

Ahead of Target: Achievement of Replacement Level Fertility in Sri Lanka before the Year 2000

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Sri Lanka will have a rapidly ageing population, and this change will require substantial shifts in policies to cater for changing needs

Sri Lanka, like several other developing countries in the Asian and Pacific region, has entered the third stage of demographic transition, the phase of declining fertility, as has been evident since the early 1960s. The first stage of high birth rates, around 40 per thousand population, and high death rates of 20 per thousand population ended in the mid-1940s when mortality started to fall dramatically (Caldwell, 1986). During the second stage of transition, i.e. declining mortality, the crude death rate dropped at an unprecedented annual average rate of about 1.5 per thousand, reaching the level of 12 deaths per thousand population in 1950.

Compared with other South Asian countries, Sri Lanka has had the highest rate of fertility decline, followed by India and Bangladesh; over the period 1960-1965 to 1985-1990, Sri Lanka's total fertility rate (TFR) declined by almost 50 per cent (table 1). Afghanistan and Pakistan have shown no significant decline in their TFRs. Nepal had even shown a slight increase in the TFR over the same period, although Tuladhar (1989) found reason to believe that some degree of fertility decline had begun in 1986. However, fertility in three newly industrialized economies (NIEs), Hong Kong, Republic of Korea and Singapore, exhibits a much higher percentage decline than Sri Lanka's: for example, Hong Kong's TFR came down by 75 per cent in the period between 1960-1965 and 1985-1990. The United Nations medium variant population projections prepared in 1990 have assumed that Sri Lanka will achieve replacement fertility by the year 2000-2005 (United Nations, 1993).

Sri Lanka has recently experienced transitions in major demographic phenomena and it is now at the very important stage of the fertility transition where it seems to be heading even below replacement-level fertility. Replacement-level fertility implies a total fertility rate usually between 2.1 and 2.2 children per woman, depending on a country's level of mortality. Since the infant mortality rate of Sri Lanka is at a very low level (only 19 per thousand live births in 1990), its replacement fertility is defined as an average of 2.1 children per woman. If Sri Lanka achieves replacement fertility, it will be the first country in the South Asian subregion to record such a low level of fertility. Sri Lanka seems to be clearly ahead of target; it was targeted to achieve replacement fertility by the year 2000, but by 1993 it seems that it had already hit that target.¹

As with the Sri Lankan population policy, India's population policy was implemented in order to achieve replacement fertility by the target year 2001; however, the target has been revised and the time in which India should have replacement fertility is not until the period 2011-2016 (ESCAP, 1993; Rajan and others, 1993). Bangladesh also set a replacement-level fertility target for the year 2005; however, from the figures in table 1 the achievement of such a target seems to be rather remote. Nearly all the countries in East and South-East Asia have adopted population policies to attain replacement-level fertility, through the promotion of universal contraceptive practice and the achievement of low mortality levels. In fact, unlike almost all the South Asian countries, many of the South-East Asian and East Asian countries either have reached their goals or are close to doing so (Debavalya, 1993; Alam and Tan 1993).

Therefore, taking up South Asia's fertility transition, this article, firstly, touches briefly upon fertility control policies, programmes and targets in Sri Lanka. Secondly, it addresses the unexpected emergence of fertility decline, especially its timing, magnitude and the major factors underlying the reproductive revolution in Sri Lanka.

Data

The study analyses data primarily from the 1987 and 1993 Sri Lanka Demographic and Health Surveys. The samples in both surveys are multi-stage stratified probability samples representative of the whole country, excluding the North and East provinces. According to the 1981 population census, the two provinces excluded in both the survey owing to civil disorder there, contained only 14 per cent of the total population of Sri Lanka.

A total of 6,170 eligible respondents were identified in the 1987 Sri Lanka Demographic and Health Survey (SLDHS) and interviews were completed among 5,865 ever-married women aged 15-49 years with a response rate of 95.1 per cent. In the 1993 Sri Lanka Demographic and Health Survey, 7,078 eligible respondents were identified and interviews were completed with 6,983 ever-married women aged 15-49 years, with a further enhanced response rate of 98.7 per cent. These constitute the respondents for the present study.

Both the 1987 and 1993 SLDHS surveys involved the use of two basic questionnaires: one on households which recorded information on all household members, and one questionnaire on individuals which recorded detailed information on eligible women, who were identified from the household questionnaires. The questionnaire on individuals collected

information on each respondent's background characteristics, reproductive history, knowledge and practice of family planning, breast-feeding practices, marriage, fertility preferences, and health and anthropometric information on children. The details of the surveys are available elsewhere (Department of Census and Statistics, 1988 and 1994).

Population change and natural increase

The total population enumerated in Sri Lanka at the first census in 1871 was only 2.4 million; at the last census of population (1981) it was 14.8 million and in 1993 it was estimated to be 17.6 million. This represents more than a seven-fold increase since 1871. The overall trend in population growth during the period 1871 to 1946 has been one of fairly low growth ranging from 0.9 to 1.7 per cent per annum, followed by rapid escalation to 2.8 per cent per annum in the immediate post-Second World War years 1946-1953. Thereafter the growth of the Sri Lankan population has declined steadily and by 1992 the country had one of Asia's lowest population growth rates, i.e. 1.0 per cent.² The two main factors responsible for the decline in the rate of growth of population are fertility decline and increased emigration, especially to the Middle East and to developed countries.

The rapid increase in the annual rate of population growth in the post-war years in Sri Lanka was the result of a sharp decline in the death rate, while the birth rate remained at around 35-40 live births per thousand population (figure 1). Since 1947 the death rate has declined gradually to a very low level of about 5 per thousand population with an expectation of life at birth of 70 years for males and 74 years for females in 1991. A gradual decline in the birth rate began in 1960 and has had the effect of reducing the annual rate of growth. The birth rate which stood at 37 per thousand population in 1960 had declined to 20 by 1992.

Fertility control policies and targets

The size of the population causes Sri Lanka to be classified as a medium-sized country, not a small one, although in land area it is indeed a very small country (Ministry of Health, 1993). Thus, Sri Lanka is one of the most densely populated countries in Asia: in 1881, density was only 42 persons per square kilometre (sq. km), but by 1992 a more than six-fold increase was reported and it reached 271 persons per sq. km. Continuing growth of the population and pressures on land have been of increasing concern to the Sri Lankan Government, because population growth has been far more rapid than could be sustained by the economy.

For the first time in Sri Lanka, the Ten-Year Plan of 1959-1968 expressed grave concern about the rapidly increasing population³ (National Planning Council, 1959). Even though the history of fertility control policies in Sri Lanka dates back to the 1950s, these concerns were not followed by any policy measures. Only in 1965 did the Sri Lankan Government, by a Cabinet decision, accept family planning as a national policy; it became active in 1968 when the Family Health Bureau was established within the Ministry of Health (Dangalle, 1989).

Between 1968 and 1977, under the umbrella of this organization, there was a gradual expansion of family planning activities and these services were integrated with the already well-developed maternal and child health services which were provided throughout the country. In fact, the Five-Year Plan (1972-1976) presented in 1971 recognized that "a high birth rate in the context of low standards of living and malnutrition can lead to a general deterioration in the health of the population and to an increase in the incidence of disease and to a rise in infant mortality. It is essential therefore that facilities for family planning should be made available to all groups in the population and not confined to the privileged sections of society" (Ministry of Planning and Employment, 1971).

After a new Government came to power in 1977, it relied heavily on population information, education and communication (IEC) programmes and implemented such activities with a view to developing a favourable social climate for the acceptance of family planning. At the same time more and more resources were devoted to contraceptive service delivery, particularly voluntary sterilization, by introducing incentives for service providers as well as acceptors of sterilization. After 1979, there was a considerable increase in the number of sterilizations among married couples. Some argue that the most plausible explanation for this rapid increase was the introduction of a cash incentive of 100 rupees (US\$ 6.25) in 1980 with subsequent increase in the payment to acceptors (Williams, 1982; Thapa and others, 1987; Basnayake, 1988).

As the Government of Sri Lanka noted in many instances, the need to curb the still growing population was obvious, and population control was seen as critical in balancing the available resources with the demands of an increasing population. Therefore, the Government for the first time set a more quantitative target of achieving replacement-level fertility (a TFR of 2.1) to be achieved by the year 2000 in its population policy statement issued in 1991 (Ministry of Health, 1992:23).

What emerges from the policy statement is that, in order to achieve zero population growth (stable population: equal birth rates and death rates) under conditions of low mortality, Sri Lanka needs to bring down fertility to the replacement level, which means an average of about two children per family. As population projections indicate, if the country is able to achieve a two-child family average by the year 2000, then about half a century later, around the year 2050, the population will stop growing and by that time the population will be about 25 million (Ministry of Health, 1993). However, more recent survey data clearly indicate that the assumption of the future fertility decline made in almost all population projections of Sri Lanka is underestimated and thus the future size of the population and the year in which it would have zero population growth have been overestimated.

High to replacement-level fertility

Levels and trends of fertility in Sri Lanka can be estimated from population censuses, the registration system⁴ and more recently from survey data. The TFR for selected years from 1953 to 1988-1993 are shown in table 2. They decreased from 5.32 in 1953 to 3.45 in 1981, i.e. almost two live births per woman. They dropped further from 2.82 in 1982-1987 to 2.26 in 1988-1993. In other words, Sri Lanka's fertility dropped about 20 per cent within the period between 1982-1987 and 1988-1993 (table 3). The study of the age pattern of fertility is important because it indicates the tempo of childbearing; the age at which women begin to reproduce, the age at which they cease childbearing, and any change in the pattern of childbearing over time. As shown in figure 2 and table 3, the age-specific fertility rates rise with increasing age; they peak in the age group 25-29 years. Over many decades, there has been no change in this pattern. Between 1953 and 1975, large fertility reductions were common at all ages, except for the age group 40-44; however, between 1975 and 1987, the reductions were dominant in the older reproductive age groups. Between 1987 and 1993, not only did the older women experience a remarkable decline in fertility in this very short period but the younger ones did also; among women in the 20-24 and 25-29 age groups declines in fertility were 26 per cent and 17 per cent, respectively, during the period between 1982-1987 and 1988-1993 (table 3). The change in age-specific fertility clearly indicates that women in Sri Lanka are inclined to limit the number of children at a relatively early age (De Silva, 1991). Unlike what happened in Costa Rica (Gendell, 1989), in Sri Lanka there has been no stall in the fertility decline, and it seems that the decline is taking place among all socio-economic strata of the country.

Has Sri Lanka reached replacement-level fertility? To answer this question, data primarily from the two Demographic and Health Surveys (DHS) in 1987 and 1993, and the 1980-1982 census and registration-based fertility are used. As shown in table 3, even though the estimates of TFR produced by averaging the reported births of the five years before the survey to the survey date are only 2.82 and 2.26 for the period 1982-1987 and 1988-1993, respectively, within these five-year periods, the magnitude of the decline cannot be ignored (table 3). Comparing the TFR of 3.38 in 1980-1982 (averaging reported births during 1980-1982) with the TFR of 2.82 in 1982-1987 indicates that there was a clear decline in TFR between the last population census in 1981 and the 1987 SLFHS.

To facilitate the argument on fertility decline, the TFR of the period 1985-1987 from the 1987 SLDHS survey, measured by averaging the reported births of the three years before the survey, has been compared with the five-year average of the same survey. Since the five-year (1982-1987) average and the three-year (1985-1987) average estimates of TFR are 2.82 and 2.62, respectively, these figures show a reduction of at least 0.2 in live births per woman over this period (table 3).

When this 0.2 live birth margin is applied to the TFR value of 1988-1993 of the SLDHS survey⁵, assuming the same pattern of fertility decline in the 1987 SLDHS survey, then a TFR of 2.06 can be obtained for the period 1991-1993 (figure 3). The TFR estimate of 1991-1993 is lower than the replacement level, i.e. 2.1 TFR. Even if a lower reduction margin than 0.2, say 0.1, is applied to the TFR of 1988-1993, by 1992 or 1993 Sri Lanka had already achieved replacement-level fertility.

Another approach is used in figure 3 in order to determine the current level of TFR in Sri Lanka; it also indicates no significant difference from the previous finding: current fertility is at the replacement level or even moving below it. In this particular approach, the observed trend in TFRs of the period 1982-1987 and 1988-1993 is projected to reach the replacement level during the year 1992. In this procedure, the observed trend in TFR is extended for just 1.5 years only, thus minimizing the possible error that could be introduced in linear extrapolation.

In comparing the fertility declines of a newly industrialized economy (NIE) with those of Sri Lanka, the similarities are clear (figure 3). Both Sri Lanka and the Republic of Korea show the same pattern of fertility decline, but Sri Lanka's fertility levels have always remained higher than those of the Republic of Korea; the Korean TFR dropped from 2.7 in 1980 to replacement level in 1985, i.e. within a period of just five years (KIHASA, 1992), whereas in Sri Lanka it took about six years for TFR to drop from 2.7 in 1986 to the replacement level in 1992 (see the five-year averages of TFRs in figure 3). The Republic of Korea has reduced fertility to below the replacement level and has maintained a TFR of 1.6 for the last decade. However, at this juncture, it is not possible to predict how Sri Lanka's policies and programmes will react when the TFR falls below the replacement level as experienced in the Republic of Korea.

Observed and wanted TFR

How has the observed fertility of the Sri Lankan woman differed with regard to her wanted fertility? In their analysis of the 1987 SLDHS data of Sri Lanka, Westoff and others (1989) showed that comparison of the desired TFR of 2.3 per woman with the observed TFR of 2.8 per woman shows that TFR would be near the replacement level if only wanted births occurred (table 4). Interestingly, by 1988-1993 Sri Lankan TFR had come down to the level of 2.3 per woman, indicating greater success in fertility control (the incidence of unwanted births is expected to be insignificant). As shown in table 4, if urban Sri Lankan women were able to have only the births they wanted, then their fertility would be even below replacement level (1.9 live births per woman) compared with their observed TFR of 2.2. The lowest proportion of unwanted births is found in the estate sector, where the norm of fertility control has not yet become common as in other parts of the country; the highest proportion of unwanted births (17 per cent) in the period 1982-1987 is in the rural sector, which accounts for almost three-fourths of Sri Lanka's population.

During the early stage of the fertility transition, unwanted births can be expected to increase (Srinivasan and others, 1984). Ultimately, as is now evident in Europe and the United States of America, fertility control has become virtually universal,

and unwanted births have declined to a small fraction, the level of which depends on the efficacy of contraceptive practice and the extent of induced abortion (Westoff and others, 1989). How has contraceptive practice among Sri Lankan women changed along with the rapid decline in fertility? Has there been a shift towards induced abortions in order to avoid unwanted births?

Contraception and induced abortion

Current use of contraception

Many researchers have indicated that up to 1970 marriage postponement in Sri Lanka was responsible for about 60 per cent of the fertility decline, but after 1970 the main contributing factor in the fertility decline was the control of fertility within marriage: marital fertility decline (Trussell, 1980; McCarthy, 1982). In fact, there was evidence that the decline in marital fertility in Sri Lanka had already started before the national family planning programme could have had much impact (Alam and Cleland, 1981; Langford, 1982). After the inauguration of the national family planning programme, the Government adopted a "cafeteria" approach whereby clients could select the contraceptive method of their choice from a wide range made available to them through the national programme (Dangalle, 1989). In addition to the public sector, a number of non-governmental organizations (NGOs) provide family planning services.⁶

The level of contraceptive use among Sri Lankan women increased rapidly in the period following 1970. There was increasing awareness of contraception not only for the purpose of ceasing childbearing but also for the spacing of births. The level of contraceptive use increased from 32 per cent in 1975 to 62 per cent in 1987 and further to 66 per cent in 1993 (table 5). The acceptance of modern contraception in Sri Lanka is a relatively recent development. In the 1975 Sri Lanka Fertility Survey among the current users of contraception, 59 per cent were relying on modern methods; in both the 1987 SLDHS and the 1993 SLDHS, the corresponding estimates were 66 per cent only. This clearly implies that a large proportion of users in Sri Lanka are still relying on traditional methods. At present among the current users just over one-third rely on traditional methods.

Although the prevalence of contraception increased in Sri Lanka, there was no comparable reduction in fertility over the same period; Gajanayake and Caldwell (1989) believe that substantial underreporting of contraceptive use in the 1975 SLWFS and better reporting in subsequent surveys are largely responsible for the apparent discord in data on fertility and contraception. Comparing the prevalence of modern and traditional contraception in the 1975 and 1982 surveys, it is possible to argue that it is the traditional methods, rather than the modern methods, which have been underreported (table 5). Among the currently married women aged 15-49 years in the 1982 survey, traditional method users constituted over 24 per cent (the highest level in all the four national surveys) and in the subsequent surveys almost the same level was retained. Since traditional methods are considered to be less effective, better access to modern contraceptives would be expected to result in reduced reliance on traditional methods. Unlike in Sri Lanka, in most other countries, historically, as the overall prevalence of contraceptive use has grown, it has done so through modern methods, which have outpaced or replaced growth in use of traditional methods (Ross and Frankenberg, 1993).

Projected level of current use

As reported by De Silva (1990) and the Ministry of Health (1992), contraceptive prevalence in Sri Lanka would have to rise to 71 per cent by the year 2001 if replacement-level fertility were to be achieved. However, Sri Lanka already achieved the replacement target in 1993 with a prevalence rate of only 66 per cent (table 5). Even though the fertility target has already been achieved, neither the level of contraceptive prevalence nor the method mix in 1993 match the expected pattern for the year 2001; the practice of modern contraception among currently married women is expected to increase to 53 per cent by the year 2001, but in fact when the replacement target was achieved in 1993 only 44 per cent of currently married women were relying on modern methods, while the use of traditional methods of contraception in 1993 was higher than the expected use level at the time of achieving the replacement target (table 5).

The proportions of currently married women relying on male and female sterilization are expected to increase to 7 per cent and 30 per cent, respectively, by the year 2001, from the low values of 4 per cent and 17 per cent in 1981. In fact, from the 1975 SLWFS (the first survey with national coverage), the numbers of women relying on male and female sterilization have increased fairly consistently in all the subsequent surveys (as expected in the contraceptive level and method mix projections), but in the years 1987 and 1993, the opposite occurred: male and female sterilization showed a setback during the 1987 and 1993 surveys (table 6).

The fundamental question which arises is: how has Sri Lanka attained replacement-level fertility without achieving the corresponding contraceptive prevalence level and also without achieving the corresponding increase in modern methods of contraception, particularly sterilization? The answer will naturally depend on (a) how the expected level of contraceptive prevalence was projected and (b) the level of induced abortion practised in Sri Lanka as a birth prevention method.

The contraceptive prevalence rate required to reach a target TFR, as reported by De Silva (1990), is estimated by using the method of Bongaarts (1984), in which the fertility-inhibiting effect of each of the four principal proximate determinants⁷ is measured by an "index" that can only take values between zero and one. As indicated by De Silva (1990), to estimate future contraceptive needs, firstly, it is required to set the target fertility level to be achieved. Secondly, it is necessary to postulate the future trends in the proximate determinants of fertility other than contraception, namely marriage, post-partum amenorrhoea and abortion.

TFR has been assumed to have declined from 3.4 in 1981 to 2.1 in the year 2001. Except for the total induced abortion rate, the rest of the proximate determinants, namely age pattern of fertility, age pattern of marriage and duration of post-partum amenorrhoea, have all assumed the appropriate direction of change over the period 1981 to 2001. In the absence of any reliable estimate from a national sample survey or other source, and also because abortion is not a legitimate method to adopt for family planning purposes in Sri Lanka, the practice of induced abortion is taken as negligible in the base year of 1981 and also in the target year of 2001. It seems that this particular assumption has led to over-estimating the required future contraceptive prevalence to achieve replacement fertility.

Induced abortion

Naturally, if the practice of induced abortion increases, the contraceptive prevalence rate required to achieve replacement fertility will be lower. That is exactly what is happening in Sri Lanka.⁸ Although induced abortion is technically illegal under the criminal code, throughout Sri Lanka medical practitioners daily perform a large number of abortions in response to a growing demand for such services. They regard abortion as a simple and relatively lucrative medical procedure that ensures them a fairly high level of income. For some doctors, pregnancy terminations are regarded as a necessary medical recourse for those women who have conscientiously used contraceptives but have become victims of contraceptive failure. Abortions are also related to the growing number of young, unmarried women who become pregnant as the result of changes in their sexual practices, particularly among the Free Trade Zone (FTZ) migrant workers, owing to less parental control over them.

In the past, when an unmarried young woman was found to be pregnant she was usually married off as soon as possible to the man who was responsible in order to avoid a social calamity. In contemporary Sri Lanka, since many young females are employed in FTZs or in manufacturing industries located throughout the country, they are increasingly finding it difficult to get married and those who have married find it is quite costly to have more than two children or even to have more than one child. Obviously, many constraints are affecting reproductive norms and behaviour. If many women participate in the labour force, so that smaller families become the norm, even non-working women will tend to have a smaller number of children. Moreover, to keep their fertility low because of economic hardship and reasons of health, mothers who become pregnant again soon after giving birth also are at a high risk of demanding abortion in contemporary Sri Lanka.

No reliable national estimates could be obtained on abortions because of its illegality; however, researchers tend to believe that abortion does exist as a fertility control method in Sri Lanka (Langford, 1982; Caldwell and others, 1987; De Silva, 1991). A survey conducted as long ago as 1984 using in-depth interviewing (Caldwell and others, 1987) showed that most couples in Sri Lanka believed that abortion occurred to a limited extent while perhaps one-fourth felt that it was common. The majority of those against abortion hold their views on the ground that it is dangerous rather than that it is immoral. Caldwell and others (1987:16) assert that:

"The real level of abortion may be higher than is generally stated because curettage is often carried out for what are thought to be other purposes. This is a complex issue in Sri Lanka because the medical profession advocates and carries out curettage more readily, perhaps, than anywhere else in the world and does so even for minor menstrual irregularities."

As reported by Caldwell and others (1987) on their 1984 survey findings, when the respondents were asked if they would discuss whether they had had abortions, just over one-sixth of the couples said they were willing to discuss it. It is interesting that, once the discussion began, just over half of these couples said they had procured abortions. When respondents were asked who performed the induced abortions, 80 per cent said modern doctors, 30 per cent said Ayurvedic or other traditional practitioners, and 5 per cent said knowledgeable village women.

Since more and more western-style medical institutions in Sri Lanka are currently providing induced abortion without objections from the State, it is believed that abortion-related health complications and also abortion-related deaths are becoming less frequent. This safety factor may have also acted as a positive impetus to seek abortion among women who become pregnant unintentionally. Moreover, since in Sri Lanka one-fourth of current contraceptive users are still relying on less effective traditional methods, perhaps a significant majority of them may wish to turn to induced abortions when they become pregnant.

Summary and conclusion

Even though Sri Lankan fertility started to decline before the national family planning programme could have had much impact, until 1970 it was marriage postponement which contributed most to the fertility decline and after 1970 it was fertility control within marriage. Thus, Sri Lanka's fertility transition has followed the typical pattern.

Among the developing countries, Sri Lanka is often cited as an exception in relation to its mortality transition. Perhaps very soon it may also be cited as exceptional in its fertility transition, because it seems to be clearly ahead of its fertility target. Expected to achieve replacement-level fertility by the year 2000, it had already hit the target by 1993 and fertility seems even to be falling below the replacement level. In the Asian context, particularly for a South Asian country, this is a rather rare occurrence. Most countries which were targeted to achieve a specific level of fertility in a particular year were unable to achieve those targets.

In the 1987 SLDHS, the desired TFR is lower than the observed TFR, implying a considerable proportion of unwanted births at that time. However, during the period 1988-1993 TFR came down to 2.3 per woman, equal to the wanted TFR reported in the 1987 SLDHS. When replacement fertility was achieved in 1993, only 66 per cent of currently married women were practising contraception, but the contraceptive requirement projected for achieving the replacement level indicates that the level would have to have been 71 per cent. Thus, a significantly large proportion of women seem to be relying on induced abortion to terminate unwanted pregnancies. Female employment, weakened parental control over adolescents, the difficulty of getting married, economic hardship, the strong desire to have a small family and easy access to western-type abortion clinics, all might have contributed to an increase in abortion. In the Sri Lankan demographic transition, therefore, induced abortion seems to be playing a potential role in fertility decline as in most countries of Asia, irrespective of its legal status.

In the case of low fertility, what will be the future trend of population policy in Sri Lanka? Perhaps when fertility has dropped so far (i.e. below replacement) that eventual population decline will ensue, together with a loss of economic vitality, Sri Lanka will have a rapidly ageing population, and this change will require substantial shifts in policies to cater for changing needs. Perhaps at the current stage, a return of fertility to a higher level is neither feasible nor desirable, and ageing and labour shortages in coming decades will be inevitable. Thus, it would be more useful to plan ahead to prepare more effectively and efficiently for the next century.

Footnotes

1. Demographic target-setting is a fairly recent practice. Targets have proved valuable in the implementation and evaluation of population and health programmes, particularly in the Asian and Pacific region (ESCAP, 1993).

2. Even though none of the other South Asian countries has achieved a population growth rate of 1.0 per cent, Sri Lanka, along with Australia, each with a population of 17.6 million in 1992, has recorded this low population growth rate (ESCAP, 1994). However, Australia achieved replacement-level fertility (TFR of 2.14) almost 20 years before Sri Lanka had approached it (Monnier and de Guibert-Lantoine, 1992).

3. It also expressed the need for a policy to influence the course of the birth rate but which excludes all forms of compulsion, yet would strengthen the factors favouring a decline in birth rates in the interest of both the individual family and society as a whole. The authors of the Plan, however, were reluctant to formulate a policy of their own, but stated that it was desirable that the whole question of population policy in all its aspects be made the subject of nationwide discussion, perhaps through the medium of a competent "committee of enquiry".

4. Registration of births, deaths and marriages in Sri Lanka was introduced in 1867; in 1897, birth and death registration was made compulsory. The registration system then introduced is still functioning, with changes made from time to time. In 1980, the Department of Census and Statistics (1984) pointed out that the overall completeness of birth registration was as high as 98.8 per cent and death registration 94.0 per cent.

5. The data collection of the 1993 SLDHS took place during July and September 1993; in the 1987 SLDHS, it was done during January and May 1987. However, the graphical presentation of these survey points has shown mid-1987 for the 1987 SLDHS, and mid-1993 as the 1993 SLDHS.

6. Family planning in Sri Lanka dates back to the early 1950s when it was introduced as an organized effort by the Family Planning Association of Sri Lanka (FPASL), the first NGO to be active in family planning with sponsorship from the Government of Sweden. Apart from FPASL, the Sri Lanka Association for Voluntary Surgical Contraception (SLAVSC), Population Services Lanka (PSL) and Community Development Services (CDS) are some of the NGOs currently providing family planning services in Sri Lanka. Some NGOs also conduct mobile programmes, especially in the plantations where medical teams visit estates on a pre-arranged date and provide sterilization services.

7. In accordance with Bongaarts's original approach, the following fertility-inhibiting factors (proximate determinants of fertility) were considered: marriage pattern, contraceptive prevalence and effectiveness, induced abortion, post-partum infecundability, frequency of intercourse, spontaneous abortion, and sterility. By definition, a change in any of these determinants will cause a change in fertility. However, previous research has shown that the first four of these factors are in general the most important determinants of trends in fertility (Bongaarts, 1984). The model presented by Bongaarts in this particular approach will, therefore, focus on these four principal proximate determinants (De Silva, 1990). The basic equation defining the relationship is:

$$TFR = C_m \times C_c \times C_a \times C_i \times TF$$

The model as summarized in the above equation has been applied for target-setting, since the ratio of target fertility, TFR(t), to present fertility, TFR(0), is estimated by:

$$TFR(t) < T > C_m(t) \times C_c(t) \times C_a(t) \times C_i(t) \times TF(t)$$

$$TFR(0) < T > C_m(0) \times C_c(0) \times C_a(0) \times C_i(0) \times TF(0)$$

where t refers to the target year and 0 to the base year. The second equation makes clear that the reduction in fertility from TFR(0) to the target level, TFR(t), depends on trends in all of the indexes.

8. The impact of induced abortion on fertility control cannot be underestimated in most of countries in the developing world; even in the developed countries, induced abortion cannot be excepted in their transitional phase to lower fertility levels. China, in pursuit of its one-child policy, reached a total fertility rate of 2.4 per woman, close to the replacement level, during the period between 1985 and 1990 with the liberal use of induced abortion. The Republic of Korea has reduced fertility to a level below replacement and has maintained TFR at 1.6 per woman for the last decade. This achievement is also partly related to the role of induced abortion (Hong, 1993).

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