

Adoption and diffusion theories used in Thailand's
family planning program

by

Heather Jill Rutz

A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF COMMUNITY AND REGIONAL PLANNING

Major: Community and Regional Planning

Signatures have been redacted for privacy

Iowa State University
Ames, Iowa

1989

TABLE OF CONTENTS

	Page
CHAPTER I. INTRODUCTION	1
World Population Growth	1
Movement to Slow Population Growth	3
Population Growth Theories	5
Supply and Demand	8
Why Thailand	9
Hypothesis	11
Research Approach	12
CHAPTER II. LITERATURE REVIEW	14
Review of Adoption and Diffusion Theories	14
Adoption Perspective	21
Market and Infrastructure Perspective	28
Summary	34
CHAPTER III. THAILAND	36
Characteristics of Thailand	36
Population Growth	38
History of Family Planning in Thailand	41
Private Organizations' Efforts in Family Planning	47
Women and Cultural Factors in Thailand	51
CHAPTER IV. ANALYSIS	58
NFPP and the Adoption Perspective	58
CBFPS and the Market and Infrastructure Perspective	66
Summary	73
CHAPTER V. BROADER APPLICATIONS AND RECOMMENDATIONS	75
Overview of this Study	75
Recommendations	78
BIBLIOGRAPHY	91
ACKNOWLEDGEMENTS	

LIST OF FIGURES

	Page
Figure 1. Logistic S-curve	15
Figure 2. Locational Map of Thailand	37

LIST OF TABLES

	Page
Table 1. Population growth of Thailand from 1911-1970	39
Table 2. Population growth and annual percentage increase in Thailand from 1977-1986	40
Table 3. Percentages of new family planning acceptors by organization 1974-1984	50
Table 4. Mean age at marriage	56
Table 5. Number of new clients (in 1,000's) in Thailand's National Family Planning Program, 1965-1985	64

CHAPTER I. INTRODUCTION

There are many problems facing developing nations today. One of these problems is rapid population growth. Mortality rates have declined rapidly with increased health care while fertility rates have declined much more slowly. Many governments have instituted population growth programs to stimulate lower fertility rates, so the few resources these nations have, can be spread among the people more equitably.

World Population Growth

In this century alone the world population rate has risen by leaps and bounds. In the mid-1920s the world population was approximately two billion. By 1960 it was three billion, four billion in 1974 and five billion in mid-1987. The world population is expected to add another billion persons by 1999, and reach seven billion by the year 2010. After 2010, it is estimated that it will take the world more than eleven years to add another billion persons. Currently the annual average growth rate for the world is 1.63% for the years 1985-1990. The highest ever estimated was at 2.04% for the period 1965-1970. It has declined since then and is expected to decline further in the future (United Nations, 1988).

Much of this recent growth is taking place in the developing countries. In 1950, 1.7 billion people were in the developing world, and the average annual growth rate for these nations was 2% for the years 1950-1955. A woman could expect to bear 6.2 children on the average. The birth rate was 44.4/1000 and the death rate was 24.2/1000 at this time. In 1985 there were 3.7 billion people in the developing world, and the average annual growth rate was still 2% for the period 1980-1985, but the average number of children a woman would have has declined to 4.1. Birth rates and death rates had also declined from the 1950-1955 period by 28% and 55% respectively (Menken, 1986).

The global fertility rate has decreased from 3.8 to 3.3 covering the decade 1975-1980 to 1985-1990. In developing countries the total fertility has declined 18%, or 4.5 to 3.7. Part of the reason why there has been a global decline in fertility rates has been the use of contraceptives. By 1980 the world average level of contraceptive prevalence was estimated at 45%. Prevalence in developed nations was estimated at roughly 70%, while that in developing nations' was estimated at 40% overall. When China is not included in these figures the proportion of contraceptive use in developing countries slips to 25%. The level of contraceptive use is, nevertheless, rapidly increasing in many developing nations (United Nations,

1988).

Movement to Slow Population Growth

In the latter part of this century much ado has been made about the population crisis the world is facing. Malthus in the 18th century seemed to be the first one to raise concerns about a rising world population and limited resources. Prior to WWII, governments paid little if any attention to birth control matters. If anything, they were pronatalist.

After WWII the U.S. government began to urge nations of the world to lower fertility rates, but it was not until 1967 in Resolution 2211 passed by the United Nations, that the U.S. government's urgings became more acceptable. In Resolution 2211, the United Nations confirmed that they had the right to provide assistance to national family planning programs, and endorse recommendations made by its subsidiary bodies that more attention should be paid to fertility and ways of controlling fertility rates (Symonds and Corder, 1973).

In 1974 in Bucharest, the U.N. sponsored an International Conference on Population. At the conference the U.S. urged the nations of the world to adopt policies that will slow population growth. Many Third World nations objected to the U.S. and other western nations pushing for

population control policies. They argued that economic development would naturally bring a drop in fertility rates, and lowering fertility rates will not bring greater prosperity to them. The political right in the U.S. on the other hand, offers the argument that population growth brings an effective long-term stimulus to economic development and innovation (Menken, 1986).

In 1984 in Mexico City, another U.N. sponsored International Conference of Population was held. By then the U.S. government had modified its position somewhat and held that economic development was needed to bring fertility rates down. Population growth was not considered harmful as long as there was economic development, but economic decision-making had been put into the hands of a few, thus growth of economies had been hampered, and the slowing of fertility rates had also been hampered as well (Menken, 1986).

As of 1986, of the governments of the 170 states in the U.N., 45% viewed their population growth rates as satisfactory; 38% felt it was too high; and, 16% too low. Not one developed nation viewed its growth rate as too high, but 50% of the developing nations, which represent 82% of the developing nations' population, viewed their growth rates as too high. Of policies affecting fertility rates, 76 nations held a policy of non-intervention, 19

desired to increase their fertility rates, 20 wished to maintain their current one, and 55 wanted to decrease their rates. These nations represent 27%, 4%, 9% and 61% respectively of the world population. There are 92 nations in the world who adopted or are intending to adopt policies affecting their fertility rates, but only 31 had specified a quantitative goal (United Nations, 1988).

Population Growth Theories

Developing nations are facing high growth rates, but this does not relate to poor government, or a weak industrial or agricultural base, but to their unique demographic situation of a decline in death rates and stable birth rates (Borrie, 1970). Borrie in 1970 sums up the problem this way for the developing nations,

"In other words, in broad areas which may be defined as 'undeveloped' in terms of such factors as modern technology, medical skills, degree of urbanization, industrialization, or literacy, we do not expect to find demographic patterns dissimilar from those considered to have applied in past centuries, that is with high fertility giving a potentially rapid rate of growth, but with this potential substantially if not wholly offset by a high level of mortality."

Borrie further claims that this situation is similar to Europe's in the latter half of the nineteenth and early twentieth centuries, where mortality control was much more effective than fertility control.

The "transition theory" was originally developed to explain Europe's change from a situation of high mortality and high fertility rates in the early nineteenth century, to one of low mortality and low fertility rates in this century. This theory focuses on basic social, economic and cultural changes. It posits that as death rates decline, urbanization and industrialization will increase, leading to higher literacy rates, more social and occupational mobility, better living standards and as these are realized, fertility rates will decline. In sum, it is describing the change from an agrarian economy to one of a mechanized economy. However, for urbanization and industrialization to occur, there must be an economic breakthrough to where capital investment raises the per capita incomes above subsistence levels. In Europe's case in the nineteenth century, there were ample natural resources in these countries and also those in the European colonies. Today's developing nations do not have as great an opportunity to develop natural resources as the Europeans did, which limits their development efforts. Also this theory assumes a nation must be industrialized before fertility rates will decrease. This is not so applicable today, since nations such as Thailand have lowered fertility rates and are not an industrialized nation (Borrie, 1970). The "transition theory" is also

termed the "social demographic perspective" by Gayl Ness and Hirofumi Ando (1984).

Ness and Ando (1984) have proposed the "political-ecological perspective" to complement the "transition theory". They feel that the "social demographic perspective" focuses on individual behavior, whereas the "political-ecological perspective" concentrates on organization form, in this case human organizations and interaction with their environment. There are three assumptions in this perspective. The first being that "organisms adapt to their environment". The second is that adaptation is a collective matter. The third is that populations adapt as collectivities with some form of organization. In order for an organization to adapt to its environment, there must be an exchange of resources between the two. In this perspective there are three kinds of resources exchanged: matter, energy, and information. Information is the key resource here, since it can be destroyed or improved, whereas the other two can only be transformed. They consider that today, the political organization determines the ecological response to high population growth rates thus this explains why many nations have instituted family planning programs. Political organizations also have greater control over information than individuals and have the power to control members of

the organization through coercion, manipulation of material rewards, and manipulation of symbolic rewards (Ness and Ando, 1984).

Supply and Demand

Since this study is dealing with supply and demand in an adoption and diffusion context, it is also necessary to define these terms in relationship to the subject of this inquiry. Demand in and of itself is defined as the amount of a product which consumers are willing and able to buy at a certain price. Demand holds an inverse relationship between price and the quantity demanded. That is as the price of a product increases, its demand will decrease. The determinants of demand, which are what consumers use to decide which product to purchase or utilize, are the following: perceived or developed tastes or preferences of the consumers; the number of people to be supplied; the money income of consumers; prices of related goods and services; and, consumer expectations with respect to future opportunities (McConnell, 1975).

Supply is defined as the amount of a product or service which a producer is willing and able to produce, and make available at a certain price. Supply holds a direct relationship between price and the quantity supplied. As the price increases, so also is the quantity supplied.

What determines whether a producer will supply a product are the following: the technique of production; price(s) of the resource(s); prices of other goods; price expectations; the number of sellers in the market; and, taxes and subsidies (McConnell, 1975).

Lawrence Klein (1983) states that supply and demand act together and that it is difficult to do an analysis without assessing the interrelated impacts of both. A demand-oriented analysis will study the demand for goods by household units, the demand for labor by enterprises, and the demand for capital goods, assuming that there are adequate supplies of capital goods. A supply-oriented analysis will study the labor supply and service infrastructure as well as household income and demographic developments.

Why Thailand

Thailand is considered a success story for slowing the population growth rate quickly. Thailand's total fertility rate in the early 1960s was 6.4, and by the early 1980s had decreased to 3.6. Only China and South Korea had decreased more than Thailand (Knodel, Chamratrithirong and Debaalya, 1987). A distinction should be made between Thailand and China, for Thailand's program is strictly voluntary and China had at one time severely restricted its people to one

child per couple. This makes Thailand's position even more unique since they have achieved such success through volunteerism and in a nation more rural than South Korea. The fertility rates in the early 1960s were 6.3-6.6. By 1970 they were 5.4-5.8, and by 1975 they were 4.5-4.9 (Committee on Population and Demography, Report No. 2, 1980). By 1984, 65% of married women, ages 15-44, were using contraceptives (Knodel, Chamratrithirong and Debaalya, 1987). Such a high usage is on par with developed nations. This is exceptional for a developing nation, and very intriguing since the fertility decline is rapid, pervasive and the nation is still largely rural. Thailand's population now is expected to grow at an annual average rate of 1.6% between 1985-2000. By 2000 it is assumed that the nation will reach a net reproduction rate of 1 percent (World Bank, 1987).

How did this dramatic change come about in Thailand's population growth? There was an active role taken by the government in promoting family planning, that reflected the general populace's wishes. This program worked in coordination with privately managed family planning programs to create this success story.

This study intends to examine what aspects of Thailand's successful family planning program can be explained in terms of adoption and diffusion techniques.

The innovations that are being adopted and diffused in this case are contraceptives. There are two theories of adoption and diffusion that are used. The first is the Adoption Perspective as represented by Everett Rogers' work. This is a demand side approach. The alternative supply side approach, is represented by Lawrence Brown's work. Neither of these theories are mutually exclusive, but in this author's view, they round out the diffusion process and work together. Many national family planning programs emphasize only the demand side of the diffusion process. Emphasis must also be placed on the supply side of diffusion as well to make programs more complete and effective. By studying the two approaches together, perhaps we can see what is applicable to other countries, even though each nation has its own distinct culture which can also affect the diffusion process.

Hypothesis

It is hypothesized here that the Thai National Family Planning Program has been effective because of the balance it adopted between the supply and demand diffusion theories. Other factors have also been suggested to explain Thailand's success story in family planning. They include the relatively high status of women in the culture, the government's commitment to the program, and the

fulfillment of latent demand in the society for family planning. It is important to note these factors and they will be discussed in Chapter 3, but these will not be the main focus of this research.

Research Approach

Much of the basis for this study will be presented in the literature review. A review of the different applications of adoption and diffusion theories will be presented converging onto the two theories to be used in this study, which are discussed in detail. This forms the theoretical framework for the study, and will provide the basis for the analysis. The analysis discusses how each diffusion theory was associated with the Thai experience and how organizations working for family planning in Thailand met each of the criteria for the two theories. The study concludes with attempts to assess the theories of diffusion in light of the real world experience in Thailand. Given the nature of this research, research that involves what occurred to explain the long term drop in the annual growth rate of the nation, the data used was derived from secondary sources.

A chapter on Thailand is included, which gives a closer look at Thailand as a nation, and examines the other factors that have helped to make Thailand a success story

in family planning. Governmental and private efforts at reducing the growth rate are discussed as well. The analysis chapter considers the Thai success in light of the two major theories of diffusion. This analysis results in deducing a model for a national family planning program which is relevant to the Thai experience and goes on to consider the potential for application to other nations as well. The study concludes with recommendations for social development planners in the international arena.

CHAPTER II. LITERATURE REVIEW

Review of Adoption and Diffusion Theories

Theories of diffusion are many, so it is important to clarify what diffusion is first. Rosegger states that diffusion theories are used to explain why new products and processes are not adopted immediately by all firms that have the potential of benefitting from them. In order to define diffusion, he borrows an explanation from sociologists describing it as a process of acceptance over time, of an idea or practice, by an adopting unit, within the set of constraints made up of channels of communication, the social structure and its system of values or culture. The rate or speed with which an idea or practice is diffused is determined by: 1) the character of the innovation; 2) attributes to the structural characteristics of adopters and non-adopters; 3) factors having to do with the mechanism whereby diffusion takes place in a particular setting; and, 4) those originating from firms and industries' institutional environment (Rosegger, 1986).

The diffusion process is often placed in a mathematical equation, which output is a logistics S-curve.

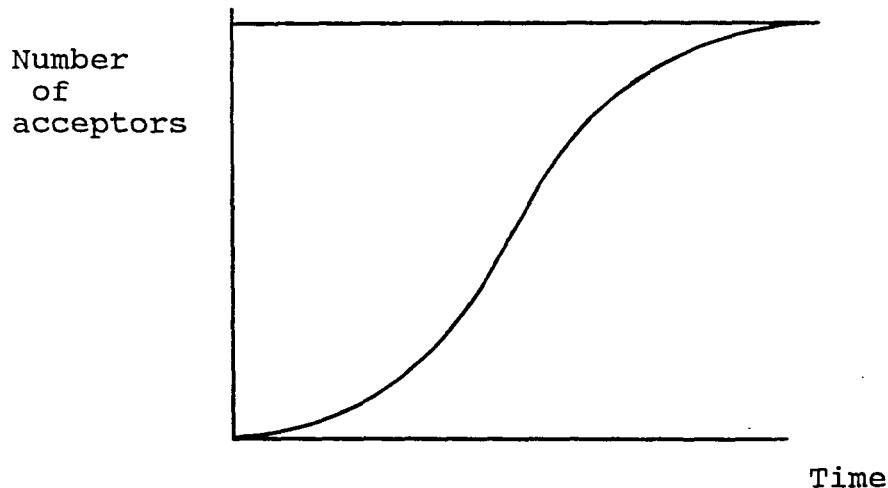


Figure 1. Diagram of a logistic S-curve

Mahajan and Peterson maintain that there are over twenty different disciplines using diffusion models, and hold that there is a need to integrate these. They have formed a fundamental diffusion model which is,

"... a deterministic rate equation. It posits that the rate of diffusion of and innovation at any time t is a function (that is, is directly proportional to) of the gap or difference between the total number of possible adopters existing at that time and the number of previous adopters at that time." (Mahajan and Peterson, 1985)

This model implies that as the number of adopters increase in a social system, the rate of diffusion decreases. From here Mahajan and Peterson have developed three models. One is the external-influence model, which assumes that there is no interpersonal communication in the social system. The second is the internal-influence model, which depends

on interpersonal communication in the social system for diffusion to occur. The final model is the mixed-influence one, which incorporates the parameters of the previous two. They state that the latter model is the one most widely used (Mahajan and Peterson, 1985).

As referred to earlier, diffusion theories are used in many different disciplines. Edwin Mansfield used a diffusion model for explaining how quickly a new technique will be adopted and diffused in a business setting. He hypothesized that the investment required to introduce a new technique is inversely related to the readiness of its adoption (Mansfield, 1961). This is a more general form of diffusion theory (Mahajan and Peterson, 1985).

Another interpretation of diffusion models, is in the technological substitution process (Mahajan and Peterson, 1985). A. Wade Blackman applied this interpretation, but he still used it in an economic context. Here, technological innovation is used to better ways of satisfying needs. What makes people take on the risk of technological innovation is the potential economic reward (Blackman, 1974). Diffusion models are also used for forecasting technological substitutions of new products (Sharif and Kabir, 1976).

Another use of diffusion models has been for information transfers. Bernhardt and MacKenzie put a

diffusion model in the context of a marketing aid for information transfer, positing that an innovation will not be adopted until uncertainty about it is replaced with the correct information. The key here is that if the proper information is supplied to the potential users of the innovation, then the adoption and diffusion process will take over (Bernhardt and MacKenzie, 1972). Torsten Hagerstrand also treated the diffusion process as an information transfer (Hagerstrand, 1967).

Sahal utilizes diffusion models as a learning perspective. The discovery of a new technique or innovation is by chance, and advances are only made after learning from many failed attempts. "It is fundamentally a process of evolutionary learning" (Sahal, 1982).

There are also those who have used diffusion theories within the context of supply and demand. Robinson and Lakhani related diffusion models to a pricing policy. They maintained that supply and demand determine the S-curve. When introducing a new innovation, the manager is to charge lower prices until the item is well accepted, and then increase the price, once the innovation is well established. This would also help the manager gain control of the market, and perhaps gain a monopoly of it (Robinson and Lakhani, 1975). Thirtle and Ruttan discussed it also in economic terms, but with an emphasis on the role of

market demand for technology and supply of knowledge to advance technology (Thirtle and Ruttan, 1987). Griliches applies a diffusion model on a supply and demand basis to explain the spatial and chronological differences in the adoption of hybrid corn.

"The lag in the development of adaptable hybrids for particular areas and the lag in the entry of seed producers into these areas can be explained on the basis of varying profitability of entry." (Griliches, 1957)

As can be seen from this discussion, diffusion models are applied to a wide variety of areas. In a broad spectrum, diffusion models have been applied to three uses. Initially they were to explain occurrences. A second use has been normative, such as how a new product should be marketed, given the shape of the diffusion curve. The third use, and a very common one is for forecasting (Mahajan and Peterson, 1985).

More work still needs to be done with diffusion models though, and they can be applied to a much broader range of uses. Mahajan and Peterson note that,

"In addition to developing even more extensions or refinements of currently existing deterministic models, there is a need to incorporate stochastic elements into diffusion models to increase their realism and relevancy. In fact, there is an urgent need for a unified theory of diffusion models. Only by so doing will it be possible to model certain behavioral phenomena without making unrealistic assumptions or simplifications. Simultaneously, there is a need to apply diffusion models to what currently

may be thought of as nontraditional data." (1985)

This research is undertaking an application of supply and demand in the adoption and diffusion context with nontraditional data in fertility control, specifically in Thailand. The diffusion theories used in the setting for this research are representing the supply and demand perspectives. Everett Rogers' work is representing the traditional, demand side approach; and Lawrence Brown's work is representing the supply side approach. Neither focus on supply and demand in an economic context, but on the adoption of an innovation, which is an object or an idea.

The demand side approach is titled "adoption perspective". To briefly summarize it, the definition of diffusion "is the process by which an innovation is communicated through certain channels over time among members of a social system" (Rogers, 1983). There is no mathematical equation for this theory as Rogers presents it. The key to this diffusion theory is communication. It is treated as a two-way process which culminates in a mutual understanding between two participants. In this scenario, diffusion is a kind of social change (Rogers, 1983). Rogers applies this theory of diffusion in his work to cases in the Third World to show how practices and ideas are passed on.

The supply side approach, or "market and infrastructure perspective" as Brown refers to it, focuses on "the process by which innovations and the conditions for adoption are made available to individuals or households" (Brown, 1981). The base of the perspective is that individual behavior does not represent free will so much as choices within a constraint set, and that it is government and private institutions which establish and control the constraints (Brown, 1981).

Already parallels can be drawn between the "market and infrastructure perspective" and the "political-ecological perspective", since they both deal with organizations and their influence on individual behavior. They are also supply related since they deal with what choices are being given to a potential consumer. The "adoption perspective" of diffusion is demand related since it focuses on the consumer or individual and her/his needs, and it is also paralleling the "transition theory" of population trends, since that also holds individual behavior as pivotal.

None of these theories or perspectives are mutually exclusive, but rather they complement one another. Together they form a whole. Ness and Ando (1984) with their "political-ecological perspective" complement the "social demographic perspective", or the "transition theory". Brown (1981) also states that the "market and

"infrastructure perspective" complements the "adoption perspective" as well. Both demand and supply approaches of diffusion are needed to accomplish an adequate analysis, and Lawrence Klein (1983) has confirmed this earlier in this chapter.

The "adoption perspective" and the "market and infrastructure perspective" will be more fully examined in the following sections.

Adoption Perspective

The adoption perspective is summarized here from Everett Rogers' 1983 book, Diffusion of Innovations, 3rd edition. To repeat once again, Rogers defines diffusion as

"... the process by which an innovation is communicated through certain channels over time among members of a social system. It is a special type of communication, in that the messages are concerned with new ideas."

Communication, as Rogers sees it, involves two or more persons engaged in creating and sharing information with each other to come to an agreed understanding. Information reduces the uncertainty about new ideas.

In this context of diffusion, there are four elements of diffusion; innovation, communication channels, time, and social system. Each of these elements are described in the following discussion and these elements are the backbone of the adoption perspective of diffusion.

Innovation

An innovation "... is an idea, practice, or object that is perceived as new by an individual or other unit of adoption." With this definition in mind, there are several attributes of an innovation that help determine how quickly it will be accepted amongst the populace. The first attribute is the innovation's relative advantage it bestows on the person using it. This is measured in socio-economic terms, such as social prestige, convenience and satisfaction, that the use of the innovation brings to the user. This attribute is supposed to be the best predictor of the rate of adoption. The second attribute is compatibility. This would include how agreeable the innovation is with the values and norms of the social system. The third is complexity, which is the relative difficulty of understanding and using the innovation. The fourth is trialability, or how easy it is to experiment with the innovation. The final attribute is observability, where the results of use of the innovation can be seen by others.

Communication

Communication was defined earlier, but the definition did not include aspects of communication. There is mass media communication and interpersonal communication. The mass media kind reaches more people, but interpersonal is

more effective in obtaining results. Within interpersonal communication, there are two more types. One is homophily communication, which is interaction between individuals of the same or similar beliefs, education, social status, etc.... The opposite of homophily is heterophily communication, where the individuals have different backgrounds and beliefs. This kind of communication is most typified by interaction between the change agent and the village farmer. Homophilous is more effective than heterophilous, but heterophilous usually occurs in communications about problems with innovations.

Homophilous communication can be a barrier though if the society is quite stratified and there is little interaction between status groups. Communication is extremely important in the diffusion process, and individuals rely much more on subjective evaluations of the innovation.

Based upon a person's receptivity to communication about an innovation, five categories have been developed for adopters. The first ones to adopt an innovation are the innovators, who are described as the venturesome type. Following the innovators come the early adopters, who are the respectable opinion leaders in the community. These persons tend to have a large number of interpersonal contacts, more exposure to mass media communication and a higher socioeconomic status. These are the kinds of people

that change agents want to snag, hoping that if the opinion leaders in the community accept the innovation, then the rest of the community will follow suit. The next category is the early adopters. This is when the idea of the innovation begins to catch on in a widespread manner. These adopters have been deliberating on the innovation for sometime. Then come the late majority of adopters who have been skeptical about the innovation. Finally are the laggards, these persons are typified as being more traditional and may not reap as much in benefits of using the innovation as those who adopted the innovation earlier.

Change agents have already been mentioned, but they have not been discussed in detail yet. Since they play a large role in the communication process this is an opportune time to discuss them. Change agents are those who actively seek to obtain adopters of an innovation. They are seen as the link between the change agency and the clients or potential adopters. Change agents are to develop a need for change in the client, and to translate this need for change into adoption of the innovation. They also establish an information exchange relationship with potential adopters. They are also to prevent discontinuance of use of the innovation as well. Change agents from the community have an attribute of safety credibility, which allows them to communicate

homophilously. These agents already have trust from the community built into them. These agents may not have competence credibility though, which a change agent who communicates in a heterophilous fashion may have. Overall, change agents do best in homophilous situations.

Time

Time is the third element in the diffusion process. The variable of time includes the duration it takes one to go through the innovation-decision process. Some will go through this process quicker than others, and several steps in this process can occur simultaneously. There are five steps in the innovation-decision process and they are summarized here: knowledge; persuasion; decision; implementation; and, confirmation.

In the knowledge stage, a person is exposed to the innovation's existence, and there are two kinds of questions that the potential adopter seeks answers to: software and hardware. Software questions about the innovation ask what is the innovation? or how does it work? Hardware questions ask how much to use? or when to use it? At this stage a person is seeking an idea that fulfills their needs or interests. A person cannot perceive an innovation until they see the relevance of it for their needs and interests.

In the persuasion stage of this process, one develops a

favorable or unfavorable attitude towards the innovation.

A favorable attitude does not necessarily imply the adoption of the innovation.

The decision stage is where the potential adopter accepts or rejects the innovation. Acceptance still does not mean full adoption of the innovation though. There are two kinds of rejection: passive and active. Active is where the innovation is experimented with and then rejected as not fitting for use. Passive is where the innovation is not considered for use at all.

Implementation involves the innovation being put to use and more information being sought on it. Re-invention or modification of the innovation may occur at this stage. The implementation stage is ended when the innovation is fully adopted and becomes part of regular use.

The confirmation stage is when the adopter seeks reinforcement for the decision made. The decision to adopt may be reversed if the adopter is exposed to conflicting messages.

Social system

The fourth and final element in the diffusion process is the social system. The social system is made up of individuals, informal groups, organizations or subsystems. Rogers defines a social system as "a set of interrelated units that are engaged in joint problem solving to

accomplish a common goal". The social system can slow or quicken the pace of diffusion through the set up of the communication system in it. Also the norms or behavior patterns in the social system may limit the adoption and diffusion of the innovation. The influence of the social system can be seen in the types of innovation-decisions made. There are optional innovation-decisions in which the decision is left up to the individual. There are collective decisions in which group consensus decides. There are also authority based decisions, where the few who have the power decide for the many. The final type is the contingent innovation-decision. This is a combination of two or more of the above.

The previously discussed four elements - innovation, communication, time and the social system - make up the adoption and diffusion process as the adoption perspective holds. Rogers sees the essence of the diffusion process as: "1) an innovation, 2) an individual or other unit that has knowledge of, or experience with using, the innovation, 3) another individual or other unit that does not yet have knowledge of the innovation, and 4) a communication channel connecting the two units."

As can be seen, this perspective of diffusion is quite developed and much of the attention is focused on the individual and their propensity to adopt an innovation.



The next step is to move on to a synopsis of a supply-oriented diffusion theory, the market and infrastructure perspective, of which Lawrence Brown claims to be the author.

Market and Infrastructure Perspective

The source for this perspective comes from Lawrence Brown's 1981 book, Innovation Diffusion: A New Perspective. In his essay, diffusion is defined as the following:

"...innovations do not appear immediately over the entire earth's surface once they are perfected. Some groups of people and some places have immediate access to the innovation, some gain later access and some never do. Accordingly, the distributional characteristics associated with innovations also are important for study. These characteristics change over time, rather than remaining static, and the process by which such change occurs, that is, by which innovations spread from one locale or one social group to another, is called diffusion."

An innovation is defined as "a new product, new technique, new practice or a new idea." While the adoption perspective is much more communicational based in its definition of diffusion, the market and infrastructure definition implies it, and both perspectives realize that the change that takes place is gradual. The basis of the market and infrastructure perspective is that the opportunity to adopt is unequal, and that individual

behavior does not adopt by free will, but more as choices within a constraint set, and government or institutions establish and control the constraint sets.

This perspective views the diffusion process as encompassing three activities:

- 1) the initial activity, which is the establishment of the diffusion agencies through which the innovation will be distributed;
- 2) the second activity, which is the strategy that is used to induce adoption that establishes the innovation; and
- 3) the third activity, which is the adoption of the innovation.

Brown does not discuss the third activity in his book, because he feels that adoption of the innovation is handled by other research on diffusion, such as the likes of Rogers' work. He focuses on the diffusion agency and what it can do to induce adoption.

The diffusion agency comes into the diffusion process in two aspects. The first aspect is the point of distribution, where the location and temporal sequencing determine when and where the innovation will be available. The second is the strategy used to promote adoption of the innovation.

Initial activity

The diffusion agencies are either profit or non-profit, private or publicly motivated. The focal point of this activity is the locus of decision-making in the agency. There are several kinds of decision-making structures. At one extreme there is the centralized decision-making unit, where one or a few persons make the decisions for the agency. Examples of decisions that would be made are determining the number of outlets, their size, location and other characteristics of the agency. At the other extreme is a decentralized decision-making structure without a coordinating propagator, where each agency is established independently by a differently motivated entity. In between these two decision-making structures is a large gap, covered by a decentralized decision-making structure with a coordinating propagator. In this setting, each agency is established by a differently motivated entity, but some aspects are controlled by the propagator. The coordinating propagator influences the diffusion pattern, but does not determine it. There are many variations of this decision-making structure.

Costs are a determining factor in how an agency will decide to diffuse. An existing network can be used, or a new one can be created. In a profit-motivated diffusion under a centralized decision-making structure, the central

propagator carries the burdens of risk, capital and decision-making responsibility. In a decentralized structure, the local entity carries these burdens. In a non-profit motivated setting though, a determining factor is maximizing the services from the budget. Quite often a cost-benefit standard is used as a tool to help in ascertaining the effectiveness of the service provided, and how to make it more effective.

Once a diffusion agency is established it then becomes the conveyor for the innovation in the vicinity. Just because an agency for diffusion has been established in an area does not automatically mean that the innovation will be adopted. A strategy is used to impel individuals to adopt it. In a centralized decision-making structure, the strategy will remain the same for the whole organization most likely. In a decentralized decision-making structure without a coordinating propagator, the strategy may vary from agency to agency. With a coordinating propagator, the strategy may be the same throughout the organization or not, depending on the organizational set up.

Second activity

The strategy package that is developed to promote the innovation consists of four elements. These elements are listed below and are then discussed in the following:

1. development of infrastructure and

- organizational capabilities;
2. price;
 3. promotional communications; and,
 4. market selection and segmentation.

Infrastructure and organizational capabilities The diffusion agency may develop its own infrastructure and organizational capabilities or it might use the existing infrastructure of other private and public entities. The existing infrastructure may have been developed for the diffusion of a specific innovation and later made available to others; or it may be developed as an innovation in its own right; or it may be something available to all.

Price The diffusion agency does have control over the price charged for the innovation, and it is usually the case, that the higher the price is for the innovation, the lower the adoption rate. Private profit motivated agencies when looking at what price to charge, will choose a price that will give them the maximum earnings; while non-profit or public agencies may choose a price to minimize costs.

There are different types of prices that can be charged as well. If the price charged is uniform at the outlet, then the adopter assumes the costs of transportation to the outlet. This pricing policy tends to have adoption of the innovation in the area around the outlet, and less and less the farther away from the outlet. If a uniform delivered

price is charged, or a distance related price, then adoption of the innovation tends to be constrained by the infrastructure.

Promotional communications These provide the potential adopters with information on the innovation. The channel, source, content and motivation of this information affects the diffusion pattern. The channel can be either personal or impersonal. Personal promotional communication is much more effective, but impersonal can reach more people. The source of the information may come directly from the diffusion agency, a type of marketing agency, or from the potential adopter's social system. The content of the information can be promotional, neutral or counter-promotional. Finally, what is the motivation in initiating the information? Is it the potential adopter or is it the diffusion agency?

Market segmentation and selection This involves breaking up the potential adopters into smaller homogeneous groups based on common characteristics, and then developing a tailor made strategy for each subgroup for pricing, infrastructure development and promotional communications. Brown identifies three different segmentation strategies. The first is an undifferentiated marketing strategy. This has the same strategy for all subgroups and focuses on what is common between them. The second is a differentiated

marketing strategy, where the diffusion agency operates in all or several subgroups, but has a separate marketing strategy for each. The third is concentrated marketing, in which the diffusion agency works with one large or a few subgroups. The more the subgroups and strategies, the greater the effectiveness of the promotional effort. However, this is also much more expensive, and many public agencies cannot afford to do this with their limited budgets.

Eventhough Brown divides the market and infrastructure perspective into several activities, they are all interrelated, and they may not occur in the order as presented. These elements are all interdependent and integrated into one strategy package.

Summary

Diffusion theories are used by many academic areas. Typically, the rate of diffusion is represented in a mathematical formula and in the logistics S-curve. Diffusion theories have been used to explain how rapidly a new technique will be adopted, for forecasting, the technological substitution process, the information transfer process, for a learning perspective, and for supply and demand processes in the economic context. This list is by no means conclusive, but gives a good background

of the various uses of adoption and diffusion theories.

The two adoption and diffusion theories used for this study is the adoption perspective represented by Everett Rogers' work. The adoption perspective focuses on the demand approach of diffusion in a communication context, where the main elements are innovation, communication channels, time and the social system. The market and infrastructure perspective is a supply approach to adoption and diffusion. This approach focuses on the establishment of the diffusion agency and the strategy it uses to induce adoption of the innovation. Both of these theories are complementary to each other, one concentrating on the individual, the other concentrating on the diffusion agency.

The following chapter will discuss Thailand and the attributes of the nation that directly affect the fertility rate. Then the real world occurrence in Thailand will be applied to the two theories discussed in this chapter.

CHAPTER III: THAILAND

Characteristics of Thailand

Thailand is a nation about the size of Texas in Southeast Asia, with a tropical climate (See map on following page). It is bordered by Cambodia to the east, Laos to the north and northeast, Burma to the north and west, and Malaysia to the south. The capital is Bangkok with an estimated population in 1980 of 4,967,071. The next largest city in terms of population is Chiang Mai at 101,595. The nation is broken into four geographical regions: the central plains, which is dominated by the nation's largest river the Chao Praya; the south, which covers much of the Malay peninsula; the north, which is mountainous, and; the northeast, or Khorat Plateau which contains the poorest soil and people. The government is termed a constitutional monarchy, but in actuality it is a military dictatorship currently led by Prime Minister General Prem Tinsulanonda. The nation is divided into 73 provinces, and each province is then divided into a number of districts. Each district is divided into a number of townships, which in turn is made up of several villages. In terms of ethnic composition, 75% of the nation is Thai. Another 14% are Chinese, of which many are located in Bangkok making up 33% of the nation's capital Chinese. The



Figure 2. Map of Thailand

other 11% are made up of Thai Malays and Hill Tribe people. It is still considered a fairly homogeneous nation. Approximately 95.5% of the nation is Buddhist of the Theravada form. Another 4% are Muslim. For 90% of the nation, the native language is Thai. A unique experience of Thailand for a Third World nation is that it has never been a colony (Kurian, 1987). A recent estimate of Thailand's population is 52,094,000 persons, with 17% of the population classified as urban (United Nations Demographic Yearbook, 1986). The economy is classified as one of the 39 lower middle-income nations of the world, with a free-market economy (Kurian, 1987). However, an Agency for International Development (AID) report in 1985 listed the nation as on the verge of entering into the "middle-income" country status (USAID Field Mission, 1985). Much of the nation's economy is dominated by agriculture. It is the world's main exporter of rice (The Europa Year Book, 1988). In 1980, of the population over the age of 15 years, 12% were illiterate, and this is broken down into 7.7% of the male population and 16% of the female population (UNESCO, 1987).

Population Growth

The earliest population estimate for Thailand was in 1668. It was performed by La Loubere, who did not include

old men, women, children, slaves, and those who fled into the forests to escape forced labor. Nevertheless the population was cited at 1,900,000 persons (Thompson, 1941).

By 1700, the population of Thailand was estimated at 4,000,000 and 6,000,000 toward the end of the nineteenth century (Donner, 1978).

In 1911, the first official census was taken. The total count was 8,266,408 persons. Approximately every ten years afterwards, a census occurred (ESCAP, 1976). The table below displays the population growth through 1970.

Table 1. Population growth of Thailand from 1911-1970^a

<u>Year</u>	<u>Population</u>	<u>Annual Growth Rate</u>
1911	8,266,408	-----
1919	9,207,355	1.4%
1929	11,506,207	2.3%
1937	14,464,105	2.9%
1947	17,442,689	1.9%
1960	26,257,916	3.2%
1970	34,397,374	2.7%

^aESCAP, 1976.

Since the 1940s, it is obvious that the nation has grown by leaps and bounds. The National Family Planning Program (NFPP) was instituted in 1970 and growth has slowed since then. The table on the following page summarizes growth taking place since 1977.

Table 2. Population growth and annual percentage increase in Thailand from 1977-1986^a

<u>Year</u>	<u>Population</u>	<u>Annual Growth Rate</u>
1977	44,039,000	----
1978	45,100,000	2.4%
1979	46,142,000	2.3%
1980	46,455,000	0.6%
1981	47,488,000	2.2%
1982	48,490,000	2.1%
1983	49,459,000	2.0%
1984	50,396,000	1.8%
1985	51,301,000	1.8%
1986	52,094,000	1.5%

^aUnited Nations Demographic Yearbook, 1986.

The above are estimates except for 1980, when the last census was taken. Population estimates of the nation will vary from source to source. Thailand increased by 8 million persons from 1960 to 1970, and another 12 million by 1980, but since 1980 growth has definitely slowed, and much of the reason is due to contraceptive usage. From 1969 to 1984, contraceptive use increased from 15% to 65% among married women ages 15-44 years. Total fertility rates had dropped from an average of six children per woman to a little over 3 children per woman in this time frame. A survey in 1987 was conducted, and as a result the total fertility rate was estimated at 2.4 children per woman, meaning Thailand could be close to the replacement level of 2.1 children per woman (Mary Kent, 1988).

History of Family Planning in Thailand

In the 1940s and 1950s, the government of Thailand was pronatalist. In 1942 the prime minister urged that the nation needed a population of at least 100 million to make the country a great power. During WWII the Ministry of Public Health (MOPH) appointed a Wedding Promotion Committee to encourage and increase early marriages. The slogan was "Get married young and make the nation prosper". In 1956, an act entitled "Welfare of Persons with Numerous Offsprings" was authorized which gave bonuses to large families (ESCAP, 1976).

Between 1947-1960 there was a rapid decline in mortality rates and the average annual growth rate was 3.2%, one of the highest in the world. A World Bank Mission pointed out the consequences of this growth to the government, such as shortages in schools, public services, living accommodations. The government was advised to limit the family size through dissemination of information about birth control techniques (ESCAP, 1976).

Throughout much of the 1960s the government had no official policy towards fertility control, but several persons in key places became active in it. In 1962 the MOPH rescinded the law prohibiting women with fewer than five children from being sterilized. The government also

held three national population seminars and the effects of rapid population growth on economic development (ESCAP, 1976).

In August of 1964 an IUD insertion clinic was setup in Potharam District, which is a rural area about an hour drive from Bangkok. At that time the district had a population of approximately 73,000 persons. Midwives were the main instrument for spreading the word about IUD's. Information about contraceptives was to be provided to women who already had children (ESCAP, 1976). By August 1965, 86% of the people in the district knew about the program, 44% had had direct contact with the program, and 91% felt that the program should be extended to the rest of the nation. The effectiveness in information sharing is seen in the following contrast. In 1964, 64% had no knowledge of contraceptive methods and by 1965 only 12% had no knowledge of contraceptives. In 1964 only 1% of the populace were using contraceptives. By 1965 however, 21% were using contraceptives (Hawley and Prachuabmoh, 1966). The numbers of new acceptors were impressive, but the majority of women were still coming in of their own accord (Hemachudha, Asavasena, Varakamin and Rosenfield, 1971). In fact, the average acceptor had four years or less of education. The majority of women did not want any more children than the ones already had (Vimuktanon and

Rosenfield, 1971).

In 1966, the government began distributing contraceptives. This took place in four large hospitals in Bangkok and a few clinics in two northeastern provinces. Advertising of the contraceptive distribution was not allowed, so the information had to spread by word of mouth. The greatest success came from Chulalongkorn Medical School which gained fame for operating the world's largest IUD insertion clinic of patients served. Women from 64 of the 71 provinces at the time came to the clinic (ESCAP, 1976). In more than one year, more than 12,000 women received IUD insertions from this clinic. It was the first time that a public hospital offered a free reversible method of contraception, that had heretofore been virtually unknown in the nation. Even uneducated women were coming to the clinic for IUD insertions. Uneducated women are generally believed to be the last or most reluctant to use contraceptives (Fawcett and Somboonsuk, 1969). By 1967 it was estimated that 5% of women or 4 million from the ages of 20-44 were practicing birth control (Smith, Bernier, Bunge, Rintz, Shinn and Teleki, 1968).

The commercial sector was also important. Many women were seeking contraceptives on their own, prior to any government sponsorship of distribution of them. In 1964, 432,000 cycles of oral contraceptives were purchased, and

by 1966, 1,639,000 cycles were sold. Commercial distribution of oral contraceptives made up 43% of modern contraceptives used in 1969 (Fawcett, Perkin and Rosenfield, 1969). The Thai people were taking the initiative on their own for family planning. Between 1964-1975 the level of contraceptive distribution in the public sector rose eight-fold. Approximately one third of the users received their supplies from the private sector according to surveys in the 1970s (Cleland, Little and Pitaktepsombati, 1979).

In 1968 the National Family Planning Program (NFP) was established within the MOPH (ESCAP, 1976). In March 1970, the Royal Thai Government (RTG) adopted an official policy of promoting birth control. An objective was set to bring down the growth rate from 3.0 to 2.5% by the end of the next plan period (ESCAP, 1976). The policy stated, 'It is the policy of the Thai government to support voluntary family planning in order to help to resolve various problems related to the very high rate of population growth, which constitutes an obstacle to the economic and social development of Thailand'. In this early stage, there were only 250 clinics and hospitals offering family planning services (USAID, 1975).

From 1969-1975, contraceptive use nearly trebled. In 1969 it was estimated at 14%, in 1973 at 26%, and in 1975 at 37%. In a survey conducted in 1975, 96% of the women

interviewed had heard of at least one efficient method of birth control. Less than 1/2 of 1% had only heard about an inefficient method (Cleland, Little and Pitaktepsombati, 1979).

The Third National Economic and Social Development Plan (1972-1976) was the first to include anything on a population policy. The objectives for family planning were: to reduce the population growth rate from 3% to 2.5% by the end of 1976; to inform women about the concepts of family planning and to motivate use; to make family planning services readily available; and, to integrate family planning services within overall maternal and child health services (ESCAP, 1976).

The basic organization of the NFPP structure was to have a midwifery center at the village level. At the next higher level, the tambon, was to have a health center staffed by a nurse and a junior sanitarian. The district level was to have a six to eight bed hospital staffed with a doctor, and the next highest level was the provincial hospital. There was no set date for this infrastructure to be in place; this was just a goal outlined for the infrastructure (ESCAP, 1976). At the end of the Third Five-Year Plan the actual growth rate achieved was 2.6% per annum, but the program was still considered a success (Fourth Five-Year Plan, 1982).

The Fourth Five-Year Plan (1977-1981) set a goal of reducing the growth rate to 2.1% by 1981. To accomplish this goal, more education on population had to be provided in order to broaden the distribution of services and reach the rural and remote areas, and to train more personnel and work with private organizations (Fourth Five-Year Plan, 1982). By the early 1980's the growth rate had decreased to 2.2%. Fully half the people in the nation were under the age of 20, but there was a remarkable decline in the growth of the youngest age groups. The median age rose from 17.1 years in 1970, to 19.5 in 1980 (Wyatt, 1982).

The objective of the Fifth Five-Year Plan (1982-1986) was to reduce the growth rate to 1.5% by 1986. A tax reduction for single people was also called for, as well as the abolition of taxes on the importation of family planning equipment. It was also stated that it was a goal to have the NFPP infrastructure in place as stated in the Third Five-Year Plan (Fifth Five-Year Plan, 1982).

As of 1984, the growth rate had decreased to 1.6%, which is very close to the 1986 goal of 1.5%. Also as of 1984, the MOPH was operating 73 Provincial Health Offices, 89 Provincial Hospitals, and 8 Maternal and Child Health Centers and sub-centers in 73 provinces. At the district level, there were 470 District Community Hospitals and 611 District Health Offices for a total of 611 districts. At

the tambon level there were 7,169 Tambon Health Centers out of a total of 6,084 tambons (USAID/Thai Evaluation Team, 1984).

A report in 1988 stated that the level of contraceptive use was 65.5% of married women ages 15-49. The most popular methods are sterilization (29%), the pill (19%), and injections (9%) for women of reproductive ages. Traditional methods such as withdrawal and abstinence are used by less than 2% (Mary Kent, 1988). A goal for the future is to achieve a growth rate of 1.2% by 1991 (USAID/Thai Evaluation Team, 1984).

This discussion should demonstrate the commitment of the RTG to family planning, and the willingness of the Thai people to respond to it. These are critical for successful family planning programs and for decreasing fertility rates.

Private Organizations' Efforts in Family Planning

Besides the RTG's promoting of family planning, there are several private organizations in Thailand that also work on behalf of family planning. Some of the major organizations are Planned Parenthood Association of Thailand (PPAT), which focuses on providing information and educating the public about contraceptives; the Thai Association for Voluntary Sterilization (TAVS), which as

the name indicates works to increase the number of people sterilized; the Association for Strengthening Information on National Family Planning Program (ASIN), which also works to inform the public about contraceptives; and, the one considered the most effective of these private organizations, the Population and Community Development Association (PCDA), or also known as Community-Based Family Planning Services (CBFPS). These organizations all work closely with one another and with the government. Each tries to focus on an area that the government program seems weak in. CBFPS has developed quite a reputation in Thailand and around the world, so this organization is discussed in more detail here (Krannich and Krannich, 1980 and USAID, 1985).

CBFPS was formed in 1974 as an arm of the PCDA, by Mechai Viravaidya. Previously Mr. Viravaidya had been secretary-general of PPAT, and had been an economist for the National Economic and Social Development Board. CBFPS is a private non-profit organization and was originally supported with a grant from the International Planned Parenthood Federation (David, 1982). Later it was supported with grants from the RTG and Agency for International Development (AID) (Carlson and Potts, 1979). By 1978 CBFPS employed 300 staff workers, 160 of these were field supervisors, and had trained local volunteers for

12,236 villages. This covered approximately 14 million people, or 33% of the villages in Thailand. At that time the RTG's family planning efforts only covered 3.7% of the villages. In the organization's first two years of operation, it has been responsible for recruiting between 6 and 8 million family planning acceptors. The village volunteers are coffee and food shopkeepers, grocers, teachers and farmers. These people are responsible for distributing condoms and birth control pills, and for making referrals to government hospitals for people who seek sterilization or IUDs for methods of birth control (Krannich and Krannich, 1980 and Chen and Farley, 1981).

CBFPS has a unique way of promoting family planning. There are promotional t-shirts, family planning games and calendars, bikini panties, slogans, songs and cassettes that carry messages of family planning (Krannich and Krannich, 1980). Mobile clinics are also set up for vasectomy fairs on national holidays, and at one such fair in 1983, 1,190 vasectomies were performed (Hulse and Viravaidya, 1985).

CBFPS goes beyond family planning also. It is a community-based program which feels that farmers do not need to be motivated and educated, that they are already rationale beings. Nevertheless they do offer inducements to farmers. Free stud service for pigs and special bank

loans are given to those who accept family planning (Krannich and Krannich, 1980). An example of a CBFPS program is a village is encouraged to accept the family planning program, then invest in a pair of water buffalo. Village distributors are responsible for the animals. Registered family planning users are then allowed to rent the buffalo at half the price of unregistered users. This shows how fertility management and self sustaining management can be combined (David, 1982).

Below is a table displaying the percentages of new family planning acceptors from 1974 to 1984, divided into the categories of Ministry of Public Health (MOPH), CBFPS and Others. In the total column is the total number of family planning acceptors. It does look as if CBFPS's share of acceptors is declining, but the service area has

Table 3. Percentages of new family planning acceptors by organization 1974-1984^a

<u>Year</u>	<u>MOPH</u>	<u>CBFPS</u>	<u>Other</u>	<u>TOTAL</u>
1974	83.3	4.6	12.1	494,479
1976	80.5	10.4	9.1	627,239
1978	75.8	9.3	16.9	812,055
1980	75.7	9.3	15.0	965,083
1982	81.8	11.7	6.5	895,089
1984	96.0	4.0	*	1,198,764

^aHulse and Viravaidya, 1985.

*Others included in MOPH.

not been expanded since 1978, and many of the districts served have virtually reached their ceiling level of acceptance (Hulse and Viravaidya, 1985). Nevertheless, the government's number of acceptors continues to increase as they also have expanded their efforts to the countryside as well.

The NFPP has worked closely with the private sector. Only 20% of family planning acceptors are attributed to the private sector's efforts, actually the figure is much higher even by government measurements. The private sector is very active in motivating people and referring them to the NFPP (USAID/Thai Evaluation Team, 1984).

Women and Cultural Factors in Thailand

Many major methods of contraception focus on use by women. Major methods are sterilization (for women and men), intrauterine devices (IUD's), barrier devices, vaginal spermicides, coitus interruptus, periodic abstinence and postcoital douches. Research is taking place on more methods as well. It is hoped that by the year 2000 there will be an antifertility vaccine for men, antisperm and antisperm maturation drugs for men (Office of Technology Assessment, 1982). Only sterilization, condoms, and coitus interruptus are methods available for men at this time. Since many methods of contraception focus on

women there are special concerns that women have about these methods. Criteria that women use for acceptability are the following: personal - what method do they prefer; husband - what method does he prefer; cultural - what method is accepted in the culture; religious - what method does the religion permit; sexual libido - the method that will fit their sexual activity the best; supply requirements - how accessible is the method; economic - cost of method; political - what is the government promoting; philosophical - their views on family planning; convenience - is the method difficult to use; and, available medical support for treating side effects. In studies it has been shown that fertility rates are one third to one fourth higher than that desired by women (Office of Technology Assessment, 1982).

Other factors that have an important impact on fertility rates include: educational level; economic development; family size preferences; age at marriage; prevalence of breastfeeding and induced abortions; and use of contraceptives (Office of Technology Assessment, 1982).

The educational level of the Thai people was discussed earlier. The first seven years of education is compulsory. In 1970, of the population 15 years and older, 21.4% were illiterate. Only 12.8% of the male population was illiterate and 29.7% of the female

population. By 1980 literacy had increased. Only 12% of the population was illiterate, and of the male population, 7.7% were illiterate and 16% of the female population (UNESCO, 1987). The male population has an edge over the females in literacy rates, but obviously great strides are being made to educate all Thai people.

An aspect listed as to why in part the Thai family planning program has been successful is that women play an active and independent role in life and are partners with men in decisions about the family (USAID, 1979). The status of women in Thai society is considered higher than many other women in developing countries in comparison. In a 1969 survey, 73% of women ages 15 years and over were in the labor force. Approximately 82% of these women were in agriculture. Women also run businesses, become doctors and teachers, and vote and attend village governmental meetings (USAID, 1975). Thai women generally control family finances. In urban areas, it is not uncommon for women to work as independent vendors before and after marriage. Most Thai women are involved in unpaid family work. Prior to 1980 in the nation as a whole, 70% of the women were employed as unpaid family workers in the principal family occupation. In the urban areas this number differs and only 22% worked as unpaid family workers (Knodel, Chamratrithirong and Debaalya, 1987). In a 1977 study,

women were 44% of the work force. The proportion of males and females employed in manufacturing, commerce, services and agriculture are about equal. Exceptions are in mining, construction, public utilities and transportation. In a 1980 survey of Thai industries, 38% of managers were women. There are "No legal barriers to women rising in any business, in any sector" (USAID, 1985). However, there is still much discrimination against women throughout the world, and certainly Thailand is no exception to this. The above attributes mentioned are considered to be facilitators of adoption of contraceptive use in Thailand.

In Thai society, parents desire to have children of both sexes, but for different reasons. Sons are preferred because only a son can become a monk, which is believed to bring much merit to the parents. Daughters are equally important, for when a girl marries, the first couple of years she and her husband reside with her parents before striking out on their own, which brings an extra hand into the household for work in the fields in the form of the son-in-law. Also the youngest daughter and her husband reside with the parents and take care of them until they pass away. Then they inherit the house. Men generally prefer sons over daughters, but it is a moderate preference. There is a clear desire to have at least one child of each sex (Knodel, Chamratrithirong and Debavalya,

1987).

The number of children desired is another factor, and this has also been declining in Thailand. In a 1969/70 survey, the number of children desired as a whole for the nation for each family was 3.8. For women married less than five years the average was 3.2. In 1984 a study was conducted again and the number of children desired had decreased to 3.0 children, and for women married less than five years it was 2.4 (Knodel, Chamrattrithirong and Debaalya, 1987). These studies show that women desire to have less children although this may not be possible.

Throughout the nation as a whole there is a perception of a fertility decline, and it appears to have everyone's blessing. Smaller families are desired, because of the perception of increasing expenses for children. Parents feel that it is better to give a better quality of life to a few children than to have many children. The perception that the socioeconomic environment makes parents want fewer children is new to Thailand, but neither old or young disagree with having fewer children (Knodel, Chamrattrithirong and Debaalya, 1987).

Age and age at marriage are also factors in determining fertility rates. The older a woman is at age of marriage, the fewer the number of years in which to have children. The following table shows how the mean age at marriage has

risen slightly in Thailand, and there is speculation that this is part of a trend.

Table 4. Mean age at marriage^a

	<u>1960</u>	<u>1970</u>	<u>1980</u>
F	21.6	22.0	22.7
M	24.5	24.7	24.9

^aKnodel, Chamratrithirong and Debaalya, 1987.

Abortion as an option for fertility control is generally opposed in Thailand. Abortion is opposed on religious grounds because it is viewed as taking a life. Thai Buddhism does not block the use of contraceptives, or a reduced family size. There are no scriptural prohibitions against contraception, nor is Buddhism antinatalist. In fact, Buddhist ideology as popularly perceived in Thailand can be seen as a contributing to flexibility and tolerance in Thai culture. Interference in the affairs of others is thought to be inappropriate, so Buddhist culture contributes to the relative ease with which modern tastes, attitudes and behavior such as changing reproductive patterns, can be adopted with minimal social pressures (Knodel, Chamratrithirong and Debaalya, 1987).

This preceding discussion is to give a general background on Thailand, how the family planning program

evolved, its historical growth, and attributes of Thai culture that make adoption of contraceptives easier. It is now possible to move onto an application of adoption theories discussed in the previous chapter to the Thai experience.

CHAPTER IV. ANALYSIS

Previously, Thailand and its unique cultural characteristics that affect its family planning program were reviewed, and the two theories of adoption and diffusion for this study, were also. In this chapter it is the intent to demonstrate how the government sponsored NFPP followed the adoption perspective of adoption and diffusion, the demand approach, and how the private sector CBFPS followed the market and infrastructure perspective, or the supply approach. Throughout this discourse, it must be noted, that one may see attributes of the supply approach in the NFPP, and attributes of the demand approach in CBFPS, but these are not the main paths each followed. Overlapping occurs often in the real world. Again the two diffusion approaches are outlined, but this time each is shown with an example of what actually happened or is happening in Thailand.

NFPP and the Adoption Perspective

In the demand approach of adoption and diffusion, as described by Everett Rogers, there are four elements of diffusion: innovation; communication; time; and, the social system.

The innovation

An innovation is an idea, practice, or object that is perceived as new. In this particular case, the contraceptive is the innovation in family planning in terms of an object and practice. The five attributes of the innovation are relative advantage, compatibility, complexity, triability and observability.

The perceived relative advantage of using contraceptives is that parents will want fewer children than before (Knodel, Chamrattrithirong and Debaalya, 1987). The results of a 1984 Contraceptive Prevalence Survey showed that the ideal family size was considered 3.0 children, and that 64.2% of married women in reproductive ages wanted no more children (Chamrattrithirong, Kamnuansilpa and Knodel, 1986), so using contraceptives would help the parents attain their desired family size.

The second attribute is compatibility of using contraceptives with the values and norms of the social system. The religion in any society is a major component of the culture. The Buddhist religion in Thailand, does not speak at all as to whether parents should have a large or small family. In fact, to do things for the good of the family is very important, so this would imply taking care of those already born. Another value that some cultures hold, is that the husband prove his virility through

fathering many children. This value does not hold true in Thailand. Men there, face little pressure of proving their virility by having many children (Ling, 1969). There are other ways for a man to prove his virility. There are also several different kinds of contraceptives offered: pills; intrauterine devices; injections; condoms, and; male and female sterilizations. With the exceptions of condoms and male sterilization, these methods of birth control all focus on use by women. With this variety of methods offered, women can choose which method would be most compatible with their personal wishes.

The third attribute is complexity, which is the relative difficulty of understanding and using the innovation. The NFPP trained midwives and auxiliary midwives to dispense oral contraceptives. The midwives were given a simple questionnaire of 18 questions to ask the patient. If the patient answered yes to any of the questions, then the patient was to see a doctor first for the proper contraceptive prescription (Rosenfield, 1971 and Rosenfield and Limcharoen, 1972). This gave much easier access to contraceptives and a ready information source about them for the general public in the villages.

The fourth attribute is trialability. With the exception of sterilization, all other methods of contraception are reversible. So in case a particular

method is incompatible as far as health reasons or personal preference for a woman, there are other methods to try. For men the only modern methods of contraception are sterilization or condoms. That may change in the future with advances in medical research.

The final attribute is observability, where results of use of the innovation are seen by others. One may notice parents having fewer children, but also close friends and relatives may discuss the issue, and information as to the effectiveness of the contraceptive method may be exchanged.

Communication

As mentioned earlier, there are two types of communication; mass media and interpersonal communication. The NFPP besides using the modes of radio and television, also organized mobile units to go from village to village presenting their visual aids and films on birth control to inform the public about family planning and to encourage use of contraceptives. Under the Fourth Five-Year Plan 40 mobile units promoting family planning services were organized, and 45 mobile planning service units were established (Fourth Five-Year Plan, 1977). At these film showings by the promotional mobile family planning service units, regular entertainment films were also shown to attract a wider audience (Rosenfield, Asavasena and Mikhanorn, 1973). In 1981, this author witnessed the

presentation of these films and felt the overall quality was good. Medical personnel were on hand to answer any questions if needed.

Interpersonal communication covers homophily, that is communication between those of similar background beliefs, education, and social status; and heterophily relations, those between persons of different backgrounds, education and social status. Heterophily communication would be covered by a doctor or a nurse discussing family planning with a patient. Homophily communication is considered the most effective though. An example of this is a midwife or auxillary midwife discussing family planning with a community resident. Midwives and auxillary midwives live in the community and have the built in trust of the community members. This type of communication also occurs from friend to friend, and relative to relative. A prime example of this happening is the Chulalongkorn experience in inserting IUD's in 1966. Twelve thousand women from all over the nation came to Bangkok for this, and at this time no advertising of the facility was allowed, so news of this facility had to spread by word of mouth (ESCAP, 1976). Nowadays, it also seems that children are learning about family planning from their parents as well. One young man learned about it by picking up the birth control pills for his mother. She explained to him what the pills would do

for her (Knodel, Chamrattrithirong and Debaalya, 1987).

Time

The time element involves the duration it takes one to go through the innovation-decision process. As summarized earlier the steps in this process are; knowledge, persuasion, decision, implementation, and confirmation. Knowledge of family planning was disseminated through the various communication channels of mass media and interpersonal. Mass media includes the likes of radio, television, newpapers and mobile units. Interpersonal communication through homophily such as friends and midwives, and heterophily such as doctor and nurse discussions with potential family planning users. Persuasion could occur through heterophily and homophily avenues as discussed previously. The individual was then allowed to decide whether or not to adopt a family planning method. The contraceptive was provided in the implementation stage through midwives, clinics or hospitals, and the individual allowed to try it. A positive confirmation of this whole process is the continued increasing number of new family planning acceptors in Thailand. On the following page is a table presenting the number of new family planning acceptors for the years 1965-1985.

Table 5: Number of new clients (in 1,000's) in Thailand's National Family Planning Program, 1965-1985^{a,b}

<u>Year</u>	<u>Total</u>	<u>Year</u>	<u>Total</u>
1965-67	129	1976	665
1968	57	1977	830
1969	130	1978	941
1970	225	1979	1,040
1971	405	1980	1,121
1972	457	1981	1,126
1973	422	1982	1,116
1974	495	1983	1,183
1975	562	1984	1,316
		1985	1,420

^aKnodel, Chamratrithirong and Debaalya, 1987.

^bA side note is that the number of new family planning acceptors may vary from source to source, but the numbers are close and the trend is an increase.

Social System

The organization of the social system influences what kind of innovation-decision occurs. There are four kinds of innovation-decisions in social system: the optional innovation-decision, where the decision to adopt or not is the individual's; the collective innovation-decision, in which the group consensus decides whether to adopt or not; the authority based innovation-decision, where the power holders decide for the people, and; the contingent innovation-decision, which is a combination of two or more of those previously listed. In Thailand the innovation-decision of whether or not to adopt family planning

practices is left up to the individual, therefore it is an optional innovation-decision process.

In the adoption and diffusion process, cultural traits of the social system may impede the diffusion process. ✓

Some factors that have an impact on fertility rates are the following: education; socioeconomic development; family size preference, and; age at marriage (Office of Technology Assessment, 1982). Educational levels, socioeconomic development levels and age at marriage have an inverse relationship with fertility levels. Family size preferences have a direct relationship with fertility levels. As stated in Chapter 3, in 1980 the percent of the population over the age of 15 years that was literate was 88%. The percentage of males that was literate was 92.3%, and for females was 84% (UNESCO, 1987). In comparison with other developing nations this is a relatively high literacy rate. Thailand is also a nation on the verge of entering "middle-income" country status (USAID Field Mission, 1985). So the socioeconomic level of the nation is rising. The mean age at marriage in Thailand for women is 22.7 years of age, and 24.9 years for men (Knodel, Chamrattrithirong and Debaalya, 1987). According to a 1985 study the ideal family size was considered 3.0 children (Kamnuansilpa and Chamrattrithirong, 1985). The above traits of the Thai society, have helped the diffusion process along.

Another factor to consider is the status of women. In Thailand women play an active and independent role in life, and are partners with men on decisions about the family (USAID, 1979). As noted earlier in the previous chapter, women are also in the work force in large numbers and there are no laws discriminating against women. Due to the status of women in Thailand, this also makes adoption of family planning easier. Also remarked earlier, the Buddhist religion poses no opposition to family planning either (Ling, 1969).

This concludes the discussion of the NFPP's work in diffusing contraceptives in the Thai society. The following discourse compares the CBFPS approach to diffusing contraceptives against the market and infrastructure perspective.

CBFPS and the Market and Infrastructure Perspective

As stated earlier, this perspective as developed by Lawrence Brown is a supply approach to diffusing an innovation. The three activities that make up this approach are the following: the initial activity, which is the diffusion agency establishment; the second activity, which is the diffusion agency strategy, and; the third activity is the adoption and diffusion of the innovation. CBFPS is oriented towards this program because it believes

in an integrated community development idea that assumes that communities are capable of perceiving and solving their own fertility problems, given that guidance and motivation are provided (David, 1982). An example of how the organization works in the rural setting, beyond the village distributor is the following. CBFPS uses a slogan that urges couples to space their births - "space your next pregnancy with a pig". This is an apt promotional slogan, for the time it takes to raise a pig is a nice period to give the woman to recover from birthing. In this case, the acceptor of family planning receives a 15 kilo, two month old piglet. The piglet is to be fattened to 90 kilos, which takes 8 to 9 months. After maturation of the piglet, CBFPS assumes responsibility for transportation and marketing of the hog, and then shares the profits with the acceptor. If a woman becomes pregnant, there is no punishment, but it makes it much harder for the family to receive a pig again in the future. This specific program was begun in August 1978, and by the end of 1981, no contract raiser had become pregnant (David, 1982). This is a prime illustration of an organization setting constraints on people and inducing them to use family planning methods.

Initial activity

In the establishment of the diffusion agency, it can be either a profit or non-profit, private or publicly

motivated organization. In the case of CBFPS it is a private non-profit organization. Since CBFPS has an organizational structure where the village distributor, who is a volunteer, is responsible for selling contraceptives and promoting them to the community. District field supervisors are responsible for motivating the village distributors and communities. On the average there are about 72 village distributors per district field supervisor. The district field supervisor spends an average of 7-18 days on the road travelling each month, resupplying and working with the village distributor. The field supervisor is overseen by a field officer. There are four district field supervisors per field officer. The field officers are lead by a unit head, and there is one unit head for each of the four regions of the nation (Carlson and Potts, 1979). There are three decision-making structures that Brown outlines in his perspective. There is the centralized decision-making structure in which the top echelon of the organization makes the decisions for the agency. The opposite of this is the decentralized decision-making structure, in which each diffusion agency outlet makes its own decisions and is established by a different entity. In between these two, is a broad area where lies the decentralized decision-making structure with a coordinating propagator. Some aspect or aspects of the

organization are controlled by the propagator, but each agency is established by a different motivated entity. CBFPS closely approximates the decentralized decision-making structure with a coordinating propagator, since the main agency influences the propagator or village distributor through the district field officer, but each village distributor is motivated to work for the program by their own personal desires. CBFPS was also invited into some districts by the local district health officer or the governor of the province (Hulse and Viravaidya, 1985).

Second activity

This is where the strategy of diffusing the innovation is set up. This strategy consists of four elements: development of infrastructure and organizational capabilities; price; promotional communications, and; market selection and segmentation.

CBFPS has developed its organization to reach out to the organization of village coffee shopkeepers and grocers. It also utilizes the Teachers Council Medical Center, the Communicable Disease Control Department of the MOPH, the National Housing Authority, industrial organizations, and taxi cooperatives. The Teachers Council Medical Center gives summer refresher courses to teachers from all over the country who come to Bangkok. Teachers are targeted as family planning acceptors and propagators. Over 210,000

teachers have been trained and over 3,600 have been selected as village distributors. The program for industrial organizations is conducted in cooperation with the Labor Department. Personnel from factories have been trained by CBFPS to motivate their co-workers to use family planning and promote medical check-ups. In the Communicable Disease Control Department, malaria agents are also trained for contraceptive distribution and basic family planning methodologies. With the cooperation of the National Housing Authority, CBFPS focuses on the urban poor who might be overlooked by the government's family planning program (Hulse and Viravaidya, 1985). In CBFPS' work here, they are utilizing networks set up by other organizations.

The pricing policy that CBFPS uses is a uniform price at the outlet where the adopter assumes cost of the transportation. However, the cost of transportation is not too great, since the organization operates in only 160 districts (USAID, 1982). The price is subsidized by the organization so contraceptives are cheaper than if bought at a pharmacy. Depending on the brand of pills a cycle may cost US\$0.25 or US\$0.45 as sold by the village distributors. A dozen condoms are sold for US\$0.60. The distributor receives US\$0.05 for each cycle sold or for each dozen condoms sold, to reimburse them for their

effort. The distributor also receives two free cycles of pills for each referral to a government health clinic for each IUD insertion or for a sterilization. The government health clinic receives US\$0.50 for each contraceptive service provided (Hulse and Viravaidya, 1985). To give the reader an idea of relative pricing, a comparison can be introduced. This author was a Peace Corps Volunteer at a rural junior high school for the years 1981-1984. At the school, students and teachers could buy a good filling lunch at the school cafeteria, where food is cheaper, and it would cost approximately US\$0.50. Relatively speaking the prices charged for contraceptives by CBFPS were inexpensive. In a USAID 1975 study a cycle of pills would cost between US\$0.60 to US\$1.00 and three condoms for US\$0.25 at a pharmacy. At that time the NFPP charged US\$0.25 for a cycle of pills and US\$0.25 for a dozen condoms. However if a client pleaded poverty at a government outlet or with the CBFPS village distributor, they could receive them free of charge (USAID, 1975). The government's pricing policy since October of 1976 has changed, making pills free at all government outlets (Carlson and Potts, 1979). IUD insertions and sterilization were also free at all rural outlets, which the previous cost had been US\$1.00 for an insertion, US\$2.50 for a vasectomy, and US\$7.50 for a tubal ligation.

The reasoning for this switch in government pricing was due to difficulties in maintaining a proper accounting system (Knodel, Bennett and Panyadilok, 1983).

Promotional communications provide information on the innovation, and CBFPS uses many. There are promotional items such as t-shirts, matches, pens, handkerchiefs, and key chains that display slogans such as "Stop at two" or "A condom a day keeps the doctor a way". These slogans have become quite common place in Thailand (Hulse and Viravaidya, 1985). There is also the village distributor who also encourages people to accept family planning.

The final element of this activity is market segmentation and selection. This is where the agency divides the market into smaller homogeneous groups, so a strategy for each subgroup may be developed. There is the undifferentiated marketing strategy, where the same strategy is used for all. There is also the differentiated strategy, where the market is broken into several subgroups, and finally; the concentrated market strategy in which one large subgroup or a few small subgroups are focused on. The market segmentation and selection approach by CBFPS is concentrated marketing where a large subgroup is emphasized, and in this case it is the rural population. This is different from the government's position of one strategy for all. CBFPS does however, also work with urban

poor as well as demonstrated by its activity with the National Housing Authority and the factory organizations, using the same basic strategies.

Summary

This previous discussion should provide one with a sense of how the NFPP and CBFPS follow different paths to solve the same problem. NFPP follows a more demand oriented path; while on the other hand, CBFPS operates in a more supply oriented framework. The NFPP focuses on making the contraceptives readily available to the people, while CBFPS focuses on creating a desire for the people to use contraceptives. The work of both of these organizations complements the others. The NFPP works closely with the private sector, and in 1984 felt that roughly 20% of family planning acceptors were attributed to the private sector's work. But the NFPP feels the efforts of the private sector are worth much more since they are very active in motivating people and referring them to the NFPP. The relationship between the two organizations is characterized as strong and symbiotic (USAID/Thai Evaluation Team, 1984 and USAID, 1979). Before CBFPS enters into a district to work, they obtain approval from the MOPH, and present letters to the provincial governors assuring full cooperation from all local officials. This formal contact

helps CBFPS use the existing government network to benefit their program, but not without approval from the government first (Hulse and Viravaidya, 1985). Thus what is really at work in Thailand, is a combination and integration of the best from both demand and supply techniques.

The concluding section will contain recommendations for other family planning programs and a model of one based on this analysis.

CHAPTER V: BROADER APPLICATIONS AND RECOMMENDATIONS

Overview of this Study

The world population is expected to add another billion persons by 1999, making the total world population six billion (United Nations, 1988). Many of the developing nations will bear the brunt of this population expansion. With such rapidly growing populations, it becomes much more difficult for development planners to plan for provisions of basic health, education, housing, and food needs. Third World nations are experiencing this growth due to their unique demographic situation of declining death rates and stable birth rates (Borrie, 1970). Consequently, family planning programs in many nations have developed in order to lower fertility rates and stabilize the population growth. Some programs are successful, and others are not. Thailand has had a successful program in lowering fertility rates in a rural setting, so it is important to study successful programs in order to discover what is responsible for their success.

In the demographic arena, the "transition theory" postulates that as industrialization occurs, the fertility rates will decrease (Borrie, 1970). However, the developing nations do not necessarily have access to rich resources needed for industrialization. The "political-

"ecological perspective" complements the "transition theory" according to Ness and Ando (1984), and they believe that political organization of the society determines the ecological response to high growth rates.

After discussing demographic theories, this study launched into a brief review of supply and demand definitions, which gave the necessary backing in context for the theories used later. Then into a discussion outlining various applications of adoption and diffusion theories. Finally the two diffusion theories used in this study were discussed in depth. The first theory presented was termed the adoption perspective. The work of Everett Rogers was used to describe this theory. The adoption perspective is demand oriented in nature. The second theory discussed is Lawrence Brown's market and infrastructure perspective, which is supply oriented, and deemed complementary to the adoption perspective.

Following this was a discourse on Thailand, its population growth and the history of the RTG organization, which is responsible for family planning efforts on the part of the government sponsored National Family Planning Program (NFPP). A private organization involved in family planning in Thailand is the Community-Based Family Planning Service (CBFPS). This organization was also reviewed. Cultural traits and certain aspects of Thailand that have

contributed to the success of the family planning program consist of: a relatively high literacy rate and status of women; the fulfillment of the latent demand for family planning needs; government commitment to family planning; the perception that having many children is expensive; and few demands from forces outside the family encouraging large families or men to prove their virility through large families.

The previous chapter applied the Thailand situation to the adoption perspective and the market and infrastructure perspective. It is difficult to quantify the degree to which the two approaches are responsible for the success of fertility rate reduction in Thailand. The NFPP had a successful program going prior to the entry of CBFPS onto the scene of family planning in Thailand. It can be argued that fertility rates would have dropped in Thailand without any organized family planning efforts, due to cultural factors and the social system. But this thesis has shown that the fertility rates would not have decreased as quickly without intervention on the part of the NFPP. It could also be argued that the fertility rates would have continued to decline without CBFPS organizing to complement the NFPP's efforts.

For example the NFPP strategy of providing knowledge on contraceptives, complemented with CBFPS's strategy of

encouraging contraceptive usage through hog-raising, further induced declines in fertility rates. Another example is that of the NFP providing the clinical facilities for IUD insertions and sterilizations while CBFPS went into the rural villages referring patients for these clinics. The CBFPS' promotional campaigns of desensitizing issues in family planning through condom blowing contests, catchy slogans and other promotional items, also provoked people to think about family planning and to use family planning facilities or supplies provided by the government. The government supports this conclusion that the contribution of CBFPS in family planning went far beyond the impacts measured by the number of family planning acceptors.

Recommendations

What can be learned from this study? That not only providing the contraceptives and knowledge on them helps their diffusion, but also setting the proper conditions that induces people to use contraceptives. The cultural aspects of the Thai case are not reproducible in another nation. The history of the nation and its people, and the Thai people's exact interpretation of the Buddhist religion are distinct. These are the cultural aspects of the Thai experience that contributed to the success of their

program. The strong government commitment to reducing fertility rates is also part of their success, but not a cultural aspect. A factor that plays in a successful program is the government commitment to reducing the growth rate. The stronger the commitment, the greater the success. Aspects of their organization of their programs and studies are also reproducible. Other Third World nations, if they attempt to follow Thailand's organization of family planning programs, may not meet with as great success as Thailand, but the approaches used in Thailand contributed to their success. The government commitment and the supply/demand approaches used to foster family planning are much more easily controlled by the nation and are replicatable.

Many nations have family programs organized similarly to the Thai NFPP, which is demand oriented in its work. What is needed is a supply oriented organization to complement the demand side approach, like the CBFPS complemented the NFPP. If a nation has such a framework similar to the Thai NFPP, it has several options that it can pursue to balance their work with a supply oriented approach to adoption and diffusion.

Before getting into what options a nation has in promoting family planning, it is necessary to examine what characteristics that a government, demand oriented

organization would have, and those of a private, supply oriented family planning organization. These may serve somewhat as a check list for a nation to see what may be missing from their program. The following is a summarization of these characteristics and a discussion of them.

<u>Charac- teristics</u>	<u>(Demand)</u> <u>Government</u>	<u>(Supply)</u> <u>Private</u>
Financial	Potential for large funding	Cost-efficiency, nonprofit
Personnel	Generally available government workers	Qualified, respected, dedicated, experienced
Decision-making	No regular incentives provided	Incentives to encourage use
Promotional Efforts	Mass media Interpersonal Schools	Mass media Interpersonal
Provision of services	Distributors (government assistants) All methods of contraception provided Hospitals Clinics Population studies & information	Distributors (private) Frequently limited variety of contraception methods provided
Distribution	Nation wide	Frequently limited or geographic area
Policy formation	Formulate policy	Respond to government policy

In terms of costs, the government may not have large amounts of funding to use towards family planning, but typically it does have access to more resources than would a nonprofit organization, which must rely on grants from a variety of organizations sympathetic to their work.

The personnel used by the government may have interests in this work area. However, typically government workers are simply assigned to a specific task and may have little interest or experience in the area. In contrast the personnel hired by a private organization, generally apply and are hired because they are interested in the project's focus.

The government organizations tend to allow the individual decide whether or not to use contraceptives. Individuals are informed about contraceptives, through education programs, and then left alone to decide whether or not to use them. The private organization in contrast also provides knowledge on contraceptive use, but then also sets up inducements to use them as well.

Both organizational forms use mass media and interpersonal communications to encourage family planning methods. Mass media can be radio, television, printed materials and slogans. Interpersonal communication would come from the local distributors, which in the case of the government would usually be midwives or family planning

agents. In the case of the private organization it would be the local distributor. Governments which also direct the educational system of the nation can also teach children in the schools on family planning methods, whereas private organizations do not have that access necessarily.

Provision of services is also different for both. The government would be supplying hospitals and clinics, which the private organization may not have. The private organization can always make referrals to government hospitals for sterilizations or IUD insertions though. Governments typically hire demographers as well which can perform population studies, which the private organization may not have the funds to do. Also with the government network of hospitals and clinics, it easier to provide all methods of contraception, which a private organization that does not have its own network of hospitals can not do. In a case such as this, the private organization's options for distributing contraceptives is limited to transportable methods such as condoms and pills.

The total distribution of contraceptives is nation wide for a government, but due to lack of funding for private organizations may be limited to certain groups of people, or a certain geographical area.

Finally, the government forms policies for the whole

nation. A private organization needs to relate its objectives to those of the government's to prevent confusion. Also since it can not cover the whole nation in its distribution efforts, a private organization usually focuses on a more limited geographic area.

Now that we have discussed the various characteristics of demand and supply oriented organizations, it is easier to study the options a nation has in developing its family planning programs. The first option involves the government organization taking a close internal look at itself, to see what is needed for a comprehensive demand/supply approach. After assessing what is needed to complement their work, the government would enter into negotiations with the private organization(s) to fill in the gaps for a balanced demand/supply approach to family planning. The gaps being those characteristics not covered in previous pages. The government may or may not provide funding for these organizations. This option relies on other private organizations being in the nation and working successfully already, and being flexible enough to balance off the government's approach. Information from the government center or institute for population studies would also have to be shared with the private organizations as well.

Another option is for the government to contract out

with private organizations for the work to complement theirs to be done. This would require funding from the government, and many Third World nations are financially strapped. In addition a private organization frequently resent being directed by a government, especially if that direction becomes limiting.

There is also another avenue for a government effort in family planning. The government organization could provide the demand and supply orientations all in one organization. This might work better in a nation with a small family planning agency, or one with none at all, that is just starting a family planning program. It would be ideal for the government organization to start out in a small district, on a trial basis, as Thailand did in Potharam district. It would then provide basic information on how their approach would work.

Local healers and midwives should be approached to gain their help, and to train them, for purposes of distributing contraceptives as the midwives do in Thailand. Local healers and midwives would provide homophily communication, which is considered quite effective in diffusing an innovation. Traditional healers and midwives are more numerous than doctors and nurses, also take a much longer time to train and require a greater financial investment. It is not known exactly how many midwives or traditional

healers there are, but Charles Good estimated at least one traditional healer for every 200-300 persons in the rural areas of Africa, and one for every 400-850 persons in urban centers (1988). This may not be the same in South America or Asia, and it would also differ from country to country, but this should give an idea of just how many there are. Those nations with a more developed economy have fewer traditional healers than those less developed.

Since most healers and midwives perform their duties part time, it would be beneficial if the government gave them a financial or material reward for their efforts. Training should also be provided to them, and be given to those healers or midwives that are interested in promoting family planning. Regular training for specific ailments or diseases can be coupled with training for family planning, thus making the healer's or midwife's skills for other physical ailments better. It is not known how many other nations, other than Thailand, utilize midwives or traditional healers in dispensing contraceptives. Dr. Michael Warren, director of the Center for Indigenous Knowledge and Rural Development (CIKARD) indicated that Nigeria also utilizes these people, but that program was not introduced until 1988.

The government organization could also train the existing nurses and doctors on family planning methods, if

they were not already trained in their use. Also a variety of methods should be provided, since not every method is compatible with every person due to health or personal reasons. Family planning issues should also be put into school programs, so children and teachers learn about them. Enlisting the help of teachers in providing knowledge on family planning methods is also crucial, since many times the teacher may be the highest educated person in the community. Due to their education and ties to the community, they may also be quite trusted as well.

The government could have two different kinds of family planning agents. One type could be working at hospitals and clinics, where they would keep track of the number of family planning acceptors, speak with patients on family planning methods if asked, and distribute contraceptives as well. These 'clinical' family planning agents need not be nurses, but someone with a high school education per se, in order to organize and write reports. They could also be responsible for recruiting volunteer family planning agents to distribute contraceptives as well, such as shopkeepers, grocers, post office officials, or whatever kind of person or place, where people gather. These 'clinical' family planning agents could also assist the midwives and local healers in the area in the distribution of contraceptives.

The second kind of family planning agent may be termed

a family planning 'extension' agent, in that they work in the extension agencies that service the immediate vicinity. The health and nutrition extension agent, the agricultural extension agent, the fisheries extension agent, or whatever extension agents the nation might have, and the family planning extension agent, all working from the same office, and working in tandem, setting up and implementing the policies needed to provide the constraints that would induce the people to use contraceptives. This is based on work done by CBFPS, such as the hog raising example. In some nations, pork is not eaten due to religious reasons. Perhaps cattle could be used instead. In the United States, it takes a grain fed cow after being weaned, 9-10 months to reach selling weight. If the cow is allowed to forage for food on the range, it takes the animal longer to reach its selling weight. This would serve as an ideal period for the family to practice spacing births and also earn an income from the selling of the cow. In developing nations it is realized that there are different breeds of cows and they may be smaller animals, but it does take longer for a cow to reach its selling weight by foraging, which is a typical practice by Third World farmers. Water buffalo could also be used. Goats, sheep and chicken are smaller animals, so they have shorter periods to reach selling weights. Instead of raising one animal of these

species, the organization and the family could enter into a contract to raise a certain number of them, before the organization comes to take them away to be sold. However, instead of animals being used, a certain kind of seed could be tried also. The seed could be dispensed to the farmer prior to planting season, and after harvest, the organization could split the yield with the farmer, or sell it for the family and share the profits with them. These options for the couple would only be made available to them, providing they accept a family planning method to prevent the wife from becoming pregnant during the course of raising the animal or until after harvest. A short coming of this idea is that transportation and the logistics of the infrastructure may not be conducive to providing this opportunity to all, and possibly only to a few. Because animals and crops are in this picture, it would be ideal for agricultural extension agents to be near by to assist the famiy planning extension agent and the farmer in any problems that they might encounter in raising animals or planting crops.

The general policies would have to be worked out by the upper echelon in the government. However, the regional supervisors of the extension agents could make the recommendations of what policies to use based on feedback from the extension agents. In some countries there are

differences in farm practices due to climate and other factors, and regional supervisors would have the power to set up the policies than the extension agents, who are too busy to attempt this job as well. Mass media promotional communications on family planning would also be handled by the upper echelon in the government, with perhaps a special bureau designed for this purpose.

Each nation will have to assess what works and does not work given its own state of development. But there is also other research that can be undertaken in the realm of adoption and diffusion theories in family planning. Studies could take place on the following issues. Is adoption and diffusion different for men and women? What happens when the government increases the price of the contraceptives that it previously had offered for no charge or at very minimal prices? What happens when an organization similar to CBFPS becomes defunct? How do refugees affect the nation's fertility rate? It has previously been noted that as industrialization occurs in a nation, fertility rates decrease. How would the consequences of an economic crisis and the following economic stagnation or decline affect the fertility rate? These are just some examples of questions which future research could address in order to further knowledge of the dissemination of family planning ideas and practices.

Despite these efforts some people may not adopt family planning to limit the number of children born, because they feel it is tampering with nature or God's will.

Nevertheless, family planning could be promoted on the basis of spacing children. Spacing children is also much better for the health of the mother and the children.

Family planning is not necessarily to stop population growth, but to slow it to a manageable level, so that the strain on precious resources in less developed nations is not made greater. Political stability in managing population growth could also be furthered indirectly by helping to balance population and resource levels. It is therefore beneficial to many people that family planning information is distributed and contraceptives made available to them. A demand oriented approach coupled with a supply oriented approach in diffusing contraceptives, would enhance the chances of success in a family planning program.

BIBLIOGRAPHY

- Bernhardt, Irwin, and Kenneth MacKenzie. 1972. Some Problems in Using Diffusion Models for New Products. Management Science 19, Number 2: 187-200.
- Blackman, A. Wade, Jr. 1974. The Market Dynamics of Technological Substitutions. Technological Forecasting and Social Change 6, Number 1: 41-63.
- Borrie, Wilfred D. 1970. The Growth and Control of World Population. London: Wiedenfeld and Nicolson.
- Brown, Lawrence A. 1981. Innovation Diffusion: A New Perspective. New York: Methuen and Company.
- Carlson, Bruce D. and Malcolm Potts. 1979. Community-Based Family Planning Services, Family Planning Health and Thailand: Special Evaluation Report. Washington, D.C.: USAID.
- Chamratrithirong, Apichat, Peerasit Kamnuansilpa and John Knodel. 1986. Contraceptive Practice and Fertility in Thailand: Results of the Third Contraceptive Prevalence Survey. Studies in Family Planning 17, Number 6: 278-287.
- Chen, Kwan-Hwa Marnie and John Farley. 1981. An Evaluation of the Family Planning Health and Hygiene Project of the Community-Based Family Planning Services, Thailand. Washington, D.C.: USAID.
- Cleland, J. G., R. J. Little and P. Pitakepsombati. 1979. Illustrative Analysis: Socioeconomic Determinants in Thailand. World Fertility Survey, Number 5: 1-38.
- Committee on Population and Demography, Report No.2. 1980. Fertility and Mortality Changes in Thailand, 1950-1975. Washington, D.C.: National Academy of Sciences.
- David, Henry P. 1982. Incentives, Reproductive Behavior, and Integrated Community Development in Asia. Studies in Family Planning 13, Number 5: 159-171.
- Donner, Wolf. 1978. The Five Faces of Thailand: An Economic Geography. Hamburg: Institute of Asian Affairs.

- Economic and Social Commission for Asia and the Pacific (ESCAP). 1976. Population of Thailand, United Nations. Bangkok: ESCAP.
- Executive Summary of Fifth Five-Year Plan (1982-1986). 1982. Bangkok: Office of the Prime Minister.
- Fawcett, J. T., G. W. Perkin and A. G. Rosenfield. 1969. Thailand: Monitoring the Commercial Distribution of Oral Contraceptives. Studies in Family Planning 1, Number 48: 10-12.
- Fawcett, J. T. and A. Somboonsuk. 1969. Thailand: Using Family Planning Acceptors to Recruit New Cases. Studies in Family Planning 1, Number 39: 1-4.
- Good, Charles M. 1988. The African Community in African Primary Health Care: Strengthening Participation and a Proposed Strategy. Lampeter, United Kingdom: The Edwin Mellen Press.
- Government of Thailand: The Fourth Five-Year Plan (1977-1981). 1982. Bangkok: Office of the Prime Minister.
- Griliches, Zvi. 1957. Hybrid Corn: An Exploration in the Economics of Technological Change. Econometrica 25, Number 4: 501-522.
- Hagerstrand, Torsten. 1967. Innovation Diffusion as a Spatial Process. Chicago: University of Chicago Press.
- Hawley, A. H. and V. Prachuabmoh. 1966. Thailand and Taiwan: Program Effects After Eight Months. Studies in Family Planning 1, Number 13: 9.
- Hemachuda, C., W. Asavasena, S. Varakamin and A. G. Rosenfield. 1971. Thailand: Family Planning Activities 1968-1970. Studies in Family Planning 2, Number 9: 181-192.
- Hulse, David L. and Mechai Viravaidya. 1985. The Integration of Community-Based Family Planning and Development in Thailand: The Role of the Population and Community Development Association. Tokyo: Japanese Organization for International Cooperation in Family Planning, Incorporated.
- Kamnuansilpa, Peerasit and Apichat Chamratrithirong. 1985.

Contraceptive Use and Fertility in Thailand: Results From the 1984 Contraceptive Prevalence Survey.
Bangkok: USAID.

Kent, Mary. 1988. Thai Fertility Falls Toward MDC Levels.
Population Today 16, Number 11: 3-4.

Klein, Lawrence R. 1983. The Economics of Supply and Demand. Baltimore: Johns Hopkins University Press.

Knodel, John, Anthony Bennett and Suthon Panyadilok. 1983.
Providing Pills Free: Does It Make a Difference?
Thailand's Experience With a Free Pill Policy.
Thailand: USAID.

Knodel, John, Apichat Chamrattrithirong and Nibhon Debavalya. 1987. Thailand's Reproductive Revolution: Rapid Fertility Decline in a Third World Setting.
Madison, Wisconsin: University of Wisconsin Press.

Krannich, Ronald L. and Caryl Rae Krannich. 1980. The Politics of Family Planning Policy. Berkeley, California: Center for South and Southeast Asia Studies.

Kurian, George. 1987. Encyclopedia of the Third World.
3rd edition. New York: Facts on File, Incorporated.

Ling, T. O. 1969. Buddhist Factors in Population Growth and Control: A Survey Based on Thailand and Ceylon.
Population Studies 23, Number 1: 53-60.

Mahajan, Vijay and Robert A. Peterson. 1985. Models for Innovation Diffusion. Beverly Hills, California: Sage Publications.

Mansfield, Edwin. 1961. Technical Change and the Rate of Imitation. Econometrica 29, Number 4: 741-766.

McConnell, Campbell R. 1975. Economics: Principles, Problems, and Policies. 6th edition. New York: McGraw-Hill Book Company.

Menken, Jane. 1986. Introduction and Overview. Pp.6-26 in Jane Menken, ed. World Population and U.S. Policy. New York: W.W. Norton and Company.

Ness, Gayl D. and Hirofumi Ando. 1984. The Land Is

- Shrinking: Population Planning in Asia. Baltimore:
Johns Hopkins University Press.
- Office of Technology Assessment. 1982. World Population and Fertility Planning Technologies: The Next 20 Years. Washington, D.C.: Congress of the U.S.
- Robinson, Bruce and Chet Lakhani. 1975. Dynamic Price Models for New-Product Planning. Management Science 21, Number 10: 1113-1122.
- Rogers, Everett M. 1983. Diffusion of Innovations. 3rd edition. New York: Free Press.
- Rosegger, Gerhard. 1986. The Economics of Production and Innovation: An Industrial Perspective. 2nd edition. Oxford: Pergamon Press.
- Rosenfield, A. G. 1971. Family Planning: An Expanded Role for Paramedical Personnel. American Journal of Obstetrics and Gynecology 110, Number 7: 1030-1039.
- Rosenfield, A. G. and C. Limcharoen. 1972. Auxillary Midwife Prescription of Oral Contraceptives: An Experimental Project in Thailand. American Journal of Obstetrics and Gynecology 114, Number 7: 942-949.
- Rosenfield, A. G., W. Asavasena and J. Mikhanorn. 1973. Person-to-person Communication in Thailand. Studies in Family Planning 4, Number 6: 145-149.
- Sahal, Devendra. 1982. The Form of Technology Governs the Scope od Its Transfer. Pp.125-140 in Devendra Sahal, ed. The Transfer and Utilization of Technical Knowledge. Lexington, Massachusetts: Lexington Books.
- Sharif, M. Nawaz and Chowdhury Kabir. 1976. A Generalized Model for Forecasting Technological Substitution. Technological Forecasting and Social Change 8, Number 4: 353-364.
- Smith, Harvey H., D. W. Bernier, F. M. Bunge, F. C. Rintz, R. Shinn and S. Teleki. 1968. Area Handbook for Thailand. Washington, D.C.: U.S. Government Printing Office.
- Symonds, Richard and Michael Corder. 1973. The United Nations and the Population Question 1945-1970. New

- York: McGraw-Hill Book Company.
- The Europa Year Book 1988, Volume 2. 1988. London: Europa Publications Limited.
- Thirtle, Colin G. and Vernon W. Ruttan. 1987. The Role of Demand and Supply in the Generation and Diffusion of Technical Change. Chur, Switzerland: Harwood Academic Publishers.
- Thompson, V. 1941. Thailand: The New Siam. New York: The Macmillan Company.
- United Nations. 1988. World Population Trends and Policies: 1987 Monitoring Report. New York: United Nations.
- United Nations Demographic Yearbook 1986. 1988. New York: United Nations.
- UNESCO Statistical Yearbook 1987. 1987. Paris: UNESCO.
- USAID. 1975. Thailand Population Planning Project. Thailand: USAID.
- USAID. 1979. Thailand - Population Planning Project. Thailand: USAID.
- USAID. 1982. Project Paper Thailand Population Planning II. Washington, D.C.: USAID.
- USAID. 1985. Trip Report: Visits to the Philippines, Thailand, Indonesia and Bangladesh. Washington, D.C.: USAID.
- USAID Field Mission. 1985. Country Development Strategy Statement, FY 1987: Thailand. Thailand: USAID.
- USAID/Thai Evaluation Team. 1984. Thailand's Population Planning Project II (1982-1987): Midterm Project Thailand Special Evaluation. Thailand: USAID.
- Vimuktanon, S. and A. G. Rosenfield. 1971. An IUD Follow-up Study in Potharam, Thailand. Studies in Family Planning 2, Number 8: 166-170.
- World Bank. 1987. World Development Report 1987. New York: Oxford University Press.

Wyatt, David K. 1982. Thailand: A Short History. New Haven, Connecticut: Yale University Press.

ACKNOWLEDGEMENTS

This research could not have taken place without the support and backing of many persons. To begin with I would like to thank my family, particularly my parents, Burton and Lorraine Rutz, my sisters, Nicolette and Lynn Rutz, and my brother, Mark, for their loving support throughout my many years of education.

My committee members were also very instrumental in this effort, and I extend my thanks to Dr. Mary Kihl, Dr. Riad Mahayni, Dr. Rosalie Norem and Dr. Mary Littrell. Special note must be given to my major professor, Dr. Mary Kihl, for her tireless effort and encouragement for the duration of this endeavor.

Noramont Sangteerasintop and Jeanne Guendel also deserve a big thanks for aiding me in this research through their helpful comments and constructive criticisms.

Lastly, I would like to thank my Thai students and Thai friends, who made Thailand such an enjoyable experience for me, and hopefully one day soon, I will return there again.