

Srinivasan, K.: Population: The Rising Graph. In Indian Horizons' edited by OP Kejariwal. Indian Council for Cultural Relations. 45(3 & 4). P.ix, 385. ISSN: 0019-7203.

---

## **Population Concern Before Independence**

*K Srinivasan*

Explicit concern over India's rapid rise of population originated in the third decade of this century. Until 1920, India's population had been growing very slowly owing to the heavy toll from famines, epidemics, and wars. According to census reports, the population of the country within its present geographical boundaries actually declined between 1911 and 1921, from 252.1 to 251.3 million because of the high mortality inflicted by the influenza pandemic of 1918-19. It is estimated that about 5 per cent of the country's population-some 13 million persons-died in that epidemic. The population has increased steadily since 1921, largely because of epidemic, famine control and sanitation measures undertaken by the provincial governments. For the first time, since the initiation of a systematic population census in 1881, India's population increased slightly by more than 10 per cent (or by 27.7 million) in a decade, with the 1931 census enumerating a population of 279.0 million (Hutton:1932).

In this context, concern over such an unprecedented rapid rise in population arose from four quarters: intellectuals, social reformers (especially those interested in improving the status of women), the Congress Party (the leading political party that spearheaded the movement for political independence), and the government.

The intellectuals in India were mostly drawn from the upper caste elite sections of the society and many of them went to England for higher education or for training for posts in the Indian Civil services. They were, there, exposed to the Malthusian theory of population-positive and negative checks on populations growing beyond its means of subsistence. India was always cited as a basket case of poverty whose population was growing beyond its means of subsistence. When the scholars returned to India, they set up Neo-Malthusian Leagues on patterns similar to such Leagues in England and Europe to warn the people about the dangers of population growth. The first such League to discuss and propagate on the hazards of high population growth was set up in Madras city (now Chennai) in July 1929. The League published its first propaganda journal on the need for controlling birth rate, the 'Madras Birth Control Bulletin', in the same year. Similar Neo-Malthusian Leagues were started in subsequent years in other cities, notably in Poona and Bombay (now Mumbai). Madras and Bombay

seem to be the two Indian cities that were first concerned about the population problem at the intellectual level which subsequently gained momentum in other cities (see Srinivasan: 1995).

The interest and action from social reformers for the control of population growth originated from those activists who were primarily interested in promoting women's health and welfare especially keen on liberating women from the wheels of childbearing, preventing unwanted births, and reducing the hazards to the life and health of pregnant women who were willing to expose themselves to cruel and primitive methods of induced abortion. They were largely influenced by the work of Margaret Sanger in the United States and Edith-Howe Martin from England. This social reform movement was initiated by Prof. R D Karve, who advocated widow-remarriage, practice of artificial methods of family planning to protect women from the hazards of unwanted pregnancies, and who started a magazine called *Samaj-Swasthya* (Social Hygiene) in Marathi language in 1927, which was published regularly until his death in 1953. He also started the first contraceptive clinic in Girgaum, at the heart of Bombay in 1921. This social-reform movement eventually spread to other parts of the country and was largely responsible for the establishment of Family Planning Association of India in 1949 in Bombay.

At the political level, the Congress Party's attitude towards population control was tinged with scepticism mostly because of Mahatma Gandhi's strong moral opposition to the use of artificial methods of birth control. Mahatma Gandhi argued that though he was convinced that high population growth is of major social concern, the solution to reduction of fertility should not be through artificial methods of birth control, but through sexual abstinence and self discipline. He argued that widespread use of artificial methods of family planning would ultimately lead to moral and social decay. The social reformers and intellectuals were unable to convince Mahatma Gandhi to their point of view (Prabhu:1959). However, some of the princely States in India considered high population growth as a hurdle to development and social welfare. The Maharaja of Mysore commissioned, officially, two family planning clinics in 1930-one in Cheluvamba Hospital, Mysore and the other in Vani Vilas Hospital, Bangalore. These were the first two official family planning clinics to be started in the world. The last vestiges of moralistic objections to family planning seem to have been eroded because of the Bengal famine of 1943-44, which resulted in 1.5 million deaths within a period of 12 months, and made the Government of India and the officials aware of the precariously poor conditions of people and their extreme vulnerability during conditions of famine. The report of the Bengal Famine Inquiry Committee, constituted by the Government of India which submitted its in 1945, contained a chapter on the potential dangers to the economy and life of people arising out of rapid population growth, especially a population living in

abject poverty and deprived of the bare necessities of life. Mr. R A Gopaldaswamy, ICS was the Member-Secretary of the Committee, who later became the Registrar General of India in 1951 and conducted the first Census of independent India. When he became the Chief Secretary of Madras Province in 1954, he introduced a strong incentive based family planning programme. Similarly, the Bhore Committee, which was set up in 1943 to make an assessment of the health conditions in India submitted its report in 1946 and recommended a suitable health infrastructure for the country. It also stressed the need for a national programme of family planning for improving the health status of people. The reports of these two committees, the Bhore Committee and the Bengal Famine Enquiry Committee, paved the way for the Government of India to adopt a National Programme of Family Planning in 1947. With the death of Mahatma Gandhi in 1948, the moral objections for the adoption of artificial methods of birth control seem to have waned and the official family planning programme was launched in 1952 as a part of the first five year plan (1951-56). However, the Congress Party, whose values and ideals were largely shaped by the Gandhian philosophy retained, to some extent, the moralistic objections against free and unrestricted use of artificial methods of family planning.

### **Policies and Programmes from 1951 to 1976: HITTTS Approach**

This period covers the first twenty five years of the family planning programme implemented during the three five year plans (1951-66), the inter-plan period (1966-69), the fourth five year plan (1969-74), and the first two years of the fifth five year plan 1975-76.

In April 1950, the Government of India appointed a Population Policy Committee under the Chairmanship of Minister of Health and upon the Committee's recommendations, a Family Planning Cell was created in the office of the Director General of Health Services. The first five year plan document referred to a programme for Family Limitation and Population Control-terms which may be considered objectionable on humanitarian grounds now. It sought to reduce the birth rate to the extent necessary to stabilize the population at a level consistent with the requirements of the national economy. A sum of Rs. 6.5 million (US \$ 1.44 million at the exchange rate of US \$ 1=Rs 4.5 at that time) was allocated by the Central Government for the family planning programme, which included a plethora of activities such as motivation, education, research and clinical services.

A Demographic Training and Research Center (now called the International Institute for Population Sciences) was established in Bombay in 1956 with the assistance of United Nations for undertaking training and research on population issues. Family Planning programme was intended to be promoted

through a network of family planning clinics under the assumption that there was already some intrinsic demand for family planning services and that provision of supply through clinics will induce further demand. This clinical approach was intensified during the second plan period (1956-61). The budget provision for family planning during this period increased from Rs 6.5 million to Rs 50 million. The actual expenditure incurred during the first and second five year plans was less than the budgeted amount, only Rs 1.5 and Rs 21.6 million respectively. The clinical approach of family planning promoted the methods of diaphragm, vaginal jelly, vaginal foam tablets, condoms and vasectomy in some states. During the later half of the second plan, the scheme of giving some incentive money to acceptors of vasectomy (Rs. 10 per case) was introduced in Madras Province. The Chief Secretary of the Madras Province, Mr. R A Gopaldaswamy, postulated the concept of 'improvident maternity', which aimed at preventing all births of four and above by a strong programme of vasectomy, motivating men to undertake sterilization operations after the third child. He also estimated (rather crudely but not incorrectly) that if 7 vasectomies were done for 1000 population per year over a period of 10 years all improvident births could be avoided, and the birth rate could be reduced by 40 per cent. The seeds of incentive-based, target-oriented and time bound sterilization programme were thus sown in Madras province in the late fifties, which was immediately adopted in Bombay province next year, and in the next plan period in the country as a whole. The number of family planning clinics, where family planning services including sterilizations were provided, increased from 147 at the end of the first five year plan to 4,165 at the end of the second five year plan.

The slow pace of increase in contraceptive acceptance by the end of the second plan and the poor attendance in the family planning clinics indicated that the demand for family planning from the people was not as high as was expected in the plan documents. The clinic-oriented approach was hence replaced by an extension-education approach in the third five-year plan (1961-66), which aimed at bringing the message and services of family planning to the people by house to house visits by the field staff employed in the Primary Health Centres and sub-centres in rural areas and government hospitals in urban areas. Shift from clinical approach to extension approach, which continues to be a pervasive methodology of family planning programme till date, was based on the following premises:

There is a need to create a small family norm in the community by appropriate information-education-communication (ICE) procedures by involving opinion leaders. Six Family Planning Communication Research Centres were established in different parts of the country, to carry out field based action-research, as well as social science and demographic research for identifying and resolving field based issues in the implementation of family planning programmes.

It is necessary to inform every eligible couple on the availability and use of contraceptive methods.

It is necessary to provide contraceptive services to all couples in a socially and psychologically acceptable manner.

During the third plan period, family planning programme was thus made an integral part of the public health departments of all states. It was considered a part of health services in the country. The symbol of an inverted red triangle was introduced to convey the message of family planning. Various innovative measures of popularizing the programme, including carrying giant sized logos on elephant backs in various parts of the country were tried and, for the first time, a demographic goal was set. It was desired in 1962 that a crude birth rate of 25 should be achieved by 1972, a goal which is yet to be achieved in 1998. Table 1 provides the demographic goals set for the country as a whole by the Government of India in different plan periods and recent actuals.

**Table 1 : Desired Demographic Goals: India (1962-97)**

Year of Statement	Specified Goal	Target Year for Achieving Goal
1962	CBR,25	1972
1966	CBR,25	as promptly as possible
1968	CBR,23	1978-79
1969 (start of Fourth Five-Year Plan)	CBR,32 CBR,25	1974-75 1979-81
1974 (start of Fifth Five-Year Plan)	CBR,30 CBR,25	1979 1984
April 1976 (First Population Policy)	CBR,30 CBR,25	1978-79 1983-84
April 1977 (Second Population Policy)	CBR,30 CBR,25	1978-79 1983-84
January 1978 (Central Council of Health)	CBR,30	1982-83
January 1981 (Sixth 5-Year Plan, 1980-85)	NRR,1; CBR,21; CDR,9;	2000
Seventh Five-Year Plan (1985-90)	e <sub>0</sub> , 64 years; CEP, 60% NRR,1 CBR,29.1; CDR,10.4; Universal immunization Antenatal care-75%	By 2006-11 By 1990 IMR,90; CEP, 42% By 1991 By 1990
Eight Five-Year Plan (1992-97)		Goals
		1991   1996   2006
		Actuals

			-92	-97	-07		
		e <sub>0</sub> <sup>o</sup> - Male	57.7	60.1	66.1	59.7	(1991-95)
		e <sub>0</sub> <sup>o</sup> - Female	58.7	61.1	67.1	60.9	(1991-95)
		IMR	78.0	68.0	48.0	72.0	(1996)
		CDR	10.0	8.7	7.4	9.0	(1996)
		CBR	28.9	25.7	21.7	27.5	(1996)
		GFR	130.3	113.0	91.4	117.0	(1995)

Note: CBR = crude birth rate; CDR = crude death rate; CEP = percentage of eligible effectively protected; GFR = general fertility rate; IMR = infant mortality rate; e<sub>0</sub><sup>o</sup> = life expectancy at birth; NRR = net production rate

The expenditure on Family Planning programme during the third plan period increased to Rs.248.6 million, 11 times more than the second plan. With the setting up of demographic goals for the programme and achievement of these goals being made the responsibility of the health departments, the programme became entrenched in a **HITTS** model i.e., **H** health department operated, **I**ncentive based, **T**arget-oriented, **T**ime-bound and **S**terilization-focussed programme. A separate department of family planning was set up at the center and the departments of health in the states were renamed, over a period of time, as departments of health and family planning and family planning programme was fully funded from the central funds with staffing patterns and methods of functioning formulated by the central government. In my view, 1962 saw the beginning of the **HITTS** approach, which lasted until 1977, leading to the 'coercive approach' during 1976-77.

The period from 1966 to 69 was termed as a 'plan holiday'. However, during this period, family planning programme was integrated not only in the health system but also specifically made a part of the maternal and child health programme implemented through the Primary Health Centres (PHCs) in rural areas and Urban Family Planning Centres in towns. The Government of India gave additional funds to state governments for recruitment of medical and para-medical staff including extension educators in the PHCs and urban health centres for working specifically for family planning. The expenditure during this three-year (1966-69) was Rs 704.6 million, almost three times the expenditure during the five years of the third plan. Rapid expansion of the PHCs and Urban Family Planning Centres took place to pursue the **HITTS** model. The 1961 census showed a rising population growth rate and high fertility levels necessitating, in 1966, a postponement of the demographic goal of crude birth rate (CBR) of .25, which was again revised in 1968 aiming at CBR of 23 by 1978-79 (See Table 1).

The family planning programme got a big boost during the fourth plan period (1969-74) when the budget was increased to Rs.3150 million, though the actual expenditure was Rs.2844 million. Table 2 provides the governmental expenditure on family planning over the years. The infrastructure was considerably expanded and there was a strong desire on the part of the Government to resolve the population problem once and for all by organising vasectomy camps on a mass scale, so that these facilities are available for men in their own geographic proximity and the services of skilled surgeons could be optimally utilised. In order to help women with unwanted pregnancies to have safe abortions from medically skilled personnel and not resort to primitive abortive procedures, a law liberalising induced abortion camouflaged under the term 'Medical Termination of Pregnancy Act' was passed by Parliament in 1972. The incentive amounts provided to acceptors of vasectomy and tubectomy were substantially increased, incentives were provided to motivators and to state governments by the central government for their performance in family planning, which were based essentially on the number of sterilizations done in relation to the population.

**Table 2 :** Governmental Expenditure on Family Planning Programs: India (1951-96)

Five-Year Plan	Period	Total (millions)	Per capita	Per Sterilization equivalent
First	1951-56	1.45	0.00	N.A
Second	1956-61	21.56	0.05	N.A
Third	1961-66	248.60	0.54	N.A
Annual	1966-67	134.26	0.27	110.41
	1967-68	265.23	0.52	126.97
	1968-69	305.15	0.59	162.49
Fourth	1969-70	361.84	0.68	218.11
	1970-71	489.04	0.90	306.03
	1971-72	617.56	1.11	248.91
	1972-73	797.48	1.41	236.43
	1973-74	578.46	1.00	469.15
Fifth	1974-75	620.48	1.05	378.80
	1975-76	806.14	1.33	262.75
	1976-77	1729.82	2.79	199.68
	1977-78	933.37	1.48	751.51
Annual	1978-79	1075.45	1.66	576.65
	1979-80	1185.11	1.79	547.39
Sixth	1980-81	1408.98	1.79	568.37
	1981-82	1930.20	2.10	584.55
	1982-83	2883.20	2.79	614.89
	1983-84	3829.84	5.31	666.06
	1984-85	4240.66	5.80	763.40
Seventh	1985-86	4796.80	6.37	719.89

	1986-87	5688.50	7.40	801.21
	1987-88	5841.70	7.67	828.72
	1988-89	6718.40	8.41	926.17
	1989-90	8006.60	9.59	1129.35
	1990-91	8658.32	10.23	1222.58
	1991-92	10075.14	11.67	1504.43
Eighth	1992-93	10904.00	12.38	1550.41
	1993-94	13126.23	14.62	1652.97
	1994-95	15348.76	16.76	1840.60
	1995-96	16023.90	17.15	1947.25
	1996-97*	15350.00	16.16	N.A.

\* Allocation

Note: N.A = not available.

Source: India, Ministry of Health and Family Welfare, Department of Family Welfare, Year Books for various years

However, the 1971 census indicated that the high rates of population growth had continued unabated during the decade, with population increasing from 439.2 million in 1961 to 548.2 million in 1971 i.e., by 24.8 percent as compared to 21.5 per cent in 1951-61. This continuing increase in population growth rate inspite of the vast network of personnel involved in the programme and sizeable expenditure from the central exchequer frustrated the policy-makers and programme administrators, which led to draconian measures during the emergency period of, 1975-76. The effective couple protection rate, which is an approximation for the contraceptive prevalence rate but based on the programme service statistics, indicates that percentage of couples protected by any modern methods of family planning was only 14.7 per cent by the end of March 1974.

The fifth plan document, which covered the period 1974-79, but implemented during 1974-78, refixed the demographic goals of achieving the birth rates as 30 by 1979 and 25 by 1984. The programme was given the highest priority by the central government during this period and the expenditure during 1974-78 rose to Rs 4,090 million, almost double per year of that in the fourth plan. Mass camps were organized with larger frequency in more states. In some classic camps such as the one conducted in Ernakulam during 1972, 65,000 vasectomies were carried out in a fortnight's time.



## **The Emergency Period (Coercive Approach)**

India went through a phase of national internal emergency under the Prime Ministership of Mrs. Indira Gandhi from June 75 to March 77, when rights of individuals were largely suppressed, freedom of the press restricted and powers of the judiciary curtailed with the government at the center assuming enormous authoritarian powers. One major impact of the emergency was felt on the population front, and was spearheaded by late Sanjay Gandhi, the second son of Mrs. Indira Gandhi. For the first time, a National Population Policy was formulated and adopted by the Parliament in April 1976, which called for a 'frontal attack on the problems of population', and which inspired the state governments to 'pass suitable legislation's to make family planning compulsory for citizens, and to stop child bearing after three children, if the 'state so desires'. Many other measures were introduced such as stipulations to government officials in the health and revenue departments to remit given numbers of vasectomies from their areas of operation, failing which punishments were to be meted out to them. Various coercive tactics were used to control the fertility levels, mainly through increased number of vasectomies. The Commissioner for Family Planning at the center assumed enormous powers under the programme and the officials not only in the center but also in the states became powerful. The incentive payments to acceptors was substantially increased and related on a sliding scale to the number of living children a couple had at the time 'Of accepting sterilization. Innovative political and fiscal incentives were offered by the center to the state governments to implement the family planning programme. Laws, which made it compulsory for couples to stop reproduction after two or three children, were beginning to be drafted and placed before state legislatures in Maharashtra and other states for enactment.

By a Constitutional Amendment, representations to parliament from each state were frozen at the 1971 census level upto the year 2001, making it politically unattractive for any state to increase its relative population size in the hope of securing greater political strength at the center. Vasectomies were conducted in railway stations, quickly arranged camp sites, and it is alleged that in the northern states of Uttar Pradesh and Bihar men were forcibly subjected to sterilization. The strategy during this period can be termed as 'coercion'. However, news of these excesses leaked out very quickly through informal channels and there was general public agitation brewing up all over the country. The number of sterilizations done in India between April 1976 and March 1977 was 8.26 million, more than the total number done in the previous five years and more than the number done in any other country in the world until that time. The cost per sterilization was the lowest during the emergency period, at Rs 200 per sterilization compared to Rs 469 during 1973-74 and Rs. 751 during the post-emergency year 1977-78. Table 3 provides the per capita expenditure on the

family planning programme and cost per sterilization equivalent over different years.

**Table 3:** Family Planning Performance and Crude Birth rates in different Plan Periods India (1956-97)

Plan & Period	Sterilization (in' 000)			IUD (in' 000) (in' 000)	Equivalent CC Users period (%)	CEP by end of Period	CBR by the End of Plan
	Male	Female	Total				
Second Plan 1/1956-12/1960	71 (46.4)	82 (53.6)	153 (100)	N.A	N.A	0.2	41.4
Third Plan 1/1961-3/1966	1069 (38.6)	305 (11.0)	1374 (49.6)	813 (29.4)	582 (21.0)	2.7	41.1 <sup>b</sup>
Interplan Period 4/1966-3/1969	3817 (51.5)	575 (7.8)	4392 (59.3)	2057 (27.7)	96 (13.0)	7.9	38.8
Fourth Plan 4/1969-3/1974	6571 (46.4)	2433 (17.2)	9004 (63.6)	2149 (15.2)	3010 (21.2)	14.7	34.5
Fifth Plan 4/1974-3/1978	8437 (45.8)	4795 (26.0)	13232 (71.8)	1946 (10.6)	3253 (17.6)	22.5	33.3
Sixth Plan I 4/1978-3/1980	864 (7.9)	2398 (21.8)	3262 (29.7)	1186 (10.8)	6538a (59.5)	22.3	34.0
Sixth Plan II 4/1980-3/1985	2808 (4.9)	14637 (25.6)	17445 (30.5)	7172 (12.6)	32502a (56.9)	32.1	32.6
Seventh Plan I 4/1985-3/1990	3151 (2.8)	20582 (18.3)	23733 (21.1)	21353 (19.0)	67566a (60.0)	43.3	30.2
Seventh Plan II 4/1990-3/1992	429 (0.8)	7787 (14.7)	8216 (15.5)	9756 (18.4)	35101a (66.1)	43.6	29.2
Eighth Plan @ 4/1992-3/1996	568 (0.4)	17215 (13.6)	17783 (14.0)	24310 (19.2)	84541a (66.8)	46.5	27.5 <sup>d</sup>

Note: a Includes equivalent pill users also. CC = Conventional contraceptives; CEP = Couples effectively protected; IUD = intrauterine device; N.A.= not applicable.

Figures in parantheses include percentage of total acceptors including sterilization, IUDs and equivalent CC users.

b-Mid of 1961-71; c-For 1970; d-For 1996

@: Data for the period 4/1992 to 3/1996

Source: Year Books 1989-90 and 1994-95, Family Welfare Program in India; Ministry of Health and Family Welfare, Department of Family Welfare.

However, during the period of emergency, partly due to excesses in sterilization and partly for other reasons, there was large scale political unrest and general elections were called in February 1977. The elections brought defeat to the Congress Party at the centre and in most of the states. An oft-used cliché to characterise the comprehensive family planning programme during the emergency period was that instead of bringing down the birth rate rapidly, it brought down the government. It is surprising that under an authoritarian single party rule in China, the one child family norm, which is more stringent than the measures practised in India during the emergency period, is continuing to be practised for almost two decades, without any popular unrest or international condemnation, and conversely with unabated appreciation of China's achievements in the field of population control. Even in India, the Chinese achievements in the field of population control continue to be lauded and form the basis for judging India's performance as poor.

### **Post-Emergency Period: Recoil and Recovery Phase (1977-94)**

There was a strong political reaction to the population policy of April 1976 and the coercive insistence on targets for vasectomy during the emergency period. The new government that assumed power in March 1977, changed the name of 'family planning' to 'family welfare', reduced the targets on sterilization and chose to achieve demographic change through a programme of education and motivation. A judicial commission was appointed to enquire into the wrong doings during the emergency period. A revised Population Policy adopted in 1977 was totally against compulsory sterilization and legislation of any kind and stated that 'compulsion in the area of family welfare must be ruled out for all times to come. Our approach is educational and wholly voluntary'. The 1977 policy was welcomed as a type of liberation for the expression of individual opinions and attitudes on family size and freedom of choice of contraceptive methods to be used by couples. The backlash on the earlier programme was felt severely on the number of vasectomies done in 1977-78 which was one fifth of the number performed in the previous year, although the expenditure incurred in that year remained the same as in the previous year. The Chart-1 (Chart 1 is missing) gives the trends in the levels of acceptance of different contraceptive methods in the country over the years. However, the new government enacted into law the proposal of the earlier government of raising the minimum age at marriage (18 for girls and 21 for boys) which came into operation in October 1978. During the provisional sixth plan period, 1978-79 and 1979-80, the programme expenditure was 2,260 million, almost equal to the amount spent in the previous two years. The period from 1977 to 1980 can be considered to be a recoil phase for the family planning programme.

The change of government again in January 1980 marked a turning point in the programme and helped to restore it to some extent with emphasis continuing on its voluntary nature. During the revised sixth five year plan (1980-85), a Working Group of Population Policy was set up by the Planning Commission to formulate long-term policy goals and programme targets for family welfare programmes. The long-term demographic goals were revised in terms of achieving Net Reproduction Rate (NRR-1) by the year 1996 for the country as a whole, on an average, and by the year 2001 in all the states. These goals are yet to be realised. It was assumed that fertility rates of a population are linked closely with the levels of development of the society, especially with female literacy and child mortality, and low fertility rates can be sustained only in the context of certain minimum levels of development and low mortality rates. These goals were translated into achieving a crude birth rate of 21, a crude death rate of 9, infant mortality rate of 60 and expectancy of life at birth of 64 years and contraceptive prevalence rate 60 per cent among eligible couples by modern methods of family planning to be achieved in all the states by the year 2000. The health-based, time-bound, target-oriented family planning programme was revived with reduced emphasis on sterilization and greater emphasis on spacing methods and on child survival programmes. These were to be implemented through all the sub-centres and Primary Health Centres in the rural areas, without any aggressive campaigns or mass camps for sterilization as were adopted in earlier years. With greater assistance from international organisations, especially the UNICEF and the WHO, Universal Immunisation Programmes (UIP) and Expanded Programme of Immunisations (EPI) were launched in a systematic manner covering all the districts of the country in a phased manner. However, the post-emergency collapse of the family planning programme could never be revived fully in the subsequent years, especially in terms of acceptance of vasectomy by men as a good method of family planning. With men almost refusing to come forward for vasectomy, and motivations for family size limitations continuing to rise because of the information-education campaigns and lack of easy availability of spacing methods, tubal ligation of women began to rise steadily and became a dominant method of family planning during the next five years. During the sixth plan, an allocation of Rs.10,780 million were made in the sector of family welfare while the actual expenditure was higher at Rs 14,480 million. The sixth plan increased the per-capita expenditure on family planning to its highest since the implementation of the programme to Rs. 700 per sterilization equivalent.

The seventh plan implemented during 1986-91 continued the low key approach to family planning adopted in the sixth plan but witnessed a slow but steady increase in number of acceptors of female sterilization in family planning (Chart 1 is missing). There was greater emphasis on spacing methods in this plan and incentives were offered to younger couples not to have more than two children to accept this method. Special programmes to reduce infant and child mortality

rates through Universal Immunisation Programme (UIP) started earlier were replaced by a more broader programme of Child Survival and Safe Motherhood (CSSM) implemented in collaboration with the UNICEF. However, the reduction in birth rates were smaller than anticipated in the seventh plan.

By the late eighties, it came to be recognised that the mortality and fertility levels in some states are declining rapidly, more rapidly than anticipated. The crude birth rate of Kerala which was 37 in 1966, came down to 26 in 1976 and to 20.3 by 1988, below the goal of 21—the replacement level of fertility, recommended in the sixth plan document. By 1986, the infant mortality has declined to 27 infant deaths per 1000 live births, well below the goal of 60 recommended to be reached by the year 2000. Similarly, Tamil Nadu reduced its birth rate from 33.6 in 1970-72 to 23.1 by 1989, though its infant mortality in that year was 68, much higher than that of Kerala. Clearly something striking was happening in terms of demographic transition in the southern states. This phenomenon attracted scholars from various disciplines to analyse the factors that were behind such a transition and whether these could be replicated or adapted to other areas of the country where fertility levels were declining more slowly.

A major change in the political scenario of the country was introduced by late Prime Minister Rajiv Gandhi with the passing of Constitutional Amendments 72 and 73 and enactment of *Panchayati Raj* and *Nagar Palika* Acts in 1992, setting in motion the process of democratic decentralization. These acts ushered in a three-tier system of political governance in the country, central government, state government and the *panchayats* in the rural areas and the *nagar palikas* in the urban areas upto the district level. The primary health care including family planning, primary education and provision of certain basic amenities to the people such as drinking water and roads became the responsibility of the *panchayats*. Another notable feature of this act is the reservation of one third of the seats in *panchayats* for women members. Thus at the grass root level the women are politically empowered by this act to participate in all decision making issues pertaining to social development including family planning. This is great leap forward for the Indian democracy and empowerment of women. The process of this demographic decentralization is still going on with varying speed and intensity in different states. Generally, the states are reluctant to share their powers and resources with the elected bodies of the *panchayats*. In some states, even the elections to the *panchayats* are yet to take place.

Family planning and primary health care, legally, are now in the domain of the *panchayats* and *nagar palikas*. This democratic decentralisation has further infringed on the powers of state government to impose any strong family planning programme through its Primary Health Centres and Sub-Centres.

Another notable development from the early 1990's has been organized intensification and expansion of the women's movements within the country and outside, questioning the policies and directions of the government with regard to family planning programme, in which women had to shoulder major responsibilities for fertility regulation and demographic transition. All family planning programmes, they argue, have been ultimately targeting women through propagation of female methods of family planning, in the context of a target-oriented and incentive based system. The preponderance of female sterilizations as the dominant method of family planning in the country, it was argued, was because of the pressure brought on women by the officials in the health departments who were keen to fulfil their quotas of family planning. This was, they said, tantamount to an infringement on their fundamental rights. Thus family planning programme landed itself in a quagmire where it could neither achieve its demographic goals of low fertility and population stabilization (through birth rate goals converted into family planning targets and pursuing these targets) nor withdraw from such a programme in the context of a continuing rise in the yearly additions to its population.

In this context, in July 1993 the Government of India appointed an expert group under the chairmanship of noted agricultural scientist, Dr. M S Swaminathan for drafting a National Population Policy for consideration of the government and adoption by Parliament. This committee, which submitted its report in 1994, recommended some basic directions of the shift in the goals of population stabilization programmes and structurally organised motivations at various levels for their effective implementation. The recommendations are yet to be accepted by the Government.

Surprisingly, the goals on fertility, mortality and contraceptive use set during the eighth plan period (1992-97) on levels to be achieved by the end of the plan period have indeed been realised (See Table 1).

### **Reproductive and Child Health Approach (RCH), 1995 Onwards**

The Reproductive and Child Health (RCH) approach to family planning and population stabilization owes its origin to the deliberations and recommendations of the International Conference on Population and Development (ICPD), organized by the United Nations and held in Cairo in 1994. The Programme of Action formulated at the end of the conference and to which India is a signatory, postulated that population policies should be viewed as an integral part of programmes for women's development, women's rights, women's reproductive health, poverty alleviation and sustainable development. Women's concern dominated the discussions at the Cairo conference, which felt that population policies which are based on macro demographic considerations

and acceptor-target-driven programmes are unnecessarily and unevenly burdening women with the task of regulating reproduction to suit macro level policies. They argued that, henceforth, population policies should not be viewed with the sole concern of reductions in fertility rates considered desirable by planners and demographers, but by considerations of reproductive health, reproductive rights and gender equity. It was argued that developmental programmes which are not engendered are not only sustainable but also endangered. The Programme of Action adopted by the ICPD recommends a set of qualitative and quantitative development goals. They are:

*sustained economic growth in the context of sustainable development; education, especially for girls gender equity, equality and empowerment of women; infant, child and maternal mortality reduction; and the provision of universal access to reproductive health services, including family planning and sexual health.*

The Government of India, which was a signatory to ICPD Programme of Action, promptly followed up on the recommendations by abolishing the acceptor based family planning targets since April 1995 in the country as a whole. It had already experimented with the 'target-free' approach in a few selected districts in the previous year, but the effectiveness of the approach was not properly assessed. Since 1997, officially, the Reproductive Health Approach has been adopted as the national policy of the Government of India. The official RCH programmes include the conventional maternal and child health services including immunization of children and contraceptive services to couples, treatment of reproductive tract infections (RTIS) and sexually transmitted diseases, provision of reproductive health education and services for adolescent boys and girls, screening of women near menopausal age for cervical and uterine cancer and treatment where required. The budget required for these additional services intended to be covered under reproductive health are quite high, but almost the same amount allocated in the earlier years for the programme has been allocated. It is feared that the emphasis on contraceptive services will get diluted when budgets are not adequately increased to cover the wider goals of RCH programmes. Population concerns go beyond reproductive health, though the latter is an important contributing factor for population stabilization.

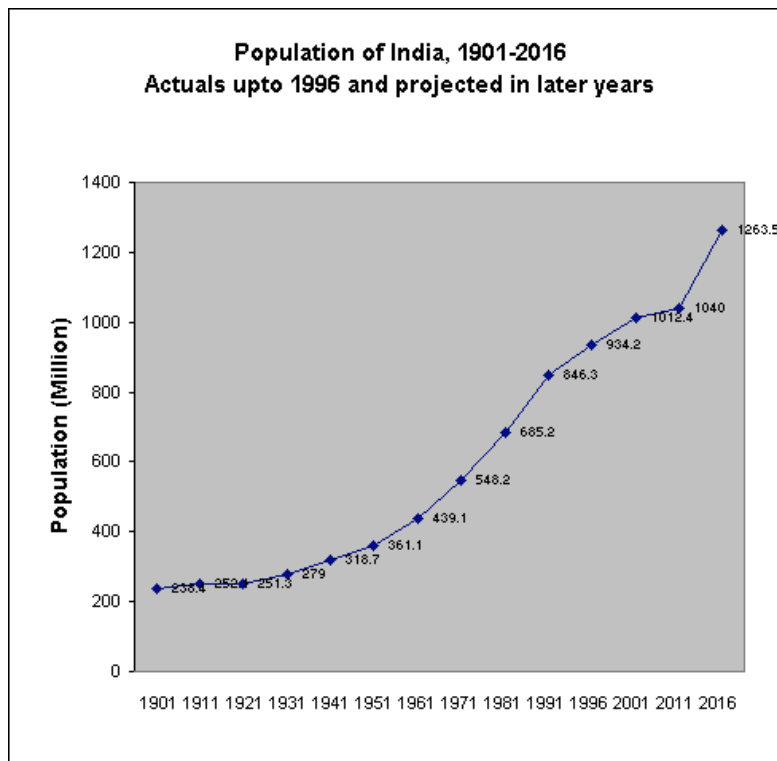
## **Political Implications of Sustained High**

### **Differential Growth of Population**

The population of India as of mid-July 1998 has been estimated at 971 million (See Chart 2). With a birth rate of 27.5 and death rate of 9 for 1996, it is growing at 1.85 per cent per year, adding 18 million per year. Among the larger states, the growth rates vary from a low of 1.15 per cent and 1.22 per cent in Tamil Nadu

and Kerala to high of 2.43 per cent and 2.33 per cent in Uttar Pradesh and Rajasthan. These differentials in growth rates have been going on for the past two decades (See Chart 3 for indexed growth of the states from 1951 to 1991 with 1951 value as 100). Haryana has the highest index of 339 and Tamil Nadu the lowest at 202. The states have been growing at different rates. The political and socioeconomic implications of the persistence of such high growth rates in some of the states is mind-boggling and the apathy of the leadership to this fundamental problem is appalling. The widening demographic diversity of India's population, especially between the southern and the northern states, are yet to be fully realized.

**Chart 2**

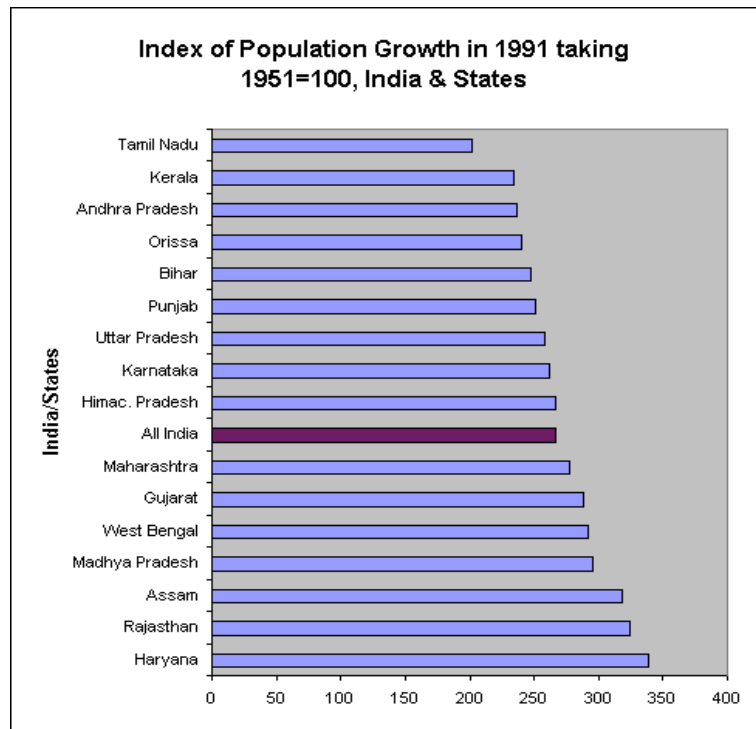


At the political level, with the universal adult franchise guaranteed to every citizen above 18 years of age, the states that have a higher rate of population growth will have proportionately a larger number of representatives in Parliament, and hence a better political leverage compared to the states which have a slower rate of growth of population. Indian leaders were aware of this problem and seem to have resolved it very wisely, by a Constitutional Amendment and an Act of Parliament in 1977, by which the number of representatives to Parliament from each state was frozen at the 1971 census level, and such a freeze will be in vogue until 2000. The constitution 42<sup>nd</sup> Amendment

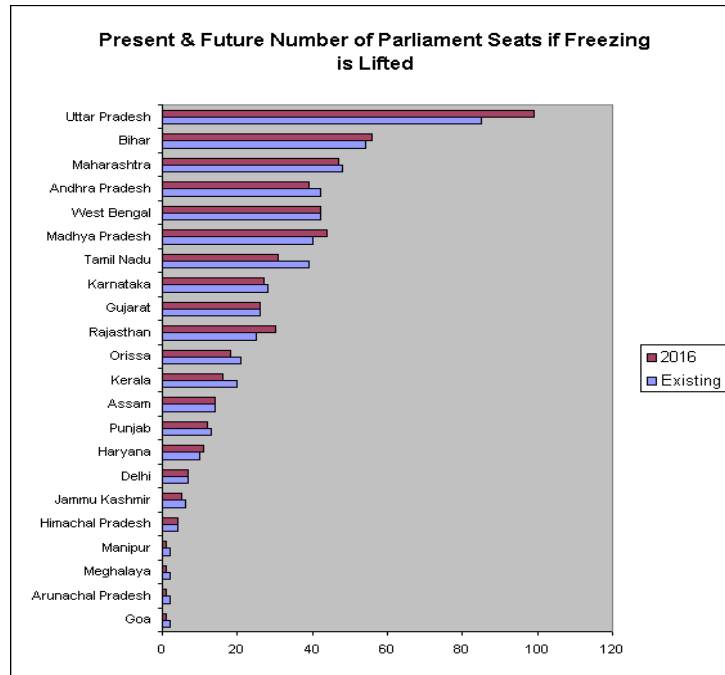


Act 1976, section 15, has specifically been made to ensure that those states that do well in family planning programmes and control their growth rates are not penalized by reduction in their representation to Parliament. As the law stands at present, from the year 2001, the figures of 2001 census can become the basis for reallocation of number of seats to Parliament from each of the states. If this is done U.P. is expected to gain 8 seats, from 85 to 93; Rajasthan 4 seats, from 25 to 29; Madhya Pradesh 3 seats, form 40 to 43; and Haryana 1 seat, from 10 to 11. On the other hand, the states that have been relatively successful in family planning programmes will have less representatives in Parliament than they have now. Tamil Nadu will lose 6 seats, from 39 to 33; Kerala 4 seats, from 21 to 17; Andhra Pradesh 1 seat, from 42 to 41; and Manipur one seat, from 2 to 1. By the year 2016, the states of Uttar Pradesh, Rajasthan, Madhya Pradesh and Bihar will gain by 14, 5, 4 and 2 seats respectively and the states of Tamil Nadu, Kerala, Andhra Pradesh and Karnataka will lose 8, 4, 3 and 1 seats respectively, compared to the 1991 levels. Table 4 and Chart 4 give the State-wise distribution of seats for the Lower House of Parliament (*Lok Sabha*) at present and how things will change if the present freeze is lifted by the year 2000 and the censuses of 2001 and 2011 are to form the basis for political representation in Parliament.

**Chart 3**



**Chart 4**



**Table 4:** Number of Parliament Seats at Present and likely number in future (if 'freeze' is lifted)

	Actual		Likely number of seats if 'freeze' is lifted	
	1971	1991	2001	2016
<b>Major states</b>	41	42	41	39
Andhra Pradesh	14	14	14	14
Assam	53	54	54	56
Bihar	24	26	26	26
Gujarat	9	10	11	11
Haryana	27	28	28	27
Karnataka	19	20	17	16
Kerala	37	40	43	44
Madhya Pradesh	45	48	49	47
Maharashtra	20	21	19	18
Orissa	13	13	13	12
Punjab	23	25	29	30
Rajasthan	39	39	33	31
Tamil Nadu	85	85	93	99
Uttar Pradesh	40	42	42	42
West Bengal				
<b>Smaller states</b>	1	2	1	1
Arunachal Pradesh	2	2	1	1
Goa	4	4	4	4
Himachal Pradesh	6	6	5	5
Jammu & Kashmir				

Manipur	2	2	1	1
Meghalaya	1	2	1	1
Mizoram	2	1	1	1
Nagaland		1	1	1
Sikkim		1	1	1
Tripura		2	2	2
<b>Union Territories</b>	1	1	1	1
Andaman & Nicobar Islands	1	1	1	1
Chandigarh	1	1	1	7
Dadra & Haveli	7	7	7	1
Daman & Diu	1	1	1	1
Delhi	1	1	1	2
Lakshadweep	2	2	2	
Pondicherry				
Anglo Indians				
<b>Total</b>	521	545	545	545

In the current context of a still widening growth differentials among the states as revealed by the 1991 census and the recent projections by the Technical Group of the Planning Commission, there is an urgent need for the continuation of the 1977 freeze on the representation to Parliament from different states for at least another 20 years i.e. upto 2018 or until the growth differentials narrow down whereby replacement levels of fertility is realized in every large state. This is a necessary political expediency not only to encourage accelerated demographic transition in the large Hindi speaking states but also to preserve the national integrity and not penalize the states that have successfully implemented the national population policy and achieved lower levels of population growth rates as stipulated in the various developmental plans.

### **Widening Interstate Disparities in Human Development**

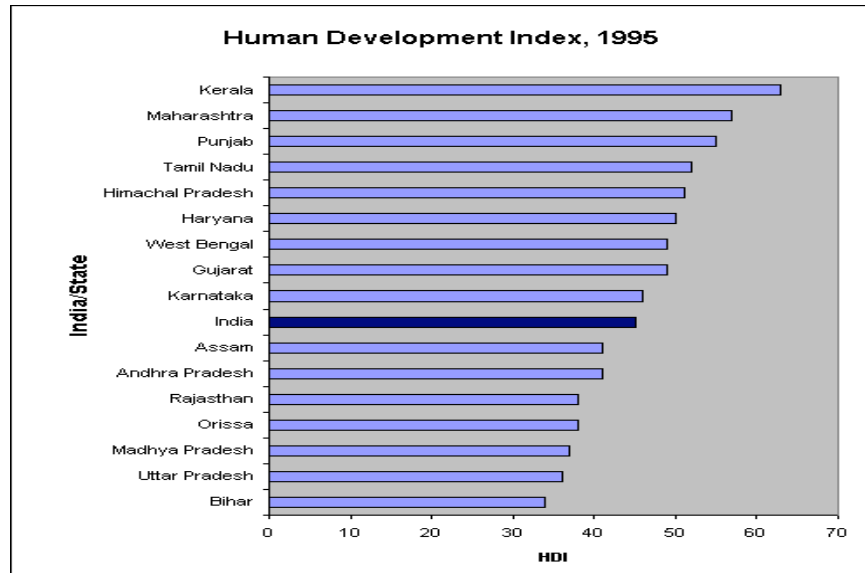
The Human Development Report (HDR) published by the UNDP in 1996 states that "Human Development is the end, economic growth a means" (UNDP, 1996). The HDRs of 1996 and earlier years have consistently define the basic objectives of development as enlarging the choices of people primarily by providing them with education, health and employment opportunities. According to UNDP reports, human development has three essential qualitative components:

- a) equality of opportunity for all people in society;
- b) sustainability of such opportunities from one generation to the next; and
- c) empowerment of people so that they participate in and benefit from development process.

As a first step in capturing the combined effects of the above three components, UNDP has developed and advocated a number of indices, the primary one being the Human Development Index (HDI). This index attempts to measure a country's or an area's achievements in the enhancement of human capabilities. The HDI has undergone some modifications in its computation from year to year since 1990, when it was first introduced, but it includes three indicators : life expectancy at birth to measure, the health status and longevity of people; educational attainment to represent the levels of knowledge and skills; and an appropriately adjusted real GDP per capita (in purchasing power parity-PPP-dollars) to serve as surrogate for command over resources. The HDR categorically identifies the above three parameters as essential, though not exhaustive, for choices at all levels of development. Many other opportunities remain inaccessible in their absence.

The Human Development Index (HDI) was computed by the Population Foundation of India for all the large states of the country for which data are available circa 1995 and are diagrammatically presented in (Chart 5) (Population Foundation of India, 1998). It is a composite index ranging from 0 to 100, giving equal weightage to three component indices computed from the recent data on: (i) the expectation of life at birth ( $e_0$ ) during 1991-95; (ii) the educational attainment of the population based on a combined measure of the projected adult literacy levels and the enrolment ratio in middle school in 1995; and (iii) the purchasing power-parity-price adjusted per capita net state domestic product for 1995 measured in dollar terms. The values on these component parameters and the index values computed for the major states are given in Table 5. The procedures for the computation of HDI from these component values are identical to the procedures used in the UNDP report of 1996, excepting for school enrolment ratio. While the UNDP used the enrolment ratio for primary, secondary and tertiary levels, in this analysis we used the enrolment ratio only for the middle school level for which the data were considered to be the most reliable.

**Chart 5**



**Table 5: Human Development Index (HDI), India and Major States, 1995**

India and States	Expecta tion of life at birth 1991-95	Index of life enrolme nt (I <sub>1</sub> )	Middle School literacy rate ratio, 1995	Projecte d adult (I <sub>2</sub> ) (15+), 1995	Index of educati on 1995- 96	Per capita SDP (I <sub>3</sub> )	Index of SDP Index	Human Develo pment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Persons		Persons	Persons				
India	60.3	58.79	62.3	51.5	55.10	9578	20.37	45
Andhra Pradesh	61.8	61.34	45.6	41.4	42.79	8615	18.16	41
Assam	55.7	51.22	71.8	51.9	58.50	6192	12.61	41
Bihar	59.3	57.12	35.5	35.9	35.78	4097	7.82	34
Gujarat	61.0	60.07	67.2	59.0	61.74	11036	23.71	49
Haryana	63.4	64.07	60.7	52.8	55.41	13770	29.97	50
Himachal Pradesh	64.5	65.81	79.3	63.3	68.63	8747	18.47	51
Karnataka	52.5	62.5	61.1	54.4	56.65	9004	19.06	46
Kerala	72.9	79.85	93.9	92.2	92.80	8324	17.50	63
Madhya Pradesh	54.7	49.56	61.8	43.5	49.57	6518	13.36	37
Maharashtra	64.8	66.29	81.6	64.2	70.02	15244	33.35	57
Orissa	56.5	52.52	54.9	48.2	50.42	6079	12.36	38
Punjab	67.2	70.4	52.9	58.0	59.66	15504	33.94	55
Rajasthan	59.1	56.84	56.2	38.3	44.24	6958	14.37	38
Tamil Nadu	63.3	63.84	91.2	59.0	69.73	9868	21.03	52

Uttar Pradesh	56.8	52.98	49.0	41.8	44.17	5983	12.14	36
West Bengal	62.1	61.78	87.1	59.1	68.44	7851	16.41	49

Source: 1. Col. 2, Life Tables 1991-95, Office of the Registrar General, India

2. Col. 4, Selected Educational Statistics, 1996-97, Department of Education, Ministry of human Resource Development, Govt. of India

3. Col. 5, Projected by PFI based on 1971, 81, 91 Census data

4. Col. 7, Economic Survey 1997-98, Ministry of finance, Govt. of India

Note: Index of  $e_0$  ( $I_1$ ) =  $(e_0 - 25)/(80 - 25) * 100$  Index of Education ( $I_2$ ) =  $(2 * \text{Adult Literacy Rate} + \text{middle school enrolment ratio})/3 * 100$

Index of Income ( $I_3$ ) =  $(\text{SDP/GDP} * 1400 - 100)/(6482 - 100) * 100$  HDI =  $(I_1 + I_2 + I_3)/3$

The HDI for India as a whole by this modification turned out to be 45 on a 0 to 100 scale, and close to the level of 44 given in the 1996 UNDP Report. India, with an HDI value of 45 ranks quite low in the comity of nations, with a rank of 135 among 174 countries studied by the UNDP. There is a good deal of variation in the HDI values across the states. Kerala with an HDI value of 63 ranks highest among the Indian states. In the international scene, its HDI score would place it at 105 in rank and above China and Egypt (with an HDI of 61). The lowest HDI values were observed in Bihar with a value of 34 and Uttar Pradesh at 36 and these values are comparable to the HDI value of Nepal (33) given in the 1996 HDR. These states will be ranked 150 and 151 at the international level. The states with HDI score of 50 and above are Haryana, Himachal Pradesh, Kerala, Maharashtra, Punjab and Tamil Nadu. The states having scores below 40 are the large Hindi speaking states of the north: Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh.

As already mentioned, HDI is an equally weighted index of three components: index of life expectancy, index of educational attainment and index of parity adjusted per capita income. In these three components, the range of variation (in a score of 0 to 100) is from a maximum of 80 in Kerala to a minimum of 50 in Madhya Pradesh for life expectancy; from a maximum of 93 in Kerala to 36 in Bihar in terms of educational attainment and from a maximum of 34 in Punjab to a minimum of 8 in Bihar for parity price adjusted income (Table 5). Thus the variability is higher in terms of educational attainments than in the case life expectancy or per capital income. These data reinforce the need to achieve parity among the states in terms of educational attainment i.e., adult literacy and

educational enrolments as the priority item in human development, ranking higher than health and income. The correlation coefficient of HDI with the contraceptive protection rate and total fertility rate in 1995, taking the state as the unit of analysis were +0.76 and -0.75 respectively, and statistically significant implying that efforts at human development will have a significant payoff in terms of increased contraceptive use and reductions in fertility.

### **An Overview of Population Policies and Programmes Implemented**

A critical study of the population policies and programmes adopted in India since 1951 reveals the following major deficiencies and possible corrective measures:

1. The programme placed almost a total emphasis on sterilization as the major method of family planning and the quality of services offered has been extremely poor. There is an urgent need to expand the range of choice of contraceptives and the quality of services to the couples. Though there are wide interstate differentials in these two aspects, generally the conditions are poor in most of the states and in the context of a very high level of unmet need for family planning, expressed by the women themselves in many sample surveys even in those states where fertility is very high, attention to these two aspects alone will help bring down fertility levels rather quickly. There is no need for slogans like 'one is fun' to motivate couples to adopt small family norm any more. The need of the hour is the offer of 'choice and service'.

2. Though the period of emergency witnessed unnecessary imposition of coercive methods of family planning and has been strongly criticised nationally and internationally, it also witnessed introduction and enactment of some far reaching legislations, such as the Minimum Age at Marriage Act and the freezing of the seats in Parliament and state legislatures on the basis of 1971 census until the year 2000, making it politically unattractive for the states to have a higher rate of population growth. There is a need to extend this freeze till 2028 or till all the states reach the replacement level of fertility, whichever is earlier.

3. Until the sixth five year plan (1980-85), demographic goals were set in terms of crude birth rates and the target was set in terms of number of sterilization operations to be carried out on the basis of population size. These are no longer valid criteria for programme implementation. Though the target-free approach has come into vogue officially by orders from the center since April 1995, many states are continuing in their old groove of targets and sterilization, and state specific actions on this front are urgently called for. Because of the rigidity in the organizational pattern for maternal, child health and family planning programmes throughout the country and the strong insistence of the government

at all levels (center, state and the district) on achieving the targets on sterilization, the delivery of maternal and child health services have suffered over the years. This has to be corrected.

4. The offer of incentives to acceptors, motivators, medical and paramedical personnel involved with the sterilization programme gave a commercial touch to the whole programme and in the hands of unscrupulous administrators many 'ineligible cases' were sterilized to gain monetary benefits at the individual or state level. On many occasions, in order to get awards from the central government as the best performing state in the family planning programme, the sterilization figures were manipulated. The quality of services at the time of sterilization and follow-up care for cases with complications left much to be desired. The programme lost much of its popularity among the people though the motivational and educational programmes on small family norms have been fairly successful. All incentives to acceptors should be in the form of high quality of services and range of choice and any incentive should be, if at all, to communities through developmental programmes.

5. The performance of the different states in family planning, even under a common population policy, organisational and scheme of financial assistance varied widely over the past three decades. States such as Kerala, Tamil Nadu, and Maharashtra were most successful in their family planning programmes and reduction in the fertility level than states like Uttar Pradesh, Rajasthan, Bihar and Madhya Pradesh. The factors underlying the differential performance of the states are the bureaucratic efficiency of the states; the political commitment to the programme at the state level and the progress of the states in selected areas of socio-economic development. Development in the education of females have been found to increase the desire for small family norm and demand for family planning methods.

6. The programme implicitly assumed that all married women in the reproductive ages are equal partners or contributors to the fertility of the population. No attempt was made to identify relatively more fecund couples and target the programme to them. Birth-based approach to family planning is likely to be more effective (Srinivasan and Rajaram, 1997).

7. Many authors have noted (Srinivasan, 1995; Narayana and Kantner, 1992) in their critical study of the population policy in India that the processes of decentralization of political power and decision-making through the *Panchayati Raj* system (wherein locally elected leaders at the level of a village or a group of villages are to be given authority to raise taxes, plan and implement local development programmes with assistance from higher levels) will eventually



contribute to better quality of services. including health and family planning services. The experiences in this regard are yet to be gained.

8. Demographically, the impact of the programme on fertility has been towards reduction in the fertility rates among women above the age of 30, because of the emphasis on sterilization as the major method of family planning. The programme was nibbling, as it were, on the tail end of the fertility curve. The natural fertility or fertility of women in the absence of contraception has been increasing during the past three decades among women below the age of 30 because of the forces of modernisation. We have thus a peculiar situation wherein the fertility rate of married women in the age group 20 to 29 has been increasing for the past three decades in a number of states, though significant declines in fertility have been observed only among women above the age of 30. The combination of these two factors have contributed to very slow decline in Total Fertility Rates (TFR) in some states, even in the context of a rise in contraceptive use. With increasing emphasis on spacing method and quality of care, we can hope to witness a more accelerated decline in fertility in the coming years.

9. The recent paradigm shift of the family planning programme as a part of the enlarged Reproductive Health and Child Services package is a welcome step in the right direction. This will enable the programme to care of women's health, especially their reproductive health, meet their unmet needs for family planning in terms of spacing of children and limitation of family size, treatment of reproductive tract infections and sexually transmitted diseases and improve the quality of maternal and child health services. However, implementation of a larger package of services requires additional funds and commitment from the government. India barely spends eight percent of its GDP on essential health and education services, and the expenditure on family welfare is merely one percent of its GDP. India spends far less on its educational and health programmes than many other developing countries. Unless statements of intent on reproductive health are backed by higher financial commitments from the government to the social sectors, the great expectations can hardly be translated into tangible achievements.

## References

1. Hutton, John Henry. (1932). Report of the Census of India 1931. Vol.1, p. 1-32.
2. International Institute for Population Sciences (1995); India: National Family Health Survey 1992-93, Mumbai.

3. Ministry of Health and Family Welfare (1997). Family Welfare Programme in India : Year Book 1995-96; Department of Family Welfare, New Delhi.
4. Narayana, G. and John F. Kantner (1992). Doing the Needful: The Dilemma of India's Population Policy. San Francisco: Westview Press, pp. 129-52.
5. Population Foundation of India (1998), Human Development and Related Indices, Wall Chart, New Delhi.
6. Population Foundation of India (1998), State of India's Population, New Delhi
7. Prabhu, R.K (ed.) (1959). Mahatma Gandhi: Birth Control, the Right Way and the Wrong way (compiled from speeches, writings, and correspondence of M.K Gandhi). Ahmedabad: Navjivan Publishing House, pp 20-29.
8. Registrar General, India (1998) Sample Registration System Bulletin, New Delhi.
9. Srinivasan, K and M. W. Freymann (1990). Need for a Reorientation of Family Planning Programme Strategies in Developing Countries: A Case for Birth-Based Approach, in Krishnamurthy Srinivasan and S. Mukeiji (ed.) Dynamics of Population and Family Welfare 1989. Bombay: Himalaya Publishing House, pp.3-22.
10. Srinivasan, K (1995). Regulating Reproduction in India's Population : Efforts, Results, and Recommendation', Sage Publications India Pvt. Ltd, New Delhi.
11. Srinivasan, K (1997). Demography of the Nation, Population Foundation of India, New Delhi.
12. Srinivasan K and Rajaram, S (1997) Birth-based approach to Family Planning : An Empirical justification in India, The Journal of Health and Population in Developing Countries, University of North Carolina, Chapel Hill, Volume 1, No.1.
13. United Nations Development Programme (1996), Human Development Report, Oxford University Press, New York.

14. United Nations System in India (1997), India towards Population and Development Goals, Oxford University Press, Delhi.