# Towards A Comprehensive Population Strategy for Nepal

*Nepal faces many challenging*
*population problems*
*in the decade ahead*

By Gerardo Gonzalez*

Nepal is entering the 1990s with a new political system. A democratically elected Government will be in office within a year's time and one of its first tasks will be to define a fresh development strategy for the country to deal with old problems. Prominent among these are challenging population problems: a high population growth rate, heavy migration of people moving form over-exploited terraces in the mountains and hills towards an almost saturated agricultural frontier in the *terai* (lowlands near the border with India),

scattered population settlements in most of the rural areas which make it difficult and costly to provide them with basic infrastructure and services, and an explosive growth of most of the still incipient urban centres in the country.

The need for a population policy was felt long ago. The Government took steps to cope with population growth by starting a family planning programme as early as the mid-1960s. In 1974, at the time of the first World Population Conference organized by the United Nations. the National Planning Commission appointed a task force on population to develop a comprehensive population policy for the Fifth Five-Year Plan. A year later the Population Policies Co-ordination Board was established to formulate and co-ordinate population policies and programmes. In 1978, the Board was reorganized and upgraded to become the National Commission on Population under the chairmanship of the Prime Minister. Five years later, in 1983, the National Population Strategy was adopted by the Government.

A retrospective view of the past seven years shows that the 1983 Strategy has been only partially implemented and with results well below expectations. Thus, it seems to be an opportune time for critically reviewing and revising the Population Strategy in order to learn from past experience and to come up with fresh proposals for the new Government.

This article, which was prepared as a contribution to this process, consists of two parts. The first one provides some conceptual and methodological considerations based on the concept of "strategy" and its application to the field of population. The second part discusses the 1983 National Population Strategy and two more recent policy documents, using for this purpose the concepts and steps suggested in the firs part. While discussing these policy documents, some suggestions are made for revising the Strategy.

## A conceptual framework

### The concept of "strategy"

The concept of strategy, although born in a military environment, has become widely used in other fields. In its original meaning, "strategy" may be defined as the planned manner in which a commander organizes and uses his military forces in order to win against the enemy on the battlefield. A strategy is the rationale of a war plan. And a war plan, more than a plan of action, is a plan of inter-action. In other words, it is a plan in which the strategist has to anticipate not only how his forces are going to act, but also how the enemy is going to act and react.

When the concept of strategy is used with national development or population objectives in mind, there is normally not a clear opponent as is

the case in a real war. A "war against poverty" is purely an analogy since poverty is not a concrete social actor. For this reason, it is convenient to define the final objectives of the strategy in terms of achievements. Nevertheless, the lack of an open opponent to the final objectives does not mean the absence of opposition to the implementation of the strategy. For example, the final objective of protecting the natural environment will easily get general support. However, the interventions needed to achieve this objective, such as limitation of the commercial exploitation of forests, might raise strong resistance from influential social actors who might partially or completely impede the achievement of the pursued objective.

A "time-frame" is another essential component in the concept of strategy. A chain of intermediate objectives to be reached through a sequence of steps has to be designed. When a specific strategy aimed at inducing social change is developed, time requirements should be considered from at least two different points of view. One is technical, the other is social. For example, if one of the intermediate objectives in a population strategy is to increase significantly the use of IUDs as a contraceptive method, some amount of time will be required to set up the necessary service outlets (training of service suppliers, building of appropriate facilities, importing and distributing to the field the necessary equipment and supplies etc.) In this case, time can be allocated based mainly on technical considerations, as is usual in a planning exercise. However, it would be naive to think that the simple availability of a given service is going to result automatically in its use by potential clients. "How long will it take to get the method accepted and widely used by those clients"? is a question which requires socio-anthropological analysis to be answered. Setting targets which imply social change based only on technical considerations unfortunately is quite a frequent practice.

When a strategy is designed, time allocation must be considered along with resource allocation. Two notions are worth considering in this respect. One is the timely or un-timely allocation of resources or implementation of policy interventions. The other one is the distribution of resources in a time-space frame.

The term "timely" implies that "favourable" or at least "minimal" technical and social conditions exist for a specific intervention to succeed. When an intervention is begun without such conditions, there is not only a high risk of failure – with the consequent loss of time and resources – but also a high risk of having the people and the institutions concerned "vaccinated" against such an intervention. Because normally favourable or minimal conditions are not created at the same time in all regions or social sectors, it is usually most convenient to begin with a phased approach complemented by specific interventions aimed at creating minimal conditions where they do not yet exist.

The concepts of "critical mass" and "threshold" are also essential for the development of a strategy. When social change is induced, normally the response is not proportional to the stimulus. There is not a linear relationship between the amount of resources which are mobilized and the magnitude of the effect. A certain "critical mass" of intervention, sustained for a certain length of time, is needed to induce and consolidate a given social change, which is qualitative in nature. The required "critical mass" may vary significantly from one social group to another, depending on their readiness for change. When a social group is sufficiently mature for adopting a new behavioural pattern, the "critical mass" of intervention required for inducing the desired change is relatively low. But if the group is not sufficiently mature for the change, if the economic and social environment is still providing strong support to the traditional behaviour which it is desired to change, the amount of intervention and the length of time required to reach the threshold can be so large and long as to make the process not feasible. These considerations are particularly important when decisions about "target groups" are made in the process of designing the strategy. In this regard, a common mistake made when population strategies are designed is to select as priority target groups those with the highest levels of fertility, without giving due attention to how mature they are for a global change in their family formation and reproductive patterns.

Finally, another essential characteristic of a good strategy is that it must be realistic. "Realistic" in this case means two different things. First, the strategy must take into consideration any significant factor or social actor likely to intervene in the process of its implementation and, therefore, it should be based on a sound understanding of their social dynamics. Second, the strategy must be based on plausible expectations about the efficiency and effectiveness of the institutions and persons responsible for the implementation of the strategy.

**Four basic assumptions**

Suggestions about how to build up a population strategy are presented below. Before providing details of these, however, some basic assumptions upon which those suggestions are based are outlined first.

a) Since changes in the dynamics, structure and spatial distribution of a population occur over a long time and the demographic impact of social and economic changes normally become visible only after several years, short- and medium-term plans must be designed within the framework of a *long-term* (15- or 20-year) population strategy.

b) Most of the development policies affect, in one way or another, directly or most of the times indirectly, the dynamics of population growth

and distribution. For this reason, it is necessary to look carefully at the predicted demographic consequences of development policies, one by one and in their entirely, in the process of designing a long-term population strategy. In some cases these "demographic consequences" are explicitly pursued, as in the provision of family planning services or population education, for example. Nevertheless, in most cases, the demographic effect is not intended and even not anticipated by those who formulate and implement the policy. This is what has been called in the literature "implicit population policies".

c)    Population growth and population distribution are not independent. Rapid natural population growth in already over-populated areas usually results in increasing out-migration. Selective migration by age and sex can significantly affect nuptiality and fertility both in the areas of origin and destination of the migration flow. In countries such as Nepal, a population redistribution policy resulting in faster urbanization, a more balanced distribution of urban centres among development regions and a more concentrated settlement pattern in rural areas can significantly contribute to accelerate the process of demographic transition, especially if accompanied by the appropriate development of the infrastructure and the provision of social services.

d)    The population of a country, as far as its spatial distribution is concerned, can be compared with a plant: it is relatively easy to model a young tree or bush and to give it a nice shape while it is growing, but it is very difficult – if not impossible – to change its shape when the growing process has already been completed. From this point of view, the right time for planning the spatial organization of a country – and population distribution is a central dimension of it    is while the demographic transition is taking place. During that period of the population history of a country, its population is growing rapidly, large inter-regional and especially rural-urban migrations take place, urban centres grow rapidly and most of the time in a chaotic manner, and new settlements spring up. If this process goes "wild", i.e. without appropriate long-term planning, undesirable settlement patterns will develop and consolidate, with high economic, social and environmental costs.

**A methodological proposal**

In designing a long-term population strategy, it is suggested to proceed as described below, while distinguishing the following three levels:

a)    The *global* level, in which the development process is looked at as a whole, focuses on how this process is likely to affect the population dynamics of the country. The concept of *style of development* can be useful to analyze the interrelationships between development and population at this level. This concept looks at the sectoral, geographical and social distribution

of resources and income and at the role given to (or taken by) the State and private agents. The historical experience shows that the decline of both mortality and fertility are accelerated when high priority is given to social development (health, education, community participation, social security, housing) and the State plays an active role in redistributing resources among relatively more and less developed regions. Good examples are Sri Lanka, the State of Kerala in India, Cuba and Costa Rica.

b)    The *sectoral* level. Each sectoral policy and strategy is carefully examined in order to understand:

- How population factors condition target-setting as well as the implementation of such a policy;

- How the implementation of that particular policy affects, directly or indirectly, demographic behaviour such as getting married, procreating and migrating;

- How the implementation of that sectoral policy facilitates or hampers the implementation of those programmes (e.g. population programmes) primarily oriented towards modifying demographic behaviour; and

- What could be done, what kind of changes could be introduced in that sectoral policy itself, or in its implementation strategy, in order to reduce or neutralize unfavourable demographic effects resulting from its implementation or increase its contribution to the achievement of national population goals.

c)    The *specific level:* the *population programmes.* At this level we are dealing with policy interventions primarily and explicitly aimed at changing demographic behaviour, such as the provision of family planning services, resettlement programmes, population education, changes in legislation which regulates age at marriage, or the practice of abortion, or the implementation of communication campaigns.

## Application to Nepal

To apply the proposed methodology to a specific country requires a prolonged collective effort. The following preliminary exercise has been conducted to analyze the Nepal Population Strategy from the proposed perspective as an input for further discussion on this important matter.

A policy framework is needed in order to undertake this exercise. Although there is not yet an official proposal for the Long-Term Development Strategy for Nepal because the formulation of the Eighth Five-Year

Development Plan has been postponed until an elected Government takes office, it seems reasonable to assume that there will be no major changes in the country's development objectives, particularly in the area of social development and population.

Based on this assumption, three documents will be used as a policy framework for this analysis: namely, the 1983 National Population Strategy (NPS); the Basic Principles of the Eighth Development Plan (BP/8P) which were circulated in September 1989 by the National Planning Commission as a provisional document in preparation for the Eighth Plan, and the recently issued Policy Directives of the Interim Government (PDIG).

The 1983 NPS is a well-conceived and valuable document which can be considered as a foundation stone in the process of institutionalizing population policies in Nepal. After six years of implementation, the radical renovation of the political system and the forthcoming installation of a democratically elected Government, which will certainly propose its own development strategy, as well as the postponement in the preparation of the Eighth Five-Year Development Plan, have all created favourable conditions for both critically reviewing the 1983 NPS and coming up with proposals for an up-dated and more comprehensive population strategy.

In order to make the discussion of NPS and BP/8P more systematic, we shall move from the above-mentioned *global level* of analysis towards the *specific level*, passing by the *sectoral level*. However, before beginning this exercise, it is necessary to make some comments on the population objective pursued by the National Population Strategy.

## A challenging population objective

There is a general agreement that rapid population growth is a major obstacle to economic and social development in Nepal. It is also agreed that the faster' the decline in fertility, and consequently in population growth, the better will be Nepal's chances for achieving development objectives. Nevertheless, a high degree of consensus on these two statements does not make easier the task of actually accelerating the pace of the demographic transition in Nepal.

The 1983 NPS was aimed at reaching a total fertility rate (TFR) of 2.5 children per woman by the turn of the century, which implies a contraceptive prevalence rate as high as 60 to 65 per cent. Such a goal cannot be reached unless a deep, massive process of social change takes place in the current social norms and patterns of family formation and reproduction, including later age at marriage and acceptance of the small family norm. The experience gained from other countries shows that these changes in norms and patterns of family

formation and reproduction normally result from other changes which are associated with social and economic development, such as a significant increase in the educational level of the people, an improvement in the status of women, radical changes in the structure of employment (rapid growth of employment in industrial and, mainly, in the service sectors, with a declining proportion of workers employed in agriculture), modernization of agriculture, and urbanization.

In the author's opinion, the prevailing social, cultural and economic characteristics of Nepal do not provide a favourable social environment for a fast process of change in the family formation and reproductive patterns and, consequently, for a fast decline in fertility.

The ambitious target proposed by the 1983 NPS seems to be based on findings from the 1976 Nepal Fertility Survey which showed that while 29.6 per cent of currently married women wanted to limit or space births, only 2.3 per cent were actually practising contraception. Therefore, there seemed to be a large "unmet demand" for family planning and the logical conclusion was to give first priority to the provision of family planning services to meet that demand. However, the magnitude of this "unmet demand" is worth discussing.

According to the 1986 National Fertility and Family Planning (NFFP) survey, among currently married fecund women of reproductive age, 59 per cent either wanted no more children or wanted to delay the birth of their next child; since the contraceptive prevalence rate was 15 per cent, the "unmet demand" would be around 44 per cent. However, when the unmet demand for family planning was estimated with a more rigorous method in the 1987 Nepal Demographic and Health In-Depth Survey, it accounted for only 33 per cent.[1]

Therefore, not only the quantity but also the quality or intensity of the "unmet demand" needs to be more accurately scrutinized, paying due attention to the social process through which reproductive decisions are made. The experience gathered from other countries shows that strong unmet demand for family planning normally leads to a high incidence of induced abortion, although this seems not to be the case in Nepal. Although there is no doubt that a large proportion of married women would like to delay a new pregnancy or stop giving birth, there is still limited knowledge about how firm is their will to do so and about prevailing attitudes among their husbands, mothers-in-law and other influential people in their social environment. The fact that a large proportion of potential "spacers" or "limiters" do not adopt contraception because they are afraid of side-effects – as reported in the 1987 In-Depth Survey – can be interpreted as an indicator of weak motivation for spacing or limiting births.

The great strategic importance given to the apparently already large existing "unmet demand" for family planning marks the whole Strategy adopted in 1983: very ambitious targets were set and most of the effort was concentrated on reaching the "unmet demand" with information and services. Meanwhile, no mention was made in the Strategy about reducing mortality, particularly infant and child mortality, which can be considered as a precondition for bringing about a reduction in fertility. Also, raising actual age at marriage is not a subject of analysis nor an explicit objective for the NPS, although in its section on Law and Population, it is recommended that the Government "raise the minimum marriageable age for women to 20 years".

In summary, the whole NPS seems to be based on the general assumption that a dramatic reduction in fertility can be induced in Nepal in a rather short period by the efficient implementation of specific "population programmes" aimed at increasing the contraceptive prevalence rate, without major social and economic changes in the country. This assumption should be carefully discussed and, eventually, revised.

In the author's opinion, the critical question that a population strategy for Nepal has to answer is: "How can we induce and accelerate a process of social change in the patterns of family formation and reproduction in a social environment which is not yet mature for such a change"?

With these general considerations in mind, the population strategy can be examined at the global, sectoral and specific levels.

### The global level: development strategy and population

Three main dimensions seem to be particularly relevant in the case of Nepal to understand the way in which the development strategy proposed in the BP/8P is likely to affect the demographic dynamics of the country. They are the priority given to social development, reduction of regional imbalances and spatial integration.

*Priority given to social development*

a)     The launching of the Basic Needs Fulfilment Programme in 1987 was a clear sign of the Government's will to assign higher priority to social development. As stated in a document circulated by the Ministry of Finance in 1988, "in the absence of poverty alleviation measures, poverty has grown disproportionately both in its range and dimensions, trapping the country in a vicious circle. This underlines the urgency for Nepal to bring about a decisive shift in its development strategy, moving away from the trickle down approach. To eliminate poverty, it has to be struck at its root."[2]

All seems to indicate that the priority given to social development by the present and future Governments will be higher than in the past. In fact, in its Policy Directives, the Interim Government states that "... the Government will review the development strategy and make efforts to make it more people oriented". In the same document it is also stated that "... there cannot be any question on the justification and usefulness of such programmes like basic needs fulfillment and rural development ...". Furthermore, in a recent dialogue with the press, when questioned about the basic needs, the Prime Minister said: "We intend to do much more than what the previous Government's basic needs programme sought to achieve".[3]

It is also worth noting that the effective democratization of the political system and social structures of the country is expected to produce increasing access by the people to political power and, as a consequence, increasing participation in the benefits of development, such as education, health, productive employment and better salaries. From this point of view, democratization can be expected to be a major force for social development.

b)   A successful implementation of a set of social policies aimed at meeting the basic needs of the people, especially in the areas of health and education, would certainly contribute to a significant decline both in mortality and fertility rates.

c)   Nevertheless, it is not evident that this priority in principle will result in a relatively larger amount of resources allocated to the social sector during the 1990s. In fact, at least in the case of the health sector, its share in the national budget has fluctuated in the past between 4 and 5 per cent with no significant increase. Furthermore, in the targets for the national product proposed in chapter IV of the BP/8P (table 4.1), the contribution of social services was expected to decline slightly from 18.14 to 17.93 per cent during the Eighth Plan period, with an average growth rate of 5.52 per cent which is less than the average rate targeted for the total product (5.78 per cent).

d)   The widespread reluctance among planners and policy makers to increase the share of the social sector in the national budget seems to bc based on, first, the belief that investing in and spending on it do not produce tangible "economic" benefits and, second, that the social sector has not been able to use more than 60-65 per cent of the resources allocated to it. Limited absorptive capacity and low implementation rates are problems affecting all sectors in Nepal, not only the social sector, and efforts are being made to improve performance through better financial and programme management as well as more effective decentralization. A more active involvement of community-based organizations, NGOs and the primate sector in the

implementation of social programmes could be a solution to improve efficiency and increase effectiveness. This line of action is suggested in the Policy Directives of the Interim Government.

As far as the "economic benefits" are concerned, although they are not evident in the short run, they become tangible and relevant if looked at from a long-term perspective. In fact, in the long run, social development not only directly improves the quality of life of the people and raises the productivity of the labour force, but also slows population growth and, consequently, contributes to the alleviation of population pressure on natural resources, services, housing, employment etc.

e) How important social development is for slowing population growth seems to be a critical issue for discussion. In BP/8P, although a multi-sectoral approach is proposed for the Population Policy, when the Seventh Plan is evaluated it may be seen that too much responsibility was given to "the provision of family planning services" in the task of reducing population growth. Two main factors have to coincide in order to have a fast reduction in fertility rates. First, a significant reduction in the "demand for children" and a shift from *quantity of children* to *quality of children* in the value system, which will result in the progressive adoption of the "small family norm" and an increasing *demand for family planning.* Second, widespread *availability of quality family planning services* supported by a dense and well-organized health services network. In the author's opinion, in the case of Nepal, fast social development is a *conditio sine qua non* for both increasing the availability of family planning services and    together with other factors that will be considered below    increasing their demand.

f) Higher priority given to the social sector by the new Government, if properly reflected in resource allocation and political support, would create more favourable conditions for inducing a faster decline both in mortality and fertility with the consequent reduction in the population growth rate.

*Reduction of regional imbalances*

a) Lessening regional imbalances is one of the objectives proposed for the Eighth Plan in the BP/8P. Furthermore, "uplift of the backward areas and communities" is considered as one of the priority areas for action. Although in a less explicit way, the PDIG document also refers to this dimension when it states that, for assessing and deciding on proposed projects, "whether the particular project has positive bearing on the backward groups and communities" will be taken into consideration.

b) As mentioned in BP/8P, "the efforts at reducing regional imbalances were initiated in 2029 B.S. (1972/73)  when Development Regions were first

established. Although the Fifth Plan included the objective of gradual reduction of regional imbalance . . . not much progress was made in this direction. The gap in per capita income among regions appears (to be) widening".

c) If significant efforts are made in the future to reduce regional imbalances and to uplift backward areas and communities, a fast reduction in mortality rates can be expected in those backward areas in the short run, followed by some reduction in fertility. A reduction in out-migration flows might also result.

d) Priority given to the less developed regions (Mid-Western and Far-Western Regions) in the allocation of resources and implementation of development programmes and projects in order to speed up the development of each region as a whole can contribute to reduce in the long run the speed of natural population growth and to get a more balanced distribution of the population among regions.

e) As far as backward areas and communities are concerned, *oriented migration* should be considered as a way of reducing population pressure on frequently over-exploited natural resources and provide services and job opportunities on a more favourable basis in terms of cost-effectiveness.

*Spatial integration*

a) The large majority of Nepal's population reside in rural areas. In a country such as this, which is characterized largely by difficult topography, a key dimension of the development process is spatial integration. This results in increasing access of the rural population to urban markets and services as well as increasing interaction and transfers among urban centres. Increasing spatial integration will normally lead rural people to gradually shift from a subsistence, self-consumption oriented mode of production to a predominantly market-oriented one; increase consumption of industrial goods; greater exposure to urban/modern/middle-class culture, and – as mentioned previously – greater accessibility to health services and education for their children. Furthermore, spatial integration facilitates diversification (cottage industries) as well as the specialization of production in rural areas, allowing the introduction of new technologies. All such changes can greatly facilitate reductions in mortality, the diffusion of and receptivity to "population education" messages, the progressive adoption of the small family norm and a larger demand for as well as better supply of family planning services.

b) The development strategy proposed for the Eighth Plan can be thought of as leading towards increasing spatial integration because of the following reasons:

- The completion of Nepal's east-west highway and the development of the north-south highway in the Far-Western Region would contribute to the consolidation of the few, still weak urban centres in the extreme western part of the country. The same can be said about the extension of the north-south highway in the Eastern Region.

- The establishment or strengthening of *ilaka* (subdistrict administrative units; there are nine *ilaka* in each district) service centres and the development of market areas around them as well as the proposed telephone and mail networking of all the *ilaka* and district headquarters would increase spatial integration.

- "Radio broadcasting will be extended in such a way that its programmes can be listened to all over the kingdom. NTV (Nepal Television) will also be developed on the same line. Radio and television will be developed as educational media...".

c)    Although there are clear statements in the 3P/8P about what is intended to be done with regard to rural development, roads, transportation and communications, very little is said about two other main factors affecting spatial integration: one is the process of urbanization and related policies, the other regards rural settlement patterns and settlement as well as re-settlement policies in both rural and urban areas.

d)    In fact, nothing is mentioned in the BP/8P about the desirable and expected demographic growth of the various cities and towns or about their expected development role at the national and (mainly) regional and sub-regional levels. In the 1983 NPS, "programmes to initiate a planned urbanization process in select locations within the hills and *terai* regions" were announced, but apparently not implemented. In the Policy Directives of the Provisional Government, the section on "Housing and Urbanization" focuses on meeting housing needs in urban areas, but nothing is said about urbanization from a national and regional macro-planning perspective.

e)    Although there is a well established rural-to-rural migration flow from the mountains and hills towards the *terai*, there are no clear guidelines either in the 1983 NPS or in the 1989 document on BP/8P, nor are there guidelines in the most recent document on Policy Directives of the Interim Government about the most desirable and suitable land/property regime, mode of production and settlement pattern for the migrants as well as the local rural population in the *terai* in order to minimize environmental costs and maximize

cost-effectiveness in terms of provision of basic and social services and development of productive employment. Nevertheless, it is promising that "an appropriate national settlement programme will be developed in accordance with the framework for regional development". In this regard, it must be noted that "programmes to initiate a comprehensive and planned migration process within the hills, and from the hills to the *terai,* in view of the environmental conditions in the hill regions" had already been announced in the 1983 NPS.

### The sectoral level

In this section, some sectoral policies or strategies proposed in the BP/8P are reviewed in an attempt to determine how they can contribute to the achievement of population goals, particularly fertility reduction. It must be noted that the need for a "long-term and multisectoral approach to population..." is mentioned twice in the document.

*Agriculture development*

Agricultural development is given utmost priority in Nepal. Most of the agricultural production is based on the family as the basic unit of production and on traditional, labour-intensive technology. Domestic work and productive work are interlinked and in both of them children play an important role which results in parents placing a high economic value on children. From this point of view, the prevailing land tenure system, mode of production and the technology used in agriculture result in a high demand for children and, consequently, these factors are an important obstacle for inducing a gradual adoption of the small family norm in the countryside. The above should be taken into consideration when a detailed strategy for "agriculture, land reform, forests and rural development" are worked out. In this regard, the BP/8P recognizes that "the existing land tenure system is hampering the optimum utilization of cultivable land" and that "in the present context the only alternative available for accelerating production is by increasing productivity".

It is, therefore, advisable that when the promotion of new forms of land tenure and the introduction of new technologies for increasing productivity both of land and manpower are considered, attention be paid to the way in which they can reduce the usefulness of child manpower and, consequently, the demand for children. The PDIG opens the door for this kind of exercise in stating that "foreign loans and aid will be accepted based on the positive impact that they may have on the economic and social condition of the people and based on the needs of the country. A process will be developed for (the Government) to be instrumental in deciding about the selection of technology and projects".

*Electrification and self-reliance in energy*

The experience of other countries shows that electrification of rural areas usually leads to important economic and social changes a fast reduction in fertility being one of them. In fact, availability of electric power normally enables the introduction of new domestic technologies which increase the people's exposure to mass media (radio, television) and alleviate the domestic workload by reducing or eliminating routine tasks such as collecting fire-wood and carrying water, which are tasks usually carried out by child labour. It also enables the introduction of new technologies for production. From this point of view, the decision to make the country self-reliant in energy with a fast expansion in the availability of electricity and bio-gas and a progressive reduction in the use of fire-wood, can have not only a direct beneficial developmental impact, but also can significantly contribute to a reduction in fertility.

In its section on energy, the BP/8P states that "in rural electrification, priority will be given to densely populated areas and potential market and service centres". This is an additional reason to advocate a more concentrated settlement pattern of the rural population, particularly in those areas which are receiving large numbers of migrants.

*Education*

The experience gained in several countries of the world shows that sustained improvements in the educational level of the population, particularly among women, leads in the long run to dramatic reductions in mortality and fertility levels *even* when conditions of generalized poverty still prevail. The State of Kerala in India is a good example. Although Kerala's net domestic product is significantly below the average for India as a whole (Rs.1,951 and Rs.2,201 in 1984 and 1985, respectively, and its level of urbanization is also below the national average (18.7 and 23.7 per cent, respectively, in 1981), and it has the highest percentage of urban poor among the Indian states (51.4 per cent in 1981), Kerala has at the same time the best record in terms of mortality and fertility reduction. In fact, Kerala in 1986 had already reached an infant mortality rate of 27 per thousand compared to 96 per thousand for India as a whole, and a crude birth rate of 22.8 per thousand compared to 33.1 per thousand for the country as a whole.

Early and sustained priority given to social development seems to be the key for explaining this apparent paradox. As far as education is concerned, it must be noted that by 1978 while 57 per cent of the rural population in Kerala had high or secondary school facilities available within two kilometres, only 27 per cent of the population in rural India had that level of accessibility

*By learning how to read, this Nepali girl will increase the chances that she and eventually her family will have a better life. Under the Basic Principles of the Eighth Development Plan, priority is given to primary education, functional literacy and women's education. (UNICEF photograph by Satyan)*

to post-primary education. Furthermore, the level of enrolment was much higher and the gender gap much smaller in Kerala than in India as a whole. By 1978, the percentage of children 10-14 years old attending school was 88 per cent in Kerala for boys and only slightly less (84 per cent) for girls, while in the country as a whole, these figures were 68 and 42 per cent, respectively.

In the BP/8P, priority is given to primary education, functional literacy, vocational education and women's education, using community organizations and NGOs for expanding non-formal education. It was also announced that "girls education up to the eighth grade will be tried to be made free" (the same idea was proposed in the 1983 NPS). In this regard, there is a clear intention to reduce the gender gap and to raise as much as possible the level of education of women which can help in creating favourable conditions for a reduction in both mortality and fertility. Nevertheless, it has to be noted that – according to the experience of other countries – there is not a linear relationship between the educational level and fertility; only above a threshold,

normally at the secondary level, does a clear negative relationship appear. Therefore, unless the expansion of literacy and primary-level education is accompanied by an important increase in physical and social accessibility to secondary-level education, particularly for girls, the impact on fertility may be expected to be not very significant.

*Health*

a) The on-going expansion and strengthening of an integrated primary health care network with the active involvement of the community seems to be the most promising approach for reducing mortality levels and for activating and at least partially meeting the demand for family planning services. Particularly important is the larger role given to women through the development of mothers' groups and female community health volunteers (CHVs) at ward level and the training of traditional birth attendants (TBAs).

b) The provision of quality family planning services in the framework of an integrated health system (no longer as a vertically organized activity) requires a much stronger structure of health services than the one already in place, not only at the primary level but also at the secondary level. In fact, clinical methods of contraception (male and female, sterilization, IUDs and implants) are supposed to be provided mainly by the hospitals both at their static facilities and through outreach activities. From this point of view, major efforts should be made also to strengthen the district hospitals. A policy in this direction is stated in the PDIG: "The modern medical facilities, equipment, and management will not be limited to the urban areas of the country and will be expanded in such a way that primary health care facilities will be made available throughout the country".

c) Although the strategy proposed for the health sector in the BP/8P seems to be the right one to facilitate the achievement of the national population goals, it is not evident that a strong and efficient health services structure can be built up without a significant increase in the share of public resources allocated to the health sector.

**The specific level: population programmes**

The 1983 NPS proposed "five major thrusts", all of them aimed at slowing population growth, mainly by reducing fertility. Because a detailed discussion of each one of them goes beyond the scope of this article, focus is given to some critical issues which are relevant for reducing fertility, which continues to be the main objective of the National Population Strategy.

The first point worth considering is the strategic importance of the main

proximate determinants of fertility in a strategy aimed at slowing population growth. The only way to achieve a very low level of fertility in Nepal by the year 2000 is to maintain the long duration of breast-feeding, to raise the contraceptive prevalence rate (CPR) and, at the same time, to change the nuptiality pattern by delaying age at marriage. Normally, the same social changes which lead towards a higher CPR result not only in a higher age at marriage, but also in a shorter duration of breast-feeding. Therefore, one specific objective of the population programme should be to avoid undesirable reductions in the length of breast-feeding which might result from social changes such as higher educational levels of women and higher participation of women in the formal sector.

As far as age at marriage is concerned, although it has significantly increased in the past, it is still quite low if compared with other countries in the region. Therefore, raising the age at marriage should be an explicit objective of the population strategy. In this regard, it must be noted that significant increases in the age at marriage have been a main factor in the decline in fertility when priority has been given to social development, as was the case in Sri Lanka and the State of Kerala in India. In the latter, the percentage married among women 15-19 years old went down from 28.5 in 1961 to 14.5 in 1986. Furthermore, the higher the average age at marriage, the lower is the CPR required to meet a given fertility target.

It is important to define clearly the role that specific population programmes are expected to play in the case of Nepal. As stated previously in this article, from the social, economic and cultural points of view the country seems to be not yet mature for a fast demographic transition. A significant amount of economic change and, particularly, of social development is needed to create favourable conditions for a fast decline in fertility. Therefore, it is unrealistic to expect that a set of specific population programmes will be able to achieve by themselves the desired demographic objective in the absence of appropriate indirect policies at the global and sectoral levels. Thus, one of the first priorities for the institutions responsible for the population policy in the country is to create awareness among policy makers about this situation and to involve them actively in the task of designing a comprehensive population strategy, paying due attention to the global and sectoral levels.

In the case of Nepal, the task of the population programmes is to induce and/or accelerate social change in the specific area of family formation and reproduction patterns in a still adverse environment. This means that the population strategy must consider special interventions which go beyond the traditional approach based on awareness creation, population education and provision of family planning services. Under this assumption, the following

comments and suggestions are focused on four main complementary courses of action, which were already explicitly or implicitly proposed in the 1983 NPS. They are:

● To increase the availability of quality family planning services;

● To develop positive attitudes towards later age at marriage, the small family norm and family planning through formal and non-formal education as well as other IEC (information, education and communication) channels;

● To increase political support and strengthen social mobilization; and

● To use incentives.

*Availability of family planning services*

The general principle is well known: for a given level of demand for family planning, the higher the accessibility of service outlets and the larger the variety of contraceptive methods available, the larger will be the contraceptive use rate. Nevertheless, putting this principle into practice has been shown to be difficult.

Although the intention expressed in the 1983 NPS was to move towards a more balanced contraceptive mix and to have, by the end of the Sixth Plan, all the district hospitals providing family planning services, the "sterilization camp approach" prevailed. This means that the relative importance of sterilization in the CPR seemed then to be higher than ever (86 per cent of current users in 1986) and that hospitals, with few exceptions, have been practically absent from the family planning field. In the recent past, however, steps have been taken to correct this bias. On one side, family planning services are being institutionalized in 12 districts. On the other side, successful efforts have been made to increase the availability of services for injectables and implants. Nevertheless, unless the factors behind the bias towards sterilization camps are clearly identified and appropriate measures are taken to neutralize and counteract them, the trend will continue and prevail.

Perhaps a suitable way to overcome the present "hospital-camp dichotomy" would be to give to the district hospital the main responsibility for conducting outreach family planning clinics in which a variety of clinical methods would be offered by hospital staff at a health post or other suitable premises. These outreach clinics should be organized in close co-operation with the DPHO, the health posts and the community volunteers. In order to implement this approach, hospitals must be given not only responsibility but

also resources, including manpower, equipment and funds to cover, among others. the direct costs of outreach activities.

In the author's opinion, a central role in the population strategy for the 1990s should be given to the non-permanent clinical contraceptive methods. Potential contraceptive users are normally classified into two groups: those who do not want to have more children, for whom *permanent* contraception (sterilization) is supposed to be required, and those who want to space the births of children; these are candidates for *temporary* methods. Nevertheless, there is an in-between category which is particularly relevant in countries such as Nepal with levels of infant and child mortality that are still high. That category comprises those who do not want to have more children but are afraid of losing their reproductive capacity. For them, long-duration clinical methods, such as IUDs and implants, offer the most suitable solution.

An important advantage of these methods *vis-a-vis* non-clinical temporary contraceptives (pills and condoms) is that they do not require a permanent high level of motivation for the user to avoid pregnancy. In order to make these clinical methods accessible to most of their potential users, selected health posts – as many as possible – should be upgraded in terms of infrastructure, equipment and duly trained personnel in order to be able to provide these kinds of services (at least IUDs) by themselves or in conjunction with outreach family planning clinics conducted from the district hospitals.

As far as non-clinical contraceptive methods (basically pills and condoms) are concerned, the strengthening of the health network, with the increasing participation of the community through the formation of mothers' groups under the leadership of community health volunteers (the Female CHV Programme), supervised by the village health workers and supported by regular outreach clinics conducted from the *ilaka* health posts, is likely to become a very powerful tool to increase the availability of non-clinical contraception.

Natural family planning has been successfully introduced in one mountain district with the support of the Swiss Development Cooperation. This method is worth considering as a viable alternative in remote areas; it can be an effective complement to breast-feeding for spacing births.

Finally, the importance of developing an active system of follow up, which can be done only with the co-operation of a large number of volunteers or semi-volunteer health workers, must be emphasized. The system becomes active when it is able (a) to identify every month the women or couples who need to receive services during that month (resupply of pills and condoms, a shot of an injectable, periodic control of IUDs or implants etc.) and (b) to contact them on a timely basis. The CHVs, assisted by a few selected members

*Non-permanent contraceptive methods, such as the oral pills being offered to this woman, are ideal for those who do not want to loose their reproductive capacity, but who do not want to have more children.*

(core group) of their mothers' groups and co-ordinated and supervised by the village health worker, could become the grassroots-level structure for an active system of monitoring.

*Population information, education and communication (IEC)*

**Population education through the formal education system:** Until now significant progress has been made only in developing curricula and teaching/ learning materials. The main task for the coming years should be the application of the programme at the national level, which requires a massive process of teachers' training as well as the production of a large amount of materials. The very slow progress made in this area in the 1980s should be carefully analyzed in order to identify the obstacles and adopt appropriate corrective measures. In terms of contents, the present programme focuses on population and development issues. It seems advisable to further develop the component of *family life education,* the main purpose of which is to prepare boys and girls to become well-suited couples and responsible parents. Family life education is the most suitable educational framework to change attitudes towards age at marriage as well as to deal with the very sensitive issue of *gender roles.*

**Population education through development programmes:** In the framework of the 1983 NPS, systematic efforts have been made to introduce components of population and family planning education in development programmes such as the Small Farmers Development Project, Integrated Rural Development Programme, Cottage Industries and Co-operatives. The Ministry of Panchayats and Local Development (MPLD) has also conducted a population education programme addressed to local leaders. Only very recently have these kinds of activities been initiated by the Women's Development Section at MPLD and, prior to its dissolution, by the Nepal Women's Organization. One of the problems faced by most of these projects has been insufficient dynamism to move from a limited pilot-scale to a large-scale operation which would enable them to have a real social impact. It would seem that stronger political support and commitment from the respective line ministries, better management, stronger technical backstopping from specialized agencies and more active co-ordination are needed to overcome this situation.

**IEC activities in support of population programmes:** Although some steps have been taken in that direction, a national communications strategy and a corresponding master plan have not yet been worked out. This seems to be a priority task in order to assign specific responsibilities to the various agencies involved in IEC activities and to increase co-ordination and co-operation.

*Political support and social mobilization*

In this section, two different, although closely inter-linked, subjects are referred to. One is political commitment and the mobilization of government officials and employees; the other is the mobilization of the community.

**Political commitment and government mobilization:** Political commitment and effective support are widely accepted as critical factors for a population policy to succeed. Political support normally means that the Government pays due attention to population factors and policies in planning; builds up appropriate institutions for programming, implementing, monitoring and evaluating its population policies; assigns highly competent and committed government officials to manage the population programmes; assigns sufficient staff and funds to implement those programmes; expresses publicly its satisfaction for achievements and its concern over failures, and so forth.

A higher level of political commitment can be found in some countries where practising family planning and having a small or large family, which are normally considered as private issues, have become public ones. In this case, having children is treated as an individual behaviour with important social implications. Where rapid population growth is considered a threat to society as a whole, having many children is considered anti-social behaviour. The small family pattern – having only one or two children is adopted as the official norm by the Government and the people are encouraged to adhere to it. Government officials are requested not only to speak in support of small families and the practice of family planning, but also to behave publicly as models.

Furthermore, a system of punishments and rewards is developed to enforce the norm. For example, in Viet Nam, state employees with no more than two children are given priority for in-service training which, in turn, earns credits for them that are necessary for promotion; therefore, the probability for those who have more than two children to be promoted is minimal. In this example, the same measure rewards ones and punishes others.

How strong or weak has been the political commitment to the population policy in the case of Nepal and how far it could be possible to go in this dimension in the future would be worth analyzing and considering when the National Population Strategy is reviewed and revised. While doing that analysis, two important resources available inside the Government should be considered. One is the mobilization of local government bodies and authorities in support of the implementation of the population policy. The other is the massive mobilization of civil servants.

There are thousands of civil servants working for the Government. Their level of education is relatively high and most of them are in close contact with the people and are respected by the community (teachers, health workers, extension workers in agriculture and forestry etc.). If they are educated in the areas of population and development, family life and family welfare; motivated to have only a few children and become active family planners; organized into small clubs and trained in methods for dealing with the community on these subjects, they can become a very powerful "army" of agents for social change.

The other aforementioned resource – the mobilization of the local government bodies and authorities – was considered in the 1983 NPS. At that time, the main task assigned to the local leadership and class organizations was to make the people in their areas more aware of the dangers to the community resulting from growing environmental deterioration caused by rapid population growth and in persuading the people to subordinate their own interests to the larger interests of the community, by keeping the size of their families small.

The responsibility for formulation and implementation of district-level population programmes was proposed to be entrusted to the *panchayats* (village councils). Although the Committee on Health and Population created at the district level by the Decentralization Act is not mentioned in the 1983 NPS, the establishment of a similar body -- the Population Programme Co-operation Committee -- was recommended. District *panchayats* were to be required to spend at least 20 per cent of the development grant provided to them by the Government on population programmes. The amount of the grant was to be determined on the basis of their performance in the field of population. Thus, incentives were envisaged for the most successful local panchayats.

The way in which the local government bodies are going to be organized under the new political system, as well as their functions and levels of authority, has not yet been defined. In this regard, the possibility of giving the local government bodies responsibility for planning and implementing the population strategy, and making them accountable for the successes or failures in the process of implementation, should be considered. If so, the present target system should be drastically changed and an efficient management information system should be set up to monitor the population programmes and evaluate their implementation.

**Mobilization of the community:**   As stated by the NPS, "programmes designed to reduce fertility levels cannot succeeded without the active involvement of local communities and organizations". One of the most outstanding examples of progress made in this area has been the launching of the Female CHV Programme.

From this point of view the role of many NGOs, which are working in the field of health and community development, should be encouraged. An aspect which is worth evaluating is the comparative cost-effectiveness of the public services and those offered by NGOs or even by the private sector. In this regard, the possibility of cross fertilization between large-scale but inefficient public services with efficient but small-scale projects run by NGOs should be considered.

Until now community participation has been referred to as a way to extend and multiply the sources of education and services for the people. Other important forms of community participation take place when social organizations mobilize themselves to introduce the small family norm as a social necessity and develop social pressure on the members of the community to enforce the norm. What has happened to tobacco smokers in most of the developed countries during the 1980s is a good example of a change in social norms which has resulted from an organized social mobilization. Ten or fifteen years ago smoking was considered an individual habit without social consequences. But when awareness was created about the fact that the smoker "forces" those who are around him or her to inhale smoke, with the consequent risks to their health that this entails, what had been considered a neutral individual behaviour started being considered as anti-social behaviour; thus, negative social sanctions were developed to counter such behaviour. Something similar could be done with regard to reproductive behaviour.

*Incentives*

The USC of incentives in the field of family planning has firm supporters as well as strong detractors. In the author's opinion, when the objective is to produce a major social change in an unfavourable setting, as is the case with Nepal's population policy, the use of incentives must be seriously considered when the strategy is designed.

The idea is not new in Nepal. In fact, a diversified system of incentives was proposed in the 1983 NPS, some of them addressed to the service providers, and others, to the users. As far as service providers are concerned, the incentives scheme implemented until now strongly discriminates among methods since incentives are given only to the personnel involved in sterilization (almost Rs.50 [Rs.30 = $US1] per acceptor, of which currently half is for the physician and the other half is distributed among the supporting staffj. The only exception is Rs.5 given to the doctor or nurse who inserts an IUD. No incentives are given in the case of implants or injectables, which also are clinical methods. This seems to be one of the main factors behind the structural bias towards sterilization in the family planning programme. One possible solution would be to revise the present system in order to reward good

performance in family planning services, considering quantity as well as quality, instead of focusing on only one component of the whole process.

As far as incentives for users are concerned, the 1983 NPS announced that "a series of measures will be gradually adopted by the Government to encourage those in the organized sector and the population at large, to accept family planning as a way of life". Some of the recommended incentives were easy to implement, such as: (a) additional points in the Government's promotion system for employees with two or fewer living children, (b) extension of maternity leave for government employees from 30 to 90 days, grantable only twice during the entire service period, (c) a 20 per cent increment in earned pension for government employees with two or fewer living children at the time of the employees' retirement, (d) free education up to the eighth grade for children of parents who undergo sterilization after having had two living children. However, the only incentive implemented until now is to give Rs.100 in cash to every person undergoing sterilization.

Innovative ideas have been suggested recently in a draft proposal prepared by a working group organized by NCP as part of the preparation of the Eighth Five-Year Plan. With regard to incentives for family planners, it is proposed to provide loans for couples who postpone marriage, postpone births and limit the number of children to two; competitive rewards in development programmes on the basis of performance at district, *ilaka* and *panchayat* levels; and health insurance for children (up to age 16) of sterilized parents with only two or fewer children. While there are new ideas coming up, other good ideas proposed in the 1983 NPS seem to have been abandoned without testing.

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Why were so many of the ideas proposed in the 1983 National Population Strategy never implemented? Why was the strategy itself never translated into a more concrete and feasible plan of action?

To find suitable answers to these questions, it is perhaps necessary first to review past and present performance to come up with a revised strategy for the challenging 1990s.

### Footnotes

1. Shrestha *et al.,* (1988). "Factors Related to Non-use of Contraception Among Couples with an Unmet Need for Family Planning in Nepal", Kathmandu.

2. His Majesty's Government of Nepal, Ministry of Finance, "Nepal Development Programme and External Assistance Needs", Kathmandu, November 1988, p. 14.

3. *The Rising Nepal,* 21 June 1990,  p. 7, col. 6.

# China: A Unique Urbanization Model

*No other urban population in the world
has undergone such dramatic
fluctuations*

By G. Edward Ebanks and Chaoze Cheng*

In recent decades, many third world countries have been experiencing rapid rates of urbanization resulting in an explosion in the siae of their urban population. China, however, has been a striking exception to the general patterns. The Government of China has intervened in order to keep the process of urbanization under control. Since the founding of the People's Republic in 1949, the Government has taken measures to control gradually the rapid growth of population and to regulate by various means the increase of the urban population and the level of urbanization. The low level of urbanization in China has thus been well recognized in recent studies of the demographic,

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geographic, social and economic development of this country (Chen, 1973; Thompson, 1975; Chang, 1976; Chiu, 1980; Yeh and Xu, 1984; Chen, 1988).

This article examines the salient features of the urbanization of population in China since the 1950s. The central thesis of this study focuses on the uniqueness of the urbanization model in China: the unique patterns of urbanization and urban growth as compared with both the developing and developed countries; the unique measures and policies taken by the Government to restrain urban growth; and the unique future goals of national urban policies. It aims at gaining insights into a better understanding of how urbanization processes have been integrated with certain social, economic, political and natural factors. The authors suggest that elements of the Chinese urban population and urban growth planning approach may be transferable to third world countries if selected and modified to suit differing political, social, cultural, economic and administrative conditions of those countries. Since no one has studied China's urbanization model in such a way, this article more or less fills the gap.

This study attempts to shed light on the aforementioned topics by analyzing the data mainly from the largest of China's demographic censuses of 1953, 1964 and 1982, and the One-per-Hundred Sample Survey of 1987. Limitations in the information collected by those censuses are compensated for by information drawn from the *Population Yearbook* and some other sources published recently in China.

The methodology employed in achieving these goals centres on compiling population data for cities and on plotting the urbanization rates for different time periods. Comparisons, whenever necessary, are made among regions in this country, among cities, and with the situation in other parts of the world. In addition, some concepts and indices such as tempo of urbanization, Gini's concentration index, primacy index, and two-city and four-city primacy indices are used to show the changes in urbanization and urban growth from the 1950s to the late 1980s.

A variety of terms have been used by Chinese authorities to refer to China's urban population (Ma and Cui, 1987). Thus, as a prelude to the identification of China's urban population between the 1950s and the 1980s, attention should be given to defining urbanization. There are three commonly used methods of compiling statistics for the urban population in China: (a) the total population of cities and towns, i.e. the resident population (agricultural and non-agricultural population) of the organic cities (not including the counties under their jurisdiction) and towns; those residing in the cities (not including the counties under their jurisdiction) fall into the category of city population and those residing in towns are classified as town population; (b) the non-agricultural population of cities and towns (sometimes called the

**Figure 1. Time path of percentage urban: comparison of
China with other regions**



+ = Developed country      ◇ = Developing countries

□ = World      Δ = China
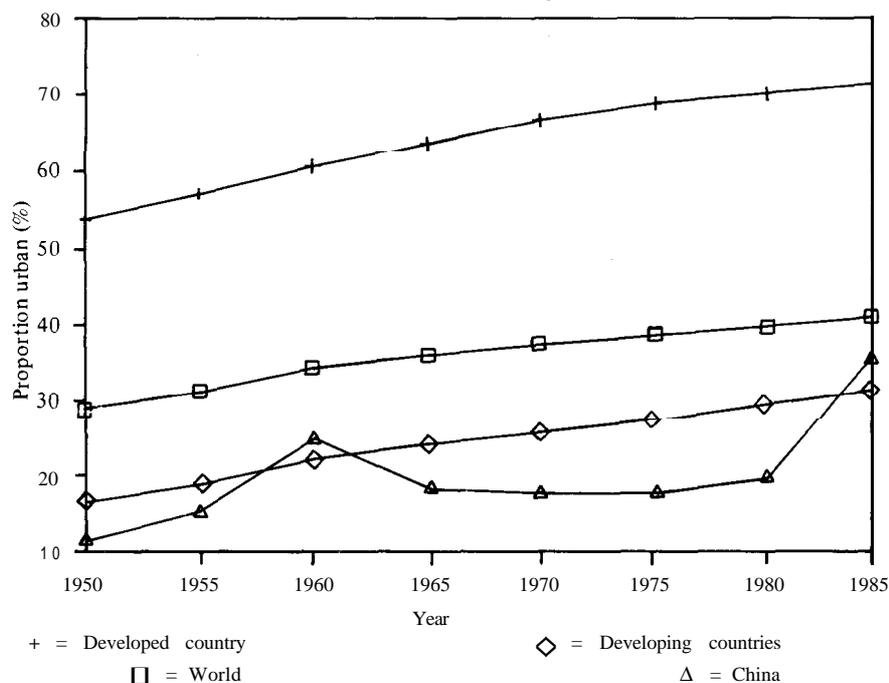
*Sources*: Compiled by authors from data provided by the United Nations, 1989; and
and People's Republic of China. State Population Census Office and State
Statistical Bureau, Department of Population Statistics, 1988.

population of cities and towns), i.e. the resident non-agricultural population
of the organic cities (not including the counties under their jurisdiction) and
towns; and (c) the non-agricultural population, i.e. the sum total of the non-
agricultural population residing in organic cities and towns and in areas other
than those cities and towns. In this study, only the first method is used
(SSC, 1983).

## Unique patterns of urbanization

The overall picture of change indicated by figure 1 shows that the process
of urbanization on a significant scale began quite late in China, and the level
is still comparatively low at present, at least compared with developed
countries. The level of urbanization in today's developed countries began to

rise markedly in the middle of the last century; after more than 100 years, their urban population increased from about 10 per cent of the total population at that time to a little over 70 per cent in the middle-1960s (Davis, 1965). The process of marked urbanization in the developing countries, on the other hand, started in the 1920s. In 1920, their urban populations accounted for about 10 per cent of the total, but 60 years later they had increased to over 30 per cent (United Nations, 1989). Although this proportion is 57 per cent lower than that of the developed countries, it tends to increase at a faster speed. In China, however, urbanization on a notable scale began in the 195Os, a century later than in the developed countries and 30 years later than in the developing countries. In 1950, China's urban population accounted for 11.2 per cent of the total population in the country; by 1985 it had increased to 36.6 per cent, and by 1987 to 46.6 per cent. China has quickly caught up with those developing countries within a short space of time.

Such comparisons, however, do not tell us a great deal about the internal processes of development in the country. Obviously, in China's case, the overall growth figures conceal the fluctuations which are evident between historical phases (table 1). Taking, for instance, the 1950s: in the developing world as

**Table 1: Total population of Chinese cities and towns, level of urbanization and growth rate (1950-l 987)**

| Year | Total urban population (millions) | Level of urbanization (%) | Annual growth rate (%) |
|------|------|------|------|
| 1950 | 61.69 | 11.2 | |
| 1955 | 93.61 | 15.2 | 10.3 (1950-1960) |
| 1960 | 163.48 | 24.7 | |
| 1965 | 130.45 | 18.0 | -1.2 (1960-1970) |
| 1970 | 144.24 | 17.4 | |
| 1975 | 160.60 | 17.5 | 2.9 (1970-1980) |
| 1980 | 191.41 | 19.5 | |
| 1985 | 384.46 | 36.6 | – |
| 1986 | 441.03 | 41.4 | |
| 1987 | 503.62 | 46.6 | 14.6 (1980-1987) |
| Total | | | 5.8 (1950-1987) |

*Note:* The annual urban population growth rates are estimated by using the geometric growth model. The method assumes that the rate of growth is constant, but the changes which occur are periodic.

*Source*: China Population Information Centre, 1988, p. 159.

a whole, the annual urban growth rate was 4.8 per cent, whereas China's was a massive 10.3 per cent. In the 1960s and most of the 1970s China saw only a negative low growth; the rest of the developing countries as a whole experienced steady urban growth averaging around 4 per cent each year (United Nations, 1989). A feature of the era since 1977 has been renewed urban growth on a grand scale: the wheel has gone full circle. The annual urban growth rate was 14.9 per cent, in sharp contrast to 3.51 per cent in developing countries and 1.01 per cent in the developed countries between 1980 and 1985 (United Nations, 1989).

Further examination reveals that those distinct fluctuations in the growth of urban populations show a remarkable coincidence with the cycles of political movements in China which were interposed by the Chinese Government (figure 2). The urban policy of China before and after the death of Mao Zedong that has had a profound influence on its urbanization pattern can be subdivided into six phases: period of Rehabilitation (1949-1952); First Five-Year Plan (1953-1957); the Great Leap Forward (1958-1960); Economic Recovery and Adjustment and the Third Five-Year Plan (1961-1966); Cultural Revolution (1966-1976); and Economic Reform (1976-1985) (Buch, 1981).

The main explanation for the rapid increase in urban population during the first decades is the expansion of non-agricultural economic activities accelerated by the First Five-Year Plan and the Great Leap Forward. In the period 1952 to 1960, for example, the index of gross value of industrial output rose from 100 to 535.7, while the growth in agricultural output value was only about 5 per cent annually (TJNJ, 1983).

The events of the Great Leap Forward led to a strict application of measures designed to remedy the over-urbanization of the 1950s and to maintain China's aggregate urban population at a supportable level. During the entire period 1961-1976, there was a decline in the urban population's share of the total population owing to the economic recovery and adjustment, and the Cultural Revolution – taking it down from 19.7 per cent at the end of 1960 to a mere 12 per cent 16 years later. It is especially worth mentioning that during the Cultural Revolution (1966-l976), the Movement of "Re-education in Rural Areas" for school graduates and "Transfers to a Lower Level to Do Manual Labour in the Countryside" for cadres caused the cities and towns to loose tens of thousands of their population (Ma, 1988).

From 1977 to 1987, the major part of the urban increase is accounted for by the officially sanctioned return to urban areas of millions of persons removed during the previous periods and the newly launched four-modernizations campaign and economic reform (Goldstein, 1988). These include (a) all youths sent into rural areas during the years of the Cultural Revolution; (b) the cadres

**Figure 2. Urban total population growth in China, 1949-1985**
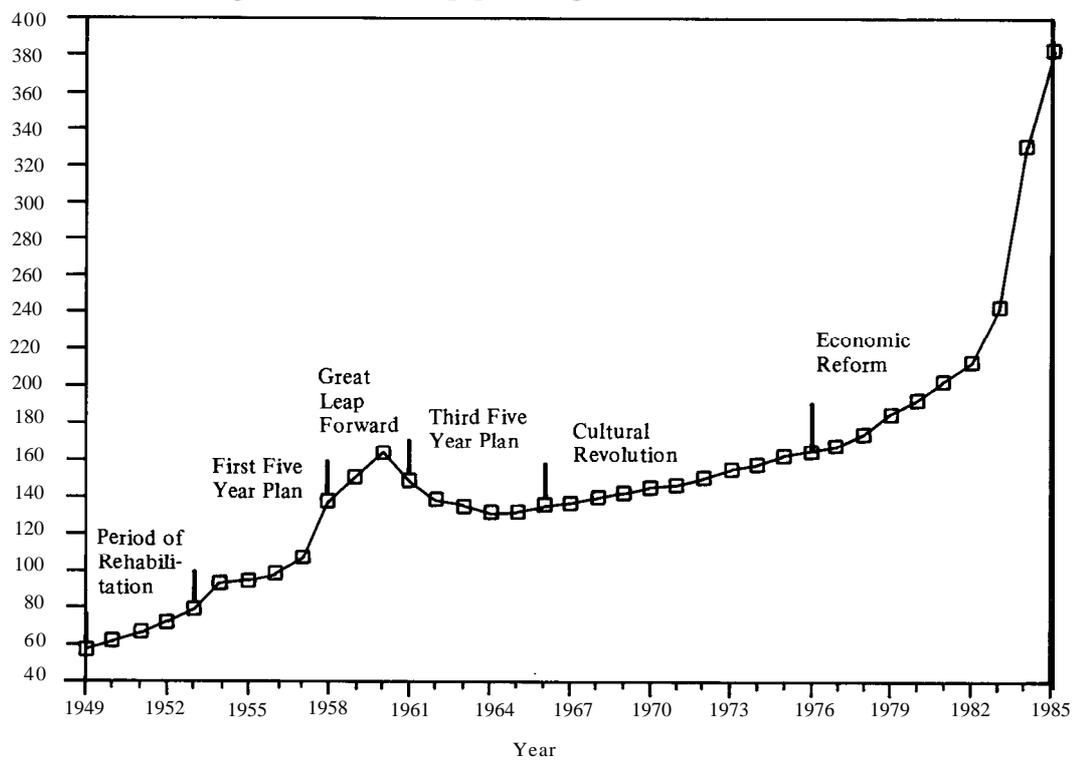


Figure 2. Urban total population growth in China, 1949-1985

and professional personnel sent to the countryside; (c) legitimate recruitment of peasants owing to the expansion of higher education after the Cultural Revolution; (d) indirect but legal peasant entry into urban areas through the mobilization of the armed forces and, especially, (e) the expansion of the areas under the jurisdiction of the cities and towns as a result of the redemarcation of cities and towns since 1980.

The above examination clearly shows that no other urban population in the world has undergone such dramatic fluctuations, and that no other Government has shown the ability to reverse the migratory flow to the cities (Kirby, 1985).

It is also worth noting that, over the past 40 years, owing to the large base of the Chinese population, the absolute numbers of people involved were quite large in spite of the slow growth rate and low level of urbanization (see table 1). In 1985, for example, the total population of the cities and towns in China reached 384.5 million (China Population Information Centre, 1988), accounting for 19.1 per cent of the urban population of the whole world that year and 33.2 per cent of the urban population of the developing countries. China is one of the few big countries, the urban population of which is over the 100 million mark. In the 35 years from 1950 to 1985, the total population of the cities and towns in China increased by 322.8 million, accounting for about 27 per cent of the increase in the world's urban population, and about 35 per cent of the increase in the urban population of the developing countries as a whole in the corresponding period (United Nations, 1989).

The four years between 1984 and 1987 saw even larger numbers of population expand city and town populations. By 1987, the total population of cities and towns surprisingly increased to 503.9 million. This remarkable increase had been due mainly to the changes in town population since the new criteria for town establishment were put into effect in 1984. In order to carry out the policy of "vigorously promoting the development of small cities and towns", peasants were encouraged to provide their own capital and bring their daily supply of cereals with them when entering small cities and towns to engage in industrial or commercial activities (Ma, 1988). Since then the movement of population to cities and towns in particular has become increasingly active; the town population has increased by about 106.8 million, while the increase of city population was only 65.5 million (Guo, 1988).

It may be too soon to determine whether or not government policies are still effective since, as table 1 indicates, the percentage urban increased from 19.5 in 1980 to 46.6 in 1987. It is worth emphasizing that the level of urban population growth since the early 1980s has been exaggerated statistically. The authors argue that, although the contemporary Chinese rural population

is undergoing an historic phase of transition from rural to urban areas for residence and from being an agricultural rather than a non-agricultural population, the rapidly increasing city and town populations, to a large degree, are meaningful only statistically. By contemporary urbanization standards, the increasing urban and town populations are by no means to be taken as a typical urbanized population. If urban growth for the period 1980-1987 is decomposed into that caused by (a) new urban boundaries of existing cities; (b) the creation of new towns, (c) natural increase, (d) rural-urban migration, and finally, (e) the residual population, it would be found that the exact level of urban growth was much lower than that shown by the statistical data. In fact, the policy of urban development currently in force in China may be said to be a kind of policy having simultaneously both controlling and developing effects. Unfortunately, owing to a lack of data and information, we cannot precisely describe the effectiveness of government policy.

## Unique measures and policies

### Policies favouring the growth of smaller urban places

The growth of smaller urban places has been promoted in China at various times under different policies. The strategy emerges out of China's own experience and observation of the situation in other developing countries. After 1949, the country's large cities became a magnet for the population. Massive migrations from the villages deprived agriculture of its labour force, with catastrophic results during the labour-intensive periods of planting and harvesting. The growth of the urban population without a corresponding expansion in the available food surplus and in expenditures on the urban infrastructure and essential services presented a political threat. Perhaps the most important factor is that the Chinese Communist Party disparaged Western influence in urban life (Bradshaw and Fraser, 1989). The new Government officially adopted an urban policy based on the belief that cities were a negative influence: "Western-style and modern cities – notably the former treaty ports but increasingly most growing cities – were seen as soul-destroying, anti-peasant, and tilled with corruption, crime, hypocrisy, suffering, squalor, and pollution" (Murphey, 1988).

The consistent political ideology of eradicating the "three great contradictions" – the difference between workers and peasants, city and countryside, and manual and mental labour – of the Chinese Government before and after the revolution has led to a policy of balanced development in the urban and rural areas. This ideology was reinforced by the nature of the relationship between China and the Union of Soviet Socialist Republics (USSR). After abandoning the USSR model of economic development in 1957, the economic policy of "agriculture as the foundation and industry as the leading sector" was adopted;

it reached its peak in the Cultural Revolution, which also has had a profound influence on the urbanization pattern of China (Yeh and Xu, 1984).

Since 1949, the Chinese Government has incorporated the above policies into preferences for policies aimed at achieving spatially balanced and decentralized urban and economic development. Those sectors which are advancing too rapidly and those which are lagging receive special attention, and action is taken to make them fit more closely the overall norms of balanced development (Buck, 1981). The efforts to create balanced development have sometimes been framed in terms of coastal and inland regions, urban or rural areas, industrial or agricultural progress, technologically advanced or more primitive modes of production.

The stress on balance serves to check the growth of the largest centres where superior levels of industrialization, technological competency, education, state resources and political power would have led to growth rates which would have far outpaced the general norms in China (table 2). In 1955, 56.2 per cent (52.6 million) of the total population (93.6 million) of the cities and towns were concentrated in the coastal areas and the remaining 43.8 per cent (41.0 million) were in the vast inland areas. By 1970, the latter population had increased to 74.1 million, surpassing for the first time in history the total population of 70.1 million in the coastal cities and towns. In the period 1955-1985, the average annual rate of increase of the total population of the cities and towns was 3.4 per cent; the rate in the coastal areas was only 2.9 per cent, while in the inland areas it was 3.9 per cent. Owing to the higher growth rate of the population of the inland cities, the gap between the level of urbanization in these areas and that of the coastal areas dropped from 5 percentage points in 1955 to 1.4 percentage point in 1980.

**Table 2: Total urban population and urban growth rates: China as a whole, coastal region and inland region, 1955-1983**

| Year | Total urban population | | | Year | Annual growth rate | | |
|------|---------|--------|--------|------|---------|--------|--------|
| | Country | Coastal region | Inland region | | Country | Coastal region | Inland region |
| 1955 | 93.6 | 52.6 | 41.0 | 1955-1960 | 11.8 | 9.3 | 14.7 |
| 1960 | 163.5 | 82.0 | 81.5 | 1960-1965 | -4.4 | -4.0 | -4.8 |
| 1965 | 130.5 | 66.9 | 63.6 | 1965-1970 | 1.8 | 0.8 | 1.7 |
| 1970 | 140.4 | 70.1 | 70.3 | 1970-1975 | 2.6 | 2.5 | 2.8 |
| 1975 | 156.1 | 77.6 | 78.5 | 1975-1980 | 3.6 | 2.9 | 4.4 |
| 1980 | 186.9 | 89.6 | 97.3 | 1980-1983 | 8.0 | 9.6 | 6.9 |
| 1983 | 237.0 | 118.0 | 119.0 | 1955-1983 | 3.4 | 2.9 | 3.9 |

*Source*: Wei, 1985.

### Controls on migration to cities

There is a system of urban household registration that is perhaps more restrictive than any found elsewhere in the world. Each household has long been required to have a "permanent registration booklet". The registration system divides the entire population between those having "urban residence" and those having "rural residence". One of the purposes was to anchor people to their native places, and in particular to prevent unauthorized movement from the countryside to the cities. Temporary residence in urban areas is possible, but only with the sanction of the local officers and the necessary "letter of introduction" from the relevant unit. Even a person who marries someone who lives in a city cannot take up residence there, a policy that contributes to the not uncommon Chinese phenomenon of married couples living apart. The system of restrictions on urban migration and household registration seems to be fairly rigorously enforced, so that visits to a city are always possible but long-term illegal (i.e. unregistered) residence there is very difficult (Whyte, 1988).

The residence system is reinforced by registration of employment. Every employed person is issued with a small booklet containing his or her photograph and personal details, as well as the name of the employing unit. This is the "work identity document". In some periods, individuals from outside the city have been able to take temporary jobs in areas such as construction, but getting long-term employment or an urban household registration is another matter.

The restrictive registration system works as effectively as it does because so many of the necessities of life in urban areas are bureaucratically controlled and require urban household registration in order for one to have access to them (Whyte, 1988). Since the 1950s, a rationing system has been applied in urban areas which at various points has encompassed almost all foodstuffs and other consumables.

The administration of the rationing system varies from province to province, but in all cases it is dependent on the individual's possession of the urban household registration documents. To get the needed coupons to make such purchases, one needs to present one's household registration book to the local neighbourhood and police authorities and/or to one's work unit. Similar comments could be made about access to schooling, child care, health care and support of the aged   for these and many other services one needs to be registered in the city in order to be eligible to obtain the various benefits.

This system of urban household registration has a number of important consequences. It is not possible to decide at will to move into a city, and it is very difficult to arrange to be transferred to a city from a smaller place. It is impossible to live in a city for a long time without proper registration.

### Rusticating policies

The measures preventing unplanned migration to the cities have been complemented by others designed to remove a substantial number of their existing inhabitants (Kirby, 1985). Early in the years after the formation of the Republic in 1949, city officials had adopted a benign approach to unwanted migrants from the villages. For instance, the authorities in Metropolitan Shanghai provided them with large discounts on railway tickets as an inducement to return home. Some peasants were given cash grants to enable them to resettle in their home areas and start small businesses. In April 1955, Shanghai expelled 43,000 peasants (Kirby, 1985).

The brunt of the post-Great Leap Forward crisis was borne by China's rural areas. The excessive urban "pull" of the first decade provoked the powerful "reverse push" of the 1960s and 1970s. As a result, the majority of residents were summarily ejected from the cities. The quite extraordinary reduction in China's total urban size was caused by the mass deportations of the early 1960s and of the years after 1968. From 1961 to 1964, about 30 million people were mobilized to go back to the countryside. The implied net migration loss in 1961 and 1962 was almost 20 million, around 14 million of which took place in 1962 alone. Additionally, the Socialist Education Campaign of 1963-1964 removed millions of people from the cities, most temporarily, but many permanently.

The most severe application of the policy of *shang shun xia xiung* (to the mountains and down to the villages) was yet to come. In 1968, the earlier admonitions to youth were re-emphasized by the leadership at Beijing, in asking young people to go to the countryside to be reeducated by poor peasants and those at the lower-middle economic strata (Bernstein, 1977). Over the next 10 years (1968-1978), around 17 million young people heeded the "great call". If an estimate for the urban population being about 125 million as of 1970 is reasonably accurate, it may be assumed that since the Cultural Revolution about 10 per cent of the urban population had been sent to the countryside under this programme (Bernstein, 1977).

The above numbers would be greatly increased if one takes into account the downward transfer of officials *(gan bu xia fang)*, the dispatch of urban medical workers starting before 1965, and the various dispersals of enterprises and their staff, skilled labourers, and criminal elements since 1949 (Cheng, 1987). For instance, the most successful *gan bu xia fang* in the city of Shanghai followed the Party changes of Spring 1955. On the national level, the major downward transfer of cadres in 1957 coincided with the "anti-rightist" crusade. In the winter of 1960/61, enormous numbers of officials were reported to have been removed to the countryside. Seven coastal provinces alone were able to claim the "sending-down" of half a million. It was the Cultural Revolution which brought *gan bu xia fan* to a completely new level.

**Unique urban strategies since the 1980s**

It is important to note that in the post-Mao era there have been sweeping changes in China's countryside arising from an official determination to make the shift from basically subsistence farming to a system of highly productive agriculture. The consequences involve the freeing up of several hundred million people from agriculture and traditional rural pursuits. The surplus force will total some 200 million before the end of the century. The *Beijing Review* (1985), quoting the *Guangming Daily,* calls for one-third (400 million) of China's people (both agricultural and non-agricultural) to be living in cities and towns by the year 2000. The big question is where to accommodate this burgeoning non-agricultural population without overburdening the urban sector, and without incurring the high economic costs associated with small-town industrialism.

The essence of the new urbanization strategy has recently been echoed by the Chinese policy makers that "strictly control the development of the large cities, rationally develop medium-sized cities, and vigorously promote the development of small cities and towns" (RMRB, 1980). In China, "large" cities are classified as those with a population of over 0.5 million; those with a population over 1 million are referred to as "extremely large" cities. The large cities were to be greatly encouraged to expand their economic role without significant growth of their population and land areas. With the development of four Special Economic Zones along the south-eastern coast, the strengthening of the Shanghai Economic Region, and the opening of 14 coastal cities to foreign trade and investment, the development pendulum indicates that big cities will continue to play a key role in China's modernization (Goldstein, 1988).

In the strategic urbanization formula put forward in the early 1980s, China's "medium-size" cities were defined as those with a population of between 0.2 million and 0.5 million (about 60 in number, which were singled out for "rational development". As in the case of the larger urban centres, the intention was, as far as possible, to limit the population growth of such cities by taking maximum advantage of their present economic structures in order to increase production. Further industrial development should emphasize the technological enterprises of existing plants, although completely new large-scale enterprises could be built where local conditions were appropriate.

However, one may well ask if the municipalities alone are able to cope with the previously described huge rural surplus labour force? In China, "small cities and towns" generally refer to those with a population of less than 0.2 million. They are large in number and occupy a vast area. They play an important role in enriching the economy of both the cities and rural areas. They help a large portion of the agricultural population to become non-agricultural, and they help to move a certain portion of the population

from the big cities to the small cities and towns. Despite their scale, they may already be the location of large industrial plants. For example, there are small cities and towns that are developed to the point of having their own special identity; some are mining and heavy industrial centres based on local raw material, other small cities are on a tide of rapid growth because of certain specific local factors, and still other small cities play a special role in the national transportation network (Wu, 1981). All these small cities serve to interrupt the flow of rural people who might otherwise migrate to very large cities and thus swell the population of the large cities. Also, because of the large number of small urban places, they help to maintain more balance in the urban system by promoting greater dispersal of the centres of economic growth and thus act as foci for development impulses in rural and lagging areas (Pannell, 1984).

In order to "vigorously promote the development of small cities and towns", several different patterns and roles have been suggested. If the county seats and the other towns grow to an average 50,000 population from their present national average of 15,000, they could accommodate over 110 million additional people. If each township were to add just 1,000 to 3,000 new residents, then 53-159 million extra persons could be accommodated. If only 20,000 of the 53,000 townships absorbed 10,000 people, over 200 million new residents could be accounted for. Were each to add 5,000 people, the total would be 250 million. If all the present townships grew to 10,000 by the end of this century, they could then hold 500 million of China's projected 1.2 billion total population. Along with the 110 million accounted for by the county seats and towns, over half of the population could thus be accommodated by sub-municipal locations (Wu, 1981; Shen, 1982; Cai, 1983).

These speculations indicate the magnitude of likely urbanization scenarios. A serious question arises whether the projections are rooted in reality. Close empirical studies of small towns have made the policy makers realize that more is required than simplistic plans which dwell optimistically on their potential powers of absorption of population. By the early 1980s planners began to pay more attention to the practical problems to be overcome if the small-town strategy was to be realized, e.g. avoiding poor living conditions, chaos in small-town management, shortage of capital for small-town development, problems of small-town enterprise viability (Kirby, 1985).

The policy priority given to the potential value of stronger linkages between rural and small urban places and the even broader networks into which such places fit are evidenced in the Circular of the Communist Party of China Central Committee, issued early in 1984 as Document No.1 on the topic of rural work (Goldstein, 1988). It called for various measures to improve the infrastructure for commodity circulation; stressed the construction of small cities and towns equipped with modern industrial transportation facilities, modern com-

**Table 3: Total population and proportion of small towns in the
total city and town population since 198**2

| Year | Number of small towns | Population of small towns (millions) | Proportion (%) |
|------|-----------------------|--------------------------------------|----------------|
| 1982 | 2 664 | 61.91 | 29.30 |
| 1983 | 2 786 | 62.34 | 25.81 |
| 1984 | 6211 | 134.47 | 40.58 |
| 1985 | 7 511 | 166.22 | 43.23 |
| 1986 | – | 207.88 | 47.14 |
| 1987 | 11,103 | 241.31 | 47.92 |

*Source*:     China  Population  Information  Centre,  1988,  p. 159;  and  Guo,  1988.

mercial  facilities,  and  modern  educational,  scientific,  cultural  and  sanitary
facilities,  so  as  to  be  the  progressive  base  for  changing  the  structure  of  the
rural  villages.  It  also  recognized  that  large  and  medium-sized  cities  play  a  key
role  in  rural  development  by  providing  free  markets  for  peasants.  Moreover,  it
emphasized  that  peasants  will  be  allowed  to  settle  in  towns  to  engage  in
industry,  business  and  service  trades.

Between  1982  and  1983,  there  has  been  a  total  of  50  newly  designated
cities  in  China  (*Zhongguo  Renmin  Gongheguo  Xingzheng  Quhua  Jiansi*,  1984).
Since  the  release  of  Document  No.1,  2,900  new  towns  were  established  in
different  places  in  the  country  and  a  total  of  10,000  towns  are  expected  by
the  end  of  1990  (RMRB,  1984).  According  to  China's  One-per-Hundred
Sample  Census  of  1987,  the  proportion  of  the  town  population  in  the  total
city  and  town  population  of  the  country  rapidly  increased  from  24.3  per  cent
in  1982  to  47.9  per  cent  in  1987  (table  3).

### A  successful  government-intervention  model

Using  city  and  subregional  data  to  construct  a  Gini  Index,  primacy  index,
and  two-city  and  four-city  primacy  indices,  it  is  possible  to  examine  the  efficacy
of  the  Chinese  urban  policy  which  was  aimed  at  keeping  people  out  of  cities
and  restricting  the  increase  in  the  urban  population.

One  way  to  look  at  the  distribution  of  cities  by  size  is  to  compute  and
analyze  the  Gini  concentration  ratio.  The  Gini  concentration  ratio  has  been
widely  used  for  the  measurement  of  concentration  (Arriaga,  1975).  Figure  3
shows  the  concentration  curves  (also  known  as  Lorenz  curves)  of  selected

**Figure 3. Lorenz concentration curves for China, selected years**
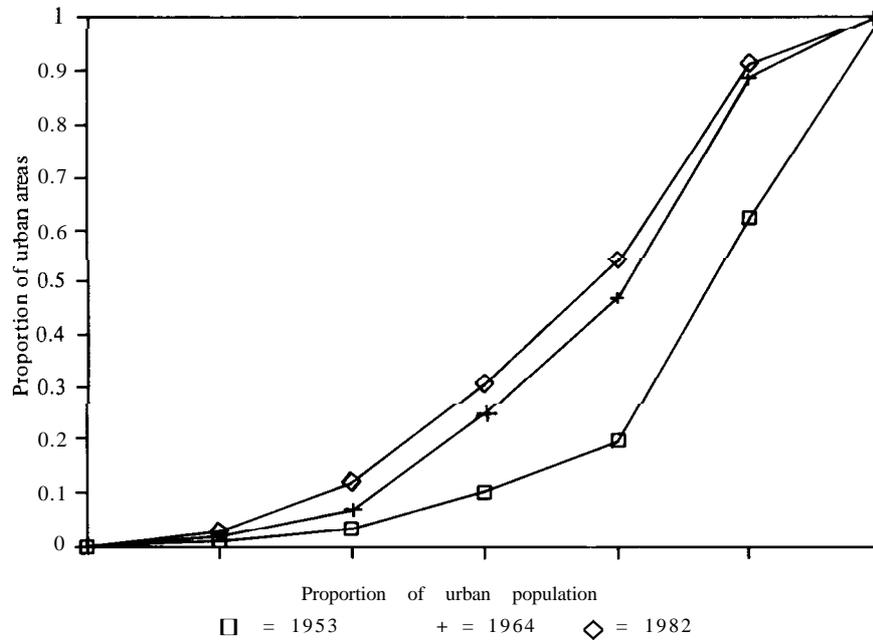


*Sources*: Compiled by authors from data provided from People's Republic of China. State Population Census Office and State Statistical Bureal, Department of Population Statistics, 1985; and Wei, 1985.

periods for China's urban population. The abscissa represents the cumulative percentage of the population, and the relationship of area and population would be a 45-degree line. A curve that coincides with the diagonal line indicates no concentration. The farther the curve is from the diagonal, the greater the concentration. In all the cases, the distribution of cities in 1953 shows the highest concentration. In contrast, the distribution in 1964 shows medium concentration and the distribution of cities in 1982 shows the lowest concentration. The Gini Index is the ratio of the area between the curve and the diagonal to the area of the triangle above the diagonal line. Thus, the index varies from zero, which is attained when populations are evenly distributed, to almost one, which is attained when the population is concentrated in a very small area (table 4).

Another method of evaluating urban primacy is to compute indices of primacy for different time periods. The urban primacy index values have been

**Table 4: City population concentration measured by the Gini Concentration Ratio for population living in urban areas of China, 1953,1964 and 1982**

| Size of urban area | 1953 | | 1964 | | 1982 | |
|---|---|---|---|---|---|---|
| | No. of urban areas | Popu-lation | No. of urban areas | Popu-lation | No. of urban areas | Popu-lation |
| Over 2 million | 4 | 13.97 | 7 | 25.80 | 13 | 43.76 |
| 1 - 1.99 million | 5 | 7.05 | 9 | 12.97 | 25 | 31.62 |
| 0.5 - 0.99 million | 16 | 11.29 | 34 | 25.10 | 47 | 33.21 |
| 0.3 - 0.49 million | 10 | 3.96 | 30 | 11.96 | 48 | 18.52 |
| 0.1 - 0.29 million | 68 | 11.95 | 69 | 13.19 | 89 | 16.74 |
| Below 0.1 million | 63 | 4.27 | 19 | 1.37 | 22 | 1.40 |
| Total | 166 | 52.48 | 168 | 90.39 | 244 | 145.25 |
| | Gini R = 0.591 | | Gini R = 0.529 | | Gini R = 0.523 | |

*Sources*: Gini Concentration Ratio for 1982 was compiled by authors from data provided by the State Population Census Office and State Statistical Bureau, Department of Population Statistics, 1985, p. 55. The ratios for 1953 and 1964 were computed from the data of Wei, 1985.

**Table 5: Index of urban primacy, 1953-1987**

| Year | Index |
|---|---|
| 1953 | 0.28 |
| 1970 | 0.23 |
| 1977 | 0.22 |
| 1980 | 0.19 |
| 1982 | 0.17 |
| 1987 | 0.16 |

*Sources*: Indexes for 1953, 1970, 1977 were derived from Pannell (1981, p. 106) and 1980 from Pannell and Ma (1983, p. 238). Index for 1982 was computed from data provided by the State Population Census Office and State Statistical Bureau, Department of Population Statistics (1985, p. 58), and index for 1987 was computed from data provided by the China Population Information Centre, (1988, p. 162).

**Table 6: Forty Chinese cities with populations over half a million, 1953,1957,1970,1982 and 1987**

| City | 1953 | 1957 | 1970 | 1982 | 1987 |
|------|------|------|------|------|------|
| Shanghai | 6,204,417 | 6,900,000 | 7,000,000 | 6,320,829 | 7,220,000 |
| Beijing | 2,768,119 | 4,010,000 | 5,000,000 | 5,597,955 | 6,710,000 |
| Tianjin | 2,693,831 | 3,220,000 | 3,600,000 | 5,142,560 | 5,540,000 |
| Shenyang | 2,299,900 | 2,411,000 | 2,800,000 | 4,003,405 | 4,370,000 |
| Chongqing | 1,772,500 | – | 2,400,000 | 2,634,492 | 2,890,000 |
| Guangzhou | 1,598,900 | 1,840,000 | 2,500,000 | 3,148,281 | 3,420,000 |
| Wuhan | 1,427,300 | 2,146,000 | 2,560,000 | 3,251,591 | 3,570,000 |
| Harbin | 1,163,000 | 1,552,000 | 1,670,000 | 2,542,832 | 2,710,000 |
| Nanjing | 1,091,600 | 1,419,000 | 1,750,000 | 2,134,198 | 2,490,000 |
| Qintao | 916,800 | 1,121,000 | 1,300,000 | 1,173,872 | 1,300,000 |
| Chengdu | 856,700 | 1,107,000 | 1,250,000 | 2,466,515 | 2,690,000 |
| Changzhun | 855,200 | 975,000 | 1,200,000 | 1,757,083 | 2,000,000 |
| Xian | 787,300 | 1,310,000 | 1,600,000 | 2,196,556 | 2,580,000 |
| Dalian | 766,400 | 1,508,000 | 1,650,000 | 1,478,978 | 2,280,000 |
| Taiyuan | 720,700 | 1,020,000 | 1,150,000 | 1,774,731 | 1,980,000 |
| Kunming | 698,900 | 880,000 | 1,100,000 | 1,425,779 | 1,550,000 |
| Jinan | 680,100 | 862,000 | 1,100,000 | 1,338,107 | 2,140,000 |
| Wushun | 678,600 | 985,000 | 1,080,000 | 1,192,814 | 1,290,000 |
| Changsha | 650,600 | 703,000 | 825,000 | 1,076,413 | 1,230,000 |
| Zhengzhou | 594,700 | 766,000 | 1,050,000 | 1,428,316 | 1,580,000 |
| Hangzhou | 589,000 | 784,000 | 960,000 | 1,191,582 | 1,290,000 |
| Anshan | 548,900 | 805,000 | 1,050,000 | 1,214,571 | 1,330,000 |
| Tangshan | 693,300 | 800,000 | 950,000 | 1,338,296 | 1,440,000 |
| Wuxi | 581,500 | 613,000 | 650,000 | 812,610 | 880,000 |
| Fuzhou | 553,000 | 616,000 | 680,000 | 1,129,251 | 1,240,000 |
| Shuzhou | 474,000 | 633,000 | 730,000 | 673,308 | 740,000 |
| Benxi | 449,000 | – | 600,000 | 792,401 | 860,000 |
| Jilin | 435,400 | 568,000 | 720,000 | 1,079,332 | 1,200,000 |
| Nanchang | 398,200 | 508,000 | 675,000 | 1,061,497 | 1,260,000 |
| Lanzhou | 397,400 | 699,000 | 1,450,000 | 1,416,371 | 1,420,000 |
| Shijiazhuang | 373,400 | 598,000 | 800,000 | 2,066,332 | 1,220,000 |
| Shuzhou | 373,000 | 676,000 | 700,000 | 779,289 | 860,000 |
| Qiqihar | 344,700 | 668,000 | 760,000 | 1,224,113 | 1,330,000 |
| Huenan | 286,900 | 370,000 | 600,000 | 1,025,077 | 1,110,000 |
| Guiyang | 270,900 | 504,000 | 660,000 | 1,319,432 | 1,430,000 |
| Nanning | 194,600 | 264,000 | 550,000 | 862,732 | 1,000,000 |
| Zibo | 184,200 | 806,000 | 850,000 | 2,196,556 | 2,370,000 |
| Hefei | 183,600 | 304,000 | 630,000 | 821,812 | 930,000 |
| Loyang | 171,200 | – | 580,000 | 975,764 | 1,090,000 |
| Baotou | 149,400 | 650,000 | 920,000 | 1,070,481 | 1,130,000 |

computed on the basis of the population of the largest city (Shanghai on all six dates) as a percentage of the total population of the 10 largest cities (Arriaga, 1975). Table 5 shows that Shanghai's position as a primate urban centre has consistently and rapidly declined since the 1950s. In 1953, the population of Shanghai accounted for one-third of the total of the 10 largest cities and by 1987 it was one-sixth. Its substantial decline from 1953 to 1987 reflects the Government's policy of spreading growth to other regional centres in the system in spite of the fact that Shanghai remains the most efficient city in terms of industrial productivity in China today (table 6).

Since the early 195Os, with little transport linkages and poor trade relations, several neighbouring provincial capitals have almost simultaneously become cities of over one million population in recent years. Such growth is exemplified by interior cities such as Zhengzhou, Chong-qing, Xian, Teiyuan and Lanzhou. The population of Lanzhou, for instance, has increased three times as fast since 1949 as prior to that time. Table 6 also clearly indicates that there appeared to be substantial containment of growth in the very largest cities (Shanghai, Beijing and Tianjin).

The two-city and the four-city indices for 25 provinces seem also to attest to the above findings (table 7). Both the two-city and the four-city indices are related to the rank-size rule. In terms of the former, the largest city is equal to the population contained in the second-ranked cities. The two-city primacy index measures the population of the largest city divided by that of the second largest city. The greater the index values, the greater the concentration in the largest city (Arriaga, 1975). Other comparisons between the largest city and the next three largest cities can also be made. The four-city index is the proportion of the largest city divided by summation of the second-, third- and fourth-ranked cities. This procedure may give a better measure of the primacy of the largest city since more cities are included. With regard to the primacy index for four cities, again, the greater the quotient, the greater is the concentration of the population in the first city in relation to the next three cities.

According to table 7, in 1953, there were 13 out of 25 provinces with a four-city index considerably above 1. In sharp contrast, only six provinces retained that status in 1982. For those provinces, there is a consistent trend in the two-city index. During the period 1953-1982, almost all provinces underwent a substantial decline in both the two-city and four-city primacy indices. This fact once again indicates that the Government's policy of spreading growth to other regional centres in the system had some success.

Further examination leads to the finding that in 1982, the high four-city primacy characterizing those provinces was related to their less developed

**Table 7 : Two-city and four-city primacy indices for 25 provinces in China, 1982**

| Province | Two-city Primacy Index | | Four-city Primacy Index | | Population growth rate of capital city |
|---|---|---|---|---|---|
| | 1953 | 1982 | 1953 | 1982 | |
| Hebei | 1.856 | 1.089 | 0.867 | 0.742 | 0.80 (Shijiazhuang) |
| Shanxi | 3.154 | 1.834 | 1.431 | 0.949 | 1.83 (Taiyuan) |
| Inner Mongolia | 1.007 | 1.442 | - | 0.830 | 0.69 (Huhehot) |
| Liaoning | 1.799 | 2.707 | 0.915 | 1.030 | 2.71 (Shenyang) |
| Jilin | 1.964 | 1.628 | 1.249 | 0.696 | 1.63 (Changchun) |
| Heilongjiang | 3.373 | 2.077 | 1.811 | 0.910 | 2.08 (Harbin) |
| Jiangsu | 1.876 | 2.962 | 0.764 | 1.696 | 2.63 (Nabjing) |
| Zhejiang | 2.933 | 1.076 | 1.223 | 0.349 | 2.54 (Hangzhou) |
| Anhui | 1.134 | 1.247 | 0.423 | 0.558 | 1.80 (Hefei) |
| Fujian | 2.465 | 2.213 | 1.338 | 0.852 | 2.21 (Fuzhou) |
| Jiangxi | 4.038 | 1.154 | 1.559 | 0.634 | 2.09 (Nanchang) |
| Shandong | 1.348 | 1.668 | 0.970 | 0.580 | 1.14 (Jinan) |
| Henan | 1.988 | 1.464 | 0.928 | 0.684 | 2.36 (Zhengzhou) |
| Hubei | 12.918 | 7.524 | 5.012 | 2.923 | 7.53 (Wuhan) |
| Hunan | 2.768 | 1.097 | 1.192 | 0.541 | 2.79 (Changsha) |
| Guangdong | 5.702 | 3.631 | 2.749 | 1.574 | 9.40 (Guangzhou) |
| Guangxi | 1.226 | 1.474 | 0.469 | 0.681 | 1.47 (Nanning) |
| Sichuan | 2.069 | 1.068 | 1.233 | 0.613 | 0.94 (Chengdu) |
| Guizhou | – | 1.584 | – | 1.118 | 0.63 (Guiyang) |
| Yunnan | 3.56 | 4.340 | 1.826 | 1.844 | 5.94 (Kunming) |
| Shaanxi | 6.052 | 4.416 | 2.828 | 1.727 | 5.82 (Xian) |
| Gansu | 4.781 | 7.596 | 1.897 | 2.970 | 17.40 (Lanzhou) |
| Qinghai | | | – | – | 9.99 (Xining) |
| Ningxia | – | | – | – | 1.19 (Yingchuan) |
| Xinjiang | 1.300 | 1.742 | 0.615 | 0.913 | 5.67 (Urumqi) |

*Sources*:  Index for 1953 was computed from data provided by SSB, 1988, pp. 40-79; index for 1982 was compiled from data provided by the State Population Census Office and State Statistical Bureau Department of Population Statistics, 1985, pp. 64-85.

condition. Chang (1976) found that "primacy increased in less developed provinces". The three provincial capitals, namely Lanzhou (Gansu), Xining (Qinghai) and Kunming (Yunnan), with a primacy index greater than 10 (more than 10 times the size of the second city), were all located in inland provinces.

## Conclusions

The level of urbanization in China is low in comparison to many developing countries and all developed ones. The rate of urbanization has fluctuated at relatively low levels but overall in a positive direction. The total urban population of China is massive. Where China's experience of urbanization is unique rests on the Chinese Government's uncompromising command over human resources which has enabled over-urbanization to be temporarily overcome.

Since 1950, there have been many policy and programme initiatives explicitly addressing the urbanization process in China. Our evidence consistently indicates that the Chinese Government has succeeded in its policies and measures aimed at keeping people out of cities and restricting the increase in urban populations. These have been instrumental in keeping the urbanization processes under control and hence avoiding some of the urban nightmares that have been associated with the exploding urban centres in most third world countries.

The example of China shows clearly that accelerated, uncontrolled urbanization is not a necessary evolution determined by the level and pace of development, and indicates that central planning can work in controlling demographic processes. However, on the other side of the coin, China's restraint of urban growth has not been without costs. During the 1960s and 1970s, sending so many urban people to the countryside – many in unproductive employment – constituted "over-ruralization".

However, China has no alternative to monitoring closely its population and urban situations. The adoption of measures and policies consciously or unconsciously to control population migration has obviated the alternative mass miseries epitomized by shanty-town existence, unemployment, hunger and disease. Indeed, in the particular case of China, the benefits appear to outweigh the costs.

We believe that because of its uniqueness, the experience of China's urbanization model needs to be shared with other developing countries. At the same time, it could be beneficial for the third world to look closely and carefully at China's urbanization process. There is much to be learned.

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# On the Industrialization of Small Towns in Pakistan

*The wisdom of allowing large cities
to grow to uncontrollable
dimensions is being
questioned*

By Imtiazuddin Husain and Tanvir Kiyani'*

Various types of disturbances in Pakistan's large cities c luring last three years or so have raised many questions about the future. Although administrators are currently taking steps to forestall similar mishaps in the future, industrialists and businessmen are worried about the colossal loss of manhours and production. In addition, demographers and social planners are questioning the wisdom of allowing large cities to grow to uncontrollable dimensions.

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**Table 1: Pakistan: Urban-rural distribution, 1901-1981**

| Census year | Rural | Urban |
|---|---|---|
| Percentage distribution of the population | | |
| 1901 | 90.2 | 9.8 |
| 1911 | 91.3 | 8.7 |
| 1921 | 90.3 | 9.8 |
| 1931 | 88.2 | 11.8 |
| 1941 | 85.8 | 14.2 |
| 1951 | 82.2 | 17.8 |
| 1961 | 77.5 | 22.5 |
| 1972 | 74.0 | 26.0 |
| 1981 | 71.8 | 28.2 |

*Source*:   PRI, 1986

Greater Karachi (including nearby Hub, Nooriabad and Dhabeji) and the industrial/commercial triangle of Lahore-Sheikhupura-Gujranwala are witnessing tremendous population growth. The population of Karachi is estimated to be between 9 and 10 million. The deputy mayor of Lahore recently estimated the population of Lahore to be between 5 and 6 million. Demographic and socio-economic problems as well as problems of law and order are a matter of daily routine in both of these areas. Yet many towns in the country are virtually ignored by industrial and commercial investors.

## Indicators

Several indicators reveal the dimensions of the problems regarding rural-to-urban migration and these are described briefly in the following paragraphs. Table 1 indicates the increase in urban population from a mere 9.8 per cent of the total population in 1901 to 28 per cent in 1981. The figures for urbanization would increase further if more realistic definitions of urbanization were applied, since some areas such as Daud Khel in Punjab province have a population of more than 30,000 and possess urban features. This area has been omitted fro the list of urban areas because it has not been declared a "town committee".[1] A number of urban centres in the Northwest Frontier Province (NWFP) have also been omitted for similar reasons.[2-3]

Urbanization trends are further explained in table 2 which shows that in all provinces the percentage of persons in the age group 15-59 years in rural areas is less than that of those in the urban areas, which indicates that persons in this age group have migrated to urban areas. Thus, there is a "bulge"

**Table 2: Percentage distribution of population of Pakistani provinces (urban/rural)**

| Age groups (years) | Punjab | | Sindh | | NWFP | | Baluchistan | |
|---|---|---|---|---|---|---|---|---|
| | Rural | Urban | Rural | Urban | Rural | Urban | Rural | Urban |
| 0-14 | 43.54 | 43.11 | 47.02 | 42.56 | 47.39 | 43.57 | 49.06 | 45.68 |
| 15-59 | 48.13 | 50.72 | 46.57 | 52.66 | 45.95 | 51.28 | 45.47 | 52.06 |
| 60+ | 8.43 | 6.17 | 6.41 | 4.78 | 6.66 | 5.15 | 5.47 | 2.26 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*Source*:    Population Census of Pakistan, 1981.

in the number of people in the 15-59 age group living in urban areas. This observation is further strengthened by the fact that in the rural areas of all provinces the percentage of persons aged 60t is higher than in urban areas. Since people migrate mainly to seek jobs, this suggests that elderly people are left behind in their rural households.

A module has been framed and illustrated in table 3 wherein densities

**Table 3 : High-density areas/districts and their low-density surroundings**

| High-density area/district | Adjacent districts | | | |
|---|---|---|---|---|
| | North | South | East | West |
| Karachi (4,110) | Dadu (53) | Arabian Sea (–) | Thatta (44) | Lasbela (15) |
| Lahore (2,000) | Sialkot (506) Gujranwala (447) | Kasur (382) | Indian Punjab (–) | Sheikhupura (354) |
| Hyderabad (372) | Nawabshah (220) | Badin (53) | Tharparkar (53) | Dadu (53) |
| Rawalpindi (401) | Islamabad (279) Abbottabad (311) | Chakwal (218) Jhelum (144) | Azad Kashmir (–) | Attock (130) |
| Faisalabad (608) | Jhang (224) | Sahiwal(359) Multan (417) | Jhang (224) | Sheikhupura (354) |
| Gujranwala (447) | Gujrat (384) | Sheikhupura (354) | Sialkot (596) | Sargodha (327) |
| Multan (417) | Khanewal(315) | Rahim Yar Khan (155) | Vehari (304) | Muzaffargarh (181) |

*Note*:    Density (persons per sq. km) is indicated within parentheses. Figures reflect entire Karachi Metropolitan Area.

*Source*:   Census, 1981.

of areas on all sides of densely populated districts are highlighted. It was found that the Karachi area, for example, has a density of over 3,000 persons per square kilometre while Thatta towards the east has a density of 44, Lasbela to the west has a density of 15 and Dadu to the north has a density of 53. Similar sharp differences are noticed in the case of Lahore where the density is 2,000 persons per sq km while Kasur to the south has a density of 382, Sialkot to the north has a density of 506 and Gujranwala to the north has a density of 447. Also, Hyderabad (density 372 persons per sq km) has scarcely populated neighbouring districts: namely, Dadu to the west (53), Badin to the south (53), Tharparkar to the east (53) and Nawabshah to the north (220). Similar differences but of lesser magnitude are found in respect of Rawalpindi, Faisalabad, Gujranwala and Multan. The table thus points towards the need for rational population distribution.

In table 4, the cities of Pakistan are classified into three categories by a population: (a) of more than one million, (b) between half a million and one million, and (c) fewer than half a million but more than 100,000. Pakistan has four cities (we consider Rawalpindi/Islamabad as one urban area owing to their geographical proximity) in the million or above class. We attempted to project Pakistan's urbanization picture and compare it with India by multiplying our figures by 7.5 (India's population is roughly 7.5 times that of Pakistan's) to get the expected number of Indian cities in the million or above class and compare those figures with the actual situation in India. Based on that projection, the number of Indian cities in the million or above class would be 30, but India has only 12 cities of that size. Using this approach, the expected number of India cities in the half million to one million class would also be 30, which is the actual number. Thus, in comparing the circumstances in these two countries, it would seem that the urban situation with regard to very large Indian cities is not as severe as in Pakistan. Further, it should be mentioned that India's urban areas grew at about the same rate between 1952 and 1971 and there is no evidence of large-scale migrant flows to larger urban centres.[4] It may be inferred from table 5 that the concentration of urban population in some other countries with large urban areas is not as heavy as in Pakistan, for example, in China, the percentage is 45.

According to Pakistan's 1981 census, it was found that out of 61 districts only six had 70 per cent or more of the population of those districts living in urban areas. This shows that the country's urban population is concentrated in those six districts only. (See figure and table 6.)

In terms of rank-size relationships, "the primacy of Karachi increased slightly during the 1961-1972 period. The rank-size relationship does not describe well the distribution of cities in Pakistan owing to the concentration

**Table 4: Comparative distribution of cities of Pakistan and India**

| Population of cities | Pakistan[a] | India[b] | |
| | Number | Expected number | Actual number |
| (1) | (2) | (3)[*] | (4) |
| 1,000,000 & over | 4 | (2)x7.5= 30 | 12 |
| 500,001-999,999 | 4 | (2)x7.5= 30 | 30 |
| 100,001-500,000 | 19 | (2)x7.5=150 | 174 |
| No. of cities | 27 | 210 | 216 |

[*]Notes: For column 2, Rawalpindi and Islamabad are considered as one city; for col. 3, Indian population is roughly 7.5 times larger than the population of Pakistan.

Sources: [a] Pakistan Census Report, 1981.
[b] Population Census of India, 1981.

of urban population in six large cities and the small number of urban centres in the 100,000 to 250,000 population range", according to Helbock[5].

Urbanization is regarded as one of today's major environmental threats. The urbanization process is expected to accelerate in Pakistan so that, even if the present trend continues, it has been estimated that by the year 2003 (the end of the Tenth Five-Year Plan) the number of cities in the million or above

**Table 5: Percentage of urban population in cities of over half a million (South Asia and China, 1980)**

| Countries/Regions | Percentage of urban population in cities of over a half million |
| --- | --- |
| Bangladesh | 51 |
| China | 45 |
| India | 39 |
| Pakistan | 51 |
| Sri Lanka | 16 |
| South Asia | 39.25 |

*Source*: World Bank, *World Development Report*, 1990, table 3 1, p. 238

class would increase to nine. Large cities (100,000-l million population) would number 88, accounting for 78 per cent of the projected urban population. The cities in the million and above class alone are expected to accommodate as many as 36 million people.

Such potentially rapid urbanization holds may implications with regard to human well-being and environmental quality. These may be summed up as follows:

a) Declining environmental quality in urban areas through air, water and soil pollution;

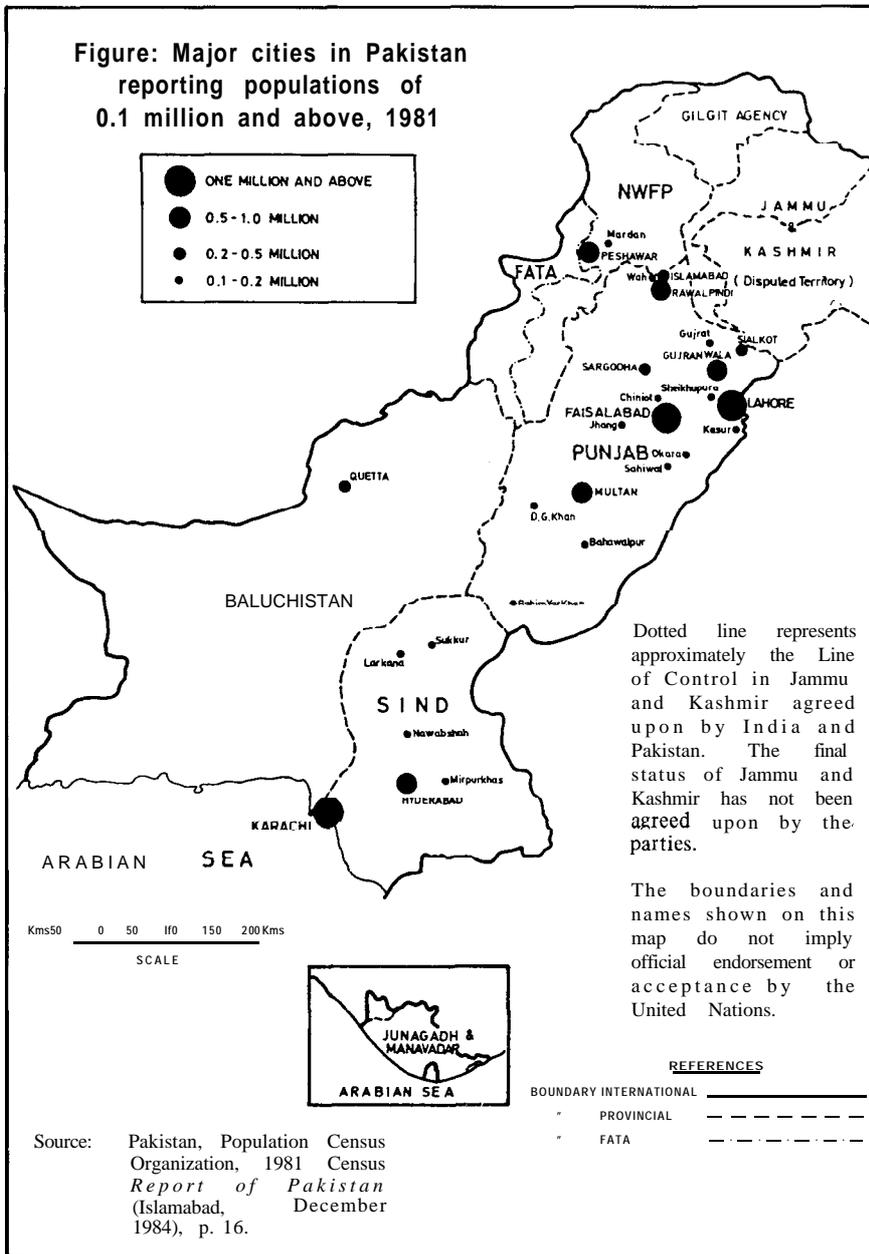b) Severe degradation of the surrounding environment and ecological

**Table 6: Population of 12 major cities in Pakistan: 1931-1981**

| City | 1931 | 1941 | 1951 | 1961 | 1972 | 1981 |
|------|------|------|------|------|------|------|
| Karachi[a] | 263,565 | 386,655 | 1,068,459 | 1,912,598 | 3,515,402 | 5,208,132 |
| Lahore[b] | 429,741 | 671,659 | 849,333 | 1,296,417 | 2,169,142 | 2,952,689 |
| Faisalabad[c] | 42,932 | 69,930 | 179,127 | 425,248 | 823,343 | 1,104,209 |
| Rawalpindi[b] | 119,284 | 185,042 | 236,817 | 340,175 | 614,809 | 794,843 |
| Hyderabad[b] | 101,699 | 134,693 | 241,801 | 434,537 | 628,631 | 751,529 |
| Multan[b] | 119,457 | 142,768 | 190,122 | 358,201 | 538,949 | 132,010 |
| Gujranwala[c] | 58,716 | 84,545 | 120,852 | 196,154 | 323,880 | 600,993 |
| Peshawar[b] | 121,866 | 173,420 | 151,435 | 217,885 | 212,691 | 566,248 |
| Sialko[b] | 100,973 | 138,708 | 156,378 | 167,294 | 203,650 | 302,009 |
| Sargodha[b] | 26,761 | 36,420 | 78,447 | 129,291 | 200,460 | 291,362 |
| Quetta[b] | 60,212 | 64,416 | 83,892 | 106,633 | 158,026 | 285,719 |
| Islamabad | – | – | – | – | 76,641 | 204,364 |

Source:   Pakistan, Population Census Organisation, *1981 Census Report of Pakistan* (Islamabad, December 1984),   table 2.4, p. 15.

Notes:   [a] Karachi city comprises Karachi Metropolitan Corporation, Karachi Cantonment (cantt.),   Drig Road Cantt., Korangi Creek Cantt., Malir Cantt. and Manora Cantt.;   [b] Municipal corporation and cantonment;   [c] Municipal corporation. The table shows the tremendous increase in the population of Karachi, Lahore, Faisalabad and Gujranwala. Islamabad, adjacent to Rawalpindi, became the country's capital in the early 1960s; it too showed a rapid population increase. If the latter cities are assumed to be a single geographic entity, there were four cities in the million class in 1981. By comparison, the growth of smaller cities is slower.

# Figure: Major cities in Pakistan reporting populations of 0.1 million and above, 1981

- ● ONE MILLION AND ABOVE
- ● 0.5 - 1.0 MILLION
- ● 0.2 - 0.5 MILLION
- ● 0.1 - 0.2 MILLION

GILGIT AGENCY

NWFP

JAMMU &

KASHMIR

Mardan
PESHAWAR

FATA

Wah ISLAMABAD ( Disputed Territory )
RAWALPINDI

Gujrat SIALKOT
GUJRANWALA

SARGODHA

Chiniot Sheikhupura

FAISALABAD LAHORE
Jhang Kasur

PUNJAB Okara
Sahiwal

QUETTA

MULTAN

D.G.Khan

Bahawalpur

BALUCHISTAN

Rahim Yar Khan

Sukkur

Larkana

SIND

Nawabshah

Mirpurkhas

HYDERABAD

KARACHI

ARABIAN SEA

Kms50   0   50   If0   150   200Kms

SCALE

JUNAGADH & MANAVADAR

ARABIAN SEA

Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not been agreed upon by the parties.

The boundaries and names shown on this map do not imply official endorsement or acceptance by the United Nations.

REFERENCES

BOUNDARY INTERNATIONAL  ————————

"        PROVINCIAL   — — — — — —

"        FATA    — · — · — · — · —

Source:   Pakistan, Population Census Organization, 1981 Census *Report of Pakistan* (Islamabad, December 1984), p. 16.

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systems of urban hinterlands and extensive use of agriculture land for urban residential purposes;

c) Demographic transformations through migration in rural and urban areas;

d) Inadequate housing, transportation, public services (water, sanitation, schools, health etc.);

e) High rates of unemployment and related social pathologies such as crime;

f) Increases in public expenditure in cities at the cost of other parts of the national economy; and

g) The threat of political instabi1ity.[6]

Although the urbanization process has affected all parts of the country and human settlements of all sizes in one way or another, the intensity of the impact is most critical in the large cities. There are indications that several large cities such as Karachi, Lahore, Faisalabad, Rawalpindi, Multan, Hyderabad, Gujranwala and Peshawar, among others, are experiencing population pressure. Thus rapid urbanization and movement into large cities is currently going on. Already some demographers in Pakistan are suggesting that new in-migrants to metropolitan areas be either taxed separately or issued a job card to identify them as new residents.[7] This argument does not suggest that migration can or should be stopped; instead, it should be channelled to other urban centres.

## Discussion

It seems that employment and the search for better employment prospects comprise the main driving force for rural-to-urban movements. This is true not only in Pakistan but also in many other parts of the world. In such movements, the younger and the better educated are the first to move. They move to areas where there are industries or commercial ventures. Likewise, businessmen also set up industrial or commercial enterprises based on several considerations. Normally such investors consider the following factors before embarking on a new venture:

a) Cheap land to erect plant/offices;

b) Abundant labour supply;

c) Reliable source of power (energy);

d) Proximity to raw materials;

e) Rapid transport and communication system;

f) Good hinterland for marketing finished products;

g) Stability (law and order); and

h) Tax-holidays and other concesions.[8]

As a general rule, the Government of Pakistan discourages further industrialization in already heavily industrialized areas. Tax holidays, concessions and incentives are more generous in less industrialized or industrially backward areas. A number of official bodies are working towards promoting such growth. In Sindh, the Sindh Small Industries Corporation and Sindh Arid Zone Development Authority aim at encouraging industrialization in the backward areas of the province.

### Table 7: Small towns of Pakistan

| Name of town | Population 1981 (in thousands) | Nearest existing industrial belt |
|---|---|---|
| Sargodha | 290 | Lahore, Faisalabad, Gujranwala |
| Jhang | 200 | ,, |
| Gujrat | 150 | ,, |
| Wazirabad | 60 | ,, |
| Sahiwal | 150 | ,, |
| Okara | 150 | Multan |
| D.G. Khan | 100 | ,, |
| Bahawalpur | 180 | ,, |
| Khanewal | 90 | ,, |
| Mirpurkhas | 120 | Karachi-Hyderabad |
| Nawabshah | 100 | ,, |
| Tando Adam | 60 | ,, |
| Dadu | 40 | ,, |
| Larkana | 120 | ,, |
| Shahdadpur | 40 | ,, |
| Tando Mohamad Khan | 40 | ,, |
| Thatta | 20 | ,, |
| Kohat | 80 | Peshawar-Mardan |
| Nowshera | 70 | ,, |
| D.I. Khan | 70 | ,, |

There are several ways to arrest rural-urban movements one of which is the development of small towns. We have listed a number of towns which have growth potential and which can be developed to ease the pressure on large cities.

Most of the towns listed in table 7 offer a good deal of food for thought as far as the eight aforementioned factors necessary for industrialization are concerned. All of these towns, except Thatta, are connected by the national railway network; in fact, several are railway junctions. Most of the towns listed have a small number of industrial centres or establishments. Industrialists establishing businesses in these towns could avoid the already established industrial areas mentioned in the last column of table 7 without losing the market held by the big centres. If industries were to move to smaller towns, there would be several advantages for all: e.g. congestion in the large cities will decrease, and life in and around small towns will improve. The logic is that if a job seeker can get a reasonable job nearer to his or her home, that person will not move to distant cities.

Further, for example, it could be decided by all concerned that any new industry utilizing local raw materials to the extent of say 50-60 per cent of the total amount of raw materials required should be located in any one of the towns mentioned in table 7. The following types of industries could be established in the aforementioned towns.

| | |
|---|---|
| – Beverages | – Edible oil |
| – Eggs/poultry | – Food stuffs (biscuits/macaroni, canned food, pickles) |
| – Footwear | – Fruit products |
| – Garments | – Hosiery |
| – Maize products | – Marble/onyx |
| – Meat products | – Milk products |
| – Rice mills | – Sweets and similar products |
| – Textiles (cotton/woollen) | – Wood-working (including the manufacture |
| – Tobacco/cigarettes | of matches and plywood) |

Once such industries are established in a particular small town, other supporting services such as packing, printing, transport and hotels quickly move there.

Pakistan is basically an agricultural country with only 30 per cent of its population living in urban areas. The majority of its population live in rural areas and follow agricultural pursuits. However, small town or rural youth are migrating in great numbers to large cities in quest of an education and jobs. As a result, rural and small town life is suffering because of the "pull" factors

of cities. The educated or dynamic youth of such areas are lost to large cities. Large cities also suffer owing to pressure on services such as housing, transport, electricity and water supplies. "Push" factors are also operating in small towns and villages in the shape of shortages of educational, medical and transport facilities, which lead to underemployment or unemployment. The aim should be to minimize the push and pull factors.[9]

In the context of establishing industries in small towns and thus scattering them, there is another trend worth noting. Plants and factories may well be located in small towns but their well-staffed head offices are situated in large cities such as Karachi, Lahore or Rawalpindi/Islamabad. This is perhaps done with a view to enable easy access to government offices, banks and important facilities. The existence of other supporting industries or services may also be another reason for keeping the head offices in large cities, sometimes a distance away from factories and plants.

However, this trend is not fully comprehensible. The economic benefit of maintaining well-staff head offices in large cities is offset by the higher cost of maintaining them there. The private sector can take initiative only on moving head-offices to be closer to factories. As far as public sector industries are concerned, the Government may want to reconsider its current position.

Because of the high costs involved in maintaining the current situation, many entrepreneurs are thinking of converting from labour-intensive to capital-intensive industries by automating their plants. However, plant automation may not be suitable for a country which is endowned with a surplus of working-age population. This move can in the short-run involve a huge financial outlay and in the long-run may leave a trail of unemployment, which in turn would mean weakened buying power, among other undesirable socioeconomic effects.

### Conclusions

The Government has initiated a tax holiday system aimed at dispersing industry throughout the country. Yet there is a need to go a step further and develop industrial estates in various small towns. Laying the basic infrastructure needed to start an industry is also essential: roads, power and water supply are the basics. Suitable information and publicity programmes should also be carried out to project the small town idea.

New industrial ventures can be guided to such spots, but it will require a few entrepreneurs to take the lead; others need to think far ahead or more practically. Besides industrialization, commercial ventures, administrative offices and educational institutions should also be established as is done in other countries (such as the United States). These attract a large number of

m-migrants. The aim should be not just to establish newer industrial estates but to make them workable. This can only be achieved by close co-ordination among government agencies, entrepreneurs and the general public. In the initial stages, perhaps a *new location* or *hardship allowance* or quick solution of workers' housing or their children's schooling needs should be main factors for implementation in order to attract and retain workers. Transport, communication and banking improvements are also very important factors in making such estates workable. A move has to be made in the direction of small towns; current demographic statistics show that Gujaranwala and Faisalabad are the fastest growing cities in Pakistan. The third fastest, Karachi, is growing at the rate of about 5 per cent per year, which means its population will be 14 million by the year 2000; Lahore will have a population of about 8 million at that time. Among the world cities with a population of 2 million or more in 1985, Karachi ranked twenty-fifth and Lahore forty-fourth. By the year 2000, Karachi rank is expected to be fourteenth in the world.[10]  It does not take too much to imagine the chaos that may exist there at that time.

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# The Sample Registration System: An Innovative System for Monitoring Demographic Dynamics*

The International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) has been at the forefront of the development of longitudinal systems for demographic surveillance. The Demographic Surveillance System from the Metlab study area is internationally recognized as a unique source of accurate and complete demographic data for a large rural population within a developing setting.   In this paper, an overview is presented of a second demographic surveillance system – the Sample Registration System (SRS) – which has been in operation for six years in two other areas of rural Bangladesh.

## Overview

### The field operation

The SRS was developed at ICDDR,B to assess the demographic impact of the Maternal and Child Health – Family Planning (MCH-FP) Extension Project. That action-research project aims to improve health and family planning services in two rural subdistricts in Bangladesh by transferring service innovations from an ICDDR,B  project in MatIab to the government service system. Barriers to the transfer of Matlab operations were the initial focus of the project; more recently, the focus has expanded to involve research on capacities of the public programme to undertaken systematic change and the development of health and family planning services.
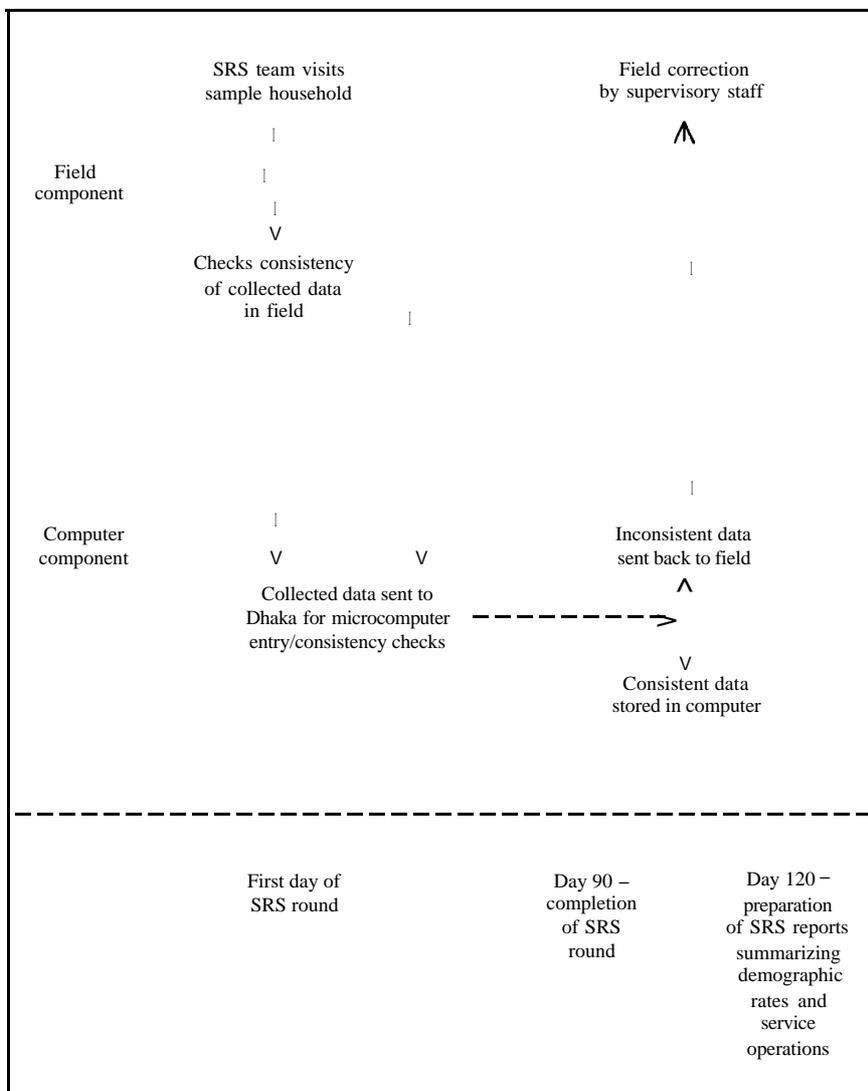
Originally established in 1982, the SRS operates in field sites in parts of four *upazila* (subdistricts consisting of approximately 200,000 population each) in two rural areas of Bangladesh: in Abhoynagar *upazila* in Jessore district in the south-western part of the country and in Sirajgonj *upazila* in Sirajgonj district in the northcentral part of the country.[1]  Comparison areas have been designated in neighbouring districts in areas which are contiguous to each treatment area.

The sampling and organizational phase of the SRS parallels designs typically employed in sample surveys, whereby a two-stage cluster sample is drawn. Within each *upazila*  chosen for the project, a sample of unions (administrative subunits in Bangladesh consisting of a population of approximately 20,000 each) was selected randomly as a first stage in the cluster sampling procedure. A complete household listing was subsequently carried out in each sample union, and households were randomly selected, each with an equal probability of se1ection.[2]  Among sample households, an enumeration was carried out to identify all household members, collect basic socio-economic and demographic information about each, and to assign unique identification numbers to each individual in the SRS.[3]  Data on each household were augmented by a separate in-depth baseline KAP (knowledge, attitudes and practice) survey which was carried out for each household in 1982. These procedures led to the surveillance of 7,428 households consisting of 41,269 individuals at the start of the SRS in 1982.

This information was subsequently entered into the computer at Dhaka, printed and bound in the form of household record books, SRS interview teams, each consisting of one male and one female interviewer, then began visiting each sample household at regular 90-day intervals to inquire about vital events which occurred since their last visit. Such events include pregnancy terminations, deaths, in- or out-migrations, or marital status changes.

Actual interviews are carried out by the female member of the SRS team, with reproductive-a ed female members of the household being the respondents of preference.[4]  Interview teams are assigned an average of 15-20 households per day, with one team covering an average of 800-900 households during a typical 90day round.

The data collected are entered into the household record book which remains with the interviewer except after the completion of a round when the books are sent briefly to Dhaka for computerization.[5]  The household record book is a central element of the surveillance system, since it provides a longitudinal summary of events for each household under surveillance, and enables field workers to evaluate the validity of new data through the linkage of reported events at the time of data collection. In this manner, primary responsibility for logical editing is borne by the field staff, where errors are

```
                    SRS team visits                      Field correction
                    sample household                     by supervisory staff

                                                                 Λ
         Field
         component                  |

                                    V
                    Checks consistency
                    of collected data                           |
                        in field
                                           |



                                                                |

         Computer                   |            Inconsistent data
         component                  V        V   sent back to field
                    Collected data sent to                      Λ
                    Dhaka for microcomputer   - - - - - - →
                    entry/consistency checks
                                                                V
                                             Consistent data
                                             stored in computer



- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

                    First day of           Day 90 –         Day 120 −
                    SRS round              completion        preparation
                                            of SRS          of SRS reports
                                             round          summarizing
                                                            demographic
                                                            rates and
                                                              service
                                                            operations
```

often readily correctable, rather than by the microcomputer and data management staff, thus eliminating a high proportion of all errors. The collection of accurate data is facilitated by a well-developed supervisory system, with 5 per cent of all sample households undergoing supervised interviews and an additional 5 per cent receiving independent re-interviews by supervisors.

## The computer component

The data storage design of the SRS is conceptually simple : each household is treated as a storage unit, much like an accountant maintains records on financial transactions. Individuals are checked into the household when births or in-migrations occur and checked out when deaths or out-migrations occur. In accounting fashion, the days of observation are counted, as well as other information of interest about households, individuals, or events. This design is referred to as a "relational model" in the computer literature. It differs substantially from "sequential models" that have been used widely in longitudinal studies in the past.

Although this design is seemingly complex, it actually simplifies the management of data considerably. The scope for designing data content is highly flexible. While the demographic component of the SRS provides the basic structure of the SRS (household size and composition, interrelationships among members, member characteristics and their demographic events history), the information posted to the database can be either longitudinal histories or fixed entries. The SRS is designed, for example, to record in 90day rounds each respondent's recall of service worker visits, the type of services received and whether services were adopted. In addition to the routine longitudinal data, special purpose one-time modules have been added intermittently to collect data on issues such as husbands' and wives' reproductive preferences, breast-feeding, women's status and perceptions about the quality and availability of services. The scope and content of these special modules is limited only by the time available for interviewing (usually 15-20 minutes per household).

Use of database methods also facilitates continuous and comprehensive editing. The SRS software includes a comprehensive editing sequence that checks the logical integrity of input data against all other available data on each sample individual and household. This on-line interactive entry and processing system ensures prompt feedback to field workers when problems need to be resolved.

The database design not only simplifies data management, it greatly facilitates demographic analysis. Recording the visit date and dates of movement into and out of households permits immediate calculation of the population at risk of vital events at a given point in time. Calculation of demographic rates can be done from simple tabulations that require no special-purpose software or data management tasks. Simple-to-use software is available which accumulates, at the closure of an SRS visitation round, the person-days of observation of each individual to be accumulated as denominators for vital rates.

In summary, the SRS addresses the need for data collection systems that are: (a) longitudinal and capable of monitoring not only events, but also the population at risk of events; (b) accurate and complete, with minimum scope for internal logical inconsistencies to arise;(c) expandable and flexible to register not only vital events, but also proximate and background determinants of demographic dynamics; (d) simple, inexpensive and portable, placing minimum technical demands on users; (e) quickly implemented and designed to produce timely results; and (f) suitable for large populations, yet compatible with micro-computer technology.

## Results

Demographic rates tabulated from the SRS for the 1983-1988 period are presented in tables 1 and 2. Given the comparatively small number of demographic events occurring in the population under surveillance, data are presented in this paper on an annual basis and for the two field sites as a whole, with no distinction made between treatment and comparison areas.

Fertility rates for the 1983-1988 period in the Sirajgonj and Abhoynagar study areas are shown in table 1. Although considerable fluctuation in rates is evident for all measures of fertility considered, it is apparent that significantly higher fertility levels are found in the Sirajgonj area. Crude birth rates during this period range from 40.146.5 per thousand population in Sirajgonj, compared to 26.7-34.7 per thousand in Abhoynagar.

Consideration of other fertility measures which are not influenced by age structure provides a similar picture. Total fertility rates (TFRs) in Sirajgonj are almost 50 per cent higher than in Abhoynagar in most years, ranging from 5.3 to 6.4, compared with TFRs of 3.1 to 4.3 in Abhoynagar. As shown in the age-specific fertility rates, differences between areas are most pronounced among women aged 30 years and above, with rates in Sirajgonj generally twice as high as rates in Abhoynagar. In both areas, there is evidence of modest but discernible declines in fertility levels over time, although their magnitude is likely obscured by data from the treatment and comparison areas having been combined. A careful analysis of this differential has established that differences in levels of contraceptive use explain most of the area1 variance apparent in SRS fertility data.[6]

Table 2 presents data on mortality levels in the two field sites. Once again, a substantial difference is apparent between Sirajgonj and Abhoynagar, with the former characterized by significantly higher mortality rates. Infant mortality rates in Sirajgonj range as high as 173 per thousand live births and are never lower than 147 per thousand, during this six-year period. In contrast, infant mortality levels in Abhoynagar range from 102 to 142 per thousand live births.

**Table 1: Fertility rates, Sample Registration System, 1983-1988**

|  | Sirajgonj | | | | | | Abhoynagar | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
| Crude birth rate | 44.0 | 46.5 | 44.3 | 40.1 | 40.6 | 41.4 | 34.7 | 29.4 | 33.1 | 26.7 | 29.5 | 28.6 |
| General fertility rate | 196.0 | 205.2 | 193.3 | 173.7 | 176.1 | 181.1 | 150.3 | 124.6 | 137.9 | 110.0 | 121.6 | 117.8 |
| Age-sperifk fertility rate |  |  |  |  |  |  |  |  |  |  |  |  |
| 15-l9  years | 189.9 | 184.7 | 175.3 | 143.0 | 152.5 | 165.6 | 172.1 | 118.8 | 150.2 | 135.1 | 144.2 | 137.4 |
| 20-24  years | 272.4 | 293.3 | 261.7 | 257.2 | 273.6 | 269.2 | 223.0 | 208.6 | 232.6 | 160.7 | 193.6 | 207.0 |
| 25-29  years | 251.1 | 284.2 | 270.6 | 238.6 | 222.3 | 238.3 | 183.3 | 164.9 | 151.7 | 145.2 | 146.2 | 150.7 |
| 30-34  years | 242.7 | 246.7 | 225.4 | 220.1 | 222.5 | 177.3 | 148.8 | 99.2 | 140.7 | 90.8 | 96.9 | 74.9 |
| 35-39  years | 180.9 | 188.3 | 197.0 | 143.7 | 143.4 | 165.3 | 95.0 | 95.0 | 65.1 | 50.9 | 64.4 | 52.1 |
| 40-44  years | 71.3 | 83.4 | 68.2 | 75.3 | 54.4 | 72.8 | 26.7 | 38.0 | 32.3 | 28.3 | 26.9 | 24.6 |
| 45-49  years | 4.7 | 11.3 | 8.9 | 6.8 | 0 | 7.4 | 3.4 | 3.2 | 3.1 | 3.0 | 3.0 | 3.1 |
| Total fertility rate | 6.1 | 6.4 | 6.0 | 5.4 | 5.3 | 5.5 | 4.3 | 3.6 | 3.9 | 3.1 | 3.4 | 3.2 |

**Table 2: Mortality rates, Sample Registration System, 1983-1988**

| | Sirajgonj | | | | | | Abhoynagar | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1983** | **1984** | **1985** | **1986** | **1987** | **1988** | **1983** | **1984** | **1985** | **1986** | **1987** | **1988** |
| Crude death rate | 18.5 | 19.2 | 14.4 | 13.9 | 13.4 | 14.6 | 11.8 | 11.2 | 11.2 | 10.2 | 7.8 | 7.8 |
| Infant mortality rate* | 157.7 | 172.5 | 158.8 | 147.7 | 149.5 | 165.5 | 120.8 | 142.1 | 117.6 | 136.3 | 104.0 | 102.4 |
| Neonatal mortality rate* | 89.2 | 103.5 | 91.9 | 94.3 | 92.0 | 100.2 | 63.6 | 72.0 | 50.6 | 88.2 | 58.4 | 59.6 |
| Post-neonatal mortality rate* | 68.5 | 69.0 | 66.9 | 53.4 | 57.5 | 65.3 | 7.2 | 70.1 | 67.0 | 48.1 | 45.6 | 42.8 |
| Age-specific death rates | | | | | | | | | | | | |
| 1-4 years | 35.1 | 36.0 | 22.8 | 22.9 | 18.1 | 21.4 | 13.7 | 10.5 | 9.5 | 9.1 | 4.6 | 8.0 |
| 5-14 years | 4.1 | 3.9 | 2.4 | 2.0 | 2.6 | 1.5 | 2.9 | 2.5 | 1.3 | 1.5 | 0.6 | 1.4 |
| 15-44 years | 2.9 | 2.7 | 1.2 | 2.7 | 2.0 | 2.5 | 2.5 | 2.4 | 3.3 | 2.0 | 2.5 | 2.6 |
| 45+ years | 32.5 | 31.2 | 23.6 | 23.5 | 24.5 | 25.5 | 29.1 | 29.2 | 31.6 | 30.6 | 20.3 | 17.2 |
| Denominators: | | | | | | | | | | | | |
| Live births | 1 065 | 1 159 | 1 121 | 1 029 | 1 044 | 1 088 | 629 | 542 | 612 | 499 | 548 | 537 |
| Person years | | | | | | | | | | | | |
| 1-4 years | 3 249.0 | 3 306.6 | 3 378.9 | 3 448.1 | 3 366.4 | 3 412.1 | 2 261.1 | 2 296.3 | 2 211.7 | 2 092.3 | 1 960.6 | 1 864.4 |
| 5-14 years | 6 586.7 | 6 646.7 | 6 631.5 | 6 583.3 | 6 623.3 | 6 845.5 | 4 781.1 | 4 733.4 | 4 727.9 | 4 806.2 | 4 820.4 | 4 880.1 |
| 15-44 years | 10,062.3 | 10,566.1 | 10,832.0 | 11,158.3 | 11,256.8 | 11,390.1 | 7 973.5 | 8 287.9 | 8 483.6 | 8 708.3 | 8 666.7 | 8 772.6 |
| 45+ years | 3 353.0 | 3 399.9 | 3 435.7 | 3 485.2 | 3 512.2 | 3 647.6 | 2 512.5 | 2 538.3 | 2 560.5 | 2 583.1 | 2 608.2 | 2 726.4 |

*Note*:   * Per thousand live births.

Closer examination shows that most of the difference in levels of infant mortality is attributable to significantly higher neonatal mortality levels in the Sirajgonj field site, with neonatal mortality levels approaching or exceeding rates of 100 per thousand live births in all years. In both areas, infant mortality levels reached a peak in 1984, possibly as a result of serious flooding which occurred in the autumn of that year, which led to both a serious subsequent diarrhoeal disease epidemic among young children and the disruption of normal health services.

The mortality differentials between areas is even more pronounced during ages 14 years, with rates generally two to three times higher in Sirajgonj than in Abhoynagar in all year.[7]

There is some evidence suggesting a modest decline in levels of infant and particularly child mortality over time.[8]  although the evidence is less conclusive than in the case of fertility and substantial fluctuation is apparent owing to the frequently small number of cases involved. Little difference is evident between areas in levels of adult mortality.

## Discussion

The mortality and fertility rates reported in this paper are substantially higher than those reported from other intensive demographic surveillance systems such as Matlab, and considerably higher than those reported for rural Bangladesh as a whole.[9]  The infant and child mortality levels reported for the Sirajgonj study area represent some of the highest recorded levels in rural Bangladesh in recent years.[10]

Of particular interest is the finding of extensive variation between the two study areas in fertility and mortality levels. The extent of variation in basic demographic parameters within rural Bangladesh is not fully appreciated, due in large part to the absence of accurate demographic data at the sub-national level. While initial work has been undertaken on this issue (Rob, 1987), considerable scope remains for further investigation of the factors responsible for area variation in demographic parameters.

In this paper, we have focused on the demographic component of the SRS. The potential exists for adaptation of the SRS to the surveillance of a diverse range of other issues such as nutrition, morbidity, or service programme surveillance. The expandability and flexibility of the SRS demonstrates the utility of this technology for special research projects, many of which have been fielded in  Asia where analytical interests extend beyond demographic assessment to questions concerning the determinants of demographic dynamics and feasible policy interventions for improving health and well-being.

# Footnotes

1. In 1986, the SRS was expanded to two additional upazila in Jessore district. Rates reported in this paper are based only on the original field sites.

2. Based on estimates of vital rates, comparisons of interest and the degree of confidence required, a sample size was selected that allows three-celled comparisons for annual data. The overall sampling fraction to achieve this was slightly in excess of 19.

3. The field operations and instructions to field staff are described in detail in Mozumder *et al*. (1985).

4. A team of one male and one female interviewer is required largely because of the difficulties facing women travelling alone in the conservative setting of rural Bangladesh. In many other settings, it should be possible to operate the SRS with female interviewers only. If only female interviewers are used, the estimated annual cost of surveillance per household is $US8.65 (Koenig *et al*., 1988).

5. A simple procedural modification would involve field processing the data on a "lap-top" computer or stationary computer. Field registers could be brought to a central field location and quickly processed. However, such a design is not recommended for Bangladesh owing to the novelty of computing in remote areas and the unpredictable distortions to work relations that could arise from introducing new technology into study areas. Nonetheless, other settings or other projects in Bangladesh with established field operations could decentralize processing.

6. See U. Rob, 1987.

7. Recent nutrition surveillance carried out in Sirajgonj suggests that high rates of malnutrition may be a central factor in accounting for the high rates of child mortality observed in this area. (SRS Sirajgonj Post-Flood Nutrition Assessment - 1988).

8. A possible explanation for the observed declines in neonatal and child mortality levels is the testing of tetanus toxoid immunization interventions by the Extension Project in Abhoynagar and Sirajgonj treatment areas during 1986 and 1987, respectively, as well as the introduction of the national immunization programme in the Abhoynagar treatment and comparison areas in 1987. In addition, other research from Matlab suggests that the adoption of family planning may also have been a contributing factor (see Phillips *et al*., 1987; Koenig, 1988).

9. Demographic estimates for Bangladesh vary from study to study. National estimates based on survey data (e.g. Mitra, 1988) are typically higher than estimates from the national sample dual recording system (Bureau of Census and Statistics, 1984). The accuracy and completeness of various systems have been the subject of considerable debate (Population and Development Planning Unit, Ministry of Planning, 1984).

10. A summary of available data on Bangladesh has been published by ESCAP (1981).

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