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PERCEPTIONS OF PROGRAM DEVELOPMENT PROCESS: THAI DISTRICT
AGRICULTURAL OFFICERS

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Perceptions of program development process:

Thai District Agricultural Officers

by

Sophon Thanamai

A Dissertation Submitted to the

Graduate Faculty in Partial Fulfillment of the

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TABLE OF CONTENTS

LIST OF TABLES

Page

CHAPTER I. INTRODUCTION

Thailand is an agricultural country located in Southeast Asia, bounded on the northeast and east by Laos and Cambodia, on the west and northwest by Burma, and on the south by Malaysia and the Gulf of Thailand. In an effort to increase agricultural production, the Department of Agricultural Extension was established under the Ministry of Agriculture and Cooperatives.

Department of Agricultural Extension

No specific organization existed nationally for extension work in Thailand until 1968 when the Department of Agricultural Extension was established as the educational arm of the Ministry of Agriculture and Cooperatives to conduct programs in agriculture, home economics, 4-H, and rural community development. This was a major change in the administrative structure of the Ministry. The Department of Agricultural Extension was established by the merger of three Divisions of the Ministry; the Agricultural Extension Service of the Department of Agriculture, and the Extension Service Division of the Department of Rice.

The main office of the Department of Agricultural Extension is located in Bangkok, Thailand. Six regional offices are also in every major region of the country, provincial offices in every province (72), and 682 district offices located in the provinces throughout the country. The district offices are the basic unit with the target people--all farmers, their wives and adolescent children throughout the country whom the Department is serving. Each district office has a District Agricultural

Officer responsible for the Extension Service to the people in the area. The Department's prime objectives could be summarized as follows:

1. Disseminate technical knowledge and farming skills to farmers (Department of Agricultural Extension, 1980).

2. Train farmers and rural youth for leadership in agricultural development through farmer organizations and youth clubs of the 4-H type (Department of Agricultural Extension, 1980).

3. Improve rural family life by teaching home economics to farmers' wives (Maninus, 1978).

4. Support other government and nongovernmental agencies dealing with rural community development, cooperatives, agri-industry, etc. (Maninus, 1978).

The staff of the Department of Agricultural Extension includes mainly persons with basic training in agricultural sciences and production technologies and, when available, added special training in the theory and methods of extension. Preparation of extension personnel is through agricultural vocational schools, agricultural colleges and universities. In 1980, the Department of Agricultural Extension employed 10,313 persons. Ninety-two percent of the total personnel had a background of training in agricultural sciences: .05% held Ph.D. degrees, 1.2% held master's degrees or diplomas, 17.1% held bachelor's degrees, and 73.48% held less than bachelor's degrees. Eighty-five percent of the total personnel of the Department worked at the local level (Department of Agricultural Extension, 1980).

Statement of the Problem

Thailand, like many countries with a young extension service, has a heritage of centralized administration with policy and programs being determined at the center and with the execution of these definite policies and programs being delegated to the provincial and local agents. While most of the departments are implemented in the district and villages, planning is almost invariably carried out at the national level. Maninus (1978) found that at the operating level, extension personnel lack adequate knowledge of the program development process. The above generalization is widely accepted by Thai extension scholars according to Lerklai (1979). Yet, according to the literature reviewed, no study has been made on how extension programs are perceived by those Thai personnel.

Objectives of the Study

This study was conducted to explore knowledge about how Thai operating level extension personnel (District Agricultural Officers) perceive program development. To accomplish this main purpose, five specific objectives were identified successively as follows:

1. Review the relevant literature on program development, its principles and related concepts as a basis for developing a preliminary framework for Thai extension program development at the operational level.

2. Use the framework as a tool to compile a questionnaire for identifying the perceptions of importance of various phases of the proposed program development framework of Thai District Agricultural Officers.

3. Determine the differences and similarities in perceptions of some selected aspects of program development of Thai District Agricultural Officers in regard to:

3.1 Their years of service at the District Agricultural Officer position.

3.2 Their highest levels of formal education.

3.3 Their major areas of study in the highest levels of education.

4. Suggest some guidelines which will assist the Thai operating-level extension personnel toward developing more effective programs.

Significance of the Study

This study was expected to provide basic information and to add more knowledge about Thai extension program development at the operational level by analyzing the perceptions of the operating-level extension personnel toward the framework established by this investigator. Further-more, this study would serve as a source of reference for the students and practitioners of extension education in Thailand.

Limitations of the Study

1. This study includes only the District Agricultural Officers as the operating-level extension personnel. Hence, the findings have impli-cations for those who work only at this level.

2. The method for data collection in this study was limited to mailed questionnaires.

Definitions of Key Terms

Program: The product resulting from all the programming activities de-
signed by the programmer(s) to achieve specified objectives within a
specific period of time independent of any relationship to formal
evidence of qualification.

Program development: "A continuous process in which a series of actions
culminates in the accomplishment of a goal" (Boyle, 1977, p. 10).

Perception: "The process of assembling sensations into a usable mental
representation of the world" (Coon, 1977, p. 123).

Department: An organization for functionally specialized networks of ad-
ministration within the Ministry structure. This administrative
organization links with corresponding field structures at the re-
gional, provincial, and district levels of government in functioning
and rendering services.

District Agricultural Extension Office: An elemental unit of the local
public educational system for agricultural development of the
Ministry of Agriculture and Cooperatives. It is established in each
district and is responsible for all the communes and villages of the
district in doing extension work.

District Agricultural Officer: An extension personnel of the Department
of Agricultural Extension who heads a district agricultural extension
office and is responsible for all the communes and villages of the
district in doing extension work.

CHAPTER II. REVIEW OF LITERATURE

The primary objective of the present study was to develop a pre-
liminary framework for the study of Thai extension program development.
This framework was then used as a tool to compile a questionnaire for de-
termining the perceptions of Thai operating-level extension personnel with
respect to those aspects of the profession cited in the listed objectives.

In hopes of developing such a framework, a review of literature on
models for programming in the Extension Service was necessary to provide
appropriate background. In this chapter, extension program development
models in the United States and in some Asian countries are examined.
Then the preliminary program development framework for Thai Extension
Service is presented and used as the basis for determining the Thai
District Agricultural Officers' perceptions.

Selected Models of United States Extension Program Development

After examining the models developed for use in the U.S. Extension
Service in the literature on extension program development, Ahmad (1981)
found that curriculum planning efforts contributed significantly to ex-
tension program development and provided a long history upon which exten-
sion program developers had drawn. With further examination, it was found
that Tyler's four basic questions were the underlying structure of exten-
sion program development models proposed by various writers. These four
basic questions were: (1) What educational purposes should the school
seek to attain? (2) What educational experiences can be provided that are
likely to attain these purposes? (3) How can these educational experi-

ences be effectively organized? (4) How can we determine whether these purposes are being attained (Tyler, 1949, p. 1)? Apps also agreed with Ahmad's observation:

> . . . with some careful examination, the reader will find the Tyler model explicit in most of the approaches. (Apps, 1979, pp. 114-115)

Tyler's concept reflects the basic process that Brereton (1972) called a conventional model of extension program development, which comprised the steps of (1) need determination, (2) objective determination, and (3) program evaluation.

The major writers who specifically concentrated on extension program development were Boyle (1965), Beal, Blunt, Powers and Johnson (1966), Boone, Dolan and Shearon (1971), and Lawrence (1974).

An analysis of the models proposed by those writers reveals at least three common major principles which will serve as a guide for the present research project.

Principle one

Extension programs must be developed through the democratic process, the process whereby local people for whom the extension program is intended are given the opportunity to participate actively in developing the program with extension staff for their own social and economic development. The extension staff do not assume the major responsibility for developing programs. Through the democratic process, the people who benefit or their representatives participate in deciding how mutually agreed upon problems should be solved, and they cooperate toward achieving those goals. They will be more likely to accept programs if they participate in

creating them. Moreover, involvement by people could be a useful learning experience for them in developing their own problem solving abilities.

Principle two

Extension programs must be based on conditions that exist. Realistic programs to achieve realistic goals should come out of the study and analysis of the particular community or area for which the program was being developed. A wide variety of factual information about the community under study must be collected and analyzed cooperatively by extension staff and local people. Needs and problems of people can be realistically identified. Consequently, a sound, practical program should result.

Principle three

Extension programs should be coordinated with other agencies and institutions that are attempting to help the same people for whom the extension program was intended. The limited resources of organizations having similar goals or performing similar activities can be utilized most effectively under a coordinated set-up. Coordination brings harmonious operations in the pursuit of achieving common goals.

Although the models of Boyle (1965), Beal et al. (1966), Boone (1971), and Lawrence (1974) were based on the principles presented above, each model has a somewhat different emphasis. Of the four, Beal's social action model calls for the highest degree of local involvement. According to the social action model, the involvement of the local people is an integral part of the process. Therefore, planning takes the form of a dialogue between the extension programmer and the audience at different stages of program development.

Boyle (1965), Beal et al. (1966), Boone et al. (1971), and Lawrence
(1974) focused on formulating the organizational framework for program de-
velopment as the beginning step of developing extension programs. In this
step, the extension service philosophy, policies, and objectives provide a
framework to serve as a guide for the program development activities. The
philosophy, policies, and objectives must be communicated and clearly
understood by extension program developers as well as all people involved
in developing the program. An understanding by everyone involved in pro-
gram development will help make extension programs effective. In the
model by Beal et al. (1966), the first step focused heavily on the analy-
sis of the existing social systems in the particular community where the
program is to be developed.

Each model is somewhat unique in terms of steps or phases included
and the writer's description of what takes place during each phase. How-
ever, with some careful analysis, it has been found that there are four
major phases common to the models developed by those writers. These four
phases include: (1) preparing, (2) planning, (3) implementing, and (4)
evaluating.

Phase one usually involves collecting and analyzing factual informa-
tion about individuals and the community. Organizational policies and
objectives of the Extension Service are also included. Analysis of
factual information provides a basis for identification of needs of people
and the commonality of interests. Needs identified are given priority
ranking and top priorities are the ones on which to base program objec-
tives.

The second phase common to these models is the initial effort to establish program objectives and develop the overall plan, time schedule, and description of the resources available.

The third phase is typically carrying out the actual program that is planned in the earlier phases in a systematic and coordinated way. The writers agree that success is most likely if a great deal of effort is invested in phases one and two.

The final phase is that of evaluation. An evaluation should be made to determine to what degree the program objectives are attained. The result of evaluation provides a base for deciding whether the program should be continued. This phase includes reporting evaluation results to those involved with the program to the Extension Service organization and to the general community population.

Extension Program Development Models in some Asian Countries

Agricultural extension services in most Asian countries are government services with their two ultimate goals of increasing agricultural production and improving rural life. Historically, these extension services could be considered as young Extension Services compared to extension in the United States. Japan and Malysia started extension in 1948; Indonesia in 1949; Thailand in 1950; Nepal and Hongkong in 1951; India, Pakistan, and the Philippines in 1952; Burma in 1954; Cambodia and Vietnam (South) in 1955; Ceylon, Korea (South) and Taiwan in 1957; and Laos in 1958 (Chang, 1974, p. 36).

According to Mosher (1976, p. 223), most countries in Asia are not many years away from a colonial past or from a monarchy. Democratic forms

of government have existed for years, but traditionally these countries have had centralized governments. As a result, the early agricultural extension programs were developed through a centralized approach. The programs were formed at the top, and then turned over for execution to a large number of provincial and local officials. The extension staff assumed the major responsibility for planning and implementing programs.

More recently, in most Asian countries, the procedure has become less centralized. Participation by local people and extension staff has been encouraged (Chang, 1963). Based on experiences in some Asian countries, Mosher (1976) described this type of program development process:

> . . . the best program building does not result from a unilateral decision by an administrator, but we make a mistake if we abandon this position only to leap to the conclusion that the proper method of program building is by entirely democratic process in which local people vote on which objectives they want to have for the current year. What we really are after is a process which results in full information about the interests and needs of local people, which capitalizes on their interest and secures their participation in thinking about what the objectives of the program ought to be, and which also takes into account the factors which are better known to administrators and subject-matter specialists. (Mosher, 1976, pp. 224-225)

The search through publications available at the Iowa State University and the University of Wisconsin-Madison libraries revealed two categories of publications related to the context of extension program development processes in Asian countries. The first category included publications in the form of research studies. The second category included publications in the form of a book, journal, or report. Most of the publications did not explicitly present a comprehensive step-by-step model. Models which were presented were from the writers' point of view

rather than from what was being employed by the agricultural extension services of those countries.

Three research studies were found which were conducted in Afghanistan (Dada, 1969), East Pakistan (Al-Haj and Akhand, 1970), and Iraq (Ahmad, 1981). These studies were related to the process of extension program development employed in those countries. A review of the results of these studies revealed four specific steps common to the program development process:

1. Identifying needs and problems. Needs are the discrepancies between the present and the desired situation. Needs and problems are identified by comparing the present situation with what could be done in order to improve the present level of performance.

2. Determining objectives. Objectives are the purposes or goals toward which the extension activities are aimed. Objectives are based on the identified needs and problems.

3. Developing a plan of work. A plan of work is a design for activities which would be undertaken within a prescribed limit of time in the future. A plan of work has each activity stated that would be undertaken and indicates the time, place, resource available, people responsible, coordination with other agencies, etc.

4. Evaluation. Evaluation is conducted to find out how well the original objectives have been achieved. It also pinpoints the factors of success or failures, so that future plans may be made.

Some differences were found among the various models in terms of program development. In the case of Afghanistan, two additional steps

were identified for the process of program development. These steps were:

1. Analyzing situation from collected data concerned with social, economic, and technological aspects. This step was considered as the basis for identifying needs and problems.

2. Making a priority listing of identified needs and problems on which to base objectives.

The two additional steps listed above were not found in the case of Iraq, but the step of need priority setting was practiced in East Pakistan.

Chang (1974) and Krishan (1966) described the frameworks for developing extension programs in the Philippines and India, respectively. These two frameworks were quite similar, having basically the following steps:

1. Analysis of situation. This step involved the collection of facts and the analysis of those collected facts. In the case of the Philippines, Chang (1974) recommended gathering facts about the farm family and the village conditions. In the case of India, the facts were about the soil, the people, and the community and its organizations as well as the existing technical, economic, and social level of the people.

2. Identification of problems based on careful analysis of the factual situations in step one.

3. Determination of the objectives based on the problems which were identified on step two.

4. Development of an annual plan of work. The plan of work indicates what, how, when, where and by whom the program is to be carried out.

5. Evaluation. This step is needed to determine the effectiveness of the program.

Theoretical Model for this Study

The review of literature indicated no consensus on a model of exten-
sion program development in both the United States and Asian countries.
Thus, for the purpose of the present study, the following theoretical
model was developed as a tool for determining perceptions of the program
development process of the Thai District Agricultural Officers. The model
is developed from the standpoint of an educational institution or agency
promoting extension programs to its target audience. It should be noted
that the purpose of the model described is not to present a complete and
finished model that could be taken into the field and used by practi-
tioners. This model includes seven procedural steps or phases: (1)
analyzing the situation for need identification, (2) setting the program
priorities, (3) developing the program objectives, (4) developing the
plan of work, (5) implementing the program, (6) evaluating the program,
and (7) reporting program value.

Situational analysis for need identification

Generally, the reasons for program failures can be traced to a lack
of understanding and lack of in-depth analysis of the situation in which
the program was to operate. Extension programs are developed to try to
meet the educational needs of people whom the Extension Service is in-
tended to serve.

Most programming models suggest that situational analysis is an
essential part of the program development process and should be undertaken
to determine needs, which are then used as the basis for identification of
objectives.

According to Boyle (1981), situational analysis is the effort to
identify the need that exists between what is (present situation) and what
should be (desired situation). Identification of need is a key word in
the definition of situational analysis. The concept of need widely used
in the literature related to program development is based on Tyler's
definition of need. Need is a gap between what is and what should be.
He wrote:

> Studies of the learner suggest educational objectives only when
> the information about the learner is compared with some desirable
> standards, some conception of acceptable norms, so that the dif-
> ference between the present condition of the learner and the
> acceptable norm can be identified. This difference or gap is
> what is generally referred to as a need. (Tyler, 1949, p. 6)

Of the literature reviewed, Boyle (1981) provided a useful framework
for the analysis of the situation. Boyle's framework will be adopted and
used as a framework for discussion in this section. His assumption is
that situational analysis involves the individual and the environment in
which that individual exists. This assumption is supported by Blackwell
(1949, p. 27): "If you would know the needs and interests of your stu-
dent, know the community."

Blackwell also observed that there are community needs apart from the
needs of individuals. Therefore, based on Boyle's framework of situation-
al analysis, the analysis of the situation will be of clients in the com-
munity in which they live.

Boyle (1981) suggested several methods for determining the clients'
needs: surveys, critical incident, individual profile, competency analy-
sis, and informal observations. Tyler (1949) also described five proce-
dures through which learners (individuals) can be studied in order to

identify their needs: observation of the learners; interviews; question-
naires; tests to ascertain the learners' present status in their skills,
knowledge, and attitudes; and records of both school and the community
which may identify the learners' needs and interests.

There are several authors who suggest data needed for the analysis
of the situation in general without actually specifying categories for the
data to determine the needs of individuals or the needs of the community.

Sanders (1966) classified the kinds of data to be collected into
three categories: social, economic, and technological. Examples of
social data are: values, attitudes, and traditions of the people, social
organization, social participation patterns, and socio-economic levels.
Information about the social aspects of the community will determine the
concerns of the people and the aspects of their life that are important to
them. Specific examples of economic data are the levels and sources of
income, resources (such as land, labor, and capital), facilities, and
available equipment. Data of technological aspects indicate how the re-
sources and facilities available to the people are being utilized. Such
data determine, for example, the kind of agricultural and homemaking
practices being used.

Of the literature reviewed, Vidyarthi (1961) provided a comprehensive
list of data that should be collected for the extension program develop-
ment of India. The list contains the following items:

1. Basic information about the village:

    1.1 population,

    1.2 total number of families,

1.3 number of farm families,

1.4 other main occupations of villagers,

1.5 facility of communication,

1.6 facility of schooling,

1.7 facility of medical aid,

1.8 facility of drinking water, etc.,

1.9 attitudes and beliefs of the rural population (social classes,

   formal and informal groups, local leaders, etc.), and

1.10 nutrition situation (food habits, level of nutrition, etc.

2. Information about farm management production programs:

2.1 total area under cultivation in the village,

2.2 size of an average agricultural holding,

2.3 types and quality of crops grown (including cropping program,

   crop rotation), and types and quality of livestock,

2.4 soil types (suitability for different crops) and problems con-

   nected with soil fertility, soil erosion, drainage, soil improve-

   ment, etc.,

2.5 cattle feeds (feed rations and crops grown as cattle feeds, etc.),

2.6 utilization of grass land (arrangement for cattle grazing and

   grass land improvement),

2.7 disease and pest control (improvement diseases and pests, and

   their control measures),

2.8 agricultural machinery (types of traditionally and improved

   agricultural implements used, etc.),

2.9 irrigation resources (types of irrigation sources and problems) and drainage,

2.10 financial position of the farmers (long and short-term debts, borrowed capital, etc.),

2.11 credit facilities (sources and facilities of securing credits), and

2.12 position of labor (problems of farm labor, landless labor in the village).

Although the results of situational analysis previously discussed provide extension programmers with an understanding of the needs of clients and the needs of the community in which those clients live, there still is the other kind of needs which the extension workers must take into account. It is the needs of the Extension Service itself. Mosher (1976) observed that almost every developing country with recently established Extension Services has established definite economic objectives (as in five-year plans) and extension has been undertaken partially to help achieve these objectives. This statement is also true for Thailand. Thailand has very pressing general economic and social problems with which it is trying to deal. It is the urgency of these economic and social problems which gave birth to a program of extension education.

When the Thai government sets up a five-year plan for economic and social development, it takes as its starting point the overall needs of the country, and then it establishes the Extension Service partially in an effort to meet these overall needs. It is inevitable that it should set certain objectives for the extension program which are phases of the

overall programs for economic and social development. While these may be
close to current needs of people, they usually are quite different. In
fact, the needs of the country as a whole which call for certain changes
in agriculture or in rural life may have very little current appeal for
the rural people. Yet, the setting up of these objectives for extension
education by administrators of a national five-plan is a fact, and the
necessity for the Extension Service to take responsibility for trying to
help achieve them is a fact. Thus, this situation is one of the special
problems with which extension programmers must deal.

Up to this point, it should be concluded that there are at least
three important kinds of needs resulting from the analysis of the situa-
tion: the needs of clients, the needs of community, and the needs of the
organization providing the programs.

Setting the program priorities

Various assessed needs of clients, communities, and organizations
have been identified. But extension resources and personnel are limited,
the extension workers cannot do all things to meet many needs. This
causes extension programmers to consider what programs should be developed
to meet the needs that are most urgent or critical now. There are various
elements which must be considered.

In order to screen and identify priority needs, Knowles (1970) sug-
gested the following filtering screens: first, the purposes of the
organization that will be responsible for meeting the needs; second, the
feasibility of meeting the needs, given constraints of time, space,
personnel, and materials; and third, the interests of those clients for

whom the needs have been identified. As a result of this screening proc-
ess, some needs will assume new priorities, others might be dropped from
consideration, some will remain unchanged, and some will require revision.

According to Boyle (1977), six screens are suggested for screening
and identifying priority needs: (1) extension staff personal values, (2)
organizational statements of mission and philosophy, (3) clients' needs,
(4) community problems or needs, (5) political structures, and (6) availa-
bility of resources, such as personnel, materials, staff assistance, etc.

Once needs have been identified, six steps can be used to set priori-
ties (Forest and Mulcahy (1976):

1. Understanding the priority-setting situation; it means knowing;
first, what present priorities the programmers have; second, the resources
available; and finally, four sources of influence--the community, specific
clients or interest groups, the extension organization, the extension
programmer's values, interests, experience, background, and time. The
community gives the programmer certain norms of expected behavior and
offers ideas about unmet community priorities. This source presents the
most general and ambiguous signals about priorities. The specific client
groups provide more direct signals about priorities. The extension
organization gives the extension workers or programmers information about
job description, budget, professional rewards, and back-up support.

2. Identifying the possible priorities. It requires getting infor-
mation from influential sources. There are four general approaches help-
ful to identify priority possibilities and related information: (1)
existing information, data banks, prior surveys, studies, or research done

by extension or other agencies; (2) surveys, telephone surveys, mailed
questionnaire, personal interview, etc.; (3) observation; (4) group
approaches, brainstorming, nominal groups, guided discussion, etc.

3. Identifying criteria for selecting priorities.

4. Determining the relative importance of priorities.

5. Reflecting on priorities, consequences and timing. This step is
concerned with: What are the future consequences of action on the priori-
ties? Is it really most important now to prevent or avoid causing un-
wanted consequences or to cause desired consequences? What must be done
first? How much time should be blocked off during the upcoming week,
month, or year to get the job done adequately?

Developing the program objectives

After having screened the priorities of needs, objectives must be
determined. Objectives should reflect the needs analyzed in the previous
step.

The terms "purpose," "goal," "aim," "end," and "target" are used
interchangeably to mean "objective" and thereby cause confusion.

As Knowles said:

As I examine the program-planning documents in our field, it
seems to me that this confusion of terminology has resulted
in some confusion about program-planning process. (Knowles,
1970, p. 121)

Boyle also mentioned that:

Much confusion exists over the terminology used in the concept
of objective. Different words, such as, "objectives," "goals,"
"aims," "purposes," and "ends" are used interchangeably by some
and mean different things to others. (Boyle, 1981, p. 250)

Both authors agree that it is necessary to clearly define the term "objective."

The definition of objective is provided by various authors. Only four of them will be presented here:

> Objective (is) an end toward which action is oriented, a condition or state of being to be reached. An objective reflects how the situation is to be changed, improved, or mentioned. (Boyle, 1981, p. 195)

> Objectives are the desired ends toward which the efforts of an individual, a group, or a society are directed. (Dada, 1969, p. 72)

> An objective is a purpose which guides a learner or an educator... (Houle, 1972, pp. 32-33)

> Objective (is) a goal, end, or aim stated in regard to a broad concern, problem, or subject. (Lawrence et al., 1974, p. 15)

For the purpose of this study, objective will be defined as the desired end toward which the efforts of extension personnel are directed. The statement of the objectives must provide guidance to efforts so that the objectives can be obtained. Precision and specificity are important and objectives should be stated in such a way that their degree of attainment can be measured. Mathews (1959, p. 59) suggested that:

> The most useful statements of extension objectives tell three things in specific terms: What is to be done--the expected action. What it will be done with--the subject matter involved. What particular people are to be involved--who acts.

An objective can be broad or specific. According to Houle (1972), objectives are hierarchical. Various levels of objectives may be developed to fit the different kinds of programs.

Raudabaugh (1959) classified objectives into four levels: (1) objectives of the society, (2) objectives of the specific organization or

group, (3) objectives of the extension agen, and (4) objectives of the clients.

Kelsey and Hearne (1963) classified objectives into three levels: (1) fundamental, all-inclusive objectives of society--examples, the good life, better citizenship, etc.; (2) the general but more definite social objectives--example, helping rural people to have better home living; and (3) working objectives in a program.

Boyle (1981) classified objectives into three levels: (1) society--example, improve economic conditions of the state; (2) program--example, improve efficiency and management of dairy farms; and (3) instructional--example, have 60 percent of farmers use records in decisions on breeding and feeding.

Boyle (1981) also mentioned that (1) broad, general statements of objectives are appropriate for general programs of an organization, clientele group, or problem or program area and (2) more specific statements are desirable for a specific program such as for one meeting or three-day conference.

Lawrence et al. (1974) divided objectives into three types: program objectives, plan of work objective, and teaching objectives. The definitions of these three objectives are:

> Program objective--A statement of change to be accomplished within a designated period of time (a year or longer).
> Plan of work objective--A statement of specific change to be accomplished in a given time period through planned activity and based on a program level objective.
> Teaching objective--A statement which specifies under what conditions and to what extent a specific kind of learner performance (behavioral change) is expected relative to a program and plan of work objectives. (Lawrence et al., 1974, p. 15)

Of the literature reviewed, Mathews (1959) provided a useful guide in stating objectives at the various levels of an extension organization. Mathews classified objectives into six levels:

1. National social purpose, i.e., progress in agriculture and rural living.

2. Aim of the Extension Service, i.e., to improve rural living.

3. General program objectives, i.e., farmers to be efficient producers of food and fiber.

4. County program objectives (basis of plan of work), i.e., farmers to efficiently produce and market their cotton crop.

5. Plan of work objectives (basis of teaching objectives), i.e., cotton farmers to follow recommended fertilizing practices.

6. Teaching objectives (basis of program and plan of work), i.e., cotton farmers to understand the meaning of terms used on the fertilizer label.

Since this study is focused on program development at the district (county) level, Mathews' guide in stating objectives at the county level is considered relevant to the purpose of the present study.

Developing the plan of work

It is widely agreed that after the objectives for the program are agreed upon, the plan of work must be developed as a guide for implementing activities for a given year.

Many authors (Maunders, 1956; Savile, 1965; Dada, 1969; Boyle, 1977; Ahmad, 1981) have defined a plan of work. Among them, however, Lawrence

et al. (1974) provide the definition of a plan of work which is considered here as appropriate:

> A written outline of strategy for one year or less, for each problem or concern included in a program, that sets forth in an integrated and coordinated manner the following elements: (1) educational, operational, and/or organizational objectives to be achieved; (2) learning experiences, activities, events, and/or situations to be undertaken, calendarized and related to appropriate objectives; (3) evidence of accomplishment, kind of and calendar for evaluation; (4) time to be devoted to each activity, event, and/or learning situation; (5) who will assume primary and support leadership responsibilities; and (6) coordination, internal and external. (Lawrence et al., 1974, p. 15)

A plan of work, then, is a written document outline that explains the activities to be conducted in a period of time (one year or less) to accomplish the program activities. A plan of work contains (at least) the following elements:

(1) Objectives to be achieved.

(2) Sequence of activities to be undertaken related to the objectives.

(3) Calendar of activities.

(4) Time to be devoted for each activity.

(5) Responsibilities of persons or staff who will carry out each activity.

(6) Evidence of accomplishment for each activity to be carried out.

Implementing the program

To implement the program, there are several considerations to keep in mind. Dada (1969) suggested that the plan should be prepared adequately ahead of the time of implementation to identify certain difficulties and problems that may occur. Planning ahead will give a chance for the professional staff to estimate the time to be devoted to the program.

There must be a continuous flow of communication once the program is underway so that appropriate assistance is insured when needed.

Ahmad (1981) observed that effective execution of the program requires that the program be understood by all extension workers and all the people involved. Furthermore, the program information should be disseminated to the people in the community in which the program is to operate by using the daily and weekly papers, radio, television, publications, printed material, etc.

A useful guide for successful implementation is provided by Vidyarthi (1961). According to Vidyarthi, successful implementation should involve preparation of a calendar indicating the activities to be carried out during each month. Arrangements for fertilizers, equipment, credit, audio-visual aids and literature should be made well in advance. A training program for specialized projects should be organized. Efforts should be made to select the best type of local leaders who can shoulder the responsibility and multiply the efforts of the extension agency. All steps in carrying out a program should be discussed with the villagers, and their consent should be obtained at appropriate periods so that a partnership in a program is built up and maintained. Steps for assistance and direction should be clearly stated so that there may be no confusion at any level. The program will be easier to implement if cooperation and coordination of local institutions with extension workers and the local people are maintained throughout the process.

Evaluating the program

After implementation, it is widely suggested that the planned pro-
gram should be determined on the degree to which it has achieved its
objectives. This suggestion highlights the importance of evaluation in
the program development process.

The review of literature on educational evaluation revealed that the
roles of evaluation in the context of a curriculum or program evaluation
were described and classified differently by various writers. Only the
three classifications proposed by Scriven (1973), Stufflebeam (1971),
and Stake (1967) will be described here.

Scriven (1973) classified the roles of evaluation into two cate-
gories: formative evaluation and summative evaluation. The purpose of
the formative evaluation is to discover deficiencies and successes that
occur during a project. Summative evaluation is directed toward a gen-
eral assessment of the degree to which the goals of the entire finished
project have been attained.

While Stufflebeam (1971) classified the roles of evaluation into
four categories--context, input, process, and product, Stake (1967) pro-
posed eight roles of evaluation--priority setting, feasibility study, en-
vironmental survey, goal-congruence study, intrinsic evaluation, payoff
evaluation, formative evaluation, and summative evaluation.

Owens (1968) summarized these roles of evaluation proposed by these
two writers as follows.

Stufflebeam's roles of evaluation

Context evaluation serves to define the environment where change is to occur, the environment's unmet needs, and the problems underlying those needs. It is used when a project is first being planned but can also be used on a continuous basis.

Input evaluation is used to determine how to utilize resources to meet program goals and objectives. The end product of input evaluation is an analysis of alternative procedural designs in terms of potential costs and benefits.

Process evaluation can be continuous during the implementation of a project to provide periodic feedback to project managers for continuous control and refinement of plans and procedures.

Product evaluation relates outcomes to objectives and to context, input, and process information. It usually occurs after a complete cycle of a project or upon the termination of the project.

Stake's roles of evaluation

Priority setting--A study of wants under a given rationale or philosophy leading to preferential ratings of goals, with implication for implementation.

Feasibility study--An estimation of the costs of overcoming various obstacles to implementing a given program or project.

Environmental survey--A gathering of information about the setting in which the program or project will occur, including its resources, social institutions, existing programs, personnel, organization, etc.

Goal-congruence study--A study of the relatedness of goals of different undertakings or of the relatedness of stated goals to those implied by practices.

Intrinsic evaluation--An analysis of the logic of the plans and activities of a program or project, providing judgments of relevance and value of various components.

Payoff evaluation--An empirical study of the degree to which observed outcomes approximate intended outcomes.

Formative evaluation--The empirical study of the effects of various tactics, emphasizing functional relationships potentially useful to other program development.

Summative evaluation--The empirical study of the effects of a whole project under given environmental conditions preferably with comparisons to alternate projects.

Despite the somewhat different emphasis in these classifications, certain major themes recur. Evaluation involves more than a single appraisal at any one time; it ought to begin at the initial stages of program development, continue throughout the implementation phases of the program, and occur at the end of the program.

Reporting program value

According to Boyle (1981), reporting a program is an important activity in program development:

> Reporting provides an opportunity for the programmer to summarize, interpret, and record the effectiveness of a program. (Boyle, 1981, p. 238)

Although program reporting is necessary, this important aspect of program development has frequently been omitted in the literature on this subject. Often, only mention is made that the program should or must be reported. The information that should be included in the report is classified into seven types by Steele (1977);

1. Input, the investment that went into the program.

2. Activities.

3. People reached.

4. Reactions, participants' views of the program.

5. Knowledge, attitudes, and skills gained by clients.

6. Practice adoption.

7. End results and value.

Bennett (1976) identified the information into seven types: (1) end results, changes or actions by people and communities; (2) practice changes, specific actions that the learner is now doing; (3) knowledge, attitude, skill, and aspiration changes; (4) reactions; (5) people involvement; (6) activities; and (7) inputs.

Boyle proposed general guidelines for effective reports: (1) clarity of purposes, (2) identification of a primary audience, (3) brevity, conciseness, and goal organization; (4) appeal, and (5) treatment of the results and values and presentation. There were four ways suggested for treating results: descriptive statements, support from case examples, real testimony support, and findings from surveys.

In this chapter, a review of the available literature on extension program development both in the United States and in some Asian countries

has been presented. No consensus is reached on a single model of exten-

sion program development. Therefore, a program development framework is

developed by the investigator for the purpose of the present study. The

framework contains seven phases:

1. Situational analysis for need identification

Based on the results of situational analysis, needs were identified

and then used as a basis for developing any program. Three types of needs

were suggested for consideration to programmers: the needs of the

clients, the needs of community, and the needs of organization providing

the programs.

2. Setting the program priorities

Since extension resources are limited, it was suggested that the

programmers must consider what needs were most critical. Therefore, the

programmers must be concerned with identifying priority needs.

3. Developing the program objectives

After developing a priority list of needs, the next step that the

programmers must do is to develop the program objectives which reflect

those needs, and to state the program objectives, according to Mathews

(1959). The objectives must indicate the people for whom the program was

developed and the results people would get from it.

4. Developing the plan of work

To accomplish the objectives, the plan of work must be developed. A

plan of work includes at least these elements: (1) available materials

and facilities, (2) date and duration of the activities, (3) places of the

activities, (4) persons responsible for the activities, and (5) purposes of the activities.

5. Implementing the program

After the plan of work has been developed, the next step is to implement the program plan identified in the previous step.

6. Evaluating the program

To know the degree to which the program had achieved its stated objectives, the results of that finished program must be evaluated. However, it is suggested that the program evaluation might be done at different periods of time, i.e., after the termination of the program and continuously throughout implementation.

7. Reporting program value

The results of program evaluation are reported to various groups of people, i.e., personnel of other agencies involved in planning, people in the community where the program is to operate, and extension personnel involved in program development.

CHAPTER III. METHODS OF PROCEDURE

To accomplish the objectives of this study, the following elements of
methods for procedure were presented and discussed in this section under
the headings of population, development of the questionnaire, data collec-
tion, and treatment of data.

Population

The target population for this study was Thai extension personnel
throughout the country who were holding the position of District Agricul-
tural Officer during the time of the study.

Development of the Questionnaire

The questionnaire was the instrument chosen to collect data because
of its effectiveness in retrieving information from a large population.
The questionnaire was based on a review of literature of program planning,
a proposed program development framework (see Chapter II), and from
personal experience of the investigator.

After consultation with three of the investigator's graduate com-
mittee, the initial questionnaire was comprised of 32 items. The ques-
tionnaire was translated into Thai and was given to seven Thai graduate
students at the University of Wisconsin-Madison for suggestions on word-
ing. A few items were reworded as the result of comments. The question-
naire was then mailed to Dr. Boontham Chitanan of the Extension and
Training Office of Kasetsart University, Thailand. The questionnaire was
duplicated and distributed to ten District Agricultural Officers, who were

working for bachelor's degrees at the Faculty of Education of Kasetsart University, for the pretest of the questionnaire. This pretest was to determine the amount of time necessary for completion as well as corrections of statements which were ambiguous or misleading. Change in the content of certain items was made after pretesting and the final questionnaire was developed in a form that was easy to complete.

The questionnaire was divided into two major parts. The first part was designed to identify selected personal characteristics of Thai District Agricultural Officers: years of service at the position of District Agricultural Officer, highest levels of formal education, and major areas of study in the highest levels of formal education. These characteristics served as the independent variables for this study.

The second part of the questionnaire was comprised of several statements developed for determining Thai District Agricultural Officers' perceptions toward: (1) various aspects of the seven phases of the proposed framework for extension program development process and (2) three selected aspects of program development--involvement of various groups of people in program development, factors influencing decisions about how programs should be developed, and coordination with other agencies conducting similar programs to extension programs. To determine the perceptions, a checklist containing a five-point Likert-type scale, a ranking order of one through three, and a ranking order of zero through three were designed for respondents to indicate perceptions toward statements about program planning.

Data Collection

The data for this study were collected through mailed questionnaires. Data collection commenced on December 9, 1981, and terminated on January 21, 1982. The questionnaires were distributed to the population by Dr. Boontham Chitanan of the Extension and Training Office of Kasetsart University. All questionnaires were accompanied by a cover letter stating the purposes and significance of the study and expressing appreciation for the respondents' cooperation. Three weeks after the initial set of materials were mailed, a follow-up was sent to the nonrespondents. A complete set of materials was mailed with another cover letter explaining the importance of the information. The responses collected were mailed to the investigator for analysis and interpretation of findings. The returned rate of response for this study was about 96 percent.

Treatment of Data

Although the other outcomes of the analysis were of importance, the primary purpose of the data treatment for this study was to provide information about the perceptions of Thai District Agricultural Officers toward the aspects under the phases of the proposed program development framework and three selected aspects of program development. This concern dictated the manner of treating the data.

Data were analyzed at the Iowa State University Computer Center. The statistical procedures employed were selected from the Statistical Package for Social Sciences (Nie, Hull, Jenkins, Steinbrenner and Bent, 1975). A level of significance for all inferential tests was selected to be .05.

Descriptive analysis

. SPSS subprogram FREQUENCIES were used to describe the Thai District Agricultural Officers' characteristics of years of service at the position of District Agricultural Officer, highest level of formal education, and major areas of study at their highest level of education.

SPSS subprogram FREQUENCIES were also used to assess the perception of mean scores of Thai District Agricultural Officers toward each statement in the format of a five-point Likert-type scale. Mean scores were then compared with a scale of degree of importance: .50-1.499, not important at all; 1.50-2.499, not important; 2.50-3.499, moderately important; 3.50-4.499, important; and 4.50-5.499, very important. From this comparison of mean scores, it was possible to list statements perceived by Thai District Agricultural Officers as the important ones.

SPSS subprogram CROSSTABS were used to describe the Thai District Agricultural Officers' perceptions toward statements with the forms of a ranking order of zero through three and a checklist. The percentage of responses was obtained for each statement.

Inferential analysis

SPSS subprogram ONEWAY and T-TEST were used to assess the significance of differences among and between mean scores of the perceptions of selected aspects of program development with the five-point Likert-type scale of Thai District Agricultural Officers in regard to their years of service at the District Agricultural Officer position, highest education level, and major areas of study at the highest education level.

SPSS subprogram CROSSTABS were used to determine the significance of differences among rank mean scores of the perceptions of those Thai District Agricultural Officers toward selected aspects of program development with a ranking order of one through three.

CHAPTER IV. FINDINGS AND DISCUSSION

Findings are presented and discussed under three sections: (1) the
characteristics of Thai District Agricultural Officers, (2) the percep-
tions of importance of Thai District Agricultural Officers toward the
aspects under the phases of proposed program development framework, and
(3) the differences of perceptions of importance of Thai District Agricul-
tural Officers toward three selected aspects of program development,
namely (1) involvement of various groups of people in program development,
(2) factors influencing decisions about how programs should be developed,
and (3) coordination.

Characteristics of Thai District Agricultural Officers

The data analyzed and interpreted are based on a total of 626 re-
spondents from 652 Thai District Agricultural Officers throughout the
country. Three characteristics of Thai District Agricultural Officers
used in this study are: (1) years of service at the District Agricultural
Officer position, (2) highest levels of formal education, and (3) major
areas of study in the highest education levels. The number and percent of
Thai District Agricultural Officers represented in each category are shown
in Tables 1 through 5.

Years of service

Examination of the years of service by which Thai District Agricul-
tural Officers have served at this position reveals that the range of
service was from one month to 27 years. For the purpose of further
analysis, the years of service are then categorized into five groups as

Table 1. Years of service of Thai District Agricultural Officers at this position by number and percent

Years of service	Number	Percent
Less than 1 year	25	4.0
1-5 years	216	34.5
6-10 years	218	34.8
11-15 years	111	17.7
Over 15 years	56	9.0
Total	626	100.0

shown in Table 1. In Table 1, the data indicate that over half of the District Agricultural Officers (69.3%) had served one to five years (34.5%) and 6-10 years (34.8%), 17.7% had served 11 to 15 years, 9% had served over 15 years, and only 4% had served less than one year.

Highest education levels

Table 2 describes the highest education levels of the Thai District Agricultural Officers. Thai District Agricultural Officers (89.8%) hold the education level of "below bachelor's degree," 9.08 percent hold a "bachelor's degree," and 1.12 percent have a "master's degree." Due to the low numbers in the master's degree category, it was combined with the category of bachelor's degree. Therefore, regarding the highest levels of education, Thai District Agricultural Officers are categorized into two groups: "below bachelor's degree" and "bachelor's degree or higher" (see Table 3).

Table 2. Highest education levels of Thai District Agricultural Officers
          by number and percent

Highest education level	Number	Percent
Below bachelor's degree	562	89.80
Bachelor's degree	57	9.08
Master's degree	7	1.12
Total	626	100.00

Table 3. Highest education levels of Thai District Agricultural Officers
          by number and percent

Highest education level	Number	Percent
Below bachelor's degree	562	89.80
Bachelor's degree or higher	64	10.20
Total	626	100.00

Major areas of study in the highest education level

Examination of the data in Table 4 reveals that the largest group of
major areas of study (90.1%) is the major areas related to plant and
animal sciences (i.e., agronomy, animal husbandry, soil science, plant
pathology, entomology). Three percent are in agricultural education, 1.8
percent are in extension education, 1.4 percent is in farm mechanics, and
3.7 percent are in the category of other (i.e., agricultural economics,
business administration, law). Only 0.1 percent are in the major area of
home economics. Due to unusually low numbers of farm mechanics and home
economics, they were combined with the category of other; also, the cate-
gory of extension education was combined with the category of agricultural

Table 4. Major areas of study in the highest education levels of Thai
District Agricultural Officers by number and percent

Major areas of study	Number	Percent
Plant and animal sciences	564	90.1
Farm mechanics	9	1.4
Extension education	11	1.8
Agricultural education	19	3.0
Home economics	1	0.2
Other	22	3.5
Total	626	100.0

Table 5. Major areas of study in the highest education levels of Thai
District Agricultural Officers by number and percent

Major areas of study	Number	Percent
Plant and animal sciences	564	90.1
Agriculture and extension education	30	4.8
Other	32	5.1
Total	626	100.0

education to form the category of agriculture and extension education.
Therefore, 90.1 percent are in plant and animal sciences, 5.1 percent are
in the category of other, and 4.8 percent are in agriculture and extension
education (see Table 5).

In summary, the characteristics of the District Agricultural Officers
which will serve as the independent variables for further analysis in this
study can be summarized as follows.

1. Years of service at the District Agricultural Officer position: 4%, in less than one year; 34.5%, in one to five years; 34.8%, in six to ten years; 17.7%, in 11 to 15 years; and 9%, in over 15 years.

2. Highest education levels: 89.8% hold the degree of "below bachelor's degree," and 10.2% have "bachelor's degrees or higher."

3. Major areas of study in the highest education levels: 90.1% are in the major area of "plant and animal sciences"; 4.85%, in "agriculture and extension education"; and 5.1%, in the major area identified as "other."

Respondents' Perceptions of Importance of the Proposed
Seven Phases of Program Development

District Agricultural Officers were questioned to select one of five response categories on a scale to indicate their opinions related to various aspects under the seven phases of program development. Response categories were: very important-5, important-4, moderately important-3, not important-2, and not important at all-1. Mean scores were computed for each scale and interpreted as follows: scores of .50-1.499 as not important at all, 1.50-2.499 as not important, 2.50-3.499 as moderately important, 3.50-4.499 as important, and 4.50-5.499 as very important. To get more information about some phases, the respondents were also asked to check or rank the items which best described their opinions. The proposed seven phases of program development are:

1. Situational analysis for need identification.

2. Setting the program priorities.

3. Developing the program objectives.

4. Developing the plan of work.

5. Implementing the program.

6. Evaluating the program.

7. Reporting program value.

Phase I. Situational analysis for need identification

The investigation of the respondents' perceptions of this phase was done through asking them about their opinions to the questions" "Do you think it is important to (1) know the needs and interests of people before developing any program? (2) know the needs and problems of the community before developing any program? and (3) know in advance which programs are assigned for your responsibility by the Department of Agricultural Extension before developing any program?"

Examination of Table 6 reveals the following results. The District Agricultural Officers perceive that before developing any extension program it is important to know the needs and interests of people, the needs and problems of the community, and to know in advance which programs assigned for their responsibility by the Department of Agricultural Extension. However, when the distribution of mean scores is arranged from high to low, it can be concluded that the district Agricultural Officers had a higher mean score for the needs and interests of people (4.628) than the needs and problems of the community (4.486) and the assignment from the Department of Agricultural Extension (3.979).

Table 6. Mean scores of perceptions of importance of the situational
analysis for need identification

Question	Mean score
Do you think it is important to know the needs and interests of people before developing any program?	4.628
Do you think it is important to know the needs and problems of the community before developing any program?	4.486
Do you think it is important to know in advance which programs assigned for your responsibility by the Department of Agricultural Extension before developing any program?	3.979

Phase II. Setting the program priorities

The District Agricultural Officers were asked to respond to the importance of considering two aspects of setting the program priorities: (1) the availability of materials and facilities, and (2) the availability of personnel before programs are developed.

Data in Table 7 reveal that both factors are considered important by the District Agricultural Officers; however, the availability of materials and facilities had a higher mean score than the availability of personnel.

Table 7. Mean scores of perceptions of importance of setting the program
priorities

Factors important to be considered to identify which programs are developed	Mean score
Availability of materials and facilities	4.514
Availability of personnel	4.359

Phase III. Developing the program objectives

In investigating the respondents' perceptions of this phase, they were asked: (1) "Do you think it is important to indicate the people for whom the program is planned and results they will get from it in a written program plan?" and (2) "Do you think it is important for the program goals to correspond to the goals of the people for whom the program is developed?"

The data in Table 8 indicate that the District Agricultural Officers feel these two aspects of the development of program objectives are important ones. This result could indicate that the District Agricultural Officers have considered the necessity of developing the program objectives when the program is planned.

Table 8. Mean scores of perceptions of importance of developing program objectives

Question	Mean score
Do you think it is important to indicate the people for whom the program is planned and results they will get from it in a written program plan?	4.597
Do you think it is important for the program goals to correspond to the goals of the people for whom the program is developed?	4.291

Phase IV. Developing the plan of work

The respondents' perceptions of importance of the plan of work were investigated by asking them: "Do you think it is important to have a written program plan?" Furthermore, to get in-depth information and

supportive evidence for perceptions of this phase, respondents were asked
to indicate major elements which should be included in a program plan:
(1) available materials and facilities, (2) date and duration of the
activities, (3) places of the activities, (4) persons responsible, and (5)
purposes of the activities.

Table 9 reveals that the District Agricultural Officers feel that it
is important to have a written program plan with its elements of available
materials and facilities, date and duration of the activities, places of
the activities, persons responsible, and purposes of the activities.
Based upon the distribution of mean scores of those elements, the elements
could be arranged according to their mean scores as follows:

(1) Available materials and facilities

(2) Persons responsible

(3) Places of activities

(4) Date and duration of the activities

(5) Purposes of the activities

Phase V. Implementing the program

In investigation of respondents' perceptions of implementing the
program, the question was asked: "Do you think it is important to follow
the details specified in a program plan?"

Data in Table 10 reveal that the District Agricultural Officers have
considered the implementation of the program by following the details
specified in a program plan as an important phase of program development.

Table 9. Mean scores of perceptions of importance of developing the plan of work

Question	Mean score
Do you think it is important to have a written program plan?	4.296
Do you think it is important that the following should be included in a program plan?	
Available materials and facilities	4.367
Date and duration of the activities	4.065
Places of the activities	4.128
Persons responsible	4.304
Purposes of the activities	3.818

Table 10. Mean score of perceptions of importance of implementing the program

Question	Mean score
Do you think it is important to follow the details specified in a program plan?	4.428

Also, to get more information about this phase, the respondents were asked to check: "How long a program should be planned before implementing it?"

The data in Table 11 show that the majority of the District Agricultural Officers have considered two periods of time--one to three months (32.3%) and three to six months (38.5%)--as the most appropriate time for planning before any program is developed.

Table 11. Respondents' perceptions of appropriate periods of time for planning the program before implementation by number and percent

How long do you think a program should be planned before implementing it?	Number	Percent
Less than one month	11	2.3
1-3 months	202	32.2
3-6 months	241	38.5
6-9 months	46	7.3
9-12 months	70	11.2
Longer than 12 months	56	8.9
Total	626	100.0

In conclusion, it can be said that the District Agricultural Officers have perceived the implementation of the program as an important phase of program development and most of them think that the period of time appropriate for planning the program before implementing it should be one to three months or three to six months.

Phase VI. Evaluating the program

In investigating the respondents' perceptions of the phase of evaluating the program, they were asked: "Do you think it is important to (1) record the results of a completely finished program, (2) check the weakness of a program plan continuously throughout the implementation of the program?"

Data in Table 12 reveal that the District Agricultural Officers have seen that it is very important to record the results of the finished program and also check the weakness of the program plan continuously through-

Table 12. Mean scores of perceptions of importance of evaluating the
program

Question	Mean score
Do you think it is important to record the results of a completely finished program?	4.633
Do you think it is important to check the weakness of a program plan continuously throughout implementation of the program?	4.551

out the program implementation. The results can be interpreted that
evaluation of the program is a necessary phase of program development as
perceived by the District Agricultural Officers.

In order to get in-depth information about the respondents' percep-
tions of this phase, the respondents were also asked to rank the periods
of time which were appropriate in deciding when the program should be
evaluated (see Table 13).

The majority of the District Agricultural Officers considered two
periods of time as most and moderately appropriate for evaluating the
program, after the termination of the program (48.3%, 36.3%) and con-
tinuously throughout implementation (50.6%, 36.3%); but evaluation at the
end of the fiscal year was not considered as appropriate; however, some
Thai District Agricultural Officers considered it as least appropriate
(35.3%, 53.7%).

Therefore, it can be concluded that the District Agricultural
Officers see the necessity of evaluating the program and most of them

Table 13. Respondents' perceptions of appropriate periods of time for evaluation by number and percent

Periods of time appropriate for evaluating the program	Rank of appropriateness[a]								Total	
	0		1		2		3			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
After the termination of the program	20	3.2	15	2.4	289	46.2	302	48.3	626	100.0
At the end of the fiscal year	221	35.3	336	53.7	46	7.3	23	3.7	626	100.0
Continuously throughout implementation	36	5.8	46	7.3	227	36.3	317	50.6	626	100.0

[a]Indicated as follows: 0, not appropriate; 1, least appropriate; 2, moderately appropriate; 3, most appropriate.

believe the program should be evaluated continuously throughout implementation and after the termination of the program.

Phase VII. Reporting program value

In investigating the respondents' perceptions of reporting program value, this question was asked: "Do you think it is important that the evaluation results should be reported to the following persons: superiors; the Department of Agricultural Extension personnel involved in planning, developing, and carrying out the program; other agencies' personnel involved; people for whom the program is developed; communes' heads/villages' heads; and people in the community where the program is to operate?"

The results are shown in Table 14. The District Agricultural Officers have considered that it is important to report the evaluation results to every group of persons indicated in Table 14. The mean scores range from 4.599 to 3.966. Based upon this distribution, the persons important to receive the report could be rearranged from high to low on importance according to the mean scores as follows:

1. The Department of Agricultural Extension personnel involved in planning, developing, and carrying out the program

2. Communes' heads/villages/ heads

3. Their superiors

4. Other agencies' personnel involved

5. People for whom the program is developed

6. People in the community

Table 14. Mean scores of perceptions of importance of types of people
receiving the evaluation results

Types of people	Mean score
Superiors	4.436
The Department of Agricultural Extension personnel involved	4.599
Other agencies' personnel involved	4.396
People for whom the program is developed	3.966
Communes' heads/villages' heads	4.466
People in the community	3.973

The Differences of Respondents' Perceptions Toward Three

Selected Aspects of Program Development

In a series of questions, the respondents were asked for opinions
toward the following three aspects of program development:

1. Involvement of six types of people involved in planning the
   program

2. Factors influencing decisions about how programs should be
   developed

3. Coordination

Involvement of six types of people in planning the program

The involvement of six types of people in planning the program was
examined by asking the respondents to select one of five response cate-
gories which best described their opinions related to six types of people
to involve in planning. These categories were: very important-5,
important-4, moderately important-3, not important-2, and not important at
all-1. Mean scores were computed for each scale and interpreted as

follows: scores of .50-1.499 as not important at all, 1.50-2.499 as not important, 2.50-3.499 as moderately important, 3.50-4.499 as important, and 4.50-5.499 as very important. The six types of people were: (1) representatives of people in the community where the program is to operate, (2) people for whom the program is developed, (3) representatives from other agencies (private and government) conducting similar programs to extension programs, (4) communes' heads/villages' heads, (5) specialists from the Department of Agricultural Extension, and (6) Provincial Agricultural Officer or his representative.

The one-way analysis of variance procedure was used to test for the significant differences in the perceptions of respondents according to their years of service at the District Agricultural Officer position (less than one year, one to five years, six to ten years, 11 to 15 years, and over 15 years) and their major areas of study in the highest education levels (plant and animal sciences, agriculture and extension education, and other), while the t-test was used to test for the significant differences in perceptions of respondents according to their highest education levels (below bachelor's degree and bachelor's degree or higher) toward those six types of people involved in planning the program. The results are as follows.

1. No significant differences were found in the perceptions of respondents regarding major areas of study in the highest education levels with respect to all types of people involved in planning the program (see Table 15).

Table 15. Differences in perceptions of importance of types of people involved in planning among the District Agricultural Officers' major areas of study

| | Major areas of study | | | | |
| | Plant and ani-mal sciences | Agriculture and ex-tension education | Other | | Proba-bility |
Types of people	Mean	Mean	Mean	F-ratio	
Representatives of people in the community	4.36	4.26	4.28	0.379	NS[a]
People for whom the program is developed	4.52	4.52	4.48	0.052	NS
Representatives from other agencies	3.88	3.73	3.79	0.584	NS
Communes' heads/villages' heads	3.95	3.60	3.84	2.532	NS
Specialists from the Department of Agricultural Extension	4.07	3.78	4.05	1.507	NS
Provincial Agricultural Officers or his representative	4.03	4.04	4.10	0.151	NS

[a]NS = nonsignificant.

The overall mean scores made by all groups of respondents in regard to those six types of people are: (1) representatives of people in the community - 4.35, (2) people for whom the program is developed - 4.52, (3) representatives from other agencies - 3.87, (4) communes' heads/villages' heads - 3.94, (5) specialists from the Department of Agricultural Extension - 4.07, and (6) Provincial Agricultural Officer or his representative - 4.04. The mean scores are used as a basis for interpreting the perceptions of the respondents in regard to the involvement in planning of six types of people. The range of mean scores is from 3.87 to 4.52. Based on the range of the mean scores, these six types of people could be listed according to degree of importance, from high to low as follows:

1. People for whom the program is developed
2. Representatives of people in the community
3. Specialists from the Department of Agricultural Extension
4. Provincial Agricultural Officer or his representative
5. Communes' heads/villages' heads
6. Representatives from other agencies.

2. No significant differences are found in the perceptions of respondents regarding their years of service at the District Agricultural Officer position with respect to all types of people involved in planning the program (see Table 16).

The overall mean scores made by all groups of respondents in regard to those six types of people are: (1) representatives of people in the community - 4.35, (2) people for whom the program is developed - 4.52, (3) representatives from other agencies - 3.87, (4) communes' heads/

Table 16. Differences in perceptions of importance of types of people involved in planning among the District Agricultural Officers' years of service

Types of people	Years of service					F-ratio	Probability
	Less than 1	1-5	6-10	11-15	Over 15		
	Mean	Mean	Mean	Mean	Mean		
Representatives of people in the community	4.36	4.37	4.29	4.42	4.33	0.574	NS[a]
People for whom the program is developed	4.40	4.52	4.54	4.51	4.46	0.410	NS
Representatives from other agencies	3.76	3.87	3.85	3.90	3.91	0.258	NS
Communes' heads/villages' heads	4.04	3.91	3.89	4.02	3.94	0.651	NS
Specialists from the Department of Agricultural Extension	4.12	4.11	4.00	4.05	4.14	0.701	NS
Provincial Agricultural Officer or his representative	4.00	4.04	4.01	4.02	4.16	0.442	NS

[a]NS = nonsignificant.

villages' heads - 3.94, (5) specialists from the Department of Agricultural Extension - 4.06, (6) Provincial Agricultural Officer or his representative - 4.04. These mean scores can be used as a basis for interpretation of the perceptions of the respondents in regard to the six types of people as important to be involved in planning the program. The range of the mean scores is from 4.52 to 3.87. Based on the range of the overall mean scores, these six types of people could be listed according to degree of importance, from high to low as follows:

1. People for whom the program is developed

2. Representatives of people in the community

3. Specialists from the Department of Agricultural Extension

4. Provincial Agricultural Officer or his representative

5. Communes' heads/villages' heads

6. Representatives from other agencies

3. No significant differences are found in the perceptions of respondents regarding the highest education levels with respect to: (1) people for whom the program is developed, (2) representatives from other agencies, (3) communes' heads/villages' heads, (4) specialists from the Department of Agricultural Extension, and (5) Provincial Agricultural Officer or his representative (see Table 17).

The overall mean scores made by the two groups of respondents in regard to these five types of people range from 4.53 to 3.81. These mean scores could be used as a basis to interpret that the District Agricultural Officers have considered these five types of people as important to be involved in planning the program.

Table 17. Differences in perceptions of importance of types of people
involved in planning between the District Agricultural
Officers' highest education levels

| | Highest education levels | | | |
| | Below bache-lor's degree | Bachelor's de-gree or higher | | Proba-bility |
Types of people	Mean	Mean	T-value	
Representatives of people in the community	4.37	4.14	2.03	0.046*
People for whom the program is developed	4.53	4.39	1.68	NS[a]
Representatives from other agencies	3.86	3.95	-0.85	NS
Communes' heads/villages' heads	3.95	3.81	1.36	NS
Specialists from the De-partment of Agricultural Extension	4.07	4.00	0.69	NS
Provincial Agricultural Officer or his repre-sentative	4.02	4.12	-0.96	NS

[a]NS = nonsignificant.

*$p < .05$.

There are significant differences in the perceptions of respondents
regarding highest education level with respect to the representatives of
people in the community (see Table 17). The mean scores made by these
two groups of respondents were: the District Agricultural Officers hold-
ing "below bachelor's degree" - 4.38, the District Agricultural Officers
holding "bachelor's degree or higher" - 4.14. These mean scores could be
used as a basis to interpret how respondents feel in regard to involvement
of representatives of people in the community in planning. Based on the

higher mean score of the below bachelor's degree respondents, one could interpret that these District Agricultural Officers are perceiving involvement of people in the community as important.

Factors influencing decisions about how programs should be developed

In investigating this aspect of program development, respondents were asked to rank the following factors in terms of importance to deciding what programs should be developed: (1) needs and interests of people, (2) needs and problems of the community, and (3) needs indicated by government, i.e., of the Department of Agricultural Extension. Respondents were asked to use a number 1 through 3 with 3 to indicate the factor most important and 1 to indicate the factor that is least important.

The chi square statistical technique was utilized to test significant differences in the perceptions of groups of respondents according to years of service at the District Agricultural Officer position, major areas of study at the highest education level, and the highest education level toward three selected factors influencing decisions about how programs should be developed. Results of the test of differences in the perceptions of respondents are presented as follows.

1. No significant differences were found in the perceptions of all respondent groups regarding two characteristics, years of service at the District Agricultural Officer position and highest education.

2. No significant differences were found in the perceptions of respondents regarding major areas of study in the highest education level with respect to the factors of (1) needs and problems of the community,

and (2) needs indicated by the Department of Agricultural Extension-government (see Tables 24 and 25)

3. A significant difference was found in the perceptions of respondents by major areas of study with respect to the factor needs and interests of people (see Table 26).

Further analysis of the findings through reference to all of those tables based on the ratings of those groups according to their three characteristics with respect to each factor shows the results as follows.

Regarding years of service with the factor needs and interests of people, most of the District Agricultural Officers perceived each factor as moderately and most important (Table 18); also, according to highest education level and major areas of study, the same result was found (Tables 21 and 26).

Regarding years of service with the factor, needs and problems of the community, the two largest groups of District Agricultural Officers perceived this factor as moderately and most important (Table 19); also, according to highest education level and major areas of study, the same result was found (Tables 22 and 24).

In regard to years of service with the factor needs indicated by the Department of Agricultural Extension, the largest group of the District Agricultural Officers perceived this factor as least important (Table 20); also, regarding highest education level and major areas of study, the same result was found (Tables 23 and 25).

Table 18. Differences in perceptions of degree of importance of the needs and interests of people influencing decisions about programs among the District Agricultural Officers' years of service

Years of service	Degree of importance			Chi square	Signif-icance
	Least important (%)	Moderately important (%)	Most important (%)		
Less than 1 year	1.0	1.6	1.4	13.3666	NS[a]
1-5 years	2.2	14.5	17.7		
6-10 years	3.8	12.6	18.4		
11-15 years	1.1	7.5	9.1		
Over 15 years	1.0	4.2	3.8		

[a]NS = nonsignificant.

Table 19. Differences in perceptions of degree of importance of the needs and problems of the community influencing decisions about pro-grams among the District Agricultural Officers' years of service

Years of service	Degree of importance			Chi square	Signif-icance
	Least important (%)	Moderately important (%)	Most important (%)		
Less than 1 year	0.5	1.6	1.9	3.7206	NS[a]
1-5 years	4.5	15.8	14.2		
6-10 years	4.0	18.2	12.6		
11-15 years	2.4	8.8	6.5		
Over 15 years	1.3	3.8	3.8		

[a]NS = nonsignificant.

Table 20. Differences in perceptions of degree of importance of the needs indicated by the Department of Agricultural Extension influencing decisions about programs among the District Agricultural Officers' years of service

| Years of service | Degree of importance | | | | |
	Least important (%)	Moderately important (%)	Most important (%)	Chi square	Significance
Less than 1 year	2.6	0.8	0.6	7.4226	NS[a]
1-5 years	27.8	4.2	2.6		
6-10 years	27.0	4.0	3.8		
11-15 years	14.2	1.4	2.1		
Over 15 years	6.7	1.0	1.3		

[a]NS = nonsignificant.

Table 21. Differences in perceptions of degree of importance of the needs and interests of people influencing decisions about programs between the District Agricultural Officers' highest education level

| Highest education level | Degree of importance | | | | |
	Least important (%)	Moderately important (%)	Most important (%)	Chi square	Significance
Below bachelor's degree	8.3	36.3	45.2	0.1482	NS[a]
Bachelor's degree or higher	0.8	4.2	5.3		

[a]NS = nonsignificant.

Table 22. Differences in perceptions of degree of importance of the needs and problems of the community influencing decisions about programs between the District Agricultural Officers' highest education level

Highest education level	Degree of importance			Chi square	Significance
	Least important (%)	Moderately important (%)	Most important (%)		
Below bachelor's degree	11.5	43.1	35.1	0.2056	NS[a]
Bachelor's degree or higher	1.1	5.1	4.0		

[a]NS = nonsignificant.

Table 23. Differences in perceptions of degree of importance of the needs indicated by the Department of Agricultural Extension influencing decisions about programs between the District Agricultural Officers' highest education level

Highest education level	Degree of importance			Chi square	Significance
	Least important (%)	Moderately important (%)	Most important (%)		
Below bachelor's degree	70.0	10.4	9.4	0.0251	NS[a]
Bachelor's degree or higher	8.3	1.0	1.0		

[a]NS = nonsignificant.

Table 24. Differences in perceptions of degree of importance of the needs and problems of the community influencing decisions about programs among the District Agricultural Officers' major areas of study

Major areas of study	Degree of importance			Chi square	Signif- icance
	Least important (%)	Moderately important (%)	Most important (%)		
Plant and animal sciences	11.2	43.0	35.9	5.2154	NS[a]
Agriculture and extension education	0.5	1.4	1.8		
Other	1.0	3.8	1.4		

[a]NS = nonsignificant.

Table 25. Differences in perceptions of degree of importance of the needs indicated by the Department of Agricultural Extension influencing decisions about programs among the District Agricultural Officers' major areas of study

Major areas of study	Degree of importance			Chi square	Signif- icance
	Least important (%)	Moderately important (%)	Most important (%)		
Plant and animal sciences	71.6	10.1	8.5	7.2439	NS[a]
Agriculture and extension education	2.6	0.3	0.8		
Other	4.2	1.0	1.1		

[a]NS = nonsignificant.

Table 26. Differences in perceptions of degree of importance of the needs and interests of people influencing decisions about programs among the District Agricultural Officers' major areas of study

Major areas of study	Degree of importance			Chi square	Signif- icance
	Least important (%)	Moderately important (%)	Most important (%)		
Plant and animal sciences	7.3	37.1	45.7	11.7962	0.0189*
Agriculture and extension educa- tion	0.6	1.9	1.1		
Other	1.1	1.4	3.7		

*$p < .05$.

Coordination

The respondents' perceptions of this aspect of program development were investigated by asking them to select one to five response categories which best described their opinions toward two questions: "Do you think it is important to coordinate with other agencies conducting similar programs to extension programs in developing a program?" and "Do you think it is important that the program plan be distributed to other agencies conducting similar programs to extension programs?" Categories of response were: very important-5, important-4, moderately important-3, not important-2, and not important at all-1. Mean scores were computed for each scale. Mean scores were interpreted as follows: scores of .50-1.499, not important at all; 1.50-2.499, not important; 2.50-3.499, moderately important; 3.50-4.499, important; and 4.50-5.499, very important.

The one-way analysis of variance was used to determine the significant differences in the perceptions of importance of respondent groups with regard to their years of service at the District Agricultural Officer position, and major areas of study in the highest education level. A t-test was used to determine the significant differences in the perceptions of respondent groups according to education level toward these questions.

The results are as follows (see Tables 27, 28, and 29).

1. No significant differences are found in the perceptions of all groups of respondents regarding all the three characteristics with respect to the coordination with other agencies conducting similar programs to extension programs.

2. No significant differences are found in the perceptions of all groups of respondents regarding their highest education level and major areas of study in the highest education level with respect to the program plan distributed to other agencies conducting similar programs to extension programs.

Significant differences exist among the groups of respondents regarding years of service with respect to the concern of the distributed program plan. However, according to the mean scores made by the groups of respondents, the perceptions of importance of the District Agricultural Officers serving "less than one year," "11 to 15 years," and "one to five years" to the distributed program plan do not differ significantly. The perceptions of the District Agricultural Officers serving "one to five years, "six to ten years," and "over 15 years" do not differ among themselves. But the perceptions of those District Agricultural Officers

Table 27. Differences in perceptions of importance of coordination among the District Agricultural Officers' years of service

| Question | Years of service | | | | | F-ratio | Proba-bility |
| | Less than 1 | 1-5 | 6-10 | 11-15 | Over 15 | | |
	Mean	Mean	Mean	Mean	Mean		
Coordination with other agencies conducting similar programs to extension programs	4.48	4.42	4.39	4.40	4.41	0.128	NS[a]
Program plan distributed to other agencies conducting similar programs to extension programs	4.32	4.56	4.62	4.48	4.69	3.020	0.0175*

[a]NS = nonsignificant.

*$p < .05$.

Table 28. Differences in perceptions of importance of coordination among the District Agricultural Officers' major areas of study

| | Major areas of study | | | | |
| | Plant and ani-mal sciences | Agriculture and ex-tension education | Other | | Proba-bility |
Question	Mean	Mean	Mean	F-ratio	
Coordination with other agencies conducting similar programs to extension programs	4.39	4.60	4.53	2.139	NS[a]
Program plan distributed to other agencies conducting similar programs to extension programs	4.57	4.60	4.53	0.116	NS

[a]NS = nonsignificant.

Table 29. Differences in perceptions of importance of coordination between the District Agricultural Officers' highest education levels

| Question | Highest education levels | | | |
| | Below bachelor's degree | Bachelor's degree or higher | | |
	Mean	Mean	T-value	Probability
Coordination with other agencies conduction similar programs to extension programs	4.40	4.48	-0.96	NS[a]
Program plan distributed to other agencies conducting similar programs to extension programs	4.59	4.42	1.90	NS

[a]NS = nonsignificant.

serving "less than one year" and "11 to 15 years" differ from the ones of the District Agricultural Officers serving "six to ten years" and "over 15 years."

The overall mean scores made by all groups of respondents are as follows:

1. Regarding years of service, the overall mean scores of coordination with other agencies range from 4.48 to 4.40, and the overall mean score of the program plan distributed to other agencies range from 4.70 to 4.32. These mean scores could be interpreted that the District Agricultural Officers have considered coordination with other agencies as an important aspect of program development.

2. Regarding major areas of study in the highest education levels, the overall mean score of coordination with other agencies is 4.41, and the overall mean score of the program plan distributed to other agencies is 4.57. These mean scores could be interpreted that the District Agricultural Officers consider coordination as an important aspect of program development.

3. Regarding highest education level, the mean scores of coordination with other agencies and the program plan distributed to other agencies range from 4.59 to 4.41. Based on these mean scores, it could be interpreted that two groups of the District Agricultural Officers holding the bachelor's degree or higher or below bachelor's degree have considered coordination as an important aspect of program development.

Summary of Findings and Discussion

The following summary and discussion could be drawn from the results of this study.

1. The largest group of the Thai District Agricultural Officers (69.3%), according to their years of service, is the group of the District Agricultural Officers serving one to ten years at this position. According to their highest education level, the largest group (89.8%) is the below bachelor's degree level and the largest group of the District Agricultural Officers (90.1%) grouped by their major areas of study in the highest education level is the group studying "plant and animal sciences."

2. Based upon the proposed seven phases developed for use as the framework for investigation of the Thai District Agricultural Officers' perceptions of extension program development in Thailand, the seven phases are considered by the District Agricultural Officers as important steps in developing any extension programs. These seven phases of program development are:

I. Situational analysis for need identification

II. Setting the program priorities

III. Developing the program objectives

IV. Developing the plan of work

V. Implementing the program

VI. Evaluation the program

VII. Reporting program value

With reference to the above findings, a certain program development process with a number of procedural steps might be employed by Thai

extension personnel at the district level. This process can be described briefly as follows:

1. Any program is developed on the basis of the needs and interests of people, the needs and problems of the community where the program is to operate, as well as the assignment from the Department of Agricultural Extension.

2. However, what program will be developed depends on at least three factors, namely, the availability of materials, facilities, and personnel.

3. When the program is planned, the program objectives should be determined.

4. A written program plan should be developed with the details of available materials, persons responsible, and places of the activities. The program should be planned in nine to twelve months or longer before it is implemented. Also, the program must be followed while it is implemented.

5. The results of the finished program should be recorded and the program should be appraised continuously throughout the program implementation. The appropriate periods of time for evaluating the program should be one to three months or three to six months.

6. Finally, the evaluation results should be reported to the following persons: (1) the Department of Agricultural Extension personnel involved in program development, (2) communes' heads/villages' heads, (3) superiors, (4) other agencies' personnel involved, and (5) people for whom the program is developed.

3. No differences exist among the Thai District Agricultural Officers grouped according to their years of service at this position and major areas of study in the highest education level, and between the Thai District Agricultural Officers grouped according to their highest education level in regard to their perceptions of the importance of the three factors influencing decisions about how programs should be developed. These three factors are: (1) the needs and interests of people, (2) the needs and problems of the community where the program is to operate, and (3) needs indicated by government (i.e., the Department of Agricultural Extension). All Thai District Agricultural Officers have perceived all three factors as being important for influencing decisions about what programs should be developed.

4. No differences exist among the Thai District Agricultural Officers grouped according to their years of service at this position and major areas of study in the highest education level in regard to their perceptions of the importance of the six types of people involved in planning the program. These six types of people are: (1) representatives of people in the community where the program is to operate, (2) people for whom the program is developed, (3) representatives from other agencies (private or government) conducting similar programs to extension programs, (4) communes' heads/villages' heads, (5) specialists from the Department of Agricultural Extension, and (6) Provincial Agricultural Officer or his representative.

No differences exist between the two groups of Thai District Agricultural Officers grouped according to highest education level in regard

to perceptions of the importance of types of people involved in planning

the program, except for representatives of people in the community where

the program is to operate. The District Agricultural Officers holding

"below bachelor's degree" have a higher mean score than the District

Agricultural Officers holding "bachelor's degree or higher" and thus,

could place a greater importance to people in the community being repre-

sented in the program.

All Thai District Agricultural Officers have perceived the importance

of involvement of people in planning the program.

5. No differences exist among and between the Thai District Agri-

cultural Officers grouped according to their years of service, major areas

of study in highest education level, and highest education level in regard

to perceptions of importance of the aspect of coordination with other

agencies in developing the program. All District Agricultural Officers

perceived this aspect as being important to program development.

The basic findings, as briefly reported earlier in items 3, 4, and 5,

lead to the following discussion.

Being considered as important factors for developing extension pro-

grams, the needs of people and the community should be identified by the

District Agricultural Officers rather than any other extension personnel

since they are directly responsible to the Department of Agricultural Ex-

tension and officially assigned by the Department to be responsible for

contacting the people in the geographic area of their responsibility. But

to identify the needs indicated by the Department of Agricultural Extension

depends largely upon administrators. The needs are decided in the form of

broad objectives that will then provide a framework to serve as a guide for its personnel to develop any program. The District Agricultural Officers themselves must determine the statements of objectives for program development set by the Department. It is, therefore, logical to include the phase of determining broad objectives for program development as an essential phase of program development in addition to those proposed seven phases in this study.

Based on the findings that the District Agricultural Officers have perceived, six types of people are important to involve in planning a program and coordination with other agencies. It is also logical to have the phase of establishing a planning group composed of (1) people for whom the program is developed, (2) representatives of people in the community where the program is to operate, (3) representatives from other agencies conducting similar programs to extension programs, (4) communes' heads/ villages' heads, (5) specialists from the Department of Agricultural Extension, and (6) Provincial Agricultural Officer or his representative to be included in the process of extension program development.

Therefore, with reference to the Thai District Agricultural Officers' perceptions of the proposed phases of program development and three selected aspects of program development, it can be finally concluded that the procedural phases or steps of extension program development at the district level in Thailand which is feasible to be adopted by the Thai extension personnel working at this level are:

1. Determining broad objectives for program development

2. Establishing a planning group

3. Identifying needs

4. Setting the program priorities

5. Developing the program objectives

6. Developing the plan of work

7. Implementing the program

8. Evaluating the program

9. Reporting program value

Implications

The present study is an attempt to correlate the empirical findings of the Thai District Agricultural Officers' perceptions with the proposed program development framework and some selected aspects of program development. The results of the findings lead to general implications that serve as some guidelines for improving and developing extension programs at the district level in Thailand (Objective 5). The following are over-all implications which should be considered by the Thai extension personnel when planning extension programs.

1. The main purpose of planning is to prepare plans which will direct and schedule the actions into paths where there is the most room for improvement and a chance for success.

2. Planning in extension is a cooperative endeavor among the people whose lives will be affected, other agencies or institutions that are attempting to affect the lives of the same people, and the professional extension staff.

3. Planning should be guided by broad statements of objectives for program development indicated by the Department of Agricultural Extension in addition to the needs of people and community. These objectives need to be communicated and understood by the District Agricultural Officers.

4. Effective extension plans should be prepared based on local concerns and problems that are more likely to be accepted by the people.

5. A planning group composed of individuals representing various concerns should be organized in order to effectively plan and carry out the programs.

6. To legitimize extension programs is to involve representatives of people in planning the program.

7. Other agencies and institutions such as those for education, community development, and public health should also be represented in extension program development. To this investigator, the experiences and resources of those organizations should be a great asset to successful development of extension works in Thailand. Involving agency representatives in planning will be the initial stage toward establishing harmony and efficiency in the social and economic development of the country.

8. Specialists, being experts in various areas of agriculture, economics, and youth and family living, should be involved in planning the extension programs. Their knowledge and experiences are a useful source of guidance for developing effective programs.

9. Availability of materials, facilities, and personnel should receive active consideration when planning extension programs.

10. Evaluation should be done continuously in order to find weaknesses and strength of the program plan. The evaluation results should be used as a guide for future plans. It is suggested that the evaluation committee should be organized to do the evaluation job. The committee needs to look at the results and then recommend procedures that will improve the programs.

CHAPTER V. SUMMARY AND RECOMMENDATIONS

Summary

The major objective of this study was to establish a framework for
the program development process of the agricultural extension at the
district level in Thailand. This framework will provide a means of under-
standing of how Thai operating-level extension personnel perceive the
process of program development. To achieve the above goal, the specific
objectives were identified successively as follows:

1. Review the relevant literature on program development, its
principles and related concepts as a basis for developing a preliminary
framework for Thai extension program development at the operational level.

2. Use the framework as a tool to compile a questionnaire for
identifying the perceptions of importance of various phases of the pro-
posed program development framework of Thai District Agricultural Offi-
cers.

3. Determine the differences and similarities in perceptions of some
selected aspects of program development of Thai District Agricultural
Officers in regard to:

3.1 Years of service at the District Agricultural Officer position

3.2 Highest levels of formal education

3.3 Major areas of study in the highest education levels

4. Suggest some guidelines which will assist the Thai operating-
level extension personnel toward developing more effective programs.

The most relevant literature for extension program planning was reviewed in Chapter II. The literature selected for discussion gave appropriate background for developing a framework for an ideal extension program development process. Specifically, the literature review provided the basis for discussing:

1. The framework for extension program development including seven phases of: (1) situational analysis for need identification, (2) setting the program priorities, (3) developing the program objectives, (4) developing the plan of work, (5) implementing the program, (6) evaluating the program, and (7) reporting program values.

2. Some aspects of program development:

1. Involvement of six types of people in program development. These types of people are: (1) representatives of people in the community where the program is to operate, (2) people for whom the program is developed, (3) representatives from other agencies conducting similar programs to extension programs, (4) communes' heads/villages' heads, (5) specialists from the Department of Agricultural Extension, and (6) Provincial Agricultural Officer or his representative.

2. Factors influencing decisions about how programs should be developed including: (1) the needs and interests of people, (2) the needs and problems of the community, and (3) the needs indicated by the Department of Agricultural Extension.

3. Coordination.

The empirical data were collected from mailed questionnaires which reflected the seven phases and those three selected aspects of program

development. The questionnaire was pretested by some Thai District Agricultural Officers who were working toward bachelor's degrees at the Faculty of Education of Kasetsart University during the time of this study.

The questionnaire was divided into two major parts:

1. The part designed to identify three selected personal characteristics of Thai District Agricultural Officers' years of service at the District Agricultural Officer position, highest education levels, and major areas of study in the highest education levels.

2. The second part was comprised of statements developed for determining the District Agricultural Officers' perceptions toward: (1) various aspects under the seven phases of the proposed framework for Thai extension program development process, and (2) the three selected aspects of program development mentioned earlier. A checklist containing a five-point Likert-type scale, a ranking order of one through three, and a ranking order of zero through three were designed for respondents to indicate perceptions toward those statements.

The target respondents for this study were 652 Thai District Agricultural Officers throughout the country. A total of 626 respondents returned usable questionnaires.

The data were analyzed at the Iowa State University Computer Center. The statistical procedures used to analyze the data were selected from the Statistical Package for Social Sciences (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975). These procedures were:

Descriptive analysis--SPSS subprogram FREQUENCIES were used to describe the Thai District Agricultural Officers' characteristics and to assess the mean scores of perceptions of those officers toward each statement in the format of a five-point Likert-type scale. Mean scores were compared with a scale of degree of importance in order to make the possibility of listing statements perceived by the District Agricultural Officers as the important ones. SPSS subprogram CROSSTABS were used to describe the Thai District Agricultural Officers' perceptions toward statements with the forms of a ranking order of zero through three and a checklist; the percentage of response was obtained for each statement.

Inferential analysis--SPSS subprogram ONEWAY and T-TEST were used to assess the significant differences among and between mean scores of the perceptions of those three aspects of program development with the five-point Likert-type scale of those officers in regard to their three personal characteristics. SPSS subprogram CROSSTABS were used to determine the significance of differences among rank mean scores of the perceptions of those District Agricultural Officers toward those aspects with a ranking order of one through three.

The major findings of this study are presented as follows.

Thai District Agricultural Officers' characteristics

Years of service at the District Agricultural Officer position

The smallest number of the District Agricultural Officers (4.0%) is in the category of "less than one year" while the largest group of them (69.3%) is the group of the District Agricultural Officers serving one to ten years at this position.

Highest education levels   The largest group (89.8%) is the "below bachelor's degree" level.

Major areas of study   A large number of the District Agricultural Officers (90.1%) are in the major of "plant and animal sciences."

Respondents' perceptions of importance of three selected aspects of program development

Generally, there are no significant differences in the perceptions of importance of the District Agricultural Officers regarding their three characteristics toward three selected aspects of program development. However, significant differences have been found in regard to: (1) years of service, (2) highest education levels, and (3) major areas of study with respect to (1) the concern of the distributed program plan to other agencies conducting similar programs to extension programs, (2) involvement of people in the community in planning the program, and (3) the needs and interests of people as an influencing factor for decisions about how programs should be developed, respectively.

Furthermore, respondents perceived that:

(1) Six types of people are important to involve in planning an extension program.

(2) Coordination with other agencies conducting similar programs to extension programs is an important concern when planning a program.

(3) The needs and interests of people, the needs and problems of the community, and the needs indicated by the Department of Agricultural Extension are the important factors influencing decisions about how programs should be developed.

Phases of program development

Thai District Agricultural Officers perceived the proposed seven phases as important steps in developing extension programs. Furthermore, a combination of the findings of the District Agricultural Officers' perceptions of importance of the three aspects of program development with the above findings suggests a certain program development process with nine procedural steps which is feasible to be adopted as a framework for extension program development at the district level by Thai extension personnel working at this level. This framework can be briefly described as follows:

1. Determining the broad objectives for program development set by the Department of Agricultural Extension.

2. Establishing a planning group in which (1) people for whom the program is developed, (2) representatives of people in the community where the program is to operate, (3) representatives from other agencies conducting similar programs to extension programs, (4) communes' heads/villages' heads, (5) specialists from the Department of Agricultural Extension, and (6) Provincial Agricultural Officer or his representative are included in the process of extension program development.

3. Identification of (1) the needs and interests of people, (2) the needs and problems of the community where the program is to operate, and (3) the needs assigned by the Department of Agricultural Extension.

4. Setting the program priorities by consideration of at least three factors, namely, the availability of materials, facilities, and personnel.

5. Developing the program objectives.

6. Developing the plan of work with the details of available materials, persons responsible, places of the activities. The plan should be developed in nine to twelve months or longer before the program is implemented.

7. Implementing the program by following the detailed program plan developed.

8. Evaluating the program. The program plan should be appraised continuously throughout the program implementation. The appropriate periods of time for evaluating the program should be one to three months or three to six months.

9. Reporting program values. The evaluation results should be reported to: (1) the Department of Agricultural Extension personnel involved in program development, (2) communes' heads/villages' heads, (3) superiors, (4) other agencies' personnel involved, and (5) people for whom the program is developed.

Recommendations

1. Develop a questionnaire around specific programs which are common to all parts of the country. This strategy will provide the investigator a chance for securing specific data from the respondents with unique understanding about each program. This minimizes the chances for misinterpretation of the questions as well as the responses.

2. Investigate the actual current practice of program development of Thai extension officers. Observation and interview would be a useful means for securing such information. Nevertheless, these tools have some

disadvantage, i.e., it is time consuming and costly. Thus, sampling technique should be considered in order to get a sample of Thai District Agricultural Officers as the subjects for the study. The results of the findings should be compared with the nine phases of extension program development process ideally perceived by the District Agricultural Officers from the present study. Then, the gaps between Thai extension program development practice and the ideal model can be identified. This would serve as a basis for determining the strength and weakness of the process used in an effort to develop procedures which would correct errors in process and reality omissions.

3. The theoretical model found in this study should be tested on an experimental or pilot basis. If the results are reasonably satisfying, the model should be introduced to other parts of the country.

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APPENDIX A. COVER LETTER TO DISTRICT AGRICULTURAL OFFICERS

Extension and Training Office
Kasetsart University

December 9, 1981

Dear District Agricultural Officer:

Mr. Sophon Thanamai, a staff member of Kasetsart University, is conducting
a study concerning extension program development at the district level.
Your response is needed for this study. The study is expected to be use-
ful for development of a course concerned with program development in
agricultural extension.

The Extension and Training Office is asking you to complete the enclosed
questionnaire and return it in the postage-paid envelope within two weeks
after your receiving it. Time required to complete the questionnaire
should be approximately 20 minutes.

Thank you for your cooperation.

Sincerely,

(Boontham Chitanan)
Acting Director of
Extension and Training Office

Extension and Training Office
Telephone 5792294, 5793025

APPENDIX B. QUESTIONNAIRE

MAIL QUESTIONNAIRE USED TO STUDY PERCEPTIONS OF PROGRAM DEVELOP-
MENT PROCESS OF DISTRICT AGRICULTURAL OFFICERS,
THAILAND, 1982

1. How long have you been in the position of the District Agricultural Officers?
   _____year(s)_____month(s)

2. What was your major area of study at your following highest formal educational level?
   _____ Below bachelor's degree
   _____ Bachelor's degree
   _____ Master's degree

3. Please rank the following factors in terms of their importance to deciding about how programs
   should be developed. (Use number 1 through 3 with 3 indicating the factor most important and
   1 indicating the least important.)
   _____ needs and interests of people
   _____ needs and problems of the community
   _____ needs indicated by government (e.g., of the Department of Agricultural
                           Extension, etc.)

   Please check the response that describes your viewpoint on the following questions (question
   4 to 9).

4. Do you think it is important to know:

   4.1 the needs and interests of   Very im-   Impor-   Moderately   Not im-   Not impor-
       people before developing any   portant   tant   important   portant   tant at all
       program?

   4.2 the needs and problems of the
       community before developing   Very im-   Impor-   Moderately   Not im-   Not impor-
       any program?   portant   tant   important   portant   tant at all

   4.3 in advance which programs
       assigned for your responsi-   Very im-   Impor-   Moderately   Not im-   Not impor-
       bility by the Department of   portant   tant   important   portant   tant at all
       Agricultural Extension be-
       fore developing any program?

93

5. Do you think it is important that the following persons are involved in planning a program?

5.1 Representatives of people in the community where the program will operate

| Very im-portant | Impor-tant | Moderately important | Not im-portant | Not impor-tant at all |

5.2 Representatives from other agencies (private and government) conducting similar programs to extension programs

| Very im-portant | Impor-tant | Moderately important | Not im-portant | Not impor-tant at all |

5.3 Communes' heads/villages' heads

| Very im-portant | Impor-tant | Moderately important | Not im-portant | Not impor-tant at all |

5.4 Specialists from the Department of Agricultural Extension

| Very im-portant | Impor-tant | Moderately important | Not im-portant | Not impor-tant at all |

5.5 Provincial Agricultural Officer or his representative

| Very im-portant | Impor-tant | Moderately important | Not im-portant | Not impor-tant at all |

6. Do you think the following factors are important to be considered to identify which programs are developed?

6.1 The availability of materials and facilities

| Very im-portant | Impor-tant | Moderately important | Not im-portant | Not impor-tant at all |

6.2 The availability of personnel (e.g., extension workers, specialists, etc.)

| Very im-portant | Impor-tant | Moderately important | Not im-portant | Not impor-tant at all |

7. Do you think the following details are important to be included in a written program plan?

7.1 Available materials and facilities	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all
7.2 Date and duration of the activities	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all
7.3 Places of the activities	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all
7.4 Persons responsible	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all
7.5 Purposes of the activities	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all

8. Do you think it is important:

8.1 to have a written program plan?	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all
8.2 to indicate the people for whom the program is planned and results they will get from it in a written program plan?	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all
8.3 for the program goals to correspond to the goals of the people whom the pro-gram is developed for?	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all
8.4 that people whom the program is developed for are in-volved in planning a program?	Very im-portant	Impor-tant	Moderately important	Not im-portant	Not impor-tant at all

8.5 to coordinate with other
agencies conducting similar
programs to extension
programs?

Very im- portant	Impor- tant	Moderately important	Not im- portant	Not impor- tant at all

8.6 to follow the details speci-
fied in a program plan when
implementing the program?

Very im- portant	Impor- tant	Moderately important	Not im- portant	Not impor- tant at all

8.7 that the program plan be
distributed to other agen-
cies conducting similar
programs to extension
programs?

Very im- portant	Impor- tant	Moderately important	Not im- portant	Not impor- tant at all

8.8 that people in the community
should get the program
evaluation results?

Very im- portant	Impor- tant	Moderately important	Not im- portant	Not impor- tant at all

8.9 to check the weakness of a
program plan continuously
throughout implementation
of the program?

Very im- portant	Impor- tant	Moderately important	Not im- portant	Not impor- tant at all

8.10 to record the results of a
completely finished
program?

Very im- portant	Impor- tant	Moderately important	Not im- portant	Not impor- tant at all

9. Do you think it is important that the evaluation results should be reported to the following
persons?

9.1 Superiors (e.g., Provin-
cial Agricultural Officer/
the Head of District
Office)

Very im- portant	Impor- tant	Moderately important	Not im- portant	Not impor- tant at all

9.2 The Department of Agricultural Extension's personnel involved in planning, developing, and carrying out the program	Very important	Important	Moderately important	Not important	Not important at all
9.3 Other persons involved in the program (e.g., personnel of other agencies, etc.)	Very important	Important	Moderately important	Not important	Not important at all
9.4 People whom the program is developed for	Very important	Important	Moderately important	Not important	Not important at all
9.5 Communes' head/villages' heads	Very important	Important	Moderately important	Not important	Not important at all

10. Please rank the following periods of time in terms of their appropriateness to deciding when program should be evaluated. (Use number 1 through 3 with 3 indicating the time most appropriate and 1 indicating the least appropriate. If any time was of no appropriateness at all, indicate this by a 0.)

_____ after the termination of the program
_____ continuously throughout implementation
_____ at the end of the fiscal year

11. Do you think how long should a program be planned before implementing it? Check one:

less than 1 month
1-3 months
3-6 months
6-9 months
9-12 months
12 months or longer