

301  
.32  
F499

# SEADAG PAPERS

## ON PROBLEMS OF DEVELOPMENT IN SOUTHEAST ASIA

Organizational adaption and social change: the...

301.32 Southeast Asia Development Advisory Group  
F499 (SEADAG).

Organizational adaptation and social change:  
the administration of population planning in  
developing areas. Jason L. Finklo and Ruth  
Meade. Nov. 1967.

22 p.

SEADAG papers on problems of development in  
Southeast Asia, no. 23.

1. Population. 2. Family size. I. Finkle, Jason L.  
II. Meade, Ruth. III. Title

SOUTHEAST ASIA DEVELOPMENT ADVISORY GROUP

ISN 71856  
ON A63 118

# Southeast Asia Development Advisory Group

THE ASIA SOCIETY, 112 EAST 64th STREET, NEW YORK, N.Y. 10021

Number twenty-three

21

*ORGANIZATIONAL ADAPTATION AND SOCIAL CHANGE:  
THE ADMINISTRATION OF POPULATION PLANNING IN  
DEVELOPING AREAS*

by Jason L. Finkle  
with the collaboration of  
Ruth Meade

Agency for International Development  
Library  
Room 105 SA-18  
Washington, D.C. 20523

Jason L. Finkle and Ruth Meade  
University of Michigan

23 November 1967

*This paper was presented at a meeting of the SEADAG Development Administration Seminar; Carmel, California, November 24-25, 1967. It may not be reproduced or quoted without permission of the author.*

*This paper, furthermore, is intended only to represent the views and conclusions of the author.*

Development Information Center  
Bureau for Development Support  
Agency for International Development  
Washington, D.C. 20523

A.I.D.  
Reference Center  
Room 1656 NS

CHAIRMAN: KENNETH T. YOUNG  
PRESIDENT, THE ASIA SOCIETY

COORDINATOR: JOHN J. QUINN  
THE ASIA SOCIETY

JOHN C. BULLITT, ASSISTANT ADMINISTRATOR FOR EAST ASIA  
JAMES P. GRANT, ASSISTANT ADMINISTRATOR FOR VIETNAM  
CLIFFORD C. MATLOCK, SPECIAL ASSISTANT, EAST ASIA BUREAU  
AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D.C. 20523

11

ORGANIZATIONAL ADAPTATION AND SOCIAL CHANGE:

THE ADMINISTRATION OF POPULATION PLANNING IN DEVELOPING AREAS

Jason L. Finkle, University of Michigan

with the collaboration of

Ruth Meade, University of Michigan

INTRODUCTION

Until the 1960's, fertility trends and population growth rates were viewed as demographic issues mainly of concern to scholars and those governmental agencies responsible for providing services to an ever-increasing population. Family size -- the number of children a married couple should have -- was a matter of private choice with little, if any, conscious intervention by government in the decision process.<sup>1</sup> Since 1960, a rapidly increasing number of nations have relinquished their *laissez faire* posture and have made family size and fertility a matter of official public concern. Over twenty nations, particularly the major states of Asia, have adopted national population planning programs.<sup>2</sup> Without exception, these programs are to be found in the developing nations.

The basic policy impetus for population planning in the developing nations, although often obscured in language which suggests health and welfare considerations, grows out of economic frustration and diminished confidence in the proximity of economic "take off." This sense of disillusionment with prospects for development has compelled many developing nations to scale down the scope and size of their economic projections in some cases to make politically difficult programmatic adjustments to the scarcity of available capital. Agriculture, once felt to be the stigma of an underdeveloped subsistence economy, has been re-examined and now found to be a promising economic asset worthy of investment. The rapid policy trend toward the adoption of national family planning programs in the developing nations may be, however, the most dramatic indicator of the travails and discontinuities of modernization efforts.

The appeal of population planning programs as a means of accelerating economic growth results from basic arithmetic rather than abstract economic or demographic analysis. Economic growth rates in the developing nations have generally ranged between 2.5 to 3.5 percent; a growth rate of roughly 3 percent, while not particularly impressive, does indicate a degree of economic vitality and, more importantly, a potential for more rapid economic growth. However, when economic growth is related to population growth, a significantly different picture emerges. Although there is variation from

country to country, a *population* growth rate of 3 percent is more or less typical in the developing nations, while population growth rates of around 1 percent are common to the industrialized nations of the West. An industrialized nation, experiencing a 3 percent economic growth rate with an accompanying 1 percent population growth rate, may be able to not only provide an increased standard of living for all but to stimulate increased savings which may in turn be invested and serve to accelerate economic growth even faster. For the developing nations, on the other hand, a 3 percent economic growth rate is simply offset by a comparable rate of population growth on an annual basis. Thus, when not accompanied by an increase in per capita income or living standards, an annual increase of 3 percent in GNP in the developing nations may constitute economic stagnation in both personal and national terms.

It is the response of the developing nations to these economic conditions rather than the conditions themselves that symbolize their frustration and disillusionment. Historically, the "demographic transition" from high fertility to low fertility has not been a result of national family planning programs but has been a concomitant of modernization. Urbanization, industrialization, literacy and the prevalence of a large middle class have constituted the causal nexus of a decline in the rate of population growth. Confidence in their own modernizing futures on the part of India, Pakistan, China, Egypt and Chile, among others, would obviate the need for national family planning programs -- or would at least temper the urgency assigned to these programs. Economic growth rates, however, have not been sufficient to produce those changes in living styles which are related to the lower birth rates of more modern Western nations. In attempting to extricate themselves from this developmental quagmire, the developing nations have resorted to the machinery of government to reduce the rate of population growth: they are attempting to hasten modernization by reversing the usual causal nexus of fertility decline.

Whether attempts to alter demographic trends directly through family planning programs undertaken by public bureaucracies is a feasible or realistic objective of developing nations has been questioned by several prominent students of demography and population dynamics.<sup>3</sup> They challenge the proposition that a significant reduction in the rate of population growth can be achieved without first affecting those societal conditions associated with lower level fertility rates. The Hauser-Davis position is of particular relevance to students of development and administration, as it maintains that, irrespective of the character and quality of the organization and administration of a family planning program, the program is unlikely to succeed in significantly lowering population growth rates. While no program has been in existence long enough to test this skeptical proposition, it may well be that Hauser and Davis will ultimately be proven correct; not necessarily because population growth is immune to planned social change, but because of ineffective program administration on the part of public agencies responsible for family planning efforts.

The role of complex organizations in effecting a decline in birth rates in the developing nations has received scarce scholarly attention

although many serious students of population and family planning have concluded that the critical determinant of any program may be its management, organization and administration.<sup>4</sup> Ironically, those who have underscored the need for systematic consideration of the administration of family planning have not been students of administration but sociologist-demographers\* as well as those from the bio-medical field. Each of these groups has had a long involvement in population problems and feels that enough is known about fertility behavior and contraceptive technology to seriously attack the problem of excessive fertility rates with a chance of reasonable success. They recognize, however, that the highly sophisticated technical expertise presently available must be organizationally structured and translated into programmatic terms if family planning efforts are to have a significant demographic impact.

Organizational capabilities have not kept pace with innovations in contraceptive technology and the bio-medical and social science understanding of fertility and population behavior. The typical administrative response to the adoption of a national family planning program has been to assign program responsibility to bureaucratic agencies already in existence, most notably ministries of health. This decision to include family planning within the portfolio of a health ministry is mainly the result of three factors: 1) most contraceptives presently available for use on a large scale and possessing a high degree of reliability necessitate the services of the medical profession; 2) individual fertility problems have traditionally been closely associated with the maternal and child health activities of public health organizations; and 3) public health is an established and socially legitimate governmental activity.

A public health structure possesses certain distinct advantages in terms of medical skills of its members and its points of penetration into the social system: yet, the scope and kinds of variables involved in a national family planning program do not necessitate the assignment of primary administrative responsibility to ministries of health. Population planning is *not* a health problem, at least in the conventional sense of tuberculosis, smallpox and malaria. Organizations responsible for family planning programs are faced with more than the task of treating or preventing a disease; they are faced with the problem of managing a change process in which the desired result is a reduction in the total population growth rate of a country. The organizational forms and arrangements which proved so effective in dealing with diseases such as malaria appear to have been internalized by health ministries to the extent that many health administrators feel that there is an essential comparability between malaria eradication and population control. In fact, the organizational machinery of malaria eradication cannot function with the same degree of success for a national population planning program -- the nature of the task and the requisite skills and technology are fundamentally different. Although he spoke without reference to family planning, one prominent educator in the field of public health has touched upon the central

.....

\*Hauser and Davis excepted, of course.

issue in the following terms:

The great bulk of public health's organizational and administrative experience has been derived from dealing with small segments of a broader problem. Here, administration was successful because the administrator himself had a clearly defined and limited objective, he was fully conversant with the scientific basis for his actions, and he had an almost encyclopedic knowledge of the details of his enterprise. He, therefore, had minimal needs for organizational and management theory to secure the results he sought.<sup>5</sup>

Family planning programs in developing nations are not small segments of a total plan for a reduction in population growth rates; they are comprehensive programs in which the goals, at the operational level at least, are diverse and the technologies available for the pursuit of these goals are not only technical, but social as well. The interdependence of the organizational goals and the technologies relevant to the tasks prescribed imply a critical role for the organization and administration of the program. Whereas specifically defined relationships exist between the goals and the technologies in a smallpox campaign -- the goal of preventing smallpox can be fulfilled through vaccinations administered at known times to known people through known procedures -- the same direct cause-effect relationship does not exist between the generalized goal of a reduction in population growth rates and the technologies relevant to this goal. There is no certitude about the most effective means of causing a population to reduce its birth rate nor are there standard or perfected motivational techniques for convincing target populations of the need for family planning. It is within this broad field of uncertainty that a family planning organization must operate. National programs in population planning are relatively new and untried and they have no Western "success model" to emulate.

In addition to being assigned responsibility for effecting change in behavior and attitudes, a family planning organization is dependent on technologies that are undergoing rapid change themselves: new contraceptives are being developed; the change process is being explored on several fronts, with new variables central to the process uncovered and introduced; factors which potentially effect the receptivity of people to the use of birth control techniques are being explored and defined. In sum, what is known today about the critical variables in a family planning program may be revised or modified as the result of on-going developments in both the bio-medical and social sciences. Even the goals of a family planning program are likely to undergo changes in response to new knowledge, understanding and technology.

The vast array of changing variables which confront a family planning organization indicates that no single organizational structure and design can effectively accommodate them all. Faced with this type of organizational reality, the critical ingredient for a family planning organization in developing countries may be its "innovative-adaptive capacity." This is not a generic prescription for all organizations; but, an environment of change has often been identified as a salient criteria by which the need for adaptive-innovative organizations should be judged.<sup>6</sup> The more precise and constant

the relationship between an organization's goals and the means for accomplishing these goals, the less will the organization be faced with adapting to imperfect fits between goals and methods. On the other hand, the less precise the relationship between goals and methods for achieving them, the more will the organization be faced with a need to react and adjust to changes in the goals, the methods, and the relationships between them.

The following pages set forth a framework in which to examine the role of complex organizations in a family planning program. The problem is conceptualized in terms which relate the administration of family planning to: 1) organizational goals, and 2) technologies available to the organization, both contraceptive technologies which are, at this point in time, the more direct instrumental means to limit population growth, and the social technology of diffusion, on which family planning organizations must rely to introduce various contraceptive practices to members of the social system. These, then, the organization, its goals, and technologies -- are the inter-related parameters of analysis we shall use to examine some of the organizational and administrative issues of a family planning program in the developing nations.

### Goals

The rationale for stressing innovative-adaptive capability as an organizational requisite is mainly based on the goal structure of family planning programs and the fact that they must function in an environment of complex, multiple and rapid change. More specifically, although the central goal of family planning organizations may remain constant, instrumental goals of the organization are subject to revision and adjustment as a consequence of technological innovation and the re-evaluation of their relevance to the broad and general goal of reducing population growth rates.

March and Simon distinguish between three levels of goals in an organization: 1) non-operational goals which can not be directly related to specific activities of the organization; 2) operational goals, which can be related to specific, but broad activities of the organization, and whose fulfillment can be measured in terms of the activities which are related to it; and 3) subgoals, to which relatively independent program activities are related. In family planning, the major non-operational goal of the organization must be defined as a reduction in the population growth rate. However -- and this seems to be an oversight in most family planning organizations today -- there is no single operational activity which can be directly related to an overall reduction in growth rates. One of the most likely, and perhaps essential, means of achieving this goal is thought to be the widespread adoption of contraceptive techniques. However, positing this as the general goal of family planning ignores the possibility of other operational goals that the organization could simultaneously pursue in fulfilling its broad commitment to achieving a reduction in population growth rates.

Historically, some societies have experienced low or even declining population growth rates *prior* to the availability of mechanical or sophisticated contraceptives. This implies the existence of sociological conditions that induce a population to find some way to limit family size. Cognizance of social factors which affect a propensity toward small families is a part of the total task of a family planning program; further, introducing operational goals that reflect this awareness is a crucial concern of the organization.

Operational goals which could complement a contraceptive distribution plan might take many different forms: creating educational and vocational opportunities for women, as alternative sources of satisfaction to raising large families; making the male legally responsible for the support and upbringing of children, thereby increasing the real cost of large families; and granting status for educating children to a high level, thereby encouraging concentration of available resources on fewer children; promoting institutions other than the kinship nexus to perform valued and essential functions for individuals, thereby reducing reliance on large families for the performance of these functions. Although they do not exhaust the possible operational goals of population planning programs, the above exemplify the ways in which the organization can, as Philip Hauser advises, "insure itself against the failure of its present rationale and methods."<sup>8</sup> The choice of operational goals for individual family planning programs is an organizational decision which must be made in terms of the social environment of the program, political and economic realities and resources available to the organization. The basis for such decisions, particularly in developing nations, are subject to constant change; in addition, the relevance of other operational goals will change as the distribution and acceptance of contraceptives within the target population moves closer or further from being realized. The importance of this operational goal in family planning programs is not being denied; however, the long-term effectiveness of a family planning program cannot, at this point in the development of such programs, rely exclusively on the probability that enough people in a developing nation will accept the use of contraceptives if they are made available to have a significant impact on the population growth rate.

The responsiveness of a family planning organization to the uncertainties related to operational goals and their accompanying program activities is partially dependent upon recognizing and preparing for these uncertainties. An organization which approaches the problem of family planning in terms of the single operational goal of the diffusion of specified contraceptive technologies cannot be responsive to the untested relationship between a general goal of reducing population growth rates and the potential means for achieving this goal. New ideas and the capacity to use new ideas are requisites to a realistic approach in population planning programs. And, as is explored more fully below, the organizational setting within which the program operates is directly related to this fundamental need.

## Technologies

Despite a need for expanding the range of operational goals in family planning organizations, the promotion of contraceptive practices is the central concern of national programs today. The technologies involved in the promotion of contraception have far reaching organizational implications for the general shape of family planning organizations which warrant close consideration. Two different classes of technologies appear to be most relevant:<sup>9</sup> 1) contraceptive technologies, and the attendant specifications for effective use of contraceptives; and 2) the social technology of diffusion, through which the use of contraceptive techniques can be expected to spread within a social system. A family planning organization is dependent upon both of these technologies in pursuing its central operational goal. To assume that contraceptive techniques will be utilized in an effective manner just because they have been developed is to ignore the axiomatic need not only for their delivery to the right people, at the right time, in the right manner, but also for the spread of their use throughout the social system. Further, to assume that all contraceptive techniques require the same resources for use in a mass family planning program is to ignore the diversified properties of those technologies available for use at the present time, and the differential relevance they have for members of a target population.

The effectiveness of a family planning organization is dependent, at least in part, upon its ability to adopt goals, procedures and relationships that are responsive to the multiple demands of these two classes of technologies. Although they do not wholly determine the character of the organization, they place real constraints on the alternative means for accomplishing operational goals and give further impetus for an adaptive organizational system in family planning. The two classes of technologies are discussed separately below, although their obvious inter-dependence is recognized.

Family planning organizations are dependent upon a number of different contraceptive technologies to fulfill their goals and the properties which distinguish one from another also make disparate demands upon the family planning organization. Thus, an important organizational task is to identify the organizational requisites of contraceptive technologies, and to organizationally accommodate to these requirements.

It is a mistake, however, to assume that an exclusive bi-lateral relationship exists between contraceptive technologies and the organization. Before a useful organizational accommodation to the demands of technology can take place, family planning administrators must make two other determinations:

- 1) They must take into account that the differences among contraceptives which make demands upon the organization also make demands upon the target population. Each technology available for inclusion in a family planning program carries with it certain requirements for its use by individuals, groups or entire social systems. The degree and intensity of motivation toward using the contraceptive, the risks involved in its use and the willingness of a potential user to take these risks, and the degree to which use of the

contraceptive affects other dimensions of an individual's life are a few of the determinants of the relevance of a technology to an individual adopter. The high level of sustained motivation which the use of pills for contraceptive purposes requires can be contrasted to the intense, but short-lived motivation required for participation in sterilization campaigns. The condom is not likely to be the most efficacious contraceptive technology in that hypothetical Latin American nation where the cult of *machismo* honors the male for his proficiency in propagation and where legal norms do not hold him responsible for the support for his children. In this instance, a family planning program may find it preferable to emphasize a female contraceptive. Or, to provide a further illustration of this point, mechanical or chemical contraceptives that require a private water closet or toilet for storage or application are manifestly unsuited for a mass national program in the developing nations.

Demographic variables, too, affect the relevance of a contraceptive technology for a potential user: age and parity, and previous experience with contraceptive use are such variables. Sterilization is not an acceptable technology for couples interested in spacing, as opposed to ending, childbirth; an intrauterine contraceptive device (IUCD) is considered appropriate for only those women who have already given birth. In sum, it must be determined that the properties of the contraceptive are "compatible" with the social system of the potential adopter.<sup>10</sup>

Although it is possible to hypothesize many of the significant demands which a contraceptive technology makes upon a potential user,<sup>11</sup> these, too, are subject to re-evaluation and change in an on-going large-scale population planning program. Pilot projects conducted on the use of the IUD in such programs were misleading in suggesting that the amount of follow-up attention to acceptors of the IUD was negligible. In practice, not only was medical follow-up necessary to treat the physiological complications which arose, but motivational follow-up proved to be extremely relevant to continued retention of IUD's after the original insertion. Thus, doctors who had a low rate of removal were not necessarily better clinicians but were as likely to be those who gave time and reassurance to the patient who came in with complaints. The importance of this variable to the IUD was not recognized prior to the adoption of the technology for use in family planning programs; its significance appeared in the evaluation process, and its implications required organizational adaptation. Thus, the essential organizational decision of what contraceptive technologies are relevant to the target population not only precedes organizational adaptation to the demands of the technology, but also requires constant re-evaluation as the targets of family planning programs change, and as new understanding is achieved about program performance.

2) Administrators must also take into account that some of the organizational implications of contraceptive technologies may have to be translated, in turn, into demands that the family planning organization makes upon its own environment. If the environment cannot supply needed resources to the organization, it would be inimical to the program's success to place serious reliance on that technology. Among the environmental inputs which

vary as the contraceptive technology varies are the human skills, including medical, needed to utilize the contraceptive in a mass program; supply and distribution needs; the physical facilities required, such as hospitals and clinics, and the total cost involved in inclusion of the technology of the program. For example, an intrauterine contraceptive device may be a superior contraceptive for many women in Detroit but not compatible with the environmental resources of Nepal where medical skills and clinical facilities are in short supply. In contrast, oral contraceptives make a lower order of demand upon the environment for medical personnel and facilities than does the IUD; however, supply and distribution are crucial dimensions of a pill program and costs may be calculated in terms of a continuing outlay of funds.

The associational, educational and transportation networks required for effective incorporation of a contraceptive technology into the family planning program are additional important environmental resource demands, as is the probability of leadership involvement, and the kinds of communication resources, both formal and informal, required. Dependence upon environmental groups and organizations for program support is essential in family planning activities. A large-scale condom program does not require much support and participation by the medical profession (in getting the item to the target population), but it does require a higher degree of cooperation with manufacturers and distributors. An IUD program, on the other hand, may require active cooperation and coordination by and among medical personnel, local medical agencies and community and social service agencies.

Obviously, family planning organizations must treat the multiple variables related to contraceptive technologies as highly interdependent, and thus must consider them in combination to realistically make decisions about those to be incorporated into family planning programs. Although, for example, an IUD may be considered the most efficacious contraceptive and appears to be "compatible" with social system characteristics, it may still not be the best choice for a family planning program in a society where doctors are in short supply. Additionally, if the cultural dictates of the community require that a female doctor insert the IUD, but the educational values of the community have precluded opening medical ranks to women, an IUD program would still be inappropriate. In effect, this situation exists today in Pakistan where Muslim women are reluctant to permit male doctors to satisfy the needs of the program. Significantly, the Pakistan program has been among the first to openly and officially train female paramedical personnel to insert the IUD. It might also be noted that it was believed by family planning administrators that the same situation existed in India: a firm and fixed principle stated that female doctors were required to insert IUD's. Not until recently was it discovered that in West Bengal two-thirds of all IUD insertions were being performed by male doctors and that the acceptability of male doctors' performing this function was much more widespread than believed throughout the country. In this case, the organization failed to build in an efficient information retrieval system and the ministry in Delhi had no way of ascertaining with any scientific accuracy whether Indian women would use the services of male doctors. Instead of utilizing hard feedback evaluations, the program was

carried out in terms of a myth which proved, in fact, to be considerably misleading.

The organizational difficulties in family planning programs which relate to the differential requirements of various contraceptives is further complicated by the fact that most family planning programs, after initially relying on a single technology, have shifted to a "cafeteria" approach and are now making available to the target population a choice of contraceptive technologies. There is reason to conclude that the cafeteria approach is essential at this time given the deficiencies of all contraceptives and the inherent physiological or sociological incompatibility between any single contraceptive and the total target population; yet, it multiplies the problems of a family planning agency by necessitating simultaneous organizational accommodations to the properties of disparate technologies.

Regardless of the contraceptive or combination of contraceptives introduced into a program, organizational adjustments to the properties of the technology *appear* to take place. This appearance, however, may be illusory and not indicative of genuine changes in the goals, procedures, and relationships of the organization. Instead, as in bureaucracies everywhere, adjustments take place between individual administrators and technical specialists on the one hand, and the new technology on the other. Role incumbents, more likely than not, absorb the initial turbulence of technological innovation and find that they can minimally accommodate to the demands of the new technology. Soon they may even develop a vested interest in the primacy of a particular technology to the extent that their organizational status is dependent on their managerial mastery of the particular technology, and thereby become resistant to the introduction of future innovations.<sup>12</sup>

### Diffusion

How new ideas, things, and practices become an integral part of the tools and behavior of individuals constitutes the conceptual basis of that area of social science concerned with the diffusion of innovations. In a real sense, a central role of family planning organizations is the management of this diffusion process. Ironically, however, scholars concerned with the role of bureaucracy and complex organizations in the development process have given scant attention to the research and experience of students of the diffusion process.<sup>13</sup> In fact, the management of change is inseparable from the management of the diffusion process.

What is known and understood about the process of diffusion has pervasive implications for the organization and administration of a family planning program, particularly as it also relates to the contraceptive technologies included in the program. To date, however, most family planning organizations in the developing nations have not shown the capacity to capitalize on the available information relative to the diffusion process nor have they included, among their organizational resources, the kinds of

skills needed to use the best information about diffusion as a means of delivering the most effective contraceptives to the appropriate target groups in the most beneficial way -- despite the fact that most members of a family planning organization are actively involved in promoting the diffusion process.

Family planning organizations, concerned with the acceptance and use of contraceptive technologies within a social system over a period of time,<sup>14</sup> appear to be most directly affected by four dimensions of the process of diffusion: a) the "compatibility" between attributes of the technology being diffused and attributes of the system into which it is introduced; b) the adoption of contraceptives by individual members of the system, through an individual decision-making process; c) the cumulative adoption of contraceptives through the system; and d) the role of communications in affecting the adoption of contraceptives. The first of these dimensions was treated in the previous section: the demands which the technologies make upon potential users and the environment, and the capacity of the family planning organization to meet these demands, at least partially defines the degree of compatibility between the item and the system.

Both the individual process of adoption, and the differential response to innovative stimuli by groups within the system pose important organizational challenges to the family planning program. Diffusion researchers, in focussing on these two dimensions of the process, indicate that not only do individuals require different kinds of inputs at different stages of their adoptive processes, but that different groups of individuals within a system respond to stimuli in distinguishable ways.

Students of diffusion distinguish five different stages of the individual adoption process: awareness; interest; evaluation; trial and adoption.<sup>15</sup> The kind of stimuli which is effective at each of these stages varies considerably: mass communication techniques are most effective for purposes of making potential adopters aware of the existence of contraceptive technologies; when they have reached the point of deciding to try a specific contraceptive, the need is for explicit information about use of the item. Thus, the source and content of the information is crucial, and rejection of the item is a probability if the results of the trial stage are not more or less consistent with the expectations of the potential adopter.<sup>16</sup> There is some evidence that an individual evaluative process precedes the trial stage, and it is at this time that an individual will assess use of the item in terms of his own situation and its relevance and value to him personally. At this point in the process, reinforcement appears to be a critical input, most preferably from the networks of personal associations with which the potential adopter is involved. Whereas mass media techniques and impersonal communication seem to function effectively for the adoption process at the beginning stages, personal, face-to-face communications appear to be the most critical at the evaluative stage.

In recognizing the individual adoptive process as an integral dimension of the process of diffusion, a family planning organization is faced with at least two basic requisites: first, it must ensure that it adequately perceives the needs of the individuals who are proceeding through the adoptive process, and secondly, it must build into its structure the ability to respond effectively to these needs.

The significance of organizational awareness and response is even more heavily underscored when attention is given to the stratification, within any system, of potential adopters on an "innovativeness" scale. Again, diffusion researchers have identified and labeled five distinguishable groups: the innovators; the early adopters; the opinion followers; the late adopters; and the laggards.<sup>17</sup> Ultimately, a family planning program must be aimed at the two largest categories of potential adopters, the opinion followers and the late adopters. However, in reaching these two groups, early adopters must be brought into the process, for it is within this group that opinion leaders are located, and they perform the vital function of providing the link between the innovators, who are essentially outside the influence structure of the system, and the opinion followers, who rely upon the adoption of the item by peers as a requisite to their own adoption but whose adoption, in turn, tends to "legitimize" the item for the rest of the system. Further, it is the early adopters who maintain the closest contact with local change agents and become the "contact points" for family planning programs within a specific locale.

Innovators and laggards are those groups which probably demand the least attention from the family planning organization, although awareness of their existence can prevent false evaluations or unforeseen resistance, both of which can be dysfunctional for the organization. The innovators will be the earliest acceptors of an item of diffusion, and they will most likely be either the elites or the marginals of the system.<sup>18</sup> Regardless of which they are, their acceptance of an item of diffusion should not be interpreted as an indication of widespread adoption. It appears that this mistake has been made in the past by family planning organizations; in West Bengal, as well as elsewhere in India, the initial response to the introduction of the IUD as a contraceptive technology was deceptively high. However, this initial response appears now to have come from the innovators within the system, a group not typical of the communities at large. New program directives and organizational adaptations were necessary but not immediately forthcoming to stimulate other groups of adopters; the high degree of initial acceptance had been wrongly interpreted.

Laggards, on the other hand, will be the last acceptors of innovations within the system, and organizational concern with them will probably relate to their possible influence as antagonists.

From the perspective of organizational needs, not only do different categories of adopters require different forms of stimulation to carry them through the adoptive process, but the relationship and contact between these groups is relevant to the entire diffusion process. Complex organizations involved in the management of the process are forced to make a

number of "hard" accommodations to the variance and interaction among adoptive categories: where the points of articulation are between the organization and the target groups; who the change agents are to be; and what kind of stimuli the change agents will "deliver" to potential adopters.

Two aspects of the role of communication in the diffusion process are particularly relevant to the organizational decisions which are involved in managing this process, and both are interrelated with the individual process of adoption and the different categories of adopters: 1) there must be some involvement of members of the target population in the change process if diffusion of the item is to be realized;<sup>19</sup> and 2) there are indications that the greater the difference in social status and innovativeness between the communicator (or change agent) and the target of the change, the less likely a new idea will be effectively communicated.<sup>20</sup>

The generally recognized need to utilize local opinion leaders as communicators in change programs is an indication that diffusion cannot take place unless or until change is spread within the social system by its own members. Although external change agents can influence the members, especially early adopters, the process itself involves a willingness by the social system to adopt the item. It reflects, too, the probability that a large segment of potential adopters - the Opinion Followers - will seek or use opinion leaders to reinforce their motivation to change or to help in evaluating the change, as well as being unwilling to change until opinion leadership has participated in and to some extent legitimized the change.

There are some qualifications which ought to be noted here. First, the nature of the change which we are discussing - the use of contraceptive techniques to limit the size of a family - may not be as amenable to the use of opinion leadership as some other areas of change. The degree to which contraceptive use is a legitimate topic of discussion in a given locale may well affect the willingness of opinion leaders to function as change agents. Organizational attention may have to be devoted to legitimizing the item when this situation exists. Secondly, there are indications that some in leadership positions adhere most closely to social norms and their status is threatened by non-adherence to these norms. If the use of contraceptive is believed to be a contravention of strongly held social norms in an area, it is less likely that opinion leaders will be among the first to change. If they cannot personally support the change, their use as change agents will be limited. These qualifications indicate that, although the involvement of local leaders in the diffusion process seems to be critical, universal criteria by which to identify those leaders who ought to be solicited in any given locale does not exist.<sup>22</sup>

In communities or social systems where the degree of interaction and communication between groups is low, the probability of a single opinion leader serving the whole community is questionable.<sup>23</sup> Again, the social system in which the change is to be introduced dictates many of the conditions under which local leadership can effectively perform the communication function as an agent of change.

The question of utilizing communicators whose social status does not differ appreciably from that of the target population is one which ought

to be rather carefully considered in a family planning program. The need for some kind of interpersonal relationship between the communicator or change agent and members of the target population cannot be overlooked.<sup>24</sup> It is possible that placing government employees recruited from urban areas into a rural village as communicators in a family planning program will not allow for the kind of relationship essential for a successful adoption process. Likewise, it is possible that utilizing a large landowner as a change agent in a program directed toward indigent community members will not allow for the necessary relationship, regardless of the landowner's commitment to the program.<sup>25</sup>

The above concentration on the utilization of members of the social system as communicators does not preclude the necessity for involving other kinds of communicators in an information dissemination program. There is little doubt that official health agency employees, mid-wives, group leaders, and government personnel will and should be involved in the diffusion of family planning practices. Although the contributions of this "official communicator" to the program's success is significant, it is the social system-level communicator who is most critical and whose effective utilization constitutes a major organizational problem for a family planning program.

### The Organization

As the preceding sections imply, not only is the probability of new understandings in the technologies available to a family planning organization high, but notably absent at the present time is clear understanding of how existing technologies ought to be used or what the impact of their use will be. These frustrations notwithstanding, a family planning organization is faced with the reality of attacking the growth rate of a country *now*, not at a future time when greater stability and certainly are the prevailing characteristics. The question thus becomes what are the optimal organizational and administrative arrangements to fulfill this pressing mandate.

One approach is to design an organization which fits a specific set of circumstances in a specific location at a specific time, given what is now known of contraceptive technologies and the diffusion process. In general, this has been the approach of family planning organizations; organization structures have been developed and elaborated to fit a set of circumstances which appeared most critical at one point in time. This approach, however, fails to recognize that the variables which are most central to family planning organizations are in a constant state of change on at least three dimensions. New technologies, both contraceptive and social, are being developed and will become available to family planning organizations; programs which are new and untried cannot be developed in the abstract and function without modifications dictated by the manner in which they operate in the real world; and the environmental systems on which a family planning organization is dependent for its effectiveness

are in a constant state of change and development. Thus, even the organization which was designed to meet a known set of circumstances at a particular point in time, will not function effectively when the circumstances are no longer applicable.

An alternative approach, which appears most appropriate for organizations designed to carry out family planning programs in developing nations is a built-in ability to not only adapt to significant environmental changes, but also to generate its own new ideas and innovations in terms of a broad goal commitment to managing a reduction in the population growth rate of the country.

Although the desirability of adaptability in organizations has been explored with increasing frequency by students of organizations, the distinction between such descriptive adjectives as adaptive, flexible, innovative, creative, is not clear, nor have the terms been used consistently in the literature on organization behavior.<sup>26</sup> For purposes of this paper, we distinguish between the ability of the organization to adapt and to innovate in response to two types of organizational needs. The organization must be able to respond and react quickly and effectively to relevant changes in the environment or the technology, or to indications that program activities are not fulfilling instrumental goals to which they are related. Thus, there is a need for the ability to *adapt*, by changing structural elements in response to other changes, including changes resulting from the organization's own innovative activities.

At the same time, there is a need for a family planning organization to produce new ideas, methods, and techniques, not as a specific response to an immediate stimulus, but as part of an on-going process of evaluation of the organization in terms of its broad goal commitments. Optimally, the organization ought to be able to adjust not only to changes or malfunctions which have immediate impact on the effectiveness of its operations, but also to develop and introduce new ideas, goals and methods which have an impact on the fulfillment of its non-operational goals. At the least, the family planning organization must be adaptive -- its viability within an environment which is unstable by definition requires this; at the most, it can be innovative, thus developing some of the ideas to which it must then adapt.

Although not the only approach to building an adaptive innovative capability into family planning organizations,<sup>27</sup> procuring and using information appear central to such organizational capability. The collection, retrieval, assimilation, and utilization of information stand out in importance in determining the responsiveness of the organization to the total environment on which it is dependent for goal fulfillment -- an environment which includes such previously explored and divergent variables as target population characteristics; contraceptive technologies and their attendant properties; the political, economic and social systems on which the organization is dependent for legitimizing and pursuing its institutional role; and unknown change variables which accompany all developmental efforts.

Three different organizational structures for retrieving and using information are particularly appropriate to a family planning organization; an organization-wide effective feedback system designed to assess the performance of activities related to the operational goals of the organization; a research and evaluation structure to gather and assess information relative to the means of pursuing operational goals; and a structure which considers the environment of the family planning organization in terms of its location within the total developmental system and its pursuit of the broad and general goal of reducing population growth rates.<sup>28</sup>

At the operating level of the family planning organization, feedback is the most important means of assessing the degree to which specific activities and procedures are functioning consistent with the fulfillment of organizational subgoals. At this level, information flows from the environment back into the organization, enabling the organization to evaluate its own effectiveness and in turn to modify its procedures and its output. The effectiveness of a family planning organization is singularly dependent upon the impact it has on potential adopters of contraceptive technologies -- an impact whose evaluation and measurement constitute key elements of family planning feedback. The structure of an organization may facilitate the continued "export" of family planning activities to a target population, even though the people for whom the program is intended may not be reacting to it in the anticipated and assumed manner. Without provision for the retrieval of information, and the use of it by the organization, program modifications are likely to be minimal and the possibility of program failure great.

The feedback which comes from the environment and the operational level of the organization and goes to the organization at points where procedures can be modified without undue delay is the heart of one of the information structures of a family planning organization. In building a feedback mechanism which performs these functions effectively, the diverse properties of the contraceptive technologies involved in the program, and the constantly changing target population characteristics must be acknowledged. The kind of information required for the system will vary with the contraceptive technology used in the program. Distribution of a specific number of contraceptive pills among a known population should not lead directly to the conclusion that these pills have been taken in the manner required to have an impact on the fertility rate of the population; the insertion of an IUD, likewise, does not necessarily indicate continued presence of the device at a later date. Records on insertion dates and periodic checks of retention rates for IUD's are essential information inputs for feedback to work effectively. But the same records and the same information are not relevant to a pill program. Operating information must not only be retrieved and channelled to the points in the organization where it can be used for program activity assessment, but it furthermore must be used as the basis for organization adaptation to the malfunctions which it uncovers.

Information essential to the feedback process originates at the activity level of the organization; it is at the points where doctors insert IUD's; social workers, mid-wives, local leaders or government officials

function as change agents; information programs are presented through mass media. It is at this level that the impact of program activities is visible. But if the organization does not provide for the legitimate "use" of this information, feedback does not, in fact, become the means of coordinating family planning programs. Coordination by feedback, most heavily relied upon in variable and unpredictable situations,<sup>29</sup> depends upon the transmission of new information to relevant points within the organization structure. Thus, at the operating level, local units in a family planning organization use the feedback structure to assess such issues as whether male doctors are acceptable to local women; whether village leaders are effective opinion leaders in family planning; whether male family planning facilities should be separate from female family planning clinics, and even whether a vasectomy program should be "pushed" in a given region. These are not policy decisions which are being made in terms of a thorough evaluation of on-going programs. They are, however, decisions which depend on an organization's ability to respond to information retrieved about program activities already being undertaken. And they constitute a critical dimension of the information structures of family planning organizations.

The same information which is used to assess program activities on a day-to-day basis is also necessary for the information structure which performs research and evaluation functions for a family planning organization. The dependence of family planning administrators on environmental research and evaluation has been a consistent theme among demographers concerned with family planning programs. Ronald Freedman, in suggesting some of the information requisites of a family planning program, has underscored the administrative importance of program research and evaluation:

Any significant national program should have in its central evaluation and research unit a strong survey research unit which could do regular KAP (Knowledge, attitudes, and practices) surveys, surveys of IUD users, and also spot studies of the places and problems which turn up as administrative difficulties. Such special studies will be most useful if they have regular cross-section surveys as points of comparison. The work of such units should also include surveys of health personnel and the administrative staff of the programs. An essential part of the work of such a unit should be to help the administrator know what is actually going on. In such large and complex programs as those of India and Pakistan, for example, even the vigorous administrators will have difficulty in knowing from month to month what is really happening without some independent information source of this sort. Precisely when administration is vigorous, the lower levels of the administration may find themselves constrained by the system to tell the higher administrators what they want to hear.<sup>30</sup>

While specific and detailed feedback should be the primary source of program activity guidance, more fundamental policy guidance should be based, in the

case of a family planning organization, on demographic analysis with particular reference to the demographic impact of various contraceptive technologies. In India, as in most developing nations, there should not be an expectation that sophisticated retrieval and feedback analysis be conducted at the clinic level nor, it may be added, at the village, district and perhaps not even at the state level. What may reasonably be expected is that the national organization will have access to research facilities capable of carrying out such studies on a regular basis. Lower level units may be the places where problems are first sensed or detected, but not the units to initiate serious investigations. These investigations can be assigned on a contract basis to universities and other research organizations as the need arises. For example, if there is an interest in knowing something about the awareness of family planning among the population, it is appropriate to involve an experienced research organization. It may not be necessary for the family planning organization to have the staff within its own organization to carry out such a study. Yet, the family planning organization must have funds and flexibility to be able to call upon research organizations to do these studies. Moreover, the pressures on an organization to make itself appear successful strengthens the case for using outside organizations to perform certain evaluation functions.

The research and evaluation function of family planning organizations is performed not only through more thorough, long-range analysis of information retrieved from on-going production operations, but also through the ability to retrieve and utilize new information from outside the organizational system. While based essentially in technologies -- that is, in new techniques and new methods of using them for program purposes -- research and evaluation is concerned with the relationship between program activities and operational goal fulfillment, as well as with the relationship between operational goals and the broad goal of a reduction in population growth rates. Long range assessment of the impact which an intense IUD program has on the projected fertility rate of a nation is a legitimate exploration of the research and evaluation component of the organization. The necessity for committing scarce organizational resources to this type of information structure is obvious; within the fluctuating environment of social change program, the relevance of change variables to program success is a matter of organizational effectiveness. Feedback at the operating level of the organization provides only part of the picture of this relationship. New program developments will come not only through measurement and evaluation of on-going procedures, but will also rely heavily on importation of new information from sources outside the organization. Thus, new developments in both social and contraceptive technologies must be retrieved and incorporated into program changes through research and evaluation mechanisms.

Again, the organizational arrangements for adapting and modifying program changes indicated as a result of research and evaluation activities determine the ultimate effectiveness of this information structure. If a research and evaluation unit is isolated from the productive structure of the organization, and if its activities cannot be integrated into the total

system and thus guide program and even operational goal adjustments, then its critical function is not being fulfilled. The problems are three-fold: the research and evaluation structure first must be able to accumulate the information essential to its task; secondly, it must be able to translate this information into a form which is useable by the organization to modify its program activities; and, thirdly, the organization must then be able to adapt to the changes which are indicated as a result of this information process. Successful use of a research and evaluation structure in the family planning organization clearly involves both adaptive and innovative capabilities of the organization.

More broad and diffuse than either operational feedback or operational research structures in an organization are those structures which perform "systemic research."<sup>31</sup> Both the preceding information structures have been related essentially to technological problems: how well production activities are fulfilling program goals, and how well program activities are relating to the broad and general goal commitments of the organization over time. There is, however, a third information structure which is concerned essentially with the environmental setting of the organization and the degree to which its own internal relationships and its relationships to a constantly changing external environment are consonant with organizational goals and programs.

It is perhaps the external environment of family planning organizations which, more than any other variable, influences the choice of operational goals for the organization and the projected relevance of these goals to the broad commitment to a reduction in population growth rates. In addition, family planning goals often require more than a normal amount of support and involvement of external groups and organizations. The political, economic and social systems within which the organization operates is the source of much of the information necessary for a systemic research structure to function effectively. Accurate assessment of a family planning organization's position within the total bureaucratic environment of a developing nation, and subsequent activities designed to improve this relationship may in fact be among the most critical functions of the organization. Although it is eventually dependent upon its own ability to adapt and adjust to environmental conditions which affect program activities, it is initially dependent upon an accurate assessment of the conditions to which it must adapt, and the quality of relationships which it undertakes with other environmental groups.

Despite the persuasive rationale for effective information retrieval structures within family planning organizations, these structures do not automatically develop and function in an anticipated manner. Rather, they must consciously be built into organizations faced with a broad goal commitment to affecting population growth rates. Attempts to do this within the rigidly bureaucratic and hierarchic structures which typify most developing nations will be difficult at the least.<sup>32</sup> A family planning program has as one of its purposes a reduction in the birth rate; and the diffusion of contraceptive practices represents, for the present, the main operational goal of program administrators in attempting to affect population growth. The

importance of counting and evaluating loop insertions, sterilizations, etc., is to provide "intermediate indicators" of program accomplishments. Demographic analysis, which more accurately measures fundamental program impact, involves long time lags and is far more difficult. In a family planning program, perhaps more than in a production-oriented organization, administrative behavior may tend to focus on the activities related to the "intermediate indicators." In other words, the insertion of loops, the distribution of condoms, the recruitment of doctors, and the production and distribution of pamphlets and billboard signs become ends in themselves--the displacement of goals occur.

Essentially, displacement of goals involves replacing the substantive goals of the organization with a primary concern for the *methods* of achieving goals.<sup>33</sup> The problem of goal displacement is an issue that all organizations face, although it can be more acute in innovative social change programs where guidelines are vague and output is behavioral change rather than visible and tangible results, for family planning organizations in the developing nations, *demographic impact* becomes a remote abstraction which may be referred to, but more or less ritualistically. The real job of the organization becomes an obsessive concern with the methods of carrying on yesterday's activities. And yesterday's activities are likely to become formalized and bureaucratized, thereby reinforcing the likelihood of goal displacement.

Goal displacement can permeate the total organization and affect not only the operational feedback structures but also research and evaluation units which embrace much of the innovative capacity of the organization.<sup>34</sup> Even thorough evaluations of program activities by a research and evaluation unit can be made in terms of the same displaced goals which provide guidelines for feedback activity. At a different level, goal displacement has often been related to an element of insecurity within an organization--insecurity based in such conditions as fear of negative reactions from organization superiors and insecurity in established working conditions or the social position of a work group.<sup>35</sup> Within a rigid bureaucratic structure, these insecurities are translated into a resistance to change, a fear of taking risks. It is manifested in a tendency to report and evaluate organizational activities in terms which imply no change and appear to fulfill program objectives--the displaced goals.

Counteracting this probability of goal displacement is one of the acute administrative challenges of a family planning organization, especially in the developing nations. In this sense, evaluation of family planning programs is too important and involves too many risks to be left exclusively in the hands of the family planning organization. As Hauser has suggested, for the same reason that a business firm employs an outside auditor a family planning program should probably use an external and independent evaluation unit which is sufficiently free from performance pressures to be critical and communicative about the success or lack of success in the program. Within the family planning organization itself there may simply be too many pressures to appear successful. However, these external evaluations of family planning programs can go only part way toward avoiding assessments

in terms of displaced goals; the organization must also move to ensure the security and flexibility which are prerequisites to an effective information retrieval and use program.

The same organizational rigidity and formalization which tends to precipitate goal displacement also seriously inhibits the ability of family planning organizations to develop necessary extra-organizational arrangements. Successful implementation of mass scale family planning programs in the developing nations requires personnel, skills, field networks and a multiplicity of other resources which are beyond the capacity of a single organization to supply. Since it is unrealistic to expect a health ministry or family planning agency to incorporate all these resources within its own structure, it must be able to capitalize on the strengths, talents and contacts of other governmental agencies as well as non-governmental agencies. This is not the first tendency of a governmental agency such as public health: they generally show a marked propensity to assume a monopolistic prerogative over all areas of public policy within their purview. There is a general resistance to sharing responsibilities with non-governmental agencies, and where there is some interaction between governmental and non-governmental associations, the relationship is often treated as a political necessity rather than a genuine cooperative venture among organizations with shared goals. Thus, there is no systematic analysis of the ways various non-governmental agencies can be integrated into the social change program.

Relationships among governmental agencies are, if anything, even more problematical. Effective interagency relationships require an organizational flexibility and multiple points of decision-making which allow representatives of an agency to negotiate easily with members of another agency, with a degree of confidence in the capacity of the other agency to fulfill the shared functions. The confidence and flexibility required for effective relationships seem notably absent in most of the developing nations. Moreover, a consensus on national goals and the determination and ability of policy makers to bring about behavior consistent with these goals may be a necessary condition for effective interagency relationships. Family planning now suffers, in most instances, from a lack of such consensus, determination and skill. If systemic research structures function effectively, they can provide much of the impetus for meaningful interagency and intraorganizational relationships. However, as implied above, administrative structures within the family planning organization itself must also be modified to provide the flexibility and adaptability necessary to follow through on the genuine bargaining and trade-offs which characterize a dynamic relationship.

Introducing adaptiveness and the capacity to innovate into bureaucratic organizations in developing nations is a task for which the tools and understandings of public administration are somewhat ill-fitted. Rationally-conceived pleas for structures able to accommodate the need for rapid response to change conditions, as well as the need for new ideas and approaches to the management of social change, are not accompanied by an organizational design guaranteed to fulfill these needs.

It is, however, possible that the kind of adaptive and innovative capability which is most functional for family planning organizations in developing nations today may be in large measure directly related to the capabilities of its information retrieval and use structures. Retrieval of regular, systematic and reliable information about the organization and its programs, and utilization of this information to assess organizational effectiveness in terms of both general goal commitments and the instrumental means for fulfilling them may, more than any other organization modification, strengthen the potential of a family planning organization for adaptive and innovative behavior.

#### FOOTNOTES

1. The first national family planning program in the world was adopted by India in 1952. However, it was not until the 1960's that a serious attempt was made to implement the program.
2. Taiwan, while it has no official national family planning program as such, has nevertheless encouraged the implementation of a family planning program on a quasi-official basis.
3. Kingsley Davis, "Population Policy: Will Current Programs Succeed?" *Science*, Vol. 158 (November 10, 1967), pp. 733-34; and Philip M. Hauser, "Family Planning and Population Programs: A Book Review Article," mimeo., 32 pp. (A review of Bernard Berelson, et al. (eds), *Family Planning and Population Programs*, Chicago: University of Chicago Press, 1966.)
4. See, for example: Lyle Saunders, "Research and Evaluation: Needs for the Future," in Berelson, et. al. (eds), *op. cit.*, p. 825; Moye W. Freymann, "India's Family Planning Program: Some Lessons Learned," in Minoru Muramatsu and Paul A. Harper (eds), *Population Dynamics*, Baltimore: Johns Hopkins Press, 1965, pp. 24-25; Ronald Freedman, "Family Planning Programs Today: Major Themes of the Conference," in Berelson et. al. (eds) *op. cit.*, p. 825; and Leona Baumgartner, "Family Planning Around the World," in Berelson, et. al. (eds), *op. cit.*, p. 287.
5. James A. Crabtree, "Public Health Implications of the Population Problem," in Mindel C. Sheps and Jeanne Claire Ridley (eds), *Public Health and Population Change*, Pittsburgh: University of Pittsburgh Press, 1965, p. 532.
6. See, for example, Tom Burns and G.M. Stalker, *The Management of Innovation*, London: Tavistock Publications, 1961, pp. 11; 121; Chadwick J. Haberstroh, "Organization Design and Systems Analysis," in James G. March, ed., *Handbook of Organizations*, Chicago: Rand McNally and Company, 1965, p. 1172; Lawrence B. Mohr, *Determinants of Innovation in Organizations*, unpublished PhD Dissertation, University of Michigan, 1966, p. 24; William H. Starbuck, "Organizational Growth and Development," in March (ed), *op. cit.*, p. 481; and Victor A. Thompson, "Objectives for Development Administration," *Administrative Science Quarterly*, Vol. 9, No. 1, (June 1964) pp. 91-108.
7. James G. March and Herbert A. Simon, *Organizations*, New York: Wiley 1958, p. 194.
8. Hauser, *op. cit.*, pp. 28-30.

23

## Footnotes (2)

9. We are using the term "technologies" here in the same sense as Charles Perrow in his "Hospitals: Technology, Structure, and Goals," in March (ed), *op. cit.* pp. 915-916. That is, technology is a "technique or complex of techniques employed to alter 'materials' (human or non-human, mental or physical) in an anticipated manner." Thus, technology is developed from an understanding of the item which is to be altered; the equipment needed to alter the item is the tool of the technology, but not the technology itself. In this sense, contraceptive technologies are not the contraceptives themselves, but the ways in which the contraceptive functions to control child bearing.
10. Although his implications are more broad and diffuse, Elihu Katz illustrates this relationship between the technology and the target population of a diffusion process in terms of the "compatibility" between attributes of the item of diffusion and attributes of the social systems of potential adopters. See his "Diffusion Research and Family Planning" draft of paper presented at August, 1966, meetings of the American Sociological Association, Miami Beach, mimeo.
11. In Katz' article on diffusion and family planning, he devises a partial listing of those factors which affect the degree of compatibility between contraceptive technologies and potential adopters of contraceptives; he further cites and includes a chart prepared by the Information Center on Population Problems in cooperation with Dr. Christopher Tietze (New York) on the "Relative Effectiveness and Utility of Fertility Control Methods." Both citations are explorations of the kinds of variables which affect the inclusion of specific contraceptive technologies in a family planning program.
12. Although observations of administrative behavior in India provide the empirical basis for this point, the phenomenon is undoubtedly a function of bureaucratization and is in no way limited to India.
13. The general relevance of family planning to diffusion has been explored by Elihu Katz without reference to the role of the organization in the process. Moye Freymann and Herbert F. Lionberger have indicated the need for an awareness that the organization is a participant in the diffusion process. See Katz, "Diffusion Research and Family Planning," *op. cit.*; and Freymann and Lionberger, "A Model for Family Action-Research," in Clyde V. Kiser (ed), *Research in Family Planning*, Princeton, New Jersey; Princeton U. Press: 1962, pp. 443-461.

Footnotes (3)

14. This is the basic definition given diffusion by researchers in the field. See Elihu Katz, "The Social Itinerary of Technical Change: Two Studies of the Diffusion of Innovation," in *Studies of Innovation and of Communication to the Public*, Studies in the Utilization of Behavioral Science, Vol. II, Stanford University, Palo Alto, California: Institute for Communication Research, 1962, p. 3; and Everett M. Rogers, *Diffusion of Innovations*, New York: The Free Press of Glencoe, 1962, pp. 12-20.
15. Rogers (*Diffusion of Innovation*) traces the development and acceptance of these stages of adoption, and defends the validity of breaking the process into conceptual stages (pp. 76-81 and 95-98). E.A. Wilkening ("The Communication of Ideas on Innovation in Agriculture," in *Studies of Innovation and Communication to the Public*, *op. cit.*, pp. 44-45) acknowledges general acceptance of the idea of adoptive stages. In a limited quantitative attempt to validate the presence of such stages, Mason found that the five stages were neither essential to a process of adoption nor did they appear to be sequential in the manner postulated by other diffusion researchers. See Robert Mason, "An Ordinal Scale for Measuring the Adoption Process," in *Studies of Innovation and Communication to the Public*, *op. cit.*, pp. 99-116. We are using the commonly accepted categorization of stages of the individual adoptive process, with Rogers' labels (pp. 81-86) as an exemplification of the kinds of variables important in a family planning organization; in the absence of further empirical invalidation of the categories, they serve our illustrative purposes, Mason's work notwithstanding.
16. Donald J. Bogue, "Some Tentative Recommendations for a Sociologically Correct Family Planning Communication and Motivation Program in India," in Kiser (ed), *op. cit.* pp. 533-534; Wilkening, *op. cit.*, p. 45.
17. Rogers presents a comparison of the labels and characteristics used by different researchers to categorize potential adopters. (*Diffusion of Innovation*, *op. cit.*, pp. 150-151.)

Moreover, he indicates that at least with regard to agricultural innovations, the earliest adopters (innovators) constitute the first 2.5% to adopt a new item; the early adopters the next 13.5%; and early majority the next 34%; the late majority the next 34%, and the laggards the last 16% to adopt. (Characteristics of Agricultural Innovators and Other Adopter Categories," in *Studies of Innovation and of Communication to the Public*, *op. cit.*, p. 64.) Although we are using this as the illustrative base of the following discussion of categories of adopters, it should be noted that other research, conducted outside the area of agriculture innovation, casts some doubt about the general applicability of these categories and the accompanying characteristics of their populations. See, for example, Otto N. Larsen, "Innovators and Early Adopters of Television," in *Sociological Inquiry*, Vol. 32, No. 1, (Winter 1962), pp. 16-33.

Footnotes (4)

Although we have not consistently used his labels, the characteristics which are attributed to each category of adopters are those noted by Rogers in his synthesis of past research in diffusion, *Diffusion of Innovations*, op. cit., p. 148-192.

18. Rogers, *Diffusion of Innovations*, op. cit., p. 185; and Rogers, "Characteristics of Agricultural Innovators and Other Adopter Categories," op. cit., p. 94.
19. This need is underscored by Bogue, op. cit., pp. 503-538.
20. Rogers, *Diffusion of Innovations*, op. cit., pp. 248-250.
21. Cora DuBois, "The Public Health Worker as an Agent of Socio-Cultural Change," in Warren G. Bennis, Kenneth D. Benne, Robert Chin (eds), *The Planning of Change*, New York: Holt, Rinehart and Winston, 1962, p. 535.
22. John F. Kantner discusses some of these problems in a family planning program. See, "The Place of Conventional Methods in Family Planning Programs," in Bernard Berelson, et. al (eds), op. cit., pp. 403-409.
23. H.G. Barnett, *Innovation: The Basis of Cultural Change*, New York: McGraw-Hill Book Company, Inc. 1953, p. 321.
24. DuBois, op. cit., pp. 531-532.
25. Wishik notes that in Pakistan an effort has been made to utilize villagers who have left their villages but return with some frequency as communicators for family planning. See Samuel M. Wishik, "Community Programs to Modify Family Size: Indications for Organization and Planning," in Sheps and Ridley (eds), op. cit., pp. 198-218.
26. For a sample of explorations into these dimensions of organization capabilities, see: Peter M. Blau and W. Richard Scott, *Formal Organizations*, San Francisco: Chandler Publishing Co., 1962, pp. 38-42; Burns and Stalker, op. cit., pp. 11, 92-95, 140-144; Harold Guetzkow, "The Creative Person in Organizations," in Gary A. Steiner (ed), *The Creative Organization*, Chicago: The University of Chicago Press, 1965, pp. 35-49; Mohr, op. cit., pp. 6-24; Edgar H. Schein, *Organizational Psychology*, Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1965, p. 97; Steiner (ed), op. cit., pp. 16-18, 24; and Victor A. Thompson, "Bureaucracy and Innovation," *Administrative Science Quarterly*, Vol. X, No. 1 (June 1965), pp. 1-20.

Footnotes (5)

27. Many suggestions for building adaptability and innovativeness into organizations have been set forth in: Peter M. Blau, *The Dynamics of Bureaucracy*, Chicago: The University of Chicago Press, 1963, pp. 236-256; Burns and Stalker, *op. cit.*, pp. 5-6, 121-122; Albert Kenneth Rice, *The Enterprise and Its Environment: A System Theory of Management Organization*, London: Tavistock Publications, 1963, pp. 16-18; Schein, *op. cit.*, pp. 103-104; Thompson, "Objectives for Development Administration," and "Bureaucracy and Innovation," *op. cit.*, pp. 94-108; 1-20; and "The Innovating Organization." Special supplement to *Trans-action*, Vol. 2, No. 2, (January/February 1965), pp. 30-40.
28. Three types of "Information procedures" have been described by Daniel Katz and Robert L. Kahn (*The Social Psychology of Organizations*, New York: John Wiley and Sons, Inc., pp. 247-253) as the formal structures in organizations which make explicit the search for and utilization of information required for effective organizational functioning. These procedures -- "operational feedback;" "operational research," and "systemic research" -- make essentially the same kinds of distinctions which we are implying in exploring feedback, research and evaluation and environmentally-oriented information structures.
29. March and Simon, *op. cit.*, p. 160.
30. Freedman, *op. cit.*, p. 823.
31. Katz and Kahn., *op. cit.*, pp. 250-253.
32. Thompson ("Administrative Objectives for Development Administration,") *op. cit.* pp. 103-106 discusses this difficulty.
33. Blau, *op. cit.*, pp. 247-256; Blau and Scott, *op. cit.*, pp. 229-230; David L. Sills, *The Volunteers*, Glencoe: The Free Press, 1957, p. 62 ff.
34. This problem has been explored by Robert S. Friedman, Lawrence B. Mohr and Robert M. Northrop, "Innovation in State and Local Bureaucracies," (a paper prepared for delivery at the 1966 Annual Meeting of the American Political Science Association, September 1966), mimeo., pp. 14-15.
35. Blau, *op. cit.*, p. 247; and Burns and Stalker, *op. cit.*, p. 258.