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Family Planning Success Stories in Bangladesh and India

Moni Nag

When resources are limited, a program that encourages people to take advantage of existing services may be more practical than one that provides new services.

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This paper — a product of the Population and Human Resources Department — was prepared as a background paper for the best practices paper on effective family planning programs. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Otilia Nadora, room S6-065, extension 31091 (November 1992, 37 pages).

The Matlab Project in Bangladesh and the Kundam Project in India have demonstrated that a significant rise in contraceptive prevalence can occur in socioeconomic environments that are generally conducive to high fertility and mortality. Nag describes the inputs and outputs of these two projects and tries to identify the factors underlying their success.

Both projects are experimental in the sense that in each an intervention area is provided with special inputs that are not provided to a contiguous control area. The special inputs were different for the two projects.

In the intervention area in Matlab, the project took responsibility for providing family planning and some rudimentary maternal and child health services that were considerably different from those provided in the national program. In Kundam, the project did not take responsibility for providing services in the intervention area, but rather tried to mobilize the community through various clubs and committees to take the most advantage of the government's family planning and other development programs.

The success of the Matlab Project can be attributed to various aspects of the organizational system developed for delivering consumer-friendly services. The success of the Kundam Project can be attributed to various aspects of the system developed for community members' active participation in the program.

The projects are not fully replicable because of inadequate human and financial resources, but the lessons learned from them should be useful in improving national programs. The Kundam Project is more realistic in the sense that it focuses on activities that *supplement* local activities of the national program rather than *substitute* for them (as in the Matlab Project). Thus the Kundam Project is more likely to be replicable than the Matlab Project.

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Moni Nag

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Introduction

The governments of southern Asian countries took pioneering steps initiating national family planning programs about three decades ago, but, except in Sri Lanka, their success in increasing contraceptive use and reducing fertility level has generally been much lower than expected in five-year plans. There are, however, small pockets in these countries where special projects—mostly nongovernment—have succeeded in making significant dents in contraceptive prevalence and fertility. Often these are service-oriented projects with little or no research component which can generate the data necessary to analyze and evaluate their impact. Matlab Project in Bangladesh is well-known internationally because of its remarkable success in an adverse environment and also for the exhaustive documentation and analysis of its success. There are other projects in southern Asian countries which claim greater success but most of them are limited in size and lack adequate documentation. A review of the relevant literature on southern Asia shows that the Kundam Project in India, which although not so well-documented as the Matlab Project, has attained a significant level of success with strategies different from those of the latter.

The main objective of this paper is to analyze the socioeconomic and demographic data necessary to establish the Matlab and Kundam Projects as examples of success stories in family planning under adverse circumstances and to identify the reasons for their success. The findings are likely to provide useful lessons for the national and NGO family planning programs in southern Asia and other regions of the developing countries.

The Matlab Project

Matlab, a relatively inaccessible rural upazila (subdistrict) of Bangladesh, with poverty and illiteracy as widespread as in the country as a whole, has become well-known internationally in the areas of health family planning. The field experimentations conducted by the International Centre for Diarrheal Disease Research, Bangladesh (ICDDR,B) in Matlab contributed significantly to the decline of mortality and morbidity from diarrhoeal diseases all over the Third World. The Centre began experimental research on family planning in Matlab in the mid-1970s and by the mid-1980s achieved a success which may be regarded as unprecedented for any region as undeveloped economically and socially as Matlab.

In an area comprising 70 villages (population about 92,000 in 1981) of Matlab (total population about 281,000 in 1981), the proportion of currently married women of reproductive age using modern contraception rose from less than 9 percent in 1977 to 46 percent in 1985 and to 57 percent in 1990—a significantly high level of prevalence for an area with such low socioeconomic level (Balk et al. 1988:41, 52; personal communication with Michael A. Koenig 1991). This part of Matlab is designated by the ICDDR,B as the Treatment Area since it is being treated with special family planning and maternal-child health inputs since 1977 under an experimental project called the MCH-FP Project (often referred to as the Matlab Project). The inputs of the Matlab Project are in addition to those of the Bangladesh government's national family planning and MCH program.

The prevalence of modern contraceptives in another contiguous part of Matlab comprising 79 villages (population about 88,000 in 1981) designated as the Comparison Area, which did not receive the inputs, rose from about 8 percent in 1977 to 12 percent in 1985—a much less significant rise. The rise in the prevalence of modern contraceptives in the whole country during the period was from 6 percent in 1977 to 23 percent in 1985 and to 26 percent in 1989 (Mitra et al. 1990). Undoubtedly, the contraceptive prevalence in the Matlab Treatment Area increased at a significantly higher rate compared to other areas of Bangladesh.

The Matlab Project is a part of the ongoing research and services undertaken by the ICDDR,B. The original activities of the ICDDR,B (previously known as Cholera Research Laboratory or CRL) was confined to research, training, and service provision related to cholera and other diarrhoeal diseases. Matlab was chosen as a field site for diarrhoeal disease research because it was poor, densely populated, riverine, and prone to cholera epidemics. During the last two decades the research agenda of the ICDDR,B has expanded to include broader areas of health including family planning.

Genesis of the Project

The government of Pakistan (of which Bangladesh was a part of until 1971) recognized the necessity in the early 1960s to control population growth as a prerequisite for development and initiated a family planning program in 1965. The 1968 National Impact Survey indicated a wide gap—often called KAP-gap—between knowledge of contraception and expressed attitude towards birth control on the one hand, and actual practice of birth control on the other (Sirageldin et al. 1975). In order to probe the limit of contraceptive demand by minimizing monetary costs of using contraceptives and by applying experimental method for comparison, the ICDDR,B, in collaboration with the Bangladesh government's Ministry of Health and Population Control, started in July 1975 a project called Contraceptive Distribution Programme (CDP).

A continuous system of demographic and disease monitoring data collection in the area, known as the Demographic Surveillance system (DSS), was established by the ICDDR,B in 1963 for evaluating experimental cholera vaccines and has yielded what is believed to be one of the Third World's most extensive longitudinal data sets relating to demographic change. Since research had shown that the DSS data was complete and accurate, effects of experimental contraceptive distribution could be continuously evaluated by using the DSS data along with the data collected through a complete census of Matlab experimental area in 1974.

In the CDP nonclinical methods of contraception (oral pills and condoms) were distributed in 150 villages (designated as the Treatment Area) through 154 Lady Village Workers (LVWs) who were responsible for visiting households with women eligible for contraception and offer regular supplies as needed. These workers with little or no education were already engaged in other health-related activities in the same area and were given only minimal training in motivation and followup in accordance with the hypothesis that distribution alone would increase contraception use and reduce fertility. Another contiguous area comprising 83 villages of Matlab

served only by the regular Bangladesh government program was designated as the Comparison Area (Stinson et al. 1982).[1]

The 1974 baseline survey of eligible women in 233 CDP villages showed that only one percent were current contraceptive users but another 32 percent expressed a desire to cease childbearing and to use contraception in the future; this supported the latent demand hypothesis. The actual behavior, however, did not support the existence of high latent demand for contraception. Although the proportion of contraceptive users in the Treatment Area rose from about 1 percent at program initiation to about 18 percent after three months, it fell to about 14 percent at the end of the first year and to about 12 percent at the end of the second. A major reason for the decline was a low continuation rate for pill acceptors because of improper use, unattended side effects and concern about risks. These were also the reasons for a general failure to recruit new users after the first intensive round in late 1975. The prevalence rates in the Comparison Area held at about 3 to 4 percent throughout the program period (see Langsten and Chakraborty 1978, Osteria et al. 1978; Rahman et al. 1980).

The CDP findings suggested that ubiquitous availability of contraceptive supplies alone was not a solution to high birth rate in Bangladesh, but they also indicated that there might indeed be a possibility to extend contraceptive use through provision of a wide variety of methods, more intensive followup, and care of users, and recruitment of workers with higher credibility. The Matlab Project, designed to fulfil these requirements, was launched by the ICDDR,B in October 1977.

Service Structure of the Matlab Project

The geographical demarcation of the Treatment and Comparison Areas in the Matlab Project are different from those of the former CDP. Seventy villages of Matlab belonging to the Matlab Project Treatment Area is comprised of 39 villages of the CDP Treatment Area and 31 villages of the CDP Comparison Area; 79 villages of the Matlab Project Comparison Area is comprised of 54 villages of the CDP Treatment Area and 25 villages of the CDP Comparison Area (Phillips et al. 1982).

The Treatment Area is divided into four blocks for project operation purposes. Basic domiciliary services for pill, condom, foam tablet, and injectable (depo-provera) and clinical services for IUD, menstrual regulation, and sterilization were introduced in all four blocks in 1977 when the project was initiated, but components of MCH services were introduced in different blocks at different times. For example, in 1979, lobon-gur (salt-molasses) strategy as oral rehydration therapy for diarrhea was introduced in blocks B and D, and WHO oral rehydration solution (ORS) formula in blocks A.C; in 1981, there was a switch over to ORS in blocks B and D; measle vaccination began in blocks A and C in 1981 and in blocks B and D in 1985. Service strategies and intensities changed in accordance with the lessons learnt. For example, tetanus toxoid immunization was administered to pregnant mothers only when it was initially introduced in 1979 in all four blocks but the experience let the project managers to extend it to all mothers of childbearing age subsequently.

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[1]The villages covered in the "Treatment Area" and "Comparison Area" in the CDP were different from those covered in the "Treatment Area" and "Comparison Area" of the MCH-FP Project.

The service package of the Matlab Project, described in detail elsewhere (Bhatia et al. 1980; Phillips et al. 1984; Rahman 1986; Balk et al. 1988) includes the contraceptive methods mentioned above, immunization for children and pregnant mothers, treatment of diarrhoeal diseases, and provision of medicines for contraceptive side effects and a few illnesses. Field workers are trained to inform and educate mothers about contraceptive methods, advantages of small family and spacing births, safe delivery practices and hygienic practices for prevention of diarrhea and other diseases.

The Matlab Project staff in the Treatment Area—recruited, trained and administratively controlled by the ICDDR,B—includes a village-level female worker called Community Health Worker (CHW) per 1,000 persons (about 200 households). The CHWs need a minimum of eight years' schooling, but many have ten years'. They are married, contraceptive users, and mostly reside in or near their working areas. There are twenty CHWs in each block. Most of their time is spent delivering contraceptive and MCH services. Once every fifteen days a CHW is expected to visit each household in her area of operation to provide services and update her record-keeping book with any changes in fertility, mortality and other relevant information.

The CHW has two immediate supervisors—a female paramedic called Lady Family Planning Visitor (LFPV) and a senior health assistant (SHA). The LFPV is a trained paramedic skilled in inserting IUDs and performing menstrual regulation (MR). She is in charge of a subcenter clinic. Each of the four Treatment Area blocks has a subcenter clinic. The LFPV supervises the CHWs in her block and provides those services to the clients that are beyond CHW's technical skill. She inserts IUD in a client's home or at the clinic. Until 1984 she used to perform Mrs at the subcenter clinic. Every morning at the subcenter the LFPV sees clients who come with contraceptive side effects and mothers and children with complaints of illness.

The senior health assistant (SHA), a subcenter-level worker, usually male, with some health training, is mainly responsible for supervising CHWs' field work. He maintains records and manages the supplies necessary for the block's service delivery. He is also expected to provide support to the CHWs by educating and motivating husbands at their homes about family planning, immunization, and community organization.

The ICDDR,B field stations at Matlab Bazar (a small semirural town about 65 miles south of Dhaka city) runs a hospital for diarrheal patients and has staff members belonging to the ICDDR,B projects other than the Matlab Project. The central clinic of the Matlab Project, situated at Matlab Bazar, is staffed by one or more doctors and LFPVs. The doctors hold visiting hours at the clinic and are responsible for supervising and supporting the clinical services of the LFPVs at the subcenter. Until 1985 sterilization of clients from the Treatment Area were performed at the central clinic but since then sterilization services were shifted to the government upazila-level health complex fertility at Matlab Bazar.

Two categories of part-time local volunteers contribute their services to the Matlab Project: bari-mothers[2] and traditional birth attendants. These volunteers receive training from the

[2]The bari is a Bangladeshi term for an exogenous cluster of households whose male heads are related patrilineaIy and is known to exert a strong collective influence on social and economic behavior (Rahman 1986). The seniormost female member of the household willing to provide voluntary service to the Project is designated as the bari-mother.

CHS but earn no income. About 1250 bari-mothers have been trained to promote and educate mothers on oral rehydration solution (ORS) preparation and use. They keep records of their communities' ORS needs and act as depots for distributing ORS packets. Since 1982 there have been about 500 traditional birth attendants (TBAs) who have been trained to educate mothers about safe delivery of babies and utilization of safe birth/delivery kits.

Once every two weeks each block subcenter holds a staff meeting which is attended by the CHWs, LFPVs, SHAs and, usually, more than one managerial staff members of the Project located at Matlab Bazar. Necessary contraceptive and medical supplies are distributed in these meetings. The CHWs report on their fortnightly activities and discuss their field problems. The supervisors present block performance reports to the CHWs and give information about changes, training sessions, and other relevant matters. These meetings provide opportunities to the CHS for continuous orientation on various aspects of their work. Data management personnel attend those meetings to collect and disseminate biweekly information.

The Matlab Project does not provide any service other than ORS distribution in the Comparison Area. But its Demographic Surveillance System (DSS) staff members regularly collect demographic data from the Comparison Area through periodic visits to the households. They are also responsible for distribution of ORS packets and imparting education regarding their proper use.

Service Structure of the Bangladesh National Program

The family planning wing of the Ministry of Health and Family Planning (MOHFP) provides family planning and MCH services throughout the country (for details see Balk 1986 and Balk et al. 1988). The union-level health and family welfare centers (one H&FWC for approximately 20,000 people) constitute the institutional cornerstone of the rural family planning and MCH outreach service. These serve as the first referral points for village-level service providers. In 1991, there were about 2700 such centers. There were about 350 upazila-level health complexes (UHCs). As recent extension of facilities, two satellite clinics are organized twice a week within the jurisdiction of union-level H&FWCs and two sterilization camps are organized every month by each health complex (Choudhuri and Akhter 1989).

Pills, condoms, and foam tablets are distributed at home by Family Welfare Assistants (FWAs)—the key field-level female workers. There is provision of IUD insertion and other health services at the union-level health and family welfare centre which is staffed by a lady paramedic designated as Lady Family Welfare Visitor (LFWV). Sterilization and menstrual regulation services are available at the family planning unit of the health complex, which at the minimum has a doctor designated as MO (MCH), two lady paramedics, and two male assistants. Injectable (depo-provera), introduced in the program since 1978 and still accounting for a minuscule part of contraceptive prevalence, is administered in any health facility.

The density of Family Welfare Assistants (FWAs) located at the union-level centers was one per 7500 population until recently. They were scheduled to visit each household once every three months. With the addition of ongoing recruits, the FWA-population ratio by the end of the Third Five Year Plan (1985–90) is expected to be of the order of 1:4000 or roughly 1:800 couples (about four times less than in the Matlab Treatment Area). Family Planning Assistants (FPAs), who are males, have the responsibility of supervising FWAs (females) and also

contacting male villagers. They are fewer in number than FWAs and are reported to be less effective than FWAs (Phillips, Simmons, Koenig, and Hossain 1986).

Although formally MCH and family planning services are integrated under the family planning wing of the Ministry of Health and Family Planning, a few components of the MCH services are delivered through vertical programs of the Ministry's health wing. For example, immunization services are provided under the National EPI (Expanded Program on Immunization) program and oral rehydration solution (ORS) packets and information under a National Oral Rehydration Program (NORP). While the EPI and NORP share some facilities with the family planning wing, these programs maintain a separate staff in addition to the family planning workers.

Matlab upazila has one upazila health complex (UHC) and three health and family welfare centers (H&FWCs). The health complex is located at Matlab Bazar near the border of the Comparison and Treatment Areas demarcated by the Matlab Project. All three H& FWCs are located in the Comparison Area. Only one of them, standing before the Project started, belongs to a union which has completely in the Comparison Area. The other two, which became operative in 1984, serve unions that are split between the Comparison Area and the rest of the upazila area which is not covered by the Matlab Project. Since the facilities of the H&FWCs are more easily accessible to the residents of the unions in which these are located, the residents of the Treatment Area would be expected to take very little advantage, if at all, from them. The latter are also expected to take very little advantage of the health complex at Matlab Bazar for any service other than sterilization and menstrual regulation.

Theoretically, the government's family planning and MCH program is supposed to work throughout the Matlab upazila equally and in the same way as in other upazilas. Also, because of the ICDDR'B's special inputs in the Treatment Area, it can be assumed that the government's program would be able to invest greater resources in the Comparison Area by shifting those allocated for the Treatment Area. But in practice, it has been found that the efficiency of the government program in Matlab upazila as well as in the Comparison Area is less than the national average (Balk et al. 1988; Mabud and Walliullah 1986). The immunization services in the Comparison and non-studied areas of Matlab are provided by the government's Expanded Program on Immunization (EPI) but the Project has taken the responsibility of distributing ORS packets in the Comparison Area besides providing all immunization services in the Treatment Area.

The responsibility of providing information and education regarding family planning at interpersonal level lies on the field workers of the Ministry of Health and Family Planning but the Ministry of Information bears the responsibility of mass communication regarding family planning and health. Among the various mass media used for the purpose, broadcasting of family planning and health information and messages through Bangladesh government radio program called Sukhi Sangsar (A Happy Family) is the most effective one for the rural people (Nag and Duza 1988). The program directed by the Population Planning Cell of Radio Bangladesh, includes talks, interviews, features, drama, musical satire, documentaries, replies to listeners' letters, radio cartoon, reviews of events, commentaries and slogans. By 1986, Radio Bangladesh reached about 30 million listeners scattered over the country through about 4 million sets. A large proportion of women and men in the Comparison and Treatment Areas listen to the Sukhi Sangsar program.

Socioeconomic Setting

The Matlab Project was designed to test the hypothesis that a high quality family planning program oriented to fulfil the needs of potential consumers can increase the contraceptive prevalence substantially even under socioeconomic circumstances not favorable to small family norm. The experimental situation built into the Project by making provision for special family planning and MCH inputs in the Treatment Area and for collection of systematic demographic data in both the Treatment and Comparison Areas is not as perfect as in controlled comparison of biological sciences but is as close to the perfect as possible in social sciences. Since contraceptive prevalence and fertility are affected by family planning program as well as by socioeconomic factors, the socioeconomic settings in Bangladesh as well as in the Project area will be outlined below.

Bangladesh, the eighth most populous country in the world, is well-known for its poverty and a much faster population growth (2.8 percent per annum during 1980–87) than what is optimum for its development. With 87 percent of its 106 million people (mid-1987 estimate) living in villages and less than 0.10 hectare land per head, it is the most densely populated rural country in the world. Its per capita GNP of US $180 (1987 estimate) is among the lowest.

Despite the inception of a national family planning program more than three decades ago, the national fertility level is still quite high. For example, the estimated crude birth rates and total fertility rates in 1990 were 35 and 4.6 respectively (World Bank 1992). The major bulk of the population in Bangladesh are Muslims. In 1981, they constituted 87 percent of the population; 12 percent were Hindus and majority of the rest were Buddhists. Islamic opposition to family planning was a serious constraint on its acceptance until recently. As in other southern Asian countries, the social structure in Bangladesh is patriarchal with male dominance over females in almost all spheres of life. In a recent worldwide comparative study of 99 countries on the basis of indices related to health, marriage and children, education, employment, social equality, and gender gap, Bangladesh has been assessed to have the lowest ranking in status of women (Population Crisis Committee 1988). Female education, one of the variables known to be highly associated with rise in contraceptive prevalence and decline in fertility, is still at a very low level. For example, adult female literacy was only 12 percent in 1970 and 22 percent in 1990. Only 64 percent of primary school age girls and 19 percent of secondary school age girls were enrolled in schools in 1986–89 (Grant 1992). Infant mortality, another variable highly associated with contraceptive acceptance and fertility decline, is also still very high in Bangladesh. For example, the infant mortality rates per 1000 births were 144 in 1965 and 105 in 1990. Hence socioeconomic setting in Bangladesh can be considered to be highly unfavorable for widespread practice of family planning and low fertility level.

Various drawbacks in the national family planning program of Bangladesh have been analyzed by many investigators (e.g., Choudhury and Akhter 1990; Duza 1990). The inadequacy of its inputs relative to those in the Treatment Area of the Matlab Project has been pointed in the previous two sections. Yet the family planning program effort level—as measured by various indices related to policy and stage-setting, service, record-keeping and evaluation, and accessibility—has been assessed to be moderate (among the four categories of strong, moderate, weak, and very weak or none) and ranked 11th among 100 developing countries (Lapham and Mauldin 1985). In this respect it ranks somewhat lower than India but considerably higher than

Pakistan—two countries which are not very different from Bangladesh in socioeconomic and demographic characteristics.

In order to assess the evidence of family planning success in the Matlab Area, it is necessary to ascertain whether or not the socioeconomic condition of Matlab upazila is better than that of average Bangladesh and also whether or not the socioeconomic condition in the Treatment Area is better than that of the Comparison Area. Upazila-level socioeconomic data for Bangladesh are not available, but relative inaccessibility and low-level riverine landscape of Matlab upazila would make it very unlikely for Matlab population to be economically better off than the rest of the country. A survey conducted in 1984 in the Matlab Treatment and Comparison Areas indicate that the population in the Project area were more or less similar to rural Bangladesh in educational attainment, occupational structure and housing condition (Chowdhury and Phillips 1985).

The selection of villages for allocation in the Treatment and Comparison Areas was not made on a random basis. It was made by administrative criteria intended to control costs such as relative accessibility and proximity to Matlab Bazar. It can be argued that the criteria employed had some inherent socioeconomic bias. The 1984 survey, however, shows that the Treatment and Comparison Areas were socioeconomically very similar except for some difference in religious composition and religious education. Out of the total number of married women in reproductive age in the Project area 15.3 percent were Hindus and the rest were Muslims. The proportion of Hindu women was higher (19.7 percent) in the Treatment Area compared to the Comparison Area (11.0 percent). Although proportion of women with no secular education was almost same in both Areas—75.4 percent in the Treatment Area and 78.8 percent in the Comparison Area—62.8 percent of women with no secular education in the Comparison Area had some Matlab schooling (emphasizing prayer and recitation of verses from the holy Quran) compared to 43.8 percent in the Treatment Area. The higher proportion of Maktab educated women in the Comparison Area is a reflection of the higher proportion of Muslims in the Area and is likely to have a negative effect on the contraceptive prevalence in the area.

Impact of the Project on Fertility

Contraceptive prevalence rate at a particular time denotes the percentage of currently married women of reproductive age using contraceptives, that is, protected from pregnancy by contraception (including sterilization) at that time. Table 1 presents prevalence rates for modern contraceptive methods as well as for all methods from 1975 to 1990 (with some gaps) in the Matlab Treatment and Comparison Areas and in Bangladesh as a whole. The rates in the Treatment and Comparison Areas have been estimated on the basis of service statistics as well as on the survey data collected in 1978 and 1984. The rates in Bangladesh for 1975, 1979, 1983, 1985, and 1989 have been derived from survey data.

Prevalence rates for all methods including traditional ones are available only for the Treatment Area and Bangladesh and these are not very comparable because the traditional methods are different and the data regarding their use are not reliable. The Project service in the Treatment Area are oriented to modern methods only. Hence it seems desirable to use the prevalence rates for modern methods only for comparative purpose.

Table 1. Contraceptive prevalence rates (yearly means) in the Treatment and Comparison Areas in Bangladesh: 1975–1981[a]

	Matlab Treatment Area[b]	*Matlab Comparison Area*[c]	*Bangladesh*[d]	
Year	*Modern Methods*	*Modern Methods*	*Modern Methods*[e]	*All Methods*
1975	3.0	3.0	4.5	7.7
1976	9.5	9.5	-	-
1977	9.0	-	-	-
1978	25.0	-	-	-
1979	32.4	-	8.9	12.7
1980	32.4	-	-	-
1981	32.9	-	10.9	18.6
1982	34.7	-	-	-
1983	38.7	-	13.8	19.1
1984	43.2	11.0	-	-
1985	45.6	-	22.9	29.8
1989	-	-	25.8	32.8
1990	57.0	-	-	-

a. Figures represent original or reconstituted data for Matlab; - indicates non-availability of data.
b. Estimated on the basis of service statistics as well as data obtained from surveys conducted in 1978 and 1984 in Project Area; figure for 1990 based on personal communication with Michael A. Koenig.
c. Estimated on the basis of government statistics available at the local upazila level and at the national MIS office as well as on the data obtained from 1978 and 1984 surveys in the Project Area.
d. Figures represent the findings of the 1975 Bangladesh Fertility Survey (BFS) associated with World Fertility Survey (WFS) and the Contraceptive Prevalence Surveys (CPS) of 1979, 1981, 1983, 1985, and 1989. They include rural and urban areas and the areas served by NGO programs.
e. All methods include modern methods (injectable, pill, condom, IUD, tubectomy, vasectomy, and foam) and traditional methods (safe period, withdrawal, abstinence and others).
Sources: Balk et al. (1988:41,52); Mitra (1987:186); Mitra et al. (1990:98).

The Matlab Project had a pronounced effect on contraceptive prevalence in the Treatment Area immediately after its initiation in October 1977. Table 1 shows that the pre-Project prevalence rates of modern contraceptives in the Comparison Area was similar to that of the Treatment Area and the difference became increasingly sharper as the Project progressed. The yearly mean contraceptive prevalence rate for modern methods rose from 9.0 percent in 1977 to 25.0 percent in 1978. After rising up to 32.4 in 1979, its rate of increase slowed down during 1980–81. Since 1982 again it started rising rapidly until it reached 45.6 percent in 1985. No published figures are available for subsequent years but it is reported that the rate reached a level

around 50 percent in 1987–88 and above 57 percent by the end of 1990.[3] At the initial stage of the Project village-wise variation in the Treatment Area was quite high but it gradually diminished. Most of the villages had prevalence rates of less than 10 percent in the mid-1970s; none had rates of over 20 percent. Many villages in the Treatment Area had prevalence rates of modern contraceptives in excess of 50 percent by the end of the 1980s.

The patterns of adoption and continuation of modern contraceptives in the Treatment Area reveal a close relationship between the phenomena of supply and demand (Phillips et al. 1988). Adoption rates for all methods included in the Project were high and discontinuation rates low at the initial stage, because it served those whose demand was most prominent: high parity women, women with closely spaced births or many sons, and the relatively well-educated (Bhatia 1981, 1983). As the Project progressed, adoption rates were not so high and discontinuation rates increased. Such a pattern of adoption and continuation has been found in other countries also (Ross et al. 1972).

The prevalence pattern of contraceptive methods in the Matlab Treatment Area has changed during the course of the Project (Table 2). One significant change is the relative decrease in the prevalence of injectables from 49 percent in 1979 to 37 percent in 1985 and increase in the prevalence of IUDs from 3 to 18 percent during the same period (Table 2).

The contraceptive prevalence for modern methods increased dramatically from around 7 percent in October 1977 when the Project services started to around 20 percent in a brief period of three months not only because an accumulated unmet need existed but also because of household provision of injectables and the acceptability of this modality to Bangladeshi women. During their fortnightly household visits village-level female workers (CHWs) give injections to

Table 2. Percentage distribution of contraceptive users by different methods among total number of users: 1979 and 1985

	1979			*1985*		
Method	*Treatment Area*	*Comparison Area*	*Bangladesh*	*Treatment Area*	*Comparison Area*	*Bangladesh*
Tubectomy	20	34	19	23	70	26
Vasectomy	3	3	7	1	3	13
Injectable	49	3	2	37	3	2
Pill	13	38	28	14	30	17
IUD	3	12	2	18	19	5
Condom	4	12	12	3	3	13
Foam	2	0	1	1	0	1
Traditional	5	N.A.	30	3	N.A.	23

N.A. = Not available

Source: Estimated from Tables III-1 (p. 28), III-9 (p. 42), and III-14 (p. 48) of Balk et al. (1988).

[3]Verbal communication with Michael A. Koenig in May 1991.

women on due dates often in household kitchens without the knowledge of male members. When discontinuation rates of injectables began to increase because of their side effects, decision was taken in 1981 to encourage women for switching to IUD. The negative impact of discontinuation of reversible methods on total contraceptive prevalence was minimized to a great extent in the Treatment Area because of Matlab Project's provision of wider choice of contraceptives and special care taken by the CHWs to help women in method-switching (Phillips et al. 1988).

There are a few important differences between the Matlab Treatment Area and Bangladesh in the prevalence pattern of contraceptive methods: (i) the method which has contributed most to contraceptive prevalence in 1985 is injectable (37 percent of total) in the Treatment Area and tubectomy (26 percent of total) in Bangladesh; (ii) the prevalence of injectables has always been proportionately much less in the national program than in the Matlab Project; (iii) the relative prevalence of vasectomy, condom, and traditional methods has always been higher in the national program; (iv) the prevalence of pill was proportionately much higher in the national program initially but the difference has gradually diminished; and (v) the prevalence of IUD was proportionately similar initially but has increased in the Treatment Area more rapidly than in the national program.

The difference in the prevalence pattern of contraceptive methods between the Treatment and Comparison Areas would be the same as that between the Treatment Area and Bangladesh if the national program would have functioned in the Comparison Area exactly in the same way as in average Bangladesh, but apparently it did not. The contribution of tubectomy in the contraceptive prevalence of the Comparison Area was proportionately higher than in the Treatment Area and in Bangladesh in 1979 and the differences were much sharper in 1985. It was perhaps due to the introduction of relatively better tubectomy services in the Project's central clinic at Matlab Bazar in 1981 which were open to the tubectomy clients of both the Treatment Area and Comparison Areas. The prevalence of injectables in the Comparison Area always remained marginal as in the country as a whole. For reasons not clear, the prevalence of IUD in the Comparison Area proportionately increased and that of pill decreased during 1979-85.

Impact on Fertility

Significantly higher prevalence of modern contraceptives in the Treatment Area than in the Comparison Area and in Bangladesh as a whole is likely to bring sharper fertility decline in the Treatment Area but since fertility is also affected by other proximate variables such as age at marriage, fecundability, and induced abortion (Bongaarts 1978), the fertility differentials between the Treatment Area and others may not exactly correspond to those of contraceptive prevalence. The mean yearly fertility levels, as measured by general fertility rate and total fertility rate, in the Treatment and Comparison Areas from 1978 to 1985 are presented in Table 3.

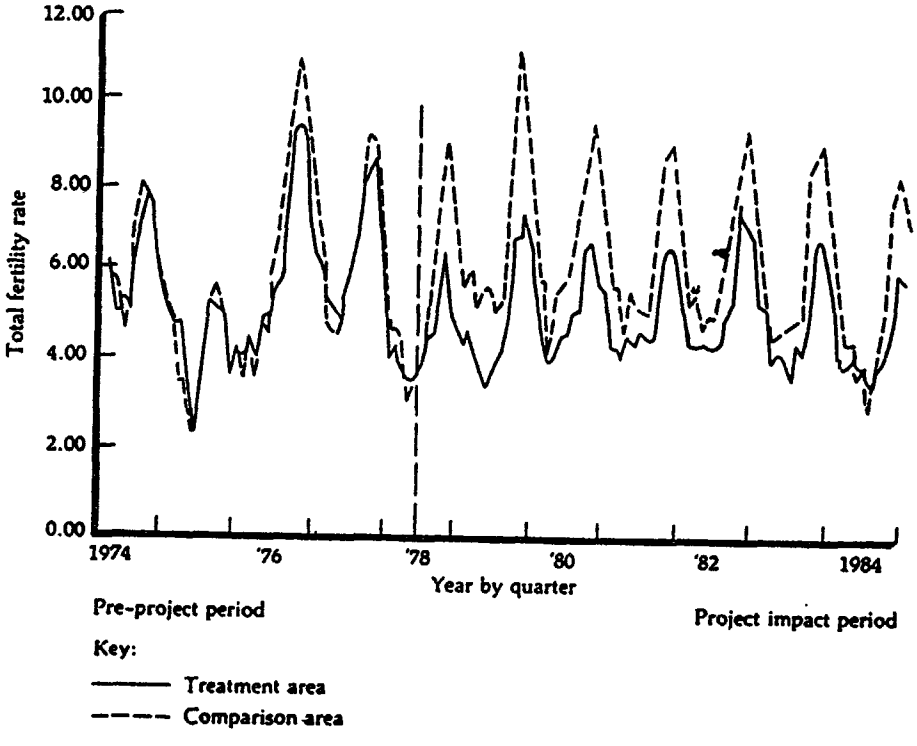
It can be observed from Table 3 that in all the years from 1978 to 1985 both general fertility rates and total fertility rates were lower in the Treatment Area than in the Comparison Area. An analysis of monthly total fertility rates (Figure 1) shows that while total fertility rates for the two Areas were approximately equivalent in the pre-Project period, a marked differential arose in 1978 and has been sustained over time (Phillips et al. 1988). The significant rise in contraceptive prevalence in the Treatment Area since 1982 did not get fully reflected in the fertility rates up to 1985 not only because of the time lag between contraceptive use and its effect

Table 3. Measures of fertility in the Treatment and Comparison Areas: 1978 to 1985

	General Fertility		*Total Fertility Rate*	
Year	*Treatment Area*	*Comparison Area*	*Treatment Area*	*Comparison Area*
1978	138	164	4.5	5.4
1979	150	205	4.8	6.9
1980	156	195	5.1	6.7
1981	148	189	4.8	6.3
1982	156	192	5.0	6.3
1983	144	185	4.5	6.1
1984	128	160	4.0	5.1
1985	143	185	4.5	5.9

Source: Balk et al. (1988)

Figure 1. Monthly total fertility rates for Matlab Treatment and Comparison Areas, 1974-84



Source: Phillips et al. (1988). The author acknowledges his thanks to the editor, *Studies in Family Planning,* for permission to reproduce the figure.

on fertility, but also because of the compounding effect of other proximate variables. A lower fertility level in the Treatment Area, however, has been sustained over time. Annual fertility trends are somewhat masked by seasonality in fertility (Becker and Sardar 1980).

The rise of fertility level from 1978 to 1980 in both the Treatment and Comparison Areas even with sharp increase of contraceptive prevalence in the Treatment Area during the period, as reflected in both general fertility rate and total fertility rate (Figure 1) needs explanation. It is a reflection of the fact that events external to the Matlab Project and government program can affect fertility. A marked decline in fertility occurred in Bangladesh including the Project area over the 1974–75 period owing to a devastating famine which depressed natural fertility significantly. The subsequent rise in natural fertility and the observed fertility oscillations during 1976–78 (Figure 1) were due to the secondary effect of low famine fertility on the subsequent proportions of women who were pregnant, amenorrheic, or lactating (Phillips et al 1988).

Impact on Attitude toward Family Size and Timing of Births

The rise of contraceptive prevalence and decline of fertility are often associated with change in attitude toward family size and timing of births. We shall examine below the attitudinal change in both the Treatment and Comparison Areas during the period and the factors responsible for the change, if any. A significant decline in the desired number of children in the Treatment Area was evident in the findings of two surveys conducted in 1977 and 1984 (Koenig et al. 1987). For example, in 1977, 43 percent of all currently married women in reproductive age wanted no additional children; the corresponding figure for 1984 was 55 percent. The difference was sharper among women with three living children: 33 percent in 1977 and 53 percent in 1984. The responses given in a 1986 focus group study confirmed the trend of decline in family size desire in both the Treatment and Comparison Areas (Nag and Duza 1988).

Unfortunately, the 1977 survey was only conducted in the Treatment Area, so there are no survey data for estimating the change in family size desire in the Comparison Area. However, the 1984 survey mentioned above covered the Comparison Area also and it showed very little difference between the two Areas in family size desire. For example, 60 percent of women with any number of living children wanted no additional children in the Comparison Area compared to 55 percent in the Treatment Area. A baseline survey conducted in both the Areas in 1975 before the introduction of CDP showed very little difference in the stated ideal number of sons: the mean was 2.7 in the Treatment Area and 2.6 in the Comparison Area (Koenig et al. 1987).

It can be argued that a few decades of excellent services in diarrheal diseases through modern technology (e.g., a fleet of electrically operated speedboat for transporting patients) provided by the ICDDR,B in Matlab upazila has generated openness among the inhabitants of both the Treatment and Comparison Areas to modern ideas, thereby altering their attitude towards family size and birth spacing. But a 1981 survey conducted in six upazilas of Munshiganj division, an area contiguous to Matlab but without any access to Matlab at similar service programs, provide evidence to suggest that demographic characteristics and reproductive preference of the population were similar to the Matlab Comparison Area (Phillips et al. 1984b).

The 1986 focus group study mentioned above investigated the desired timings of birth in both the Treatment and Comparison Areas (Nag and Duza 1989). Almost all participants in the focus group sessions who expressed an opinion on desired interval between births thought that

spacing births too closely was undesirable. The desired period of birth interval varied from two to six years with a mode somewhere between three and five years. There was no observable difference between the Treatment and Comparison Areas regarding the desire for spacing births and the reasons stated for it. This was also true for the desired timings of first and last birth. The desired age of women at first birth varied from 15 to 27 years with the mode somewhere between 18 and 22. The desired timing of last birth varied from 27 to 45 years, the mode being somewhere around 35. In both the Areas it was widely considered as shameful if a woman became pregnant after her daughter was married or became pregnant.

The evidence stated in the above paragraphs indicate a more or less similar shift towards small family norm and birth spacing in both the Treatment and Comparison Areas during the Matlab Project period. Since the supply inputs of the Project were provided only in the Treatment Area, their role in this shift can be inferred as a minimal, if any. A higher level of interpersonal communication between the villagers and village-level workers in the Treatment Area could be expected to lead to greater attitudinal change in that Area but the occurrence of similar shift in both the Areas indicates that the role of workers in generating attitudinal change regarding family size and birth spacing has been negligible, although some diffusion of ideas from the Treatment Area to the Comparison Area cannot be ruled out.

The above evidence suggests that factors exogenous to the Matlab project have influenced the attitude toward family size and birth spacing in both the Treatment and Comparison Areas and perhaps in the whole country. Two factors which seem to be most relevant in this respect are: (i) a proliferation of modern forms of communication combined with a growing disparity between aspirations and familial resources leading to modernization of reproductive motives through their effects on exogenous fertility determinants (Freedman and Freedman 1986; Phillips et al. 1988) and (ii) an expanding mass communication program of the Bangladesh government for motivating people in favor of small family norm and birth spacing. The rapid development of modern communication and the rise of aspiration for a better standard of living during the last decade have enhanced the importance of children's education and its perceived cost to the family even in rural areas. The focus group study in Matlab revealed that the Sukhi Sangsar program of Radio Bangladesh has considerably influenced the attitude of both the Treatment Area and Comparison Area residents regarding family size and birth spacing (Nag and Duza 1988).

Although attitudinal changes have occurred more or less equally in the Treatment and Comparison Areas, higher contraceptive prevalence in the Treatment Area indicates that the KAP-gap or the disparity between the knowledge and attitude towards contraception and its actual practice is less in that Area than in the Comparison Area. It shows that the unmet demand which existed in both the Areas prior to the introduction of the Project was quite fragile and the supply inputs of the Project in the Treatment Area were able to crystallize the fragile demand of many couples in the Area toward the adoption of a contraceptive method. In this sense the additional demand for contraception in the Treatment Area can be considered as supply-induced.

Impact on Infant and Child Mortality

One basic objective of the Matlab Project, from its very inception, was to test the efficacy of various strategies to reduce the infant and child mortality. Some child health services were introduced sequentially in different blocks of the Treatment Area. The yearly mortality rates at

four different age groups of children in the Treatment and Comparison Areas from 1975 to 1984 are presented in Table 4.

Table 4. Infant and child mortality rates in the Matlab Treatment and Comparison Areas: 1975-1983.

	Infant Mortality					
	Neonatal		*Postnatal*		*All Infants*	
Year	*Treatment area*	*Comparison area*	*Treatment area*	*Comparison area*	*Treatment area*	*Comparison area*
1975	64	79	91	94	161	168
1976	57	69	54	46	112	113
1977	75	63	36	41	112	105
	——— *MCH-FP Interventions Begin* ———					
1978	67	75	37	42	107	117
1979	72	73	45	52	119	124
1980	59	76	30	39	89	114
1981	71	69	39	46	111	114
1982	62	68	51	52	111	119
1983	58	71	40	43	101	113
1984	59	72	54	53	114	124
	Child Mortality					
	Toddler (1 Year)		*Late Child (2-4 Years)*		*All Children*	
Year	*Treatment area*	*Comparison area*	*Treatment area*	*Comparison area*	*Treatment area*	*Comparison area*
1975	55	50	31	31	38	36
1976	42	49	24	25	28	31
1977	31	24	15	19	19	20
	——— *MCH-FP Interventions Begin* ———					
1978	36	29	17	19	23	22
1979	29	36	17	22	21	26
1980	23	33	15	22	17	25
1981	30	37	17	23	20	27
1982	29	37	17	23	20	27
1983	36	46	18	31	22	35
1984	38	55	19	33	24	39

Source: Philipps et al. (1987).

It can be observed from Table 4 that there was no consistent difference between the Treatment and Comparison Areas in neonatal and post-neonatal mortality either in the pre-Project or post-Project period. But for all the post-Project years the toddler (1 year) and late child (2–4 years) mortality rates in the Treatment Area were lower than in the Comparison Area. The regression analysis also shows that impact of the Project on child survival varies considerably by the child's age and sex (Phillips et al. 1987). The Project appears to have a negligible effect on neonatal mortality and reduced the postnatal mortality risks by only about 10 percent. The toddler and late child mortality in the Treatment Area fell by 30 to 40 percent relative to the Comparison Area during the Project period.

Costs and Cost-Effectiveness

It is often said that the lessons learnt from the Matlab Project have limited relevance for larger policy and program issues since it is too costly and complex to be replicated on a wider scale in Bangladesh or elsewhere. Although data regarding costs, service rendered, and outcome variables have been maintained for the Project more rigorously than many other experimental projects of this nature and scale, the first effort to systematically study the costs and cost-effectiveness of the Project has been made only recently (Balk et al. 1988; Simmons, Balk, and Faiz 1991). The discussion below is based on the findings of this study.

One main factor that makes the estimation of the Project costs very complex is that these include costs for research and data management needed for purposes not essential for service delivery. Simmons et al. (Ibid) have identified five categories of costs according to their proximity to service delivery: (i) service delivery; (ii) supervision and administration; (iii) data management, (iv) research and international technical assistance; and (v) overhead.

The category (i) includes salaries of persons engaged in delivering services, the costs of transportation, building space and equipment, all contraceptives and medicine, and the training of field workers. Since many Project workers serve in more than one category, their salaries have been partitioned accordingly. The category (ii) includes primarily the salaries of the persons involved in the field level supervision and administration of the Project. Because most of the data collection effort in the Project is for research broadly defined, it is not included in the first two categories. It can be argues that the Project could be duplicated with the inputs from the first two categories only. Hence the study gives more emphasis on the aggregated cost of the first two categories, labelled as the "cost of core service," the aggregated cost of all five categories labelled as the "full cost." The category (ii) has been included in the "cost of core service" because some argue that a very extensive supervisory system is integral to the success of the Project and that it cannot be duplicated without the inputs from both the first and second categories (Phillips et al. 1984c). The overhead cost (category v) has been distributed proportionately to all other categories.

The full yearly cost of the Matlab Project increased from $256,000 in 1978 to $335,000 in 1985, averaging $295,000 per year (at 1985 prices). The core service cost ranged from $133,000 to $171,000 during 1978 to 1985, ranging from 51 to 52 percent of total cost in 1978–79 and 41 to 44 percent in 1980–85. The total core service cost from 1978 to 1985 was $1,242,571. Highest proportions of expenditure were on personnel salary and transportation: about 49 percent and 11 percent respectively, on the average, of the core service cost.

The cost estimates provided above (bookkeeping costs) represent those under the assumption of an experimental design model (Model I) under which the Treatment and Comparison Areas theoretically differ only by the presence of MCH-FP Project in the Treatment Area. The Model I has the following two deficiencies: (i) the cost estimates do not include the government's expenditures on compensation fees to clients served by the MCH-FP Project and (ii) they include the cost incurred by the Project in the Comparison Area and some non-Project areas. The MCH-FP is responsible for paying about 10 percent of the services provided by the Comparison Area. The revised set of estimates which adjusts the bookkeeping costs by adding the costs of the compensation fees is called "adjusted costs-1" of model II. The second set of estimates that subtracts the costs of externally provided clinical services from "adjusted costs-1" is called "adjusted costs-2" of Model II. From 1978 to 1985, the total core service cost under "adjusted costs-1" of Model II was $1,268,019, and the total core service cost under "adjusted costs-2" of Model II was $1,198,162.

The adjusted cost-1 and the adjusted cost-2 under Model II have been estimated assuming no cost of government workers assigned to the Treatment Area. According to the Model IIIA which modifies the adjusted cost-2 by taking account of the full costs of government workers in the Treatment Area, the total core service cost in the Treatment Area when external effects generated by the MCH-FP are not included is estimated to be $1,382,852. When the full cost of government workers in the Treatment Area is included in the adjusted cost-1 (external effects included), the total core service cost estimate in the Treatment Area becomes $1,452,702. The total cost service costs in the Comparison Area are estimated to be $403,867 when external effects are included (Model IIIA) and $388,489 when external effects are not included (Model IIIB). Thus whatever models are used for estimation, the total core service cost in the Treatment Area is more or less three times as great the cost in the Comparison Area.

The cost-effectiveness of the Project has been measured in terms of the average core service cost per contraceptive user and per birth prevented. The estimated cost-effectiveness ratios in the Treatment and Comparison Areas under different models are given in Table 5.

The above table shows that the cost per birth prevented by the MCH-FP Project in the Treatment Area ranges from $158 to $220, on the average, during 1978–85, depending on the range of activities, effects, and the study design used to estimate the cost-effectiveness. The corresponding cost in the Comparison Area ranges from $240 to $298 during the same period. The average cost per contraceptive user is also less in the Treatment Area for most of the models used for estimation. Thus although the total core service cost in the Treatment Area is about three times as great the cost in Comparison Area, the services in the former are more cost-effective than in the latter.

The method-mix of contraceptive prevalence is an important factor in interpreting the difference in the cost per birth prevented between the Matlab Project and the Bangladesh government family planning program. The cost of birth prevented by sterilization is substantially less than by reversible methods. For example, Simmons et al. (1986) estimated that, in 1983, the cost of a birth prevented was $45 for sterilization and $125 for reversible methods. For the sake of comparison, the cost per birth prevented (for all methods) in the Treatment Area of Matlab Project was $165 in 1982 and $163 in 1983, according to Model I. With the adjustment in Model II, the cost per birth prevented was $122 in 1982 and $145 in 1983. The ratios are not very different from those of the government program for reversible methods. This indicates that as the

Table 5. Cost-effectiveness ratios in 1985 US dollars in the Treatment and Comparison Areas under different models

	Treatment Area					*Comparison Area*	
Ratio	*Model I*	*Model II Adj-Cost-1*	*Model II Adj-Cost-2*	*Model IIIA*	*Model IIIB*	*Model IIIA*	*Model IIIB*
Average cost per contraceptive user	42	35	40	43	49	49	64
Average cost per birth prevented	180	158	173	191-220*	171-196*	240	298

*The lower and higher figures represent respectively the estimates when cost of government workers is not included and is included.

government program develops a method mix with a larger role of reversible methods, the cost of services is likely to increase. The results of Model III suggests, however, that, at the local level, the delivery of all methods in the Treatment Area is more cost-effective than the limited service provision in the Comparison Area. Hence the cost per contraceptive user in the government program is not likely to increase significantly if it expands its services for providing reversible methods.

Success and Its Limitations

The Matlab Project has demonstrated that a well-designed, consumer-oriented family planning and MCH programme can succeed in raising contraceptive prevalence and reduce child mortality substantially even in an environment economically and socially unfavorable to these developments. The experimental design of the Project which allowed special service inputs in the Treatment Area while keeping the Comparison Area with similar socioeconomic condition almost free from such inputs has been useful in establishing that the family planning success in the Treatment Area relative to the Comparison Area was not due to any difference in socioeconomic condition between the two Areas (except a little difference in Hindu-Muslim composition which would have negligible effect in contraceptive prevalence). The success can be fully attributed to the Project.

Absence of any difference between the Treatment and Comparison Areas in childbearing desire shows that the Project did not succeed in generating demand for small family, although the interpersonal communication aspect of the Project at the field-level was attuned toward this objective. However, it is reasonable to presume that the Project's supply aspects were able to crystallize the fragile demand for contraception among many ambivalent couples, so as to make them use contraception.

Since the higher contraceptive prevalence in the Treatment Area relative to the Comparison Area and Bangladesh was due more to higher prevalence of reversible methods (mainly injectables and IUDs) in the Treatment Area rather than permanent methods, it seems that

the preexisting demand to postpone childbearing was higher than that to terminate childbearing. The prevalence rate in the Treatment Area is not expected to decline if the supply system retains its high quality care.

The contraceptive prevalence in the Treatment Area was higher than in the Comparison Area primarily because the supply components of the Project were more successful in minimizing the constraints or costs involved in using contraceptives more than the supply components of the government program did in the Comparison Area. The available literature on the reasons for KAP-gap and on the socioeconomic condition in rural Bangladesh suggest the presence of one or more of the following four constraints or costs involved in the use of contraception: (i) inaccessibility of high-quality service; (ii) physical/health constraints (mainly side-effects); (iii) psychic and social constraints; and (iv) monetary constraints. As an impact of the better service of the Matlab Project, each of these constraints became less in the Treatment Area than in the Comparison Area (Nag and Duza 1989).

(i) Density of village-level female workers and their communication with eligible women, an important dimension of accessibility, was at a much higher level in the Treatment Area, particularly because of their more frequent home visits. Choice of contraceptives, another important dimension, was wider in the Treatment Area because of the provision of injectables since the initial stage of the Project as a domiciliary service. More frequent contact with the village-level workers and their better knowledge of contraceptive methods allowed Treatment Area women to switch over more easily from one method to another.

(ii) In the focus group study mentioned above (Nag and Duza 1989), complaints about side-effects of sterilization and reversible methods were more or less similar in the Treatment and Comparison Areas. Village-level workers could not provide any medicine to alleviate the suffering from side-effects in any of the Areas. But they caused a lesser constraint on contraception use in the Treatment Area because of better quality of counselling by workers, more frequent contact between workers and villagers, and higher confidence of villagers in the Treatment Area that workers would take appropriate action for their relief, if the side-effects would cross acceptable limits. In case of unacceptable menstrual disruption caused by reversible methods, workers in the Treatment Area would advice switch over to another method or take clients to the central clinic, often by using the country boats at their disposal.

(iii) One main source of psychic and social constraint on the use of contraception by a woman in both the Treatment and Comparison Areas is the opposition from husband. The focus group discussions revealed the following common reasons for husband's opposition: (a) he resented the sexual abstinence forced on him and his wife's inability to do household work because of side-effects; (b) he is more concerned than his wife about monetary cost if the wife has to go to a local medical practitioner for alleviating side-effects. There were two factors for which the opposition from husband was a lesser constraint in the Treatment Area: (a) the higher frequency of contact of Treatment Area women with better-trained workers equipped the former to deal with their side-effects as well as with their husbands' opposition more efficiently; (b) the greater visibility of female workers and their role not only as family planning workers but often as respected arbiters of family disputes had perhaps contributed to raise the status of women in the Treatment Area enabling them to have a more equitable relationship with their husbands than in the Comparison Area.

(iv) the services and supplies provided by both the Project and government program were free of any monetary charge. However, villages in both the Areas mentioned about two items of costs which they had to meet on their own: (a) travelling to the central clinic and to the subcenter clinics and (b) buying medicines from local medical practitioners to alleviate contraceptive side-effects. The focus group discussions indicated that the constraint due to travel costs was less in the Treatment Area mainly because of more frequent household visits by workers in that Area, free boat-rice often offered to the villagers by workers, and higher density of subcenter clinics in that Area.

Phillips et al. (1988) point out the differences in the organizational system ("sociology of supply") between the Matlab Project and the government program which are responsible for more efficient and effective service delivery in the Treatment Area than in the Comparison Area. A few of the critical differences are stated below.

The village-level female workers (CHWs) in the Matlab Project were hired from influential families in the village where they work and all were low-parity women with some contraceptive experience. As a result, their credibility and local influence were greater than the workers in the government program which, for bureaucratic reasons, cannot impose similar recruitment conditions. Their credibility was also high because they became staff members of the ICDDR,B which has a history of excellent health service in the area.

The organization of the Matlab Project allows more internal cohesion among staff members of the same level as well as of different levels than the more rigid administrative hierarchy of the government program does. In both the Matlab Project and the government program the supervisory and supportive functions are delineated by culturally accepted notions of gender roles: two lines of support—one clinical and female and the other administrative and male-directed—are supposed to support the needs of female village workers. In practice, however, supportive functions are stronger in the Project for various reasons including higher density of female paramedics and greater emphasis on support aspect of supervisory responsibility. The fortnightly meetings at subcenter clinics in the Treatment Area which are attended by all subcenter level female workers and supervisors provide not only continuing education and orientation to the workers but also adequate support in the form of needed supplies and guidance to deal with various problems they face in their day-to-day work. A simple management information system maintained at the Matlab Bazar center enables supervisors to provide workers in these meetings information including the services purveyed to each individual in her work area. The government program does not have provision for such meetings at the subcenter level.

There is more emphasis on accountability of workers' performance in the Matlab Project than in the government program. The fortnightly meetings at the subcenters and more frequent interchange among staff members in the Treatment Area allow the supervisors to have better and more updated information about the performance of village-level female workers. Administrative obstacles to performance of these workers and their supervisors are much less in the Matlab Project than in the government program. Persistent failure to perform the expected duties, however, result in more serious administrative consequences in the Project than in the government program.

A few strategies in the organizational system of the Matlab Project have made it less vulnerable to institutional constraints to effective delivery of services than the government

program. For example, although the system does not have a formal link with the local community leadership which is often a source of factionalism, its strong supervisory and peer support to the village-level female workers buffers them from societal disputes and pressures. Since the geographic service boundaries for these workers are smaller than in the government program, most of them have the advantage to work within limited geographic areas that are considered socially acceptable for women to cover without a male escort. Moreover, because work areas are small, few workers of the Matlab Project have to face major factional disputes, typical of rural Bangladesh.

As recent as in the 1970s, although there were a few family planning enthusiasts who believed that there was a latent demand for birth control in Bangladesh, and a contraceptive distribution program would be sufficient to bring a fertility decline, the dominant view among the demographers was that in the existing socioeconomic and cultural situation of Bangladesh there could be no such demand unless there was a policy-induced basic change in societal and administrative structure, particularly at the local level (Arthur and McNicoll 1978; Demeny 1975). Hardly any demographer could predict during the 1970s that the contraceptive prevalence in a rural population of about 100,000 in Bangladesh could possibly approach up to the levels of 45 percent by the mid-1980s and over 55 percent by the end of the 1980s without any significant change in societal and administrative structure or socioeconomic condition. The most remarkable contribution of the Matlab Project is to challenge the existing notions about the determinants of change in contraceptive prevalence and fertility in developing countries. However, it raises questions whether or how far the success of the Project in raising contraceptive prevalence through a well-designed, consumer-oriented delivery services can be replicated on a national scale in Bangladesh or elsewhere. Obviously there are limitations for such endeavor.

One important limitation is the cost factor. Although the Matlab Project delivers about three times more services per eligible woman in the Treatment Area than are delivered in the Comparison Area at a lower cost per birth prevented, the total core service cost incurred in the Treatment Area was about three times the cost in the Comparison Area between 1978 and 1985. The national cost per birth prevented is lower than the cost per birth prevented in the Treatment Area but the sheer fund necessary to achieve a nationwide contraceptive prevalence rate and contraceptive prevalence-mix (permanent vs. reversible) similar to those in the Treatment Area is perhaps too enormous for a country like Bangladesh to mobilize.

Besides limitations of funding, a nationwide replication would face a shortage of human resources capable of providing services and leadership as in the Matlab Project. The Project had the advantage of using some expatriates in planning and implementing it. Their participation on a national scale is infeasible. However, Bangladesh seems to have a critical mass of educated men and women who, if trained adequately and given the opportunity to work in an organizational structure similar to Matlab, can provide leadership to a national program similar to the Matlab Project. The Project has demonstrated that carefully selected women and men with few years schooling can be trained to provide excellent family planning and health services.

The most serious limitation for replication in a national or regional scale in Bangladesh would be the difficulty in substituting the organizational system of the government service delivery with the system of the Matlab Project. The Matlab Project had to take care of the societal constraints in designing the system of service delivery in the Treatment Area but it was free from the bureaucratic constraints of the government. The Project developed its own strategies

for recruitment, promotion of internal cohesion among workers, training and supervision, management and information system, monitoring of performance, rewards and punishment, and interface with local social institutions. As discussed above, these are quite different from the government strategies which are usually resistant to any change.

While the replication of the total package of the Project's organizational system is not feasible in the national programme, some selected elements of it which are relatively cost effective are worth testing in a regional scale. In fact, with this objective in mind a new project in two districts of Bangladesh has been undertaken jointly by the ICDDR,B and the government of Bangladesh (Phillips et al. 1984; Banu et al. 1987). Its findings are not known. Selected strategies of the Matlab Project are worth testing in other developing countries with socioeconomic and demographic condition similar to Bangladesh.

The Matlab model should not, however, be considered as the only one for achieving in Bangladesh a contraceptive prevalence similar to that of the Treatment Area. The organizational system of the Matlab Project does not have a formal mechanism for sustained community participation in the Project. Villagers have extended their passive support to the Project activities mainly because of their appreciation for the ICDDR,B's excellent record of reducing diarrheal mortality in the area and their trust on the ICDDR,B's workers. There seems to have been no attempt in the Project to involve community leaders (elected as well as traditional) in the decision-making process. Although records of successful community participation in family planning are rare in Bangladesh, the family planning success story in India described below indicates its potential in South Asian countries.

The Kundam Project

Kundam block, one of the 13 blocks of Jabalpur district in the state of Madhya Pradesh (India) is comprised of 192 villages spread over 971 sq. kms. of hilly area. A major portion of the block is covered under forest and, except for a few villages on the highway, the accessibility to the block is difficult. Kundam, the headquarters village of the block, is about 45 kms. away from Jabalpur city, and connected with it by the highway. About 70 percent of Kundam block population (total about 74,000 in 1981) are tribals compared to about 20 percent in Madhya Pradesh state. The Gonds who constitute the major proportion of tribal population of Madhya Pradesh are also spread over the neighboring states of Andhra Pradesh and Gujarat.

The Family Planning Association of India (FPAI) initiated in September 1980 a project in 65 contiguous villages of Kundam block with an aim to improve family planning and child health performance through active community participation. According to the records maintained by the Kundam Project, the proportion of currently married women using all contraceptive methods (including modern and traditional) in the Project Area comprising 65 villages increased from 20 percent in 1980 to 68 percent in 1985 compared to 20 percent in 1980 and 42 percent in 1985 in the non-Project or Control Area of Kundam block. A sample survey of 1000 eligible couples in 20 villages of the Project Area, however, showed a contraceptive prevalence rate of 61 percent. In any case, there was evidently a significant rise of contraceptive prevalence in the Project Area during 1980–85.

Genesis of the Project

The Family Planning Association of India (FPAI), an affiliate of the International Planned Parenthood Federation (IPPF), was established in 1941 for the promotion of family planning in India and for assisting policy makers in formulating national population policies. With its headquarters in Bombay and 41 branches spread all over India, the FPAI carries out activities related to information, education, and motivation regarding family planning and MCH, provides both clinical and nonclinical services, and undertakes training of personnel and relevant research. It conducts rural projects where family planning is integrated with other developmental activities. By 1987, its activities covered about 2000 villages throughout the country. The FPAI headquarters in Bombay, headed by an honorary president and executive secretary, have about 70 staff members including seven directors, six assistant directors, eight research officers, and about 50 support/technical staff.

The Jabalpur Branch of the FPAI, established in 1960, has an organizing secretary assisted by a population education officer, an extension officer, an accountant, a statistical assistant, and other clerical staff members. It receives guidance both from the FPAI headquarters and the local executive committee whose members include local professionals, government officials, and representatives of voluntary organizations. The Branch has a clinic in Jabalpur and has been promoting family planning and MCH services in Jabalpur city and the rural areas of Jabalpur and Mandla districts of Madhya Pradesh.

The Kundam Project was conceived as a natural extension of another integrated rural project carried out by the FPAI in Karnataka state. It was felt that the lessons learnt from the Karnataka project should be applied in another similar project in one of the four large north Indian states (Bihar, Madhya Pradesh, Rajashtan, and Uttar Pradesh) where the socioeconomic condition is relatively poor and contraceptive prevalence relatively low compared to the rest of India. Kundam block in Madhya Pradesh was selected as the project location because it has a high concentration of poor tribal and low caste population and also because it is not too far away from the FPAI Branch at Jabalpur.

After a few meetings among the FPAI officials at Bombay and Jabalpur, it was decided that the main thrust of the Kundam Project would be to increase the consciousness of responsible parenthood and contraceptive prevalence in the Project Area by encouraging community participation through the involvement of its members in various committees and clubs. The Project, designed at the Bombay FPAI office, was launched in September 1980 with the following primary objectives:

1. To integrate family planning and MCH services with development activities.
2. To assist the community in utilizing available resources and facilities offered by the government and other agencies.
3. To increase the contraceptive prevalence in the block through integrated activities leading to community action for promotion of small family norm and acceptance of family planning.

In order to attain the above objectives, it was decided to adopt the following broad strategies:

1. To undertake educational activities for creating an awareness about the population issues and the need for family planning.
2. To act as a catalyst in the overall development efforts of the block.
3. To stimulate community participation through local voluntary groups.
4. To provide necessary support to couples who need family planning services.

The following analysis of the Kundam Project's performance in terms of its objectives is based on a report produced by the Operations Research Group using the survey data collected by it in 1986–87 (Khan and Gupta 1988).

Implementation Process and Service Structure of the Project

As an initial step, a Liaison Committee comprising the president of the FPAI's Jabalpur Branch as chairman and six other members selected from the Branch's executive committee was formed. The main function of this Committee is to undertake liaison work with community leaders and government officials, at the district and block levels.

Project Implementation Committee (PIC). After the formation of the Liaison Committee, a meeting was organized at Kundam village to inaugurate the Project. It was attended by government officials as well as formal and informal leaders from other villages of the block. The objectives of the Project were explained at the meeting. The community leaders and government officials expressed their support. It was decided at the meeting that a Project Implementation Committee consisting of local leaders, volunteers, and government officials be formed with two main objectives: (i) to create a conducive environment for smooth implementation of the Project; and (ii) to use individual member's influence in mobilizing the community for its effective participation.

The 17-member PIC includes the block development officer (BDO), medical officer in-charge of the primary health center (MO-PHC), the local revenue head, a few formal and informal community leaders and a few young persons keenly interested in the Project. The projects-director at the FPAI headquarters in Bombay acts as the Project Coordinator and is an ex-officer member of the PIC. The decision taken by the Committee has to have the Project Coordinator's approval. Participation of the government officials like BDO and MO-PHC and elected members of the panchayats gave the Project legitimacy in the eyes of community members and also ensured support from local staff members of development agencies including the PHC. The PIC also provides a common forum for the local service providers of various sectors (e.g., health, education, and other development programs) to work together for a common cause.

Project Staff and Inputs. The Project office was set up in a rented building adjacent to the Primary Health Care building in Kundam village. Six community welfare workers (CWWs) were selected from the local area and trained for about 10 days at the Jabalpur Branch of the FPAI. Five of them were already working as community health guides (CHGs) under the government's voluntary health workers' scheme.[4] One field organizer, one statistical assistant,

[4]Community health volunteers (one for 1000 population on average) are part-time workers selected locally by *panchayats*. They are given training for three months in rudimentary health and family planning services and expected to provide such services to their community in lieu of a modest honorarium.

and one accountant were selected from outside the local area and trained suitably. All staff members except the auxiliary nurse midwife were males. The 65 villages in the Project Area (population 29,000 in 1980–81) were divided into six groups and in each group a headquarters village was selected for stationing the community welfare worker. The remaining area of the block, consisting of 127 villages (population 41,000 in 1980–81), was designated as the Control Area which is served by the government's family planning program but does not have any inputs from the Kundam Project.

The main responsibility of the community welfare workers is to act as catalyst in the promotion of family planning and other developmental activities undertaken in the Project Area. They work in close liaison with local voluntary groups in order to motivate them for participation in these activities. Their 10 days training curricula includes educational and motivational strategies, MCH care, and a few other health related services. The monthly field activities of the community welfare workers are planned in advance by the field organizer in consultation with the project coordinator and the community welfare workers themselves. The field organizer is responsible for supervision and monitoring of their activities. Since the community welfare workers are working in their own communities, they have access to most families in their own working areas.

The auxiliary nurse midwife's primary responsibility is to undertake educational and motivational activities regarding MCH and family planning. She is also responsible for pre and postnatal care of mothers, immunization of children, IUD insertion, and distribution of condoms nd oral pills.

Village-level Committees. The initial period of the Project was devoted mainly to building support with community leaders and youths of all villages in the Project Area. The community welfare workers, field organizer, and the project coordinator contacted them and started participating in village functions and ceremonies with the help of the PIC members. The discussions remained mostly confined to developmental activities which were of general concern to all, such as, supply of drinking water, construction/repair of roads, health services, vocational training, and provision of loan by the government. The Project staff helped community members to identify their priorities and to form the following village-level committees and clubs:

1. Gram Sudharak Samitis (Village Betterment Committees or VBCs)
2. Yuvak Mandals (Youth Clubs)
3. Mahila Mandals (Women's Clubs)
4. Village Health Committees (VHCs)
5. Bhajan Mandals (Prayer Clubs)
6. Population Education Committees (PECs)
7. Adult Education Advisory Committees (AEACs)
8. Block Youth Federations (BYFs)
9. Women's Development Committees (WDCs)

As the names of the committees and clubs suggest, they cover a wide range of activities and population composition. However, special emphasis was given to imparting knowledge about health and family planning, population education, stimulating female education, and encouraging women to undertake income-generating activities. Schemes for overall development of Project villages were drawn through the above committees and clubs. In order to develop adequate human

resources in Project villages who would contribute toward attainment of the Project objectives, a number of 1–15 days' training sessions were organized at Kundam village and Jabalpur for members of committees and clubs, as well as for the community welfare workers, traditional birth attendants, and indigenous medical practitioners. Relatively better-educated and more-active volunteers were also trained as trainers so that they would subsequently take some training responsibility. The nature and activities of a few committees are outlined below.

The Village Betterment Committees (VBCs) were the first to be formed and were instrumental in the formation of other committees. Their membership includes community leaders who are elderly and well-respected. The VBCs provide the project staff, particularly the community welfare workers, with forums to initiate discussions with community leaders and members about common needs and the ways to meet them. In the initial months activities were confined mostly to general hygiene and sanitation (e.g., chlorination of wells, construction of parapets on wells, burning of garbage, and spraying DDT). By 1986 there were 65 VBCs (one in each village of the Project Area) with 928 members.

While VBCs work as apex village bodies for identifying needs and planning for their satisfaction, the youth clubs along with other clubs take initiative in implementing the plans. The youth clubs, with guidance and help from the VBCs and Project staff, and in collaboration with women's clubs, undertake activities—some on a regular basis and others occasionally—which include road repairs, sanitary improvement, population education, adult education, MCH and family planning educational programs, improvement of school attendance, and organization of occasional sports competition and cultural functions. Some members of youth clubs run community-based depots for distribution of condoms, foam tablets, and oral pills. By the end of 1981, 53 youth clubs with 906 members were formed. By 1986 there were 66 clubs (at least one in each of 66 villages) with 1,797 members. One village has two youth clubs and two women's clubs mainly because two major political parties in the village want to have two separate identities. The parties, however, do not interfere in each other's efforts and were cooperative with the Project staff.

The main function of the village health committees (VHCs)—one in each village with five members—is to impart health education on curative services, MCH care, and adoption of family planning. The VHCs help arrange mobile clinics for immunization of children, prenatal and other related health services in the villages at regular intervals. The auxiliary nurse midwife of the Project attends all VHC meetings and plans all activities to be undertaken.

Women's clubs faced difficulties in the beginning because few women came forward to join them. The resistance, however, was minimized when the male members of the VHCs and youth clubs were able to persuade their wives to join women's clubs. Their activities range from social gatherings and celebrations to cleaning of wills, and from promotion of family planning to felicitation of family planning acceptors. A few club members are contraceptive depot holders. By the end of 1986 there were 66 women's clubs with 1,520 members. Women's development committees were formed with the objective of encouraging women to engage in income-generating activities. A scheme for providing interest-free loans to women for starting encouraging businesses was begun in 1986 on an experimental basis in five villages. Most women borrowers established businesses and have become active supporters of Project activities. Repayment of loans has been generally regular.

Members of all the committees try to promote a small family norm. During the year 1985, for example, 1,549 members referred 2,435 couples to community welfare workers for family planning services. By 1987, 119 males and 12 female members of various committees became contraceptive depot holders, thus making family planning more accessible in the Project Area than in the Control Area. Depot holders are given 1–2 days' training by community welfare workers and the pros and cons of contraceptive methods. They also regularly attend quarterly meetings held at Kundam village where promotional activities are discussed and contraceptive materials are supplied.

A 1986–87 survey conducted by the Operations Research Group (ORG) among 83 members of various committees and clubs from 10 randomly selected Project villages showed that about three quarters were males and majority of male and female members were 35 years of age or older. Among the males 57 percent were members of youth clubs, 25 percent of village betterment committees and the rest of other committees and clubs. Among the females, 80 percent were members of women's clubs and committees. Representation in the committees was considerably larger from higher castes than tribals. When asked about the reasons for joining the committees, about 90 percent mentioned willingness to serve the community as one of them but many others mentioned hope to improve their self-image in the community. For example, 59 percent hoped to acquire status in the community, 48 percent hoped to get acquainted with local government officials, and 32 percent hoped to get political advantage. Many members felt that because of their participation in Project activities, their contacts with the local block development office, primary health center, and Panchayats had increased. Majority of the committee members (66 percent) believed that the main objective of the Project was to promote family planning. Other perceived objectives included establishment of adult and children's educational centers (31 percent), and overall village development and loan disbursement (19 percent each). One-quarter of the members (19 percent of males and 45 percent of females) were not aware of the specific objectives of the Project.

Government Service Structure in Kundam Block

Under the government's rural health program, each block has a primary health center (PHC) and a number of subcenters (depending on the block population size). The program has, however, been recently revised to have one PHC for every 50,000 population and one subcenter for every 5,000 population. For tribal and hilly areas, the population coverage for PHC and subcenters have been reduced to 30,000 and 3,000 respectively. Normally 2–3 qualified doctors are posted in a PHC. Most PHCs have a 6-bed hospital for patients and sterilization acceptors. A subcenter is staffed by a female auxiliary nurse midwife (ANM) and a male health worker (HW). The ANM's responsibilities include treating minor ailments, providing MCH care services, immunizing children, and motivating couples to accept family planning. The HW is expected to provide health education, collect blood smears from suspected malaria patients, and help the ANM in family planning motivational work.

In Kundam block a fully staffed PHC is located at Kundam village and a mini-PHC with one doctor is located at the second largest village. Seventeen subcenters have been planned for the block but by 1987 only six were functioning. Of these, only three had both ANMs and HWs. The ANMs of other three subcenters, which are located in tribal areas, did not live at or near the subcenter building because of lack of accommodation. A government dispensary, staffed by a trained paramedical male and an ANM, is located in a comparatively developed village.

In 1987, the block had 13 private medical practitioners—three allopathic degree holders, one allopathic diploma holder and the rest with diploma in ayurvedic medium. Almost all of them practiced allopathic medicine. There were 45 community health guides (CHGs) in 45 villages—28 of them in the Project Area. The Project Area had 76 trained TBAs, with at least one located in each of the 65 villages. The entire private and public health care personnel and services in the block (192 villages) except CHGs and TBAs were located in only eight villages. People from other villages had to travel up to 12 miles to use the services of qualified medical practitioners. There was apparently no significant difference between the Project and Control Areas in this respect in the pre-Project period. There was no additional health service input of the Project in the Project Area except the services of one ANM (whose primary function was educational and motivational) and some voluntary depot holders of condoms and pills.

Socioeconomic Setting

Kundam block was chosen for the Project because of its relative inaccessibility and socioeconomic backwardness. Thirteen of the 65 villages in the Project Area can be reached on foot only. Another 25 villages become non-motorable during the rainy season in July-September. Situation in the remaining 127 villages of the block constituting the Control Area is more or less similar. Villages located near the Jabalpur-Amarkantak highway can be reached by bus or by car but the inhabitants of most other villages have to walk 5–6 miles or more. Bullock carts and bicycles are the principal means of transportation.

The educational facilities in Kundam block are very poor and illiteracy very high. Of the 135 primary schools (two per three villages) in 1987, 17 had no building. Classes were held in the open. According to 1981 census, only 18 percent (7 percent among females) were literate as against 30 percent in rural India. In 1987, there were 15 middle schools, three secondary schools, one village, and 29 adult education centers in the block. About 600 adults were attending adult education centers (20 started by the Kundam Project) and about 350 children were attending 14 nonformal children's educational centers known as balwadis (11 started by the Project).

According to 1981 census, 28 percent of Kundam block labor force were agricultural laborers with no land of their own, but the 1986–87 survey of 20 Project Area villages showed that 61 percent of male and 52 percent of female labor force belonged to that category. The survey showed that 57 percent of women were working as agricultural or nonagricultural laborers—a proportion considerably higher than the all-India average, partly because female labor participation is higher among tribals than nontribals. According to the survey, the average monthly household income was around Rs. 290 (about US $20). On the basis of a poverty line of Rs. 550 per month, as specified by India government's Planning Commission, 55 percent of high caste Hindu households in Kundam block were below poverty line and 90 percent among tribals and low castes were so. Tribals and low castes of the block have to borrow money from high caste Hindus at very high interest rates (24 to 36 percent annually) and very often lose their belongings which are mortgaged to the moneylenders. Various rural development schemes of the government offering credit and other facilities have been operating in the block for some time with BDO as a coordinator but, for various reasons, an undue share of the benefits is reaped by the privileged section of population.

Smaller villages away from the highway, usually inhabited by tribals and low caste Hindus, are usually more cohesive and provide more congenial setting for community

participation in development activities than the multicaste larger villages situated near the highway. Discrimination against women is less among the tribals than among Hindus and Muslims. No son preference is reported among the tribals. Early marriage (mean age of women at marriage 14.5 years) arranged by parents is customary among all sections of population. Prolonged breastfeeding, starting from the second day of birth, is common. Lives of tribal and low caste Hindu women are characterized by strenuous work, frequent pregnancies, and inadequate nutrition. In general, the pre-Project socioeconomic situation in Kundam block seems to have been conducive to high fertility and child mortality and it seems reasonable to assume that there was no significant difference between the Project Area and Control Area in this respect.

Impact of the Project on Contraceptive Prevalence and Fertility

According to the records maintained by the Project and the PHC, the contraceptive prevalence (proportion of currently married women using contraceptives) by the end of 1980 when the Project started was 19.9 percent in Kundam block, 19.9 percent in the Project Area and 20.0 percent in the Control Area. As shown in Table 6, there was an immediate surge in prevalence in the Project Area which continued until 1984 when it reached 66.2 percent; by 1985 it was 68.4 percent.

The contraceptive prevalence also increased in the Control Area but at a much slower rate; by 1985 it was 41.5 percent. The prevalence estimates for Kundam block as a whole were also higher than the Control Area because the former included the Project Area estimates. The sample survey of 1,000 eligible couples conducted in March 1987 in 20 randomly selected villages of the Project Area revealed a contraceptive prevalence of 61.3 percent. It is possible that the estimates made from the Project and PHC records may have some upward bias and those made from the survey data may have some downward bias. In any case, it is clear that by the end of 1985 the Project Area's contraceptive prevalence was significantly higher compared to that of the Control Area, Madhya Pradesh state, and India as a whole.

The 1986–87 survey showed that the three most commonly used contraceptive methods in the Project Area were tubectomy (25.3 percent among all users), vasectomy (23.5 percent), and condom (8.8 percent). The acceptance of vasectomy is higher in the Project Area as well as in Kundam block than in India as a whole because the rate of compensation payment for sterilization in Madhya Pradesh exceeds that of the Indian average and because there is not much difference among the tribals in the use of tubectomy and vasectomy (perhaps due to lesser discrimination against women).

According to the records maintained by the Project and PHC, the crude birth rate in the Project Area declined from 36 per 1000 population in 1980–81 to 25 in 1983–86. But a sample survey conducted by the Indian Council of Medical Research (ICMR) in 10 Project villages in 1986–87 showed the birth in that year to be 35.1, and the 1986–87 survey conducted by the ORG in 20 Project villages also showed the birth rate to be equally high (35.4). The consistency of the survey findings makes it reasonable to assume that the birth rate (25 per 1000 population) estimate derived from the Project and PHC records is a serious underestimate. However, if 35 per 1000 population is accepted as a reliable birth estimate for 1986–87, than the question arises why the birth rate declined only one point from 36 in 1980–82 to 1986–87, while the contraceptive prevalence increased from below 20 to over 60 percent during the period. Although it is likely that the impact of increase in contraceptive prevalence at the initial years of the Project

Table 6. Contraceptive prevalence rates (at the end of calendar year) in the Project Area, Control Area, Kundam block, Madhya Pradesh, and India: 1980-85

Year	*Project Area*	*Control Area*	*Kundam Area*	*Madhya Pradesh*	*India*
1980	19.9	20.0	19.9	21.3	22.8
1981	27.3	21.5	23.7	21.8	23.7
1982	36.6	25.8	29.2	23.6	25.9
1983	47.0	32.4	37.2	27.2	29.5
1984	66.2	39.0	49.5	29.4	32.1
1985	68.4	41.5	51.7	31.9	34.9

Sources: Cited by Khan and Gupta (1988) from the 1986 FPAI Annual Report on Kundam Project; *Family Welfare Programmes in India Yearbooks* published by the Ministry of Health and Family Welfare, Government of India, Delhi.

was quite low because most of the contraceptive acceptors were high parity elderly couples, a more plausible explanation is that the birth rate 36 in 1980–81 was an underestimate since the rate for Madhya Pradesh state (including urban areas) was 39 in 1980–81. However, the birth rate estimate of 35 per 1000 population in 1986–87 is too high for contraceptive prevalence of more than 60 percent and hence, if reliable, casts doubts about the reliability of contraceptive prevalence figures.

According to the Project and PHC records, the infant mortality rate in the Project Area declined form 155 per 1000 births in 1980–81 to 68 in 1985–86. However, the estimates derived from the 1986–87 surveys of the ICMR and ORG are respectively 110 and 130. Hence, according to the Project and PHC records, the Project had a significant impact on infant mortality but according to the data collected in the two surveys, the impact was not great.

Costs of the Project

There are two kinds of Project costs: (i) expenditures incurred by the FPAI for maintaining its own staff and office at Kundam block; (ii) contributions made by the government, community, and the Family Planning Association of India for its development and family planning activities. The Project was initiated with funding to the FPAI from Population Concern, a U.K.-based aid agency. Additional funding for the period 1982–85 and full funding thereafter to the FPAI for the Project came from the IPPF. In 1985–86, the FPAI incurred a total expenditure of about Rs. 200,000 (about US $13,000) for maintaining its staff and office and for sharing one percent of the Project's development and family planning activities. The share of staff salary accounted for 54 to 70 percent expenditure and the share of transportation cost accounted for 15 to 23 percent during the years 1981–82 to 1985–86.

The cost of the Project's development and family planning activities increased from about Rs. 9,000 (about US $750) in 1981 to Rs. 1,4000,000 (about US $94,000) in 1985. In 1981, 27 percent of this cost was shared by the Project and 73 percent by the community, mostly in the form of voluntary labor. As the government's share in this cost increased from 42 percent in

1982 to 79 percent in 1985, the FPAI's share decreased from 39 percent in 1982 to 1 percent in 1985. The community's contribution to this cost ranged from 20 percent to 41 percent between 1982 and 1985, mostly in the form of labor. These figures indicate that while the Project, on the one hand, is successful in motivating the community to contribute labor and cost for its own welfare, it also helps the community members to increasingly take advantage of the government's development and family planning facilities.

Success of the Project and Its Limitations

Increasing contraceptive prevalence in the Project Area through active involvement of community members was the main objective of the Kundam Project. There are some quantitative data for assessing its impact on contraceptive prevalence. No such data are available for assessing the Project's success or failure in acting as a catalyst in Kundam block's overall development efforts. The socioeconomic setting of Kundam block is not at all favorable to high contraceptive prevalence. Hence a rise of contraceptive prevalence in the Project Area from below 20 percent in 1980 to over 60 percent in 1985—much higher than in the Control Area, in Madhya Pradesh state, and India as a whole—can be considered as a significant achievement of the Project.

The following two strategies of the Project seems to be mainly responsible for its success in raising contraceptive prevalence: (i) mobilizing a large number of men and women in the community through various committees and clubs to participate in educational/motivational activities related to promotion of family planning;. (ii) extending the Project's efforts to other developmental activities that would, according to the community members' perception, fulfil their health and other needs.

The formation of the Project Implementation Committee as well as the village-level committees and clubs went through meticulous and innovative planning. The inclusion of influential local government functionaires, panchayat members, and other social/political leaders in the 17-member Project Implementation Committee not only enhanced the credibility of the Project to a considerable extent, it also worked as an incentive to the community members to join the village-level committees and clubs with the hope of making personal contact with people in power. The activities of various committees and clubs and active participation of both the young and old in them attest to the success of the community health workers in creating rapport with the villagers and dealing with the constraints related to village factionalism.

One positive aspect of the Kundam Project is that it worked through the existing organizational structure of the government, rather than creating an independent structure of its own, as in Matlab. The main reasons why the government bureaucracy did not have a dampening effect on its activities are the following: (i) it took great care in allocating the roles of local government personnel in the Project in such a way that would encourage them to support the Project activities; (ii) its activities were supportive rather than competitive with the government; and (iii) the final decision-making power of the Project was vested in the project coordinator who was a staff member of the FPAI headquarters at Bombay. One lesson learnt from the Kundam Project is that for successful community mobilization, the leadership should come from a nongovernmental organization but the latter should adopt strategies which would ensure a fruitful collaboration with government agencies responsible for providing services. The strategies would vary according to organizational structures of the NGOs and government as well as with the nature of the project and local social structure.

The figures regarding cost sharing show that the major cost for development activities was shared by the government and a considerable part of it was contributed by community members, mostly through voluntary labor. Presumably, without the Project's initiatives to make community members aware of the government's development programs and also to stimulate them for self-help many of the development activities would not materialize at all or be as fruitful as they were, but the specific impact of the Project in this respect cannot be assessed because of the lack of comparative data from the Project and Control Areas.

The main thrust of the Project was on family planning and the community members also perceived the project as such, but most probably the Project would not have achieved as much success in family planning as it did, if its activities would not extend beyond family planning. The health and other development activities envisioned in the Project and implemented through various committees and clubs had an important role in achieving its family planning objective. These activities enabled the community health workers to create close rapport with the community members.

The coordination and monitoring of the activities under various sectors were done by the Project Implementation Committee which did not presumably have the official power of rewarding or penalizing the workers but was probably effective in instilling a greater sense of responsibility among the workers than the government structure usually does. Since in a government structure each sectoral activity is carried out by a separate line of ministry or department, multisectoral activities at the local level often suffer from a lack of proper coordination and monitoring. The success of the Kundam Project indicates that an NGO-led body which includes local government officials and other community leaders can serve the purpose of coordinating and monitoring without infringing on the authorities of various ministries or departments over their respective workers.

In a workshop held in 1983, a group of project managers, researchers, and donor agency staff defined community participation idealistically as

> an educational and empowering process in which people, in partnership with those able to assist them, identify problems and needs and increasingly assume responsibility themselves to plan, manage, control and assess the collective actions that are proved necessary (Askew et al. 1986:5).

The Kundam Project appears to have succeeded reasonably to encourage community participation in activities for raising awareness regarding family planning and crystallizing the existing fragile demand for it. However, this success has been achieved through strong guidance by the FPAI staff members and involvement of local government functionaires (who are not members of the Kundam community) in planning activities. The reason for limited participation of community members in planning and management procedures may at least partly be explained by the fact that the organizational structure and bureaucratic style of the FPAI and, to a greater extent, government program, present many difficulties to involve community members in these activities. Moreover, empowerment of communities perhaps require technical skill which the FPAI and government field staff usually do not have (Askew 1989).

One other important limitation of the Kundam Project is the lack of females among its staff members. Only female staff member is the auxiliary nurse midwife. Perhaps the non-

availability of qualified females for the needed jobs was the main reason but it seems reasonable to assume that a higher proportion of females among staff members would have enabled the Project to achieve more success than it actually does.

The limitations of comparing the demographic indices temporally and between the Project and Control Areas have been referred to above. The methods of data collection and compilation in the two Areas as well as the roles of the Project and the PHC in this respect are not clear. Lack of comparable data from the two Areas make it difficult to make a comprehensive assessment of the Project's impact on demographic and development indices.

Comparison Between the Matlab and Kundam Projects

The Matlab Project in Bangladesh and Kundam Project in India have demonstrated that significant success in family planning can be achieved in socioeconomic environments that are generally conducive to high fertility and mortality. It is, however, very difficult to strictly compare the specific impacts and strategies of the two projects because of a considerable difference in their documentation. The Matlab Project is one of the most well-documented experimental projects on family planning in developing countries, mostly because of the Demographic Surveillance System (DSS) developed by the ICDDR,B. The documentation of the Kundam Project is perhaps better than any other experimental family planning project carried out in rural India but is not sufficient for doing a comparative analysis with the Matlab Project.

Both the Projects are experimental in the sense that they are designed to have an experimental area which is provided with some special service inputs and a control area—socioeconomically and demographically more or less similar to the experimental area in the pre-project period—which is not provided with any special input so that the changes brought about by the Project inputs can be distinguished from those occurring in the both areas by forces external to the project. There are other family planning projects in Bangladesh and India that claim significant success but because of a lack of experimental design, it is very difficult to assess the degree of their success. One common difficulty in setting up an experimental project is that it requires provision of continuous data collection in both experimental and control areas but without any service inputs in the control area—an action not always ethically justifiable. In both the Matlab and Kundam Projects, some ideas generated by the Projects in the experimental areas must have diffused to the control areas but such deviations from the ideal situation—almost inevitable in social experiments—are expected to vitiate the main findings only to a negligible extent.

The main strategies that are responsible for the success of the Matlab and Kundam Projects are quite different in nature. In Matlab, the Project took the responsibility of providing family planning and (some rudimentary) MCH services in the Treatment Area in a way that differs considerably from that of the government's program but in Kundam the Project took very little responsibility for providing family planning and MCH services and tried to mobilize the community through formation of various committees and clubs in such a way that the community members can take the best possible advantage of the government's family planning and other development programs. The success of the Matlab Project can be attributed to various aspects of the organizational system developed for delivering a consumer-oriented family planning and MCH services, while the success of the Kundam Project can be attributed to various aspects of the

organizational system developed for active participation of community members in government's family planning and other development programs. Cost-effectiveness of the strategies adopted by the Matlab and Kundam Project cannot be compared because of the lack of adequate data.

The lessons so far learnt from the Matlab and Kundam Projects should be useful in implementing the national and regional family planning programs. The feasibility of replicating the strategies adopted in the two Projects should be tested in experimental projects of different scales in various regions of Bangladesh and India. Since the Kundam Project is more realistic in the sense that it focuses on activities which are supplemental to the program rather than substitutional as in the Matlab Project, perhaps the feasibility of its replication is greater than the Matlab Project. A further justification of testing the feasibility of projects similar to Kundam Project in other areas is that examples of effective community participation in family planning and other development programs are still rare although it is commonly recognized as a requisite for program success.

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