. Additional activities includes preparation of the initial drafts of the Provincial-level crop modules for five crops in the Northeastern and Central Regions.

The World Bank loan for the Thailand National Extension Improvement Project provided vehicles, equipment, and facilities to support the extension training project. The following vehicles were obtained: 130 Pickup trucks, 4 sedans, 455 motorcycles, and 19 Microbuses between December 1977 and February 1978. Agricultural chemicals and supplies were secured by December 1977. Audio Visual equipment bids were awarded in April 1978 and construction of Provincial and Amphur extension centers and the Regional training center began in the Northeastern Region (DOAE Report, February 13, 1978).

*(DOAE Report, February 13, 1978)

¹Number that completed courses

The Project activities were partially initiated prior to the signing of the loan and during the first year under the loan agreement, despite the unavailability of the National Extension Training Advisor. It was possible to obtain the quantitative aspects of the Project without the National Extension Training Advisor; but it was not evident that the qualitative aspects of the Project were realized. Table VI lists the training courses and the content of the courses. This data was collected and reported by Dr. Thanya Terasart upon the request of the Evaluation Committee. It is apparent that the successful activities of the Project include staff recruitment, pre-service training activities, in-service training activities, and initial module drafts. The major problems of the Project include the timing of the training courses, training expertise of provincial trainers and subject matter specialists, and the effectiveness of the in-service courses for the Tambon level extension officers.

14. EVALUATION METHODOLOGY - Describe the methods used for this evaluation, i.e., was it a regular or special evaluation? was it in accordance with the Evaluation Plan in the PP with respect to timing, study design, scope, methodology and issues? What kinds of data were used and how were they collected and analyzed? Identify agencies and key individuals participating and contributing.

The Project Paper specified two major evaluations, one in June 1978 and in 1980. The USAID/Thailand and DOAE revised evaluation schedule specifies a major evaluation in 1979 and at the end of the Project with an interim evaluation (reduced in scope) in June 1978 (Gladson letter May 11, 1977). The interim evaluation is to assess the activities of the project completed to date and identify specific suggestions for subsequent project activities.

The interim evaluation activities were directed by an evaluation committee. The Co-Chairmen include: Mr. Pravit Klongwathanakit, Ministry of Finance and Dr. Richard A. Jensen. The evaluation committee members include: Miss Pathra Chorsorapongs, Bureau of the Budget; Mr. Visut Montriwat, Comptroller General Department; Mr. Pradharn Darbphachra, Audit Council of Thailand; and Miss Tatsnee Srikiyarn, Secretary, Economist, Project Loan Operations Division, Ministry of Finance. In addition four observers, two from USAID/Thailand and two from DOAE, attended the evaluation committee meetings.

The evaluation process includes identification of the Project activities utilizing data available from DOAE reports, USAID/Thailand reports, and direct field observations of the activities specified in the Project Paper for the first year. Tabulation of the data is reported according to the design specified by USAID and accepted by the evaluation committee. The data obtained are in

direct response to the three key ratios of the evaluation plan described in the Project Paper (page 73-77). These include: "(a) Coverage: Successful Demonstrations, (b) Successful Demonstrations: Rate of Adoption, and (c) Rate of Adoption: Increased Income." The three key ratios identified are compared to the Base Line data of the Project Paper as listed in Table III-A-3 and III-D-1. It should be noted that the interim evaluation reduced the scope of investigation upon the three key ratios.

The key individuals, in addition to the evaluation committee, include: Dr. Thanya Terasart and Mr. Kasem Jarinto, DOAE; Mr. Uoychai Vattraphoudej, USAID/Thailand; eighteen Amphur Extension Officers and four Provincial Extension Training Officers. Reports from solicited individuals observation of training courses were utilized to identify specific questions (see Table IV) which directed field observations. The observations were directed toward output activities at the Amphur Offices, Tambon centers, and village farmers' sites. This effort enabled evaluation of both the qualitative and quantitative aspects of training programs; whereas the reports enabled only evaluation of the quantitative aspects of the Project.

16. Evaluation findings about EXTERNAL FACTORS - Identify and discuss major changes in project setting which have an impact on the project. Examine continuing validity of assumptions.

Project implementation was initially delayed fifteen months due to the lateness in signing of the loan. An outcome of the lateness in signing of the loan resulted in the delay of the technical assistance contractor selection process. The Ministry of Agriculture and Cooperatives was, originally, planning to obtain a technical assistance contractor but subsequently agreed to have USAID/Thailand obtain the technical assistance contractor directly (Gladson letter, February 13, 1978). The AID technical assistance contractor selection procedure was currently in progress (during the interim evaluation). These two factors have had the greatest impact upon the AID portion of the Project setting.

Other external factors affecting the Project include items such as weather and pest control. The Northeastern Region, which contains the 4 provinces involved in the Project's first year, experienced less than normal rainfall. Rainfall data available from the Meteorological Department, Ministry of Communications revealed the four provinces in the Northeastern Region experienced approximately 1300 mm of rainfall in 1977. The 1977 rainfall was 78% to 715% less than average. (See Table V). The drought-like conditions resulted in suppressed yields for model farmers as well as all other farmers. Data is not available for the specific yields, although observations of

extension personnel confirmed a reduction up to 30% in the yields of rice, kenaf, cassava, peanuts, and mungbean crops for participants and non-participants in the Project. Further study should reveal the impact of the training programs upon production levels in improved growing conditions during subsequent years of the Project.

The major assumptions for the Project relate to three broad areas. The first broad area relates to increased farmer income; the second broad area relates to effective village level extension services; and the third broad area relates to the training program outputs.

I. The following assumptions relating to increased farmer income, are identified in the Project Paper as necessary for achieving goals of the "National Extension Improvement Project":

- a. "Marketing: the present and planned marketing systems can absorb production increases;
- b. The delivery system for production inputs can adjust to and accommodate increased demand resulting from this project; and
- c. Credit will continue to grow at least half as fast as projected by the RTG."

The data available from the first year of the Project did not enable testing of these assumptions. A planned detailed study of the total National Project should enable testing of the validity of these assumptions. An expanded study is planned for 1979 by AID and RTG; also IBID has plans for annual evaluations which should produce data relating to the validity of the assumptions.

II. The second broad area of assumptions relates to the effectiveness of village level extension services. The assumptions identified in the Project Paper for this area include:

- a. "The DOAE will create a progressive career system to motivate extension personnel through advancement opportunities and other incentives;
- b. Crops and practices demonstrated will represent sound innovations for specific conditions in various agro-economic zones;
- c. These innovations will be equally relevant (to) the farmers with smallest land-holdings and lowest disposable incomes; and
- d. Increased availability of other inputs, including credit, is not critical to project success, but will influence the magnitude of financial returns to the farmer (and the project)."

The assumptions of this area contain varying degrees of continued validity. The recruitment program for the first year produced 78% of the requested Tambon Agents (425 staff for 548 positions) and 60% of the Subject Matter Specialists (14 staff for 25 positions)*. The incomplete assignment of Tambon Agents is due to two main factors, i.e., 1) about 10% of the candidates unable to pass Civil Service Examination, and 2) about 12% of the assigned Tambon Agents resigned for other employment or for health reasons. It should be noted that the attrition rate is not beyond typical expectations.

The second year recruitment program was incomplete during the evaluation process; however, 62% (331 staff for 534 positions) of Tambon Agents and 85% (19 staff for 22 positions) of Subject Matter Specialists were obtained prior to termination of recruitment efforts. The major aspect of the first assumption relates to motivation of extension personnel for career advancement. Subsequent evaluations should study this qualitative aspect of testing the validity of the assumption.

The remaining three assumptions appear to be valid for the Project. Validity testing would be possible in subsequent years upon compilation of data from extension practices, farmer acceptance, and input availability.

III. The assumptions most appropriate to the current evaluation relate to the training program outputs. The three assumptions include: (a) Extension Agents can be sensitized to the need to treat farmers as equals; (b) Sufficient numbers of qualified personnel will be available to fill new positions in the Extension Service; and (c) the cooperation of village leaders and model farmers can be obtained (page 26, Project Paper). The validity of output assumptions is tested, with greater specificity, in the review of Project goals and sub-goals.

A random sampling of Kaset Amphur personnel in the four Provinces, North-eastern Region enabled interviewing eighteen Kaset Amphur Officers. The interview summaries are listed in Table II of the Annex.** Data (from Table I and II) relating to the training program outputs assumptions, include:

- a. The percent of Kaset Tambon assigned to the Amphurs range from 65 to 81% requested (Table II);
- b. Ninety two percent of the Kaset Tambon recruited attended pre-service training programs (Table I);
- c. Sixty seven percent of the Subject Matter Specialists have completed pre-service training for the four Provinces of the first year (Table II);
- d. 53,764 contact farmers have been identified and established for the four Provinces of the first year (Table I); and

*See Table I

**Also, interviews with the Provincial Extension Training Officers enabled compilation of data in Table I.

- e. The Kaset Tambon personnel visits to contact farmers average two monthly visits with a range of two to four times monthly (Table II).

A review of Table I and II offer further evidence of the apparent validity of the training program outputs assumptions listed in the Project Paper.

17. Evaluation findings about GOAL/SUBGOAL - For reader's convenience, quote the approved sector or other goal, (and subgoal, where relevant) to which the project contributes. Then describe status by citing evidence available to date from specified indicators and by mentioning progress of other projects (whether or not U.S.) which contribute to same goal. Discuss causes--can progress toward goal be attributed to project, why shortfalls?

The Project's major goal is consistent with the goal of the "National Extension Improvement Project". The goal statement includes:

"The Project goal is to increase the income of people living in the rural areas of Thailand, with special emphasis on the poorer small farmers.

"It is projected that the Project will enable farm families in 33 participating Provinces to increase annual incomes by \$125-\$200 on the average by 1985. This benefit should extend to 1,760,000 of the 2,200,000 families in the Project area or 48% of the national total." (Page 18, Project Paper).

The subgoals of the Project refer to the AID effort within the "National Extension Improvement Project". The subgoals are related to the major goal, however they refer specifically to the AID efforts on the training aspects of the National Project. The three subgoals include:

- "1. Staff of required Tambon level extension agents in the four Provinces of the Northeast with activities including suitable demonstrations of 1-3 crops in 4-6 villages which are considered acceptable for the first year of the project."

The staffing at the Tambon level (Kaset Tambon) in the four Provinces is incomplete since 78% have been assigned (425 of 548 requested). The activities include demonstrations of four crops within the villages of the Project area. The crop possibilities include: Rice, Kenaf, Cassava, Peanuts with Mungbeans substituted for either Cassava or Kenaf in some areas (see Table II). The average number of contact farmers per village range from 6.68 to 15.07 in the

Amphur sampled which suggests the Kaset Tambon have exceeded the target of demonstrations and contact farmers considered acceptable for the first year of the Project.

2. Acceptable rate of adoption among farmers with villages for the following crops and expectations:

Baseline Data from Project Paper

<u>Crop</u>	<u>% Farms</u>	<u>Average Rai</u>	<u>Production</u>
Rice	93	18	380 K/Rai
Kenaf	50*	5*	200 K/Rai
Cassava	25	3*	3000 K/Rai
Peanuts	30	2	300 K/Rai

*Reductions from levels prior to Project

The rate of adoption as exemplified by the yield estimates of the first year (1977 crop season) are based upon Table II. The yield estimates include:

1977 Yield Estimates

<u>Crop</u>	<u>% Farms</u> ^{a/}	<u>Average Rai</u>	<u>Production</u>
Rice	93	18.79	212.25 K/Rai
Kenaf	56	4.70	190.69 K/Rai
Cassava	7	6.28	2431.25 K/Rai
Peanuts	3	1.77	213.58 K/Rai

The Northeastern Regional Agricultural Research Center estimated 1977 yields as follows: Peanuts - 186 K/Rai; Kenaf - 195 K/Rai; Cassava - 2125 K/Rai; and Peanuts - 180 K/Rai. (February 1978 Report). These estimates range from 2% to 12% less than estimates reported by Amphur Agents. It, therefore, appears the yield data estimated by Amphur Agents is within reasonable bounds.

The production level of the 18 Amphurs was reduced in 1977 due to less than average rainfall conditions, plus two Provinces had Amphurs with reported excessive rainfall in the early planting season followed by minimal rainfall in the later stages of the planting season. These factors affected the average yields.

^{a/}Retained from Project Paper since this data was not available from Provincial or Amphur records.

It should be noted that average rai of crops planted is above expectations for cassava and rice, and below expectations for Kenaf and peanuts. Two Provinces reported increased plantings of mungbeans which have become popular within the past two years and therefore, no base line yield data is available.

3. Increased income for village farmers for the following crops:

Estimated Farm Crop Income for 1977 in Project Provinces

<u>Crop</u>	<u>Pre Project</u>	<u>Post Project</u>
Rice	Ø4050/farm	Ø5289/farm
Kenaf	Ø1200/farm	Ø1175/farm
Cassava	Ø25/farm	Ø387/farm
Peanuts	Ø245/farm	Ø725/farm

The following information serves as a guide in identification of possible income levels for village farm families. The income levels include production yield data from Table II and estimate data from Table III D-1 of Project Paper. The equation for "Net earnings per family farm" is described in the Project Paper (on page 57) which is summarized as follows:

$$\begin{aligned} \text{Yield/Rai} \times \text{Price/K} &= \text{Gross/Rai} - \text{Rai Cash Costs} = \\ \text{Net/Rai} \times \text{Ave Rai Grown} &= \text{Net Ave Grower} \times \% \text{ of} \\ \text{farm Crops} &= \text{Net Earned/Farm Family.} \end{aligned}$$

Estimated Farm Family Income for 1977 in Project Provinces

<u>Crop</u>	<u>Pre Project</u>	<u>Interim Evaluation</u> (1977 Season)
Rice	Ø4050/farm	Ø4843.11/farm family
Kenaf	Ø1200/farm	Ø1199.64/farm family
Cassava	Ø25/farm	Ø33.96/farm family
Peanuts	Ø245/farm	Ø66.45/farm family

It appears the crop yield data compares favorably with the exception of Peanuts. There are two functions affecting the reported income which, however, should be identified. The anticipated percentage of farms reporting growing peanuts is 3% and the price set at Ø6.0/Kilo according to the Project Paper. The 1977 growing percentage and price data were not available to accurately test this comparison and therefore the income comparison serves only as a guide for this

evaluation. Also, the prices reported to have been obtained for rice was P3.0 to P3.5 in 1977. The abnormal prices received by farmers in 1977 reflect the reduced yields due to drought and therefore are independent of the Project. The Project Paper, emphasizing conservatism, suggested P1.4/K as the farm price. The interim evaluation income utilized the Project Paper values, maintaining a conservative farm income forecast.

18. Evaluation findings about PURPOSE - Quote the approved project purpose. Cite progress toward each End-of-Project Status (EOPS) condition. When can achievement be expected? Discuss causes of progress or shortfalls.

The Project purpose, as stated in the Project Paper, is "to provide effective agricultural extension services at the village level in 33 project provinces which will:

- a. enable the farmer to make better informed decisions,
- b. cause him to use improved farming techniques, and
- c. enable him to convey his views and needs back to the 'bureaucracy'."

The End-of-Project Status (EOPS) stated in the Project Paper is stated below plus the current condition is identified. The following include the EOPS:

- "1. A system of pre-service and in-service training for extension personnel operating effectively in 33 provinces."

The following reflect the data from the Project Paper as compared to the actual outcomes:

<u>Item</u>	<u>Planned (Project Paper)</u>	<u>Actual-1977 (DOAE and AID Records)</u>
Pre-service Training Participants:		
Tambon Agents	528	400
Subject Matter Specialists	25	14
Amphur Agents	60	54
National, Regional and Provincial Training Officers	17	17
In-service Training Participants:		
Tambon Agents	523	391
Subject Matter Specialists	14	8
Pre-service Courses:		
Tambon Agents	18	17
SMS	1	1
Amphur Agents	1	1
National, Regional and Provincial Training Officers	1	1
In-service Courses:		
Tambon Agents	24 (Ave)	21 (Ave)

Separate pre-service training courses have been provided for the 391 Tambon Agents and the 8 Subject Matter Specialists in the four Northeast Provinces. The pre-service courses were conducted by the National and Regional Training Officers, Provincial and Amphur level Extension Agents, and Research Personnel. The pre-service course content included the topics of Extension Methodology and Communication, plus Crop Technology for the four crops identified for the two crop zones in the Northeastern Region, i.e., Rice, Kenaf, Cassava, and Peanuts. The organization within DOAE has been developed and staff recruited at the National, Regional, Provincial, Amphur and Tambon levels.

The in-service training courses have been provided for the National, Regional and Provincial staff (Trainers), the Subject Matter Specialists, the Amphur Agents, and the Tambon Agents. In-service courses were conducted by: National, Regional, and Provincial trainers for Amphur Agents; Amphur Agents, with assistance from Regional and Provincial trainers, for Tambon Agents; and National, Regional and Provincial Trainers for Subject Matter Specialists. The in-service courses continue on a fortnightly basis for the Tambon Agents which are conducted by the Amphur Agents and Research Station Personnel, with assistance from Provincial Trainers and SMS and occasional assistance from Regional Trainers. In-service courses for the Subject Matter Specialists were conducted by research personnel and National and Regional trainers.

The frequency for the pre-service and in-service courses for the extension personnel involved with the project was within three months of the Critical Path Indicator (CPI) Network. Additional aspects of the pre-service and in-service courses must be examined. Questions relating to suitability of content, effectiveness of instructional methods, behavioral changes planned, achievement of behavioral changes (on a group basis and individual basis), etc. must be considered. The EOPS does not include these questions, nor is criteria established, so a presentation regarding this is offered later in the evaluation report.

- "2. Effective coverage of villages in 33 provinces by extension agents,
 - a. Ratio of extension agents to farm families is 1:800;
 - b. Average frequency of agent visits per village is at least twice per month."

The plan of work for the Tambon Agents specified that they will visit each village within their respective Tambons (sub-districts). The number of villages per Tambon varies, however, the typical numbers range from 7 to 18 villages with an average of about 12. The first year of the project reveal that Tambon Agents have been able to establish model farmers within 6 to 8 villages. The criteria specified in the Project Paper is 4-6 villages visited twice per month after the first year. This appears to have been met. Village visits are to be made following the fortnightly in-service courses, thereby enabling two visits per month per village. The average number of Tambon Agent monthly visits in the four provinces for the first year of the project include: Ubon Ratchathani = 2.4 visits per month; Yasothon = 2.0 visits per month; Roi Et = 2.0 visits per month; and Si Sa Ket = 2.0 visits per month. The averages were obtained from the Provincial Extension Offices based upon the Amphur monthly reports and interviews with selected Amphur Extension Agents (See Table II).

The ratio of extension agents to farmers is difficult to establish with only one year's progress. Interpolation of the visitation goal for the first year suggests the estimated ratio should approach 1:400-600. Observations and Provincial Extension office records suggest the average ratios to be approximately the following: Ubon Ratchathani = 1:1507; Yasothon = 1:758; Roi Et = 1:814; and Si Sa Ket = 1:668; and the Regional Average would be = 1:937. (Interpolation of "average contact farmers" from Table II).

- "3. Routine interaction between researchers, extension personnel, and farmers established at village and district levels."

The interaction of extension personnel, research personnel, and farmers at the village and district levels has not been accomplished on a routine basis. Farmers Associations are frequent in most Tambon, however, the joint

interaction sessions have not been developed. One approach to accomplish this interaction has been the formation of technical committees at the Provincial level. Plans have been developed to organize the technical committees that will initiate interaction among the farmers, extension personnel, and research personnel for specific farm enterprises, i.e., fisheries, crops, etc. The typical interaction, to date, appears to be with planning and execution of field days or demonstration days.

Greater attention must be provided to this EOPS since failure to obtain interaction will adversely affect the Project subgoal. The increase in numbers of villages visited will likely offer expanded opportunities for farmer participation, plus formulation of Technical Committees for crops specified in the Project.

- "4. Increasing degree of adoption of improved farming techniques with 85% of farmers in project villages adopting new practices by end of 1981."

No data was available for this EOPS. The degree of adoption is difficult to establish after the first year since not enough time has elapsed since initiation of village level demonstrations. It should be possible to measure the extent of adoption following the current crop year. This data would then be available for the next evaluation.

The total number of rai in demonstrations for 1977 averaged 193.5 per Amphur (see Table II). The exact number per Tambon varies, however it appears result demonstrations are frequent among villages with contact farmers. The IBRD policy on demonstrations has been implemented for the 1978 cropping season. The basic policy offers agricultural supplies (pesticides, seeds and fertilizer) and agricultural equipment for portions of a rai rather than large multiple rai demonstrations. This plan attempts to spread result demonstrations over a much expanded area, thereby encouraging greater numbers of farmers to observe and become aware of result demonstrations. Also the demonstration sites are planned to be located in areas convenient to farmers rather than be situated on major roads for non-farmer observations, i.e. visitors' observations.

- "5. Reduction of the gap between current and potential crop yields by at least 50% based on local research stations' yields."

The following data compare the reported 1977 yields with the yield potential as specified in Table III.A-3, page 36c of the Project Paper.

<u>Crop</u>	<u>Base Line Yield</u> (K/Rai)	<u>1977 Yields</u> (K/Rai)	<u>Potential Yield</u> (K/Rai)
Rice	175	212.5	380
Kenaf	160	190.69	200
Cassava	1400	2431.25	3000
Peanuts	150	213.58	400

The 1977 estimated yields (Table II) have not been tested for validity, however it offers a guide for the interim evaluation. (Note the Agricultural Research Center data on Evaluation Report page 7 for comparison, however.) It would appear that progress toward this EOPS has been made. A more complete study should be conducted for the 1979 Evaluation to thoroughly investigate this EOPS.

"6. Farmers views and needs influence decision-making and content of planning guides for extension program."

The upward flow of views from farmers to extension personnel is not evident. The fortnightly courses with the Amphur Extension personnel and the Tambon Agents provide an opportunity to develop this exchange. It is important that farmer's views become included in the extension content planning. Without this input, the felt needs of the farmers will not be identified thereby reducing opportunities for meeting the needs of the farmers. The agenda for the fortnightly courses include this topic which enable Tambon Agents to report the views of the farmers. Such comments should then be transmitted to the Provincial Extension personnel for inclusion in subsequent Extension policy development and program content. Too often the farmer problems are reacted to at the Tambon or Amphur level without formal transmission of needs to extension policy developers or research policy developers.

The usual agenda for a fortnightly meeting as reported by Amphur Agents includes the following:

- I Opening Remarks
- II Introductions
- III Review Last Meeting's Minutes
- IV Specialist's Presentation
- V Group Discussion of Specific Farmer Problems
- VI Field Observations of Result Demonstrations

A fortnightly training session on June 23, 1978 in Kut Chum Amphur, Yasothon Province followed the above agenda. The guest specialist invited to speak was the Section Chief, Plant Protection, Ubon Ratchathani Province. This presentation consisted of a 16 mm film which illustrated various pests in agricultural crops and described the plant protection activities.

Comments regarding farmer problems were summarized by two discussion groups of Tambon Agents. The format for the group discussion included: 1. Problem, 2. Reason for Problem, and 3. Solution to Problem. The problems identified by the Tambon Agents reflected their perceptions of organizational and farmer adoption outcomes. A sample of the problems include: "Farmers do not stay at home at scheduled visit times", "Farmers won't follow advice and won't transplant rice in rows"

and "Farmers fail to maintain rice plots after transplanting". (see a complete report of Group Discussion Results in Table III).

The fortnightly meeting emphasized oral interaction between Tambon Agents, Amphur Agents, Provincial Extension Officers, Provincial and Regional Training Officers. The major weakness of this session was the lack of specific recommended activities for the subsequent two week period and the lack of individual, practical, psychomotor activities for the Tambon Agents.

The major cause for this incomplete EOPS is the lack of agenda planning for the fortnightly courses based upon training needs assessments. A needs assessment should be developed and utilized by the Regional and Provincial Trainers. A common agenda should then be developed for each series and then a summary of the farmer view points be forwarded to the Provincial offices. The major weaknesses appear to be a lack of identified training needs, a lack of formats designed for the fortnightly sessions, and lack of report formats to summarize farmers views. Development and utilization of the modules would reduce these weaknesses, also. The weaknesses should be corrected within the current year of the Project.

19. Evaluation findings about OUTPUTS and INPUTS - Note any particular success or difficulties. Comment on significant management experiences of host contractor, and donor organizations. Describe any necessary changes in schedule or in type and quantity of resources or outputs needed to achieve project purpose.

The Project's contribution to the "National Extension Improvement Project" of Thailand consists of the following outputs:

- "a. Development of crop-specific training modules that will be progressively condensed for use at each lower level of the Extension Service hierarchy and finally resulting in a practical field manual for the Extension Agent's use. Initially modules will be introduced for 1 or 2 crops per District and as the Project progresses, modules for additional crops will be prepared."

The progress on this output has been minimal. Five crop modules have been prepared in a rough draft for the Northeastern and Central Regions. These include: Rice, Kenaf, Maize, Cassava, and Peanuts. The Extension Methodology and Communication Modules have not been developed. Apparently the crop module have been prepared for the Regional or Provincial level Subject Matter Specialists without condensed versions for lower levels of extension personnel.

Particular attention should be given to this outcome and the format specified in the Project Paper be followed. The suggested format calls for loose-leaf binders for the modules which will enable flexibility. As new recommendations are developed, the appropriate page(s) can be removed and replaced.

The four Provincial Training Officers interviewed in the Northeastern Region agreed to the concept of modules. However, it was apparent that the concept had not been previously explained, since none of them had prior knowledge of the modules.

- "b. Training of top-level administrators and trainers who will be responsible for preparation and presentation of training courses at all levels. The initial Train-the-Trainers Workshop will be held in December 1976, before loan implementation begins, for National and Regional personnel and for two trainers for each of the four Northeastern Provinces where first-year implementation has begun."

The Train-the-Trainers Workshop was conducted by Mr. Robert Wesselman and Mr. Duncan Fisher in December 1976 - January 1977. The participants included National, Regional and Provincial personnel who have current responsibilities in the Project. The workshop was held at Tha Phra, Regional Agricultural Research Center.

Training skills required by personnel, at these levels, are important to the success of the project. There is no information available to determine the extent to which participants expanded their training skills. It would appear that the 1979 major evaluation should focus upon the training skills of personnel responsible for Provincial training programs. Interviews with the four Provincial training officers noted each had individual concern for training activities in the Province, however, their administrative activities restricted personal involvement. All Provincial Training Officers are assigned such activities as coordinating Amphur Agents agricultural supply requests, etc. These duties have an adverse affect upon Provincial Training programs.

- "c. Pre-service training of the 2,900 new personnel to be added to the Extension Service in the 33 participating Provinces, including 210 new Subject Matter Specialists and 2,500 Extension Agents. Also in-service training periodically throughout the implementation period of all Extension Service personnel."

A complete description of the pre-service training programs has been identified earlier. It would appear that randomly solicited comments from Amphur Agents and Tambon Agents suggest the pre-service training activities to be favorably rated. The 53 Amphur Agents did not appear to gain many training skills, although their mode of participation render this a questionable duty. The Amphur Agents primarily functions as a supervisor or training organizer in the four first

year Provinces. It is unlikely their role will be altered in other Provinces:

92 percent of the Tambon Agents received Pre-Service Training in July 1977. These courses were held in the Provinces and lasted 4 weeks. Based upon the Amphur Agent responses (see Table II), about 88% of the scheduled fortnightly meetings have been conducted in the Northeastern Region.

The Project Paper identified a need for 25 Subject Matter Specialists (SMS) for the first year of the Project. The four Provinces reported a total of 14 SMS Assigned (56%). The SMS Assigned included 10 (40%) permanent appointments and 4 (20%) temporary appointments. There appears to be a problem of both assignments and permanent appointments of SMS for the Project.

There is a need to obtain greater SMS involvement with the fortnightly meetings for the Tambon Agents. The current major responsibilities of SMS (according to DOAE staff) includes training, organization and reporting (crop yields, etc). The 1979 Evaluation should identify the SMS activities in regard to the training functions. This would include identification of the number of fortnightly training sessions attended, scope of involvement with training sessions, number of visits to Research Centers, etc. It is important to identify the specific role(s) of the SMS in terms of the Project.

The second year training activities appear to follow the CPI Networks (revision #2) with courses held within 3-4 months of scheduled times. The major question to be resolved is the qualitative aspects of these training programs, especially the in-service sessions.

- "d. Development of video-tape recording (VTR) and other audio-visual capabilities in each region and production of VTR/audio-visual materials for repetitive use."

The use of VTR in the Project was eliminated due to trainer expertise, budget revisions, and technical problems. Alternatives to VTR must be identified and incorporated into the training sessions. The Provincial Training Officers recommended overhead projections, slide projections, flip charts, flannel boards, 8 and 16 mm film projections, and chalk boards as possible alternatives.

The A-V personnel or equipment has not been developed to support the Project training programs. Attention must be made to address this outcome of the Project.

- "e. Establishment of National and Provincial Coordinating Committees to coordinate multi-agency inputs into the Project, e.g., DOAE, Department of Agriculture, Division of Agricultural Economics, BAAC, etc. Also establishment of Provincial Technical Advisory Committees to recommend priorities for future work in agricultural research and extension."

No information has been identified to assess the progress toward this output. The four Northeastern Regional Provinces are in the process of developing a Technical Committee for the fisheries program which would establish a procedure to develop similar committees for the Project. The Technical Committee would consist of contact farmers, Amphur Agents, Provincial Extension personnel, and Regional Research personnel. The 1979 evaluation should assess the progress toward this outcome and develop recommendations.

- "f. Establishment of routine communication channels for farmer views. Farmers will be systematically consulted on the subject matter content and priorities of the Project for the coming year. This will be done on both an informal basis through the frequent contacts of the Extension Agent and on a formal basis through annual reports by the Extension Agents to the Provincial Committees. Farmers' Associations are or will be formed to represent farmer interests to the Technical and Coordinating Committees."

The Amphurs in the four first year Provinces have an average of 12.3 Farmers Associations with a range of 3-52 associations in the 18 Amphurs studied (Table II). The total of registered Farmers Associations in the four Provinces is 290 (Table I). Therefore, it appears ample opportunities exist to establish routine communication channels. However, the only routine farmer feedback system currently in operation is the Tambon Agents reports at the Fortnightly meetings. These reports tend to focus more upon organizational and farmer adoption problems than specific farmer needs.

It appears the Technical Committees must be developed to achieve this Project outcome.

- "g. Completion of successful field demonstration in improved farming techniques." (Page 20-21, Project Paper).

The 425 Tambons Agents in the first year Provinces have identified 53,764 Contact Farmers (Table I). The 1977 number of rai used for result demonstration included an average of 193.5 rai per Amphur. The number of rai included in 1978 will be less since the goal is to use partial rai demonstration sites. This will expand the number of demonstration plots and require a constant amount of material resources, i.e. agricultural chemicals, seeds, and fertilizer. The effect of this plan is explained with the large number of contact farmers for 1978.

The 1979 evaluation must study the adoption rate of contact farmers and other village farmers to ascertain the effects of the demonstration plots. There should also be study directed toward the appropriateness of the technical extension programs. Determination of the effect upon production such as advocating smaller rice seedbeds, transplanting rice in rows, direct rice seeding, etc. should be identified. The quality of technical advice can be tested with study of farmer acceptance-rejection.

20. Evaluation findings about UNPLANNED EFFECTS - Has project had any unexpected results or impact, such as changes in social structure, environment, technical or economic situation? Are these effects advantageous or not? Do they require any change in plans?

The interim evaluation identified important unplanned effects of the Project. These are described below and suggestions are offered regarding the possible means to reduce the potential adverse effects upon the Project. These include:

I. The Project Paper called for utilization of Video Tape Recordings (VTR) within the training program. The intent of VTR was to transfer knowledge and demonstrations to participants, thereby multiplying the effect of research personnel and National and Regional Trainers. The VTR hardware and software was to have been provided in the IBRD portion of the National Extension Improvement Project.

The versatility of VTR, plus the potential adaptability of this training medium, is highly dependent upon the skill of technicians and trainers. The Project Paper noted "the actual training operations will utilize a medium which is quite innovative to developing countries in achieving the accuracy, scale, and timeliness required. This is the use of color video tape recorders (VTR)."

"At each Regional Training facility a VTR/Visual Aids production facility will be developed (IBRD financed) and staffed with an Audio-Visual Specialist, an Electronics Specialist, VTR Operator and a Cameraman and other personnel necessary for materials production. These people will work under the supervision of the Regional Training Officer. In addition each Province will have two Audio-Visual Specialists to handle the VTR/Audio-Visual equipment at that level and will have additional staff available for materials production." (Pages 32-33, Project Paper).

The staff at UNDP Development Training and Communication Planning (DTCP, formally DSCS) participated in two Train-the-Trainers Courses. The two courses were the National Train-the-Trainers Course in December 1976 - January 1977 and Amphur Train-the-Trainers Course in 1977. The staff of DTCP noted in their final report that:

"At the request of the Department (DOAE?), DTCP provided a VTR technician and equipment to record training sessions for Kaset Amphur from the Northeast. The trainers who participated in this experiment felt that VTR was not worthwhile because (1) it did not encourage participation of trainees in the same as an instructor could, (2) there was a lack of software and (3) instruction through a T.V. monitor was boring. If VTR had been used in a more innovative way it may have been more useful but trained staff were not available nor were they adequately budgeted for in the project" (Page 2, DTCP Report, 4 May 1978).

The summary of the DTCP Report, reported in a table entitled "Major Accomplishments", noted that a "Decision was made to abandon TV (VTR) as an extension/training tool". This decision has been accepted by DOAE and IBRD and is reflected in the materials ordered for the National Extension Improvement Project.

The effects of this decision creates a need to reexamine the training schedules and methodology. There is a need to study this impact upon the Project and identify alternatives to VTR which will enable achievement of the Project goal and subgoals. The role of VTR is central to the effectiveness of the train-the-trainers sequence and therefore an acceptable alternative must be developed.

II. Another unanticipated finding of the evaluation is the potential incompatibility of professional roles expected of the Amphur Agents. The two roles, as a result of the Project, includes supervisor activities and trainer activities. This dual role situation is difficult to effectively execute and has created problems for the pre-service and in-service training programs at the Tambon level. The in-service training sessions for Amphur Agents should include activities to provide the Amphur Agents skills for meeting these needs.

There is a need to develop a task analysis for the various extension levels, i.e., Tambon, Amphur, Provincial, Regional, and National. This task analysis would concentrate upon the specific activities required for the functions of extension staff at the separate levels. A task analysis would reveal the activities necessary to perform the specific tasks expected, thereby identifying additional areas for content in the training program. Tasks identified would then reveal competences required by extension personnel and these would serve as the basis for content modification, if unknown training needs are identified. It should be noted that the DTCP Report referred to an attempt to assess training needs of trainers. The following comments were made.

"One component in the Training Evaluation Workshop was to assess training needs of trainers."

It is suggested that additional effort on assessment of training needs should be accomplished.

III. Another area of unplanned effects relates to the unexpected range of skills required by the National, Regional, Provincial, and Amphur trainers. The wide range of expectations results from the organizational situation and instructional situation. The organizational frame work of DOAE is designed to de-centralize the administrative functions. It appears that this goal is appropriate and potentially attainable. However, there is a danger in de-centralizing too rapidly. The present situation reveals that separate training activities are simultaneously being conducted by DOAE. The result is overlap of effort and numerous training sessions for extension personnel. DTCP suggested a new Training Division be organized (page 7, DTCP Report, 4 May 1978) that would provide "backup support" for the Regional training activities.

The other element of this unplanned effect is the instructional situation. The capability of the Provincial level trainers is too weak, necessitating the two National trainers to maintain impossible workloads. The National Trainers must plan, train, evaluate, and provide logistic support at the Regional and Provincial levels. This situation will be compounded when the number of provinces expands beyond the current 15, i.e. 4 in the first year and 11 in the second year. This is a need to evaluate the organizational structure and develop an effective and efficient structure to overcome the problems of the organizational situation and instructional situation.

IV. The final area of unplanned effects is the implementation of the module designs, i.e. for the selected crops and for the extension methodology and communications. The concept of module is difficult to explain in the Thai language since there is not an appropriate Thai word. There have been alternative terms used to explain the concept, such as "packages", but this does not appear to communicate completely. The effect of this confusion has resulted in minimal attention to this aspect of the project. Five rough drafts of different crop modules, of which one is appropriate for the Northeast, have been developed. The format of the modules, according to the Project Paper, was to develop sets for each level with reduced scope from the National level to the Tambon level. Also, the modules were proposed to be designed in three ring binder forms to allow for flexibility inherent with the changes in agricultural technology. The delay in developing the modules beyond the rough draft stage creates an adverse effect upon training programs. The modules are intended to be a central feature of the courses, thereby enabling less "classroom-type" learning activities. There is a need to concentrate on development of the modules quite soon.

21. CHANGES in DESIGN or EXECUTION - Explain the rationale for any proposed modification in project design or execution which now appear advisable as a result of the preceding findings (items 13 to 20 above) and which were reflected in one or more of the action decisions listed on page 1 or noted in Item 15 on page 2.

The modifications in the project design and execution result from the preceding comments. It should be noted that the order of presentation does not infer priority, as the order is a matter of convenience. The modifications are reflected in the action decisions noted earlier, also.

The following modifications are recommended:

1. The use of VTR be replaced with another medium suitable the training program. The major objections to VTR raised in the DTCP Report, i.e. lack of interest, lack of software, and lack of skill, should not be the rationale. These objections can be corrected with improved

Materials planning and course content planning. The above objections likely provided the stimuli for IBRD to drop this item in the budget. Therefore, one aspect of the rationale is due to the fact that neither the hardware, nor the software are available for the Project.

Another important aspect of VTR which renders the medium as questionable is the incompatibility of various makes of color monitors and recorders. The long term effect of this technical problem is speculative, however, the manufacturers maintain unique technical specifications reducing probability that different brands of monitors and recorders would be compatible. Therefore, the associated technical problems are the main reasons for this modification.

It should be noted that DTCP suggested 8 mm or Super 8 mm film as the alternative. The disadvantages of printed film, i.e. 8 mm or 16 mm, etc., include too many major obstacles to the training program rendering it as an unlikely alternative. Some of these disadvantages include: time required for processing, unable to easily edit visual or printed tracks within reel of film, expertise required for adequate production, and storage requirements of the product (especially in the heat and humid environment of the area). The other alternatives which may be considered include: 35 mm slides with audio tapes, overhead transparencies with audio tapes, or overhead transparencies of multiple overlays with written scripts. The alternative selected must be within the budget limitations and be adaptable to the technical agricultural requirements.

2. The single course for the Regional and Provincial Trainers is not adequate. The ability of these Trainers is critical to the success of the Project. There is a continuing need to upgrade the training skills and also to modify the affective behavior (i.e. values and attitudes) of the Trainers. Trainers with minimal backgrounds in the process of instruction must obtain additional preparation to attain the required skill to succeed. It is unlikely the Trainers in the subsequent Regions and Provinces will be able to become effective with just the one course.

Also, a Training Needs Assessment should be conducted to identify specific topics to be included in the training sessions. The assessment should enable prioritizing topics and division of topics prerequisite to planning individual courses. Expanding the number of train-the-trainers courses would necessitate a listing of prioritized training needs. The listing would serve as an aid in planning content of the various Train-the-Trainers courses.

A method is needed for monitoring the abilities of the Trainers and the outcomes of the training courses. There appears to be a wide range of entering skills and exiting skills of participants within the training courses. The variance in abilities will affect the performance of the individual personnel and the project as a whole. An annual review or similar activity could be used to accomplish this need. The review may become apart of the "refresher" course for Trainers.

3. The Project should expand the efforts on the development of the Crop Modules and Extension Methodology and Communication Modules. The lack of these modules has restricted the potential of the Project's first year and is likely to increase problems for the second year. Development of the drafts and final copies of the modules must be completed quickly. The modules will enable greater opportunities for skill development and consistency among training programs. This potential is directly associated with Project goal and subgoals.

It may be necessary to provide short-term assistance to the Project for modular development. The urgent need for the modules suggest that the most expedient means should be identified and utilized to prepare the modules. The types of modules required for Tambon Agents and model farmers may well incorporate the assistance of outside expertise. One such source is the Yuwa Kasetkorn (YK) Section of DOAE. The AID sponsored YK Project includes a literature consultant that should be used with the review of the module drafts for Tambon Agents and model farmers. There may be opportunities to expand the role of this expertise in draft assistance also.

4. The time table (CPI Network) for the Project appears to be unrealistic due to the lateness in signing the loan and also the expectations of obtaining a National Training Advisor. The CPI Network has been revised twice and it is likely a third revision is necessary. The quantification perception of the CPI suggests few targets have been missed. However, the qualitative aspects of the targets represent an important aspect of the success of the Project. It appears many of the Project weaknesses relate to the qualitative aspects of the CPI. Observations of the extension personnel activities reveal the need to revise the CPI Network and incorporate additional targets, i.e. formation of technical committees, development of modules, training needs assessments, refresher sessions for trainers, etc. Also the CPI Network appears to be attempting too much too soon. It may be necessary to reduce

the scope for the third year and expand the scope for the fourth year or expand the length of the project. These activities would approach the qualitative CPI-type activities absent in the current CPI Network. Subsequent evaluations should enable final decisions regarding the status of the CPI Network.

5. The structure of DOAE should be modified so that the many projects requiring training may be coordinated. A proposal by DTCP was noted in the Interim Evaluation Report which suggested formulation of a new Training Division for DOAE. This Division would enable backup support for the Regional training activities. However, prior to this reorganization a study of DOAE should be made and plans identified to develop this Division.

22. LESSONS LEARNED - What advice can you give a colleague about development strategy--e.g., how to tackle a similar development problem or to manage a similar project in another country? What can be suggested for follow-on in this country? Similarly, do you have any suggestions about evaluation methodology?

1. Development projects often include complex interactions among personnel in different organizations. The achievement of Project goals and outcomes may well depend upon the type of communication patterns available between organizations such as Host Governmental Units, Donor Organizations, and Host Country Contractors. Also, another important element is the interaction between personnel within each of the organizations involved with projects. The developmental projects should, therefore, recognize the importance of the complex role of organizational and personnel functions. Study should be made of the organizations at the planning stage of projects. Then, organizational research should also be included as one aspect of project evaluation at both the formative and summative evaluation phases. The information from organizational research would offer opportunities to assess the complex interactions necessary for projects. In addition, organizational modifications may be identified which would be considered prerequisite to anticipated project goals.

The achievement of the Agricultural Extension Outreach Project goals is highly dependent upon cooperation among Divisions within MOAC, Ministry of Finance, IBRD, local contractors, and the Agriculture Faculty in Universities. Also the organizational activities and personnel relationships within DOAE create an impact upon the Project. Documentation in the planning and the evaluation phases of the Project regarding the organizational activities and relationships would provide opportunities

to determine problem areas. Such determinations may well contribute the scope of the Project's success.

2. Projects involved with educational thrusts should have benchmark data regarding the pre-project covert behavior of the potential participants. This data is quite difficult to identify for Projects in extension education. The various groups of people involved with project activities are often diverse and numerous. However, it is important to establish benchmark data to enable comparisons for qualitative assessments of the project. The quantitative assessments of the project, i.e. numbers of participants, length of training courses, scope of demonstrations, etc. would then be more significant. Therefore, benchmark data should include both quantitative data and qualitative data. Also, it would be possible to identify qualitative indicators for the project reporting process, i.e. the CPI Network.

Another advantage of project benchmark data is the opportunity for development of evaluation process guidelines. The methodology used in collection of benchmark data could also serve as a guide for evaluation methodology. Therefore, benchmark data collection procedures would need to be selected carefully.

3. The idea of expecting professional staff to perform two different roles should be challenged. This situation is quite common in many projects, i.e. staff responsible for supervision and training activities. Effective performance is unlikely in both roles since they are incompatible. The role of a trainer often requires different interpersonal relation approaches than typically displayed by supervisors. Such confusion can affect the person attempting the two roles and there is confusion in role expectation among the subordinates or trainees. The likely outcome of these situations is greater personal interest in one role at the expense of the second role. The role that frequently receives the least attention is the training role (which is likely the focal point of a project).

The alternative to a dual role demand upon extension personnel is to create separate positions for each role. This requires increased staff, but the expanded resource invested would likely be necessary for the project. Variations of this alternative could be temporary or short term assignments or loan of outside, substitute staff (such as teachers, industry managers, etc). The important goal would be to develop situations where extension staff are either supervisors, or trainers; but not both.

4. The Project Paper appeared overly optimistic in that too many critical factors were required too quickly, i.e. loan signing within 6-8 months, securement of technical assistance within 8-10 months, module development within 8-10 months, etc. The success of a project is linked closely with critical performances. If the timeline is too short, the project will likely be adversely affected. Caution should be exercised to refrain from designing overly optimistic timelines, especially when technical assistance is to be provided through contractors.

5. Another area projects should exercise care is the level of expectations placed upon personnel involved in the projects. Time and pace of skill development are important factors in preparing trainers. These factors are affected by

various characteristics of the environment, culture, incentives, etc. Careful thought must be given to the limitations in preparation of trainers when designing these projects.

6. The final lesson learned is the problem with duplicating training methodology from different cultural settings. A key element of training programs involves the technique(s) for motivation. The technique must be appropriate for the training participants and there is evidence to indicate that motivational techniques successful in one culture are not universally transferable to other cultures. Training programs are often successful because of the motivational techniques and therefore study should be made of techniques which would be appropriate for the training participants envisioned in projects.

23. SPECIAL COMMENTS or REMARKS (For AID/W projects, assess likelihood that results of project will be utilized in LDC's).

Projects which are as complex as the Agricultural Extension Outreach Project should obtain all expert assistance available for design phases and implementation phases. A deliberate attempt to seek expertise available within the host country is often time consuming and likely not done. The potential services, opinions, etc. of host country expertise, then, becomes unavailable or under-utilized.

To avoid the possibility of overlooking potential host country expertise, a listing of organizations with available expertise identified would increase the likelihood of involvement. This listing would be an invaluable reference source for personnel involved with project design. The net effect would increase their efficiency and effectiveness. Also, the opportunities for greater success with less resources for project implementation appear to be another major advantage. Complex projects should be designed and implemented with assistance of all qualified experts, from host countries, donor organizations, etc.

Table I

1978
Interim Evaluation
Extension Outreach Project
EVALUATION DATA^a

PROJECT FACTORS		First Year Provinces - N.E.				First Year Totals
		Ubon Ratchathani	Yasothon	Roi Et	Si Sa Ket	
Proposed SMS's		8	7	5	5	25
Assigned SMS's	Permanent Appointments	4	3	2	1	10 (40%)
	Temporary Appointments	0	1	2	1	4 (20%)
Proposed Kaset Tambon (K.T.'s)		200	66	144	138	548
Assigned K.T.'s	Permanent Appointments	153	50	126	96	425 (78%)
	Temporary Appointments	x	x	x	x	x
Proposed Motorcycles		153	50	126	96	425
Assigned Motorcycles		153	50	126	96	425
No. Contact Farmers		18,292	5,356	15,750	19,366	53,764
No. Farmers Associations		99	25	79	87	290
Ave. No. K.T. Village Visits/month		2/mo	2/mo	2/mo	2/mo	2/mo
Ave. No. Farmers Visited/month		2/mo	2/mo	2/mo	2/mo	2/mo
No. Proposed K.T. Workshops		2/mo	2/mo	2/mo	2/mo	2/mo
No. Actual K.T. Workshops		2/mo	2/mo	2/mo	2/mo	2/mo
No. K.T. Completed Pre-Service Training		143	45	112	91	391 (92%)
No. SMS Completed Pre-Service Training		4	2	1	1	67%

a) Data obtained from Provincial Extension office records.

Table II

1978
Interim Evaluation
Extension Outreach Project
KASET AMPHOE INTERVIEW SUMMARIES^a
N = 18

Amphoe Level Factors	Ubon Ratchathani n = 5	Yasothon n = 4	Roi Et n = 5	Si Sa Ket n = 4	A V E R A G E	Comments
Kaset Tambon Requested	46	35	47	57	-
Kaset Tambon Assigned/%	32/70%	26/74%	38/81%	37/65%	72%	100% with motorcycles
Ave. Villages/Tambon Hi Lo	11.2 14.6 7.6	11.5 14.25 7.75	12.2 17.2 7.4	12.0 16.0 7.0	11.73	Range: 5-22
Ave. Contact Farmers/Village	15.07	7.58	8.14	6.68	9.37
Ave. Fortnightly meetings & %	21.8/91%	19.5/81%	21.25/89%	22/92%	21.14 (88%)	@ 24 Total meetings
Ave. 1977 Yields: Rice (K/Rai)	170	232.5	234	212.5	212.5	Range: 140-300
Kenaf "	190	198.75	194	180	190.69	Range: 150-300
Cassava "	2300	2500	1925	3000	2431.25	Range: 1200-3000
Peanuts "	192	210	218	233.3	213.58	Range: 100-350
Mungbeans "	110	115	0	0	112.5	Range: 110-150
Maize "	500	0	0	0	500	Range: 500-500

a) Interviews conducted June 18 - June 24, 1978 with randomly selected respondents.

Amphoe Level Factors	Ubon Ratchathani n = 5	Yasothon n = 4	Roi Et n = 5	Si Sa Ket n = 4	A V E R A G E	Comments
Ave. Farm Size (Rai)	32.2	25.75	27	21.5	26.6	Range: 15-75
Farm Income (% change 1976-77)	-16.8%	-48%	-0.5%	-24.5%	-22.4%	Range: -40% to +25%
Ave. Total Rai Demonstration Plots	138	140.25	128.2	193.5	149.99	Range: 54-248
Farmers Associations Total ^{Non} Reg/ _{Reg}	6 ⁵ / ₅	18 ^{18.3} / _{4.75}	16.4 ^{14.5} / _{5.0}	8.5 ⁰ / _{8.5}	12.23	Range: 3-52 ⁰⁻⁴⁴ / ₁₋₉
Ave. Kaset Tambon Visits/Mo.	2.4	2.0	2.0	2.0	2.1	Range: 2-4
Ave. Kaset Amphoe Visits/Mo.	2.0	2.13	2.16	1.75	2.01	Range: 1.8-3

Table III

FORTNIGHTLY SESSION

The following Agenda illustrates the Fortnightly meetings for Tambon Agents. A modification was made from the printed format in that numbers III and IV were switched due to the late arrival of the Plant Protection Section Chief. Also the plant protection presentation was limited to one 16 mm film because of the lack of time. The agenda was as follows:

"Agenda a/

Group #2 No. 7/1978

June 23, 1978

At Amphoe Meeting Hall, Kut Chum District

09:30 a.m.

- I. Opening Remarks
 - II. Review Last Meeting's Minutes
 - III. Agricultural Techniques Presentation on Plant Protection for Rice, Peanut Mungbean, Kenaf by Chief, Plant Protection Section #4, Ubon Ratchathani Province.
 - IV. Group Discussion of Problems in Work Performance Carried out by Kaset Tambon.
 - V. Others
- P.M. - Field Observations:
- Direct Seeding Demonstration Plot for Rice at Kut Chum Village, Tambon Kut Chum.
 - Peanut Demonstration Plots at Nang Bua Ban Village, Tambon Huay Kaeng"

The group discussion summarizations illustrate the type of Tambon Agents concerns and insights. The summarizations were written on a chalk board after small groups of 11 and 12 Tambon Agents identified the three aspects of the assigned problem. An oral presentation was made by a spokesperson of each group. The summaries include:

a/ Translation by Khun Uoychai, USAID/Thailand - O/RD (June 1978)

Group A

"Rice Planting:

<u>Problem</u>	<u>Reasons</u>	<u>Solutions</u>
1. Farmers do not stay home for visit time.	1. Now rice planting season (work and sleep in field).	1. Kaset Tambon visit at farm, not in the house, i.e., go to the field. Can't spend too much time.
2. When Kaset Tambon visit farmer, they don't meet them.	2. Farmers must find food and job outside of village	2. Can't solve (unknown) (Discussion with Training Officer).

Other comments - when farmers are sleeping in the fields, they do not see the Kaset Tambon visitation announcement signs in the village. (Discussion followed on related and unrelated problems).

Group B

"New Rice Planting Techniques"

<u>Problem</u>	<u>Reasons</u>	<u>Solutions</u>
1. Recommend farmer make small narrow seedbed, he doesn't follow as it has no differences in yield.	1.1 No comparison data. 1.2 Waste time to make narrow seedbed.	1.1 Should advise farmer accepting technique. 1.2 Emphasis advantage narrow seedbed.
2. Seedling is too old for transplanting.	2.1 Need seedlings 25-30 days old; however there was no water at that time for transplanting. 2.2 Transplantation can't be done on time.	2.1 Highland - use direct seedling.
3. Recommend farmer to plant rice in rows, however, they won't transplant in rows.	3.1 a. Waste time. b. Not enough labor. 3.2 No difference in yield 3.3 Farmers feels Agricultural Research Centers get increase in yield from fertilizer, not row planting.	3.1 Method takes time to adopt up 2-3 years. 3.2 Suggest to the farmers that they use cow dung fertilizer and compost.

<u>Problem</u>	<u>Reasons</u>	<u>Solutions</u>
4. Utilization of fertilizer not followed properly.	4.1 No money to buy fertilizer as fertilizer is costly.	4.1 (No solution) Recommend farmer to use compost.
5. Lack of rice bed maintenance.	5.1 Increase cost of production.	5.1 Recommend right method to use fungicides and other pesticides.
	5.2 Farmer afraid to use pesticides.	5.2 Recommend farmer to protect against disease during first stage of investigation.
	5.3 Farmer doesn't take care of plots after transplanting.	

Table IV

INTERVIEW QUESTIONS

Eighteen selected Amphur Agents and four Provincial Extension Training Officers in the Northeastern Region were interviewed for the Interim Evaluation. Two sets of interview questions were developed which support the three basic ratios of the evaluation. The following questions were asked of the Amphur Agents:

1. What was the number of Tambon Agents requested for your Amphur?
2. What is the number of Tambon Agents presently working in your Amphur?
3. How many motorcycles have been assigned to the Tambon Agents in your Amphur?
4. What is the range of the number of villages within each Tambon of your Amphur? State the highest and lowest number of villages.
5. What is the total number of contact farmers in your Amphur?
6. How many Tambon Agent Fortnightly meetings have been held in your Amphur?
7. What were the 1977 average yields (K/Rai) in your Amphur of the following crops: Rice, Kenaf, Cassava, Peanuts, Mungbeans, and other?
8. What was the 1977 average rai/farm in your Amphur of the following crops: Rice, Kenaf, Cassava, Peanuts, Mungbeans, and others?
9. What is the average number of rai/farm in your Amphur?
10. What was the difference between the 1976 and 1977 average family farm incomes in your Amphur? Why the difference?
11. What was the total number of rai in demonstration plots in your Amphur for the following crops: Rice, Kenaf, Cassava, Peanuts, Mungbeans, and other?
12. What is the total number of Farmers Association in your Amphur? How many are registered?
13. What is the average number of Tambon Agents visits to contact farmers per month in your Amphur?
14. How many farmers from your Amphur participate in the Provincial Technical Committee?
15. Do you use an agenda for the Tambon Agent Fortnightly meetings in your Amphur?

16. What is the average number of Amphur Agent visits per month to the Tambon Agents in your Amphur?
17. What suggestions do you have to improve the Tambon Agent in-service training program?

The second set of interview questions were asked of Provincial Extension Training Officers. The questions include:

1. How many Tambon Agent Fortnightly training sessions have you attended?
2. What teaching methods did you observe, at these meetings, which were used by the Amphur Agents?
3. What types of changes do you feel are required in the Tambon Agents Fortnightly training sessions?
4. What are the Amphur Agents' training strengths you observed during the Kaset Tambon Fortnightly sessions?
5. What are the Amphur Agents' training weaknesses you observed during the Tambon Agents Fortnightly sessions?
6. How can farmer feedback, to extension and research personnel, be developed in your Province?
7. What A-V Techniques can be used to replace VTR in the Agricultural Extension Outreach Project?
8. How many types of training programs are currently being conducted for extension personnel in your Province?
9. What is the potential of the modules for the Agricultural Extension Outreach Project? (Note: this design had to be explained to all interviewees.)

The questions were asked of the two sets of extension officers through Khun Uoychai (USAID staff) who was the interpreter for these interviews. The responses to the Amphur Agent questions are summarized in Table II and quoted in the evaluation report. The responses to the Provincial Extension Training Officers are quoted in the text of the evaluation report.

-Attachment-

A map of the Northeastern Region is attached below. It is designed to illustrate the locations of the four Provinces included in the first year of the Project. Also, the route of the field survey is identified which was followed during the week of June 18-24, 1978.

Table V

Average Rainfall (mm) and Rainy Days

1931-1960 (Thirty Year Average)

<u>Station</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>Annual</u> ^b
Roi Et	91.0	197.3	190.5	212.4	249.3	324.1	73.7	1414.2
	5.7	12.1	11.4	13.3	14.5	16.4	6.4	87.6
Ubon Ratchathani	71.7	172.1	204.8	260.6	313.0	310.0	132.1	1530.4
	5.9	12.3	14.2	16.4	17.1	17.3	8.5	98.4
Si Sa Ket	56.1	109.4	170.6	200.0	254.3	293.5	127.7	1272.0
	2.5	6.1	7.0	9.2	10.5	11.6	5.4	55.7

^a Data Source: Hydrometeorology Division, Meteorological Department, 10 November 1960

^b Includes 12 months.

^c Includes Yasothon Province.

Average Rainfall (mm) and Rainy Days

B.E. 2511 (A.D. 1968)

<u>Station</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>Annual</u> ^b
Roi Et	162.3	177.8	296.0	96.2	166.5	372.0	71.7	1431.0
	8	19	12	11	15	18	7	99
Ubon Ratchathani	87.6	166.5	282.4	152.6	289.1	499.3	4.0	1474.6
	8	12	17	18	21	21	5	108
Yasothon	140.1	104.7	158.8	85.6	201.0	561.3	17.8	1320.6
	7	9	13	4	11	17	4	70
Si Sa Ket (A. Rasi Salai)	87.6	83.5	216.5	94.8	230.8	409.2	36.2	1204.7
	8	6	13	7	12	13	3	63

^a Data Source: Hydrometeorological Division, Meteorological Department, 10 April 1969.

^b Includes 12 months.

Average Rainfall (mm) and Average Rainy Days^a

B.E. 2520 (A.D. 1977)

<u>Station</u>	<u>Rainfall</u>	<u>Days</u>	<u>Comments</u>
Loei	990.1	109	
Nakhon Phanom	1652.0	118	Highest
Udon Thani	1042.9	100	
Sakon Nakhon	1149.5	91	
Khon Kaen	1216.4	101	
Roi Et	1301.0	91	
Chaiyaphum	1029.1	84	
Ubon Ratchathani	1288.3	93	
Nakhon Ratchasima	884.2	92	Lowest
Surin	1069.4	96	

^a Data Source: Telephone conversation, Meteorological Department, 30 June 1978.

Note: April-October is considered rainfed crop growing season, remaining months consist of dry season with minimal rainfall.

Table VI

TRANSLATION

Progress Report on Training Programs
Under the Agricultural Extension Improvement Project
During the First Year of the Implementation in the Northeast

B.E. 2520-2521

Background

The Department of Agricultural Extension, Ministry of Agriculture and Cooperatives, has secured an amount of loan from the United States Agency for International Development for disbursement on improving the agricultural extension system during the period 1977-1980, initially in 33 provinces.

Scope of this improvement embraces:

1. increase of rural level extension manpower at the extension agent farm family ratio of 1:1000;
2. provision of support in the light of transportation;
3. provision of support in the light of office building and housing;
4. provision of equipment and supplies for use in extension work;
5. having them undergo training so that they have the same standardized knowledge in extension work performance;
6. developing visit system and arranging training programs in harmony with cropping schedules;
7. having the local leaders (contact farmers) take part in decision making, problem solution and extension work performance; and
8. establishment of a system for work coordination with other government agencies and research institutes in the form of committees.

This report covers only training in connection with disbursement of USAID loan which is a part of the Agricultural Extension Improvement Project or so called under the Extension Outreach Projects.

Objectives of Evaluation

This is a coincidental report prepared together with the evaluation of the training programs done by Dr. Richard Jensen from USAID.

The original objective of this evaluation was to evaluate the method used in training and its results occurred to farmers in the form of recognition of modern technologies in which the various level extension agents were trained as well as to sense the changes in farm production and income of farmers. However, as evidenced from the first year operations it might be too early to evaluate the result of the training programs in view of recognition of modern technologies. Consequently, this evaluation was effectuated with the following objectives:

1. recruitment of Tambon agricultural extension agents;
2. training and its target;
3. operations of the Changwat Council;
4. operations of SMS, and
5. supports of DTCP.

Survey and Evaluation Party

1. Dr. Richard Jensen, USAID Specialist
2. Dr. Thanya Thirasat, DOAE
3. Mr. Uoychai Vattraphoudej, USAID, Asst. Project Officer
4. Mr. Thongtaw Suwannin, DOAE

Survey and Evaluation Schedule

- | | |
|------------------|--|
| June 6-8, 1978 | Preparation and Meeting of the Committee |
| June 19-23, 1978 | Survey in Roi Et, Yasothon, Ubon Ratchathani and Sisaket |
| June 24-28, 1978 | Typing |
| June 29, 1978 | Report to the Evaluation Committee Meeting |

This report is prepared by Dr. R. Jensen and Dr. Thanya Thirasat in two separate parts, the progress report on the

training project by Dr. Thanya Thirasat as operating personnel and the evaluation report by Dr. Jensen as a party to the loan agreement representing USAID.

This is the report on the first year of operation. The project was initiated in the Northeast in December 1976 in Roi Et, Yasothon, Ubon Ratchathani and Sisaket which is the pre-service training phase from the regional level down to provincial and district levels, and ended in July 1977. Besides, several in-service training courses were inserted in the meantime.

Training Courses

The training courses arranged for agricultural extension agents in the four provinces comprised those established in accordance with conditions of the improvement project and those conducted by DOAE using normal budget which were not under the conditions of the improvement project. However, all types of training undergone by the extension agents are regarded as standardized training that produces effects to the project.

The Already Conducted Courses

1. Agricultural Extension Courses

This course was set up to enable the agents to know how to relay their knowledge--knowing how to perform the extension work, knowing the philosophy of the extension work and learning to analyze problems related to farmers' recognition of modern technologies. There were 14 subjects under this course with 5 major ones which were in direct connection with the method of extension work performance in the field and required the following special practices:

- agricultural extension,
- classroom lecture for farmers,
- demonstration,
- visits, and
- selection and utilization of contact farmers.

The course took 6 weeks for the provincial level personnel, 2 weeks for the district level agricultural officers and 2 weeks for the Tambon agricultural extension agents.

2. Crop Technology Course

The purpose of this course was to educate the trainees in how to increase the production of various crops pursuant to technological principle, commencing from preparation of soil, planting, care, harvesting and by-products utilization to increase other advantages. Under the conditions of the improvement project 5 kinds of crop were selected to be raised as principal crops in the 4 provinces for which the training subjects were taught. These crops were:

- rice,
- kenaf,
- peanut,
- corn, and
- cassava.

This course took 4 weeks for the provincial level and district level personnel and 2 weeks for the Tambon agricultural extension agents.

3. After-Rice-Crop Farming Course

This course was designed to provide additional knowledge in producing some short-lived crops in certain places having some left-over humidity so as to promote utilization of land and labor after rice harvest season. Four short-lived crops which could be raised after the rice cropping season were selected:

- tobacco,
- mungbean,
- sesame, and
- watermelon.

The course took 3 days, specifically for the provincial technicians.

4. Plant Protection Course

This course was conducted according to the necessity as resulted from the pest epidemic in mid 1977, comprising the following subjects:

- diagnosis of diseases and insects,
- usage of pesticides,
- usage of pesticide equipment, and
- plant utilization and control.

The course took 1 week for training officers and provincial SMS.

5. Farm Management Course

This course was aimed to enable the participants to analyze farm problems, to develop farm management plan, to develop capital employment plan and credit plan, and to provide recommendations about farm improvement to enjoy the maximum benefit from selection to use the limitedly existing resource of farmers. There was no principal subject under this course but the course was focused on analyzing farm management planning as well as farm management promotion plan development and analysis.

Training activities comprises:

- (1) Analysis of farm conditions of farmers,
- (2) Development of modern technology utilization plan (practice),
- (3) Development of recommendation plan for investment options (practice),
- (4) Development of recommendation plan for utilization of funds (practice),
- (5) Development of recommendation plan for utilization of labor within the family (practice),
- (6) Development of recommendation plan for evaluation of farm plan (practice), and
- (7) Development of extension plan (practice).

The course took 2 weeks for provincial training staff and SMS and district agricultural officers.

6. Planning and Evaluation Course

This course was conducted in accord with the policy of the Department on establishment of planning from the local level. Planning was previously set up at the central level. Plan development training program was launched when the Department wanted to have the planning done from the basis level, with the purpose enable the officials to develop plans and analyze the feasibility of such plans as well as prepare to evaluate the results of implementation of such plans.

This course took one week for provincial and distric Subject Matter Specialists.

7. Irrigated Agriculture Course

This course was designed for Tambon agricultural agents who worked in the areas where water was pumped for irrigation purpose under the Dry Season Cropping Program. It took one week.

8. Radio Programming Course

This course was set up to train public relation personnel in gathering information for discussion and radio programs, taking one week.

All these 8 courses could be regarded as training which concerned and gave effects to the Agricultural Extension Improvement Project. It could also be regarded as a training input although some courses were not included in the plan.

Instructors and Quality

Instructors conducting various courses varied in accordance with the courses:

(1) For the agricultural extension methodology course the instructors team during the initial period comprised 2 extension specialists from USAID, Mr. Wesselmann and Mr. Fisher, and 3 technicians from DOAE, Mr. Kasem Jarintho, Mr. Thanya Thirasat and Mr. Adisak Sisaphakit, conducting the regional and provincial level trainings. After the provincial training, the trained participants were used to conduct the district level training and the participants trained at this level were used to conduct the Tambon level training respectively. For subsequent trainings after the specialists had departed the following technicians from DOAE were employed: Mr. Suraphong Pransin, Miss Jirawan Unaphrom, Miss Phutsadee Paditphon, Mr. Sinlapachai Sojoeya, Miss Chawewan Wathanakun and Mrs. Suthinee Sojoeya.

(2) For the crop technology course, training was commenced at the district level, since the district agricultural officers were experienced in conducting this level training. The training was aimed at collecting knowledge from experienced persons to be edited into a training manual. A new method of training which had never before existed was consequently designed specifically for this purpose. Technicians who would serve as instructors and inspectors were selected, in accordance with all the aforementioned 5 crops, from the Khon Kaen Rice Experimenting Station, the Office of the Northeast Agricultural Extension and the Plant Industry Promotion Division. The training supervisors (Mr. Kasem Jarintho and Mr. Thanya Thirasat) considered these invited technicians to be well-experienced persons for the 5 crops.

(3) For the after-rice-crop farming course, technicians from the Office of Northeast Agricultural Extension and extobacco specialist of the Tobacco Organization, Ministry of Finance were selected to serve as technicians.

(4) For the pest control course, instructors were selected from the Pest Control Work, Office of Northeast Agricultural Extension and from the Pest Control Division.

(5) For the farm management course, the instructors team comprised 3 specialists from Israel: Mr. Dov ShaMir, Mr. Morhe Arrad and Mr. Dan Msir and from DOAE: Mr. Thanya Thirasat, Mr. Amnat Buakham, Mr. Kowit Nuanwat, Mr. Chuan Sa-atphong and Mr. Niran Khamwongsa as well as from BAAC: Mr. Wanchai Thepsuwan and Mr. Thosaphon.

(6) For the planning and evaluation course, the instructors team comprised Dr. Adisak Sisaphakit, Miss Sipraphai Chimloilap, Miss Jirawan Unaphrom, Miss Phutsadee Padithaphon and Mr. Thanya Thirasat.

(7) For the irrigated agriculture course, all the technician staff was made available from the Huay Sithon Model Farming Project, led by Mr. Prayoon Udomsi and Mr. Prasong Yotwilai from the Office of Northeast Agricultural Extension.

(8) For the radio programming course, all the staff was made available from the Agricultural Relations Division, led by Mr. Sombat Wongphrommek, Mr. Phong Chumsi and Mr. Anan Khumsin.

Methods of Training

All these 8 courses devised training methods in accordance with work characteristics and objectives of the subjects of study. Normally, ordinary classroom lectures would be avoided and replaced by workshop type training, discussion and practice. Some subjects were designed to pool the experiences of the staff for being edited into a new work manual. Training instructors invented new methods of training which had never been used before. These methods were integrated with the original concepts, forming inter-related training pattern used in training district agricultural officers in order to formulate a crop module. The new training method as developed is described in detail in the subsequent part.

Methods of training adopted for each course were as follows:

1. For the Extension Methodology Course

The method used for this course was called Thaw1 Bot (means duplex chapter). This pattern of training required trainees to "learn" from the instructors first, then to "teach". It was specifically designed for use in training persons who would be working in the quality of technicians or educators. Consequently during the process of training the trainees would firstly be in the student position, and after having learned they would make their teaching preparation and practice teaching. At this stage they were in the teacher status. This pattern was thus called Thaw1 Bot.

This Thaw1 Bot system of training comprised 4 major steps as follows:

Step 1 During the studying phase the instructors solely gave knowledge and determined specific exercises for the trainees.

Step 2 The trainees were required to compile all the knowledge and interpret the essence of the subjects of study in connection with characteristics of extension work performed at the provincial and district levels, then prepare their critiques.

The naming of a training pattern depended chiefly upon characteristics of assignment of the trainees to be performed after having been trained and upon the objective of the course.

Step 3 The trainees were required to work on their teaching preparation and to arrange the content suitably in accordance with the characteristics of the trainees in such case. At the regional and provincial level training, trainees had to make teaching preparation for training district agricultural officials. In case of district agricultural officials training, trainees had to make teaching preparation for the Tambon level training. After completion of the preparation, consideration on the teaching schemes was collectively made by having all the training participants make critiques, recommendations for adjustment and approve the schemes.

Step 4 Teaching practice training participants and trainees made comments on instructing manners and teaching aids employed as well as correctness of the essence. During the training process, evaluation was effected on a daily basis through the use of questionnaire forms designed by the training participants (under supervision of the instructors team) and both the instructors and training participants discussed major points that needed corrections and made additional recommendations so as to make them suitable.

Special opportunities were provided for the trainees to practice playing their roles until they have self-confidence in any methods that were in direct relation with assignments of the field staff, i.e., demonstration, lecture, visits, contact farmers selection and use, and arranging of meetings.

After the teaching schemes and methods had been improved the trained personnel conducted the district agricultural officers training by using the same Thawi Bot training method until completion of Tambon agricultural extension agents training program.

2. For the Crop Technology Course

The method used for this course was composed of 2 patterns, namely Phokphan (means reverse) for the district level and Thawi Bot for the Tambon level.

The Phokphan training pattern was designed to collect experience from district agricultural officers (whose length of service exceeded 5 years) for development into a handbook for this type of extension training. It is just the opposite means to general training. So to say, in the case of general training lecture would be given by the

instructors and the trainees would listen, ask questions and do additional practices as determined by the instructors while in the Phokphan training system the trainees would prepare their lectures in advance as determined by the instructors and bring all the teaching aids. Special training aids, if needed, were provided by the training staff at the class. Lectures were presented by the trainees to the instructors.

This pattern of training would give reflection in terms of what weaknesses or additional needs the trainees still had. It served as a real supplement of knowledge and experience and every trainee participated in the training not only sat and listened.

Steps taken under this type of training were to:

- (1) constitute the curriculum and determine the objective of each subject in a clear manner;
- (2) determine thing expected to be derived from the training including its features--crop module, in this place;
- (3) advise the trainees of how to prepare themselves before and after the training and remind them to come to the class with teaching schemes and aids;
- (4) invite instructors or qualified persons, giving them the detail of method of training and duties of instructors;
- (5) form training groups and appoint group secretaries-- training staff members and provincial Subject Matter Specialists serving as secretaries, in this place;
- (6) require the trainees to deliver lectures as prepared to the qualified persons for discussion and correction of the essence of the lectures, agreements derived from the discussion being recorded by the secretary; and
- (7) after completion of lecture by everyone of the trainees covering all the subjects, put together records of discussion from all the groups and reach final agreement and certify it for further use as operational module.

Features of crop module recording form are as follows:

Subject _____

Primary Stage	Recommended Method	Method Adopted by Farmers	Reason for Refusal	Inducement to Convince Farmers to Adopt the Method
Soil Preparation				
Planting				

Harvesting				

After completion of the district agricultural officers training, Phokphan pattern, the district agricultural officers and training staff further conducted the Pambon agricultural agents training, using Thaw Bot pattern.

3. For the After-Rice-Crop Farming Course

This course was the start point drawing attention of provincial Subject Matter Specialists to the feasibility of cultivation of rice fields or upland plots after the harvest of rice and other crops, to be commenced as from October, using naturally existed moisture during the later part of the year. Technicians who were working on research projects or used to work on field crop raising in the harvested rice fields or in places where other crops could be grown and harvested in October in the Northeast.

Consequently, the training was a normal classroom lecture inserted with discussion on feasibility and listening to suggestions on launching small pilot projects and on land of farmers who were willing to cooperate.

4. For the Farm Management Course

This course starts off with procedural guidelines for farm management as follows:

- Step 1 Improve the farm through improvement of technology without additional monetary investment nor change of kinds of crop.
- Step 2 Improve the farm through additional monetary investment in the same original farming condition without change of kinds of crop.
- Step 3 Improve the farm through change of kinds of crop and area of cultivation with and without irrigation water.
- Step 4 Invest in procurement of farm equipment and consider the feasibility of the investment and disbursement of loans.

Afterwards, the team erected a test case to be compared to the exercises of the trainees.

The training commenced with trainees being assigned to make a study of actual farm conditions of the farmers in two villages in Amphoe Muang, Ubon Ratchathani. After acquiring figures on farm and family labor, the trainees were required to develop the farm management plan in accordance with the Step 1, computing the increased production and income and the profit enjoyed then making critiques and comparing it to the test case. Subsequently, they improved the farm development plan and certified it as a practical guidelines.

Upon completion of the Step 1, the development plan under the Steps 2, 3 and 4 was formulated, all done by the trainees and judged of the feasibility by the instructors. Moreover, the trainees were also required to judge of the feasibility of the plans so developed.

The target of all the farm management activities under this course was to achieve the maximum possible profit from the use of resources existed in the two villages without employment of additional labor.

The step following the plan development acceleration was the preparation by the trainees to use such plans in teaching farmers by means of further developing the farm management production plan.

5. For the Plant Protection Course

The method of training under this course was an ordinary classroom type training with a practice in analyzing the crop destruction by some diseases and insects as well as utilization of some apparatuses.

6. For the Irrigated Agriculture Course

The method of training under this course was an ordinary classroom type training with a field training in the experimentation plots of the Huay Si Thon Model Farming Project in the area of farming with the help of irrigation water.

7. For the Planning and Evaluation Course

The method used was an ordinary classroom training with exercises on formulating the extension projects and planning the evaluation of the result.

8. For the Radio Programming Course

A major part of this method was composed of discussion and training the participants in analyzing situations for development into news and interview programs for broadcasting, then making a critique on their feasibility.

Training Work Load

Since the beginning of implementation of the Extension Improvement Project from late 1976, eight courses of pre-service training had already been conducted according to the tables below:

Table 1. Training Work Load for Roi Et, Yasothon, Ubon Ratchathani and Sasiket under the 1977-1978 Agricultural Extension Improvement Project.

Course	Term of Training	Training Participants			Source of Funding
		Regional & Provincial Level	District Level	Tambon Level	
Extension	Dec.19-Feb.20	17	-	-	USAID Loan
Methodology	Feb.20-Mar.20	-	54	-	USAID Loan
	Jun.20-Jul.20	-	-	400	USAID Loan
Agricultural Technology	Mar.20	11	54	-	USAID Loan
	Jun.20-Jul.20	-	-	400	USAID Loan
After-Rice-Crop Farming	Oct.20	11	-	-	USAID Loan
Farm Management	Feb.21-Apr.21	11	-	-	USAID Loan and National Budget
Pest Control	Mar.21	11	-	-	National Budget
Irrigated Agriculture	Feb.21	-	-	80	National Budget
Radio Programming	Mar.21	25	-	-	National Budget
Planning and Evaluation	May 21-Jul.21	11	54	-	National Budget

Training Staff's Production

In addition to conducting training courses in compliance with objectives the training staff also produced the following handbooks for operating personnel:

1. Provincial Level Agricultural Extension Training Handbook.
2. District Level Agricultural Extension Training Handbook.
3. Crop Module

4. Manual for Farm Management Trainers (original being under review and revision).

Fortnightly Training and Farm Visit System

A major objective of the agricultural extension system improvement was to use regular visits to farms by Tambon Extension Agents together with supervision by the district and provincial level personnel as the principle in improvement. To achieve the objective guidelines were determined to have Tambon Extension Agent pay visits to farmers for a period of 2 weeks and come back for additional training or seek their ways of solving problems and then go back out to pay regular visits so as to promote dissemination of information or knowledge among farmers in a regular manner and in commensuration with the needs. Visits and training programs were scheduled in harmony with cropping plans of the farmers. Besides, demonstration and pilot projects were also launched to provide support for the visit activities.

The fortnightly training was regarded as a routine activity and an important condition of the improvement project. Its 4 purposes were:

1. To consider solving problems of farmers come across during the past 2 weeks,
2. To develop teaching schemes and prepare to solve problem in the following 2 weeks,
3. To conduct additional training as necessary, and
4. To launch field observation programs or organize contact farmers to discuss problems or obstacles existed in working with farmers.

The formulation of fortnightly training programs in a cycle of one year fell under the responsibility of provincial level training staff and Subject Matter Specialists. The Provincial Subject Matter Specialists were charged with the duty to maintain contact with experimental stations and sources of knowledge in order to provide support for Tambon Extension Agents at the fortnightly training or during supervision of work performances.

The various districts were assigned to combine efforts in organizing groups and jointly conduct the fortnightly training, 3-4 districts each training program launched in a rotating manner avoiding the program to fall on the same day. The criteria and objectives were:

1. To group up the districts in order to achieve the number of 25-30 Tambon Extension Agents in each class of moderate size.
2. To provide 3-4 district agricultural officers with opportunities to present lectures on the various subject so as to avoid repeating lecturer or to help one another in supplementing knowledge.
3. To provide opportunity for all provincial training personnel and Subject Matter Specialists to participate in the activities.

From the commencement of the project each of the various groups had conducted 22 training programs--4 groups in Roi Et, 2 in Yasothon, 5 in Ubon Patchani and 4 in Sisaket. Grouping was made in accordance with the suitability of the areas and the number of existing Tambons.

Translated by Anan Subhongsang
8/7/78

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