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**FACTORS INFLUENCING CONTRACEPTIVE
AWARENESS AND USE IN CHILMARI AND
KAZIPUR, BANGLADESH**

By
Olaf Henry Juergensen

A thesis presented to the University of Manitoba
in partial fulfilment of the requirements for the
degree of Master of Arts in Geography

Winnipeg, Manitoba
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MASTER OF ARTS

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Abstract

Economic progress is often seen as the panacea for over-population in the Third World. Pundits have argued that once 'economic development' becomes firmly entrenched in a traditional society, the need for large extended families is removed. This trend was not found in the macro case study of Chilmari and Kazipur, Bangladesh, nor in the micro investigation of two distinct socio-economic groups, namely riverbank erosion displacees and non-displacees. Using data collected in the Riverbank Erosion Impact Study (1985), it was established that educational status and not economic position was the most significant determining factor influencing contraceptive use. Furthermore, it was discovered that the economically advantaged inhabitants had the lowest frequencies of contraceptive practice. The data suggested that the extremely poor had higher levels of contraceptive use because they could not afford to have large families. However, once the economic prosperity of a family improved, there was often a decrease in the practice of birth control. This would suggest that economic development does not necessarily lead to a rationalization in fertility behaviour.

The high reported levels of awareness (95 percent) and the low rates of practice (18 percent) indicate that the Government of Bangladesh has been successful in promoting family planning information; but, the population as a whole has not utilized this information. A change in traditional values and norms is necessary before there will be widespread acceptance of modern birth control methods in Bangladesh. In light of the research findings, more emphasis must be placed on providing universal education, which over a period of time could result in a shift in social behaviour. Therefore, social programs must become integrated with economic schemes if poverty and over-population are to be alleviated in Bangladesh.

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Chapter I

Introduction

I have seen no region on Earth where provisions are so plentiful.

14th century traveler to Bangladesh

The developing countries of the Third World are faced with a multiplicity of complex challenges. However, few are as heavily burdened as Bangladesh. Two of the most significant factors limiting socio-economic development and modernization in the country are the adverse environmental conditions and increasing population pressures. Man has learned to cope with or even modify, the extent to which nature has affected his daily life; unfortunately, in extreme instances this is not always the case. There is very little hope of ever containing all the flood waters that submerge vast areas of Bangladesh on an annual basis. Though the problem of rapid population growth cannot be considered an uncontrollable natural phenomenon, the reduction of population rates can be achieved through various modern and traditional measures, all of which would certainly help alleviate the iniquitous pattern of marginalization that is prevalent throughout Bangladesh today.

Historically the acceptance of modern contraception has not met with popular enthusiasm, and as a result, the birth rate has remained unacceptably high. If this trend is to be altered, planners must become better acquainted with the factors associated with sustained contraceptive practice and implement this knowledge in the development of future family planning programmes.

Currently Bangladesh's population of 115 million is growing at an annual rate of 2.8 percent and is thus expected almost to double within the next twenty-five years (PRB, 1989). The demographic profile constructed for Bangladesh in 2020 is in keeping with this forecast: infant mortality is expected to decrease dramatically from 128 to 53 per thousand live births, and it is anticipated that life expectancy will increase by almost fifteen years (UN, 1987: 42). Coupled with virtually no substantial out-migration to lessen the burden of increased population pressures over the next two and half decades, the country's development future is in doubt. The government has identified uncontrollable population growth as a national concern and considers it one of the main obstacles to development. The introduction of the National Family Planning Programme in 1960 was the first attempt made in Bangladesh (then East Pakistan) to bring population increase under some control. Following independence from Pakistan in 1971, Bangladesh introduced a National Population Programme in its First Five Year Plan which was further evidence of the Government's commitment to reducing population growth.

It must be understood that Bangladesh is one quarter the size of France, yet it has almost twice the population of this European country. Thus, one of the most serious consequences of rapid population growth in Bangladesh is a shrinking land-man ratio. This phenomenon is perpetuated by the inheritance practice of dividing family plots between male children which has resulted in a decrease in average landholdings from 3.5 acres in 1977 to 2.3 acres in 1984 (Economist, 1986). Moreover, 85 percent of the population still lives in the rural areas dependent upon some form of agriculture, and over half are functionally landless peasants owning less than half an acre (Chowdhury and Kabir, 1988: 1). These small parcels of land serve as kitchen plots for homesteads and cannot be considered as substantial or cultivatable. Each time the ravaging winds and rain hit the coast of Bangladesh there is a potential for great suffering and loss of life because of an increasing number of people being forced to settle in areas that are prone to flooding.

Many of the 25 million people who were displaced in the latest flooding (August 1988) will be forced to return to the levees and *char* lands of the Ganges and the Jamuna-Brahmaputra until the next monsoon arrives.¹

Attempting to reach some balance between demographic change, industrial and agricultural evolution, and social equality, is an arduous task for any country. The prospects of a Third World country, such as Bangladesh, overcoming the many hurdles that lie in its path on the road to development are increasingly impeded by the burden of rapid population growth. The restructuring of society after the colonial and post-colonial eras has put tremendous pressure on the government and people of Bangladesh. The complex interaction of forces influencing development and modernization are numerous and sometimes opaque to many who refer to Bangladesh as "a country with insoluble problems...it has been a 'headache' to many world planners." (Quarishi, 1987: 15). The country has been hindered by a colonial legacy of its former rulers, the British, the Indians, and the Pakistanis, who left little infrastructure capable of utilizing the advancements made in agriculture and industry that have proliferated in many other Third World countries since the end of World War II.

The problem of recalcitrant population growth is that often a change in the attitude of a society or culture is needed to bring about substantial results. Thus, the introduction of modern western birth control methods is sometimes considered to be an infringement on traditional values and norms. This is where a paradox arises; many of countries of the Third World have adopted various aspects of modernization or westernization in the name of development and in the same process unwillingly forfeited their traditional societal arrangements. The disruption of these paradigms often results in the creation of a series of more complex problems. The individual often does not respond to the motives of the

¹ *Char* lands are small islands created by the dendritic actions of the rivers.

central government or administrative foreign agencies and issues manifest themselves into cultural dilemmas.

The emotional aspect of birth control is often not factored into the formulas for the reduction of population growth, and, as a result, the failures of many population programmes are not clearly understood. Perhaps there is too much emphasis or faith placed on the population programmes introduced by Third World Governments. Population reduction is not simply a mathematical truism, it is also contingent on a host of demographic, biological, social, and emotional factors. The simultaneous interaction between these factors and the process of modernization further complicates the strategies needed to combat rapid demographic growth. Moreover, once the projects are implemented, they are rarely monitored or reevaluated until their mandate expires. It seems that population problems are often studied in isolation from other factors such as the social, political, and economic setting. This is a failure that must be addressed if further programmes are to be successful.

In 1974, at the World Population Conference in Bucharest, a *Plan of Action* was adopted in an effort to develop an international response to the population problem. Prior to the widely publicized meetings in Romania, the international community had held several forums on population questions. In 1946 the United Nations created the technocratic Population Commission and subsequently the meetings held in Rome and Belgrade in 1954 and 1965 respectively, also treated population as purely a scientific problem. Even in the period leading up to the Bucharest Conference, population growth was looked at independently of underdevelopment. The term 'Family Planning' was greeted with reservation by many newly emerging countries, which were opposed to any programme that advocated any form of anti-natalist commitment. However, by 1967 many attitudes had changed resulting in the creation of the U.N. Fund for Population Activities (UNFPA).

Many of the developed western countries, led by the United States, believed that the harbinger to development was family planning; thus, they advocated the widespread introduction of family planning initiatives throughout the developing world. American President Lyndon Johnson, publicly stated that "\$5 spent on family planning was worth more than \$100 spent on development." (Hofsten, 1980: 214). The pundits of the time felt that the indigenous people of the many countries facing population pressures would willingly accept modern forms of birth control. They saw the problem of distribution, introduction, and development of new methods as being the limiting factor to successful programmes.

The Bucharest meetings were dominated for the first time by delegates who were interested in the relationship between development and population in a social and political sense as well as empirical. Prior to the conference, a think-tank called the "Non-Malthusian Coalition Group " was formed. The Group convened in Bucharest and simultaneously held unofficial meetings that became known as the Population Tribune. Their tenet, which was also later adopted by the general assembly at the Conference, was,

[p]opulation growth must not be blamed for diseases of society. It is a deception to make people believe that it is possible to solve problems of society through birth measures. (Hofsten, 1980: 216)

It was agreed at the Conference and the Tribune that a more holistic approach was needed and that population policy was merely a single component in the overall socio-economic development process. Presently there are many countries, such as Canada, the United States, and West Germany, which can afford small increase in fertility rates; however, they are a minority. The majority of poorer nations, especially in Asia, are already very densely

populated and must begin to reduce population increases immediately if overall sustained socio-economic growth is to be an attainable goal. As we know, the negative consequences of stifled economic progress tend to have a more dramatic impact on the very poor. Without question Bangladesh falls into the category 'very poor,' as its per capita GNP is only \$160 US; a regional comparison found that India and Pakistan have personal incomes almost twice as high (PRB., 1989). Marginal economic performance results in low domestic savings requisite for the build up of investment/risk capital and the economy as a whole. Furthermore the dearth in available assets diminishes the revenues collected by the government, spelling a reduction or at best stunting in funding destined for social spending projects such as schools, hospitals, and public health services.

Naturally, with a decrease in the availability of these important services, the poor are usually disproportionately adversely affected. Once the trend toward impoverization is initiated, it has a circular effect which limits the children of these families to a disadvantaged existence for generations to come. The interdependence between economic growth and social expenditures is understood, yet the latter is often treated as a secondary tool for development. It has been suggested that large families become un-economical in societies where the prospect of employment exists for both the husband and the wife. Thus, governments often stress the goal of economic prosperity and thereby sacrifice critical social programmes.

It is the decrease in social spending which is of great concern. The emphasis of development planning has often been placed on creating a healthy, vibrant, and competitive economic atmosphere within a Third World nation. Ideally, modernization, driven by economic boom, leads to universal literacy, low infant mortality rates, longer life expectancy, less dependency on traditional agriculture, and well funded social programmes. However, as will be discussed in the following chapters, economic

evolution unaccompanied by social adaptation can lead to undesirable results in many of the fragile traditional societies in the underdeveloped world. And instead of providing an atmosphere conducive to responsible fertility behaviour, in essence it destabilizes the demographic balance.

1.1 Objectives of Investigation

The over-population question is deeply imbedded in the dialogue on Third World development. This thesis will focus on one specific aspect of this debate by identifying which socio-economic characteristics, material possessions, or attained education are most favourably correlated with the awareness and practice of modern birth control techniques in rural Bangladesh.

Ideally, a Knowledge-Attitude-Practice (KAP) survey employing large population tracts over several decades would provide researchers with the many clues needed to address and rectify the overcrowding which is taking place in Bangladesh at the present time. Unfortunately, it is beyond the scope of this investigation to delve into such an all encompassing review. However, the analysis of contraceptive department can act as a condensed surrogate for such a study, for it will provide evidence of any change in behaviour as a result of the adoption of new 'modern' procedures or attitudes. The particular factors responsible for this change would be of greatest interest and assistance to future planners and practitioners in their attempt to develop aggressive indigenous schemes aimed at reducing fertility.

The components responsible for influencing contraceptive behaviour, negatively or positively, represent a microcosm of fertility conduct. Thus a detailed look at a country's

contraceptive patterns can provide a better understanding of the current fertility realities and future trends.

The specific focus of this investigation will be to

- (i) ascertain the present degree of awareness and acceptance of contraception within the rural *Upazilas* of Kazipur and Chilmari, Bangladesh.²
- (ii) identify the socio-economic factors responsible for influencing the knowledge and practice of birth control in the two regions.
- (iii) establish whether results are influenced by socio-economic position in Bangladesh society.
- (iv) appraise the value of family planning without the support of general socio-economic progress.

The aforementioned objectives will be explored, and, hopefully amplified by instituting the testing of the four preceding research hypotheses.

Hypothesis I: Contraceptive **awareness** is related to **economic status**

Hypothesis II: Contraceptive **use** is related to **economic status**

²An *Upazila* is an administrative district equivalent to a municipality, with a mean area of 180 sq. kilometres and average population of 176,000. (Bangladesh Bureau of Statistics, 1984)

Hypothesis III: Contraceptive **awareness** is positively associated with **educational level**

Hypothesis IV: Contraceptive **use** is positively associated with **educational level**

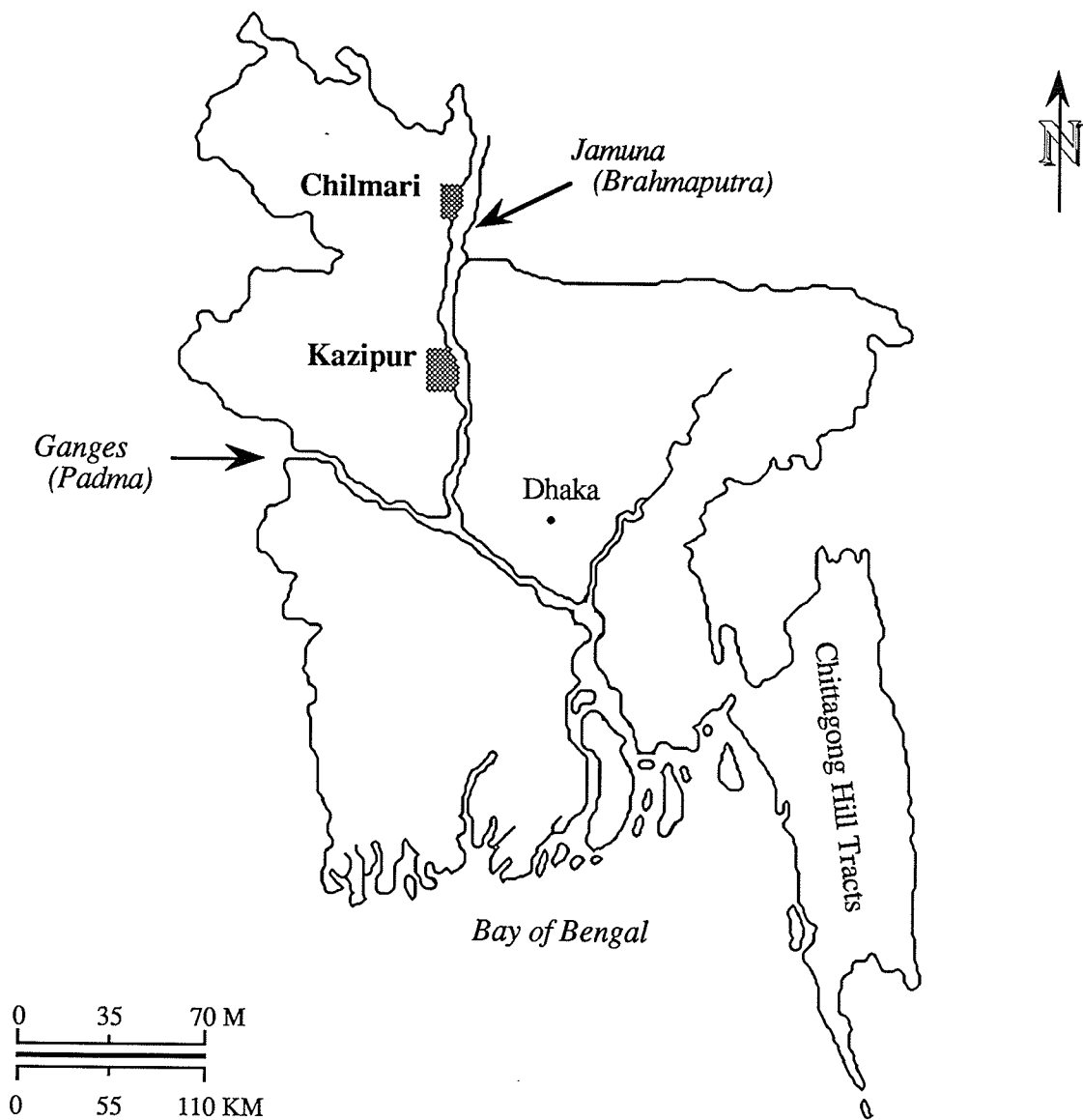
The development and significance of the hypotheses will be discussed in the chapters to follow.

1.2 The Study Area

In an attempt to strengthen the results of the data analysis two *Upazilas* were identified. Both Chilmari, situated in northern Bangladesh and Kazipur found in the central region, are located on the west side of the Jamuna-Brahmaputra river (see Map 1). These areas are severely impacted by the monsoon induced riverbank flooding which occurs annually in Bangladesh and therefore provided access to a dichotomy of respondents; those who had been displaced by flooding and erosion and those who had remained non-displaced. Haque (1988 and 1989) discerned a significant difference in the socio-economic status of the populations. Since one of the aims of this thesis is to weigh the impact of selected variables on contraceptive behaviour: testing the hypotheses on two distinct socio-economic groups lends credence to the conclusions. Kazipur occupies an area of approximately 370 sq. km and has a resident population of 213,885 people living in 37,078 households. The population density for the *Upazila* is 578 persons per sq. kilometre (BBS, 1984: 171). Considering that roughly 30 percent of the inhabitants live on what is classified as mainland, the propensity for displacement is high. Chilmari is comprised of an area of 197 sq. km, excluding forests and rivers, and had a 1981 population of 89,102 living in 16,947 households. In local terms the land-man ratio, 452 people per square kilometre, is not as acute as is found in many of the other *Upazilas* in Bangladesh.

MAP 1

BANGLADESH STUDY AREA



1.3 *The Questionnaire and Methodology*

The primary information to be used in this thesis was derived from a questionnaire survey conducted in the spring of 1985 for the River Bank Erosion Impact Study (REIS), a joint project of the University of Manitoba and Jahangirnagar University. The project selected Kazipur and Chilmari because of the high incidence of river bank erosion in the *Upazilas*. Once the *Upazilas* were identified, three spatial units were chosen for questionnaire (Haque, 1989: 3).

First, the *Upazilas* were broken into *Unions*, which are sub-districts of an *Upazila* approximately 20 square kilometres in size and an average population of 19,400. The second level of investigation took place within specific *Mouzas*. A *Mouza* is the smallest administrative district, occupying an area of about 339 hectares and having a population in the vicinity of 1,400 people (257 households). Households were adopted as the third level and were the primary sampling unit (PSU). The responses from each PSU were drawn from the heads of the households, except in some cases, where the household head was absent for an extended duration and responses of the acting household head were noted.

The questionnaire was administered in three distinct physiographic zones in each *Upazila*. The zones consisted of *Khiar* (interior lands), *Bir* (mainland with bankline), and *Char*. This typology was used to categorize the *Mouzas* within each *Union*. A statistically just sample population from each of the three zones was chosen in each *Upazila*. (Haque, 1989: 4). In Kazipur 334 households were found in *Khiar*, while 1,938 were in *Bir* and 537 *Chars* respectively. Using the 95 percent confidence limit as the standard, 547 households were selected from the three zones within Kazipur. In Chilmari 406 households were located in *Khiar*, 1,434 in *Bir*, and 1,105 in *Char*. Of the total 2945 households in the Chilmari 525 were selected.

All of the described zones are susceptible to a greater or lesser degree of flooding and therefore it was believed they would supply an appropriate cross section of views *vis-a-vis* displacement experience. The emphasis on the perceptions and reactions to displacement are secondary in this study, but the unique ability of the data to provide a distinct range in socio-economic status will be a great asset in testing the research hypotheses.

The survey was conducted in Bengali and was divided into four sections totaling 146 questions. The first series of questions dealt with the basic demographic characteristics of each member of the household; age, sex, marital status, occupation, and level of education. The second group gathered a variety of information on the socio-economic standing of the individual households. This ranged from detailing the ownership of land and livestock, to personal incomes, household assets and expenditures. Within this segment a sub-section on health and fertility recorded responses on optimal number of children (male/female), use and knowledge of various modern contraceptive techniques, and use of local medical facilities. The third part of the questionnaire was designed to solicit a better understanding of perceptions held by inhabitants who had been displaced by riverbank erosion or flooding. Fourth, respondents who had been displaced were asked further questions about their displacement and subsequent migrational history (Rogge, 1985: 8). The division of the data in section four allows for the comparative analysis of two distinct sub-groups, displacees and non-displacees.

Since a specific topic is being considered here, only the questions in the REIS survey directly relating to contraceptive knowledge/use, education, and selected economic indicators necessary in the testing of the research hypotheses were used. The sections on 'Demographic Characteristics,' 'Socio-Economic Characteristics,' 'Health and Fertility,'

and 'Hazard Perception,' thus serve as the main sources of information for this investigation (See Appendix A).

The entire data set was entered into the mainframe environment at the University of Manitoba where it was analyzed by the Statistical Analysis System (SAS). The SAS programme offered the flexibility to access any portion of the questionnaire. This permitted for a variety of statistical tests to be performed between *Upazilas*, displacees and non-displacees, literates and illiterates, and landowners and landless persons. The *Data Desk Professional* for the Macintosh was also used for several of the statistical analysis problems and served as a useful and quick aid.

The data selected had to meet certain criteria. First, respondents had to be the head of the household, married, 15 years of age and older, and, if female, under 45 years of age. Second, the data were separated into displacees and non-displacees. The result was that Kazipur had 474 who fell into the first category of whom 193 were non-displacees and 281 had been forced to relocate. Chilmari had an aggregate of 453 of whom 282 were displaced and 171 non-displaced. In Chilmari 4 percent of respondents were females while the rate was somewhat higher in Kazipur, reaching 8 percent. The total combined number of observations used from the two sites was 927 (See Appendix B).

For determining statistical relationship between the chosen individual variables and family planning, the chi-square test of independence was chosen. The test compares the calculated observations with the expected number of observations, taking into account the chance for error due to random chance sampling, to establish if they are independent or correlated (Shaw and Wheeler, 1985: 131). Because the data under analysis is measured at the nominal level, the extent of correlation cannot be determined using the chi-square method. There are two levels at which family planning can be gauged, namely, knowledge and

practice (UN, 1978: 3). In all cases the null hypothesis states the practice or knowledge of birth control is not influenced by either economic status or educational position.

1.4 The Data: Strengths and Weaknesses

The development of the questionnaire was a methodical and persistent process which involved the input of a multicultural, interdisciplinary panel of experts comprised of natural and human scientists. As each group had its own preconceptions, special interests, and biases, there had to be a spirit of compromise and understanding if the questionnaire was to be useful to all parties concerned. The objective of compiling a unique socio-economic data base, focusing on individuals who live on or near the floodplains along the Jamuna-Brahmaputra River, was met and to date many researchers have benefited from the foresight demonstrated during the initial stages of design (see Rogge and Haque 1987, Halli 1987, Elahi 1988, Haque 1988, Chowdhury and Kabir 1988).

Many of the interviewees were illiterate and often spoke one of several local dialects, increasing the possibilities of a misunderstanding or simply miscommunication between the university trained investigator and the head of the household. A second area of concern was that women were often not considered in the answers given in surveys executed in male dominated Muslim societies such as Bangladesh. For example, when a male head of the household is asked if he uses contraception his response might be recorded as a negative even though his wife does practice some form of contraception.

A further cautionary note on undertaking research in the highly private and personal area of contraceptive behaviour was provided by Stoeckel and Choudhury (1973). They found that results were often plagued with inconsistencies. More than half the people interviewed

knew about family planning programmes sponsored by the Government and almost half fully approved of the initiative. However, only 4.1 per cent actually used any of the proposed methods. These discrepancies were a source of concern for the investigators, who decided to re-canvass the respondents that were known contraceptive users. The results were disconcerting; over half of the known users denied they were practitioners. Green (1969) in his work on contraceptive use in Dhaka, was also concerned with the correlative accuracy between action and reported response of birth control practices in Bangladesh. Green concluded that

[u]nder reporting of use was 13 to 22 per cent for males, and 26 to 35 per cent for females....the socio-economic differentials, including geographic origin of the respondents, suggests that under reporting rates may be even higher in rural areas of East Pakistan. (Green, 1969: 14)

Naturally, if the data are flawed in any manner, the redress of policy objectives becomes a difficult task for planners. Stoeckel and Choudhury did resolve that the 'Asian Courtesy Bias' did not apply to the issue of family planning because it was so closely related to social, ethical, and traditional values and norms. The discrepancies in reporting were found to be a result of length of use and confidence in the methods employed. Those people who had used some form of contraception for 13 months or longer reported accurately, while those respondents who had used a specific methods for under 13 months tended to be inconsistent in their answers. Thus, rates of practice in any survey addressing family planning are open to criticism.

However, the REIS data can offer insights into other areas of importance. If we concentrate on the *patterns* and not only the aggregate *totals*, the data source will surely be

invaluable in evaluating and assessing the progress made by the Bangladesh Government in changing attitudes and reducing fertility on a sustained basis. The qualifications discussed above do not seem to be of a debilitating sort, and it is believed that the minor weaknesses will be overcome by the large number of respondents interviewed, the care taken in selecting the interviewers, and the cross referencing of the test results to the plentiful secondary data sources which can be found in the literature.

1.5 Organization of Study

Following the brief introduction to the research question, study area, and methodology in Chapter I, the remainder of this thesis will be presented in the following fashion. Chapter II will begin with a macro examination of the rich and vast literature available in the spectrum of population as part of the development process. In particular this chapter will address the political/economic realities of poverty and modernization and their impact on contraceptive prevalence within the Third World. Also, a modest survey of birth control in several developing countries will be undertaken. At the micro level Chapter III will trace the establishment of government sponsored family planning schemes in Bangladesh over the past 30 years. In addition the exploration of previous works detailing the relationship between family planning and development and a commentary on the current socio-economic conditions will be presented subsequently. Employing the primary REIS data Chapter IV will be devoted to the testing, presentation, and analysis of the research hypotheses. Finally, Chapter V will discuss the implications of the findings as they pertain to contraceptive knowledge and use in rural Bangladesh. Furthermore, an evaluation of how the results can help foster widespread acceptance of birth control in Bangladesh and just as importantly in other regions of the Third World will be given.

Chapter II

Review of the Literature

A society's demography is a formalization of the risks of it's membership.

(Schofield and Coleman, 1986: 6)

The relationship between population growth and socio-economic progress in underdeveloped countries is complex in nature. The availability of literature in 'Population Studies' is enormous and sententious; however, as stated in the introduction, the focus of inquiry will be on the factors influencing contraceptive prevalence in Bangladesh. Therefore, the literature under review will begin with a macro investigation of population as part of the overall development process. Secondly, as an instrument of family planning, contraception and its successes and failures will be examined. Once a foundation, based on the literature reviewed, has been established the hypotheses to be tested will be justified.

First, however, it would be prudent to define 'Third World' as it will be used in this study. We are all familiar with the term Third World, yet there is no agreement on what exactly constitutes a Third World country. The Marxists contend that the division is based on geopolitical grounds; super-imperialist, junior-imperialist, sub-imperialist, and underdeveloped states (Hoogvelt, 1982: 2). A second configuration was proposed by Mountjoy (1978: 13) who also saw the divisions based on global political structures; the Atlantic bloc (Free World), Eastern Europe (Communist World), and the Non-aligned Countries (Third World). The UN and the World Bank classify countries into one of four categories; developed market, centrally planned market, developing market, and least developed countries. Thus, the Third World, by UN definition is considered to be

countries that are in the early stages of economic development, i.e.-developing market. Since much of the secondary data presented in this study is nomothetic and has been collected through the UN or its sponsored agencies, it is their definition of the Third World which will be employed.

2.1 Third World Limitations

Some of the common characteristics of a Third World country include; a large proportion of the population involved in non-technological agricultural production, underdeveloped manufacturing and industrial sectors, and little input into social overhead capital intensive projects such as schools, hospitals, and roads. The demographic characteristics reflect a similar trend with life expectancy around 40 years in Djibouti and 54 years in Ethiopia compared with 76 years in Canada and 74 years in the United States (UN, 1987: 106). A second common stricture to Third World countries is the "juvenility" of the populations; where up to 50 percent of the population can be under 15 years of age (Peters and Larkin, 1983: 47). Economic progress is often destabilized by this large unskilled but reproductive age cohort.

The economic scene is often dominated by the exportation and exploitation of a variety of raw materials which are usually at the mercy of world market pricing arrangements. This leaves the poorer countries susceptible to economic instabilities which only foster the already burgeoning domestic problems. The fluctuations in the price of oil over the past several years is a prime example of the disastrous affects of relying on one major source of income. In Nigeria the per capita income plummeted by almost 50 percent in one year; from \$700 (US) in 1986 to \$370 in 1987 (Melly, 1988). Moreover, the Government of Nigeria has lost over half of its revenues because of the drop, and, as a consequence, has made large cuts to the University system and other social programmes which are

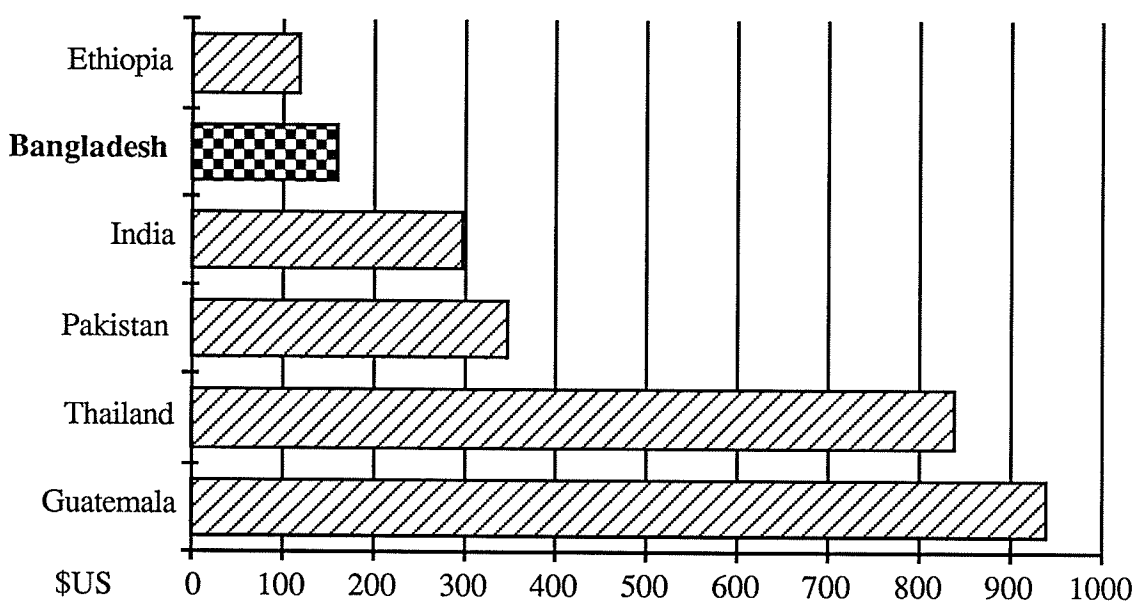
desperately needed to break out of the vicious circle of underdevelopment. Similarly the Ivory Coast, which depends on cocoa for 40 percent of its export profits, has been forced to purchase cocoa from peasants at artificially high prices because of a glutted world market. However, the long term effects on the domestic economy, which presently has a foreign debt of \$9 billion (US), are certain to be dramatic (Merriman, 1988). In 1986 Zambia was faced with a similar dilemma, when it was forced to suspend government subsidies of the "breakfast meal" because of the depression in world copper prices (copper constitutes 90 percent of Zambia's export earnings) and the subsequent loss of export earnings and an increasing debt payment. There were mass demonstrations throughout the country, resulting in the death of 15 people, and the government was forced to continue the subsidize the programme. The government in Lusaka decided, against the wishes of the International Monetary Fund (IMF), to set the *kwacha* artificially at 300 percent above its actually value. The IMF and the World Bank suspended all future loans to the country until monetary responsibility is observed in Zambia. Today the country is faced with a bleak future, as the known copper reserves will be depleted within the next twenty years, and unemployment, inflation and government debt continue to spiral out of control (Economist, 1989: 88).

Chenery (1980: 30) chose to use a calorie based poverty line of 2,150 daily calories, instead of the traditional per capita income, to measure levels of living. He found that people below the minimum calorie intake level in Sri Lanka and Indonesia expended 80 percent of their incomes on food. A second indicator was used in Brazil where it was found that the heads of the households of the families under the calorie line had an average of only one year of school. More disturbing, was the finding that 60 percent of the children between the ages of six and ten had never attended school or had already stopped going. As might be expected the regions of South Asia and sub-Saharan have the greatest number of people below the poverty line (economic and caloric). Figure 2.1 compares

Bangladesh's 1988 per capita income with neighbouring countries as well as those from other continents.

FIGURE 2.1

GNP PER CAPITA FOR SELECTED COUNTRIES



Source: PRB, 1989

Although these illustrations are not all inclusive, they do help to place Bangladesh in context with its neighbours and represents the global pattern of indigence which exists today. The uneven distribution of income and landholding within these developing nations, which is masked in Figure 2.1, where the poorest 20 percent of the people earn 3 to 5 percent of the wealth and the richest 20 percent draw 30 to 45 percent is also a limiting factor to development (Lemco, 1988: 11).

2.2 The Theory of Development

The definition of 'development' or 'modernization' has been a source of contention since the early part of this century. Many of the countries which are now considered developing, or newly industrializing, were once known as "primitive, backward, undeveloped, emerging, or rapidly developing." (de Souza and Porter, 1974: 1). This multiplicity of definitions for evaluating the state of a country's progress is an example of the division among scholars as to what truly constitutes 'development.'

Palmer (1973) saw the definitions of 'modernization' and 'development' as interchangeable, though he did argue that 'modernization related specifically to a society's attempt to achieve the theoretical goals established by contemporary social thinkers. He viewed 'development' as being the process of gaining an equal share of the global production of goods and services. Pye (1965) is credited with one of the most comprehensive discourses on development, in which he listed ten of the most crucial components. They are (i) political prerequisite of economic development (ii) the politics typical of industrial society (iii) political modernization (iv) the operation of a nation state (v) administrative and legal development (vi) mass mobilization and participation (vii) the building of democracy (viii) stability and orderly change (ix) mobilization and power (x) social change. There were many proponents of the thesis that modernization was merely a historical process which require a country to move through a series of economic, political, and social changes which had already taken place in the West (see Parsons 1964, Eisenstadt 1966, Riggs 1967, Verba 1971). They regard development as a dynamic, on going process which leads to the transformation of society into a more satisfying state.

This survey will not address the colonial activities which dominated the first half of the 20th century and are partially to blame for the current widening gap between the rich and

poor countries of the world. Rather, the emphasis here will be on what geographers and other social scientists consider to be true 'development' or 'modernization.' It is important to establish a working definition of development so that a paradigm can be established for the discussion that follows on the state of Bangladesh's Family Planning Programme in the overall development scheme.

There have been many theories brought forward dealing specifically with the complicated issue of development. The views range from the classical works of Malthus, Ricardo, and Marx, to the Conservative and Liberal paradigms introduced in this century. The term 'underdeveloped' has itself gone through a metamorphosis in the past several decades. Initially, the word conveyed a condition of great potential, such as a large untapped human or natural resource base. After the period of rapid de-colonialization it was assumed by the new and inexperienced leaders of many of these countries of 'potential' that if modern western methods and technologies were adopted, replacing the more traditional, then they too could experience the tremendous economic advances that had taken place in many Western countries since 1945. The leaders, who were often educated in Western schools, began to accept the theories postulated by the great social thinkers of the 18th and 19th century; the successful evolution of society was dependent on moving from the simple 'primitive' to the complex 'modern.' (Hoogvelt, 1982: 106). In other words, man would become more individualistic as he moved up the evolutionary ladder.

The classic arguments of Durkheim who refers to the dialectics of *Mechanical Solidarity* versus *Organic Solidarity*; Spencers's *Homogeneous* versus *Heterogeneous* society; Tönnies *Gemeinschaft* and *Gesellschaft*, Weber's *Protestant Ethic and the Spirit of Capitalism*, Marx's *Manifesto*, Parson's *The Evolution of Societies*, all reinforced the actions of the newly autonomous states of Africa and Asia. Auguste Comte (1798-1857), the father of modern sociology, saw the evolution of society moving through three

historical stages which ended in the transformation of societal institutions; (i) the theological-where military life was dominant (ii) the metaphysical-controlled by legal forces (iii) positive stage-governed by an industrial society, also lent credence to the unilinear tenet. (Vago, 1978: 35)

This unilinear process of change has been supported by many scholars in economic theory as well, the most vocal being Rostow (1960). Rostow believed that there were four main stages of economic development: (i) pre-conditions for takeoff (ii) take off (iii) drive to maturity (iv) mass consumption (Pateman, 1978: 49). The prerequisites for development were based on the stimulation of the economic environment which relied on a social structure that was willing to move in the direction of *laissez-faire*. Many Third World countries followed this plan of action, and thirty years later they have found that Rostow's menu for success had to be modified for each individual case.

A major derivative of this type of economic modernization has been the creation of dual economies in many underdeveloped nations. One market economy is strictly based on the exportation of a certain product or resource to the world market; while the second is a domestic market which basically remains at the *status quo*. Thus, growth pole centres are created outside of which the country remains almost unaffected by the increased economic fortunes. In the long run, this undermines the attempts to spread economic prosperity to all ranks of society. Thus, the purchasing power of all individuals is not enhanced, but rather lessened. Myrdal (1957) described this process of economic concentration and warned against its negative effects. The dualism which existed between East and West Pakistan was certainly a factor in perpetuating the eventual internal uprising which resulted in the creation of Bangladesh.

More recently, the development experience of the majority of Third World countries has remained disappointing. The efforts of the UN Second Development Decade (1970-80) resulted in varying degrees of success; some countries displayed healthy economic growth rates, while others remained at the *status quo* or even slumped considerably. As a result, a group of newly industrializing countries (NIC) has emerged, some with more dynamic economies than those of the so called "developed" world. For example, the Four Dragons (Singapore, South Korea, Taiwan, and Hong Kong) have created successful energetic industrialized economies which presently compete openly with the developed nations for global market shares, even though they are categorized as Third World countries. The annual Gross National Product (GNP) growth of these NIC over the past three decades has been astonishing. The adult literacy rate is at western levels and discrepancies in income distribution are being adjusted (World Bank, 1983).

Unfortunately, a large number of the nations in the Third World are considered "least developed countries" (LDC) and do not share in the prosperity that is currently being enjoyed by the Four Dragons. The LDC were classified on the basis of per capita income of \$150 or less, manufacturing accounting for under 20 percent of gross domestic product, and literacy rates below 20 percent (Hoogvelt, 1982: 22). The LDC, dominated by Sub-Saharan Africa and Bangladesh, have a different view of development, and the most depressed of these are now auspiciously referred to as the "Fourth World." We can look at the Four Dragons and congratulate our planners and practitioners, but during the same period of prosperity for a select few, the number of LDCs has increased by eighteen. Our efforts must be centered on the destitute people that are living a marginal existence in developing countries throughout the world. It is now estimated by the Organization for Economic Co-operation and Development (OECD) that there are currently one billion people in the Third World living below the poverty line (Ghosh, 1984: 171).

The governments of the newly independent countries often advanced development (economic) views without regard for the negative social consequences and in the end were frequently faced with even greater calamities. Today the word 'underdevelopment' does not reflect potential but rather it stands for a process of limited growth. It is a relatively recent phenomenon that LDC have attempted to become independent from Western influences in their schemes for development. The basic criticisms of the western schools of thought on development were outlined by Lemco (1988). He suggested that the Judaeo-Christian ethic was generally foreign to most of the recipient countries. Second, the economic transitional periods, which took place over hundreds of years in the West, are not easily replicated in the newly emerging countries. Lastly, established social institutions such as the caste system, clans, or tribal administrations, which modernization aims to eradicate can act as a medium for development.

The liberal westernization of many ex-colonial holdings has led to the belief that modernization is an evolutionary necessity. Progress, in the eyes of many Third World countries, is measured by using western values as a gauge; therefore, the move from the traditional to the modern is seen as nation building or simply put--development. It is held that in order to experience true development, the emerging nations must undergo historical events similar to those that took place in Western Europe and North America over the past several centuries. Only then will they be able to savour the full effects of modernization.

There are those who stress a more humanistic approach when defining development. Seers (1972: 21) provoked discussion by asking

Why do we confuse development with economic growth?...Development means creating the condition for the realization of human personality. Its evaluation must therefore take into account three linked economic criteria:

whether there has been a reduction in (i) poverty; (ii) unemployment; (iii) inequality.

He pointed to the fact that many of the countries that had increased their overall GNP through the United Nation's First Development Decade (1960s) had also compounded internal unemployment rates and economic inequalities. Goulet (1971: 85) stated it succinctly

[t]hat development, at its deepest level, is not a matter of self-sustained growth or modernization of social systems, but primarily a crisis of norms and meanings. Indicators formulated in economic, political, educational and demographic terms are no doubt valuable. Nevertheless, they are but partial measures of a single comprehensive phenomenon diversely termed 'poverty,' 'traditionalism,' 'backwardness,' or 'underdevelopment.' Consequently, development can be properly assessed only in terms of the total human needs, values, and standards of the good life and the good society perceived by the very societies undergoing change.

Goulet did not see development as undesirable, he only wanted to emphasize that it should be seen as a means to an end (an enriched life). According to him, the three elements acting as regulators for determining necessary development were, life-sustenance, esteem, and freedom. Warwick (1968: 498) disagreed with traditional standards of measurements (ie: gross domestic product and per capita income) and used other values to evaluate development, such as the degree of urbanization, industrialization, and manufacturing. He raised this issue when he remarked

We can no longer hide behind the shield of historical inevitability, amorphous terms such as 'modern,' or the

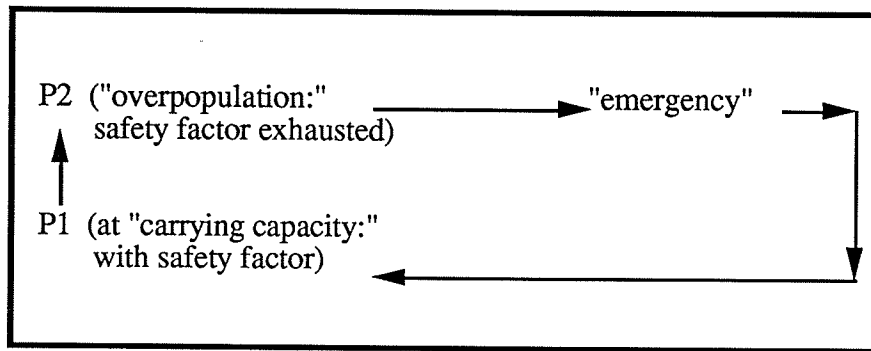
assumption that the goals of guided change are apparent to all men of good will.

One of the more radical positions in the debate is taken by Garrett Hardin. Hardin's (1980: 172) position is that the "Spaceship Earth" has finite resources and finite possibilities for a prosperous existence. Therefore, there will always be "rich" and "poor" countries no matter what attempts are made to rectify the inequalities. Hardin's basic argument, that the developed countries should practice "lifeboat ethics" and must fend for themselves if they expect to remain health and vibrant into the future, is disconcerting. He points to the rate of natural increase *vis-a-vis* the wealthy countries and the poor countries as being the greatest reason for concern. The developed nations are experiencing a doubling in population approximately every 80 years, while the Third World nations double their populations roughly every 25 years. Hardin feels that the developed countries have no obligation to assist in any manner, since it will only result in their downfall (through over population). He condemns any form of support for the Third World because it does not serve the best interest of the receptor country, which is to let natural forces control reproduction rates through famine or crop failure, for example. Figure 2.2 is Hardin's representation of a nation that has no established population programme and which receives no external assistance in times of crisis. It is the normal carrying capacity of the country, established by environmental pre-conditions which dictate the optimum population size.

The introduction of aid assistance from such sources as the World Food Bank and World Food Programme in the long run are detrimental to both the rich and poor nations. This "escalator effect" is expressed in the Figure 2.3.

FIGURE 2.2

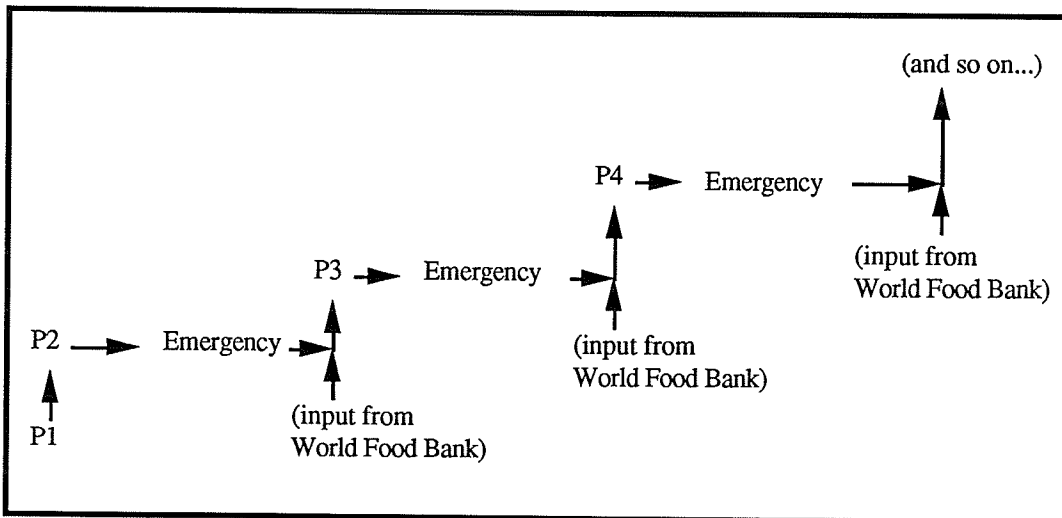
HARDIN'S POPULATION CARRYING CAPACITY



Source: Hardin, 1980

FIGURE 2.3

HARDIN'S ESCALATOR EFFECT



Source: Hardin, 1980

Thus, the humanitarian aims of the donor agencies are irresponsible and actually perpetuate and magnify new emergency situations which require larger and larger inputs because population has been maintained above natural levels. Hardin is opposed to any form of assistance, including the transfer of birth control technologies, to developing nations because it will only offset the natural balance as outlined in Figure 2.2.

The feelings expressed by Hardin are disconcerting. His attitude does not give a large portion of humanity much hope of ever attaining a higher standard of living. The underdeveloped countries must be pulled in from the periphery and included in the global economic system. Once this is accomplished the dependency syndrome which now exists between the industrialized countries and much of the Third World can be alleviated. Internally there will be emotional reaction to the modernization process, between the ethos committed to traditional norms and the newly emerging modernizing elites. A balance must also be struck here if development is to be successful.

2.3 Poverty and Population in the Third World

An imbalance between, man, technology, and the environment has left a great part of humanity in a state of poverty. Attempts to mitigate this aberration have ranged in degree of success and commitment throughout the Third World. Often ideological polemics have undermined any political, economic, or social strategies aimed at rectifying poverty and over-population. Success in these areas will only come to fruition once the poor masses are included in any proposed development scheme. If the gap between the rich and poor continues to widen, there will be no incentive for the destitute to respond or participate in programmes designed to reduce family size; they must be included. No matter what economic triumphs a country experiences, uncontrollable population growth will eventually cripple its impact. Planners must recognize that if the majority of a given population lives a

marginal existence, they will not respond to economic rationality, as they have nothing to gain from reduced birth rates.

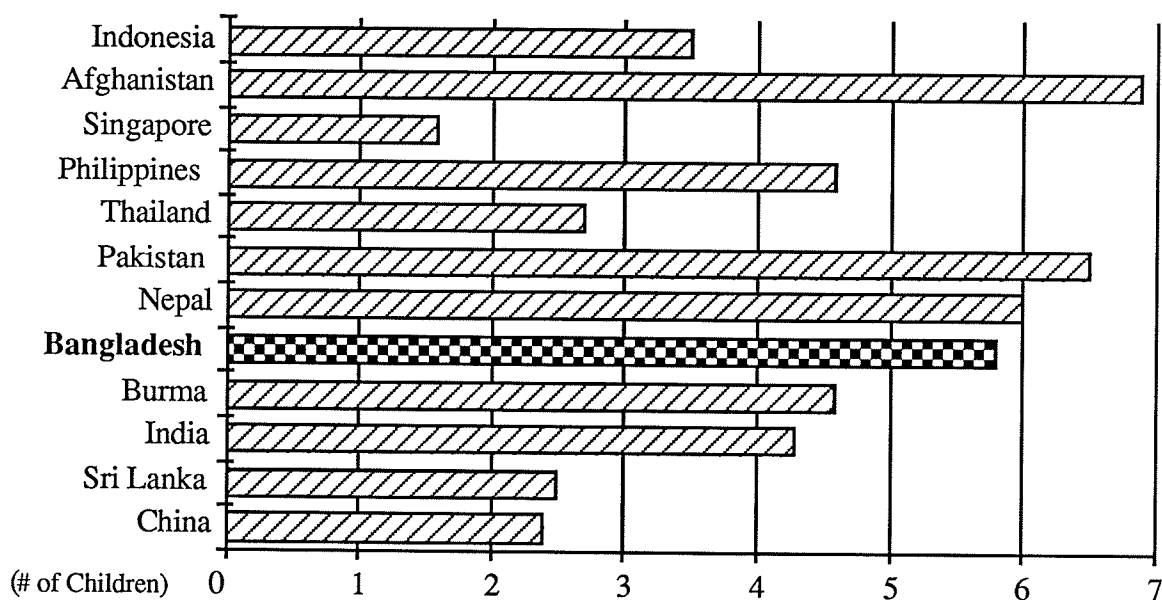
Since the end of the 1960s, the global population growth rate has dropped from a high of 2.1 percent to the current rate of approximately 1.6 percent: still it is expected that the world's population of 5 billion will surpass the 6 billion mark by the end of this century (US Dept. Com., 1987: 5). Basically the industrialized countries have reduced their population increases to below 1 percent, while much of the underdeveloped world, excluding China which now has a growth rate of 0.8 percent, has lagged behind. Sub-Saharan Africa is the source of most concern, with its rate increasing from 2.0 to 3.01 percent during the recent period of global reduction. (UN, 1984: 6) Much of the Middle East and North Africa also continues to have an unacceptably high rate of 2.7 percent, and it is expected that this region, with its relatively low mortality rates, will continue to grow at this pace well into the next century. Asia, including China, which is home to over half of mankind, has been more successful: it has reduced its overall natural increase from 2.2 to 1.7 percent in the past 25 years. However, individual countries such as Bangladesh and Pakistan still have population increments that are much too high. Latin America, which at one time had the highest regional growth rates in the world, has now reduced its fertility, and presently has an average natural increase of 2.3 percent. The future trend in Latin America is for continued decline in population through the year 2000 (US Dept. Com., 1987: 8). The data in Figure 2.4 provide a perspective on current fertility conditions in the Asian theater.

The elimination of poverty and poor economic performance should be the mandate of every responsible government. The inverse relationship that exists between economic development and over population is well documented throughout the literature on developmental economics (Cipolla 1970, Gray and Tangri 1970, Tabah 1975, Repetto

1979, Elkin 1976, Seshachlam 1984, Hoogvelt 1986, Mason 1988). Simply stated, rapid population increases reduce the potential of enhancing per capita income of a developing country.

FIGURE 2.4

TOTAL FERTILITY RATES FOR SELECTED ASIAN COUNTRIES



Source: PRB Data Sheet, 1989

Enlarging the capital supply, required for most large-scale social spending projects, such as schools, hospitals, irrigation systems, roads, and communication networks, is problematic. As stated earlier, a considerable number of newly emerging nations depend on exports of a single commodity or good to obtain their foreign exchange. Often world markets are unpredictable and as a result major projects are suspended or completely deleted from official government spending. Poorly evolved domestic savings cannot augment national capital supply deficits, because the majority of the population has no disposable income. Since a majority of the people with low incomes spend a large

percentage of their earnings on food, over 80 percent in Indonesia and Sri Lanka, there is little surplus capital available to fuel a dynamic domestic economy.

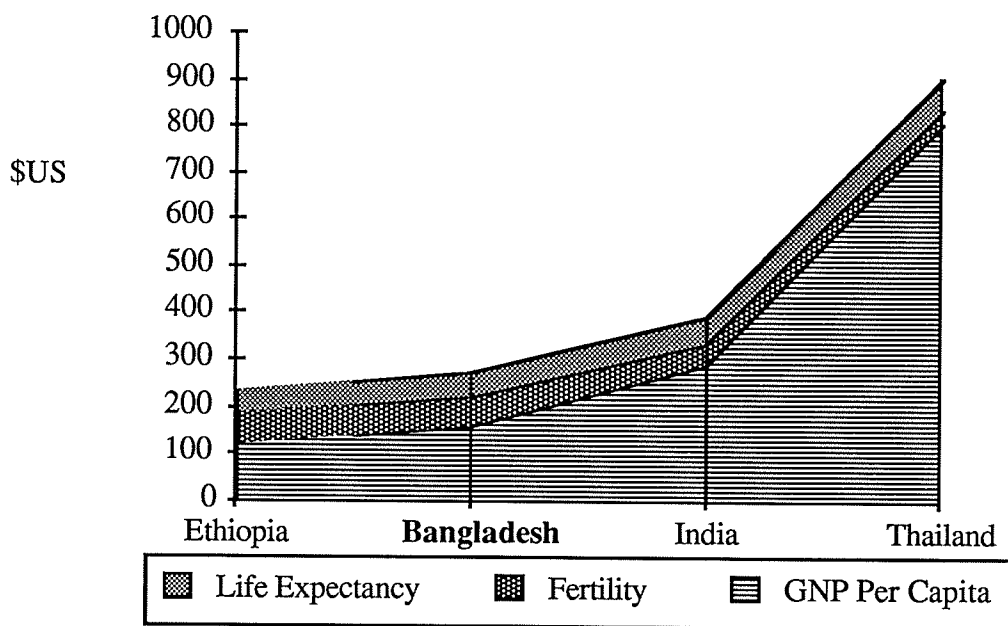
The contributors to this abyss are many and varied and over-population plays a predominant role, although it is not a singular one. The solutions are difficult and complicated. The fact that some developing countries, such as India and Sri Lanka, have witnessed a decrease in economic efficiency with a reduction in population growth illustrates the complex nature of the population reduction issue (Birdsall, 1980: 3). This should not falsely imply that family planning and birth control are not an asset to arresting the growing poverty that is spreading throughout the Third World. However, it does illustrate that the indigenous problems of each country must be assessed before action should be taken. Thus, practitioners who advocate a rise in the level of living as an alternative for birth control are speaking beguilingly. As Birdsall (1980) suggests, poverty includes not only low levels of income but also malnutrition, lack of education, poor health, and short life expectancies.

Numerous inquiries (Tangri, 1970; Kirk, 1971; Gregory 1972; Beaver, 1975; Sirkantan, 1977; Birdsall, 1980; Seshachalam, 1984; World Development Report, 1988) have shown that once per capita incomes begin to rise, average life expectancy also increases, and there is a concomitant reduction in the overall fertility rates. Mason (1988: 137) contends that reduced fertility rates allow the national income to focus on savings and capital investment, producing a dynamic and secure economic environment, instead of mass welfare projects that do not assist economic development in a positive manner. In short, higher investment per worker is seen to be a prerequisite for an improved standard of living.

Caldwell (1982: 159), argued that it was economic pressure which instigated rational familial change toward fewer children. Figure 2.5 helps to illustrate this general trend in a few selected countries.

FIGURE 2.5

**RELATIONSHIP BETWEEN GNP PER CAPITA,
FERTILITY, AND LIFE EXPECTANCY**



Source: World Development Report 1988

However, as noted earlier, the standardization of population principles often leads to a misunderstanding of the true forces at work. China, Burma, and Sri Lanka, are examples of countries that experienced relatively low fertility rates yet their yearly per capita incomes are below \$450 (World Bank, 1988: 222). The distribution of wealth, educational services, access to family planning programmes, and health facilities are factors which must also be taken into account when evaluating a country's fertility posture. Despite low

levels of income the mortality rates in many developing countries, such as India, Pakistan and Bangladesh, have dropped dramatically since the end of the Second World War. Since 1970, world life expectancy rates have risen by 3.5 years to 58.9 years. In this same period the gap between the developed and developing nations has narrowed by 2.3 years; currently the mean in the developed world is approximately 73 compared to 57 years in the developing areas (UN, 1984: 8).

Pundits believe that exogenous factors, such as new health technologies, mass vaccinations, and wide spread spraying to combat disease, were responsible for this rapid decline (Boserup, 1976: 34). The impact that income and education initially had on decreasing mortality were limited and played a minor role. However, once the initial effects of the new universal health advances reached their threshold, lowering mortality rates became more contingent on income, availability of health services, nutrition and education, to name but a few. Thus, the future lies in the behaviour of the individual and not exclusively in science. A study by Behm and Rueda (1977: 10) found that infant mortality rates in Latin America were five fold higher for children of mothers who attained no formal schooling compared with children of mothers with at least ten years of education. Conversely, in Sri Lanka, Cuba and Costa Rica, where per capita incomes remain low, life expectancy is over 70 years. The evidence points to high literacy rates and a proliferation of health centres.

Lessening the scale of fertility growth is another matter. Fertility levels rely mainly on individual actions and not on universal programmes introduced by a government planning commission (forced inoculations). Therefore, it is much more difficult to influence and predict what choices the individual parents will take *vis-a-vis* family planning. Originally it was believed that modernization in the form of urbanization and industrialization were needed to trigger a change in the traditional societal attitudes of newly independent Third

World countries. The Four Dragons are a prime example of how an overall change in the infrastructure of society (from agrarian to industrialized) can act as a stimulus to fertility change. Large families become undesirable and children become an economic liability in newly created urban-industrial complexes.

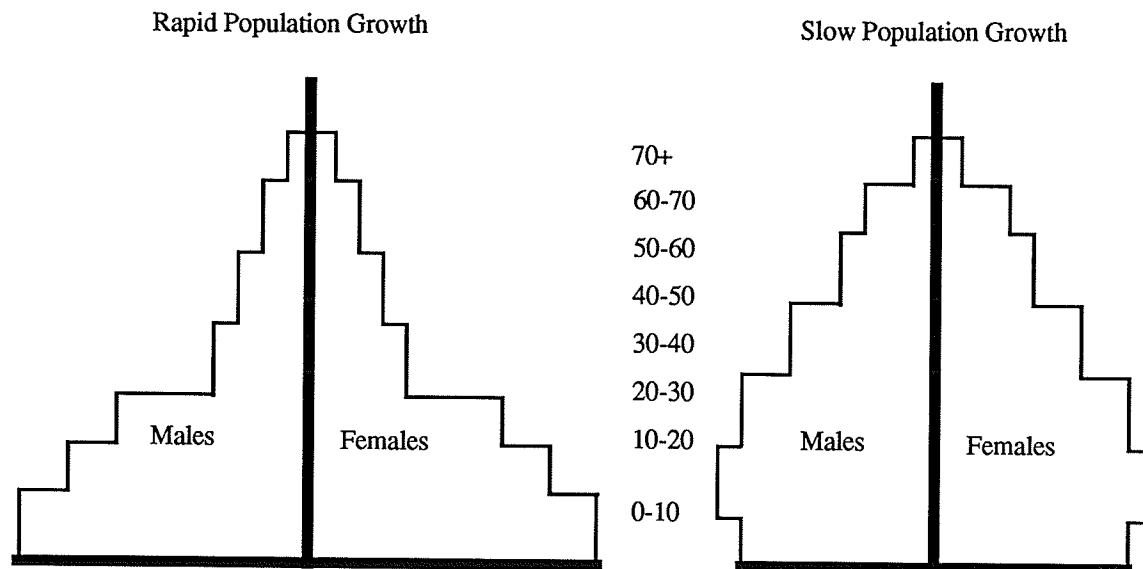
Mauldin and Berelson (1978: 104) conducted an exhaustive study on the factors responsible for fertility decline in the developing world between 1965 and 1975. Their investigation of 94 countries led them to conclude that there was a statistically insignificant relationship between GNP per capita and fertility decline (.13); while the correlation between adult literacy (.70), life expectancy (.76) and fertility were telling (see also Chowdhury 1983). The aim of their inquiry was to evaluate the impact that development and family planning had on reducing fertility rates and propose new policies to assist planners in their future projects. Mauldin and Berelson attempted to firmly identify the supply and demand characteristics which had the greatest effect on fertility behaviour. Demand in this context is the inherent cultural, socio-economic, and societal constructs that influence fertility attitudes, while supply is considered to be the fulcrum for action. They saw changes in the birth rate driven by three distinct mechanisms; (i) age structure (ii) age at marriage (iii) marital fertility trends (Mauldin and Berelson, 1978: 94).

The age structure of a society, or its 'population pyramid,' as it is commonly known, has an impact on the number of couples in the childbearing age group (Woods, 1979: 12). The greater the number of young adults at the base of the pyramid the higher the fertility and mortality rates. Myrdal (1968: 1466) maintained that it was crucial to the success of the modernization process to reduce the "dependency burden" created by a geometrically unfavourable population profile. He suggests that if fertility rates declined steadily for several decades, the smaller number of couples in reproductive age cohorts would normalize the demographic structure of society. The two configurations highlighted in

Figure 2.6 provide a visual representation of the obvious problems created by unbalanced demographic growth.

FIGURE 2.6

POPULATION PYRAMID

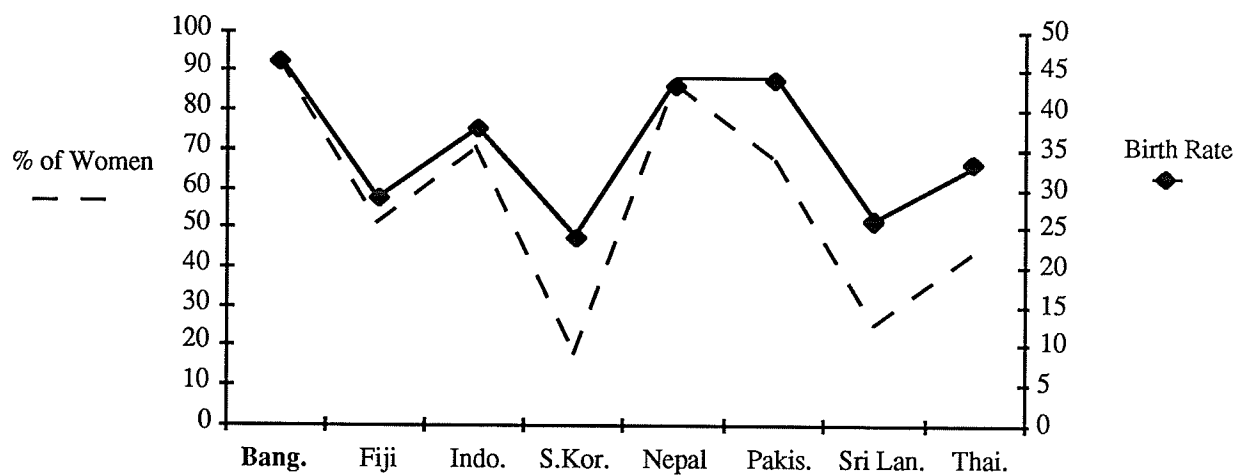


Mauldin and Berelson found that a change in the age composition resulted in a five to ten percent change in fertility. The age at which couples conjugate has also become the focus of attention of many family planning officials. The natural action of having children following marriage is a universally accepted practice, however, if the time of marriage were delayed by several years, fecundity would decline (Henry, 1976: 93). The benefits of females postponing marriage, through an extended education for example, allows them to become more interested in a career as well as being better exposed to current information on contraception. In Figure 2.7 we see that there is a correlation between countries with a large number married younger women (20-24 years of age) and high birth rates.

If one considers, the low mean age of marriage in Bangladesh (11.6), Pakistan (15.3), and Indonesia (16.4), and the fact that having male children in Muslim society is considered highly desirable, there is little doubt that postponing wedlock would result in fewer children per women (Lightbourne, 1982: 27). Although childbearing outside of marriage does affect total fertility rates (TFR), the occurrences are localized and the numbers are small.³ The World Fertility Survey (WFS) found that Costa Rica and Peru had the highest incidence of pre-marital childbirth at approximately 13 percent, while in Asia, Thailand had the highest rate at roughly 5 percent (Durch, 1980: 11).

FIGURE 2.7

PERCENT OF MARRIED WOMEN (20-24 yrs. old)
AND BIRTH RATE BY COUNTRY



Source: Reports on the World Fertility Survey, 1980

Mauldin and Berelson (1978: 98) also found that a rising the age of marriage accounted for 35 to 40 percent in the overall reduction in fertility rates. However, they also noted that

³The total fertility rate is the number of children a women would bear during her lifetime if the current level of childbearing for women her age was to persist.

reductions in each country varied distinctively; from 9 percent in South Korea to 89 percent in Sri Lanka. The factors responsible for fertility change are numerous and diverse, varying from region to region throughout the Third World. For example the correlation between education and age of first marriage become relevant after seven years of schooling in most countries. Yet, in isolated cases, such as Columbia, it was found that TFR rates dropped in both the educated and non-educated sectors, although there was a ten year delay between the onset of decline in the non-educated (WFS, 1984: 13).

It was established in two other surveys on marriage patterns and their effects on fertility, in Tunisia and Malaysia, that an increase in per capita income was not the only force behind fertility reduction. In Tunisia, Duza and Baldwin (1977), cited five elements other than socio-economic status that influenced marriage behaviour, the most consequential of which was education. The Malaysian analysis conducted by Caldwell (1963), found that ethnic character was the leading circumstance that affected patterns of conjugality. Cain (1982: 159) specifically looked at the sex role patterns in the family and extended family model. He maintained that a forerunner of fertility decline was change in traditional family organization, away from extended families to a shift to modern nuclear families. He suggested that modernization of society, largely in the form of education, was the impetus for change. Earlier works by Mason (1971), McGreevey and Birdsall (1974), Simon (1974), Kasarda (1971), and Kirk (1971) found similar empirical relations in developing countries.

One of the most profound effects of the modernization process is the alteration of traditional societal arrangements. Rational economic development can lead to reduced fertility rates by lessening the importance of children to the total income of the family. Traditionally economic development implied an increase in per capita income and a change in the mode of production. In the case of many of the poorest Third World countries the pattern of

change was from cottage industry to local small scale production schemes. Recently the definition has changed and now most economist consider economic development to be accompanied by modifications in customary norms and establishments (Lemco, 1988: 11). Bhattacharyya (1984: 6) cited several factors that act as an economic deterrent to large families once the forces of modernization started to take hold: (i) increased specialization in the workplace, (ii) higher per worker income, (iii) a minimum degree of education is necessary to function in the new workplace, thus children must have several years of schooling during which time they do not add to the overall household revenues, (iv) women entering the work force in greater numbers, (v) the labour force becomes mobile, commuting to the work site or moving to other areas of the country in the pursuit of employment, resulting in the nuclear family replacing the traditional extended family as the prime economic unit.

The WFS (1984: 13) and the United Nations (1982b: 31) both concur with the notion that education is an important factor in determining the number of children a women will have during her childbearing years. A stark example can be found in Columbia where the TFR for women with some secondary education is 2.6, while women with no education averaged 7 children. However the differences are not as dramatic in Asia and African, where a variation of 1 to 2 children is the norm. In some Muslim countries, such as Pakistan and Indonesia, a paradox was uncovered in the relationship between education and fertility. It was established that women with some formal education (primary school) had higher TFR than those women with no schooling (Cochrane, 1979: 52). This peculiar relationship could be a result of women being influenced by two sets of values, the traditional: which relies on abstinence and extended periods of breast feeding after pregnancy, and the modern: the use and careful monitoring of modern contraceptive techniques. Often a consequence of mixing the two life patterns resulted in unplanned pregnancies. Yet in general it can be stated that an overall increase in education will reduce

TFR as women postpone marriage, find employment in non-traditional settings, recognize the economic benefits of a smaller family unit, and become cognizant of modern methods of family planning.

Mauldin and Berelson (1978) created an inventory of all the variables which they believed had a direct impact on the demand for birth control measures ; their list exceeded 100. The test for correlation discovered that education (.80) was a greater determining factor than was GNP (.45). The four most significant socio-economic indicators were:

1) Education-

- Adult literacy (ages 15 and over)
- Primary and secondary school enrolment as a percentage of the 5-19 age group

2) Health-

- Life expectancy at birth
- Infant mortality rate

3) Economic Status-

- GNP per capita
- Percentage of adult males in non-agricultural labour force

4) Urbanization-

- Percentage of people living in cities of over 100,000 inhabitants

This brief review of the literature on fertility reduction clearly indicates that an increase in the personal wealth of the citizens of a country does not necessarily produce a decline in

childbirths. It was found that components of change also included ethnic, educational, moral, and societal factors. Berelson (1976), Birdsall (1980), Cain (1982), Cochrane (1979) and Jain (1985) are just a few scholars who have reviewed the role of the family in controlling fertility in developing countries.

2.4 Family Planning and Contraceptive Use in the Third World

Blake (1979: 1) suggests that the reported dearth of family planning schemes in developing countries is an unfair assessment. Traditional societies have long histories of planned parenthood; it is only the recent introduction of modern technologies which have decreased infant mortality rates and increased life expectancy, that has created the need for population planning. Reproduction is not simply a mathematical equation but is the natural response to many societal forces, including, religious and economic objectives, sex role obligations, and familial pressures. Thus, when introducing a population programme into cultures which have well established 'traditions' of fertility behaviour, a holistic approach is a prerequisite for success. In other words, social change is needed before a change in fertility can be expected.

The association between fertility reductions and contraceptive prevalence has been widely discussed in the literature. Recently, Mauldin and Segal (1988) investigated the relationship using data from surveys and censuses dating back to the 1960s. They derived a R^2 calculation of .87 between the TFR and the use of contraception. The regression coefficient varied by region and stage of development; Africa (.67), Central and Latin America (.76), Asia/Pacific (.85), Developed Countries (.21) (Mauldin and Segal, 1988: 338). The reported low value for developed countries was thought to be the result of a preponderance of abortions as a form of birth control. The authors proceed to warn that many other factors are also responsible for declines in fertility behaviour, such as level of

education and age of matrimony. However, as fertility is most directly impacted by the use of contraception, it is seen as a prudent method of measuring fertility trends.

Over the past twenty-five years, many advances have been made in the development of modern birth control methods, the most important of which were the introduction of the contraceptive pill and the improvement of the intrauterine device (IUD). Initially it was thought that these new products were simple to use, reversible, posed little risk to health, and most importantly, were highly effective. It must be noted that since their introduction, it has been found that there are physical side effects and functional inadequacies with each of the techniques.⁴ Currently researchers are concentrating on developing methods that are as highly efficient yet still anatomically benign.

Induced abortion, which historically was the most widely used method of birth control, has declined in frequency over the past fifteen years. However, over the next several years this trend is expected to reverse itself in the Third World because of anticipated massive rural-urban migrations, marked increases in the number of women in the childbearing age cohort, inferior national family planning programmes, and new social and economic norms brought about by the dependence on a capital intensive society (as opposed to the traditional labour intensive). A further deterrent is that approximately half of the 40 million abortions performed are conducted illegally and often by untrained persons, resulting in frequent deaths (Population, 1982: 1).

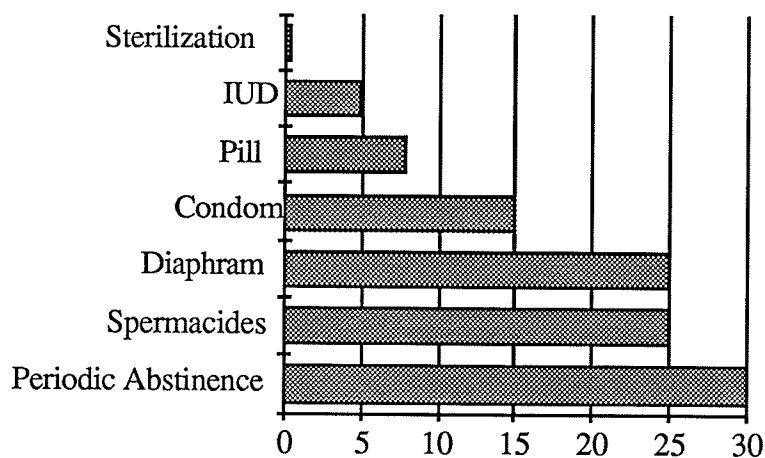
Sterilization remains the most popular form of modern birth control; it is now used by one third of married couples world wide. Seventy million women use the IUD, however, the physical discomfort and a 1 to 5 percent pregnancy rate, detract from this method

⁴In the Philippines approximately 1/3 of the women ceased using contraception because of ill side affects. WFS, *op. cit.*, 1984, p. 41

(Population, 1985: 8). Oral contraception, based on a synthetic steroidal hormones ingested by the female, has approximately 55 million users and is considered the most popular form of reversible contraception (Mauldin and Segal, 1988: 340). However, the pill's limitations for use in the Third World are its relative high cost and its need for adherence to effective timing. Condoms, diaphragms, injectables, and spermicides are the least safe yet they account for a combined total of 67 million users (Population, 1985: 2). Figure 2.8 illustrates the dependability of each procedure.

FIGURE 2.8

PERCENT WOMEN WHO WILL BECOME PREGNANT DURING FIVE YEARS OF CONTRACEPTIVE USE: WORLD WIDE ESTIMATES



Source: Population, 1985

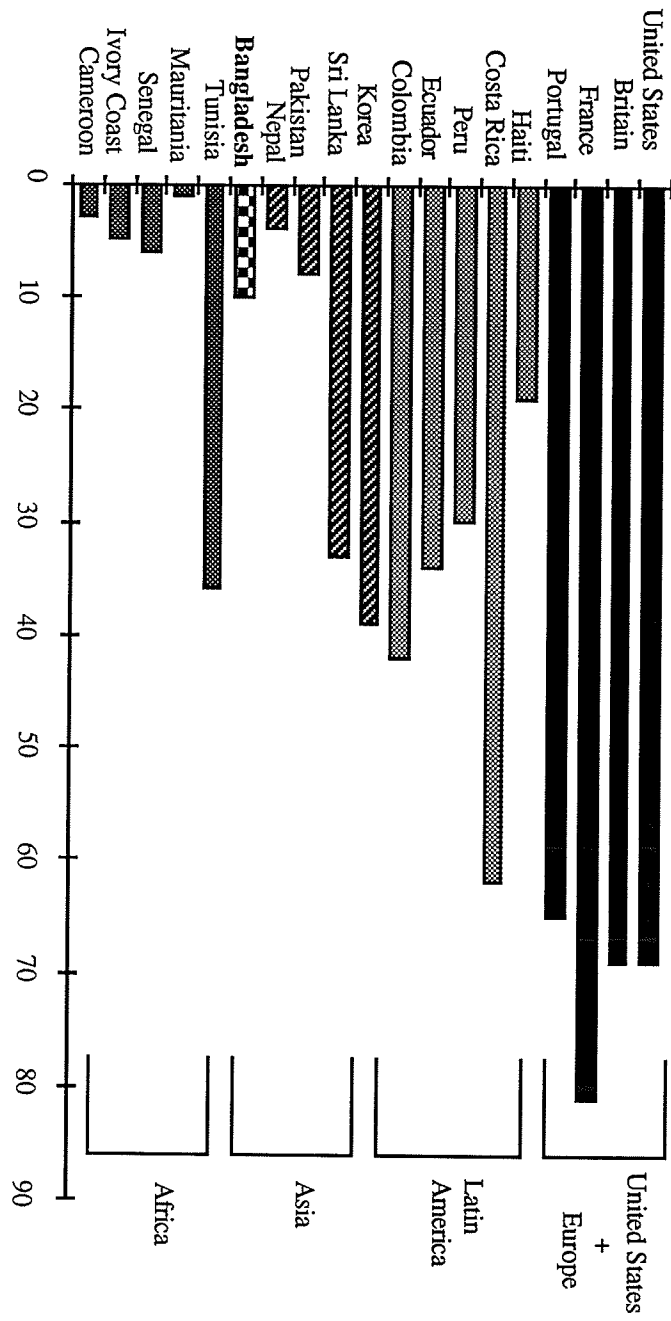
Contraceptive awareness and use varies greatly throughout the Third World. African nations have the lowest contraceptive awareness rate; in several countries (eg: Cameroon, Nigeria, Lesotho, Mauritania, Senegal, Sudan) having between 32 and 92 percent of the female population unable to name a single modern method of contraception. Countries such as Bangladesh, Haiti, Egypt, Turkey, Ivory Coast, and Peru were in the mid range,

with 10 to 18 percent of women unaware of new birth control techniques (WFS, 1984: 17). Contraceptive use for married women was predictably poor in the countries with low levels of awareness. The figures ranged from a low of 1 percent in Mauritania to a high of 64 percent in Costa Rica. Of the developing regions Latin America had a participation rate of 39 percent; Asia's average was 25 percent, with a range of 40 percent in Sri Lanka to only 9 percent in Pakistan. The Middle East ranged between 24 and 38 percent, but once again an extremely low value of 1 percent was found in the Yemen Arab Republic. Africa had an unacceptable mean of 2 to 8 percent, however, Morocco and Tunisia were anomalies with rates between 20 and 30 percent (WFS, 1984: 17). Figure 2.9 exhibits the regional differences currently prevalent throughout the developed and underdeveloped world.

Although there is a multitude of contraceptive techniques to choose from, access to these products is often restricted in underdeveloped countries. Field surveys conducted in Latin America, Asia, and Africa, have shown that there is a great unmet demand for modern contraceptive techniques.⁵ This phenomenon can be partially attributed to the inability of many Third World governments to provide the appropriate support services needed to run an effective family planning programme. Even with the seemingly impressive number of couples using some form of birth control the *Population Crisis Committee* estimates that 250 million women in the underdeveloped world do not have direct access to contraceptives and/or the appropriate information on how to use them (Population, 1987: 1). The United Nations (1984) found that in the rural areas of Western Asia and Latin America the greater the distance from health clinics or dispensaries, the less frequent was the use of contraceptives (UN, 1984: 10). Since some of the contemporary methods require constant monitoring, it is essential that services are within commuting distance or the family

⁵See WFS for Nigeria 1981-82, Sri Lanka 1975, Bangladesh 1975, and Guyana 1975, (Voorburg, Neth.: International Statistical Institute)

FIGURE 2.9
 CONTRACEPTIVE USE: REGIONAL COMPARISONS



Source: World Fertility Survey, 1984

planning initiative will undermine its own cause. The one exception would be sterilization, which only requires one trip; perhaps this is a reason for the growth in popularity of the method.

Chapter II has covered some of the general demographic and developmental problems and issues plaguing many countries of the Third World. It is within this framework that programmes designed to reduce population and raise the level of living must operate. In light of these formidable obstacles, Chapter III will focus on the conditions influencing fertility and contraceptive behaviour within Bangladesh.

Chapter III

Bangladesh: A Profile

Parents with more children will have higher honour in the day of judgement.

Bangladeshi peasant

The negative impact that uncontrolled population growth is having on the ability of Bangladesh to provide basic human needs for its people is a source of great concern. The objective of reducing fertility rates can be reached through a number of policy measures. It is widely accepted that there are positive relationships between declining crude birth rates, improved infant mortality levels, education, and employment. Therefore, it follows that the amelioration of basic health and hygiene services will secure lower rates of infant mortality and thus induce couples to have fewer children. Women's education is also paramount to the success of any family planning programme. As women become better educated and more involved in the work force, they also gain independence, which often results in a desire to forgo large families in lieu of a job or a career. The economic value of children is further diminished with the advent of reforms in agriculture and industry which result in more efficient production costs. Theoretically, the reshaping of traditional life (modernization) will eventually produce a society that is driven by the potential to realize a higher standard of living. At this point, large families become economic liabilities and birth rates therefore decline.

Governments are able to alter many aspects of their citizens daily lives. However, the limitation of family size and the spacing of children fall into an area that is highly sensitive and is judged in most countries as a private matter solely at the discretion of the individual.

When introducing family planning schemes governments must also be aware of the individual rights; these are based on historical laws, social, cultural, and religious precedents, and traditions. The philosophical question that many leaders of Third World countries struggle with is how to break free from the quagmire of over-population and move towards improving overall living standards for an entire nation, while at the same time keeping within accepted traditional values and norms.

It follows that the one of only effective methods of persuading large parts of society to practice birth control is through universal health education. Thus, objectives should be long term rather than short term; once a generation of adults has been indoctrinated and has seen that there are benefits to reducing fertility, governments can anticipate that it will remain ingrained in the social fibre.

The desire of the Government of Bangladesh to reduce population growth rates is based on a genuine belief that it will enhance the standard of living for all Bangladeshis. The unambiguous evidence that family planning has helped other Asian countries improve their standard of living is widespread. Korea, Taiwan, and Singapore halved their birth rates within fifteen years and, as a result, the majority of the populace have experienced an enhanced level of living (Ghosh, 1984: 169).

3.1 Family Planning in Bangladesh: A Brief History

Over the past thirty years there has been a gradual evolution in the Family Planning Programme in Bangladesh, the development of which can be separated into six distinct periods. The first phase, (1953-1959) saw the government of Pakistan establish the independent *Family Planning Association* and commit small sums of money to an attempt to foster public awareness of reduced fertility. The scheme was limited in its scope,

reaching only 10 percent of women in childbearing ages. However, it did create a network of 3000 family planning centres, a cadre of trained field workers, and it promoted a general interest at all levels of society (UN, 1981b: 105).

The second period, (1960-65) was highlighted by the inclusion of family planning into the overall health services branch of the government. It also saw a general increase in the proliferation of family planning dispensaries centres to every hospital in the country. Yet, the distribution rate of contraceptives remained at a low 15 percent of the targeted population. In addition, there were logistical problems; the individual villages were not given enough support to maintain services, the medical staff was poorly trained, money allocated to projects was insufficient, and, not all forms of contraceptives were available.

The Third phase, (1965-70) was marked by rapid expansion of government funds to combat rapid population increase. The aims of the programme shifted to reaching as many people as possible, 50 million by 1970, and reducing the birth rates from 5 percent to 4 percent annually. A new government administration was created and fell under the direct auspices of the Minister of Health. Also, a new cadre of educated female field officers, doctors, and social scientists was dispatched to all but one of the 16 districts of Bangladesh to deploy of information and contraceptive devices throughout the country. A mass media blitz was unveiled to spread the message of contraception throughout the country using billboards, newspapers, posters, and booklets. The peculiar absence of the pill, and the promotion of the IUD, foam and condoms by the government was a limiting factor in the success of this third phase. The most contentious element of this phase was the financial incentives given to the health officials and acceptors for using one of the various techniques available. Naturally, graft abounded; false reporting and uncommitted users saw the programme as a quick source of income.

The success of this period lies in the increase in public awareness of contraception; it rose dramatically from 6 percent to 52 percent in the rural areas. Actual use is difficult to establish because of the financial rewards given to those who stated that they actively practiced birth control. It is estimated that approximately 3.5 percent of married couples actually practiced birth control on a regular basis (UN, 1981b: 108). Lastly, even with increased manpower and financial commitment, the reputation garnered by the technically deficient emphasis on promoting IUDs resulted in damaging the reliability of modern methods of birth control and a subsequent drop in the use of the IUD was noticed at the end of the period.

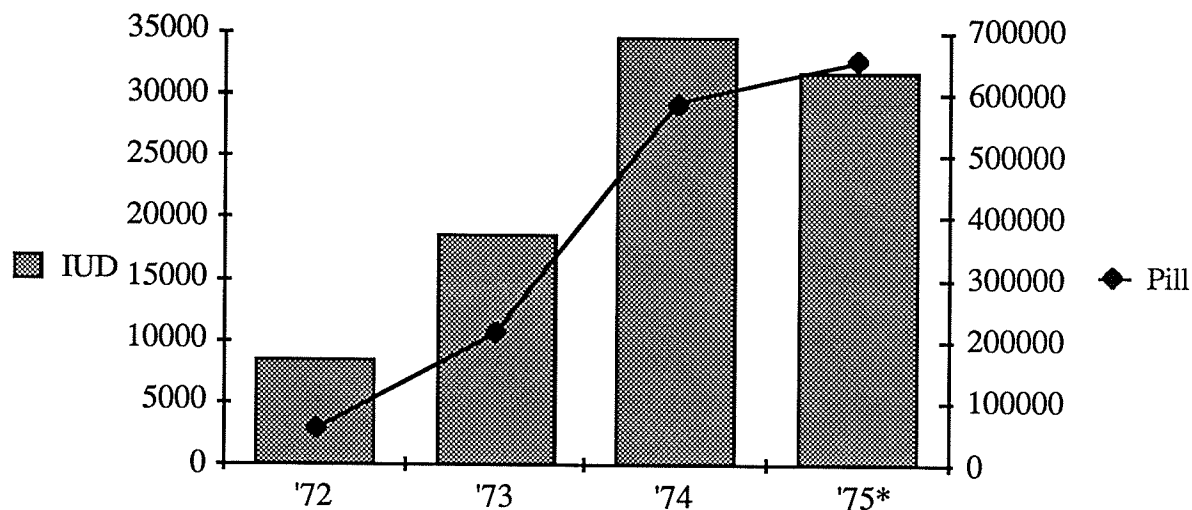
During the struggle for liberation, the family planning programme in Bangladesh naturally suffered greatly. Funds needed to support the infrastructure of the new country were diverted to the civil war effort between 1971 and 1972. Once Bangladesh won its independence, it quickly organized a *National Seminar on Population and Family Planning* in an attempt to continue the dialogue on population planning. This seminar provided several new policy initiatives, including the suspension of monetary rewards to practitioners and health officials, the promotion of the pill, and integration of the Ministry of Health and the Family Planning Department.

The Fourth Phase, (1973-75) called for reductions in TFR, from 3 percent to 2.8 percent by 1975, and the adoption of the national seminar's recommendations. This period saw a marked increase in the use of IUDs as well as new incentives to attract qualified health professionals into the Family Planning Programme (see Figure 3.1). Most of the accomplishments during this period revolved around streamlining the newly created bureaucracy responsible for implementing government objectives. However, there still remained the problem of lack of communication between recipients and field workers. The workers, who were often ill-trained, did not appreciate the different cultural and

psychological beliefs which must be recognized and appeased before contraception is accepted.

FIGURE 3.1

INCREASED USE OF IUD AND PILL IN BANGLADESH (1972-1975)



*1975 results indicate only the first six months

Source: U.N., 1981

In the Five Year Plans introduced by the Bangladesh Government (1973 and 1980) fertility control was openly addressed. It is widely recognized within the government that over population is a limiting factor to sustained development. Therefore, the *National Population Programme* and the *Family Planning Health Services Projects* were introduced to help curtail the serious problem of population growth (Rashiduzzaman, 1982: 1). The administration set out to reduce natural birth rates by 1985, from 43 births per thousand to 32 per thousand, representing a decrease in the lifetime births per women from approximately 6 to 4. The adoption of birth control among couples was expected to rise

from 14 percent to almost 38 percent (Cain and Liberman, 1983: 1). However, because of recent medical innovations, the overall mortality rates in Bangladesh, as in most other developing nations, have decreased dramatically (Johnson 1975, Begum 1983, Khan 1984). The result of this has been a further surge in the population growth in Bangladesh, which was approximately 101 million in 1985 and is expected to have more than doubled to 219 million people by 2025 (UN, 1987: 44).

The programme's goals are to reduce growth from 2.7 percent to 2.4 percent by the end of this decade and to 1.4 percent by 2000. Several key factors of the programme include; the proliferation of family planning service centres, an aggressive media campaign on family planning measures, raising the position of women in society; and, coordinating health care and developmental planning in the government's overall scheme for socio-economic growth. Even though some form of a family planning has been in place since the 1960s, the results have not been very successful. According to the United Nations, 95 percent of the population is aware of family planning measures; however, the rate of contraceptive use is still extremely low at close to 20 percent.

The intent of the current administration, as outlined in the Third Five Year Plan (1985-1990), is to increase the use of contraceptives in Bangladesh. Aitken and Stoeckel (1972: 269) established that only 3.1 percent of Muslim women were practicing birth control in the Comilla-Kotwali *Thana* on the eve of Independence. Since the contraceptive use has increased steadily; the WFS (1979) estimated use to have reached approximately 10 percent by 1975, in 1983 it had risen to 14 percent and the present rate is 19 percent (US Dept. of Com., 1987: 13). As an incentive to adopt some form of contraception, the government has introduced modest financial refunds for people who must travel to field stations to obtain their particular birth control devices.

3.2 Previous Family Planning Studies in Bangladesh

Sirageldin *et al.* (1975: 2) studied the effectiveness of the National Family Planning Programme for the year 1968-69. They attempted to establish the levels of knowledge and practice of family planning in Bangladesh and to see if any future trends were predictable. It was found that the Government initiatives were successful in making women more aware of family planning. Over 60 percent of the rural, and more than 80 percent of the urban women surveyed had some notion of modern family planning, and 80 percent of both groups responding cited the Programme as their source of information. Unfortunately, knowledge does not automatically translate into the use of birth control measures. Sirageldin and his colleagues established that less than 4 percent of women in the child bearing years actually practiced methods introduced by the Programme. The low rate of practice was believed to be a result of cultural attitudes, environmental pressures, and logistical problems inherent in the Programme. Bangladeshi officials called on the Government to implement the "bold and if necessary, drastic policies" to limit population growth in order to secure the prosperity of future generations (Government of Bangladesh, 1973: 537).

In an earlier study conducted by Stoeckel and Choudhury (1973: 30), the number of respondents who had heard of any type of family planning method was only 49 percent. There were several other startling discoveries: 61 percent of women between 15 and 19 years of age were ignorant of any form of family planning, approximately 50 percent of the 1600 respondents were in favour of birth control, and only 4 percent practiced any form of contraception.

Contraceptive prevalence in Bangladesh has virtually remained unchanged over the past two to three decades. It was thought that the reason fertility rates remained high in many

Third World countries was because of deficiencies in the supply and attainability of modern contraceptive methods. (Ahmed, 1981: 100) This view was tested in the Matlab Family Planning and Health Services Project (FPHSP) sponsored by the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) in the fall of 1977.

Bhatia (1982: 24) found that the use of contraceptive methods was positively correlated to a rise in age and the number of living children. In her study of the rural *Thana*, Matlab, Bangladesh, she noted contraceptive use as high as 31 percent for married women over 35 years of age. Also, there was a dramatic change in usage amongst women who had reached their optimal family size; from 3 percent for childless mothers to 34 percent who had at least five children. This tendency was also found when the optimal number of sons was reached. One of the most interesting findings in the survey was that almost 60 percent of the women who were not using any form of contraception indicated that they planned to do so in the future. The fact that a large majority of those indicating future use were younger women between the age of 20 and 24 years does indicate some "modernization" in traditional attitudes. Conversely, many of the older women, even though they had reached their desired family number, did not have any intention of practicing birth control because they believed they had become sterile or post-fecund. Several other explanations were given. The most common were: the desire to have more children, the husband's opposition, health reasons, and religious conviction.

One of the more important issues that Bhatia's study uncovers is that of the "Asian Courtesy Bias." It has become common for many interviewees in Third World countries to supply the answer that the researchers are seeking. In 1977, when Bhatia first asked the women of Matlab about contraceptive practices, almost 60 percent of non-users indicated they intended to begin in the near future. However, in a follow up study in 1979, only 25 percent of those same women had actually begun to use any form of birth control. It must

also be noted that in many male dominated traditional societies women will often conceal the usage of a modern method of birth control for fear of the husband's reprisal.

Bhatia's conclusion concurred with earlier investigations by Huber and Khan (1979) and Rahman *et. al.* (1980), namely, that there was a general public awareness and latent demand for the services offered through the family planning programme. However, the limiting factor and major reason for poor participation rates in Bangladesh was not attitudinal but the lack of a reliable support and supply network. If the possibility does not exist to make choices from outside the traditional collective, then there will never be an attempt to modify local behaviour because the option will not have been considered. Therefore, it is paramount that the methods of contraception are not only widely publicized but also widely distributed.

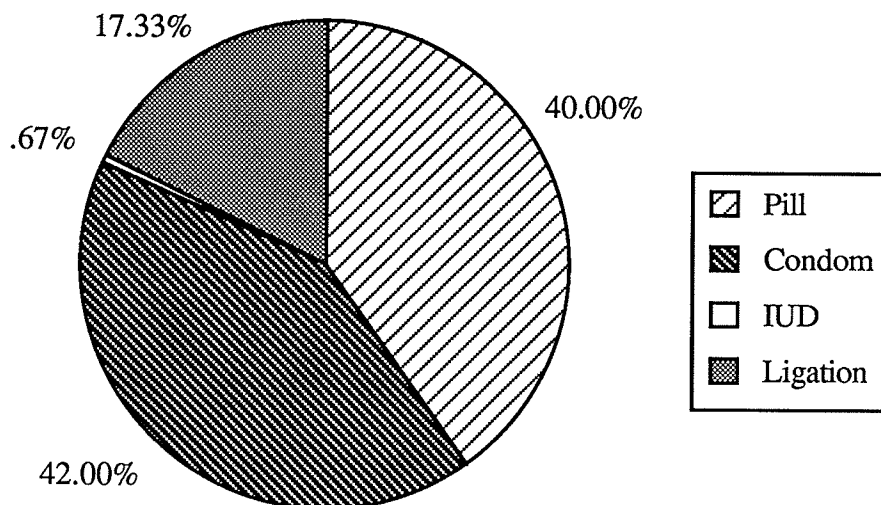
Huber and Khan had also attempted to test the tenet that improved access to contraception would increase the aggregate use in Matlab *Thana*. Their research design had four aims: assess the rate of contraceptive use with the availability of a constant supply, create an effective distribution system at the village level, evaluate the demographic repercussions of prolonged use, and, identify the characteristics most common to acceptance. The study revealed that after initial high levels of acceptance of contraceptive use, the dropout rate was just as rapid after a few weeks. Thus, the real difficulty lies in sustaining the initial response over a prolonged period of time so that a "trend" can be developed which will eventually work its way into the "norms" of everyday health practices in the region. The mere dissemination of the product is not enough to alter the ingrained patterns of life which have thrived for countless generations.

Although the indications are satisfying in Matlab, where an extensive and intensive FPHSP was implemented, the overall picture for Bangladesh is not as promising. The Matlab

project did reach successful rates of contraceptive prevalences, as high as 40 percent, in spite of little socio-economic development. In a recent study of the FPHSP, Koenig *et. al.* (1987: 117) found that the common motive for using some form of contraception was to insure proper spacing of births⁶ and not to reduce fertility, as high use among younger females would suggest. Moreover, after ten years of specialized treatment, more than half of the women in the treatment areas who stated they did not want to bear any more children were not practicing any method of contraception.

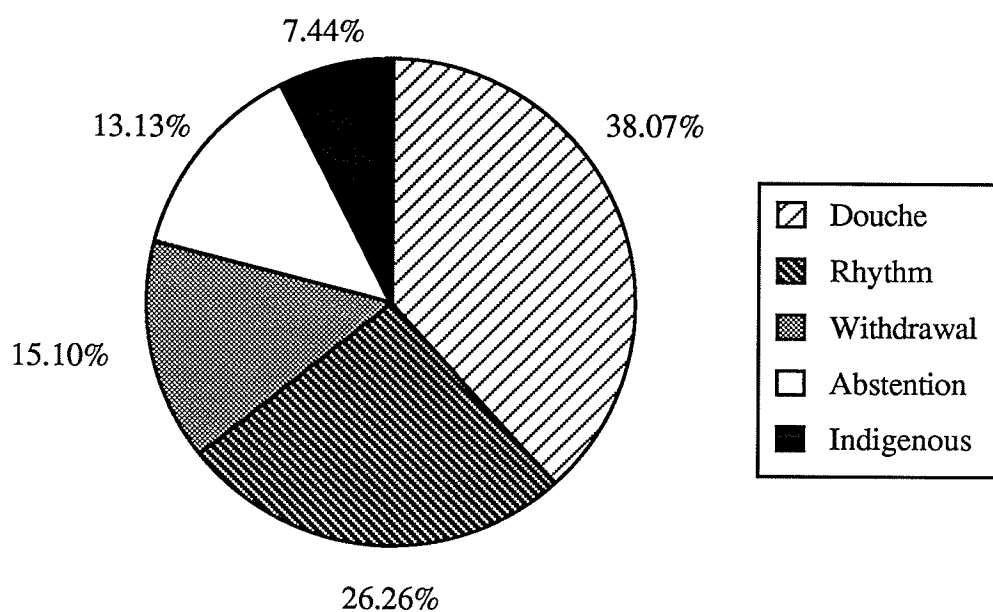
As previously stated the 1984 FPHSP found that almost 40 percent of women in the treatment area were using some form of birth control while only 16 percent were in the comparison villages. The most common type of contraception used in the control area was injectable foam, which accounted for 37 percent of usage; in the comparison regions 50 percent relied on tubectomy. The methods used vary from region to region within Bangladesh. Stoeckel and Choudhury (1973) found that the most common methods were the IUD and foams, representing 55 and 27 percent respectively. Maloney (1981) reported that 44 percent of respondents used the pill, while 29 percent depended on the condom. The most often used methods in the REIS area are in keeping with the trend established in Maloney's extensive review of fertility in Bangladesh. Considering the isolated and backward nature of much of rural Bangladesh, the findings in Figure 3.2 are not unexpected. The condom is readily available and is simple to use; aside from physical discomforts experienced by some women, the pill should be widely accepted; and because ligations and the IUD require trained medical attention, they are the least common.

⁶Often the motive for contraceptive use is not to reduce fertility but rather to space childbirths; in Africa 40 to 60 percent of women stated this as a reason, while 35 to 70 percent in Asia and the Americas respectively concurred. As cited in World Fertility Survey, *op. cit.*, 1984, p. 23

FIGURE 3.2MODERN CONTRACEPTIVE TECHNIQUES USED
IN CHILMARI AND KAZIPUR, BANGLADESH

Source: REIS, 1985

For many couples in Bangladesh conventional methods of contraception are usually practiced, for example, the established practice of prolonged breast feeding, which extends the period of postpartum amenorrhea can last up to six months and serves as a useful contraceptive method (Bhatia, 1982: 25). Also, douching, abstention, rhythm, and withdrawal have proven to be popular forms of birth control. Figure 3.3 represents the response of an uncontrolled study group of 1671 rural people and their preferred traditional birth control types.

FIGURE 3.3TRADITIONAL METHODS OF BIRTH CONTROL
IN BANGLADESH

Source: Maloney, 1981

3.3 Religion and Society

The majority of people in Bangladesh are Muslims. It is estimated that approximately 10 percent of the population is non-Muslim, of whom Hindus are the predominant minority group. There is a low degree of integration between the religious groups in the country, as the non-Muslim groups tend to be spread out into the peripheral regions. An example of this can be found in the Chittagong Hill region in the southeastern area of the country which is dominated by numerous minority groups (Johnson, 1975: 4).

In Muslim society the importance of the family cannot be understated; some have referred to it as the "first cell of that society." (Directorate of Family Planning, 1977: 14). The early Jurists constructed very explicit laws governing the obligation of each individual to the nuclear and extended family unit. This included caring for one's penurious parents and grandparents (marital or paternal), or orphaned nephews and nieces. In a sense this was an earlier form of family planning. A head of a household was to provide for his extended family in the same manner as for the immediate family. If this could not be accomplished, then no more children were to be born into the family. This form of religious-socialism was to insure the formation of an altruistic society, based on Islam, where indigence would be absent (Mahmood, 1977: 10).

Therefore, liberal political and religious leaders stressed that birth control was not a sin, rather, a means of ensuring the wellbeing of future generations (Al-Qaliqili, 1971: 2). Maloney *et. al.* (1981) investigated the influence that religion had on fertility patterns in Bangladesh. He and his colleagues conducted personal interviews with members of the low to middle income group in both rural and urban regions throughout the country. The findings show that religion is a major component in the decision to foster more children. Maloney states

Some people believe that those with more children will be more honoured in the after-life. Others believe that parents of many children will be honoured as more voices are raised in praise of *Allah*. Yet others believe that their infants who die will plead for their entry into heaven, because the infants died without sin. (Maloney, 1981: 13)

Although the *Koran* did not make specific reference to contraception, the Prophet's deeds, which were noted in the *hadith*, showed that the practice of *coitus interruptus* was

permissible (Musallam, 1983: 16). As in any religion, the interpretation of historical events is often left open to debate; Islam is not an exception. The Jurists Jabir, who contributed a *hadith* on contraception, reported

We used to practice coitus interruptus in the Prophet's lifetime while the *Quran* was being revealed. News of this reached him and he did not forbid us.

A second account, which helped to undermine the practice of contraception, was provided by Abu Sa'id

We rode out with the Prophet to raid Banu al-Mustaliq and captured some female prisoners...We desired women, and abstinence became hard. [But] we wanted to practise coitus interruptus; and we asked the Prophet about it. He said, "You do not have to hesitate, for God has predestined what is to be created until Judgement day." (Musallam, 1983: 15)

Musallam (1983) points out that the Muslims of the 10th and 11th centuries were *au courant* to the advantages and disadvantages of coitus interruptus and *Azl*.⁷ The high risk that was associated with the methods led to many unplanned pregnancies; some scholars at the time suggested that Divine Intervention was responsible for the arrival of a new child, while others, noted that the anatomical nature of the method was responsible. Although Islamic Jurisprudence seems to support the use of contraception, considering the many *hadith* that were written in favour of the argument, the low level of family planning activity illustrates a predominant unwillingness to accept modern reliable means of contraception.

⁷Withdrawal method which has been practiced since pre-Islamic times.

The Maloney (1981: 284) study sheds some light on this issue. It was found in the 17 research communities under investigation that 84 percent of the 1671 people interviewed believed that God was responsible for determining the number of children they conceived. Couples who felt that *Allah* was in control of their destiny and those who paid rigid attention to *Parda* (the seclusion of women), had an average of 5.3 children, while those who did not depend on *Allah* had 3.7 children. Maloney found that the relationship between fertility and the dependency on God was .34 (.24 is considered to be statistically significant). However, Maloney's *Correlation Matrix for Religiosity Variables and Fertility* concurs with the historical documentation; that being Muslim does not induce high fertility behaviour, rather it is in the commonly held perceptions and socio-economic conditions of the rural peasants that the answer lies.

It was found that there was a positive correlation between those respondents who indicated the number of children they had was dependent on the will of God and low education levels (56 percent had no formal education). The characteristics negatively corresponding included moderate incomes (Taka 6000+) and the number of rooms per dwelling (1.8). However, the completed fertility rate was much higher for those people who were economically secure (7.8) than for the landless peasants (5.5). Stoeckel and Choudhury (1973: 66) discovered in their study of family planning and religion that once matrimony was postponed, the willingness to accept family planning methods increased; and there was a positive relationship between the level of female education and the acceptance of contraceptive methods.

3.4 Sex Preferences of Children: the effect on fertility

Couples in traditional societies, such as that of Bangladesh, often have large families for reasons of social security. Children are often seen as an investment in the economic future

of the parents, and, thus families close to the poverty line tend to have many children. Yet in the urban areas, where some people enjoy secure incomes, this attitude is changing. Unfortunately, the large majority of the population still remains rural and destitute. As the rural peasants become older, they lose their ability to earn a living through the sale of surplus agricultural produce or manual labour, and with no form of old age security, they depend on their descendents for support. Furthermore, religious beliefs promote this system of familial welfare, and it is seen as an honorable, moral, and dutiful action in the eyes of *Allah*. It is believed that those children that do not assist their parents will be judged accordingly by *Allah* and suffer the same neglect when they advance in years. With life expectancy anticipated to rise from approximately 50 years to 63 years over the next twenty five years, the desire to have even more children is a distinct possibility (UN, 1987: 42). Thus, we can see the difficulty of decreasing or merely stabilizing fertility rates in the near future.

For emotional, economic, and practical reasons the wish of most rural parents in Bangladesh is to have a minimum of one male child. Males are seen as the heirs to the family lineage and future income earners, while females are seen as economic liabilities, if only because the family must supply a dowry for each at the time of matrimony. The relationship between the desire for sons and high fertility rates has been well documented in studies conducted in other Third World nations including Taiwan (Sheps, 1963 and Coombs, 1979), Korea (Parks, 1983), and Egypt (Gadalla *et al.*, 1985).

The works specifically relating to Bangladesh have found that preference for a son is a dominant factor in the fertility pattern of the country. Ahmed (1981: 108) found that 93 percent of women surveyed favoured male children over female which helped in maintaining high fertility levels. Cain (1986: 299) concurs that there is a positive relationship between the "risk and fertility" in developing countries. He suggests that the

security factor which is associated with having a large family is universal within rural Bangladesh and transcends the socio-economic class structure, since the effects of the severe natural hazards which are endemic to the country can devastate any family. Cain sees the immediate economic potential of children to be of secondary consideration, since many heads of household are themselves underemployed. In sum, Cain believes that only with a change in the degree of risk will there be a marked change in attitudes *vis-a-vis* acceptance of family planning on a society wide basis. According to Cain (1985 and 1986) landless families desire more children as risk insurance against natural or man made crises. Several mature sons can help in diversifying the sources of income for a landless or underemployed family and thus fertility is seen to be higher amongst the poor sector. Cain sees fertility to be a function of the domestic economic state.

However, in times of acute crisis, such as the record flooding which covered 75 percent of the country and displaced 40 million people in the summer of 1988, having one or several mature sons with sources of income or land can lessen the devastating impact of such an event. It is common that after large scale ecological disasters of this magnitude families must sell their land to raise money to survive. Often the land will be sold to a member of the family, and once they are able to repay the loan, the land transfers back to the original owner, thereby ensuring that the property remains within the family.

Conversely, McClelland (1979: 377) offers the argument that the single minded goal of every parent to have at least one male child is not always realized; he feels that researchers have failed to recognize the "riskiness of fertility decisions." For example, if a couple has several female children, the benefits that one male offspring will have might not be economically viable. The weakness in the McClelland thesis is the unknown point at which parents deem it unwise to attempt to have a male child, especially when considering the religious factor. A second proponent, who disagrees with the notion that large families are

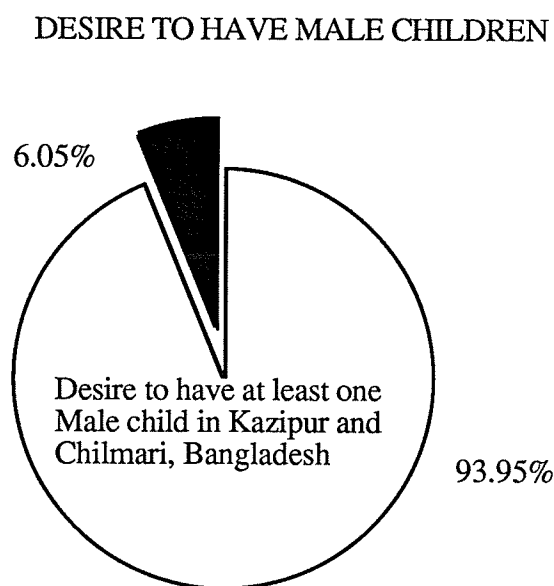
desired to act as a substitution for insurance, is Robinson (1986: 297). Robinson is of the opinion that Cain's 'risk insurance thesis' is flawed. He feels that children, male or female, are simply an "attractive investment" and act as an economic benefit at little real cost to the family. Reppto (1972: 302) advanced the concept that couples make fertility decisions on the basis of economic merit and not on sex preferences. He does admit that having a large number of sons is economically more advantageous than having daughters. However, he states that having many females will actually reduce fertility rates because the family will feel the "demographic pressures" of providing for them, and stop having more children. Quibria (1983: 139) attempted to use a mathematical model to explain fertility behaviour in Bangladesh. He found that a positive cost-benefit ratio for each additional child does not necessarily lead to an increase in fertility; however an overall increase in earnings did not result in a decrease in fecundity.

Khan and Sirageldin (1979: 538) attempted to assess the impact of both income and education on complete family size and the desire to have additional children. They found that in rural Pakistan an increase in economic wellbeing resulted in a rise in total family size. Conversely, a negative relationship existed between the completed number of years of education and the total family size. These findings would suggest that investment in educational programmes would be a prudent act in the on going struggle to reduce fertility. The strongest inverse relationship of the study (.7) involved the desire to have more male children on family size. The policy implications gained from this relationship is that women's role in society must be promoted and elevated to a place of equality with the male dominated Muslim society.

The suggestions made by Robinson, McClelland, and Reppto came under attack from many quarters, and recently an investigation conducted by Bairagi and Langsten (1986: 304) found that there was indeed a strong desire for sons (93 percent) which influenced

fertility patterns throughout Bangladesh. To illustrate this trend further, the women interviewed were asked if they would continue to have children once their desired family size was reached if there were no sons. To refute the Reppto, McClelland and Robinson positions further, 82 percent commented that they would continue to have children until they had one son. Further, it was discovered that mothers who had a high proportion of males were more likely to practice contraception than those who had no sons or many daughters. The high demand for a male child, approximately 94 percent, was also found in the survey of Kazipur and Chilmari. The combined total responses for the two *Upazilas* is represented in Figure 3.4.

FIGURE 3.4



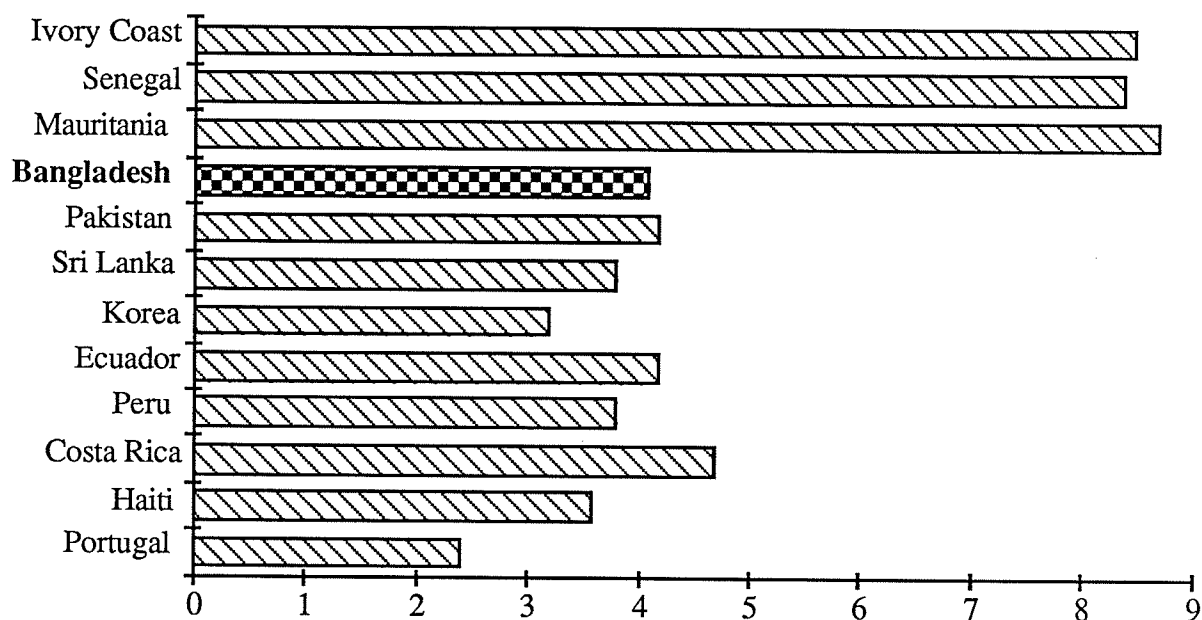
Source: REIS, 1985

The debate over the number of children and their preferred sex is complex and while the individual actions are derivatives of many factors; sociological, economical, religious, and psychological. The question of education and the optimal number of children had a

negative correlation of -0.61 (0.24 was significant at $p < 0.05$) in the Maloney study. The fertility rate actually increased with education up to grade 10 for men and grade 8 for women. Since the people who can afford to attend school for an extended period are more affluent, they can also often provide for larger families. However, Maloney (1981: 111) did establish that those respondents with more than nine years of education placed less reliance on God for determining the number of children, but they still maintained a preference for male children.

3.5 Fertility Behaviour

The FPHSP conducted several questionnaire surveys (1975, 1977, 1984) in an attempt to establish a time series set of data which could assist in recognizing any substantial change in the number of desired children. There was no significant difference between the control villages and those villages which received only government support. The ideal mean family unit in both groups would consist of 4.5 children of whom 2.7 would be male (Koenig, 1987: 119).. More importantly, the reproductive attitudes among the most important age bracket (20-24) and those women with less than the optimal family size did not change over time in either group. The accompanying illustration (Figure 3.6) provides a regional view of desired family size in selected countries. As discussed in the Literature Review, the role and age of marriage within a society plays an important part in defining that society's fertility structure. According to the WFS (1982) the mean age of marriage in Bangladesh was 11.6; this is well below the legal minimum age of sixteen years. This coupled with men being on average six years older than their wives, leads to a high sustained fecundity rate. Maloney found that 88 percent of females who married at a young age, below 13 years, were more committed to *Parda* and as a result were inclined to have larger families. Conversely, of the women who entered into matrimony after their 20th birthday, only 56 percent depended on God in the traditional way.

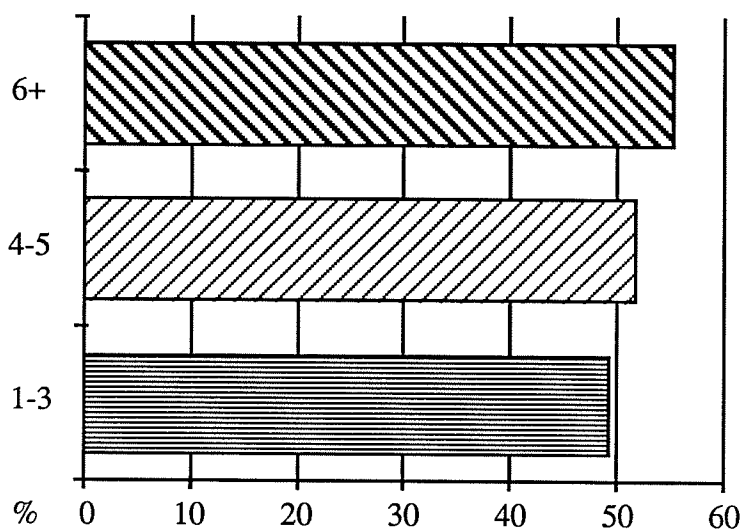
FIGURE 3.6**MEAN DESIRED FAMILY SIZE: REGIONAL COMPARISON**

Source: World Fertility Survey, 1984

The same trend was noted for males; as age increased there was less reliance on God and lower fertility rates. Maloney (1981: 87) found that fathers who married in their teens had on average 8 children, while those males who married between the age of 25 and 29 had 6.8 children each. The tendency for women was similar. Women who had completed their fertility cycle and were married between 15 and 17 years of age had an average of 7.3 children. Stoeckel and Choudhury established that the admitted level of knowledge regarding birth control increased as a family reached its optimal size. (Figure 3.7) The term admitted is used because 94 percent of the respondents in this case knew where to gain information regarding contraception and 74 percent desired to learn more about the various methods.

FIGURE 3.7

KNOWLEDGE OF FAMILY PLANNING BY THE
NUMBER OF LIVING CHILDREN IN BANGLADESH



Source: Stoeckel and Choudhury, 1973

It is estimated that one third of the total number of births in Bangladesh could be avoided if the average age of first conception rose to 25. Unfortunately, as indicated in Chapter II, Bangladesh continues to have one of the highest TFRs and one of the lowest ages at marriage in Asia.

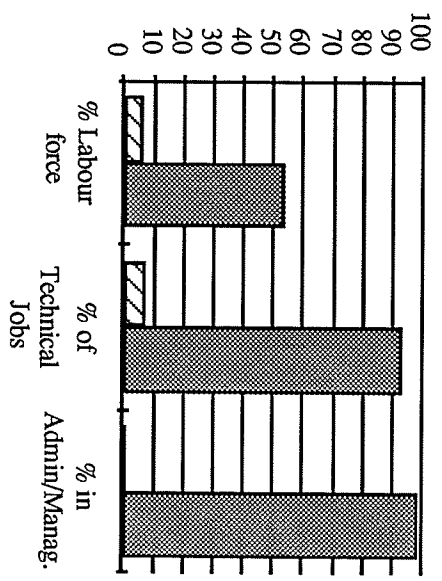
The conclusion drawn from these findings would hint that there is a marked decline in fertility and the observation of *Parda* with postponement of marriage. If the desire for an increased generation span is to be achieved, then it will have to be adopted in both rural and urban regions as an accepted social and religious norm. The adoption of *Parda* for many females is a limiting factor in the development of this ideal. If women are to prolong the period between puberty and marriage, it will require many changes in their traditional role

as seen in Islamic society. As we have seen, the relationship between *Parda* and fertility is convincing, and any change would be contingent on more individual freedom of thought and action for women at all levels of society. The level of education, literacy, and acceptance into the work force is altogether inferior in comparison to the male sector of society. Figure 3.8 assists in understanding this phenomenon. Until there are meaningful changes in this area sustained and successful widespread fertility reduction will remain piecemeal at best.

What else can be done to stimulate some form of change that will provide for sustained fertility reductions in Bangladesh? The experts have maintained that extensive socio-economic progress is needed to change the fertility rates in Bangladesh and other Third World countries. The societal and emotional components of the equation are more difficult to quantify, yet it is these factors which must be explored furthered if we are to stimulate any change in KAP of contraception in the Third World. There are those who maintain that there remains a latent group of people that wish to employ some form of birth control, but they are unable to gain access to the specific methods desired. Westoff and Pebley (1981) see it as merely a problem of the maldistribution and use will increase with availability. A large number of females suggested they were interested in using contraception; however, their motive was not to reduce fertility but rather to regulate fertility.

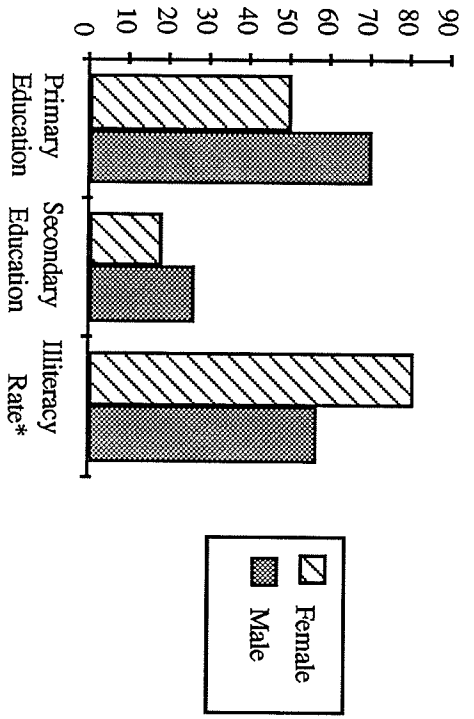
Davies *et. al.* (1987: 187) suggest that oral contraceptives need to be *socially marketed* if they are to become appealing to the rural under-educated peasants. Secondly, they recommend that more effort was placed on determining what the husbands' view on family planning were since Bangladesh is a patriarchal society. As has been discussed earlier, the dominance of the male in Islamic society encompasses all aspects of life, including the decision to practice birth control.

FEMALE REPRESENTATION IN THE WORK FORCE



Source: UNCTAD 1986

PERCENTAGE ATTAINING AN EDUCATION



Source: World Development Report 1986
*United Nations 1983

FIGURE 3.8

Davies notes that the importance of the husband cannot be underestimated. He contends that it is the husband who is ultimately responsible for procuring the instructions and contraceptives for the wife. Undoubtedly, this leads to miscommunication and removes the actual user from the source of information which is fundamental in the success of any family planning scheme

If we are to assume that an improved economic environment, through modernization, will generate a fertility conscious society then we should find a positive correlation between economic status and family planning acceptors. Stoeckel and Choudhury (1973: 110) found that the higher the socio-economic and educational status the greater the possibility the respondent had heard of or was practicing birth control. The category 'Business and Skilled' had the greatest number practicing, while, 'Farmers and Sharecroppers' had the lowest participation rates. They found a negative relationship between landholding and the practice of birth control. This pattern is thought to be a product of the demand for family labour to work the larger landholdings. These findings are supported by Maloney's (1981: 124) report which stated that families with large land holdings, between 5 and 10 acres, had on average 8.5 children, while the medium for the population was 7.0, 6.7 for landless, and 6.3 for those with .5 to 1 acre. Thus, the upper income peasants are the most fertile in Bangladesh society.

Maloney's (1981: 123) study went a step further attempting to establish which occupations had the greatest desire for children and what percentage attributed their fertility to God's will. Over 90 percent of the reported artisans and cultivators and those of traditional low income occupations stated that God was responsible for their fertility. At the opposite end of the spectrum 68 percent of teachers and 45 percent of students maintained the same sentiment.

Testing similar variables using the REIS data could provide a better understanding of what areas have adopted family planning strategies and which have been deficient. Furthermore, the findings could help to indicate if there has been any manifestation or spread of a fertility reduction bias in rural Bangladesh. With the dual processes of shrinking land-man ratios and the heightening awareness of rural residents with modest incomes, the possibility that family planning practices are on the rise does exist. Chapter IV will attempt to provide some empirical conclusions to the many questions associated with fertility reduction through contraceptive acceptance.

Chapter IV

Analysis of the Factors Influencing Modern Contraceptive Behaviour in Kazipur and Chilmari

As discussed previously, there are many antecedents which influence contraceptive behaviour. Often, socio-economic status is used to explain levels of knowledge or practice of birth control in developing countries (see Stoeckel and Choudhury, 1973; Maloney, 1981; Srinivasan, 1984; Basu, 1988; Alachkar and Eberstein, 1988). Improved economic conditions brought about by modernization can result in new motivations and attitudes within a society. These newly formed desires affect all aspects of traditional behaviour, including contraceptive usage. A vibrant economy will be in the position to provide better health care and education systems, which are crucial in transmitting the contraceptive 'word.' Alachkar and Eberstein (1988: 124) discovered in their study of economic development and population increase, that the poorest countries did have the highest infant mortality and fertility rates and the least number of persons enrolled in school.

It must be noted that proponents of the 'modernization ideal' are often too zealous when planning and projecting the impact of economic development. Familial convictions, which have developed slowly over the centuries, will not simply be washed away by a tide of mega-projects and increased GNPs. The marriage of development and tradition will take exhaustive planning, but, more importantly, it will require patience and time. The lack of an infrastructure capable of accommodating the modernization process is often at the root cause of underdevelopment. Brackett *et al.* (1978: 322) discovered this in a study of underemployment in Nepal, where only 4 percent of the persons interviewed attended school.

To test the supposition further that economic growth alone cannot be seen as the remedy for high fertility rates and low contraceptive use, this chapter will probe which of the two more telling socio-economic indicators, economic status or attained education, has the greatest impact on contraceptive behaviour. Therefore, two sets of research hypotheses have been proposed; the first will focus on 'Economic Rank' and the second on 'Educational Rank.' The hypotheses will be examined on two levels. First, the factors influencing knowledge and use of contraception in each *Upazila* will be established. Second, within Kazipur and Chilmari the same tests will be conducted to determine if there is a significant difference between displacees and non-displacees. The first group of hypotheses state

Hypothesis I: Contraceptive **awareness** is related to **economic status**

Hypothesis II: Contraceptive **use** is related to **economic status**

The objective of these hypotheses is to determine the effect economic position has on the knowledge and practice of birth control. The following two hypotheses are designed to ascertain the significance that education has on influencing awareness and practice of contraception.

Hypothesis III: Contraceptive **awareness** is positively associated with **educational level**

Hypothesis IV: Contraceptive **use** is positively associated with **educational level**

The initial three sections of this chapter will be devoted to the analysis of the REIS data relating to 'Economic Rank' the final sections will discuss 'Educational Rank.' Preceding the commencement of the testing there will be a brief overview of the economic and

educational circumstances in the *Upazilas*. This will furnish the reader with a socio-economic image of the study area and its inhabitants.

4.1 An Economic Paradigm

Many of the scholars who have written on the socio-economic fabric of Bangladesh have indicated that landholding is the single most consequential indicator of economic status. Haque (1988: 303) saw the ownership of land in Bangladesh as

[t]he most important means of survival in an economy predominantly characterized by subsistence agriculture. Thus, land ownership patterns largely determine the economic status of rural households.

As there are very few prospects of employment outside the agricultural sector, the likelihood of improving one's socio-economic status remains severely restricted. Amin (1982: 130) points out that not only are the hopes for a job driven by economic status (landholding) but the prospect of attaining an education "is determined, primarily, by immediate family access to land." Greenberg (1986: 26) found that land was the pith of "personal security" and "ultimately influences the social and political status of an individual" in rural Bangladesh (see also Reppto 1979, Halli 1988, Hossain 1988). Others have also noted the importance of landholding as a function of wealth and opportunity. Rashiduzzaman (1982: 15) conducted a survey of rural village leaders in Bangladesh and found that 96.5 percent, of whom owned an average of 12.5 acres of land or more, hired five workers per year. This discovery clearly shows that the people of consequence and power are those who have had the advantage of being a landowner.

The distribution of landownership is fragmented into small uneconomical parcels, making agriculture inefficient throughout rural Bangladesh. Furthermore, approximately 5 percent of the population owns 50 percent of the land, while 52 percent of the population remains landless functionally landless (Khan, 1984: 3). Ruthless landbarons have been known to prey on the landless and/or marginal inhabitants of the riverbank regions by exploiting their economically fragile positions. After severe flooding, many of the small landowners will lose most, if not all, of their property. Often they will go deeply into debt to purchase new lands or supplies until the flood waters recede. Unfortunately, the terms of the loan agreement are often unscrupulous and simply add to the spiraling liabilities acquired during the past flood seasons.

Given the important role that land ownership has in estimating wealth in Bangladesh, it was chosen to test Hypothesis I. However, land possession was not the only variable tested, since the findings in Table 4.1 showed that 52.9 percent and 34.38 percent of the respondents in Chilmari and Kazipur respectively were landless. Therefore, three ancillary economic indicators, which are considered significant in the economic profile of Bangladeshis, were utilized to strengthen the testing of the first research hypothesis. They included:

- ownership of a tube well
- ownership of a corrugated iron roof (pucca roof)
- number of structures per dwelling

The frequency distribution and chi-square tests for each of the four economic variables revealed two arrangements: Kazipur was materially advantaged over Chilmari and the key economic indicator, landholding, suggested that non-displacees enjoyed a higher economic status than displacees within each *Upazila* (see Appendix C).

TABLE 4.1

COMPARISON OF LANDHOLDING IN CHILMARI AND KAZIPUR				
<i>Landholding</i>	<u>Chilmari</u>		<u>Kazipur</u>	
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
Landless	248	52.90	163	34.38
Small (.01-3.0)	142	31.20	283	59.72
Middle (3.01-7.0)	38	8.40	23	4.85
Large (7.01+)	25	5.50	5	1.05
Total	453	100.00	474	100.00

$\chi^2 = 80.95$ with 3 d.f.: Significant at 0.01 level

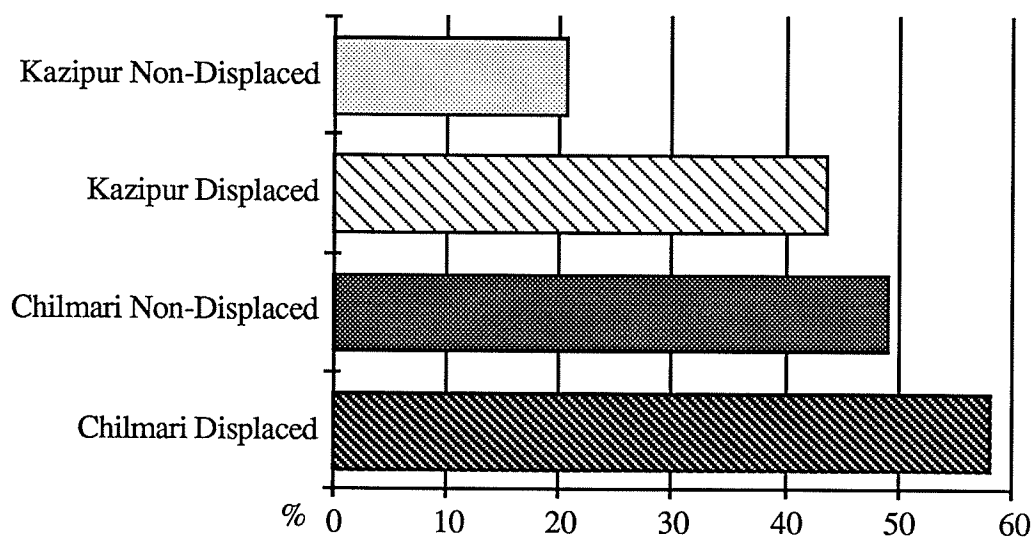
Source: REIS Survey, 1985

Within Kazipur, 43.77 percent of the displacees were landless, while only 20.72 percent of the non-displacees were in the similar position. Halli (1988) also examined the landholding situation in Kazipur and found corresponding patterns, including the anomalous condition of more large landowners (7.01+ acres) amongst displacees. Some have suggested (Zaman 1988) that these landowners are opportunists who prey on the destitute people who are forced to live on the precarious riverbanks only to be displaced by the annual floods. The inevitable migration from the levees and disruption of income allows for many forms of extortion that keep the displacees in perpetual poverty. In Chilmari, which annually is one of the most severely flooded regions in Bangladesh, the difference between displacees

and non-displacees is only 9 percent in favour of the non-displacees. Figure 4.1 illustrates these two trends.

FIGURE 4.1

**PERCENT OF LANDLESS INHABITANTS
BY DISPLACEMENT STATUS**



$\chi^2 =$ Chilmari: 16.44 with 3 d.f.: Significant at 0.01 level

$\chi^2 =$ Kazipur: 32.47 with 3 d.f.: Significant at 0.01 level

Source: REIS Survey, 1985

The calculated values of the chi-square tests presented in Appendix C give further credence to these regional and local situations. The frequency of corrugated iron roofs, which are an important asset in this monsoon-prone country, was four times higher in Kazipur. The number of tube wells, which are critical for the provision of clean drinking water, were approximately nine percent higher in Kazipur (Table 4.2).

TABLE 4.2

FREQUENCY OF SELECTED ECONOMIC INDICATORS BY UPAZILA				
	<u>Chilmari</u>		<u>Kazipur</u>	
	Freq.	%	Freq.	%
Iron Roof	62	13.68	276	58.22
Tube Well	92	20.30	136	28.69

$\chi^2 =$ Iron Roof: 198.40 with 1 d.f.: Significant at 0.01 level

$\chi^2 =$ Tube Well: 8.77 with 1 d.f.: Significant at 0.01 level

Source: REIS Survey, 1985

A summary table of the statistical significance for each variable at the *Upazila* level is found in Table 4.3. It was established that the number of structures per dwelling did not prove to be statistically acceptable at the *Upazila* level of investigation. However, within Kazipur, a relationship at the .05 level was found for both structures per dwelling and ownership of corrugated iron roofs between displaced and non-displaced. Since Kazipur's commercial infrastructure has evolved further than Chilmari, the difference between the 'rich and poor' is more pronounced and factors other than landholding come into prominence. The remainder of the economic features checked, *vis-a-vis* displacees and non-displacees in both *Upazilas*, did not provide a statistically significant response. However, after examining the frequency distributions within each region an economic bias in favour of non-displacees was discovered. This is in keeping with the conclusions drawn by Haque (1988) in his comprehensive review of the socio-economic characteristics of displacees and non-displacees.

TABLE 4.3

COMPARISON OF ECONOMIC INDICATORS IN KAZIPUR AND CHILMARI			
<i>Economic Variable</i>	χ^2	D.F.	Significance Level
Structures per Dwelling	1.71	1	Insignificant
Ownership of Tube Well	8.77	1	Significant at 0.01 level
Ownership of Iron Roof	198.40	1	Significant at 0.01 level
Landholding	81.36	3	Significant at 0.01 level

Source: REIS Survey, 1985

This brief economic synopsis will hopefully provide the reader with a general notion of material conditions within the area of study. The economic indicators used in this section will also be employed to test Hypothesis I and II.

4.2 Economic Position: the relationship to contraceptive awareness

Contraceptive awareness at the *Upazila* (Table 4.4) level and between displacees and non-displacees (Table 4.5), was in keeping with the findings of previous studies conducted in Bangladesh, ranging from 82 to 95 percent (see UN, 1987; Population Today, 1987; Maloney, 1981; and WFS, 1979). The high reported values would signify that the Family Planning Programme is experiencing some success in educating the rural inhabitants of the two *Upazilas* under investigation. There are minor fluctuations in rates amongst the displaced and non-displaced inhabitants however; the calculated values for the chi-square

test indicate that these difference are not directly related to displacement status. Since the displacement situation is not seen as a primary contributing factor in the degree of contraceptive awareness, it would be prudent to investigate further the dynamics surrounding the acquisition of contraceptive knowledge.

The hypothesis under investigation in this section 'contraceptive awareness is related to economic status', will be tested using the economic variables introduced earlier in this chapter. In an attempting to limit the number of tables, graphs and diagrams to a manageable number, only the major outcomes will be included in this chapter; the supplementary results have been placed in tabular form in Appendix D.

In both Chilmari and Kazipur it was observed that landholding did not influence contraceptive awareness. The cross tabulations and chi-square significance tests performed in Table 4.6 did not provided a statistically acceptable response. Similar results were found when testing knowledge and ownership of a tube well, ownership of an iron roof, and number of structures per dwelling. This observation is similar to that of Stoeckel and Choudhury's (1969) who also found no significant relationship between landholding and knowledge of family planning in their study of East Pakistan. The REIS data further supports this view when frequency distributions are considered. It was established that Kazipur was economically advantaged over Chilmari, yet, knowledge of contraception was higher in Chilmari. Furthermore the displacees (economically disadvantaged) in Chilmari reported higher rates of awareness than the non-displacees (economically advantaged) in Kazipur (see Appendix D).

TABLE 4.4

KNOWLEDGE OF MODERN CONTRACEPTION BY UPAZILA				
	Chilmari		Kazipur	
	Freq.	%	Freq.	%
Yes	420	92.73	409	86.29
No	33	7.27	65	13.71
Total	453	100.00	474	100.00

$\chi^2 = 10.12$ with 1 d.f.: Significant at 0.01 level

TABLE 4.5

KNOWLEDGE OF MODERN CONTRACEPTION BY DISPLACEMENT STATUS								
	Chilmari				Kazipur			
	Displaced		Non-Displaced		Displaced		Non-Displaced	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Yes	259	91.58	161	94.15	239	85.05	172	89.10
No	23	8.15	10	5.85	42	14.95	21	10.90
Total	282	100.00	171	100.00	281	100.00	193	100.00

$\chi^2 =$ Chilmari: .825 with 1 d.f.: Insignificant

$\chi^2 =$ Kazipur: 1.641 with 1 d.f.: Insignificant

Source: REIS Survey, 1985

TABLE 4.6

KNOWLEDGE OF CONTRACEPTION AS A FUNCTION OF LANDHOLDING									
Chilmari					Kazipur				
Ownership in Acres	Landless	Small (.01-3.0)	Middle (3.01-7.0)	Large (7.01+)	Landless	Small (.01-3.0)	Middle (3.01-7.0)	Large (7.01+)	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.
<i>Know</i>									
Yes	229	91.96	131	92.25	36	94.73	24	96.00	
No	19	8.04	11	7.75	2	5.27	1	4.00	
Total	248	100.00	142	100.00	38	100.00	25	100.00	
					163	100.00	255	100.00	23
									100.00
									5
									60.00
									40.00

$\chi^2_{\text{Chilmari}} = 9.612$ with 12 d.f.: Insignificant

$\chi^2_{\text{Kazipur}} = 11.664$ with 15 d.f.: Insignificant

Source: REIS Survey, 1985

TABLE 4.7

KNOWLEDGE OF CONTRACEPTION BY SELECTED ECONOMIC VARIABLES						
<i>Economic Variable</i>	<i>Knowledge of Contraception</i>					
	<u>Chilmari</u>			<u>Kazipur</u>		
	χ^2	d.f.	Significance Level	χ^2	d.f.	Significance Level
Structures per Dwelling	0.718	6	Insignificant	4.312	8	Insignificant
Ownership of Tube Well	7.019	3	Insignificant	6.290	4	Insignificant
Ownership of Iron Roof	4.612	3	Insignificant	9.167	4	Insignificant
Landholding	9.612	12	Insignificant	11.664	15	Insignificant

Source: REIS Survey, 1985

The calculated values for the chi-square tests found in Table 4.7 were less than the expected values in all cases; therefore we cannot accept that material acquisitions are influential. Consonant results were found without exception between displacees and non-displacees within Chilmari and Kazipur (see Appendix D). This allows for the rejection of H_0 , which stated 'contraceptive awareness is related to economic status', and the acceptance of H_1 . There is no relationship between awareness and economic standing as postulated in Hypothesis I. The relatively high frequencies of contraceptive knowledge at the *Upazila* level and among displaced and non-displaced would indicate that access to contraceptive information is almost universally available. The high rates of awareness, regardless of socio-economic status is partially a result of well established government propaganda schemes which are prevalent in all the major media forms and the great efforts made to inform the rural inhabitants through the village clinics and health practitioners.

4.3 Economic Position: the relationship to contraceptive practice

Contraceptive use in Kazipur was near the national average of 19 percent, while Chilmari's rate was almost a third lower at 13 percent (Table 4.8). Numerous investigations have measured the degree of contraceptive practice within Bangladesh over the past twenty years, most recently, use was judged to be between 14 and 19 percent of eligible couples (see also WFS, 1979; UN, 1981; Rashiduzzaman, 1982; US Dept. of Comm., 1987; Phillips, 1988).

TABLE 4.8

USE OF MODERN CONTRACEPTION BY UPAZILA				
	<u>Chilmari</u>		<u>Kazipur</u>	
	Freq.	%	Freq.	%
Yes	61	13.43	90	18.98
No	392	86.57	384	81.02
Total	453	100.00	474	100.00

$\chi^2 = 5.17$ with 1 d.f.: Significant at 0.05 level

Source: REIS Survey, 1985

Chowdhury and Kabir (1988: 4) also employed the REIS data to explore knowledge and use of family planning; but their focus was on the *Upazilas* of Kazipur and Bhola. They found the level of use was 19 percent in Kazipur and 12 percent in Bhola, while an aggregate awareness rate of 70 percent was presented. However, their study did not

distinguish between the behaviour of displacees and non-displacees nor did it provide any empirical evidence as to which factors had the greatest influence on contraceptive conduct. Table 4.9 provides some interesting macro results. In Chilmari the percentage of non-displacees using some form of modern birth control was almost two times as high as displacees. While in Kazipur the opposite trend existed with 17.61 percent of non-displacees and 19.92 percent of displacees practicing. It must be noted that the chi-square test for Kazipur did not fall into the statistically significant level; therefore, we must reject the notion that displacement status is the influencing element in explaining the result in this *Upazila*.

Conversely, in the more disadvantaged *Upazila* of Chilmari, the data suggest that place of residence is consequential. Perhaps populations which are permanently at the threshold of extreme marginalization exhibit better the differences of access to opportunity. In other words, the poor (displacees) in Kazipur might be more resilient to extremes than their counter-parts in Chilmari. As we have established that Kazipur is materially advantaged, the infrastructure required to support crucial health services would tend to be more developed in the *Upazila*, which would be reflected in higher rates. A second plausible explanation for the different trends is that displaced respondents within Chilmari are less interested in limiting family size as they see a larger family as being a form of economic insurance. Meanwhile, in Kazipur economic progress has given the very poor the opportunity to earn an income outside of the agricultural sector and at the same time reduce the dependency on the family network for support. The low reported values for the economically advantaged (non-displaced) within Kazipur can be explained by the high frequency of landholders among this group who can support larger families and in some cases need the manpower.

In keeping with the tenet of this study, the impact of economic status on contraceptive use will be further discussed utilizing the four economic variables already introduced. Landholding, structures per dwelling, and ownership of a tube well and corrugated iron roof were deemed to be mutually exclusive of contraceptive use at the *Upazila* level of investigation (see Table 4.10 and Table 4.11). On the micro level of investigation, the only positive correlation (significant at 0.05) was the ownership of iron roof amongst non-displacees in Chilmari. The presence of one unambiguous parallel does not warrant the acceptance of the null hypothesis.

TABLE 4.9

USE OF MODERN CONTRACEPTION BY DISPLACEMENT STATUS								
	<u>Chilmari</u>				<u>Kazipur</u>			
	Displaced		Non-Dispalced		Displaced		Non-Dispalced	
	<i>Freq.</i>	%	<i>Freq.</i>	%	<i>Freq.</i>	%	<i>Freq.</i>	%
Yes	30	10.63	31	18.12	56	19.92	34	17.61
No	252	89.37	140	81.88	225	80.08	159	82.39
Total	282	100.00	171	100.00	281	100.00	193	100.00

$\chi^2_{=}$ Chilmari: 5.125 with 1 d.f.: Significant at 0.05 level

$\chi^2_{=}$ Kazipur: .3977 with 1 d.f.: Insignificant

Source: REIS Survey, 1985

Phillips (1988: 328) in his recent work on the Matlab project challenged the opinion that "economic improvement" or "development" are fundamental to the success of a family planning scheme. He states

[a]n appropriate system of supply with structures and functions that are adapted to familial needs and interfaced with village institutions can profoundly affect reproductive behaviour, even in the absence of societal conditions that independently induce demographic change.

This is not to imply that economic growth is unwanted, rather, it illustrates the sociological, biological, historical, and psychological aspects involved in creating a working paradigm designed to regulate fertility behaviour in an impoverished nation such as Bangladesh. Moreover, serious consideration must be given to understanding fully the supply and demand tendencies of contraceptive users to benefit future planners and practitioners. The economic link between fertility and development does not lie exclusively in the material possessions that can be measured in a questionnaire but rather in the structure of the society as a whole.

There has been much research on the role of women in traditional societies and it has been found that when female participation in the labour force is high, children become less desirable (economically) and fertility rates drop (Kasarda, 1971: 307). Chaudhury (1983: 61) employed the "beyond family planning approach" when he looked at the inequality of labour force participation within Bangladesh and concluded that it was paramount that women become more involved in economic activities if fertility is to be reduced.

In testing Hypothesis II 'contraceptive use is related to economic status' it was found that the practice of modern contraception was not positively correlated to landholding or any other economic characteristic (see Appendix E). The frequency distributions of land ownership and the use of birth control in both regions do not correlate (Table 4.11). Furthermore, the chi-square test suggests that the variables were independent of each

other. In both Chilmari and Kazipur the small land owner (0.01-3.1 acres) registered the highest percentage of contraceptive use, 20.29 and 21.96 percent respectively rather than the larger landholders with their higher levels of socio-economic standing. A second interesting finding was within each *Upazila* the functionally landless inhabitants had higher frequencies of birth control practice than the large landholders. However, the test of selected economic indicators (Table 4.10) support the rejection of the H_0 for all four variables for Hypothesis II.

TABLE 4.10

USE OF CONTRACEPTION BY SELECTED ECONOMIC VARIABLES						
<i>Economic Variable</i>	<i>Use Contraception</i>					
	<u>Chilmari</u>			<u>Kazipur</u>		
	χ^2	d.f.	Significance Level	χ^2	d.f.	Significance Level
Structures per Dwelling	5.550	2	Insignificant	2.618	2	Insignificant
Ownership of Tube Well	2.695	1	Insignificant	0.319	2	Insignificant
Ownership of Iron Roof	2.901	1	Insignificant	0.529	1	Insignificant
Landholding	7.275	6	Insignificant	9.746	6	Insignificant

Source: REIS Survey, 1985

In summary, it can be stated that economic status does not significantly influence contraceptive practice. There are several reasons for this outcome. It is postulated that the strength of entrenched social norms and values still play a more significant role than do the forces of modernization. Thus having a large family is still considered as 'honourable' and a reflection of social status within Bangladesh society. At extreme levels of poverty the fertility rates are reduced, as illustrated by the higher rates of contraceptive use amongst functionally landless and large landowners; however, once economic conditions improve there is propensity to have larger families.

4.4 Educational Status: its effect on contraceptive behaviour

Employing various indicators of wealth, it has been determined that economic position is not significant in stimulating knowledge or practice of birth control. This finding is reinforced by testing displacees and non-displacees, who clearly represent two uniquely different economic aggregations. The remainder of the chapter will be devoted to measuring the impact and significance of education on contraceptive actions. The hypotheses to be tested are:

Hypothesis III: Contraceptive **awareness** is positively associated with **educational level**

Hypothesis IV: Contraceptive **use** is positively associated with **educational level**

Before testing these hypotheses, a summary of local rates of education will be presented.

4.5 The Status of Education

Table 4.12 provides a detailed account of the level of education within the two study areas. As expected, Kazipur, which has a more vibrant economic life, has an illiteracy rate almost 10 percent below that of Chilmari. This trend is noticeable in all other educational categories except for *Madrashas*, the religious schools which focus upon the teachings of the *Koran*, and is therefore not a suitable measurement of socio-economic status in the context of this inquiry.

According to the *Least Developed Countries 1986 Report* the frequencies relating to illiteracy in Chilmari and Kazipur were well below the national average for men of 57

percent. (UNCTAD, 1986: 82). The rate for women is considerably higher at 88 percent. However, as females only constitute 6.0 percent of the total sample size, the totals for males will be used for comparison (see Appendix B for demographic profile).

TABLE 4.12

COMPARISON OF EDUCATIONAL STATUS IN CHILMARI AND KAZIPUR				
<i>Education</i>	<u>Chilmari</u>		<u>Kazipur</u>	
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
Illiterate	327	72.20	300	63.30
1-5 yrs.	76	16.70	98	20.70
6-12 yrs.	41	9.10	67	14.10
Madrasha	9	2.00	2	.40
Post Sec.	----	----	7	1.50
Total	453	100.00	474	100.00

$\chi^2 = 21.19$ with 4 d.f.: Significant at 0.01 level

Source: REIS Survey, 1985

Since the *Upazilas* are found in some of the most economically depressed and environmentally precarious regions of the country, it is to be expected that educational levels are lower. In the 1981 Bangladesh Census, the literacy rates in Chilmari and Kazipur, for all persons 5 years of age and older, were reported to be 11.6 and 14.9 percent respectively (Government of Bangladesh, 1984: 170). Since the data presented in this study analyzed different set of age cohorts the numbers are much higher; however, the difference between the *Upazilas* does remain constant.

Education was modified by displacement status in Chilmari. Displacees had above average ratios of illiteracy and trailed in the percentage of persons in each of the other educational groups measured (Table 4. 13). From this finding, it appears that non-displacees have an advantage in obtaining an education. Two conclusion can be drawn from the Chilmari pattern. First, riverbank inhabitants who are displaced on an annual basis by floods, not only have their homes submerged but also their schools. Naturally, the yearly disruptions are not conducive to a good learning environment. Second, many of the poor families cannot afford to keep their children in school; rather, they are compelled to forgo their education and enter the work force at an early age.

Kazipur has a frequency distributions of educational attainment similar to Chilmari. The non-displacees have lower illiteracy rates and an overall higher level of education than displacees. An interesting observation, that further illustrates the relative economic superiority of Kazipur is the displacees in Kazipur had educational participation rates similar to those of the non-displacees in Chilmari. The remainder of this section will examine the relationship between education and contraceptive behaviour.

TABLE 4.13

LEVEL OF EDUCATION BY DISPLACEMENT STATUS									
Education	<u>Chilmari</u>				<u>Kazipur</u>				
	Displaced		Non Dispalced		Displaced		Non Dispalced		
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Illiterate	218	77.30	109	63.74	190	67.60	110	57.00	
1 to 5	44	15.60	32	18.72	50	17.80	48	24.90	
6 to 12	15	5.30	26	15.20	38	13.50	29	15.00	
Post-second	---	---	---	---	3	1.10	4	2.10	
Madrasha	5	1.80	4	2.34	---	---	2	1.00	
Total	282	100.00	171	100.00	281	100.00	193	100.00	

χ^2 =Chilmari: 14.99 with 3 d.f.: Significant at 0.01 level

χ^2 =Kazipur: 8.688 with 4 d.f.: Insignificant

Source: REIS Survey, 1985

4.6 Educational Status: the impact on contraceptive knowledge

Hypothesis III suggests that 'contraceptive awareness is positively related to educational status.' However, it has been concluded that at both the *Upazila* and local scale, and between the two distinct sub-groups, contraceptive knowledge is not positively associated with education. The cross tabulations in Chilmari and Kazipur suggest that there is a slight increase in knowledge of contraception with years of schooling (Table 4.14). However, tests for significance are inconclusive. The high reported levels of awareness amongst the

illiterate in Chilmari (92.66 percent) and the overall relatively low rates in Kazipur support the statistical contention that education is not a prerequisite to acquiring knowledge of available birth control methods. One explanation for this outcome is that strong family planning initiatives, operating at the grass roots level, have often been successful in spite of an underdeveloped infrastructure.

For example, there are widespread national advertising campaigns in all major media that continuously promote family planning. One novel method of promoting use of various contraceptive techniques is to advertise on the sails of country boats (Schellstede and Ciszewski, 1984: 33). In Cochrane's (1979) extensive review of education and contraception, she concludes that the impact of education on contraceptive awareness varies widely from country to country. In the Philippines, Thailand, Japan, and Taiwan, it was discovered that media exposure was more influential than educational experience. Naturally, a minimum threshold of development, literacy, and a strong government sponsored family planning effort must be present in a society to ensure that the basic media forms are available for mass consumption. Nonetheless, we can see that an individual need not necessarily be literate to be exposed and receptive to the very important national issue of birth control.

Local examination of the percentage distributions for non-displaced in Chilmari and displaced in Kazipur, provide further evidence supporting the argument that an increase in education does not guarantee high rates of contraceptive knowledge.(Table 4.15). The illiterate group of non-displaced in Chilmari had a contraceptive awareness level of 93.57 percent while those who had between 6 and 12 years of education had an awareness rate of 92.30 percent. A second example can be found amongst the displaced of Kazipur, where 83.15 percent of the illiterates had some notion of birth control while exactly 80 percent reported knowledge in the 1 to 5 years of schooling category.

TABLE 4.14

KNOWLEDGE OF CONTRACEPTION AS A FUNCTION OF EDUCATION									
Education	<i>Knowledge of Contraception</i>								
	<u>Chilmari</u>				<u>Kazipur</u>				
	Yes		No		Yes		No		
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Illiterate	303	92.66	24	7.34	254	84.66	46	15.34	
1-5 yrs.	72	94.73	4	5.27	83	84.69	15	15.31	
6-12 yrs.	39	95.12	2	4.88	64	95.52	3	4.48	
Madrasha	7	77.77	2	22.23	1	33.33	2	66.66	
Post Sec.	----	----	----	----	4	57.14	3	42.86	

$\chi^2 =$ Chilmari: 4.687 with 6 d.f.: Insignificant

$\chi^2 =$ Kazipur: 9.470 with 8 d.f.: Insignificant

Source: REIS Survey, 1985

Existing literature has established a positive association between contraceptive awareness and attained education in various theatres of the Third World (Dow, 1971; Freedman *et al.*, 1963; Khalfia, 1976; WFS, 1976; Mhloyi, 1988). Cornelius and Novak (1983: 310) conducted surveys in Columbia, Honduras, and Nepal, and found that the measure of awareness increased considerably between respondents with no education and those with 6 to 12 years. However, the descriptive nature of these studies, which show an improvement of 57 percent in Nepal for example, did not analyze the data for statistical relationship. Stoeckel and Choudhury (1969: 32) employed statistical analysis in their early work on rural East Pakistan and found a strong relationship ($\chi^2=15.72$ with 3 d. f.: significant at 0.01 level) between education and knowledge.

TABLE 4.15*

KNOWLEDGE OF CONTRACEPTION BY EDUCATION: DISPLACED AND NON DISPLACED									
Education	<u>Chilmari</u>				<u>Kazipur</u>				
	Awareness Among Displaced		Non Dispalced		Awareness Among Displaced		Non Dispalced		
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Illiterate	200	91.74	102	93.57	158	83.15	96	87.27	
1 to 5	41	93.18	31	96.87	40	80.00	43	89.58	
6 to 12	15	100.00	24	92.30	36	94.70	28	96.55	
Post-second	----	----	----	----	3	100.00	4	100.00	
Madrasha	3	60.00	4	100.00	----	----	1	50.00	

χ^2 = Chilmari Displaced: 2.127 with 2 d.f.: Insignificant

χ^2 = Chilmari Non-Displaced: 1.834 with 2 d.f.: Insignificant

χ^2 = Kazipur Displaced: 4.582 with 4 d.f.: Insignificant

χ^2 = Kazipur Non-Displaced: 5.694 with 3 d.f.: Insignificant

Source: REIS Survey, 1985

This relationship between education and awareness disappears in the REIS survey for several reasons. First, after Independence from West Pakistan in 1971, the newly formed government of Bangladesh became committed to reducing high fertility rates through the introduction of a nation wide family planning programme. Second, when the data were collected in the Comilla-Kotwali *Thana* by Stoeckel and Choudhury, the entire country was un-educated in terms of modern methods of birth control. According to a UN (1981b: 108) survey the national rate of awareness was only 52 percent in 1969, while the REIS data found awareness levels of 92.73 and 86.29 percent in Chilmari and Kazipur respectively some fifteen years later. If the dramatic increase in awareness is because of

*Only 'positive' respondents are presented in this table. See TABLE 4.13 for total number of observations.

education, we would expect to have a corresponding decrease in the number of illiterate persons in Bangladesh over this same period. However, between 1970 and 1982, illiteracy rates for males in Bangladesh decreased only slightly from 64 percent to 57 percent, while contraceptive awareness rose from 52 percent to 95 percent during approximately the same time (UN, 1983a: 6).

In light of these findings, Hypothesis III 'contraceptive awareness is positively associated to educational status,' must be rejected in the case of Chilmari and Kazipur.

4.7 Educational Status: the association with contraceptive use

It has been demonstrated that Bangladesh has a relatively high level of contraceptive knowledge, yet, this positive awareness is not being converted into contraceptive practice. The transformation of knowledge into action is a universal problem for the family planning practitioners. If policy examiners are to bridge this gap, they must identify which instruments of development are best suited to ensure widespread birth control adoption within Bangladesh. As was noted earlier, contraceptive awareness is relatively high (86 and 92 percent) yet use was unacceptable (13 and 19 percent). It was established that the diffusion of contraceptive information is not exclusively dependent on education and/or literacy. This section will continue the examination of education's connection with contraceptive behaviour by testing Hypothesis IV for statistical significance.

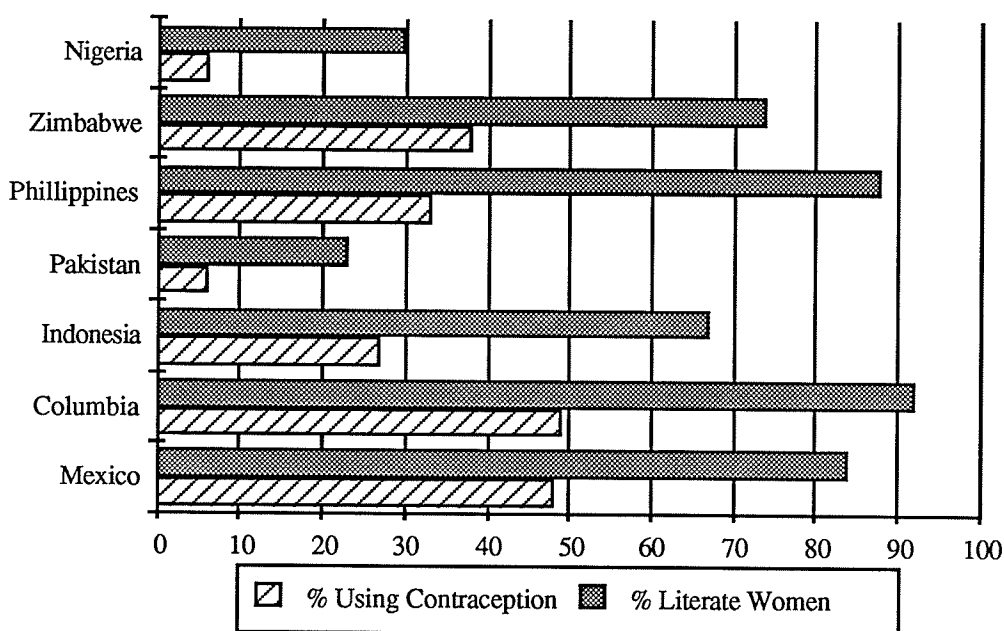
Lightbourne *et. al.* (1982: 40) inferred, after detailed statistical examination of WFS data for 29 developing nations, that illiteracy was a greater impediment to contraceptive practice than low per capita income. This view is given credence by the observation that none of the countries investigated (except Haiti which had a literacy rate below 30 percent) had birth control use above 10 percent (see also Brackett, 1978; Pick *et. al.* 1988; Wang, 1988)..

Work has also been undertaken to see if any variations exist between use, education, and gender in the Third World. Studies in Korea, Taiwan, Thailand, Nepal, and West Malaysia, have demonstrated the direct association between the education of *females* of childbearing age and birth control practice (Cochrane, 1979: 126). The coefficient of the *males'* education and use was not as uniformly consistent, and only in Panama and Columbia were they found to be significant. Cochrane's *sequitur* was that the wife's education was more consequential in influencing contraceptive use than the husband's. The salient affiliation discussed above is illustrated in Figure 4.2

It has been widely suggested that parents with higher education have healthier babies and thus lower infant mortality rates (see US Dept. of Comm., 1987; Jain, 1985; Tabbarah, 1975) Therefore, indirectly, fertility trends are affected by the diffusion of education throughout the mass of society. The linkage between contraceptive practice and education is well defined at the regional level. Both *Upazilas* show an increase in use with a corresponding rise in attained education. Though frequency distributions are rather small in comparison to total population size, the important discovery is the positive chi-square value in each case. Table 4.16 illustrates these findings succinctly.

FIGURE 4.2

CONTRACEPTIVE USE AND LITERACY AMONG SELECTED COUNTRIES



Source: U.S. Bureau of the Census, 1985

The illiterate and 1 to 5 year group in Kazipur had greater levels of acceptance of birth control than did their counter-parts in Chilmari. In the 6 to 12 year category the results were almost uniform, but slightly favouring Chilmari, leading to the conclusion that the difference must stem from a more intense approach to the application of the family planning programme in the area. Table 4.17 shows the findings for displaced and non-displaced. In general we can state that contraceptive use is enhanced by acquired education. The statistical testing proved acceptable in all but one instance. The calculated chi-square for the non-displaced in Chilmari was below the critical values and thus deemed to be insignificant. However, since this was the only exception reported and the calculated statement was approaching the significant range, the reversal in pattern is not considered to

be consequential. It is difficult to determine what level of education best supports increased and sustained practice.

TABLE 4.16

USE OF CONTRACEPTION AS A FUNCTION OF EDUCATION									
Education	Use of Contraception								
	Chilmari				Kazipur				
	Yes		No		Yes		No		
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Illiterate	38	11.62	289	88.38	43	14.33	257	85.67	
1-5 yrs.	19	25.00	76	75.00	31	31.63	67	68.37	
6-12 yrs.	11	26.82	30	73.18	17	25.37	50	74.63	
Madrasha	---	---	---	---	1	50.00	1	50.00	
Post Sec.	---	---	---	---	1	14.28	6	85.72	

$\chi^2_{=}$ Chilmari: 14.37 with 3 d.f.: Significant at 0.01 level

$\chi^2_{=}$ Kazipur: 18.76 with 4 d.f.: Significant at 0.01 level

Source: REIS Survey, 1985

In Kazipur there is a statistical significant relationship, yet the percentage of use does not increase with years of schooling. In the non-displaced category for 1 to 5 years of schooling 36 percent claimed to practice contraception, while 33 percent of post secondary respondents used birth control. Given these statistical tests, Hypothesis IV can be accepted in the Chilmari and Kazipur scenarios.

TABLE 4.17*

CONTRACEPTIVE USE AND EDUCATIONAL STATUS: DISPLACED AND NON DISPLACED									
Education	Chilmari				Kazipur				
	Use Among Displaced		Use Among Non Dispalced		Use Among Displaced		Use Among Non Dispalced		
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	
Illiterate	19	8.71	19	17.43	30	15.78	13	11.81	
1 to 5	8	18.18	11	34.37	18	36.00	13	27.08	
6 to 12	9	60.00	2	7.69	10	26.31	7	24.31	
Post-second	----	----	----	----	1	33.33	0	00.00	
Madrasha	----	----	----	----	----	----	1	50.00	

χ^2 =Chilmari Displaced: 10.049 with 3 d.f.: Significant at 0.05 level

χ^2 =Chilmari Non-Displaced: 4.999 with 3 d.f.: Insignificant

χ^2 =Kazipur Displaced: 10.853 with 3 d.f.: Significant at 0.05 level

χ^2 =Kazipur Non-Displaced: 11.022 with 4 d.f.: Significant at 0.05 level

Source: REIS Survey, 1985

The testing of the REIS data complements earlier survey findings established by Koenig *et al.* (1987: 126) in the Matlab area. Data from 1977 and 1984 were compared to determine if noticeable changes had occurred due to overall improvements in the socio-economic status of the *Thana*. Koenig and his colleagues discovered that a change in reproductive behaviour had occurred in the seven year period and believed that an overall rise in the level of education was the determining factor.

*Only 'positive' respondents are presented in this table. See TABLE 4.13 for total number of observations.

The confirmation that education and contraceptive practice are associated has several plausible explanations. First, greater levels of education normally place an individual in a higher socio-economic position. In the Third World context this makes family planning much easier because infant mortality rates are reduced due to better access to health care. Thus, fertility rates follow suit. Also, the role of women is altered as they become contributors to family income and often remain economically active rather than having children. However, economic status is not the only factor to weigh on the decision to have children, and in some cases education has resulted in larger families (Cochrane, 1979: 140).

The conditions responsible for the patterns of contraceptive use in Kazipur and Chilmari are many and varied. The unequal level of living experienced by the non-displaced (economically advantage) and the displaced (economically more disadvantaged) exposes the rich to more opportunity. That is to say, the non-displaced have greater access to government programmes, officials, and education, which is reflected in their higher rate of contraceptive knowledge and practice in the areas under investigation. This suggests, as did Simmons (1979) and Kulkarni (1984), that in order for population control initiatives to become successful, they must be seen as an integral component of universal development. Secondly, if demographic reduction is to become a reality the benefits of development, be they economic or other, have to reach all quarters of society, since all socio-economic groups contribute to the over-population quandary. Rich (1973) and Sinha (1974) provided evidence from several Asian countries, including Hong Kong, Singapore, South Korea, Taiwan, and Sri Lanka, that supported the thesis that the diffusion of the benefits of an increase in GNP throughout the whole of society is fundamental in reducing fertility. As we have seen, the complexities surrounding a decrease in fertility through the widespread acceptance of modern birth control techniques are plentiful. The focus of the literature has often been on per capita income, GNP, and marginalization, (see Repperto

1979) which are all valid arguments. However, testing of the REIS data tends to support the works of Simon (1976) and Cassen (1979) who agree that more emphasis must be placed on the allocation of educational amenities.

With the aid of the four research hypotheses, we can conclude that if fertility is to be dramatically reduced in the Third World, birth control must become universally accepted. Government policies should reflect this observation by promoting education (particularly for women) in concert with economic schemes, as the truly indigenous tool for development. Initially, primary education could result in slight increases in fertility, as hygiene and birth delivery techniques reduce infant mortality; however with an increase in the mean number of years of schooling fertility trends commence their decline.

Chapter V

Summary and Discussion

In most of the world there is a high correlation between the level of education and the extent of political development. This indicates that if a country is to develop, it must dedicate a significant portion of its resources to education.

(Lemco, 1988: 13)

The prime objective of this thesis was to determine which variables had the greatest impact on contraceptive knowledge and use in rural Bangladesh. The positive relationship between the increased use of birth control and a decrease in population growth rates is widely accepted. However, the underlying theme throughout the investigation has been to understand better the agents which influence social action in the hope that this knowledge can be used in influencing the further spread of contraceptive practice and thereby lessening the burden of over population and poverty in Bangladesh.

5.1 Major Findings

The testing and analysis of the research hypotheses in Chapter IV provide an insight into the prevailing agents responsible for the knowledge and practice of birth control. The uniqueness of the REIS data allowed for the investigation of two distinct spatial units (Chilmari and Kazipur) and socio-economic groups (displaced and non-displaced riverbank inhabitants) within rural Bangladesh.

There are several differences between the two groups which must be considered when evaluating contraceptive behaviour and its theoretical impact on fertility rates in rural

Bangladesh. The displacees, who comprise 60 percent of the survey, are forced to live in extreme poverty and have developed a distinct sub-culture within Bangladesh society. Many displacees are headed by women; they are discouraged from entering the work force and have little hope of gaining an education. Furthermore, infant mortality rates are higher among displacees because of poor nutrition and limited access to medical facilities and post-natal care. In contrast, wealthier peasants have better access to health care centres, more adequate food supplies, and more household heads are polygamous. Therefore, they tended to have larger families, yet the TFR for this group could actually be lower than that of the displacees. Unfortunately, the REIS data did not enumerate TFRs, rather, actual family size at the time of the survey was recorded.

Hypothesis I, which stated "contraceptive awareness is related to economic status," was rejected in all four instances. Given the poor economic climate within Bangladesh and the high rate of contraceptive awareness in Chilmari and Kazipur, other factors must play a role in disseminating birth control information. The promotion of contraception through the mass media, the educational system, and village clinics, which reach a large portion of the population regardless of economic status, are some of the methods employed. Thus, it can be concluded that economic position does not significantly impact the level of contraceptive knowledge.

Hypothesis II, "contraceptive use is related to economic status," had a similar outcome and was rejected as a plausible explanation for contraceptive practice. In Bangladesh it was found that those who had large families, be it for economic, social, or religious reasons, were less likely to use contraception on a regular basis. Using landholding as the prime indicator of wealth, it was discovered that in Chilmari and Kazipur contraceptive practice declined with an increase in landholding. Further investigation has shown that once the poor make significant economic gains in Bangladesh, they alter their fertility behaviour and

also begin to have larger families. Thus the strength of traditional values and norms in rural Bangladesh are reaffirmed by the Chilmari and Kazipur investigation. Simply improving economic conditions will not bring about the change in attitude needed to reduce fertility. If anything a slight rise in prosperity, unaccompanied by social change, could lead to increases in population.

Hypothesis III, "contraceptive awareness is positively associated with educational level," also did not have a statistically positive relationship. The basis for the rejection of this hypothesis is akin to those in the analysis of Hypothesis I and II. Furthermore, government family planning propaganda is aimed at the entire population, regardless of economic or educational rank. Contraceptive knowledge can readily be passed on from one person to another in an informal manner. However, a descriptive analysis did reveal a slight rise in the rate of contraceptive awareness based on education between displacees and non-displacees.

Hypothesis IV, "contraceptive use is positively associated with educational level," was confirmed in both Chilmari and Kazipur. Between displacees and non-displacees in Kazipur and displacees in Chilmari there was a positive association, while the non-displacees in Chilmari were approaching significant statistical values. As education is a symbol of economic status in underdeveloped countries, and Hypothesis II (economic impact on knowledge) was rejected, a negative correlation would have been expected for Hypothesis IV. However, education often makes it possible for new perspectives and opportunities to be realized, resulting in a changed pattern of behaviour. A higher education in rural Bangladesh allows the individual the chance to gain employment in the non-agricultural sector, move to an urban center, and become financially less dependent on the extended family for support. These factors are all part of the modernization process

which must occur if consequential changes in fertility behaviour are ever to be realized in Bangladesh

The statistical examination of the REIS data supported the view that since the middle 1970s the relationship between economic development and population change is negative. It was observed that education plays a more significant role in increasing the prevalence of contraceptive usage in the rural *Upazilas* of Chilmari and Kazipur. One implication of the negative finding is that during the past fifteen years it has become more difficult for countries to offset the unfavorable consequence of rapid population increases with an increase in per capita income. Therefore, institutional reforms at all levels of society are needed to augment the positive benefit which improved economic performance had in the past.

The challenges facing Bangladesh have been documented in this thesis. The problems of over-population and underdevelopment are acute in many respects, moreover, they will require creative and progressive thinking if there is ever to be sustainable development, personal security, and social equalitarianism within this impoverished country. Emphasis placed on comprehensive and coordinated political, social, and economic policies, is critical in Bangladesh's struggle to provide a better standard of living for its people.

The limitations of many Third World countries to escape their impoverished existence is contingent on a variety of factors. During the 1950s and 1960s theoreticians provided many views on how to alleviate the problem of underdevelopment. They were often generic in prescription and did not attempt to provide an indigenous alternative. Projects were judged on their ability to raise the per capita income or increase export earnings. Sustainable development that incorporated traditional values and norms as a component of

modernization were often suppressed in favour of capital gains. However, not all social action is driven by economic rationality.

It should not be surprising that contraceptive prevalence has not been widely accepted in Bangladesh. Until recently natural forces such as infant mortality, famine, disease, and shorter life span kept population increases at near replacement levels. Largely through technological advancements many, of these 'equalizers' no longer play a significant role in controlling population increases. Thus, consequential changes in fertility behaviour lag behind the new realities of family planning.

The high degree of awareness of modern birth control techniques and the low rates of practice reflect this view. The vast majority of people have been exposed to the family planning propaganda within Bangladesh; however, if knowledge is not translated into individual action, the efforts of the government will have been in vain. Unfortunately, the struggle to fight poverty remains the impetus for having a large family.

Societies are an energetic and living entities, and to a lesser or greater degree, are constantly reevaluating and changing in their construct. Fertility behaviour is one of the more delicate aspects of this change. Through the findings presented here the knowledge of the relationship between education and the use of birth control should foster new policy initiatives aimed at creating a new pattern of fertility behaviour within Bangladesh. Therefore if population growth in Bangladesh is to be reduced perhaps more emphasis could be placed on the importance of mass education in concert with economic reform. This would create a more skilled and productive society as a whole, one that would also be more tolerant and discerning in critical matters such as religion and the position of women.

5.2 Policy Implications

Based on the findings of this investigation, policy formulation should concentrate on the following specific areas of immediate concern.

i) Education

A substantial decrease in illiteracy rates must become a prime objective if sustainable development is to become a reality. The need for a work force capable of utilizing modern advancements in technology is crucial in the fight against poverty. A campaign of mass education open to all strata of society and guaranteed by the national government is needed. The statistically positive relationship between contraceptive practice and educational status provides further reason to pursue this goal. The benefits of mass education would be far reaching and most importantly would combine an economic motive (efficient work force) with a transition in social behaviour (reduction in desired family size).

ii) Women in Development

Women must become active and recognized participants in the daily socio-economic processes of Bangladesh society. The strong association between female education, family size, contraceptive practice, and a reduction in fertility are well established. If women continue to have high illiteracy rates and a representation of only 0.3 percent in the professional job market, fertility rates will continue to remain high. Economically, socially, politically, and religiously, women are the least secure in Bangladesh society. Some of the measures which must be taken to alter this unequal treatment of women include: access to education at all levels (primary, university, vocational), equal opportunity to earn an income outside of the homestead, and access to loans to establish

small businesses. If they are given the liberty to develop and prosper, a transition in attitude and conduct within Bangladesh could result, and a new set of social values and norms could emerge.

iii) Poverty

A dichotomy of poverty currently exists in Bangladesh. If conditions are to improve within the country drastic economic and social reforms must occur at the macro and micro level. However, initially the forces of change, between the welfare of the state and the welfare of the individual, would conflict. At the national level the modernizing of the economy would cause great unemployment among the underemployed non-skilled workers. Since the most common form of 'social security' in a traditional society such as Bangladesh is a large extended family, a rationalization of the economy could raise the population growth rate. If the population continues to increase and the natural resources are depleted at their current levels the very poor and landless will lose access to the land and be forced to migrate to the larger urban areas in the hope of earning some form of income. The ability of the urban areas to provide opportunity for these unskilled and uneducated migrants is limited by the underdeveloped nature of the national economy as a whole.

The goals of the Bangladesh Government and the individual must be unified in a common struggle. There has to be an intermediate level of cooperation and action if the vicious circle of over-population, environmental degradation, and poverty is to be replaced by social security. The combination of economic and social planning is essential in this quest. The 'organization' or 'networking' of the poor into productive collectives is one policy that could initiate a societal change. The Grameen Bank project is an example of this methodology. The Bank's mandate is provided investment capital in the rural areas of Bangladesh. Two of the main criteria for receiving a loan is that the collective is landless

and female. The project has been highly successful and informal surveys have indicated that contraceptive use has surpassed national rates. This system gives the poor and landless access to government programmes and information, a route to the wealth of the country, and more importantly, self-esteem.

The findings presented here, although tested only at the binomial level, have interesting implications. It can be generalized that through the development of social programmes, of which education is a part, norms and traditions can be slowly altered from within Bangladesh society. Indigenous change, which is imperative to the success in any programme to reduce fertility, must be inherent in any successful plan. If the current spatial and temporal conditions persist the opportunity for accommodating change for a large portion of society will vanish; there must be a marriage between patience and urgency.

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A P P E N D I X E S

APPENDIX A***Questionnaire*****Section A: Demographic Characteristics**

P01 What is your name? (This person should be the head of household)

- v1. What is your relationship to the head of household? (Use code A)
- v2. How old are you?
- v3. State whether male or female
- v4. What is your marital status? (Use code B)
- v5. What is your highest level of schooling? (Use code C)

Section B: Socio-Economic Characteristics

- v149. Amount of land owned and used (dec.)
- v393. Number of structures in Homestead
- v397. Ownership of Iron (Pucca) Roof (Code yes/no)
- v399. Ownership of Tube Well (Code yes/no)

Section B8: Health and Fertility

- v413. Optimal number of children
- v414. Optimal number of sons
- v415. Can avoid pregnancy (Code yes/no)
- v416. Know about: (Code yes/no)
- v417. condom
- v418. pill
- v419. inject.
- v420. foam
- v421. vasectomy
- v422. ligation
- v.423. other (Code birth control)
- v424. Use birth control: (Code yes/no)
- v425. condom
- v426. pill
- v427. inject.
- v428. foam
- v429. vasectomy
- v430. ligation
- v.431. other (Code birth control)
- v433. Land Shortage= too many people (Code yes/no)
- v434. 434.Poverty= too many people (Code yes/no)

Section C: Hazard Perception

- v591. Forced to move homestead: lost to erosion (Code yes/no)

APPENDIX B*Demographic Profile*

POPULATION PROFILE OF STUDY AREAS					
<i>Upazila</i>	Males	%	Females	%	Total
Chilmari:					
Displaced	272	62.70	10	52.60	282
Non-Displaced	162	37.30	9	47.40	173
Sub-Total:	434	95.80	19	4.20	453
Kazipur:					
Displaced	249	57.40	32	80.00	281
Non-Displaced	185	42.60	8	20.00	193
Sub-Total:	434	91.70	40	8.30	474
TOTAL	868	94.00	59	6.00	927

Source: REIS, 1985

APPENDIX C

COMPARISON OF LANDHOLDING STATUS BETWEEN DISPLACED AND NON-DISPLACED									
	<u>Chilmari</u>				<u>Kazipur</u>				
	Displaced		Non Dispalced		Displaced		Non Dispalced		
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	
Landless	163	58.15	84	49.13	123	43.77	40	20.72	
Small (.01-3.00)	71	25.18	71	41.52	140	49.82	143	74.10	
Middle (3.01-7.00)	26	9.22	12	7.01	13	4.62	10	5.18	
Large (7.01+)	21	7.45	4	2.34	5	1.79	0	0.00	
Total	281	100.00	171	100.00	281	100.00	193	100.00	

χ^2 =Chilmari: 16.44 with 3 d.f.: Significant at 0.01 level

χ^2 =Kazipur: 32.47 with 3 d.f.: Significant at 0.01 level

Source: REIS Survey, 1985

APPENDIX D

KAZIPUR: KNOWLEDGE OF CONTRACEPTION BY SELECTED ECONOMIC VARIABLES						
<i>Economic Variable</i>	Displaced			Non Displaced		
	χ^2	d.f.	Significance Level	χ^2	d.f.	Significance Level
Structures per Dwelling	2.70	6	Insignificant	3.03	4	Insignificant
Ownership of Tube Well	1.77	3	Insignificant	3.20	2	Insignificant
Ownership of Iron Roof	3.95	3	Insignificant	3.96	4	Insignificant
Landholding	7.92	12	Insignificant	5.24	10	Insignificant

Source: REIS Survey, 1985

CHILMARI: KNOWLEDGE OF CONTRACEPTION BY SELECTED ECONOMIC VARIABLES						
<i>Economic Variable</i>	Displaced			Non Displaced		
	χ^2	d.f.	Significance Level	χ^2	d.f.	Significance Level
Structures per Dwelling	0.65	4	Insignificant	1.39	2	Insignificant
Ownership of Tube Well	4.04	2	Insignificant	2.75	1	Insignificant
Ownership of Iron Roof	2.49	2	Insignificant	1.91	1	Insignificant
Landholding	12.64	9	Insignificant	4.61	6	Insignificant

Source: REIS Survey, 1985

KAZIPUR: KNOWLEDGE OF CONTRACEPTION AS A FUNCTION OF LANDHOLDING																	
<i>Ownership in Acres</i>	<u>Displaced</u>									<u>Non Displaced</u>							
	Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)			Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)	
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>		<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
<i>Know</i>																	
Yes	99	80.48	123	87.85	12	92.30	3	60.00		35	87.50	128	89.51	9	90.00	----	----
No	24	19.52	17	12.15	1	7.70	2	40.00		5	12.50	15	10.49	1	10.00	----	----
Total	123	100.00	140	100.00	13	100.00	5	100.00		40	100.00	143	100.00	10	100.00	----	----

$\chi^2 =$ Displaced: 7.929 with 12 d.f.: Insignificant

$\chi^2 =$ Non-Displaced: 5.240 with 10 d.f.: Insignificant

Source: REIS Survey, 1985

CHILMARI: KNOWLEDGE OF CONTRACEPTION AS A FUNCTION OF LANDHOLDING																
<i>Ownership in Acres</i>	<u>Displaced</u>								<u>Non Displaced</u>							
	Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)		Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)	
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
<i>Know</i>																
Yes	148	90.24	65	91.54	25	96.10	21	100.00	81	96.42	66	92.95	11	91.66	3	75.00
No	16	9.76	6	8.46	1	3.90	0	0.00	3	3.58	5	7.75	1	8.34	1	25.00
Total	164	100.00	71	100.00	26	100.00	21	100.00	84	100.00	71	100.00	12	100.00	3	100.00

$\chi^2 =$ Displaced: 12.643 with 9 d.f.: Insignificant

$\chi^2 =$ Non-Displaced: 4.618 with 6 d.f.: Insignificant

Source: REIS Survey, 1985

APPENDIX E

KAZIPUR: USE OF CONTRACEPTION BY SELECTED ECONOMIC VARIABLES						
<i>Economic Variable</i>	Displaced			Non Displaced		
	χ^2	d.f.	Significance Level	χ^2	d.f.	Significance Level
Structures per Dwelling	3.47	2	Insignificant	1.39	2	Insignificant
Ownership of Tube Well	1.77	3	Insignificant	0.64	2	Insignificant
Ownership of Iron Roof	3.95	3	Insignificant	0.01	1	Insignificant
Landholding	8.42	6	Insignificant	0.59	4	Insignificant

Source: REIS Survey, 1985

CHILMARI: USE OF CONTRACEPTION BY SELECTED ECONOMIC VARIABLES						
<i>Economic Variable</i>	Displaced			Non Displaced		
	χ^2	d.f.	Significance Level	χ^2	d.f.	Significance Level
Structures per Dwelling	3.56	2	Insignificant	1.78	2	Insignificant
Ownership of Tube Well	0.35	1	Insignificant	3.18	1	Insignificant
Ownership of Iron Roof	0.32	1	Insignificant	6.58	1	Significant at 0.05
Landholding	6.99	6	Insignificant	1.76	6	Insignificant

Source: REIS Survey, 1985

KAZIPUR: USE OF CONTRACEPTION AS A FUNCTION OF LANDHOLDING																
Ownership in Acres	<u>Displaced</u>								<u>Non Displaced</u>							
	Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)		Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<i>Use</i>																
Yes	25	20.33	32	25.40	2	16.67	----	----	8	20.00	24	18.60	2	22.22	----	----
No	98	79.76	94	74.60	10	83.33	3	100.00	32	80.00	105	81.40	7	77.78	----	----
Total	133	100.00	126	100.00	12	100.00	3	100.00	40	100.00	129	100.00	9	100.00	----	----

$\chi^2 =$ Displaced: 8.420 with 6 d.f.: Insignificant

$\chi^2 =$ Non-Displaced: 0.599 with 4 d.f.: Insignificant

Source: REIS Survey, 1985

CHILMARI: USE OF CONTRACEPTION AS A FUNCTION OF LANDHOLDING

<i>Ownership in Acres</i>	<u>Displaced</u>								<u>Non Displaced</u>							
	Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)		Landless		Small (.01-3.0)		Middle (3.01-7.0)		Large (7.01+)	
	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>	<i>Freq.</i>	<i>%</i>
<i>Use</i>																
Yes	18	10.98	12	17.65	1	3.85	1	4.76	17	20.24	16	22.86	2	16.67	1	25.00
No	156	89.02	56	82.35	25	96.15	20	95.24	67	79.76	54	77.14	10	83.33	3	75.00
Total	164	100.00	68	100.00	26	100.00	21	100.00	84	100.00	70	100.00	12	100.00	4	100.00

$\chi^2 =$ Displaced: 6.995 with 6 d.f.: Insignificant

$\chi^2 =$ Non-Displaced: 1.761 with 6 d.f.: Insignificant

Source: REIS Survey, 1985