

From Silver to Gold : Editorial

This volume celebrates the silver jubilee of publication of *Population Geography*, the first journal on the theme in the world of geography. Each journal follows an ecological succession from a bare ground to lush vegetation. To reach the stage of a climax is the ultimate goal of any succession. A journal perhaps is no different. The most difficult and often the most challenging aspect is for a seed to gain anchor on a bare ground. Professor G S Gosal planted the seed of such an intellectual vibrancy. A doctorate from the University of Madison, Wisconsin, United States, under the supervision of Professor Glenn T. Trewartha, his love and work till date remain *Population Geography*. Distinguished by rare qualities of intellectual brilliance, mission-directedness and sagacity of mind, he steered the journal to its present eminence. To strive for excellence and to ensure a harmonious teamwork are the hallmarks of his personality. All this is manifest in its impact on the spirit and style of the journal. In all fondness of our sentiment and abiding reverence for him, this Silver Jubilee volume of *Population Geography* is dedicated to him. This should explain as to why this editorial is being penned by a Joint Editor rather than the Editor.

It was under the stewardship of Professor Gosal that the Department of Geography became a hot bed of teaching and research on *Population Geography* but the idea to bring out a journal on this theme was not indigenous. It was Dr. Manjit Singh Sidhu, a post-graduate student of the department from Malaysia, who provided energy to launch the journal. Enamoured by Professor Gosal's commitment to the discipline and admiring the eminence of the department in population studies, he was enthused to make a donation of Rs. ten thousand for starting publication of the journal. Strange and unique is the truth that whereas in most cases a society or association feels the collective need for a journal, in the case of *Population Geography* it was the creation of the journal that called for formation of the Association of Population Geographers of India in 1978.

The first volume of the journal appeared in 1979, with the avowed objective of promoting quality research in *Population Geography*, covering all relevant themes in a strict spatial perspective. Professor G S Gosal was entrusted the responsibility of its editorship, in addition to his office as the president of the Association. He was to be assisted by an editorial team consisting of Gopal Krishan, R. C. Chandna, Swarnjit Mehta, Mehar Singh, O. P. Sarma and Mohan Singh as members. The team worked as a cohesive body to ensure the publication of the journal, uninterrupted for a quarter of a century, till date. The life of the journal remains Professor Gosal.

Changing hue of the journal's cover page cannot be missed. Beginning in 1979 with a sober classic brown, changing to a bright white and then a sublime blue, reverting back at a stage to classic brown for some years, and subsequently going in for a radiant orange and stabilizing at the evergreen since 1997, the journal tried to display its dynamism as well as an urge to look more elegant ever. A silver grey covering of the present volume is meant to portray the spirit of the event.

The 2300 pages of the journal have rolled 177 research papers over the years. These represent not only a variety of themes but also diversity in perspective and differentiation in spatial scale. About one-third of the papers deal with areas or places outside India; another one-third focus on India as a whole. State/region level studies make one-fourth of the total. Only about five per cent of the studies could be described as micro-level cases. There is an inadvertent bias in favour of macro-level exercises, consistent with international audience of the journal. This also accounts for the heavy dependence on secondary sources of data.

The journal made all possible efforts to ensure novelty of theme, freshness of idea and rigour of methodology while selecting papers for publication. A refereed system was followed. The journal has

Population Geography: Classification of Research

Year	Distribution, density and households	Population growth, vital rates, demographic transition and population projections	Migration	Urbanisation	Sex ratio, age structure and marital status
1979	-	-	1	-	1
1980	1	-	-	2	1
1981	2	-	3	-	-
1982	-	5	1	-	-
1983	1	-	6	-	-
1984	-	4	-	-	-
1985	-	1	-	1	-
1986	4	-	1	2	-
1987	-	1	3	-	-
1988	-	1	1	1	-
1989	-	-	-	3	-
1990	-	-	1	1	-
1991	-	1	1	-	-
1992	1	-	1	2	1
1993	-	-	-	3	1
1994	-	2	1	-	2
1995	-	1	-	1	-
1996	-	2	-	-	-
1997	1	-	1	-	1
1998	-	-	1	1	-
1999	-	-	1	2	-
2000	-	2	-	-	2
2001	1	1	-	-	1
2002	1	-	-	2	1
2003	-	-	1	3	-
Total	12	21	24	24	11

1979-2003 Papers and Map Series by Theme

Literacy and education	Working force and structure	Ethnic composition	Regional demography	Population development and policy	Theory and methodology	Total
1	1	-	1	-	1	6
-	-	2	-	-	1	7
-	-	-	-	3	1	9
-	-	-	1	1	-	8
-	1	-	-	-	1	9
-	-	1	-	-	-	5
1	2	-	3	-	-	8
-	-	2	-	-	1	10
1	-	-	-	1	-	6
1	-	1	1	-	-	6
1	-	-	1	1	1	7
1	-	1	2	-	-	6
1	-	2	1	-	1	7
-	-	-	-	-	-	5
-	-	-	-	1	2	7
-	-	1	-	1	-	7
1	-	2	-	1	-	6
-	1	-	1	2	-	6
-	1	1	1	-	1	7
1	-	1	1	1	-	6
1	-	-	2	1	-	7
-	-	1	2	-	-	7
-	-	2	1	1	-	7
2	-	-	1	1	-	8
-	1	-	1	2	2	10
12	7	17	20	17	12	177

kept dignity by keeping out the redundant and trivial. Hardly one-third of the papers submitted for publication were successful in finding an entry. Responding to such high standards of the journal, eminent foreign scholars, in particular, were enthused to contribute their papers. Nearly one-third of the papers were penned by authors from the United States, the United Kingdom, Germany, Hungary and South Africa, among other countries. Almost the same proportion of the papers came from scholars belonging to disciplines other than Geography. The in-house authorship of the papers is less than one-fourth of the total.

Accounting for one-half of the total papers published, migration, urbanization, population growth, and regional demography have been the most popular themes to address. The scene has, of course, been evolving over time. Issues pertaining to population and development, ethnic composition and sex ratio imbalance have attracted a greater attention of recent, more specifically since 1991. Research interest was sustained in respect of urbanization, literacy and regional demography. On the other hand, population growth, migration and redistribution of population experienced some dip in coverage. A temporal shift in emphasis from demographic to sociological aspects of population is evident.

Pertinent here would be to mention that the government policies often tend to be not only inconsistent but also contradictory and even counterproductive. The same government is seen as experimenting with opposites over time. Quite often it is more responsive to advice emanating from the international agencies rather than to homespun wisdom. The need is to break this tendency and encourage research on public policy as well. Issue-focused, intensive fieldwork based, micro-level studies are a pre-requisite for this.

Above all, research in Population Geography must demonstrate the utility of demographic parameters as indicators of a variety of socio-economic situations, such as social backwardness, economic development, status of women, population-ecology interface, and urban-rural relations. Critical issues, such as communalism, casteism and regionalism can be referred to their demographic roots. Population geography of the poor or of the middle class or of the family over generations are equally stimulating themes to pursue. All such analysis is facilitated by the availability of a variety of population data up to the level of individual villages and towns, courtesy Census of India, for that matter the census counts in several other countries.

A historic landmark, like the present one, is not a site for resting on one's laurels. It is a platform for reinventing one-self for a new journey towards higher goals of excellence. A research journal is not a periodic churning out of a set of compiled research papers; it is a collective effort at offering what is not known, communicating all this most effectively and leaving messages that stick and stimulate. Population Geography, the journal, has to continue serving as a base for quality research rooted in new perspectives, methodological rigour, objective deduction and professional ethics. It has to carve out a road map ensuring a transition from shine to glow.

A time in life comes when it is the moment to bid farewell. Twenty-five years is a long duration to be one of the caretakers of the journal. The length of time does build a sense of attachment and also feeling of possession but then detachment is what allows newer blood to join and fresh ideas to flow through. Individuals may come and go but the journal must move on. One fact is sure that the journal is destined to evolve from Silver to Gold.

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FIFTY YEARS A POPULATION GEOGRAPHER

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Abstract

The author reminisces about his career as a population geographer for the last half-a-century, beginning around 1953. By coincidence, this was the year when Glenn T. Trewartha presented "a case for population geography" in his presidential address to the Association of American Geographers. The special academic nature of this subfield, its relevance to the understanding of the peoples' problems, and capacity to facilitate interaction across disciplines have been most satisfying to the author.

It is a great pleasure to congratulate the Association of Population Geographers of India on the twenty-fifth anniversary issue of their journal, *Population Geography*, a pioneering work in this field, led by Professor Gurdev Singh Gosal and supported and continued by others. The journal has demonstrated the wealth of studies in population geography in India which too rarely reach a wider world readership, though fortunately this is not so for the work of some Indian population geographers. Among sources for research on population, in few countries in the world it is possible to draw on the wealth of census data available in India which extends back into the nineteenth century and is maintained and enhanced through to the present. It has been a privilege to be associated with some of India's population geographers, particularly with Professor Gurdev Singh Gosal and Gopal Krishan of the Panjab University in Chandigarh and Dr. P. Sen Gupta of the Census of India.

In writing for this twenty-fifth anniversary it is something of an indulgence (for which

apologies) to look back over fifty years in population geography and to relate some of what has happened in a personal career to some aspects and developments in the subject during this time. Most of the involvements have been unexpected and largely unplanned, in many there has been a considerable element of serendipity which has resulted in working *with* people as individuals and as well as *about* people in the more general sense.

It began by happening to be a geographer in the right place at the right time; in Nigeria in the first half of the 1950s on the staff of then University College (later University) of Ibadan and of the West African Institute of Social and Economic Research. In 1952, the Northern Region of Nigeria conducted a population census, part of a census programme which began in that year and completed for the whole country in the following year. Unlike India, never before had there been a census which attempted a total enumeration of the population of Nigeria. It provided unique data at a level of detail no previously available and

of an acceptable accuracy given resources compared with those for other countries in West Africa in the 1950s (Prothero, 1961a). From these data it was possible for the first time to compile a series of maps of population distribution and density of which the most detailed were those for the Northern Region (Prothero, 1959, 1960, 1961b, 1962a). They are now out of date for in the last half century the Nigerian population has grown many times, but in this period there have been many problems in census taking in Nigeria and to the best of knowledge no comparable up-to-date maps have been produced.

This interest in population, together with that of a colleague who had worked in Sudan, led to a jointly edited volume on African population (Barbour and Prothero, 1961). With contributors from several disciplines (demography, statistics, sociology, geography) it was among the first of this kind.

The mapping in Northern Nigeria led to an invitation to join the Commission on a World Population Map of the International Geographical Union (IGU) then chaired by the Swedish Geographer, William Olson, and when he retired in 1964 an invitation to chair the Commission for the next eight years. Population Geography was now established as a major activity in the IGU and the Commission's work was to involve, among others, several Indian colleagues, Wilbur Zelinsky (USA) and Leszek Kosinski (Poland and later Canada). From this period there were two major publications (Zelinsky, Kosinski and Prothero, 1970; Kosinski and Prothero, 1975). To support its work the Commission was successful in obtaining support from non-geographical sources (for example, the US National Science Foundation and the Commonwealth Foundation). It also developed links with other international organizations concerned with population, particularly in the United Nations and the International Union

for the Scientific Study of Population (IUSSP). Geographers were present at the UN Conference on Population in Belgrade in 1965 and at the IUSSP conference in London in 1969, and have contributed to further conferences and commissions of the latter. Contacts made with the United Nations Fund for Population Activities were later to provide support for some of Commission activities.

From developments in the period 1964-73 activities of the Commission – meetings, publications and financial assistance for these – were much expanded under the chairmanships of Leszek Kosinski, John Clarke and Daniel Noin through into the 1990s. These brought the increasing involvement of geographers from Asia, Africa and Latin America with Commission meetings in these continents and publications relevant to them (for example, Clarke and Curson, Kayastha and Nag, 1989; Clarke and Noin, 1998).

In 1991, Daniel Noin produced a brief review, and with a restricted circulation, on *Where is Population Geography Going?*, expressing the views of a range of well-known population geographers. Inevitably it was neither representative nor comprehensive; there were only two respondents from Asia, one from Gurdev Singh Gosal the other from Japan, but none from Africa or from Latin America. Noin summed up the responses as indicating two orientations in Population Geography; the one the traditional concern with relationships between population and environment, the other with relationships with demography which have developed more recently. Readers may find that they subscribe to one or other of these, possibly to both, or possibly to other views which were not presented. Noin saw an optimistic future for population geography, ending with the thought that

'Population geographers have nothing to gain in evading the big problems of societies

and of mankind. On the contrary, these problems are to be placed at the heart of their research'.

The context of relationships between people and environment and concern with 'big problems' provide the way into the second part of this personal contribution.

Available census data for Northern Nigeria in the first half of the 1950s, together with the results from a smaller scale government survey and work in the field, provided scope for some investigation of population/land relationships in Sokoto Province in the north-west of the country. Here there were significant discrepancies between available land for agricultural production and increasing population pressures, these discrepancies being further emphasized by a contrasting relatively short wet season during which farming could take place and a long dry season in which it was largely impossible. The major manifestation of the resulting pressures was the dry season in which it was largely impossible. The major manifestation of the resulting pressures was the dry season movements of large numbers of people; some of them relatively localised (c.50 miles) and involving families, others of active adult males over much greater distance (500 miles and more). Through their absences they were able to conserve resources in their home areas and to seek alternative resources elsewhere (Prothero, 1957, 1959, 1962b, 1998). In the following fifty years work studies of population/land relationships and of population movements in Northern Nigeria have been much extended (for example, Mortimore, 1989; Swindell, 1984).

The work in Skoto Province in the first half of the 1950s had practical value in casting light on problems of population/land relationships and consequent movements of people. Unexpectedly it led in a direction quite unanticipated, by coming to the notice of the senior malaria specialist in Nigeria (L.J. Bruce-Chwatt), who was conducting an experimental

malaria control project in the province in which several control measures were being prejudiced by the mobility of the population within, out of and into the project area. It provided new information on some of his problems. Bruce-Chwatt became Director of Research for Malaria Eradication in the World Health Organization where it was becoming apparent that mobility problems such as those in Northern Nigeria were affecting malaria control programmes in other parts of Africa and elsewhere. This began an association over twenty years with the World Health Organization and other medical colleagues, particularly in Africa and to a lesser extent in South and South-East Asia (Prothero, 1961c, 1963, 1964, 1965, 1968, 1977, 1984, 1994, 1997).

In a wider sense interests in mobility in tropical Africa were pursued with research grants from the UK and elsewhere and consultancies with the World Bank and with the UK government, and further association with the International Union for the Scientific Study of Population and other international bodies. Linked with these were visiting appointments in Israel, Australia, USA and Mexico, the supervision and examining of postgraduate doctoral students in the UK and overseas, and many overseas colleagues visited the University of Liverpool, several of them from India and particularly Gopal Krishan.

Work with two colleagues was particularly productive both in academic research and in consultancy. That with Bill Gould was based at the University of Liverpool and consultancies with tropical Africa (for example, Gould, 1973, 1974, 1978; Masser and Gould, 1975; Gould and Prothero, 1973; Prothero, 1982, 1990). With Murray Chapman it was in part at Liverpool (and involved Bill Gould), but also at the University of Hawaii, and originated from contacts made in the 1960s which linked respective experiences of population mobility in tropical Africa and the

South-West Pacific. It focussed on movements of people which are not clearly specific in time and place, where movements involve *circulation* from a place of residence (which may not be permanent) to other places followed by return. *Circulation* differs from *migration* where movements involve a permanent change in place of residence. *Migration* occurs within a specific time frame and such movements are conventionally recorded in census data. *Circulation*, with no specific place/time framework, is not recorded in conventional censuses and requires recording in specially designed surveys. Publications resulting from this work, for the developing world (including India) and for the Pacific (Prothero, 1979, 1998; Chapman and Prothero, 1984, 1985; Prothero and Chapman, 1985), carried forward earlier studies on circulation (for example,

Zelinsky 1971; Mitchell, 1969) which in its many forms is now a widely recognised aspect of population mobility in social, economic and epidemiological investigations.

Inevitably in retirement, in the last decade of fifty years of involvement in population geography, research activities have become restricted but some published work continues (for example, Prothero, 2001, 2002). Working in this field has been and continues to be satisfying. This satisfaction has come from its academic nature and in its application to the understanding of some practical problems of people. In both of these, the greatest pleasure has come from the personal contacts which have been made with colleagues in many disciplines throughout the world, with the good friendships which have resulted and which still continue. There is no more that could be asked in an academic lifetime.

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DEMOGRAPHIC SITUATION IN HUNGARY

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Abstract

The paper deals with the demographic situation in Hungary in recent years. It mainly focuses on change in vital rates, age composition and migration. During the past few decades, the country has been marked by decrease in population, rise in the proportion of the aged, growing incidence of child bearing in 30-44 years age-group, and greater participation in international migration.

Our situation in the European demographic processes

Hungary's demographic situation is inseparable from the broader context of other countries in the Eastern-Central, European Region. Yet, in these countries, real population decreases were registered only in certain years and decline has not become a tendency. In the continentally significant Germany as well, demographic storm-bells were rung in the late 80s. However, with the German reunification, demographic situation suddenly but temporarily improved, which was followed by fertility figures falling by 50% within less than 1.5 years, due to stress and daily rush in life brought about by the shock from transition to market economy (Birg 1988, Kamaras F.). One might agree with opinions that situation in the accession countries is rather unpredictable on the long run.

Already in the sixties, Hungarian demographers had pointed out that the intrinsic reproduction rate was so unfavourable that it would not guarantee the reproduction of the population, but would even lead to decrease (Valkovics E.). Demographic policy could mobilise reserves deriving from the earlier age structure; however, since the early nineties, their exhaustion has become evident and the pace of decrease has been growing year by year.

The population of "10 million" in the Hungarian public conscience appears as a "magical national figure", which when marked by decline becomes even more "obvious". Opinions are divided in this regard. Some use expressions such as "the death of the nation" to stir up public opinion, and to use it as an evidence for a longer-term crisis. Other say that on the current map of Europe, it is not

that special to be a nation of a smaller population. With some countries having gained independence recently (parallel with unifying efforts on the continent as a whole), their populations are even less than half of even that of Hungary, e.g.: Slovenia, Slovakia.

It is also a rarity that our mortality indices were more favourable in the sixties than today. (See charts G 27, 28, 29, 30 from the Demographic year book). Health conditions and endurance of generations following the turn of the century were better than those of the cohorts born during World War II. Considering mortality, Hungary has always been the straggler on the continent, but since western European countries started to improve; our lag behind them became conspicuous. Consequently, the reproduction of cohorts has been insufficient for survival for decades "The number of births could not guarantee reproduction even in the female generation that was born in the second half of 1930s, either. Therefore, in fact, already in the 1960s, population growth in Hungary was due to reproductive reserves stored in the favourable age structure" (Vukovich G. Mary Redei, Senior 2001). From this, and considering a case of a closed population, it follows that future improvement in the demographic process can be framed as in a society of longer life expectancies. Because closed population is only fictional, there is a need for immigration. Considerations of this cannot be neglected in demographic studies.

Demographic and social transition

Hungarian demographic situation shows more and more signs of picking up the decreasing reproductive behaviour (TFR 1.2) which is so typical of the Western European unfavourable features in mortality (life expectancies are for males 67 years and for females 74 years). Decreasing reproduction

and deteriorating, stagnating mortality is logically the worst demographic combination leading towards an ultimately disappearing population through an aging demographic structure. Yet, regional demographic characteristics in the country also indicate relatively better demographic conditions in the western countries and show that the situation is worsening in regions located in the east. The map on the web site shows the situation of winners and losers (www.geogr.elte.hu). As it has been already referred to in the introduction, the country is in the fourth stage of the demographic transition, when the number of births decreases and reaches the level where it falls below the number of deaths. The year 1981 was the turning point when the two demographic processes equalled. Since 1981, we can talk about the natural decline of the population. (See chart G. 3. 4. 5.). The figures 1 and 2 show an increase in the dependency rate, i.e. that the numbers of new entrants to and leavers from the labour market are not balanced.

With regard to the stages in the demographic transition, spatial mobility as a relevant element is rarely mentioned. There is a growing number of countries that are obviously "in need" of the population increasing effect of migration. Migration has a rejuvenating and a volume-increasing role in terms of demographic globalisation, the spread of demographic behaviour, and knowledge transfer. Migration in the fourth stage of transition grows at a super-fast speed, and there are more and more countries that hope that large-scale immigration will provide them solutions in the future (Redei M. 2001).

In the countries situated on the western side of Europe pro-migratory policy replaced the pronatalist policy that featured the second half of the 20th century. With Central Europe joining in, in Hungary's case as well, the

migration solution seems to be more feasible than childbearing. This is also due to the fact that many countries might have arrived to the conclusion that the increasing pressure on their borders cannot otherwise be managed.

Considering demographic behaviour, it is important that foresight enabled by the advance in civilisation and family decisions, now supported by an ever-widening set of contraceptive means, have got out of others framework of the former plan-controlled state system. Nowadays individuals have a considerable power in the decisions about the number of their children, about marriage and the place they go to work or study. One finds similar tendencies concerning decisions about migration where previous legal-political isolation has been replaced by the free movement of citizens based on their skills and abilities. Moreover, countries have had to face the fact that because of their geopolitical situation more and more people only travel through them as in transit or regard them as temporary destination. We can boldly claim that demographic transition coincides with the economic and political transition, and a change in our everyday environment has an impact on our demographic behaviour. From central control towards the individual's decision is a shift concerning which we have not had any practical experience so far.

All these represent considerable change, which, yet unknown like a black box, exert significant influence on the population's demographic decisions. Nations previously known only from tourist guidebooks have become basically our neighbours by now. Unwholesome habits and lifestyles, poor health conditions prevailing in the socialist era have not been able to change universally among the population, in such a short time, along with the transition to market economy. Winners slowly make everybody realise what

behaviour their quality of life is based on. Losers are the aged, and those people who have been ousted to the peripheries of the labour market, and all those who do not have better opportunities. Conscious and healthy lifestyles spread slowly, and only those who besides arriving to the realisation, also have the sufficient financial means are able to act accordingly in their everyday lives. For example, average life expectancy in the slums of central Pest (left Danube-bank side of the capital Budapest) is on the level of the developing countries, i.e. 57 years; while in the district of high classes it reaches up to the Swedish level, that is, 72 years (Klinger A. 2003. Jozan P. 2000). The aging demographic structure, which does not store new reserves any more, will result in irreversible and critical decrease of population in the long run; old-age dependency ratio show figures 0.6-0.8, Young-age dependency rates are at around 0.3 (Hablicsek ; see chart G4).

Numerous policy decision preparatory studies have been carried out to propose ways to improve situation. The first question to decide upon is whether one should concentrate resources on improving fertility rates or on the betterment of mortality figures. Hypotheses built upon average life expectancy and total fertility rate show that the same size of population can be achieved through both ways, however, of different age compositions. (Hablicsek L. see the attachment age pyramid to 2001 and 2030). Trying to improve mortality figures, one has to tread on a thorny and longer path, than if choosing to encourage family growth. Since the committees responsible for the assessment of demographic and political propositions tend to postpone long-term decisions, and in order to achieve popularity, they show an inclination towards faster and spectacular, short-term solutions. In most of the cases, they support proposals that

aim at influencing the number of births. The quality of life, and as its effect and mortality rates are hardly improving, and therefore our lag behind the European Union is increasing.

It is also traceable in the demographic structures of the last decades that ca. 450 thousand people left the country between 1956 and 1990 (Munz-Fassman 1995). This mass of almost half a million people consisted of young ones, who could have been mothers and fathers in Hungary in the future. This does not only mean events not happening, but also the loss of their generational and rejuvenating effects through fertility. Thus, we have lost human resources in both quantitative and qualitative terms.

From 1990 onward, the former sending country Hungary became an immigration country. Nearly 250 thousand people have got residence and Hungarian citizenship.

Hungarian demographic analyses have arrived to regional-analytical levels just by now. One of the comprehensive statements about statistical sub-regions claims that regional disparities and growing polarisation do not contribute to any improvement of the national trends. Regional dissimilarities have increased having an impact on the formation of winner- and loser patterns. (Hablicsek 2003).

Fertility, birth and marriage

Live births per thousand females of the corresponding age group show that early childbearing has shifted towards 30 years of age, and its intensity has fallen by 50%. Analysing the question concerning the mother's age group, below 29 years of age, there has been a decrease, and above it, an increase observable since the 1990s. There has been a 30% fall in childbearing in the age group below 20, a 60% decrease in the age group 20-24, and a 1-2% growth in the cohorts aged 35-39 (see T 1.4.7).

Temporarily in the year 2000, better birth rates were registered which were in linked with rising number of women in propagative age. All this can be attributed to the fact that the number of people in the 1976-77 cohorts was almost 200 thousand, and that those in the cohorts 1953-55 numbering also 220 thousand (due to prohibition of abortions) guaranteed the high number of women in reproductive age. Meanwhile conscious demographic behaviour was growing stronger and more independent from central governments political expectations. Temporary improvements do not support the consolidation of long-term demographic policies, indeed, they serve only as justification for the actual political leadership for the efficiency of their supportive measures. The change in timing of births also has played an important role in the sudden fall of TFR. Some births were delayed, and some others did not take place. In 1980, total fertility rates were at 1.92, in 1990, at 1.84, and in 1999, they reached a low of 1.23%. Since, figures have not changed, but stayed at 1.3, quite far behind the reproductive threshold of 2.1 The gross reproductive coefficient is 0.6.

The patterns of reproduction rates are naturally in connection with the changes in man-woman relationships. During the last 20 years there has been a 50% fall in the number of marriages. The willingness to re-marry has also decreased. A third of all ending marriages are due to divorce, which means 11.0 divorces in every 1000 existing married couples. There are annually 560 divorces per 1000 marriages. The fall in the number of marriages is related also to the fact that 11% of the relationships are out of wedlock cohabitations. Just like in Western Europe, a tendency of growth in the number of children born outside a marriage is observable in Hungary, too. So a third of the total births occur outside legal marriage bonds.

It is common knowledge that the fertility is higher among people living in families than that of those living in wedlock cohabitations, therefore this is another element contributing to the decrease in fertility.

There have been temporary improvements registered in the tendency of births, which are readily regarded by governments as outcomes of their supportive measures, i.e. favourable mortgage options have been offered to young married couples. Such mortgage solutions encourage the young to get married, and so does the benefit of shared living cosots. Marriage of people above 50 years of age is encouraged by the prospect of solving the problem of their loneliness. Significantly, there is a high rate the remarriage after a divorce.

In 1970s the number of legal abortions hardly fell below the number of births in Hungary. If we consider "Conception ability" as the number of abortions like a level of fertility and born children together, we can talk about 230-250 pregnancies, conceptions lasting for some weeks. As a result of the last decade's widening range of different tablets and means of contraception at the turn of the millennium there were only 58 abortions per 100 live births. Favourably, abortion of teenagers has decreased mainly, which has an effect on the future early births. The spread of successes of medicine in putting an end to infertility, in premature infant care and in maternity care resulted in the approach towards the desired number of children.

"This is the last generation which still follows the parental example also in the forms of relationships and childbearing. Ten years before more than half of the women aged between 20-24 were married; in 2001 it was only true for the 1/5 of the same age group. Women who got married ten years ago gave birth for 1.95 children in average, while by now it has decreased to 1.3" (Kamaras F.

2003). Probably, the shift in the age of childbearing goes together with an ongoing decrease in fertility rates, because of the delayed births. In the following years we have to face with TFR as low as 1.1. Lack of data about the age structure of emigrants brings uncertainty, as the intensity of the two elements is typically larger in the age group 20-24 years, therefore it can have an impact on the number of births. Only 20% of women in propagative age do not want or can not have children at all. Preserving the current size of population similar to the levels in Western Europe (Van de Kaa 1966 *Joy of Demography*) there would be a need to have three children per couple.

Ten years ago 100 young married women wished 214 or in some years even more children in their families in average. The crucial change lies in the fact, that the formerly dominant model of households with two children has been widened by the group of people desiring three or more children. The economic activity of women is relatively high (65% of working age female population are employed.) As empirical methods do not allow us to conclude the share of people desiring higher number of children by the ethnical minority (gipsies), we are not in a position to say whether the tendency is positive or not. It is now well known that those who are in a position to support bigger families, invariably tend to have relatively more children. Reproduction of poverty, and unfavourable health and mental conditions are all not to the country's advantage. About 30% of the country population live under poverty line. It is still not possible to specify whether poverty results in larger number of children as great numbers of children leads to poverty (Kamaras F. 2003).

The value of HDI for Hungary is 0,817 (Foti K. 2003). The special structure of the country's HDI follow essentially the trend in

GDP per capita. The picture is much more even for the other indicators of human development. The western part of Hungary is more developed than the north eastern side.

In the national strategy of childbearing, a so-called second demographic transition is noticeable in the timing (Van de Kaa 1966). Due to this the first child's birth is more and more delayed and age-specific values of fertility are decreasing. This shift in Hungary is 4-5 years in a decade attributable to women's career - orientated activity, increase in the level of education, growing trend toward independent life, and the fast spread of out of wedlock cohabitation. On the fertility age specific curve the traditional modal interval of 20-24 years has shifted to the interval of 25 - 29 years. In the 1990s there was a growth in the average age of the women at their first child. Fertility rates were the highest at the age of 21 in 1960, at the age of 24 in 1990, and nowadays fertility rates peak at the age of 28 (similar to the EU average).

The rising incidence of childbearing in the age group 30-44 years is a new phenomenon. Some see its reason in the replacement of the births delayed by the women in their twenties, others say that it is because of the emergence of improving social situation and the desired milieu of childbearing (people with university degrees want more children in the beginning of their relationships). In my opinion successes of biotechnology can not be ignored, either. But Kamaras saw its reason in the late childbearing, which happens at or even after the third child in the late thirties of the mother or later, "Child-generations born at the fertility rates of the beginning of the 21st century are 36-37% less than the parental generations." One of the favourable outcomes at the end of the millennium is the fall in the number of abortions.

Regional aspects and causes of death

Hungary's population has registered a small increase in mortality. A more unfavourable situation is typical of men in mortality, but it shows a better improvement in its tendency. Age-specific values of mortality have a strong effect on the change of life expectancy. Here the most important things are infant mortality and the losses present at the middle-ages. The rate of infant mortality is two times higher than the EU average. It is 8.1% per 1000 live births. It has a strong impact on life expectancy. The loss in middle-aged men is similar, which means the loss of almost the half of their lifetimes. In Hungary still only 3 out of 10 men reach their 65th birthday.

Regarding mortality rates, the situation needs further improvement. Life expectancy is 67.1 years for men and 75.6 years for women in national statistics, which means a 6.5 years lag behind Portuguese men and 3.6 years behind Irish women, who have the worst values in the EU.

The age specific mortality curve of men shows an improvement at the age of 50 in the age group 1-59, but it still does not reach the favourable value of the year 1965. Prospects of life above 60 years, especially in the group of 70 years olds, show an improving tendency. Women's age-specific mortality shows smaller changes and figures promise slow improvement. Prospects of life above 60 are continuously getting better; therefore the sex ratio of people in retiring age shows twice as much women than men.

The structure of the causes of deaths shows greater incidence of cardio-vascular reasons that are so typical of the developed countries. As some causes occur at young age, cardio-vascular mortality typical of older age does not increase. The most frequent cases are diseases of the liver in connection with high

alcohol consumption and different kinds of cancer, which are gradually increasing. Cancer of mouth, pharynx and intestines are of greater importance, which is connected with deficient teeth, the insufficient hygiene of mouth, spicy diet, food not chewed properly, smoking and high alcohol consumption.

The only good sign is that suicide rates which characterised the last decades, in fact the 20th century, has fallen from 3.3% to 2.2% (from gross deaths).

Regional analyses of mortality show important role of lifestyles and cultural backgrounds. The incidence of the so-called, "sudden death" observable on the settlement hierarchy brings up the question of accessibility (Klinger 2003).

From sending to an immigration country

A large number of Hungarian people left the country in the 1880s mainly for America, and the example of this emigration had determined later processes of migration. Territorial modifications following World War II have also gone together with population exchange; but the period after the cold war was characterised by complete isolation. The first wave of emigration from the socialist countries started in 1956 from Hungary resulting in outflow of 200 thousand persons, most of whom were largely from younger age groups. A very large share of these emigrants have become successful in their destination areas in the developed countries. The period after 1956 has been characterised by both legal and illegal emigration from the country. This process tells something about the economic and political situation. All together about 450 thousand people had left the country, which was not only important because of their number, but also because of the cancelled demographic events, which had resulted in further losses.

Emigration has speeded up in recent

decades, particularly to the German-speaking countries; the 1990s were marked by intensive migration. Because of Hungary's geopolitical situation, as we were in the way of many migrant heading for other countries, we had become a transit country. Transit nature was also strengthened by the emigrations from the neighbouring countries started by local conflicts, such as the Rumanian Revolution in December 1989, the disintegration of the Soviet Union, and the Yugoslavian Civil War. On the other hand, by the permeability of borders after the change of the political system, it became a safe country, where citizens got globally valid passports and could travel without visa to numerous formerly restricted countries. Furthermore, as the result of the Treaty of Trianon in 1921, by the territorial and population losses, there are great numbers of diaspora populations in the surrounding countries, who were heading for their motherlands offering better quality of life. That is why Rumania has become the first source of migration, where there are about 2 million people of Hungarian nationality.

At the beginning of the 1990s, 4-5 thousand refugees were received annually, which has grown to 8 million in 1980 by the rescission of the Geneva Convent's geographical restrictions. During the Yugoslavian Civil War home stay asylum reception was outstanding, 70% of the refugees were accommodated by families on the basis of friendly, family or simply humanitarian sympathy. It meant about 70-80 thousand asylum seekers. Later, humanitarian sympathy has diminished, in which the economic crisis of the transition played an important role. Xenophobia was growing, though slowly (Sik 2001).

We do not have data about the Hungarian emigrants, which makes population statistics vague. Though it is the legal rule for all Hungarian citizen to announce their residence

abroad over 3 months, because of taxation and social proceedings. But, as geographical distances are small on the continent, and in most of the cases people tend to visit their homes in this period, taxation abroad is not supported, legal measures are not effective.

The stock of foreign residents in Hungary changes between 140 and 150 thousand, which means about an annual 18-20 thousand application for residence permit. The majority arrives with the purpose of employment, in smaller numbers because educational and family reasons. The number of residents staying illegally, without being documented, means a further 30-40%.

Since 1990, the country has changed from an emigrating country to an immigrating one (Redeu 1990). About 20-22 thousand people get the immigration permit in a year. At the turn of the 1990s the number of people who have got the immigration permit has reached 37 thousand, and 70% of them handed in their applications while they were already in the country. The age structure of immigrants does not differ from that of the international migrants, which meant a good supplement after the year 2000 for the younger age groups born in the 1980s. Half of the immigrants are from Rumania, followed by Ukraine and the countries of the European Union with 10% share in this regard. In the mid 1990s the number of Asian immigrants has risen fast, but by now it has fallen back to about 4%. Not many migrants from the United States ask for permission to stay in the country. This is partly because of the fact, that those who emigrated in 1956 have become pensioners by now, and are happy to spend their retirement at home.

There is no pressure on the borders of Hungary any more concerning the former security policy. (Sallai 2002). It is not necessary to stick to reactive policy but it is

possible to take up a proactive approach. In the spirit of this an immigration programme for 1.1 million was announced on governmental level that is valid until 2050.

The knowledge-driven elements of the Hungarian economy already exist. In 1990, Hungary was the first to join the globalisation; The country has a good educational system, which attracts qualified people. The European Union in the extension of the ERA (European Research Area) intends to establish Hungary as one of its important ports (eg.: Telentis Project). Inward and outward educational migrations are both present in Hungary. The transition for market economy has started education abroad also in Hungary, which means 14-17 thousand people in a year (Redei 2002). National education institutions offer internationally acknowledged study opportunities in the fields of medicine, agronomics, engineering and informatics. Doctoral schools are getting more popular internationally. Students from the surrounding countries do not simply have opportunities, but the certificates they receive are equivalent with the ones obtained in the EU, which means a further motivation. The rate of the people staying here after finishing their studies is high. Living costs and education are cheaper here than in Western Europe, which is an attraction for the students of geographically distant countries, too (Illés A.)

However, immigration authorities are quite strict both in this question and in the field of employment. One - third of the foreign employees come as posted workers, expat and does directional activities. Jobs in the field of finance are distinguished. People with lower qualifications, due to the general laws of migration, come from neighbouring countries and find jobs in services, agriculture or construction activity in the capital and along the Rumanian border.

Hungary's loss in intellectual human resources was unique in the 1990s. On one hand the research aimed to map the movement of the people possessing knowledge of strategic importance, on the other hand to characterise the phenomenon called brain drain. Hungary has received quite a great amount of foreign investments and for this, it needed qualified labour force. Therefore the outflow of the highly qualified ones was not permanent, "but it was rather a "brain circulation", so they got into connection with international financial life at home, gained experience, and some have become members of the international advisory board. Nowadays governance consciously endeavours in order to create regional headquarters and to expand the country's size with a regional control.

Summary

The hypothesis of demographic events confirms that such deformations are expected in the shape of the age pyramid that show an ageing which is different from the ones before.

The present share of the age group 65+ years (22% from the gross population) can grow to even 35% by 2050. Dependency ratios, by the expanding lifetime, make management of allowance system impossible. Present Government's Political Decisions talk about 1.1 million people until 2050, because the nation can only be preserved this way. In this case, the forming of immigration policy will be a major challenge for Hungary.

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At present, the share of foreigners in Hungary's gross populations 1.5%, which is 1/13 of the EU average. Immigration should be accordance with the internal demands, therefore it requires a continual evaluation of regional processes; the description of shortcomings and the announcement of this in strategic practice are needed. The widespread introduction of regional development plans is of a high importance, because this can orient arrivals towards a more favourable pattern of their settlement and a harmonised adaptation to society. Now arrivals are concentrated in the metropolitan areas with agora functions and in the underdeveloped regions of lower resistance. Large-scale migration management is important, because otherwise there will be social burdens at local levels, which does not help to improve communication with the formerly autochthon population.

Population policy can also be characterised by long-term strategies and a high degree of inertness. It means the cohort demographic behaviour is changing very slowly. Similar perspectives are hardly imaginable in migration policy. The migration pressure on the Hungarian border from two aspects are meaningful: on one hand is the neighbourhood ethnic immigration interest, and on the other hand due to its intercontinental geopolitical situation, Hungary is at the crossroads of different global migration streams (Sik E. 1995).

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DEMOGRAPHIC DYNAMICS AND SUSTAINABLE RURAL DEVELOPMENT IN SOUTH AFRICA

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Abstract

Population trends and factors have been identified as indicators of sustainability. This study was carried out in KwaZulu/Natal province of South Africa by multiple methods to establish links between demographic dynamics and rural development. The aim of the study was to examine the relationship between population factors and the sustainability of rural systems in South Africa, with the objective of determining the nature of this relationship and the extent to which it influenced the sustainability of rural systems. It was found that populations of the majority of the rural areas of KwaZulu/Natal were characterised by a high fertility rate, high illiteracy rate, high unemployment rate, high dependency ratio, high level of male absenteeism, and poverty. On the other hand the rural areas they inhabited were overpopulated, overgrazed, underdeveloped and degraded. An adverse synergistic relationship between demographic dynamics and sustainable rural development was confirmed.

1. Introduction

Existing plans for sustainable development have generally recognized demographic trends and factors as elements that have a critical influence on consumption patterns, production, lifestyles and long-term sustainability. According to the Rio Declaration (UNCED, 1992) all countries will have to improve their own capacities to assess the environment and development implications of their demographic trends and factors. This paper examines the demographic profile and socio-economic status of Kwazulu-Natal in relation to sustainable rural development.

2. Conceptualising demographic trends and factors and their relationship to sustainable rural development

The conceptualisation of development as the reduction of poverty, unemployment and inequality by some writers (Wilkinson, 1973; Illife, 1987), and as an improvement in the quality of life by others (WCED, 1987; Turner, 1995) is an indication that development is more concerned with people than with merely increasing the production of goods and services. Development is thus usually associated with certain social, economic,

cultural or political goals (WCED, 1987; Hardoy *et al.*, 1992; Drujiven and Singh, 1998).

2.1 Sustainability of Rural Development

In spite of differences of viewpoints on the concept 'sustainable development', it will be accepted in this paper as a mediating concept designed to bridge the gulf between development and environment and as a challenge facing contemporary human society of reconciling future progress (development) with the protection of the environment (Elliott, 1994). To put it in the words of Hardoy *et al.* (1992, p. 172), sustainable development is "a conjunction of two dimensions of reasoning in relation to the management of human activities - one concentrating on development goals, the other controlling or limiting the harmful impacts of human activities on the environment." It is therefore clear that to attain sustainable development is to achieve simultaneous achievement of social, economic, political and ecological goals (Hardoy *et al.*, 1992). This conception of sustainable development is supported by Redclift (1987), who maintains that it brings together development priorities, i.e. meeting human needs, and environmental priorities of controlling or limiting the harmful impacts of human activities on the environment (Redclift, 1987).

A significant paradigm shift from environmental issues to social issues involving the concepts of justice, equity, peace, morality and cultural ethics was adopted about 1970 when the trickle down approach to development appeared failing to alleviate global poverty in developing countries of Africa, Asia and South America (Adams, 1990). The focus on equitable distribution of scarce resource (wealth) was adopted by the World Conference on Environment and Development after realising that it was futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors

underlying world poverty and international inequality (WCED, 1987). Turner (1995) affirms that sustainable development tends to focus on 'fair' distribution of available resources between people alive now and the future generation. In fact, it is essential that there is also intra-generational equity in the distribution of available resources for sustainable development.

According to the Rio Earth Summit (UNCED, 1992), there is a need to combine environmental concerns and population issues within a holistic view of development whose primary goals include the alleviation of poverty, secure livelihoods, good health, quality of life, improvement of the status and income of women and their access to schooling and professional training, as well as fulfilment of their personal aspirations; and empowerment of individuals and communities.

Agriculture is commonly the mainstay of the economy of rural areas. This is particularly true of South Africa where rural development is, to date, normally equated with agricultural development. According to Greenwood (1993) sustainable agriculture can be defined in conceptual terms in relation to the goals of sustainable food production systems. Greenwood (1993) avers that as it is widely recognized that no single objective function exists for achieving sustainable agriculture, there is a need to balance environmental, social and economic goals with the need to maintain adequate food supply (Greenwood, 1993).

2.2 Data Sources and Analyses

The data used in this paper are from the 1991 and 1996 population censuses of South Africa (Republic of South Africa, 1991, 1999). The statistical analysis is based largely on the 1996 population census. Due to the re-demarcation of the district boundaries during this period this data was not readily available for GIS analysis. The spatial portrayal of the data was thus based on the 1991 population

census. Since there has not been any significant change in the spatial distribution of population between 1991 and 1996, the reliability of the resulting maps (Figs 1-9) in depicting spatial distribution of demographic factors has a high rating. The data were manipulated and analysed by the use of the Atlas GIS system (Strategic Mapping, Inc., 1991).

3. Historical perspectives of the prevailing socio-economic conditions in South Africa

Up to about 1960 the African continent was essentially a colonial continent, with little or no projects implemented for the development of the colonies *per se*. The plight of the African continent was revealed in and about 1960 when many of the colonial powers granted independence to their African colonies. The state of poverty in the colonised countries became glaring when the colonists withdrew leaving behind little or no resources to sustain the economies of the then independent colonies, which largely depended on agriculture.

In South Africa, colonialism and Apartheid have had such an indelible impact on the prevailing socio-economic conditions that it is inevitable to allude to the historical events that shaped the prevailing socio-economic inequality and poverty which, in terms of the Rio Declaration (UNCED, 1992), are negative indicators to sustainable development.

The colonial land and agricultural policies, which were characterised by dispossession of indigenous people of their land and coercing them to work for wages in the emerging mining and agricultural industries of South Africa, are well documented (Welsh, 1971; Bundy, 1979; Murray, 1989; Makhanya, 1997). The end result of this policy was a reduction of the *per capita* land holding among the indigenous people (Makhanya, 1994). This ensured that their agricultural production was, at best, at subsistence level,

and that they continued to offer their needed labour in the different industries (Makhanya, 1977).

The resulting racial disparities in land distribution were subsequently endorsed by legislation. The Location Act of 1846 was the first legislation in KwaZulu/Natal to formalise territorial segregation on racial lines. The significance of the colonial and apartheid policy and legislation was in the creation of artificial spatial distribution of population along racial lines (Makhanya, and Ngidi, 1999). The Natives Land Act of 1913 and the Natives Trust and Land Act of 1936 consolidated territorial segregation on racial lines. The combined effect of land dispossession and legislation resulted in great disparities in land holdings between the White settler community and the indigenous Zulus (Makhanya, 1994). Of the total land area of KwaZulu/Natal (about 8.61 million hectares), Black-owned rural land constitute about 3.2 million hectares or 36 per cent of the total land area. Agriculture in the province is characterised by a duality of land-rich commercialised agricultural system and the small land-holder subsistence agricultural system. The great disparity in land distribution is one of the limiting factors to sustainable rural development.

Successive governments in South Africa treated the subsistence agricultural areas as labour reservoirs that were not considered in rural development planning. As a result of the growth of the rural population, which was prevented from migrating into the urban areas by a series of influx control legislation, the land in the native reserves has become degraded and overpopulated. The Nationalist Government's remedial efforts after 1948 were mainly geared towards soil conservation and the provision of extension services, while projects by non-government agencies were mainly aimed at improving health and alleviating poverty (Makhanya, 1977).

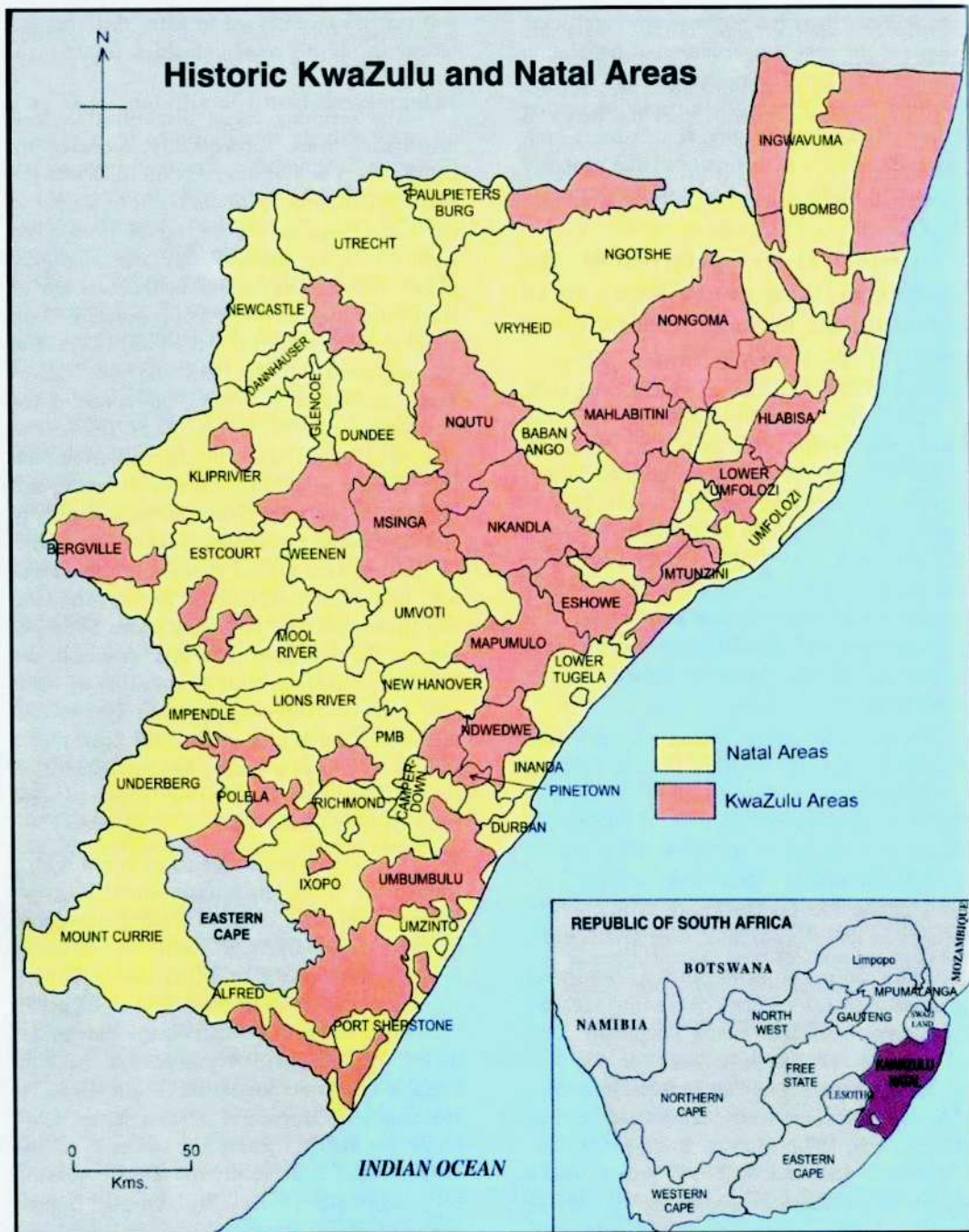


Figure 1

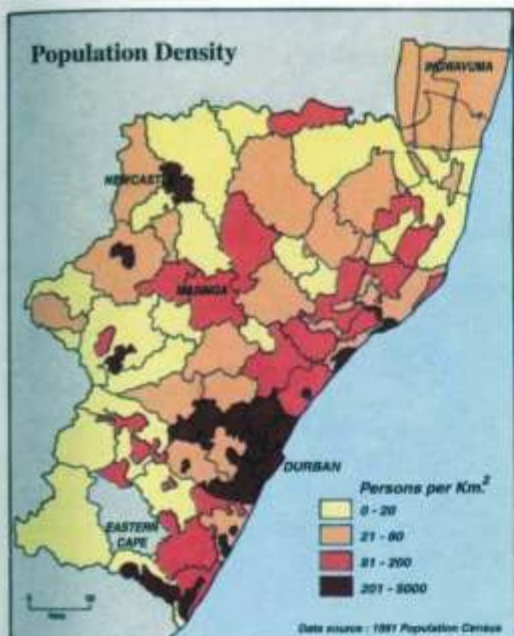


Figure 2

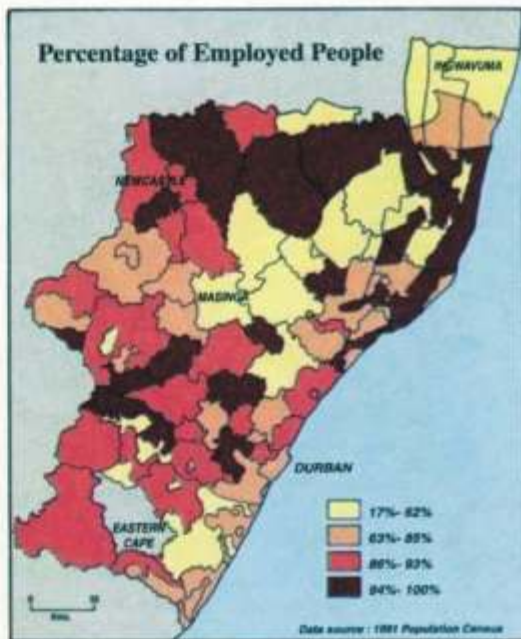


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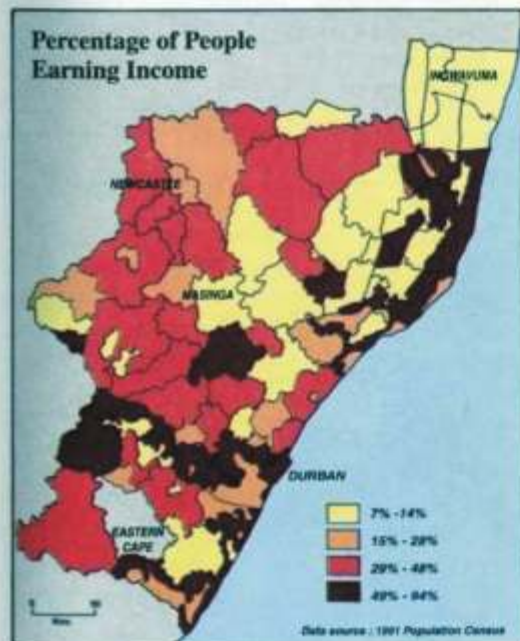


Figure 4

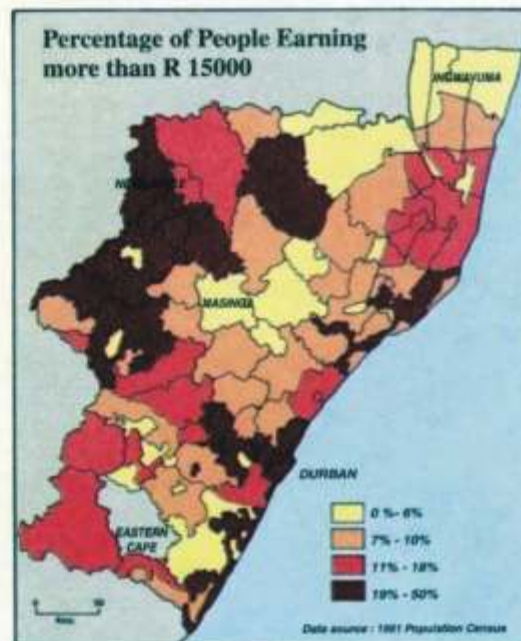


Figure 5

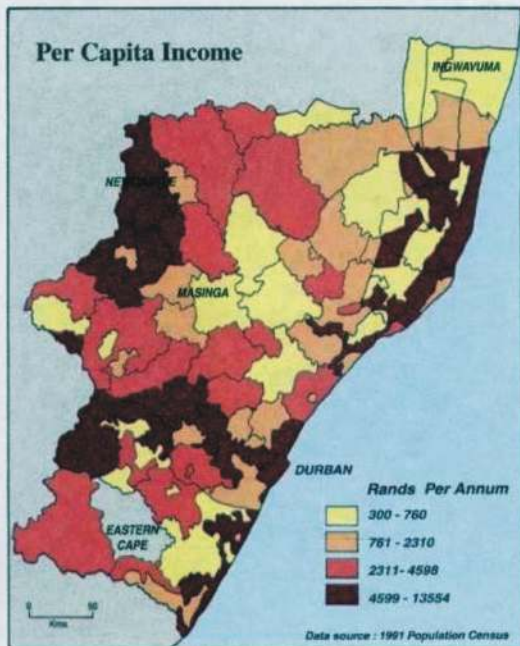


Figure 6

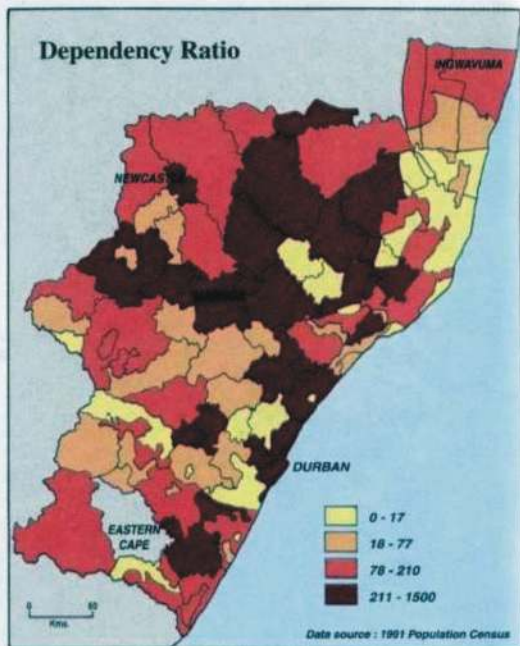


Figure 7

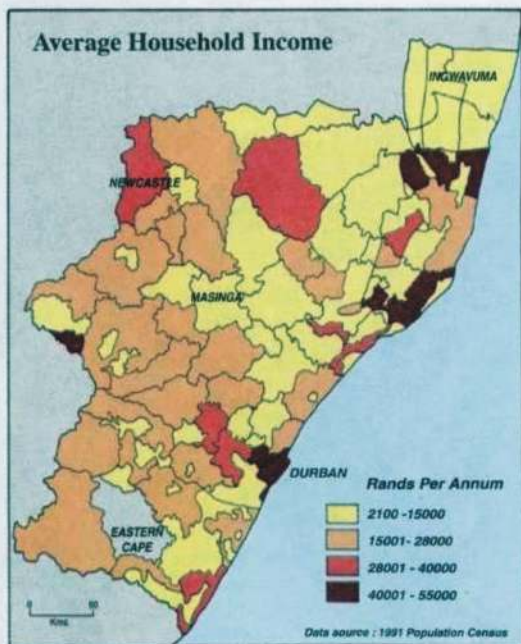


Figure 8

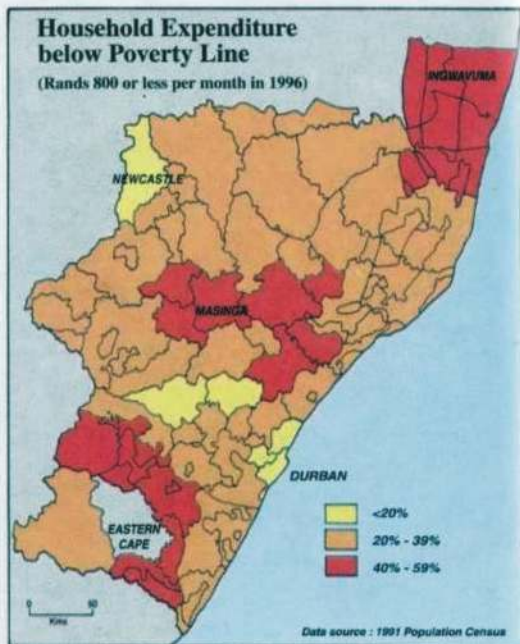


Figure 9

4. Demographic dynamics and sustainable development in rural Kwazulu/Natal

The demographic factor is crucial in South Africa's rural development, not only because of pressure on the resources and the untoward effects upon the environment, but because people are the most important agents of development (Smith, 1995).

4.1 Population Distribution in Kwazulu/Natal

According to the 1996 population census (Republic of South Africa, 1999), there were a total of 84,17, 021 (about 8.42 million) people in Kwazulu/Natal. This constitutes about 20.7 per cent of the total population of South Africa. About 3.63 million of the Kwazulu/Natal population live in the urban areas and 4.79 million in the rural areas. A significant percentage of the population is concentrated along the coastal regions, with the highest concentration being around the Durban Metropolitan and Pietermaritzburg city areas. Pockets of high population concentrations are found in and around the other major towns such as Ladysmith, New Castle, Vryheid and Port Shepstone where there are employment opportunities. There are, however, significantly large concentrations in some of the predominantly poor inland agricultural areas such as Nqutu, Msinga, Nkandla, Mahlabathini, Nongoma (all lying within the historical Zululand area north of the Tugela), Okhahlamba and Hlanganani (towards the south-west). The high population concentrations in the poverty stricken low productivity rural areas is a negative factor for sustainability in the context of satisfaction of human needs and development. This is particularly true in the light of the prevailing shortage of critical resources such as clean water and agricultural land.

4.2 Sustainability of population densities in Kwazulu/Natal

The average population density in rural Kwazulu/Natal is about one person per hectare. There are spatial differences in the distribution of population densities within rural Kwazulu/Natal, ranging from 0 people per ha. to about 200 people per ha. The most densely occupied (81-200 people/ha.) rural areas are predominantly those along the coastal regions that are associated with the relatively level terrain, warmer moist climate, high crop densities and low densities of veld. The coastal region is also a prime area for businesses related to tourism and recreation and has the potentially higher carrying capacity than the inland areas. Outside the coastal region there are few rural areas with densities of 81-200 people/ha. These include Msinga, Nqutu, Simdlangentsha (all three situated in the historical Zululand north of the Tugela) and Hlanganani (in the south). These high population concentrations are a catalyst to land degradation. The reduction in vegetative cover by humans in their demand for firewood and land for cultivation and grazing, accelerate land degradation. High population concentration on rural land is also associated with exploitative cropping (with shorter fallow periods and inadequate return of nutrients to the land) which results in the reduction in soil fertility and soil erosion.

There is a close relationship between population distribution and the intensity of land use in Kwazulu/Natal. Population is generally sparse in the livestock ranching areas and more dense in the more intensive crop producing areas. This is, however, not always true of the historically Kwazulu areas where high population densities occur even in the predominantly drier rural areas such as Okhahlamba, Nqutu, Msinga, Nkandla, etc. In these areas it is the political decisions rather than mere geographical inertia that has determined the distribution of population. In

view of the low carrying capacity of the rural areas outside the coastal regions, high population densities are a negative factor to sustainability.

4.3 Age, sex and racial structure of the KwaZulu/Natal population

It is often argued with some measure of justification that KwaZulu/Natal rural women perform essential functions in the household e.g., crop production, raising children, feeding the family, fetching firewood and water, etc. According to traditional labour specialisation adult males, boys, girls and old age people also had their specific tasks to perform. This gender specific labour specialisation had implications on household productivity in the prevailing patriarchal Zulu society. The sex structure of the household was crucial in the performance of household chores. Households could seriously be affected by the absence of one or the other gender, especially the able-bodied males who did most of the tasks of household manager and heavy duty agricultural production. Absence of this member in a household often meant a shortage of manpower (i.e. breadwinners) which is a recipe for under-productivity and poverty. Under the

present government, however, women were empowered and their general management and productivity level has significantly increased to equal, if not higher, in relation to that of their male counterparts. There is thus no longer a cause for alarm arising from the fact that the KwaZulu/Natal population comprises of about 53.3 per cent female and 46.7 percent male (Republic of South Africa, 1999).

Age structure of the population has implications on resource demand and dependency burdens, ranging from educational expenses for the young to health care and support for the elderly, and on household income generation (UNCED, 1992). About 55.97 per cent of the population of KwaZulu/Natal is below 17 years of age. Children below the age of 6 years were 20 per cent of the Natal population. This preponderance of children in the population is associated with a high fertility rate. The fertility rate tends to be higher among Africans than among the other racial groups. This higher fertility rate among Black people is associated with socio-economic factors such as their cultural norms, high illiteracy rate, high infant mortality rate, high

Table - 1
Population Pyramid of KwaZulu/Natal by Age Group, Sex and Race

Age-Group	African		Coloured		Asian		White	
	Male	Female	Male	Female	Male	Female	Male	Female
00-09	25.2	23.3	22.8	21.3	18.0	19.2	13.8	12.7
10-19	23.7	22.5	21.9	20.4	20.3	19.2	16.8	15.3
20-29	18.8	18.9	19.0	18.7	19.1	18.7	16.2	15.9
30-39	13.9	13.9	15.6	16.1	15.7	16.2	15.7	15.5
40-49	8.8	8.6	10.0	10.6	12.8	13.3	14.1	13.8
50-59	4.8	5.3	5.9	6.2	8.2	8.6	10.8	10.7
60-69	2.9	4.4	3.4	4.2	3.9	4.7	7.2	7.9
70-79	1.5	2.2	1.3	1.8	1.4	1.9	4.0	5.5
80-89	0.5	0.8	0.4	0.7	0.3	0.5	1.4	2.8
TOTAL	100	100	100	100	100	100	100	100

Source : Calculated from the 1996 population census figures.

level of unemployment and poverty. Common to these socio-economic afflictions, was the prevalent belief in getting more children (especially boys) to provide the much needed family labour. Children were also regarded as security against old age. The continued existence of the patriarchal household in the clan depended on the existence of the extended family. Africans strongly believed in protective function of the household. The extended family resulted in extended burden to a breadwinner should he/she be the only member earning an income. This is an ingredient for poverty and is negative to sustainable development. On the other hand, the fact that the extended family ensured that every member of the family received protection from hunger, is a positive indicator of sustainability where sufficient members earned a living.

In the South African context it is also inevitable to refer to the racial composition of the population. In KwaZulu/Natal about 81.7 of the population is Black. Coloured, Asiatic and White people constitute about 1.4, 9.4, 6.6 per cent respectively (Republic of South Africa, 1999). Although the percentage of Black rural residents to the total population is about 81.7 per cent, the proportion of Black-owned agricultural land to the total land area is about 42 per cent.

This inequality in the distribution of Land resources for agriculture is, in terms of the Rio Declaration, a negative indicator to sustainable development (UNCED, 1992).

4.4 Population Growth and Sustainable Rural Development in KwaZulu/Natal

According to the 1996 population census the average annual population growth rate in KwaZulu/Natal is 1.90 per cent (Republic of South Africa, 1999). At this rate it would take about 30 years for the population to double. The rise in human population is associated with increasing demands on the environment. In view of the prevailing deplorable ecological and socio-economic conditions, this high population growth rate is a threat to sustainable development.

4.5 Sustainability and the Level of Literacy and Skills in Rural KwaZulu/Natal

The 1996 population census figures reveal that only 9,57, 217 adults (above 20 years) or 22.9 per cent of the total population have had no schooling. About 6,65, 303 (i.e. 15.9 per cent of the total adult population) had reached standard 10 (Republic of South Africa, 1999). There is racial and gender disparity in the level of education. The Black population group

Table - 2
Level of Adult Education in KwaZulu/Natal by Racial Group

{PRIVATE} Education	African	Coloured	Asian	White	Total
Level	Per cent	Per cent	Per cent	Per cent	Per cent
No Schooling	24.3	10.2	6.5	1.2	22.9
Primary	27.8	30.7	13.1	1.2	24.6
Some Secondary	32.8	42.5	40.0	32.8	31.8
Standard 10	12.1	12.3	30.4	40.7	15.9
Higher	3.0	4.3	10.0	24.1	4.8
TOTAL	100	100	100	100	100

Source : Calculated from the 1996 population census figures.

has the highest illiteracy rate. The fact that Black people constitute 81.7 per cent of the total population means that the average literacy rate in KwaZulu/Natal is low. There are also more adult females (5,87,106) without schooling than males (3,70,111). This is related to the fact that in the past, women, especially among African and, to some extent, Asian and Coloured communities did not aspire much beyond getting married. As a result of changing circumstances women began, albeit later than males, to take education more seriously.

About 24,98,706 people (29.7 per cent of the total population) in the 5-24 years age group in KwaZulu/Natal were recorded as attending school on a full-time basis. Another 34,309 persons (0.4 per cent) were attending school on a part time basis; about 13.6 per cent were not attending school. This shows an improvement in literacy rate as more people were becoming literate, and is a step in the right direction for sustainable development.

4.6 Sustainable Development & Employment Status of the Rural Population

About 25,79,517 people (i.e. about 30.6 per cent of the total population) in KwaZulu/Natal were classified as economically active (Age 15-65 years). Of these only 15,70,573 (18.7 per cent) were employed and the rest were unemployed (Republic of South Africa, 1999). From these figures it is apparent that people who earned an income were mostly situated in and around the urban areas. Relatively high percentages (49-94) of people earning an income were along the coastal region. In the majority of inland rural areas the percentage of people earning an income was between 29 and 48. This means that about half the population in these areas were dependent.

The employed persons in rural KwaZulu/Natal were mostly engaged in the professions (largely in the teaching profession) than in any other type of paid employment. The second prevalent group is that classified as 'production'. People in the Professions, however, comprised

only 3.71 per cent all economically active people and those in 'production' 4.04 per cent. The highest group of those earning a salary are those whose occupations are not defined, and they include all kinds of petty commodity producers. Of greatest concern to sustainable development is the existence of many rural areas where the employment rate was between 7 and 14 per cent. The low employment rate in these areas is a negative indicator for sustainable development.

4.7 Income Levels & Sustainable Development

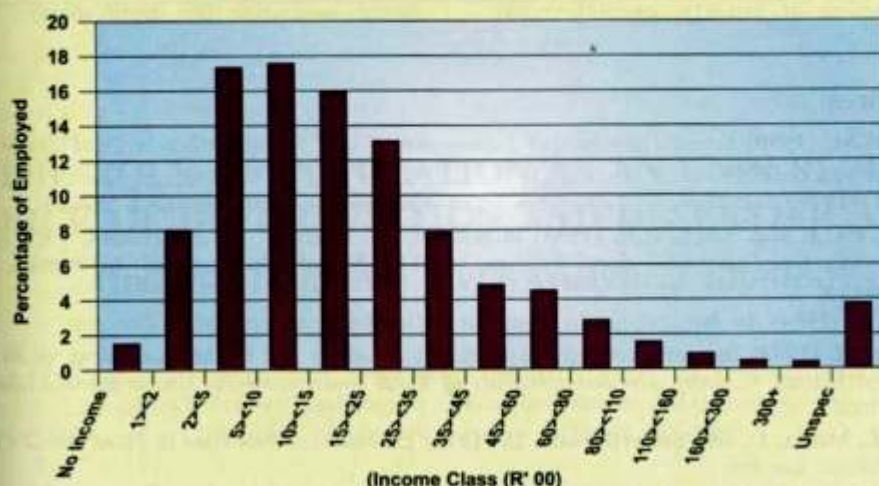
The greatest concentration (about 40-83 per cent) of the income of KwaZulu/Natal is confined in the urban areas, especially in the Durban Metropolitan Area and Pietermaritzburg city. The other urban centres such as Vryheid, New Castle, Richards Bay, Ladysmith and Port Shepstone receive about 10 per cent each of the KwaZulu/Natal income. The rural areas receive less than five percent share of the income of KwaZulu/Natal. This great disparity between urban and rural income is a negative factor for sustainable rural development.

The majority (about 64.4 per cent) of employed people in KwaZulu/Natal earned incomes of between R201-R2500 a month (1 US\$ = ± R7). According to the 1996 population census, areas with high *per capita* income (above R 16 001 monthly) were found in the urban centres such as Durban, Pietermaritzburg, New Castle, Ladysmith, Port Shepstone and Richards Bay. Pockets of these income brackets were also noticed among some commercialised farming areas along the coastal region and in Underberg, Mpendle and Lions River. Inequality in the distribution of incomes is a negative factor for sustainable development.

4.8 Poverty and Rural Sustainability in KwaZulu/Natal

It is evident from the previous discussion, that the preponderance of children and women and the high unemployment rate in KwaZulu/Natal resulted in high dependency ratios. According to the 1991 population census (Republic of South Africa, 1991) there were

Fig. 10 : Individual Monthly Income among the Employed



areas where the dependency ratio was more than 1:210. These happen to be areas suffering high unemployment rates such as Msinga, Nkandla, Nquthu, Simdlangentsha, Nongoma, Mahlabathini, and Emzumbe. In some areas the dependency ratio was as low as 1:1. Considering that only 2.32 per cent of the earning population earned above R15000 per annum (R1250 per month), these high dependency figures meant that there was not enough money earned by the residents to cater for the needs of their families. More than half of the rural districts in KwaZulu/Natal had average household income of below R15000 per annum (R1250 monthly) in 1991. Viewed against the prevailing low agricultural production, it can be concluded that there was widespread poverty in KwaZulu/Natal. There is some linkages between poverty and the environmental degradation explained earlier in this paper. Poverty is thus a negative factor to sustainability.

4.9 Survival Strategies of the Rural Poor in KwaZulu/Natal

The survival strategy of the peasants lies in cash income from diverse sources such as migrant remittances, pensions, welfare payments and petty commodity production. As

a result of a high rate of migrant labour many females act as *de facto* heads of families and, over and above their household chores, they do most of the agricultural production activities for their poverty stricken households. Although there was general poverty in the region, it has been found that the peasants in KwaZulu/Natal were not homogeneous, and that their level of well-being differed mainly according to their access to land and off-farm income.

4.10 Summary and Conclusion

The demographic problems of KwaZulu/Natal are inextricably related to the colonial and apartheid land and agricultural policies. In examining the demographic dynamics of KwaZulu/Natal, it was found that the population of the majority of the rural areas of KwaZulu/Natal were characterised by a high fertility rate, high illiteracy rate, high unemployment rate, high dependency ratio, high level of male absenteeism and poverty. It was also indicated that many of the rural areas were overpopulated, overgrazed, under-developed and degraded. There is some linkages between poverty, poor land management and environmental degradation, which indicates an adverse synergistic relationship between demographic dynamics and

sustainable rural development in KwaZulu/Natal. Unless vigorous population and rural development programmes are implemented that would lead to the reduction of poverty, unemployment,

inequality and in the improvement in the quality of life, the prevailing population trends and factors in KwaZulu/Natal indicate negatively towards sustainable rural development.

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THE ROLE OF POPULATION AS AN UNDERLYING FORCE OF DEFORESTATION AND DESERTIFICATION

(Insights from two Meta-Analytical Studies)

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Abstract

Focusing on tropical deforestation and desertification, this paper emphasises that these processes are best explained by region - specific matrix of factors rather than single factor causation of population pressure. At the forest margin, more than one - third of the cases are attributed to a full interplay of economic, technological, cultural and demographic variations. The same holds goods for more than one - half of the desertification cases.

Introduction

Understanding the causes of land use and land cover change remains one of the key questions in global environmental change research. Undoubtedly, demographic variables rank very high as explanatory factors. In tropical deforestation and desertification, this is largely due to the involvement of human actions driving these land change processes. However, moving beyond simplifications or myths of land change is crucial in the analysis of causes (Lambin et al 2001), and theories have produced rich arguments, but empirical evidence to be generalized is rather poor.

The lack of real world evidence is, first, due to the use of national population statistics. They have a major drawback which is that only a few, formatted variables are circulated by a few agencies which transport these data to the global level. Statistical correlation, for

example, between national FAO deforestation data and national UN population growth rates is strikingly high, whereas such analyses do rarely consider that FAO often uses population growth rates to approach forest losses where no remote sensing data exist. Also, national aggregate statistics do not show the actions of various groups or classes of population involved, but desperately would need such rooting in real world population geography. Outcomes, where population growth rates are linked to certain groups of land users – not using a research design, but simply by *prima facie* consideration – therefore very often produce ridiculous outcomes. Very often, the most vulnerable groups of land users are targeted. For example, in a rather influential consultancy study the growing mass of shifting cultivators and their high natural fertility rates in the developing world were held responsible for most of tropical deforestation (Amelung

and Diehl, 1992). Another example stems from dryland research. Here, proponents of single-factor causation suggest various primary causes such as irrational or unwise mismanagement by nomadic pastoralists and growing populations in fragile semi-arid ecosystems. Central to this understanding is the overworking of land by ever increasing numbers of rural poors, creating in its extreme the notion of 'man-made deserts', i.e., the human-driven, irreversible extension of desert landforms of landscapes (Le Houerou, 2002; Breckle et al, 2002).

Lack of real world evidence is, second, due to insights into the role of population which are gained from local scale case studies that often follow a narrative (qualitative) research design and happen to be de-coupled from national census data. This is often the case in political ecology studies dealing with the human-environment or environment-development condition. Such studies limit themselves, for example, by exploring whether the narratives of selected discourses reflect patterns concerning the involvement of archetypes such as 'heroes', 'villains', and 'victims' in deforestation and desertification research (Adger et al, 2001). Different from the proponents of single-factor causation related to population and certain groups, proponents of a contextual approach often claim that land change must be attributed to multiple causative factors that are specific to each locality, revealing no distinct pattern (Warren, 2002). Thus, the theme of irreducible complexity pervades cause analysis and such studies reveal complex and diverse stories on land use change trajectories, but lack generality and geographical representativity.

Moving beyond single-factor causation and irreducible complexity

A middle way between these two approaches can be comparative (rather than purely narrative) studies across a wide array of local, subnational cases, done in a systematic manner. The comparative perspective across

sites is crucial, and the studies can follow a common data protocol, or be meta-analytical studies of a much broader range of cases involved.

One of the most recent attempts to run a comparative study of land change across several sites, using an original standardised data protocol, stems from the so-called Tri-Academy project (Indian National Science Academy et al, 2001). Results are summarised under three major headings as below, and only insights on population are given here.

Under the heading '*Intertwined effects of population, consumption and technology*' it was said as one of five major findings that in all areas – USA : Chicago, South Florida, India : Haryana, Kerala, China : Jitai Basin, Pearl River Delta – population is increasing due to migration, but not due to natural growth. Under the heading '*stability and change on the land*' it was stated that forest areas are stable or increasing in areas even of high population density, and that population growth is not associated with decreases in croplands available. It was further noted that land use dynamics affects social groups differently, for example, upland versus lowland groups, landless people versus landowners, and women versus men. Under the heading '*Importance of government policy*' it was said that government policies, which were found to have the greatest single affect on land use change – and not population growth as previously assumed – are external to the region and not motivated by growing population pressure within the region. Linking the last and first heading, it was finally found that some policies result in land use changes which provoke increased migration and other movement of people. The insights gained from the so-called Tri-Academy study are at least useful to discredit some of the major myths of land use and land cover change, for example, grouped around the claimedly overriding impact of natural increment of impoverished population groups. They are further useful to reconcile the very many ambitions of political ecology studies

with the concerns of the global environmental change community (Zimmerer and Bassett, 2003; Geist, 1999).

A second approach in the comparative analysis of cases are meta-analytical studies. The overall aim here is to generate from local-scale case studies a general understanding of the proximate causes and underlying driving forces of land change, while preserving the descriptive richness of these case studies (Ragin, 1989; Matarazzo and Nijkamp, 1997). In cause analysis, it makes fundamental sense to hold separately proximate and underlying causes. Proximate causes are human activities or immediate actions at the local level, such as cropland expansion, that originate from intended land use and directly impact land cover. Underlying causes or driving forces are fundamental social processes or root causes, such as human population dynamics, that underpin the proximate causes and either operate at the local level or have an indirect impact from the national or global level. Underlying driving forces can be categorized into five to six broad clusters: demographic, institutional, economic, technological, cultural and climatic factors. Each can further be subdivided into specific factors; for example, demographic factors were partitioned into natural increment, migration, population density, and life-cycle features per certain groups of factors. Details of the method of meta-analyses of deforestation and desertification cases are given in Geist and Lambin (2002) and Geist (2004), including a discussion of the limitations. In the following, joint insights from these two studies are presented, representing nearly 300 cases of land change.

Frequency analysis of the occurrence of demographic variables

Table 1 shows that population is involved in almost three-fourths of all deforestation cases, which means an impact at a high level.¹ However, single factor causation by

demographic variables is nil. Similarly, Table 2 shows that no single factor causation by demographic variables has been found in desertification cases. With slightly more than half of all cases, population is less frequently reported to be involved in desertification cases than has been the case with deforestation cases, but demographic impact remains considerable.

Thus, it can be stated that, at the underlying level, tropical deforestation and desertification are best explained by regionally distinct combinations of multiple – and in the case of drylands, coupled social and biophysical – factors and drivers acting synergistically rather than by single-factor causation. At the forest margin, more than one-third of the cases are being driven by the full interplay of economic, technological, cultural, and demographic variables, while more than half of the desertification cases are driven by the interplay of four to six variables, including climatic factors.

Frequency analysis of cause connections

Despite of multiple factor combinations as shown in Tables 1 and 2, there is a limited and recurrent set of specific variables underpinning both deforestation and desertification (see Table 3).¹

In deforestation, public and individual decisions were found to largely respond to changing economic opportunities and/or policies, as mediated by local scale institutional factors, with some of these combinations being robust² geographically (such as the development of market economies and the expansion of permanently cropped land for food), whereas most of them are region-specific. It is thus shown that tropical deforestation is driven by identifiable regional variations of synergetic cause/driver combinations in which economic factors, institutions, national policies and remote influences are prominent. Findings reveal that too much emphasis has been given to population growth as a primary causative

variable of deforestation, but also to shifting cultivators as the blamed key agents of forest removal.

For example, it is not only the occurrence of multiple causal factors but also the nature of their interactions which reveals that, in most cases, 3 to 4 underlying causes are driving 2 to 3 proximate causes. A frequent pattern of causation is road construction associated with wood extraction and/or agricultural expansion, being mostly driven by policy and institutional factors (in 65% of the cases), but also by economic and cultural factors. Pro-deforestation state policies aimed at land use and economic development (e.g. credits, low taxation, incentives for cash cropping, legal land titling) lead to the expansion of commercial crops and pastures in combination with an extension of the road network. Feedbacks amplify the process of deforestation. Most frequent is the feedback from road construction and the creation of new settlements in a frontier area upon economic factors such as the growth of wood and food markets. The development of commercialisation induces further deforestation and agricultural modernization, mainly in frontier regions of the Amazon lowlands and in Southeast Asia. Shifting cultivators turn into sedentary cash croppers and permanently settled subsistence farmers responding vividly to market signals.

As with tropical deforestation, desertification is driven by a limited suit of recurrent core variables, of which the most prominent are, at the underlying level, climatic factors, economic factors, institutions, national policies, population growth, and remote influences, driving, at the proximate level, cropland expansion – at the expense of grazing land and natural grassland and thus leading to overstocking – and infrastructure extension. More specifically, a recurrent and rather robust² broad factor combination – though differing widely in the range of specific factors involved – implies climatic factors leading to reduced rainfall, agricultural growth policies, newly introduced land use technologies, and

malfunctioning land tenure arrangements which are no longer suited to dryland ecosystem management.

As in the case of deforestation, it is mostly the interactions between multiple causal factors that lead to desertification. In most cases, three to five underlying causes are driving two to three proximate causes. A frequent pattern of causal interactions stems from the necessity for water-related infrastructures that are associated with the expansion of irrigated croplands and pastures, which is mostly driven by policy, economic, and technological factors. Typically, newly introduced irrigation infrastructures induce accelerated in-migration of farm workers into drylands, and often stir more commercial-industrial developments as well as the growth of human settlements and related service economies. Irrigation infrastructure is often nested in a system of larger infrastructure extension related to regional economic growth. Commonly, road extension and availability of earthmoving equipment for dam construction pave the way for the subsequent extension of irrigation, and (semi) urban land uses. In the developing world, underlying these proximate factors are national policies aimed at consolidating territorial control over remote, marginal areas, and attaining self-sufficiency in food and clothing, with rice and cotton being the key irrigated crops.

Detailed (path) analysis of demographic variables

Causal synergies prevail the causative patterns of the fundamental land change processes studied above, but demographic factors remain nonetheless important driving forces, both in tropical deforestation cases (61%) and desertification cases (55%).

Tropical deforestation

In deforestation, chiefly in-migration of colonizing settlers into sparsely populated forest areas, with the consequence of rising population densities there, shows a notable

Table - 1
Frequency of occurrence of broad ultimate driving forces in tropical deforestation¹

	All cases (n=152)			Asia (n=55)		Africa (n=19)		Latin America (n=78)	
	abs	Rel	cum	abs	rel	abs	rel	abs	rel
Single factor causation									
ECON	13	9%	9%	0	-	0	-	13	17%
INST	4	3%	12%	0	-	1	5%	3	4%
TECH	0	-	12%	0	-	0	-	0	-
CULT	0	-	12%	0	-	0	-	0	-
POP	0	-	12%	0	-	0	-	0	-
2-factor term of causation									
POP-ECON	5	3%	15%	0	-	3	16%	2	3%
POP-TECH	4	3%	17%	2	4%	1	6%	1	1%
POP-INST	1	1%	18%	0	-	0	-	1	1%
POP-CULT	1	1%	18%	0	-	0	-	1	1%
ECON-TECH	1	1%	19%	0	-	0	-	1	1%
ECON-INST	5	3%	22%	0	-	0	-	5	6%
INST-CULT	5	3%	26%	4	7%	0	-	1	1%
3-factor term of causation									
POP-ECON-TECH	5	3%	29%	0	-	4	21%	1	1%
POP-ECON-INST	1	1%	30%	1	2%	0	-	0	-
POP-ECON-CULT	2	1%	31%	0	-	1	5%	1	1%
POP-TECH-INST	4	3%	34%	1	2%	1	5%	2	3%
ECON-TECH-CULT	1	1%	34%	0	-	0	-	1	1%
ECON-INST-CULT	6	4%	38%	0	-	0	-	6	8%
TECH-INST-CULT	5	3%	42%	5	9%	0	-	0	-
4-factor term of causation									
POP-ECON-TECH-INST	8	5%	47%	5	9%	2	11%	1	1%
POP-ECON-TECH-CULT	1	1%	47%	0	-	1	5%	0	-
POP-ECON-INST-CULT	2	1%	49%	1	2%	0	-	1	1%
POP-TECH-INST-CULT	5	3%	52%	4	7%	0	-	1	1%
ECON-TECH-INST-CULT	19	13%	64%	12	22%	0	-	7	9%
5-factor term of causation									
All	54	36%	100%	20	36%	5	26%	29	37%
Total	152	100%	-	55	100%	19	100%	78	100%

Note : POP means demographic factors, ECON = economic factors, TECH = technological factors, INST = institutional factors, and CULT = cultural (or socio-political) factors.

Source : Geist and Lambin (2002)

Table - 2
Frequency of occurrence of broad ultimate driving forces in desertification¹

	All Cases (n=132)			Asia (n=51)		Africa (n=42)		Europe (n=13)		Australia (n=6)		North America (n=6)		Latin America (n=14)	
	Abs	rel (%)	cum (%)	abs	rel (%)	abs	rel (%)	abs	rel (%)	abs	rel (%)	abs	rel (%)	abs	rel (%)
Single factor causation															
Climatic (clim)	7	5	5	0	-	6	14	1	8	0	-	0	-	0	-
Institutional (inst)	5	4	9	0	-	0	-	0	-	0	-	0	-	5	36
Economic (econ)	0	-	-	0	-	0	-	0	-	0	-	0	-	0	-
Technological (tech)	0	-	-	0	-	0	-	0	-	0	-	0	-	0	-
Cultural (cult)	0	-	-	0	-	0	-	0	-	0	-	0	-	0	-
Demographic (pop)	0	-	-	0	-	0	-	0	-	0	-	0	-	0	-
Two-factor causation															
Pop-clim	10	8	17	0	-	10	24	0	-	0	-	0	-	0	-
Tech-clim	9	7	24	0	-	0	-	6	46	1	17	2	33	0	-
Econ-tech	2	1	25	2	4	0	-	0	-	0	-	0	-	0	-
Econ-inst	2	1	26	0	-	2	5	0	-	0	-	0	-	0	-
Cult-clim	1	1	27	1	2	0	-	0	-	0	-	0	-	0	-
Three-factor causation															
Tech-inst-clim	4	3	30	0	-	4	10	0	-	0	-	0	-	0	-
Pop-tech-inst	4	3	33	3	6	0	-	1	8	0	-	0	-	0	-
Pop-econ-clim	2	1	34	0	-	2	5	0	-	0	-	0	-	0	-
Econ-tech-clim	2	1	35	0	-	1	2	0	-	0	-	1	17	0	-
Tech-cult-clim	2	1	36	0	-	2	5	0	-	0	-	0	-	0	-
Pop-cult-clim	3	2	38	1	2	0	-	1	8	0	-	1	17	0	-
Four-factor causation															
Econ-tech-inst-clim	6	5	43	3	6	0	-	0	-	0	-	0	-	3	21
Pop-econ-inst-clim	4	3	46	3	6	1	2	0	-	0	-	0	-	0	-
Tech-inst-cult-clim	3	2	48	0	-	2	5	0	-	0	-	1	17	0	-
Pop-tech-inst-clim	5	4	52	1	2	3	7	1	8	0	-	0	-	0	-
Pop-econ-cult-clim	2	1	53	0	-	0	-	0	-	0	-	0	-	2	14
Econ-tech-cult-clim	1	1	54	1	2	0	-	0	-	0	-	0	-	0	-
Pop-econ-tech-clim	1	1	55	1	2	0	-	0	-	0	-	0	-	0	-
Pop-econ-tech-inst	1	1	56	1	2	0	-	0	-	0	-	0	-	0	-
Five-factor causation															
Econ-tech-inst-cult-clim	15	12	68	1	2	5	10	0	-	5	83	0	-	4	29
Pop-econ-tech-inst-clim	12	9	77	11	22	1	2	0	-	0	-	0	-	0	-
Pop-econ-inst-cult-clim	5	4	81	4	8	1	2	0	-	0	-	0	-	0	-
Pop-econ-tech-inst-cult	4	3	84	3	6	1	2	0	-	0	-	0	-	0	-
Pop-econ-tech-cult-clim	4	3	87	0	-	1	2	3	23	0	-	0	-	0	-
Six-factor causation															
All	17	13	100	15	29	1	2	0	-	0	-	1	17	0	-
Total	132	100	-	51	100	42	100	13	100	6	100	6	100	14	100

Note : abs, absolute number ; rel, relative percentages; cum, cumulative percentages. Relative percentages may not total 100 because of rounding.

Source : Geist (2004).

Table - 3

Frequency of specific underlying driving forces in tropical deforestation and desertification¹

	LATIN AMERICA				AFRICA				ASIA			
	Humid Forests		Dry lands		Humid Forests		Dry lands		Humid Forests		Dry lands	
	abs	rel	abs	rel	abs	rel	abs	rel	abs	rel	abs	rel
Economic factors	68	87	9	64	16	84	15	36	39	71	45	88
Market growth ^a	58	74	9	64	15	79	8	19	30	55	37	74
Urban-industrial growth	30	39	0	-	5	26	0	-	23	42	8	16
Market failures ^b	24	31	1	7	6	32	2	5	22	40	2	4
Foreign exchange ^c	17	22	0	-	5	26	0	-	16	29	0	-
Special variables ^d	34	44	1	7	5	26	2	5	9	16	5	10
Institution/policy factors	57	73	12	86	9	47	20	48	53	96	45	88
Formal (growth) policies ^e	52	67	0	-	7	37	17	2	46	84	27	53
Property rights issues ^f	29	37	6	43	5	26	11	27	33	60	21	42
Policy failures ^g	32	41	0	-	1	5	0	-	31	56	0	-
Technological factors	44	56	7	50	14	74	20	48	49	89	42	82
Agrotechnical change ^h	34	44	7	50	8	42	12	28	28	51	35	70
Deficient application ⁱ	22	28	3	21	8	42	17	41	39	71	31	60
Cultural/Sociopol. Factors	48	62	6	43	7	37	12	29	46	84	26	51
Public attitudes value ^j	46	59	5	36	5	26	10	24	45	82	30	59
Individual behaviour ^k	36	46	6	43	6	32	10	24	38	69	18	35
Demographic factors	41	53	2	14	18	95	21	50	34	62	43	84
In-migration	37	47	0	-	9	47	2	5	12	22	12	24
Growing density	20	26	0	-	6	32	12	29	12	22	3	6
Unspec. increase in size	17	22	2	14	15	79	3	7	28	51	21	41
Biophysical factors	17	22	9	64	6	32	39	93	11	20	42	82
Climatic factors ^l	5	6	3	21	4	21	21	50	9	16	21	42

Source : Geist et al, (2005), forthcoming.

- a - *In deforestation, export-oriented commercialisation of wood (timber products), agricultural products, and minerals; in desertification, of cotton, beef, rice, and oil/gas (including urban-industrial growth).*
- b - *In drylands, poor distribution systems, excessive subsidiation, and unjust credit systems.*
- c - *Generation of foreign exchange earnings.*
- d - *Low cost conditions (production factors) and price change (increase as well as decreases).*
- e - *In deforestation, related to land, credits/subsidies, and economic growth, especially agricultural and infrastructure development policies; in desertification, growth-and reform-oriented policies such as agrarian reforms, land redistribution, and rural development projects, including market liberalization policies.*
- f - *In deforestation, land races, land tenure insecurity, quasi open access conditions, maladjusted customary rights, titling/legalization, and low empowerment of local user groups; in desertification, malfunction common property regulations, newly introduced land tenure regimes, and land zoning measures.*
- g - *Corruption, lawlessness, clientelism, and the operation of vested interest and 'growth coalitions', besides mismanagement or poor performance.*
- h - *In deforestation, intensification as well as extensification measures, changes in market vs. subsistence orientation, in intensity of labour vs. capital, and in holding size; in desertification, new innovative developments and introductions mainly, i.e., new land and water management technology (new crop varieties, hydrotechnical installations, etc.), new transport and earth movement technology, and improvements in research and veterinary services.*
- i - *In deforestation, poor logging performance, wastage in timber processing, and poor domestic or industrial furnace performance; in desertification, poor efficiency of watering infrastructure, mainly.*
- j - *Including beliefs; dominant frontier mentalities, prevailing attitudes of nation-building, modernization and development (goal of catching up in terms of living standard, self-sufficiency in food, etc.) and low (public) morale, including violent conflicts about land.*
- k - *Including household behaviour; mainly, situation-specific behaviour (e.g., rent-seeking) and unconcern by individuals (e.g., about natural resources as reflected in increasing levels of demand, aspiration, and consumption, commonly associated with increased income).*
- l - *In causal synergy or concomitant occurrence with socio-economic drivers in drylands, and droughts but also high humidity (floods) in humid forest zones.*

influence of forest-to-agriculture conversion in 47% of the cases. It tends to feature African and Latin American rather than Asian cases. The extension of permanently cropped land for subsistence farming to meet the needs of a growing population is reported in particular from African cases. Expansion of pastures features exclusively cases from mainland South America in association with processes of both planned colonization and spontaneous settlement by colonist agriculturalists. Contrary to a common misconception, population increase due to high fertility rates has not been found to be a primary driver of deforestation at a local scale, over a time period of a few decades (8% of the cases only).

The integrated, rather than key role of demographic factors in tropical deforestation is summarized below in what might constitute regional pathways or trajectories of agricultural change at tropical forest margins (Lambin et al. 2001; Lambin and Geist, 2003a).

In *Latin America*, especially in Amazonia, a phase of extraction and harvesting of timber plus initial colonization, is generally followed by the establishment of colonists with a greater access takes place (frequently involving violent conflicts), and leads to winners and losers – those increasing land holdings and those pushed/pulled onwards to expanding the agricultural frontier further, where land is still cheap. Since cattle provides the largest economic rewards, given market conditions and/or government subsidies, for the winners, large-scale conversion to pasture follows ('beefing-up the forest'). This, in turn, drives up land prices, leading to further land consolidation.

In contrast, 'weak' nation states in *Central Africa* depend heavily on natural resources, including timber, to generate foreign revenue. De facto regulations of this industry are weak, owing to inadequate law enforcement and corruption, increasing the forest area logged and the related environmental impacts.

Migrants follow logging roads, clearing land for food and commercial crops. The amount of land that cultivators clear and the length of their fallows, which determines patterns of regrowth,⁶ are tied to such socio-economic triggers as devaluation of the national currency, changes in market prices of agricultural commodities, contract farming, and social conflicts.

States in *Southeast Asia* seek to enhance state revenue and socio-political stability in frontiers by launching large forest development projects, either timber extraction initiatives or transmigration to settlement schemes and plantations. It is not uncommon for authorities to fail to enforce timber concession regulations, exacerbating the damages in areas logged, and akin to Africa, prompting further spontaneous settlement. Alternatively, large-scale plantation and intensive agricultural project increase migrant involvement with commercial cultivation, creating 'burger landscapes' on cleared lands, and often at the expense of indigenous people living near the forest frontier, where land conflicts follow.

Desertification

In desertification, African and especially Asian cases are reported to be mostly related to human population dynamics. Most widespread are situations in which population growth, overpopulation, or population pressure is reported to stem from distant urban populations, triggering out-migration of cultivators and/or herders from these zones onto marginal dryland sites. Consequently, the sometimes rapid increases in the size of local human population are often linked to in-migration of cultivators onto rangelands or large-scale irrigation schemes, or of herders onto hithero unused, marginal sites, with the consequence of rising population densities there. Contrary to a widely held view, population increases due to high fertility rates is not a primary driver of desertification at a local scale, over a time period of few decades (3% of the cases only). However, there are

some uncertainties to estimate the impact of specific demographic variables, since they are blurred into notions such as 'population pressure'.

The integrated, rather than key role of demographic factors in tropical deforestation is summarized below in what might constitute regional pathways or trajectories of agricultural change in drylands (Geist, 2004).

In *Central Asia*, notably northern China, widespread sandification as a spectacular outcome of desertification is linked to the exceptionally strong directionality of socio-economic driving forces including forced immigration of Han Chinese into colonization zones, but also to predominantly sandy, loessial soils, and the prehistoric natural predisposition of vast basin and plateau sites for desert formation. In ancient times and under various dynasties, coupled climatic variations and destructive land uses operated in causal synergy so that oscillating desert margins became today's desertified land with worldwide highest rates of dryland degradation. The two central pathways of partly irreversible desertification in Central Asia are the double invasion of grain farming onto steppe grazing land, triggering soil mining as well as overstocking, and of large-scale hydraulic cultures into desert ecosystems which historically supported only localised traditional oasis farming.

In contrast, a typically *African* pathway relates to the concentration of pastoralists (sedentarization) and farming populations around infrastructure nuclei, with the consequence of overgrazing, extensive fuelwood collection and high cropping intensities ending up in vegetation degradation and soil productivity decline during periods of drought.

'Beefing up' the fragile dryland ecosystems, with low or nil involvement of cropping, characterizes the pathway of *Latin America*. Historically, rangeland zones typically shared commonalities with Australia and the US Southwest such as the rapid

introduction by European settlers of exotic livestock species and commercial pastoralism into ecosystems that were immune to these uses before. Since about the 1950s, due to the cost-prize squeeze affecting agriculture, Patagonia and northern Mexico lack advanced technologies to deal with the vagaries of oscillating markets and natural resources. There are hardly any alternatives or diversification options for local farmers to continue with livestock raising (sometimes under conditions of impoverishment). Consequently, desertification, is not a historical phenomenon (as in Australia and US Southwest), but is advancing contemporarily – showing no distinct relation to the natural increment of local population.

Conclusion

Significant progress in the quantification and understanding of land use/cover changes has been achieved over the last decade (Lambin et al, 2003). In cause analysis, for example, identifiable regional patterns of causal factor synergies were found, which, in combination with feedback mechanisms and regional land use and environmental histories, make up specific pathways of land change per region and time period. Understanding these pathways and addressing trade-offs between what needs to be developed and what needs to be sustainable management of tropical forest and dryland ecosystems, interventions and trade-offs have to be fine-tuned to the region-specific dynamical patterns associated with deforestation and desertification (Lambin and Geist, 2003b; Tomich et al, 2004).

Analyses of the causes of land use change have moved from simplistic single-cause explanations to an understanding that integrates multiple causes and their complex interactions. Land change analysis has clearly moved beyond linear thinking according to which most land transformation was directly associated with population, mainly population growth in terms of natural increment. A systematic analysis of local scale land use

change studies, conducted over a range of timescales, hereby helps to uncover general principles to provide an explanation and prediction of new land use changes. Results stemming from the so-called Tri-Academy study are largely confirmed by results originating from two meta-analytical databases used here. The improved understanding of processes of land use change has also led to a shift from a view condemning a few groups of factors as responsible for most deterioration to emphasis on the available potential for ecological restoration through land management (Lambin et al, 2003), often involving the same groups which had been condemned before. Clearly, the population variable needs a better nuanced analysis and must not be reduced to national-scale growth rates alone (Geist, 1999).

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Notes

1. Table 1 and 2 give only the broad clusters of ultimate or underlying forces, while Table 3 provides a more detailed breakdown of the broad clusters by specific factors. Only the frequency of modes of causation (single or multifactorial) by broad clusters of underlying variables (Tables 1 and 2) shows cumulative percentages of cases, adding up to 100%. The relative percentages of the frequency of occurrence of specific factors (Table 3) do not add up to 100%, as multiple counts exist because of causal factor synergies.
2. Robust causes (or land uses) are those which show low geographical variation in their frequency of occurrence, i.e., they have more or less equal (and high) frequencies.

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ACTIVITY OF THE POPULATION AS ONE OF THE INDICATORS OF NON-UNIFORM DEVELOPMENT OF SERBIA

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Abstract

The paper attempts to analyze the role of participation towards uneven regional development in Serbia. The municipalities of Serbia are classified into a number of types according to the following criteria: (i) general rate of activity, which is the most important characteristics of the economic structure, and (ii) the percentage of agricultural population in the total economically active population, which is the main indicator of the process of de-agriculturalisation. Regional differences in the level of development of the country have an obvious spatial-demographic polarization.

Developmental processes, with their effects and with structural changes, both favourable and unfavourable, are closely linked to population and its characteristics and spatial placement. The size of population, the intensity and direction of the structural changes, and spatio-demographic characteristics are very important in all the areas of social and economic development. Population is an important factor in the process of development of an area. On the other hand, the tempo and direction of the overall development, particularly economic changes, play signal role in transforming the quantitative and qualitative characteristics of population.

Polarization of the overall development increased particularly in the 1960s because of

various causes, the most important of which was the unequal social and economic development of various regions of the country. This reflected in structural, qualitative and quantitative alterations in the economy, in the location and concentration of the population, in the organization of the network of human settlements (villages, towns and cities), and in the manner how the space was used.

The development proceeded in the zones where the geopotentials were the most favorable for the concentration of people and their activity, but some of the changes affected all parts of the country. Unequal structural and spatio-economic development, particularly of industry, resulted in a spatio-demographic polarization, which inevitably accompanies a

transition of an agrarian society into an industrial one. In Serbia, however, this transition was very intense, and happened in a relatively short interval of time. Spontaneous urbanization and unplanned, chaotic de-agrarization produced a much faster tempo of social and demographic processes (particularly in terms of migrations to the cities) and, in fact this tempo was much faster than the tempo of the economic development itself (group of authors, 1998:263). This further enhanced regional inequalities in development, and intensified the polarization of Serbian space into the relatively small zones of high population density (cities, towns and suburbia, with stable demographic development and higher rate of population growth), and the large, economically undeveloped zones of low population density (Stojanovic B., 1990:194).

Spatial Differences in the Select Indicators of the Economic Structure

As a starting point for studying the economic structure of the population, we divide the population according to the criterion of ability (capacity) for activity, i.e. what the people are able to do, what they are physically and physiologically capable of doing and, on the other hand, what the economy and society will let them do. The total population consists of those who are economically active (the work-force) and, therefore, have income and those who are dependents on the active population; the work-force supports the dependents. However, it is not easy to compare such data from country to country, nor even in the same country in successive population censuses, because some categories may be defined differently and/or imprecisely. This is particularly the case when we try to categorize those who assist in the family, and those who do some work but marginally, which happens especially in the agricultural regions.

Demographic determinants of the volume of work-force are : the total volume of population, the proportion of workers therein, and the structure of the total population and

workers as per the basic demographic characteristics, particularly the yearly increase, and their gender and age composition. The main economic and social structures which determine the volume of work-force are : the structure of the economy, the economic structure of the population; the demand for labour; the extent to which the children and the young people are really included in the education process; the labour legislation (exactly when a citizen is old enough to get an old-age pension, the average duration of the work-day, etc.); and numerous other factors - general conditions for work, protection of health in the work-place, religious affiliation, tradition etc. (Baletic-Wertheimer A., 1982:293-294). Relatively high rates of activity in agricultural areas are a consequence of greater work participation of agriculturally active population in the total population for instance, great numbers of children and the young people enrolled in educational institutions will mean that the rate of economic activity will be lower, etc.

As a society progresses economically, the changes can be seen as a continuous process of reallocation of work-force among the various economic and non-economic activities, professions, geographical locations etc., accompanied by a reallocation of the means of spending. A necessary consequence of all this is that space will become polarized in view of its economic, demographic, social, cultural and other characteristics. Thus, the economic structure of the population is one indicator of the social and economic development, because the two are constantly influencing and changing each other: the trends in one will alter the other, and vice versa.

In order to classify the Serbian municipalities from the aspect of the activity of the population, the following indicators have been taken into consideration: the general rate of activity; the coefficient of economic dependancy; and participation of agriculturally active population in the total active population³. We tried to coordinate them and to find as to

which regions resemble each other in some of the above mentioned demographic-structural characteristics.

In the year 1991⁴ the general rate of the activity of the population of Serbia⁵ was 44.2% (but only 35.3% for women); 11.6% of the population were persons with personal income and 44.2% were dependants; while the value of the coefficient of economic dependency was 126. But these are the averages for the entire Serbia; expectedly the situation in some regions is quite different.

In Central Serbia the rate of activity is greater, the participation of persons with personal income is higher, and, in consequence, the share of dependants is lower. Thus the coefficient of economic dependency is lower and stands at 103, while the rate of activity of female population was 42.2%. The process of demographic ageing in Vojvodina produced a relatively high participation of people with personal income (16.4%), and a reduction of

the participation of dependants (to 39.3% in 1991), but the coefficient of economic dependency is at the average Serbian level. Opposite demographic development in Kosovo and Metohija caused them to differ significantly from the other two macro-region. In these the participation of dependants in the total population is very high (67.4%), the rates of activity of the population are very low and proportion of those with personal income are relatively low (only 3.6%) due mainly to the fact that the age-structure of the population is very young. Thus, the coefficient of economic dependency was very high i.e., 245 which was twice the average of Serbia as a whole.

Analysis of the intensity of the changes of the economic structure of the population, within the framework of this trichotomous division of Serbia, has been attempted for the period 1971-1991 at the level of these three macro-regions (Table 1).

Table - 1
Population structure by activity (in %)

Macro unit	1971				1991			
	Total	Active Population	Persons with personal income	Supported population	Total	Active Population	Persons with personal income	Supported population
Republic of Serbia	8446591	3859320	440360	4146911	9441305	4171907	1094616	4174782
Central Serbia	5250365	2703091	258554	2288720	5582611	2751193	703779	2127639
Vojvodina	1952533	833242	156252	963039	1966367	871704	323256	771407
Kosovo and Metohija	1243693	322987	25554	895152	1892327	549010	67581	1275736
Republic of Serbia	100,0	45,7	5,2	49,1	100,0	44,2	11,6	44,2
Central Serbia	100,0	51,5	4,9	43,6	100,0	49,3	12,6	38,1
Vojvodina	100,0	42,7	8,0	49,3	100,0	44,3	16,4	39,3
Kosovo and Metohija	100,0	26,0	2,0	72,0	100,0	29,0	3,6	67,4

Source: A Group of Authors, "Population and Households in Republic of Serbia According to the 1991 Census" pp. 226-227, Belgrade (1995).

Changes in the age-structure in Serbia as a whole tended to be in the direction of reducing the rates of activity, and reducing the proportion of dependants in favour of persons with personal income. But this was not so, or do not show the same intensity by individual macro-regions. Over the past twenty years, the falling general rate of activity happened only in the Central Serbia, while in Vojvodina, Kosovo and Metohija, the general rate of activity tended to rise. However, in all these three macro-units the participation of persons with personal income has increased and the share of dependents have declined.

The most intense changes happened in Vojvodina, because of the increase of participation of persons with personal income and also increase in the overall rate of activity which since 1971 attributable chiefly to greater activity of the female population. Increased participation of persons with personal income was because the rate of employment was higher (more people found jobs). The slower demographic development of Vojvodina, as compared to the other two macro-regions, and also the population that is now in the old age bracket, helped reduce the number of dependents.

In Central Serbia, the changes were in this very direction, but were of moderate intensity, or slightly above the Republic's average intensity. The trend of increased participation of persons with personal income happened partly because more and more people began receiving their pensions (including those who had worked in private organisations, i.e. who were not employed by the State), and also because the age-structure of the employees changed and rates of invalidity and mortality among the employees were rather high (producing a greater number of family-pension beneficiaries). At the same time the participation of the active population (and of the dependants) has decreased in comparison with the total population; as for the rate of the economic activity of women, it is the highest in Central Serbia.

Relatively changes were found in Kosovo and Metohija. This is the consequence of expansive demographic growth, resulting in the young age-structure of the population (Kosovo and Metohija is a territory in the demographic youth, or maturity). Thus, the level of the economic dependency coefficient kept rising, and in 1991 was twice higher than the average for the Republic as a whole. In addition various demographic and socio-economic factors, of the high birth - rate also the traditionalist view of woman's position in the society were responsible for quite low participation of women, the economic activity in all three macro-regions of Serbia. It is a good sign, however, that the work participation of women has tended to increase over the years.

The process of de-agrarization was intense in Serbia. Development of non-agricultural economic activities, primarily the industry, produced somewhat more intense alterations among the active agricultural population (Todorovic M., Miletic R., 1999, P.5; Todorovic M., 2002.P 62). Changes in the participation of the agriculturally active population in the total population were especially strong in the under-developed areas. The transfer of the population from agricultural into non-agricultural activities had its positive effects (higher employment, greater educational opportunities, etc.) but it also caused a sharp decrease of the volume of work-force in agriculture, an accelerated ageing of the active agricultural population, and an increased participation of women in agricultural work. At the same time, the process of de-agrarization was weak in the already highly developed areas (such as Novi Sad and Beograd) where a diversified structure of economic activity had been formed already.

Inside the three macro-regions, various municipalities had quite different development, which caused a great differentiation of space. On the basis of the general rate of activity of the population and the degrees of

de-agrarization, as compared to the average values for the entire Republic in 1991, we discern two basic types of municipalities:

1. Municipalities with higher rates of economic activity of the population and, simultaneously, the lower coefficient of economic dependency. Within this type, we discern several subtypes:

(a) Municipalities with the agriculturally active population constituting more than 50% of the total population. Such municipalities are found only in Central Serbia: the Macva-Kolubara region, Branicevo, a part of Sumadija and eastern Central Serbia. These are the areas with traditional and extensive (not intensive) type of agrarian production. (Todorovic M. 2002) which is associated with higher overall rate of activities (and also the high rate of activity of women).

(b) Municipalities where agriculturally active population constitutes 25 to 50% of the total population. These areas include the eastern Central Serbia, in the valleys of Velika Morava (Great Morava) and of Juzna Morava (Southern Morava), much of western Central Serbia, the valley of the Kolubara river, and parts of Macva region. This type is also dispersed in many places across Vojvodina, and is characterized by a diversified structure of agricultural activities and by natural conditions favourable for agrarian work.

(c) Municipalities with under-average (below 25%) participation of agriculturally active population in the total population. These include the municipalities with strong concentration of population, primarily in the municipal centres having a higher level of de-agrarization, a diversified structure of activity, and/or a strong specialization of activity. The municipalities of Belgrade (Beograd, the capital) itself, and those with large industrial enterprises in them in Vojvodina, some of the municipalities along the Danube, and some on

the loess plains around Subotica deserve mention here in this regard.

2. The second category is marked by low rates of economic activity but a high coefficient of economic dependency. These can be divided into two subtypes.

(a) Areas where the participation of active agricultural in total active population is above 25%; in Central Serbia, such municipalities are in the contact belt towards Kosovo and Metohija, plus most of the municipalities of Kosovo and Metohija itself. These municipalities are characterized by low economic development, have higher growth of population, young age-structure (thus the high coefficient of economic dependency, because there are many who do not yet earn a wage), and low work participation of women (partly because of the high birth - rate, partly because of the traditionalist view about the position of woman in the family and in society.) In Vojvodina, some eastern and south-eastern municipalities belong to this type.

(b) Municipalities with a high degree of de-agrarization (less than 25% of agriculturally active among the total number of economically active population). Such municipalities are found mostly in the central and western parts of Vojvodina; this subtype is characterized by relatively high level of economic development, a slow demographic change, and a relatively high participation of persons with personal income. To this subtype belong many municipalities in the valley, as distinct from river of Kosovo, and a part of the of Metohija; the population is young, dependants are many, women are mostly out of the economic activity, and the structure of economic activities is under-developed. Also to this type belong a few municipalities in the under-developed south-eastern mountainous parts of Central Serbia, but there the low rate of activity is the consequence of decline in

population, population ageing, and low level of economic development.

Effects of the volume of population on the employment may be the consequence of greater or lesser size of the market, or, of the division of labour, or the amount of diversification of the structure of activities (Breznik D., 1977:338). The numerousness of the population is not, in itself, the crucial factor of (un)employment; rather, it is in strong correlation with the achieved level of socio-economic development, and with the possibilities of using the natural and human resources.

Summing up

Deep and lasting changes of all the demographic characteristics in Serbia were, at the same time, both the cause and the consequence of certain trends in the economic and general social development of the Republic. The total number of people grew, birth-rate fell, average life-span became longer, population became much older, and there were large changes in the economic and educational structure and territorial placement of the population. Because of the uneven regional development, the population got concentrated in a relatively small number of developed cities and municipalities, and as a result, the urban areas became larger. These processes left a deep trace in the economic structure of the population, particularly in the level of employment from the point of view of the various sectors of the economy.

The changes taking place in any specific place can be seen as basically a process of continual reassignment of work-force among various economic and non-economic activities, geographical locations, from which may follow a polarization of space according to various demographic, economic, social, cultural and other characteristics.

The already achieved rates of the activity of population, and of de-agrarization, are a consequence of the stormy transformational processes which have swept the geo-space of Serbia in the 20th century. The typology of municipalities in Serbia (there are 189 of them), as presented above, in coordination with other demographic factors, is a relevant analytical basis for observing demographic regionalization. Such a regionalization furnishes the foundation (along with, for instance, natural-geographic, economic, etc.) for a complex geographical regionalization, with the ultimate aim of balancing and harmonizing of regional development through a more even distribution of population and of activities so necessary for sustainable development.

The unfortunate tangle of events in the last decade of 20th century, i.e., unstable political environment around Serbia, sanctions, military intervention in 1999, lack of finances, fall of industrial and agricultural production, a crisis of social standards, has constrained, and partly prevented, the positive effects of the Serbian social and political development, and deepened the regional differences.

It is expected that the results of the census of the population in 2002 will show a rather different picture of the activities of the population. Demographic trends will be somewhat altered, because of the strong influx of the population from the other ex-Yugoslav republics and also because transitional changes which are expected and which have already started (shift to full market economy, private ownership and private businesses, etc.). These changes, plus the improved relations with the neighbouring countries and the integration of Serbia into Europe and into the international community as a whole, should mark a beginning of a redefinition of the strategy of regional development in this part of the world.

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Notes and References

1. The research results, presented here, are part of the Project by the Geographical Institute "Jovan Cvijic" of the Serbian Academy of Sciences and Arts - SAAS, titled: "The Geographical Regionalization of Serbia" and " Danube-Morava Corridor as the Main Axis of Regional Development and Integration of Serbia into the South-Eastern Europe", support by Ministry of Science, Technologists and Development, Republic of Serbia.
2. Active population consists of all the persons who do a job and are employed; persons who work but are not employed (for instance, they actively help in agricultural work, they help the family to function, etc.), and, persons who could work but are completely unemployed; non-active are those who receive pension or other income without work, and dependants are those have no income but are supported by other people (Baletic-Wertheimer A., 1982:287, group of authors, 1995:224).
3. The overall rate of activity is the percentual participation of the active population in the total number of population, and the rates for each age group; also we calculate the rates of activity of the agricultural population, etc.

The coefficient of economic dependency is the relationship between the persons with personal income and dependants, in proportion to the number of the active population. This coefficient becomes lower if the rate of activity of the population becomes higher.

Participation of active agricultural in the total active population is an indicator of the degree of deagrarization, strongly connected with the changes in the socio-economic structure of an area.

4. This analysis of the activities of the population in Serbia has been completed on the basis of the census of 1991, because, by the time we are going into print, the information from the 2002 census has not yet been published. Because of the unstable situation in the country, the census which should have been performed in 2001 actually was done in March, 2002.
5. Serbia is one of the two federal units (Republics) composing the Union of Serbia and Montenegro (formal Federal Republic of Yugoslavia). Total area of Serbia is 88.361 Km² and here are 9778.991 inhabitants in 6.153 inhabited settlements, according to the 1991 census. The other federal unit (the other Republic) is Crna Gora, also known as Montenegro, with 584.300 inhabitants, 1.240 inhabited settlements and an area of 13.812 Km². From the administrative and political aspect, the Republic of Serbia is divided into 3 administrative parts of macro-units: Vojvodina in the north, Middle (or Central) Serbia, and, far to the southwest and south, Kosovo and Metohija.
6. As the ethnic Albanians in Kosovo and Metohija and in two municipalities (Presevo and Bujanovac) in south Central Serbia (near Kosovo) boycotted the 1991 census, estimates were made about this population and about some of its demographic structures. As the area is very under-developed, the relatively smaller participation of agriculturally active persons in the total active population (in previous censuses, peasant women mainly declared themselves to be housewives, although in fact they worked a lot in the agriculture) brings into question the objectivity of such judgements.

URBANIZATION AND ITS CONSEQUENCES IN METROPOLITAN TIRANA, ALBANIA

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Abstract

Urban area of Tirana presents a complex phenomenon emerging from the combination of social, economic and environmental factors. The population of Tirana urban area continues to grow because of continuous migration of rural population toward this area. The municipality is faced up with many issues such as provision of fast and efficient customer service, development of various infrastructure, and planning and regulating land use pattern. The paper aims at bringing out consequences of urbanization during the transition period in Tirana, the capital city of Albania.

Background Information

Presently Tirana district represents about 17% of the total population (10% in 1989), and 40% of the total urban population of Albania. This spurt in population since 1990, has resulted in great social-economic and environmental changes. The high increase of Tirana population after 1990 is mainly due to rural to urban migration. The fast growth of urban population is currently a major urban planning problem.

The massive increase of the population has caused a dramatic expansion of Tirana, by creating the so-called "Great Tirana", whose area has grown from 12 km² in 1990 to 56 km² in 2002 i.e., about 5 times increase within a

decade. The main directions of expansion of Tirana are, along the Dures road, along the north of Kamza road, and in a concentrated circle inside Tirana City.

The fast increase of the population number as well as the expansion of the urban area (not urbanized), has created several problems for the decision-makers and planners. The most sensible focal problems to be solved are : urban land use; property law; illegal construction; and urbanization of these zones etc.

Geographical setting of the study area

Tirana, the capital of Albania and Tirana District and Prefecture, is situated in the centre

of Albania. It is the most important administrative, cultural, economic, and industrial centre of the country. According to the administrative structure, Albania is divided in 12 regions, 36 districts, 65 municipalities and 309 communes. The regions are administrative territorial units that include districts, units with geographic, economic, social and cultural relations. Tirana District (Great Tirana) comprises Tirana Municipality (Tirana City), three other towns and 18 communes or 155 villages (Table 1).

Tirana prefecture shares border with Durrresi prefecture in the northwest Fier Prefecture in the south Elbasan Prefecture in southeast, and Dibra Prefecture in northeast.

Table - 1

Administrative Division of Tirana Prefecture

Prefecture	District	Town	Village
Tirana	Tirana	4	155
	Kavaje	2	65

Tirana District includes an area 1238.49 km², from this 314.45 km² (25.4%) agricultural land, 76.28 km² (6.2%) pastures and crops, 492.21 km² (39.7%) forests and woodland and 355.55 km² (28.7%) non-agricultural land.

Location

The founding and later development of the city of Tirana were made possible by its favourable geographic position on a fertile plain, rich in forest, lands and water and the situation on the crossroads that link Adriatic Sea with eastern Albania, and through the Shkumbin River Valley with the parts of the Balkan Peninsula. Tirana is within 3 hours flying time of most major European cities. It is only 25 km away from Rrinas airport, the international airport of Albania.

Tirana lies between 41°30'56" north and 41°07'10" north latitude and between 20°13'29"

east and 19°35'32" east longitude. It is situated on Tirana Plain, 110m above sea level; it is surrounded by a mountain. It stands between Dajti Mountain in the east, Kerraba and Sauku Hills in the south, Vaqarr and Yzberish Hills in the west and Kamza Hills in the northern part. The main rivers are Erzeni (65 km), Tirana River (51 km) and Terkuza (30 km), (the length that is given it is the one within the borders of the district); the main lakes are Tirana Artificial Lake and Farka Lakes.

Tirana has a maritime Mediterranean climate, with hot, dry summers and mild, wet winters. The annual average temperature is 15°C, in January 7°C and in July 28°C. Generally, it ranges from 17-31°C in July, to 2-21°C in January. The average precipitation is 1 247 mm, 70% of it in the cold half part of the year.

Historical overview

The area around Tirana has been inhabited since the Neolithic age. On the Dajti Mountain are the remains of an ancient castle dating back to the first century BC, which happens to be the castle that the Byzantine historian Prokop (6th century) mentions as the castle of Tirkan. There was a system of castles on surrounding hills (Petrele, Preze, Ndroq, Farke, etc.) that served as protection for Durres and Kruja, the neighbour cities.

The year 1614 is considered the date when Tirana was founded. In that when *Sulejman Pasha Bargjini* built a mosque, a *hamam* (Turkish bath), a bakery and several shops. According to Marin Barleti, before this time people spoke of small Tirana and big Tirana not as settlements, but as plains. Noted for its silk and cotton fabrics, leather, ceramics pottery, iron, silver, and gold artefacts, the settlement began to develop as a town in the 18th century.

On February 8, 1920, the provisional

government formed at the Congress of Lushnja moved to Tirana, and at this point Tirana became the capital of the country. This played an important role for the development of the town. At that time it had only 17,000 inhabitants. On June of 1924, the provisional government of the June Revolution, led by *Fan S. Noli*, was established in Tirana. After its fall, Tirana remained the centre of the King *Ahmet Zog's* rule. Although the capital of Albania, until 1938 Tirana had a population of only 25,000 inhabitants. An urbanisation plan was carried out in the beginning of the 1930s by the opening of new ministry and administration buildings, and the "Skenderbeg" Square.

The Italians captured Tirana with the occupation of Albania in 1939. A new residential quarter and several administration buildings were built under Italian rule (1939-43). After the World War II, an industrial sector was created in Tirana. Its manufactures include metal products, agricultural machinery, textiles, pharmaceuticals, and foodstuffs. Lignite was mined nearby. After 1944 began the period of communism until 1990. Tirana led in the massive and often violent demonstrations that forced the Communist Government to institute substantial political and economic reforms. After the end of Communist rule in 1990, a real urban boom sprang up in scattered locations around the city.

Population growth (1923-2002)

Tirana was a small urban center in 1923 with about 20,000 inhabitants, whose number gradually started to increase because of its growing importance after it became the capital of Albania in the Congress of Lushnja, 1920. Following the end of the World War II, its importance as the capital, and as an economic and industrial hub of the country made the population from the other regions to move toward Tirana. However, this movement during the communist rule was controlled and defined

by the state. The population moved to Tirana during this period was mainly from the southern part of Albania.

However, the real urban "boom" came after 1990 (Table 2). Urbanisation is the most characteristic phenomenon of the last decade. More and more people have left rural areas for urban ones, particularly in the northern districts. The population is concentrated in the centre of Albania, the main part of the immigration is towards Durres, Elbasan and even more Tirana. The population in Tirana District is doubled because of the natural growth and the in-migration. In Tirana District only 36.3% of the population live in rural areas. Regarding the Population and House Registration in April, 2002, the number of population in Tirana District is doubled. It has 13% of country's population and 34% of urban population in Albania.

After 1990, Tirana faced the uncontrolled movement of the population, the so-called "free movement", and its population has doubled within a decade. People from all over Albania moved here, especially the population from remote and poor areas in the north and north-east. Currently, the population of Tirana District is 6,93,793 inhabitants and Tirana Municipality has 4,87,424 inhabitants.

Migration, population increase and the consequences, 1990-2003

The political, economic and social changes that characterized Albania after 1990, were accompanied by the un-forecasted demographic changes and almost new equation between population and development.

The actual demographic situation of Tirana is characterized by a heavy influx of migration from the rural areas towards the urban ones. This phenomenon is caused mainly by the higher job opportunities that the city offers, as well as the poor infrastructure and

Table - 2
Growth of population in Tirana district, 1923-2002 (in thousands)

Year	Total	City	From this				Village
			Tirane	Vore	Krrabe	Kamez	
1923	-	20.0	20.0	=	=	=	-
1938	54.1	25.1	25.1	=	=	=	29.0
1945	-	60.0	60.0	=	=	=	-
1955	158.0	108.8	108.2	=	0.6	=	49.2
1960	194.9	137.3	136.3	=	1.0	=	57.6
1969	232.9	154.9	152.7	1.2	1.0	=	78
1979	290.9	192.0	189.0	1.9	1.1	=	98.9
1989	368.2	253.2	243.9	2.7	1.2	5.4	115.0
1993	384.0	262.0	250.2	3.3	1.5	7.0	122.0
1994	452.3	322.6	310.2	3.3	1.7	7.4	129.7
1995	476.1	348.1	333.9	4.6	2.0	7.6	128.0
1996	560.8	411.7	391.3	5.6	2.1	12.7	149.1
1997	590.1	433.4	412.6	5.7	2.2	12.9	156.7
1998	610.1	446	423.7	5.8	2.3	14.2	164.1
1999	627.2	459.2	436	5.9	2.4	14.9	168
2000	652.8	478.4	455.2	6	2.5	14.7	174.4
2001	671.7	492.6	468	6.7	2.8	15.1	179.1
2002	693.8	510.5	487.4	7.2	3.1	15.8	183.3

Source : INSTAT

living conditions in the areas of origin of this population. The cityward movement is spontaneous and uncontrolled and the consequence of this is the emergence of constructions in many cases on both sides of the main roads, and establishment of new urban areas in its periphery. As a consequence this heavy in-migration, obvious differentiations in the increase rhythm of the satellite towns of Tirana (Vore, Kamez, Krrabe) as well as the inner and peripheral areas (Shkoze, Sauk, Kombinat, Laprake, Allias) were noticed.

So, with the emergence of the free movement of population since 1990, a new tendency of migration to urban centers (littoral,

major cities of the country and especially the capital) has developed. Consequently, these urban centers have come to suffer quite adverse consequences of migration. It has been estimated that more than half of the total number of the migrants has settled in the cities of Durres, Elbasan, Fier and particularly in Tirana.

The free and uncontrolled movement of population has affected the ratio between urban and rural population. The proportion of urban population was 36.1% in 1990 which went up to 45.9% at the end of 1997. Currently, the zone having the largest urban population includes the Tirana-Durres-Fier-Elbasan, tract

having approximately 44% of the country's urban population.

Tirana-Durres is the region that is having the largest number of new migrants, and where about 90% of the migrants have been settled in the former properties of agricultural enterprises. The main consequences of this migration are as under :

- (i) Heavy occupation of agricultural land for construction purposes. Similarly, many constructions have emerged along both sides of the roads which has made it difficult the prospective extension of the roads and their greening. Thus, we notice a deviation from the Albanian tradition of construction close to the hills and mountains slopes, to save the agricultural land.
- (ii) Inappropriate use and damages of the existing infrastructure near these settlements. For instance, the water supplying system has been degraded, as a consequence of the illegal interventions in the network system, use of drinking water for irrigation, contamination of drinking water from sewage and pesticides use, etc.
- (iii) Damage of the green areas, forest and valuable landscapes. Similarly, social problems have become aggravated in urban areas. The problems are identified in two directions; within the borders of the cities (within the legal border) and outside these borders. In the first case, the most significant negative impact relates to the aggravation of urban problems existing even before (increase of resident density, reduction of green areas, road network^m problems, lacks of energy and water supply, damages of pipelines, waste collection and treatment etc. In the second case, the negative impacts were evident in the illegal

occupation of large surface areas (agricultural lands, green areas), in disregard of the previous master plans for the urban development of these areas. In Tirana such a phenomenon occurred in the zones of Bathore, Kamze, Laprake, Kombinati, Yzberisht, etc.

It has changed rapidly the ratio of the urban and rural population in the country. In 2002, Tirana municipality housed 4,87,424 inhabitants out of 6,93,793 persons in the district of Tirana. The population of Tirana Municipality constitute 11.1% of the total Albanian population, and per cent of total families (7,28,641) of the country.

Table - 3

Urban and rural population

	Urban	Rural
Albania	12,99,925	17,87,234
Tirana prefecture	3,82,573	2,18,992
Tirana district	3,54,304	1,68,846
Tirana municipality	3,43,078	-

Source : Population census, INSTAT, 2001

Main phases of urbanization

The term "Tirana" is mentioned by Barlet and Biem, and before this, in some old documents that belong to 1418. Another form of the word "Theranda" is found on the map "Tabula Peutingeriana" of III century AD. However, the foundation of the present day Tirana is related with the construction of the "Old Mosque", a public bath and a bakery, that represents the symbolic act of city creation in XVII century. In this way Tirana is a new city. The city began to develop in 18th century, as a trade centre for the central part of the country.

Since Tirana is a new city in a field terrain it does not have heritage castles, citadels or other objects of historical importance. The Ethem Beu mosque's complex together with

the Clock tower have had a little influence on the city characteristics. At the beginning of the XX century (1901), Tirana was still a small town with 15,000 inhabitants and an area less than 3 km². Its real development as an administrative and residential centre started when Tirana was chosen the capital of the country in the Congress of Lushnja in 1920. This was conditioned by its favourable geographical position in the middle of the country, and by the fact that this was the only place far from the Greek (on the south) and Serbian (on the northeast) pressures.

1930-1944

The centre of Tirana was planned in the beginning of 1930s by the Italian architects Florestano de Fausto and Armando Brasini. This plan gave a real urban and architectonic development to the city. The road network was designed in this period. The main streets and administrative buildings in the centre were constructed in 1930-1940. The city was extended in its south part, that was called "New Tirana".

In 1936 was constructed "Skanderbeg" square in the centre and the Green garden next to it. The boulevard "Martyrs of the Nation" which extends from the Train station to the University was built in 1939. Although, this plan was not fully realized, the buildings along the boulevard "Martyrs of the Nation" and the main roads and the boulevard are preserved till to-day. These perhaps constitute the best architectural part of the city.

1944-1960 (The Soviet phase)

Unfortunately, the Italian plan was interrupted after the World War II, because another plan was established under the Russian influence. After 1945 another period began.

The development of the city was based on urban planning under the 5-year

development plans and a mix of Russian architecture and the standard residential buildings. Many old buildings with great architectural and historic value were destroyed. According to this plan the city was expanded toward south-west by constructing standard 4-5 floors flats. These collective buildings were simply functional, without any decoration or particular architectural style. The constructions such as the Kinostudio, Military Academy and the Hospital constitute the expansion toward the east side of the city.

"Youth Park" in the city centre was created in 1950, and later on was completed the "Grand Park" and in another few years the artificial lake of Tirana, near the Park was completed.

1970s period (Chinese-influence phase)

The Chinese influence in the urban planning was mainly the development of industry and the deep urbanization of the area beyond the north-east of the ring. On the east were constructed mechanical industry units (Tractors' plant).

During the 1970s, Lana River area was beautified, the roads and side walks were reconstructed, and trees were planted on their both sides. After 1970 began the "madness of the bunkers". Tirana was "planted" with underground shelters and the outer parts with bunkers.

In 1980, the style of the buildings construction was still simple; these were 4-5 floors flats but now pre-fabricated materials were used.

After 1990s (transition period)

In 1990 was approved a new regulating plan for Tirana, which covered a 15 year period till 2005. But, this plan remained completely unrealistic for the new political situation, free market conditions and the free

movement of the population after 1990. The urban area has been enlarged towards north and the north-west (Kamze, Bathore, Bregu i Lumit te Tiranës) and toward Tirana-Durrësi road. The characteristics of the urban development in 1990 was a organizational dualism. The governmental institutions were not prepared to guide the development of a real urban "boom" and to co-ordinate the urban planning with the development tendencies. The construction activity was impressive and the private sector developed the city in physical terms in a very short time. 70% of the constructions in Tirana, in one way or another, were not in line with the planning regulations. Similarly, in Tirana district, 32% of the population lived in illegal settlement in 1999.

The great and sudden changes makes Tirana Master Plan in terms of : (i) financial resources and investment plan that it proposes; (ii) the planning standards are not economically supported; and (iii) details (as it is too much detailed and is not flexible).

The 1990 present a totally different view. The construction activity in areas that either had not an urban development plan, or it was not a realistic one. Private two–three floor buildings of different architectural styles were introduced during this period. The land was occupied and the existing infrastructure was used without a permission. This period witnessed rapid densification of Tirana. As a consequence of this rapid development, the city has come to confront the following problems : (i) the existing infrastructure and service network face serious problem(s); (ii) environmental problems, particularly the city cleanliness; (iii) the public space was heavily reduced. The playgrounds and the green areas between the residential buildings have disappeared, and the areas of public gardens, squares and parks are reduced.

The uncontrolled and fast urbanization of Tirana and its surroundings makes indispensable the establishment of a new regulatory plan, which should focus on the current reality and the development tendencies.

Land management in the metropolitan area of Tirana

Land privatization law

In accordance with the 1976 Albanian Constitution, all land was owned by the state. Law 7501 initiated the land privatization process by transferring agricultural land from former state cooperative to their resident members. Non-resident members of the cooperative received use-rights to the land, as did workers on former state farms.

Laws passed later in the decade strengthened the bundle of rights enjoyed by beneficiaries of the land privatization process. Presidential Decree 8052 of 1996 upgraded use-rights to former state farms to full ownership rights. While sale of the ex-cooperative land was initially prohibited, Law 8337, on the Transfer of Agricultural Land, Meadows and Pastures (1998) set out the procedure for sale of these lands. Land distributed under Law 7501, since it was previously owned by the state, is not subject to restitution.

Privatization of the state-owned housing

Law 7652, on the Privatization of State Housing (1992) aimed to privatize state housing, create a free market for housing, and improve the use and administration of the buildings. The right of first purchase at nominal rates was offered to sitting tenants, the overwhelming majority of which bought their units. Certain units built before 1970 or in poor condition were transferred in new private fabrics or something else. All the houses were privatized. They were bought

with a relatively low value by the inhabitants living there.

Certain objects with economic and political importance were privatized during these 10 years, but some of them are still in the process of privatizing.

Land and property administration

The legal and regulatory framework for land and property has undergone a complete transformation since the collapse of

communism in 1989. Albania pursued an aggressive policy of privatization of state assets, including land and property, from early in the transition period in an effort to facilitate the rapid emergence of a market economy.

The overall framework for privatization was established in August, 1991 by Law 7512. On Sanctioning and Defending Private Property, Free Enterprise, Private Independent Activities, Privatization. By late 1992, 75 per cent of private retail trade and service

Table - 4
Definition of existing land use categories in metropolitan Tirana

LAND USE	DESCRIPTION
High Density Residential	Predominantly residential, multi-storey construction
Medium Density Residential	Mix of apartments and single-family detached housing
Low Density Residential	Predominantly single-family detached housing
Informal Housing	Medium density informal housing, could include other uses such as commercial.
Latent informal housing	Low density informal housing still in process of development
Village	Low density rural settlement, predominantly residential
Mixed use residential	Residential plus a mix of commercial and institutional uses
Commercial	Retail, wholesale, office or hotel
Industrial	Heavy industry, light industry and warehousing
Institutional	Schools, hospitals, mosques, churches, cemeteries, government offices
Urban services	Waste dump sites, utility sites etc.
Transport	Taxi/minibus stands, car parking lots, bus station, train stations etc.
Public open space	Parks, plazas, sports fields
Agricultural	Cultivated land, including fallow land
Pasture	Grazing land for cattle
Forest	Natural forest
Shrub	Natural scrub (predominantly bushes and other low plant growth)
Orchard	Orchard
Vacant	Undeveloped land within or close to built-up area, with no current use
Water body	River, stream or lake

Source : PADCO, 2001

enterprises had been privatized. While Law 7501, on land (July, 1991) had established the basis for privatization of agricultural land; urban land transfer was complicated by a number of issues, including the nature and extent of restitution to ex-owners. As concerns metropolitan Tirana, the early stages of privatization therefore proceeded on two tracks: privatization of buildings and other non-land assets in Tirana municipality, and privatization of land in the region (Tirana district). At the moment these four categories of land property exist.

- 1) State land, without any pretensions of ex-owners.
- 2) State land, with pretensions of ex-owners to be compensated according to the Law No. 7698, dated April 15, 1993.
- 3) Privatized land, without conflicts.
- 4) Privatized land, without conflicts either with the ex-owners who may have the right of compensation (according to the Law No. 7698, dated April 15, 1993), or persons who have different rights

Table - 5
Land use in metropolitan Tirana, 2001

Land use	No. polygons	Area (ha)	% Total	% Urban
High Density Residential	15	249	0.8	3.4
Medium Density Residential	44	1,028	3.4	14.1
Low Density Residential	1	14	0.0	0.2
Informal Housing	33	1,202	3.9	16.4
Latent informal housing	104	2,935	9.6	40.1
Village	89	1,930	6.3	
Mixed use residential	17	160	0.5	2.2
Commercial	5	17	0.1	0.2
Industrial	49	665	2.2	9.1
Institutional	35	343	1.1	4.7
Urban Services	2	20	0.1	0.3
Transport	5	274	0.9	3.7
Public Open Space	23	252	0.8	3.4
Agricultural	52	11,911	39.0	-
Pasture	25	1,981	6.5	-
Forest	14	710	2.3	-
Shrub	29	5,548	18.2	-
Orchard	4	455	1.5	-
Vacant	14	154	0.5	2.1
Water body	41	690	2.3	-
Total	601	30,537	100.0%	100.0%

Source : PADCO, 2001

Table - 6
Urbanized area of Metropolitan Tirana 1990, 1994 and 2001

	1990	1994	2001
Total urbanized Area (ha)	1,210	3,159	5,639
Change in area (ha)	-	1,950	2,480
Change from previous (%)	-	161%	78%
Change cumulative (%)	-	-	3686%

Source : PADCO, 2001

according to the privatization Law No. 7501, dated July 19, 1991, which privatized the agricultural land.

The existing categories of land property, make difficult the urban land planning, and the identification of the private lands with conflicts should be done prior to the planning process.

Land use in the metropolitan area and land use trends

The definitions in the table 4 are the existing land use categories in metropolitan area of Tirana. Based on these categories, table 5 shows the area that these categories occupy.

The massive population has led to even more dramatic growth of the urbanized area. Table 6 presents data on the built-up area of metropolitan Tirana for 1990, 1994 and 2001. The 12 km² city of 1990 had more than doubled to about 31 km² by 1994, when the Tirana Preliminary Structure Plan was prepared. The 1994-2001 period has witnessed another 80% increase to 56 km² giving a total increase of about 350 per cent in the last decade.

The main directions of developments since 1994 have been to the north-west along Kamza Road, and also in a generally concentric ring around Tirana city, with more development to the north than to the south. There has also been considerable new development along the Dures road.

Urban planning and development control

The regulatory framework for urban planning and development control in Albania is largely established by two laws : *the Law 8405, Urban Planning Law, 1998 and the Law 8052, i.e., Law on the Organization and Functioning of Local Government (2000)*. While the planning law establishes a highly centralized national planning system, the Local Government Law provides that planning, land management and housing shall become exclusive functions of municipalities and communes. These two laws are in many respects incompatible and will require some revision in order to create a coherent regulatory framework in this sector. Thus, Urban Planning Law, 1998 provides four level of plans :

- a) Urban region studies
- b) General expansion adjustment plan (covering a city and its future expansion areas).
- c) Master plan (generally for a municipality within its set boundaries, or "yellow line").
- d) Partial Urban Study (area Plan based on assumptions of general expansion adjustment Plan).

The law also provides for suburban lines around the present area of a city that includes the projected territorial extension of the outskirts of that city for multi year time periods (article 4). While this categorization appears appropriate to the country's planning needs,

the definition of what should be contained in each type of plan is not precise. Article 5 of the law states only that the types of plan are all technical documents and have legal status in the field of urban planning, whose content and drafting shall be determined by subsidiary Urban Planning regulations approved by the Council of Ministers. The standards then set by the 1998 Urban Planning regulation are very rigid and do not have the flexibility that would be required for the future. The method of approval of such plans is not in keeping with modern standards, set out below.

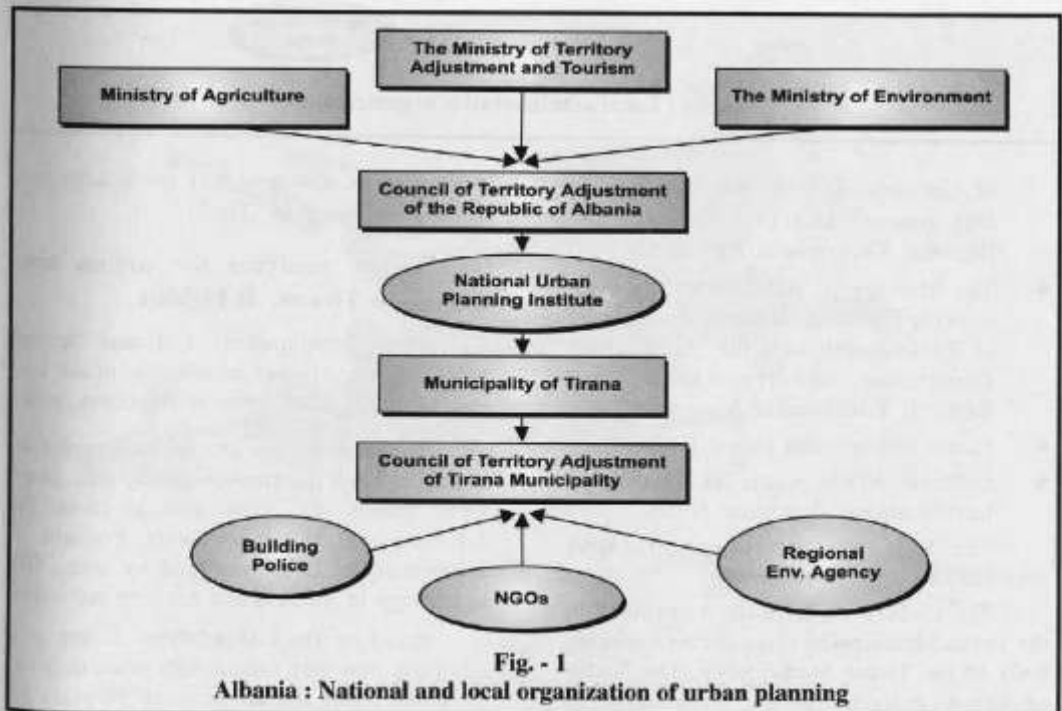
It would be preferable if the basic planning itself spelled out the fact that Regional Plans should be based on national planning standards and a National plan (if any). Metropolitan Structure Plans/General Expansion Adjustment Plans could not be incompatible with the relevant regional plan. Master Plans/Local Regulatory Plans could not

be inconsistent with Metropolitan structure Plans or Regional Plans. Similarly, Local area Plans/Partial Urban studies would not be inconsistent with Master Plans/Local regulatory Plans or relevant higher level plans (Fig.1).

The institutional framework

The national level institutions that deal with land use policies, planning, protection, the control of development and maintenance are :

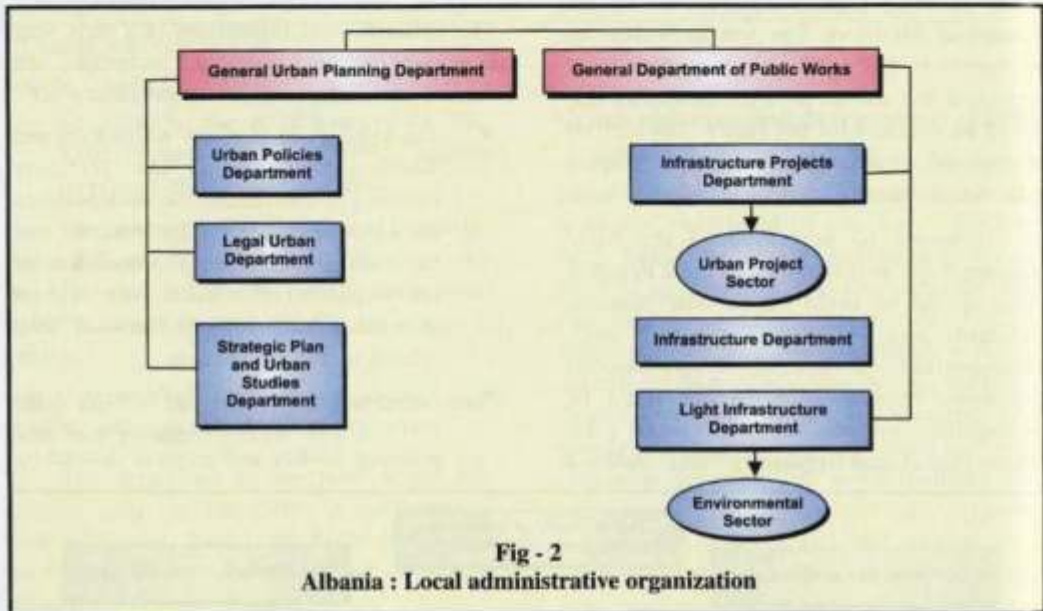
- The Ministry of Territory Adjustment and Tourism that orients the Territory Planning. It coordinates the work between the Local and Central Government and the Council of Territory Adjustment of the Republic of Albania, the highest decision-making body in national level related to planning issues.
- National Urban Planning Institute is the state organ undertaking the urban planning studies and projects defined by



the Urban Regulation. The institute is dependent on the Ministry of Territory Adjustment and Tourism.

- The Ministry of Agriculture and Food with the Forest Department, the Ministry

Infrastructure Projects) and The Department of Strategic Plan and Urban Planning (in the General Urban Planning Department) deal with planning and designing of the urban areas. The co-ordination between the different



of Environment with the Bio-diversity Department, and the National and Regional Environment Agencies.

- The Ministry of Agriculture and Food with the Forest Department, the Ministry of Environment with the Bio-diversity Department, and the National and Regional Environment Agencies.
- Forest Institute and Forest Police
- Different NGOs which are involved in Environmental Protection Issues.

The following is the administrative organization at the local level:

The Council of Territory Adjustment in the Tirana Municipality is the decision making body in the Tirana Municipality. The Sector of Urban Projects (in the Department of

institutions is not good and the achievement of desired objectives (Fig.2)

GIS based analyses for urban area change in Tirana, 1614-2001

Areal Development of Tirana through time presents valuable information of the land use, evolution and trends of the urban area.

Historical data, cartographical materials as well as other information (ideograms, maps, aerial photos etc.) were used to create the database (all the maps were brought to 1:10000 scale) to be analyzed by using GIS technology in Autocad and Arcview softwares.

Based on the GIS analyses Tirana as a relatively new city (about 400 years old) has expanded about 200 Ha in every 50 years for

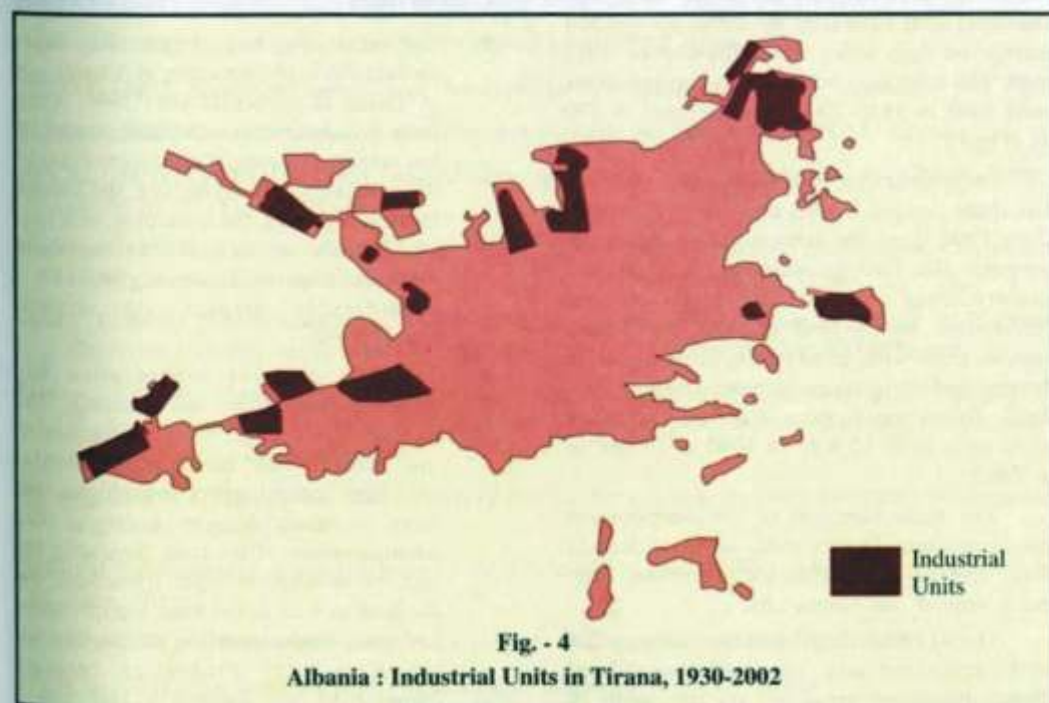
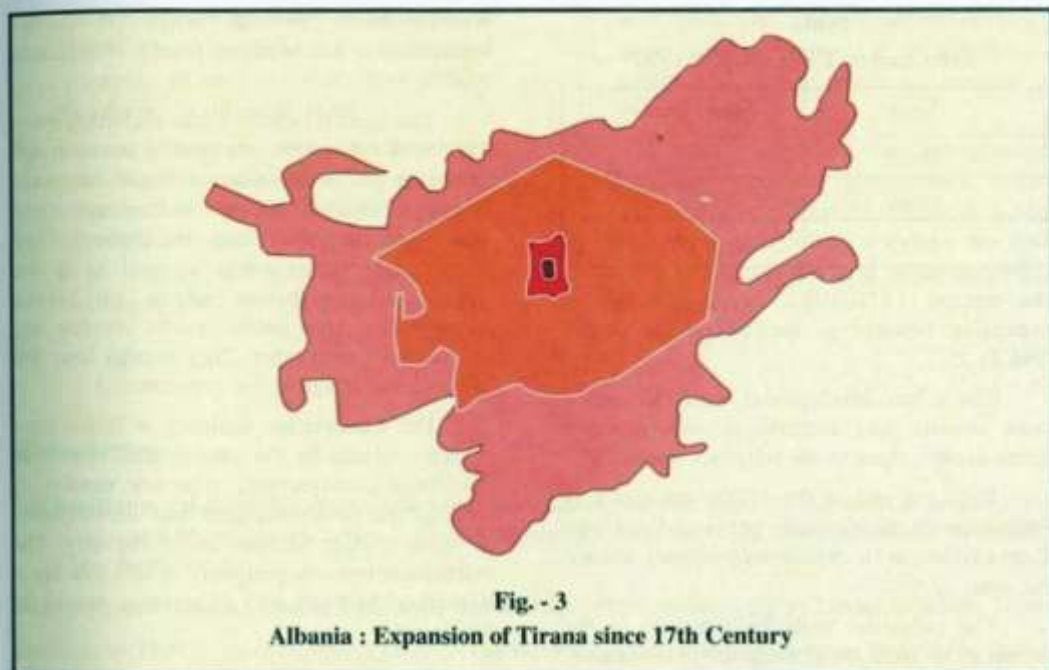


Table - 7
Area under Tirana, 1990-1994

Year	Area (km ²)
1990	12
1994	32
2002	56

the period 1830-1982, while the boom expansion belongs to the 1991-2003 period (Fig.3).

The urban development until 1920s had been chaotic and centrifugal around some micro centres close to the religious institutions.

Until the end of the 1920s, the city was limited to its main space between Lana and Tirana rivers, with expansion tendency toward the east.

The industrial units built mainly in the period 1930-2002 are situated not in the centre, but in the periphery of the urban area. The industrial units built after the 1990s are situated mainly on both sides of Tirana-Durres main road. The total area occupied by the industrial units built in 1930-2002 period comes to 270 ha (Fig.4).

In general the population-area equation was quite compatible till the 1990s. However, since 1990 there has been a strong mismatch between the two as manifested in illegal constructions without any criterion and permission, fertile land occupation, chaotic constructions without any plan, interference in the engineering infrastructure etc. During 1990-2002, Tirana has faced a dramatic expansion of its area, from 12 Km² in 1990 to 32 km² in 2002.

The main direction of the development has been along Durres road, north of Kamza road, and in general inside a certain zone circle around the Tirana city.

The existing illegal dwelling occupy 2/5 of the urbanized area. The most consolidated illegal dwellings' areas are on the south of

Kamza zone, on the north of Tirana municipality, and between Durres and Kavaja roads.

The highest density zones including those ones used for market, are mainly concentrated in the center of the city, or inside the small ring. The industrial zones, which occupy about 10% of the urbanised area, are situated along Durres and Kavaja roads as well as to the north and northwest edges of Tirana municipality. Free public spaces are few and are far from each other. They occupy only 3% of the area designed for construction.

The urbanisation tendency in Tirana zone is characterized by the uncontrolled spread of the illegal constructions, with low density as well as the re-development and densification of some certain sectors inside the city. The orientation towards periphery is still low for it is marked by high cost of services due to its low density.

Conclusions

- Urbanization has been the most characteristic phenomenon in Albania and in Tirana in particular after 1990. Apart from its significant economic impact, it has impacted strongly on the structure of the population at working age, the balance in the job market, the unemployment rate, etc. Besides, it has added immensely to the population of Tirana region, with a considerable impact on natural environment.
- The fast pace of urbanization has outpaced the process and planning. The lack of requisite has been a hindrance to the central and local governmental structures to deal with the problems that have emerged regarding the administration of the land. Similarly, the lack or incomplete legal framework for the land as well as the miss-interpretation and miss-implementation of the law on the Return of Properties (private ownership) has caused a real chaos

concerning the property ownership and rights. There has occurred a widespread incidence of abusive construction of new buildings, in different areas.

- In most of the cases within the city and its suburbs, this phenomenon has increased their surface area, which is not supported by any communal services (road network area, energy and water supply, waste collection, etc.); the green spaces, forests
- The uncontrolled and fact urbanization of Tirana and its surroundings makes indispensable the establishment of a new regulating plan, which will take due note of the ground reality and the development tendencies.

and valuable landscapes have been degraded. This problem is identified both within and outside the legal borders of the city.

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REGIONAL DIMENSIONS OF URBAN POVERTY IN INDIA

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Abstract

The major objective of the paper is to examine inter-state variations in urban poverty in India and factors affecting it. The paper also aims to identify policy recommendations for restructuring urban poverty alleviation programmes aiming to reduce the number of the urban poor more effectively with given resources.

At national level, the proportion of people below poverty line in the urban areas has experienced consistent decline over time. The inter-state urban poverty estimates over time broadly show a declining trend as at the national level. However, the pace of decline has varied considerably across states.

The study is based on secondary data. The sources of data include five-year plans, economic surveys and Internet. Data have been analysed by using tools such as percentages, maps, mean, standard deviation, coefficient of variation, correlation and regression analysis.

The study finds that factors such as degree of urbanisation, degree of industrialization, per head (urban poor) expenditure on slum development programme, life expectancy and per head (urban poor) rice and wheat for BPL under PDS help in reducing urban poverty. In contrast slum population and urban literacy result in adding to the proportion of urban poor.

From the policy perspective the study recommends allocation of more resources for national slum development programme and education and health specifically targeting the urban poor.

India adopted centralised development strategy after independence. The development strategy by focusing on high growth postulated that the benefits of high growth by percolating down would mitigate problems of income inequality, unemployment and poverty. Empirical evidence of the 1950's and 1960's, however, did not lend support to this 'trickle down' hypothesis. As a consequence social justice (i.e. equity) was added as another

principal concern of the development strategy. In the 1970's, 'Garibi Hatao' was the buzzword among policy-makers. The central and state governments initiated a series of programmes with a view to solve the problems of unemployment and poverty. The growing significance of poverty alleviation programmes in planning evinced interest among scholars for poverty studies. Most of the studies have focused on rural poverty. The implicit

assumption in these studies is that urban poverty is spill over of rural poverty. Therefore, by tackling rural poverty, urban poverty would automatically be tackled. However, the empirical evidence suggests that though urban poverty has its linkages with rural poverty but gradually it has acquired autonomous character. Not only this, urban poverty is a very complex phenomenon in comparison to rural poverty (Planning Commission, 2001, p.626). Thus, urban poverty needs to be investigated more rigourously. Another limitation of poverty studies is their major emphasis on all India poverty and factors affecting it. For a big and diverse country like India, regional dimensions of a problem like poverty need special attention. Needless to mention, the analysis of regional dimensions of poverty would provide better policy inputs for poverty alleviation programme. It is in this backdrop that the present study has been initiated.

The major objective of the paper is to examine inter-state variations in urban poverty in India and factors affecting it. The paper also aims to identify policy recommendations for restructuring urban poverty alleviation programmes aiming to reduce the number of the urban poor more effectively with given resources.

The paper has been organised into four sections. In Section I, methodology including

sources of data has been mentioned. Section II carries examination of inter-state variations in urban poverty. Determinants of urban poverty have been analyzed in Section III. Conclusions and policy recommendations have been reported in Section IV.

I. Methodology

This study is based on secondary data. The sources of data include five-year plans, economic surveys and Internet. Data have been analysed by using tools such as percentages, maps, mean, standard deviation, coefficient of variation, correlation and regression analysis. The study confines to 14 major states and covers the period from 1973-74 to 1999-2000.

II. Inter-state variations in urban poverty

At national level the proportion of people below poverty line in the urban areas has experienced consistent decline overtime (See Table 1). For example, almost half of the urban population (i.e. 49.01 per cent) was below poverty line during 1973-74. It declined to be around one-fourth (i.e. 23.6 per cent) during 1999-2000. However the absolute number of urban poor continued to swell till 1993-94. It is for the first time in 1999-2000 that the absolute number of urban poor declined (Table 1).

A perusal of inter-state variations in

Table - 1

All India Urban Poverty Estimates

Year	Poverty Lines (Rs. Monthly per Capita)	Poverty Ratio (Percentage)	No. of poor (million)
1973-74	56.76	49.0	60.0
1977-78	69.90	45.2	64.6
1983-84	115.65	40.8	70.9
1987-88	162.16	38.2	75.2
1993-94	281.35	32.4	76.3
1999-2000	454.11	23.6	67.1

Source: Planning Commission of India

estimates of urban poverty shows that in 1973-74 states like Kerala, Uttar Pradesh, Madhya Pradesh, Orissa, Bihar, Gujarat, Karnataka, Rajasthan and Andhra Pradesh had high (above national average of 49.01 per cent) percentage of urban poor (Map 1 and Table 2 ; statewise urban poverty lines are shown in Table 3). Medium Poverty (between 30-50 per cent) states were Haryana, Maharashtra, Tamil Nadu and West Bengal. Punjab was the only state that belonged to Low Poverty category i.e. below 30 per cent.

After a gap of twenty years (i.e. in the year 1999-2000) states such as Orissa, Madhya Pradesh, Bihar, Uttar Pradesh, Andhra Pradesh, Maharashtra and Karnataka had proportion of

urban poor more than national average (24.1%). These states have been classified as High Poverty States although the proportion of urban poor was half of what it was in 1973-74. States having medium incidence of urban poverty (15-25 per cent) comprised Gujarat, Karnataka, Kerala, Rajasthan and Tamil Nadu (Map 2). In addition to Punjab, two more states – Haryana and West Bengal found place in the category of Low Poverty States i.e. below 15 per cent.

A comparison of Maps 1 and 2 showing areas of high, medium and low poverty in 1973-74 and 1999-2000 respectively shows that five states, namely, Andhra Pradesh, Bihar, Madhya Pradesh, Orissa and Uttar Pradesh

Table - 2
Percentage of urban population below poverty line by States

States	1973-74	1977-78	1983-84	1987-88	1993-94	1999-2000
Andhra Pradesh	50.61	35.68	36.3	41.1	38.33	27.2
Bihar	52.96	46.07	47.33	51.9	34.5	33.5
Gujarat	52.57	29.02	39.14	38.5	27.89	14.8
Haryana	40.18	31.74	24.15	18.4	16.38	10
Karnataka	52.53	43.97	42.82	49.2	40.14	24.6
Kerala	62.74	51.44	45.68	39.8	24.55	19.8
Madhya Pradesh	57.65	48.09	53.06	47.3	48.38	38.5
Maharashtra	43.87	31.62	40.26	40.3	35.15	26.7
Orissa	55.62	42.19	49.15	42.6	41.64	43.5
Punjab	27.96	24.66	23.79	13.7	11.35	5.5
Rajasthan	52.13	33.8	37.94	37.9	30.49	19.4
Tamil Nadu	49.4	44.79	46.96	40.2	39.77	22.5
Uttar Pradesh	60.09	50.09	49.82	44.9	35.39	30.8
West Bengal	34.67	52.54	32.32	33.7	22.41	14.7
India	49.01	45.24	40.79	38.2	32.36	24.1

Source : *ibid*

Table - 3
Inter-state Poverty Lines in Urban Areas (Rs. Monthly per capita)

States	1973-74	1983-84	1987-88	1993-94	1999-2000
Andhra Pradesh	53.96	106.43	151.88	278.14	457.40
Bihar	61.27	111.80	150.25	238.49	379.78
Gujarat	62.17	123.22	173.18	297.22	474.41
Haryana	52.42	103.48	143.22	258.23	420.20
Karnataka	58.22	120.19	171.18	302.89	511.44
Kerala	62.78	122.64	163.29	280.54	477.06
Madhya Pradesh	63.02	122.82	178.35	317.16	481.65
Maharashtra	59.48	126.47	189.17	328.56	539.71
Orissa	59.34	124.81	165.40	298.22	473.12
Punjab	51.93	101.03	144.98	253.61	388.15
Rajasthan	59.99	113.55	165.38	280.85	465.92
Tamil Nadu	51.54	120.30	165.32	296.63	475.60
Uttar Pradesh	57.37	110.23	154.15	258.65	416.29
West Bengal	54.81	105.91	149.96	247.53	409.22
India	56.76	115.65	162.16	281.35	454.11

Source: *ibid*

continued to be High Poverty States. Tamil Nadu is the only state, which remained in Medium Poverty category at the two points of time. Punjab in both cases belonged to Low Poverty category. The position of other states experienced upward and downward shift.

Further, urban poverty, as at the national level, declined in almost all states of the country during the study period. The pace of decline, however, varies considerably from one state to another. For example, Kerala recorded a maximum decline of 42.94 per cent points in urban poverty between 1973-74 and 1999-2000 (Table 4). Orissa on the other hand experienced the minimum decline of 12.12 per cent points during the same time period. States like Kerala, Gujarat, Rajasthan, Haryana, Uttar

Pradesh, Karnataka, Assam, Tamil Nadu have recorded decline in urban poverty more than the national average (i.e. 24.91 per cent points). In the remaining states though urban poverty has declined but the rate of decline was lower than the national average.

The disparities in urban poverty, however, have increased in the country. This is suggested by the significant increase in the value of coefficient of variability from 20.4 per cent during 1973-74 to 38.85 per cent in 1993-94 and further to 49.30 per cent in 1999-2000 (Table 5).

The increasing disparities in urban poverty across states has far reaching implications including increase in the migration of poor from one state to another in search of employment and resulting in urban slums in

Table - 4
Change in Proportion of Urban Poverty (by states)

(Per cent Points)

States	1973-74 to 1977-78	1977-78 to 1983-84	1983-84 to 1987-88	1987-88 to 1993-94	1993-94 to 1999-2000	Average Change 5 Yearly	1973-74 to 1999-2000
Andhra Pradesh	-14.93	+0.62	+4.8	-2.77	-11.13	-4.682	-23.41
Bihar	-6.89	+1.26	+4.57	-17.4	-1	-3.892	-19.46
Gujarat	-23.55	+10.12	-0.64	-10.61	-13.09	-7.554	-37.77
Haryana	-8.44	-7.59	-5.75	-2.02	-6.38	-6.036	-30.18
Karnataka	-8.56	-1.15	+6.38	-9.06	-15.54	-5.586	-27.93
Kerala	-11.3	-5.76	-5.88	-15.25	-4.75	-8.588	-42.94
Madhya Pradesh	-9.56	+4.97	-5.76	+1.08	-9.88	-3.83	-19.15
Maharashtra	-12.25	+8.64	+0.04	-5.15	-8.45	-3.434	-17.17
Orissa	-13.43	+6.96	-6.55	-0.96	+1.86	-2.424	-12.12
Punjab	-3.3	-0.87	-10.09	-2.35	-5.85	-4.492	-22.46
Rajasthan	-18.33	+4.14	-0.04	-7.41	-11.09	-6.546	-32.73
Tamil Nadu	-4.61	+2.17	-6.76	-0.43	-17.27	-5.38	-26.9
Uttar Pradesh	-10	-0.27	-4.92	-9.51	-4.59	-5.858	-29.29
West Bengal	+17.87	-20.22	+1.38	-11.29	-7.71	-3.994	-19.97
India	-3.77	-4.45	-2.59	-5.84	-8.26	-3.994	-24.91

Table - 5
Mean, Standard Deviation and Coefficient of variation (C.V.) of urban poverty in India

Year	Mean	Standard Deviation	C.V.
1973-74	48.6600	9.9290	20.40
1977-78	40.2047	8.8376	21.98
1983-84	39.363	10.045	25.52
1987-88	36.720	12.475	33.97
1993-94	30.2733	11.7624	38.85
1999-2000	22.600	11.142	49.30

relatively rich states.

III. Determinants of urban poverty

As mentioned in the beginning rural poverty has been the central concern of most of the poverty studies. Urban poverty studies lack the rigour and have weak analytical foundations. There is no consensus among scholars about the determinants of urban poverty. Different scholars have selected different determinants. The commonly selected determinants include growth rate overall as well as sectoral, social development, public development expenditure, infrastructure, literacy rate, infant mortality, quality of housing, unsanitary slum settlements, size of the town, public policy, quality of governance, etc. (Fox, et al., 2002; Saches, et al., 2002; Dreze and Sen, 1995; Deolalikar and Dubey; Mehta and Shah, 2003).

The Tenth Five Year Plan (2002-2007) has also mentioned some of the determinants of urban poverty as follows, "The most important point about the inter-state variations in poverty is that it shows no correlation with per capita income or other development indicators like per capita consumption, levels of industrial and infrastructural development, etc., in urban areas during the nineties. While the lack of

development is the cause of urban poverty in many states, the nature and sectoral composition of development is responsible for poverty in others (Academic Foundation, pp.625-26).

Keeping in view the existing literature and observation as source of information, in the present study a combination of the variables from industrial development, urban development, slum population, education, health, economic and public policy has been selected. The selected variables are as under :

1. X1 : Degree of Urbanization (% share of urban population)
2. X2 : Level of Urban Literacy (%)
3. X3 : Slum Population (% share in urban population)
4. X4 : Degree of Industrialisation (% share of industry in state income)
5. X5 : Per Head (Urban Poor) expenditure on *Swarna Jayanti Shahari Rozgar Yojna* (SJSRY) (in Rs.)
6. X6 : Per Head (Urban Poor) expenditure on National Slum Development Programme (in Rs.)
7. X7 : Life Expectancy (in Years)

Table - 6
Correlation Matrix

Variable	Y	X1	X2	X3	X4	X5	X6	X7	X8
Y	1.000								
X1	-.492	1.000							
X2	-.398	.598	1.000						
X3	.018	.153	-.187	1.000					
X4	-.036	.137	-.303	-.169	1.000				
X5	-.364	.066	.108	.211	-.383	1.000			
X6	-.717	.081	.003	.052	.033	.708	1.000		
X7	-.474	-.474	.753	-.222	-.296	.164	.221	1.000	
X8	-.810	.408	.392	-.026	-.019	.300	.513	.421	1.000

8. X8 : Per Head (Urban Poor) Supply of Rice and Wheat under Public Distribution System (PDS) (in kgs).

In order to investigate the combined role of these variables and also the role of each independent variable in explaining variation in urban poverty, correlation and regression analysis have been used. The correlation matrix thus obtained is shown in Table 6.

The direction and extent of relationship between proportion of urban poor and the variables mentioned above have been seen for 1999-2000 data. The table clearly shows that urban poverty is negatively correlated with all the variables except percentage of slum population (X3).

An examination of the correlation among the independent variables reveals the existence of high correlation (0.71) between two public policy variables i.e. National Slum Development Programme and SJSRY. With a view to overcome this problem of multicollinearity, one of the variables was to be dropped before undertaking regression analysis. In this case per head (urban poor) expenditure on SJSRY (X5) was dropped as it was having weak correlation (-0.36) with urban poverty in comparison to per head (urban poor) expenditure on National Slum Development Programme (-0.72).

Regression analysis has been used to identify the extent of cause and effect relationship between urban poverty (dependent variable) and seven independent variables. The regression analysis consists of the following steps :

1. Specification of the model:

$$Y = f (X_1, X_2, X_3, X_4, X_5, X_6, X_7)$$
2. Regression Equation:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7$$
3. Regression Results:

$$Y = 83.296 - 0.296X_1 + 0.027X_2 + (1.621) \quad (-0.999) \quad (0.072)$$

$$+ 0.052X_3 - 0.026X_4 - 0.041X_5 - 0.425X_6 - 0.0237X_7$$

(.236) (-0.074) (-2.272)* (-0.462)
(-2.004)*

$$R \text{ square} = 0.849$$

$$\text{Adjusted R square} = 0.674$$

Figures in parentheses are t-values.

*Significant at 5 per cent level.

Y = Proportion of Urban poverty (%)

X1 = Degree of Urbanization (% share of urban population)

X2 = Level of Literacy (%)

X3 = Percentage of Slum Population (% share of slum population)

X4 = Degree of Industrialisation (% share of industry in state income)

X5 = Per Head (Urban Poor) expenditure on National Slum Development Programme (in Rs.)

X6 = Life Expectancy (in Years)

X7 = Per Head (Urban Poor) Supply of Rice and Wheat under Public Distribution System (PDS) (in kgs).

The regression analysis reveals that the variables included in the model together explain about 85 per cent of the total variation in the dependent variable (i.e. urban poverty). Five variables, namely, degree of urbanization, degree of industrialization, per capita expenditure on national slum development programme, life expectancy at birth, per head (urban poor) rice and wheat for BLP under PDS help in reducing urban poverty. Out of these, the role of the two public variables, namely, per capita expenditure on national slum development programme and per head (urban poor) rice and wheat for BLP under PDS in reducing poverty is significant at 5 per cent level. Other three variables i.e. degree of urbanization, degree of industrialization and life expectancy though contribute towards reduction in urban poverty, but their coefficients are found to be insignificant. Urbanisation adversely affecting urban poverty

needs an explanation. The general impression is that with urbanisation urban poverty also multiplies. However, empirical evidence reveals that as urbanisation increases particularly in the form of big cities including metropolitan cities the secondary activities (including construction) and high value tertiary activities provide expanding job opportunities to urban people including the poor and thus help in reducing the incidence of poverty (Tenth Five Year Plan 2002-07).

Two variables i.e. urban literacy and slum population are causing increase in urban poverty. The positive relationship between urban poverty and slum population is self-explanatory as most of the slum dwellers normally are poor. On the other hand, positive relationship between urban literacy and urban poverty may be due to skewness in urban literacy covering mainly non-poor urban population.

IV. Conclusions and policy

Recommendations

In India the proportion of urban people below poverty line has witnessed consistent decline over time. The same trend is noticeable in most of the states. The pace of decline, however, has varied considerably across states. Kerala has experienced maximum decline in urban poverty where as Orissa has recorded

the minimum decline. Though declining trend is noticeable in most of the states overtime, but disparities among states have widened.

Urban poverty is a very complex phenomenon in comparison to rural poverty. It is thus very difficult to locate factors affecting urban poverty. In the present study it has been found that factors such as degree of urbanisation, degree of industrialisation, per head (urban poor) expenditure on slum development programme, life expectancy and per head (urban poor) rice and wheat for BPL under PDS help in reducing urban poverty. In contrast percentage of slum population and urban literacy result in adding to the proportion of urban poor.

From the policy perspective the study recommends allocation of more resources for national slum development programme, public distribution system, education and health specifically targeting the urban poor. Over-emphasis on medium and heavy industries under the liberalisation and globalisation policies also needs attention of policy-makers from the viewpoint of the urban poor. The promotion of informal/unorganized and small-scale industries, undermined hitherto, in the policy packages becomes all the more necessary to generate jobs for unskilled and semi-skilled urban poor.

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INFRASTRUCTURAL AMENITIES IN VILLAGES ON DELHI'S URBAN FRINGE

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Abstract:

Community amenities improve the quality of life for residents in both fundamental and aesthetically pleasing ways. Communities with amenity advantages are likely to maintain their vitality and to grow significantly through time. This study explores the amenity base of villages on Delhi's urban fringe in the 1961-1971 period using data published by the Census of India. The distribution of amenities at this period showed significant association with selected indices of demographic structure and demographic change.

Introduction. Amenities, as Edward Ullman pointed out 50 years ago, constitute an important factor in comprehending regional development at both local and general scales.¹ Amenities, such as a warm year-round climate (as he emphasized for mid-latitude regions), attractive verdant landscapes, or mountain and water views, however attractive, are of less importance to developing nations in less advanced stages of development. More important in less advanced regions are the infrastructural amenities communities possess. Indeed, most national and regional development plans have aimed to improve quality-of-life by building, or improving upon, modern infrastructural amenities (including electric power and potable water supplies, educational and health care services, housing stock, and sewage treatment facilities). Frequently, the largest share of formal sector expenditure focuses on developing modern amenities in urban areas. This 'urban bias' has stemmed from, on the one hand, a rapid growth in demand for infrastructural amenities by modernized urban elites and the urban

middle classes (those who most want and are able to pay for these amenities), and on the other hand, from the long-term migration of low-income rural people into urban areas where the urban infrastructure was none too well endowed in earlier times. As a result, the existence of modern amenities often differentiates urban from rural areas, and this differentiation is considered axiomatic in many urban studies and social surveys.

Modern Amenities in Rural Life. Modern infrastructural amenities can have a great positive impact on quality of rural life. In India, K.K. Misra documented the effects of extending piped water supplies into houses in seven villages of Barabanki District, northeast of Lakhnau in Uttar Pradesh.² Villagers initially resisted forming a piped water cooperative society. A majority of villagers doubted the value of a piped water supply for a variety of reasons. Not only did they expect piped water to be monetarily expensive, but villagers also perceived that tap water would be tasteless and hygienically no different from the well water they had always used. Village

men thought that (not-so-desirable) changes in village women's behavior would result if women no longer spent hours drawing well water. Some villagers expressed concern regarding the ritually polluting nature of universally available tap water (that used leather gaskets at water connections), as compared to use of wells designated for specific *jati*-clusters in the village. Others expected that water would flow irregularly from taps, and wells would always be required as a back-up water supply. Yet others resisted because they had not asked for this government-sponsored project to intrude into village life.

Authorities mounted an education program with good effect. Within seven years forty percent of village households had connected to the water supply, with the remaining households having access to piped water at public standpipes. The forty percent household installation rate was considered highly successful at the time, assuming that at least 25 percent of households were too poor to afford even modest installation charges. The effects of the new water supply on village life were striking. The piped water supply proved to be much more hygienic than well water. The incidence of water-borne diseases among villagers declined sharply (particularly diarrhea, dysentery, and typhoid fever), by about 75 percent. In addition, diseases associated with seasonal water scarcity (scabies, conjunctivitis, trachoma) declined even more sharply. This single infrastructural change (reducing both death rates and disease prevalence rates) not only improved the quality of life, but also attracted new residents from other villages in the community's kinship network. So, the consequences of improving village water supplies were consistent with Ullman's view of the role of amenities as a factor in regional growth and development.

Nearly 15 years later, the villagers of Tajpur near Varanasi (Uttar Pradesh) noted the importance of village electrification when episodes of the *Ramayana* and *Mahabharata*

were aired on Indian national television. Tajpur villagers, who had no electricity, were forced to visit to their peers in the more prosperous adjacent village of Chandravati (which had been electrified five years earlier) to view these most popular dramatizations. More serious than access to inspiring television entertainment, Tajpur villagers also realized that lack of electrification limited their ability to produce wealth from village work. Irrigation without electric pumps was slow and limited. Hand-spinning of thread and handloom weaving of silk limited output. As a result, a number of men had migrated away to work in cities of India and the Middle East, and some migrated permanently as far away as Mathura (U.P.). In addition, many men commuted into Varanasi by bicycle to work at construction jobs. Surya Narain, one of Tajpur's remaining weavers, said wistfully, "Electricity would make a difference to our lives."² Tajpur was becoming a less attractive and less dynamic settlement despite its long and vital history because its infrastructure lagged behind other villages. It was becoming a "bedroom" satellite settlement.

Purpose, Data, and Methods. Model projects and anecdotal accounts aside, this paper's purpose is to explore the distribution of modern amenities among villages on the urban fringe of Delhi (India's capital metropolis) and to associate the co-occurrence of infrastructure amenities with the demographic character and growth of these communities. This study makes only an exploratory beginning and marks the distribution of amenities at a relatively early point in India's post-Independence history.

Study Area. The study area includes the 249 villages that composed the rural portion of the Union Territory of Delhi in 1961. The entire territory has, of course, grown rapidly since Independence. Most often, attention has turned to issues associated with the growth of the urban component of this territory—New Delhi, Delhi Cantonment, and the Delhi Municipal Corporation (DMC). The DMC

has annexed villages as the Delhi urbanized area has expanded⁴ (See Table 1). Often overlooked is that the rural part of the Union Territory has experienced growth rates even more rapid than the urban part. The annual average rates of growth of both rural and urban components have been sufficiently rapid that they exceed plausible rates of natural increase. Therefore, in both urban and rural areas part of the demographic increase has been produced by net in-migration. A number of interesting questions and hypotheses could be asked regarding the reasons for rapid net immigration to villages around Delhi. Differential distribution of infrastructural amenities, the focus of this study, constitutes only one dimension of explanation for variation in growth of rural communities on the metropolitan fringe.

Villages in the Delhi Union Territory in 1961 had male-dominant sex ratios (similar to the urban sex ratio). Villages tended at this

time to have fewer literate people (particularly women), and contained a larger proportion of scheduled caste persons than urban parts of Delhi. Villages manifested a declining share of agricultural workers in the workforce—an absolute decrease in agricultural workers having occurred during the 1960s. This change indicates that, increasingly, these villages were being drawn into the orbit of Delhi's metropolitan economy. Because of this, one might expect relationships to exist between "distance from Delhi" and the incidence of various village demographic and amenity characteristics. Admittedly, a single "distance from Delhi" variable represents a crude measure of urban proximity. Villagers may have chosen to reside in particular villages because of their proximity to particular centers, enclaves, or work sites around the metropolis. In this study however, the distance variable was construed as the linear distance from the (Old) Delhi railway station to each village as

Table 1. Delhi Union Territory: Selected Indices, 1961 & 1971

Variable	Urban	Rural
Population 1971	3,647,023	418,675
Annual Growth Rate 1961-71 (%)	4.32	4.53
Sex Ratio 1971 (M/F)	1.25	1.21
Sex Ratio 1961 (M/F)	1.29	1.18
Gross Density 1971 (per mi. ²)	21,504	1,061
Gross Density 1961 (per mi. ²)	18,711	670
Literates 1971 (%)	58.95	36.23
Literates 1961 (%)	56.25	25.13
Literate Females 1971 (%)	50.90	20.75
Scheduled Castes 1971 (%)	14.55	25.08
Scheduled Castes 1961 (%)	11.54	23.17
Workers 1971 (%)	30.63	26.62
Workers 1961 (%)	31.66	35.97
Workers in Agriculture 1971 (%)	0.78	34.71
Workers in Agriculture 1961 (%)	0.86	52.36

a measure of relative spatial location within the study area.

Data Sources. Population and infrastructure amenity information have been collected and published in the 1961 and 1971 Census of India district census handbooks.⁵ Population data were reported by village according to the gender and industry of employment format so familiar in decadal census reports. The accuracy of these union territory data are likely to be somewhat better than for India's states, since union territory standards of enumeration required complete enumeration of all population characteristics. Village amenity information was supplied to census enumerators by village-level community development workers, who possessed specific knowledge of community resources. Each of the amenities was identified by its presence or absence—that is, a nominal scale of measurement was used. The handbooks identify the existence of particular facilities or resources, but provide no other information—e.g., how big or how good a school might be, the quality of health care dispensed through a local clinic, or the quality of roads. S. Nangia has indicated, in this regard, that some villages with wells were forced each dry season to draw water from adjacent village's wells because their own became saline each hot season⁶; such a qualitatively nuanced observation would not have been recorded in a district census handbook. The census handbooks do not report what share of houses or population were served by electricity, piped water, etc., either. Significant differences in detail appear between the amenities reported in 1961 and 1971 also, which prevents perfect comparison between the two census years.

Broad comparison of the two amenity datasets shows great progress was made in infrastructure development in the 1960s, however—with substantial additional progress yet to come in later years. By 1971 nearly all Delhi Union Territory villages had been connected to the electrical grid. (And by 1991 some 84 percent of India's villages had

been electrified.⁷) At the same time, no villages in the Union Territory had public sewage treatment systems. Many villages had received improved water supply, new roads, and local schools. Rural progress was probably more rapid in the Delhi Union Territory than in adjacent states, owing to proximity to and direct administration by the central government of India. This, in Ullman's view, would make Delhi's villages more attractive rural centers than ones without such amenities in adjacent states, and would partly account for their rapid rate of population growth.

Method of Analysis. This analysis proceeds in two ways. First, elementary linkage analysis is performed on 17 variables, 14 of which are derived directly from the census handbooks. The fifteenth and sixteenth variables represent the sum of the amenity types found in each village in 1961 and in 1971. The seventeenth variable is the "distance from Delhi" variable. Elementary linkage analysis is an intuitive form of 'factor analysis', in which clusters of zero-order (r_{nm}) intercorrelated variables are identified—the first cluster beginning with the most strongly intercorrelated pair of the 17 variables, and then linking either of these variables to the next most strongly correlated variable, and so on to establish a correlation 'tree' of association based on strongest correlations. When no further variables are most highly correlated with any variables in the first cluster, then a new cluster is formed around a next most highly intercorrelated pair of remaining variables—i.e., not included in the first cluster. In so doing, intercorrelational clusters (or 'pseudo-factors') emerge based on the strongest intercorrelations of each of the 17 variables. By so doing, we gain a sense of the relation between demographic and amenity variables using interval scale statistical measures.

The second stage of the analysis explores the interrelations of specific amenity types and village demographic character. These interrelations are carried out using point bi-serial correlation methods that are designed

for specifying the association between one nominal and one interval scale variable.⁴ Thus, we can derive a sense of the interrelation of specific amenity characteristics of villages with selected demographic characteristics.

Results. The salient correlations of interval scale demographic and amenity variables are portrayed as three clusters in Figure 1, together with their correlation coefficients. Cluster I appears as a scale cluster with high intercorrelation (+0.94) of total 1971 population and total 1971 literate persons, with a subsidiary correlation (+0.84) of total 1971 scheduled caste persons. Cluster II shows associations between village amenities and demographic characteristics focusing on the reflexive pair of total 1961 population and total 1961 literate population (+0.91). The sum of village amenity types in 1961 correlated most strongly with the distribution of literate people in 1961, while in 1971 the sum of amenity types correlated most strongly with the distribution of total 1961 population—indicating a tendency for amenities to lag somewhat behind changing distribution of population, perhaps because government and private sector alike focused on distributional issues of earlier years. Cluster III showed gross 1971 population density and population growth rate 1961-71 to be correlated (+0.61). "Distance from Delhi", as manifested by distance each village was removed from the Delhi railway station, was not strongly correlated with any cluster.

Examination of co-occurrence of amenities at each census with demographic variables shows more detailed relationships through point biserial correlation. For 1961, Table 2 shows non-random correlation coefficients, the highest of which exist between 'institutional' amenities (such as schools and clinics, most frequently government-sponsored) and demographic indicators. The highest correlation coefficients in 1961 emerged between health facilities and total population and total literate population.

For 1971, Table 3 shows non-random correlation coefficients, which are generally lower than for 1961. We may take this to mean that the occurrence of infrastructural amenities was more uniformly widespread by 1971, and therefore less spatially patterned than in the previous decade. There were gains for the entire population during the decade of the 1960s.

In 1961 villages composed of proportionally more scheduled caste persons were neither negatively nor positively correlated with amenities. That is to say, it appears they were distributed independently from the factors that drove the distribution of amenities. This may be because of various factors, including later emergence of scheduled caste persons as 'vote banks' in the democratization process, and/or the rapidity with which scheduled caste persons resettled (or were resettled by others) on the rural landscape.

Distance from city center correlated largely as expected in 1961. The less the distance from Delhi the more likely certain amenities were to occur (e.g., clinics and safe water). By 1971 only the distribution of clinics showed this pattern, and many amenities associated with water supply showed more frequent occurrence at greater distances from metro center.

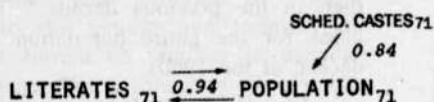
The strongest point biserial correlation coefficients were for the access post office/telephone kiosk amenity and total population and literate population. This association would be entirely as expected in order for the post and telegraph service to fulfill its mission efficiently. (That point biserial coefficients of correlation are generally lower than Pearsonian coefficients of correlation is to be expected in the nature of correlating population data with simple dichotomized amenity variables.)

Interestingly, the only two variables to correlate significantly with annual average rates of population change were villages with

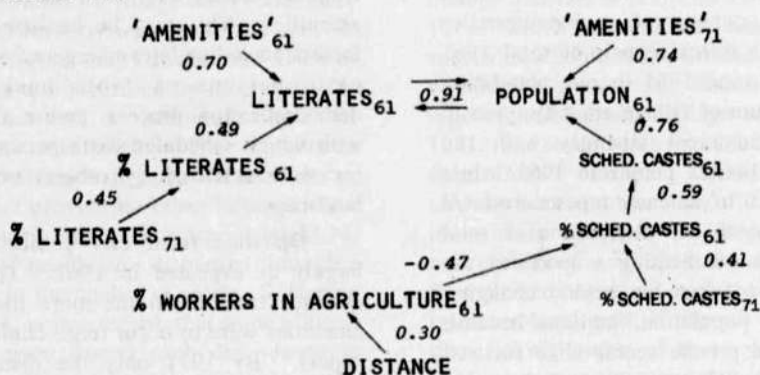
FIGURE 1.

LINKAGE ANALYSIS OF SELECTED VILLAGE INDICES, 1961 & 1971.

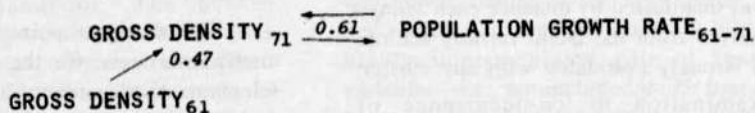
-- CLUSTER I:



-- CLUSTER II:



-- CLUSTER III:



SCHED. CASTES = Population Enumerated as Scheduled Castes
 LITERATES = Population Enumerated as Literate
 POPULATION = Total Population Enumerated
 'AMENITIES' = Sum of Amenities, Reported by Village Level Workers
 WORKERS IN AGRICULTURE = Cultivators and Agricultural Laborers
 GROSS DENSITY = People Per Acre
 POPULATION GROWTH RATE = Average Annual Rate of Change
 DISTANCE = Kilometers from the Delhi Railway Station

Table 2. Point Biserial Correlation of Infrastructure Amenities with Selected Demographic Variables, 1961.

Amenities	Total Pop.	Literates	% Literates	Sched. Castes	% Sched. Caste	Gross Density	Dist. Metro Ctr.	% Ag. Workers
Institutional								
Health	0.559	0.612	0.298	0.354	0.163	-0.188		
Education	0.645	0.638	0.202	0.331				0.331
Access								
Road	0.442	0.406	0.165	0.341	0.300			-0.142
Water Supply								
"Safe"								
Well	0.183	0.145			-0.145			
River/Canal					0.160		0.204	0.233
Tank							-0.229	0.157

Source: Computed from Census of India 1961, Delhi: District Census Handbook (Delhi: Delhi Administration, 1964).

Total Pop. = Total Population

Literates = Literate Population

% Literate = % Population Literate

Sched. Castes = Scheduled Caste Persons

% Sched. Caste = % Scheduled Castes

Gross Density = Gross Population Density

Dist. Metro Ctr. = Distance from Delhi R.R. Station

% Ag. Workers = % Workers in Agriculture

Table 3. Point Biserial Correlation of Infrastructural Amenities with Selected Demographic Variables, 1971.

Amenities	Total Pop.	Literates	%Literate	Sched.Caste	%Sched.Caste	Dist. Metro Ctr.	Gross Density	Ann. Gr. Rate 61-71
<i>Institutional</i>								
Health	0.425	0.390		0.330		-0.189	0.169	
Education	0.383	0.353	0.162	0.274		0.305		
<i>Access</i>								
Roads	0.153	0.149	0.357		-0.166	0.176		
Paved Road	0.222	0.208	0.312	0.184				
Railway	0.195	0.196		0.175				0.243
P.O./Phone	0.430	0.421	0.286	0.324				
<i>Water Supply</i>								
'Safe'	0.152	0.146	0.262			0.179		0.203
Handpump	0.166	0.151		0.153			0.150	0.196
Well	0.150	0.142	0.302		0.165	0.234		
Tapwater	0.193	0.146	0.158					
<i>Tank</i>								
Tubewell						0.147		
River/Canal			0.180			0.258		

Source: Computed from Census of India 1971, Delhi: District Census Handbook (Delhi: Delhi Administration, 1972), and Census of India 1961, Delhi: District Census Handbook (Delhi: Delhi Administration, 1964).

"safe" water supplies or villages with hand pump water supplies, a finding that concurs with Misra's earlier study in Uttar Pradesh. That more amenity variables did not correlate with population change may possibly be accounted for by the fact that the entire region was growing at rates in excess of natural increase alone, located as all these villages are in the national capital region.

Conclusions. This initial exploration of amenity distribution among villages on Delhi's urban fringe suggests areas of subsequent research potential. First, amenities as a factor in local and regional growth seem a promising avenue for additional research. Assessing entire administrative regions (such as in this study) or systematically sampling Census of India data constitute dual lines of further endeavor. Moreover, tracking population change more closely to the present (that is, since 1961-1971) would give clearer corroboration of the role of amenities in the growth/development process. Second, simple correlation of census attributes can be augmented by undertaking analysis of amenity distribution, development, and relation to population change through

modern geographic information systems analysis (GIS). Methods of spatial analysis inherent to GIS may identify patterns which have not identified in simple correlation analysis. Third, tracking village amenity development within the context of administrative planning and development of the national capital region may shed further insight on regional development in the context of diachronic census analysis. Fourth, further study could be carried out to explore the relations of these villages to the evolution of the National Capital Region through integrating census data in GIS with remote sensing analyses—using imagery such as Russian high resolution panchromatic (1 m. or 3 m. resolution) scenes to identify 'pakka' vs. 'kachha' *abadis*, as well as to distinguish formally planned enclaves vs. informal settlements. Indeed, it may be hoped that future studies will significantly unify study of both "urban" and "rural" components of India's metropolitan regions, and shed insight into the explicit way(s) more than 180 villages have been absorbed into the urban fabric of Delhi's National Capital Region in the twentieth century.

Notes

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SPACES OF THE EVE FEAR

(A Case of the University of Delhi Campus)

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Abstract

Students are an important segment of our population and it is only within a safe environment that they are able to explore to the fullest the opportunities of learning. Today however, women students have become frequent targets of crime. Unfortunately offence against women is treated flippantly as "eve" teasing, thus undermining the important implication of fear that this behaviour generates. The spatial dimension of fear is manifest in the way women avoid certain spaces at certain times of the day. A campus is not a homogenous area and within its precincts are specific places where victims do gain opportunity of strike at the softer sex. The geographical occurrence of crime therefore has relevance towards creating a Sustainable Security Campus Plan. Drawing from both the data base of police records and questionnaire with hostel students, this research paper explores the spaces of eve fear on the Campus of the University of Delhi. The occurrence of crime is correlated with the internal morphology and land use characteristics of the Campus. Evolving from this analysis a spatial policy and plan towards a secure campus is mapped.

In the 81 years since its inception the dons of crime like Dawood Ibrahim, Abu Salem and Iqbal Mirchi have never targeted the University of Delhi, nor has a serial killer like Ted Bundy left his trail of horror on the Campus. Yet, within the eight square kilometer rectangular area of the Campus of the University of Delhi slinks a sense of fear. Symbolic of this are the different efforts deployed to create safe environs.

A hundred and nine policemen patrol the Campus. Manned in four-hour shifts, 8 police pickets are positioned at different locations. Five checkpoints with barricades carrying 'no

entry' signposts sieve the movement into certain territories. Each college, department, hostel and residential block reinforces this Delhi Police patrolling with its own safety precautions. A hundred and seventy-one chowkidars along with 85 private police personnel, all employees of University of Delhi are sentries at the various academic institutions of the Campus. New bricks stacked on faded walls are telltale that many institutions have recently raised their boundary walls.

In spite of the hardware and software of security, the Campus seems vulnerable. Every now and then the University of Delhi hogs the

limelight with media splashes like "Insecure Campus", "Campus shocked over assault on girl" or "Twenty three held after violence in Delhi University". Drawing attention to the chinks in the security armour teacher and student activists rake issues of crime, especially against women. Angry over the stubborn insecurity, researches by gender sensitive forums conclude, " ... The Delhi University campus is one such sexualized zone, which is marked by a license to rape or harass women." (P.Baxi, 2003). Awake to the climate of crime, the University authorities have not only set rolling an apex committee of sexual harassment but also debate on the modalities of creating a Compact Campus Plan as a counter measure of safety.

The police, the *chowkidars*, the media, the activists and the University authorities all seem to grapple with the need to build an atmosphere of security on the Campus. This paper by addressing a less explored dimension: Where does crime on Campus occur, joins the pool of those concerned about the menace of crime in public space. By analyzing the spatial dimension of crime, the research critiques the CCP or the Compact Campus Plan and provides the ingredients to draw up a SCSP or Sustainable Security Campus Plan. The aim of the inquiry is to identify the pattern of crime and highlight any significant relationship with the ecological characteristics of the Campus. Being aware that spatial patterns are rarely self-explanatory and that one needs to understand the socio-economic and psychological parameters of morality to see the manifestation in crime, geographers can establish the epidemiology of crime and what that implies for crime prevention.

Mapping crime dates back to 1833, when Guerry in *Essai sur la statistique Morale de la France* claimed " the different kinds of shading on the maps of the areas of crime would not only enable the reader to see the facts more quickly but to appreciate more readily the essence of comparison." To identify the crime zones within an area, these earliest maps used elaborate cartographic symbols. A traditional

procedure in the police station was to punch pin heads into a wall map to isolate the clusters of crime. Today, a range of geographic information systems software assist in demarcating the hot spots of crime in an area. One can then guide security personnel to the most dangerous niches of criminal activity during the most dangerous times. A map would also help to draw a more Sustainable Security Plan. Despite its numerous advantages geographers in India have hesitated to venture into crime mapping. This paper is an experiment in mapping crime within the Campus of the University of Delhi.

The Campus of the University of Delhi with its agglomeration of institutions, colleges, faculties, libraries, and laboratories, along with the administrative block, sports ground and student population is an educational enclave distinct from the rest of the city. It has a total strength of 32,180 seats in different disciplines at the graduate and postgraduate level. Within its ambit are 23 hostels with a bed strength of 3705. With this particular kind of land use, the Campus tends to be vulnerable to a particular type of crime as it draws a large proportion of young students within its fold who are at risk. Surveys and informal conversations conducted with students confirm that the Campus is a problem area.

The Campus is the nerve center for two lakh fifty thousand students enrolled in the 79 colleges and 82 departments spread across the city of Delhi. Its prestige and fame are apparent from the fact that students from Delhi and across India throng to seek education within its portal. The address book of women hostelers confirm that 85 per cent of the occupants are from outside Delhi with an overwhelming 30 per cent from Bihar, Uttar Pradesh and West Bengal while some come from places as far as Kerala, Goa and the North Eastern States. The University also attracts foreign students to pursue higher education. However, its obvious popularity has successfully veiled the fact that it is also stigmatized as a zone where crime, especially that inflicted against women, is on the rise. Since the University of Delhi nets

students from a large catchment area, any incident of crime committed within it sends ripples of concern across the city and also to different parts of India. Selecting the campus of the University of Delhi for mapping crime could thus serve as a model that mirrors the vulnerability and risk faced by thousands of students in hundreds of campuses across the country.

Design of Research

In the office of the Maurice Nagar police station is a map whose eight square kilometer *illaka*, covers the Campus of the University of Delhi. The geographical area of study is confined to the boundaries under the jurisdiction of this police station. Named after Sir Maurice Gwyer, the longest serving Vice Chancellor of the University of Delhi (1938 to 1952), the Maurice Nagar police station was established in 1989 and has since served the Campus exclusively. Prior to this the University was under the jurisdiction of the Roop Nagar police station. Since the police station has served this Campus exclusively from 1989 onwards, records from the year of inception to 2002 are used for the purpose of analysis. Among the 25 different registers maintained by the police station the annual first information reports were the prime source tapped.

Data on crime are always treated with suspicion and skepticism, as it is common knowledge that they are grossly under-reported. Studies in United Kingdom have shown that only 15 to 20 per cent of all crime in that country is recorded. Hawkins (1973) interviewed 1,411 people in Seattle and found that of the 744 people who had been victims of at least one offence in the previous year only 46 per cent had reported the offence to the police. Similarly while the Delhi police recorded some 383 rape cases for the year 2002, the social activists claim "the real figure is five times that of one reported". (T.K.Rajalakshmi, www.pan.os.org.uk.) But under-reporting does not operate uniformly for all types of unlawful acts. Automobile theft, for example, has to be reported because

without a legitimate first information report one cannot file a claim for insurance. Similarly, the most heinous crime cannot escape societies and does enter the logbook. But instances of criminality fielded against women continue to languish in obscurity. Aware of the imperfections in official statistics, especially on crime against women, a poll was undertaken among women students residing in the hostels of the Campus. Women were given preference because they are known to be 10 times more likely to be sexually assaulted than men and they have a greater fear of crime than men (Crowell and Burges, 1996).

The Campus has twenty-three hostels, of these nine are for men, another nine are for women and five are domicile for both men and women. The poll was conducted in the 10 hostels, where 865 questionnaires were circulated. Of these 533 were duly completed providing a 60 per cent rate of response. This was undertaken with the hope that it would highlight a situation very different from one recorded in statistics regarding the socio-spatial location and time of crime committed against women. To minimize inhibition, the query was generated through a resident student of the postgraduate hostel in 2002. Though it suffered the handicaps of any opinion poll, questions like type of victimization, fear of place, days and time of crime and strategies adopted to minimize risk did elicit a useful response.

In order to grasp the geography of opportunity that the Campus creates for the occurrence of crime, a reconnaissance of the land use, lighting of streets, bus stops and bus routes, shops, houses and type of policing was undertaken in 2003. The zones of high and low crime within the Campus were identified with the spatial analysis at two levels: at the aggregate level of the Campus and the other at the micro scale. The trend of crime and its annual, monthly, weekly and hourly variation was structured at the scale of the Campus.

Adopting the definitions of the Indian Penal Code, crime for 14 years from 1989 to 2002 was classified into the cognizable

heinous and cognizable general; and the non-cognizable category. The seriousness of crime was also charted by classifying crime according to the years of punishment awarded for a particular act. Crime was thus grouped into types which involved less than 3 months, 3 years, 5 to 10 years to the most serious where the criminal could be locked up for a life time. Felonies were grouped into incidents for property and those against people with a special focus on women who were identified as motives that triggered crime.

For a spatial analysis at the micro-level an address book with details of location, date, and time of crime was created. The site of the incidence of crime was noted with reference to inside the academic institutions or outside on any of the 12 university roads. Crime on the intersections were recorded separately, as it was difficult to ascertain the road they belonged to. All types of crime were considered for the purpose of mapping, as the concern was not punishment but the location and it was reasoned that all crime committed against women play an equally significant role in creating an environment of fear and vulnerability. Vehicular accidents though not a crime in the conventional sense have also been incorporated as they add to the element of vulnerability on the Campus.

Even though it is desirable that records of crime for all the 14 years should be placed within the locational coordinates, time and effort needed to key over 1,659 crimes committed from 1989 to 2002, forced a limitation on the inquiry. Therefore, sample data for four years from 1999 to 2002, representing recent 30 per cent of the 14 years, were taken into account.

Preparing maps helped generate a pattern of crime that is reported and those, which are feared by women students. The broad elements for a plan to create a secure campus are spelled out after taking stock of the response of police, activists and students towards the risk of crime.

Within this time the Campus has witnessed 8 murders, 9 rapes, 4 dacoities, 16

kidnappings, 108 burglaries and 571 theft cases. At an average 40 thefts, 8 burglaries, 1 case of kidnapping occur every year. Every second year the Campus is rocked by a murder, rape and dacoity. Theft is the most prevalent crime on Campus. Among the total types of crime, incidence of vehicle theft dominates. Three vehicles are stolen from the Campus each month of which the majority is cars. Crime against women constitute five per cent of the total crime, among them molestation and rape form a shocking 60 per cent.

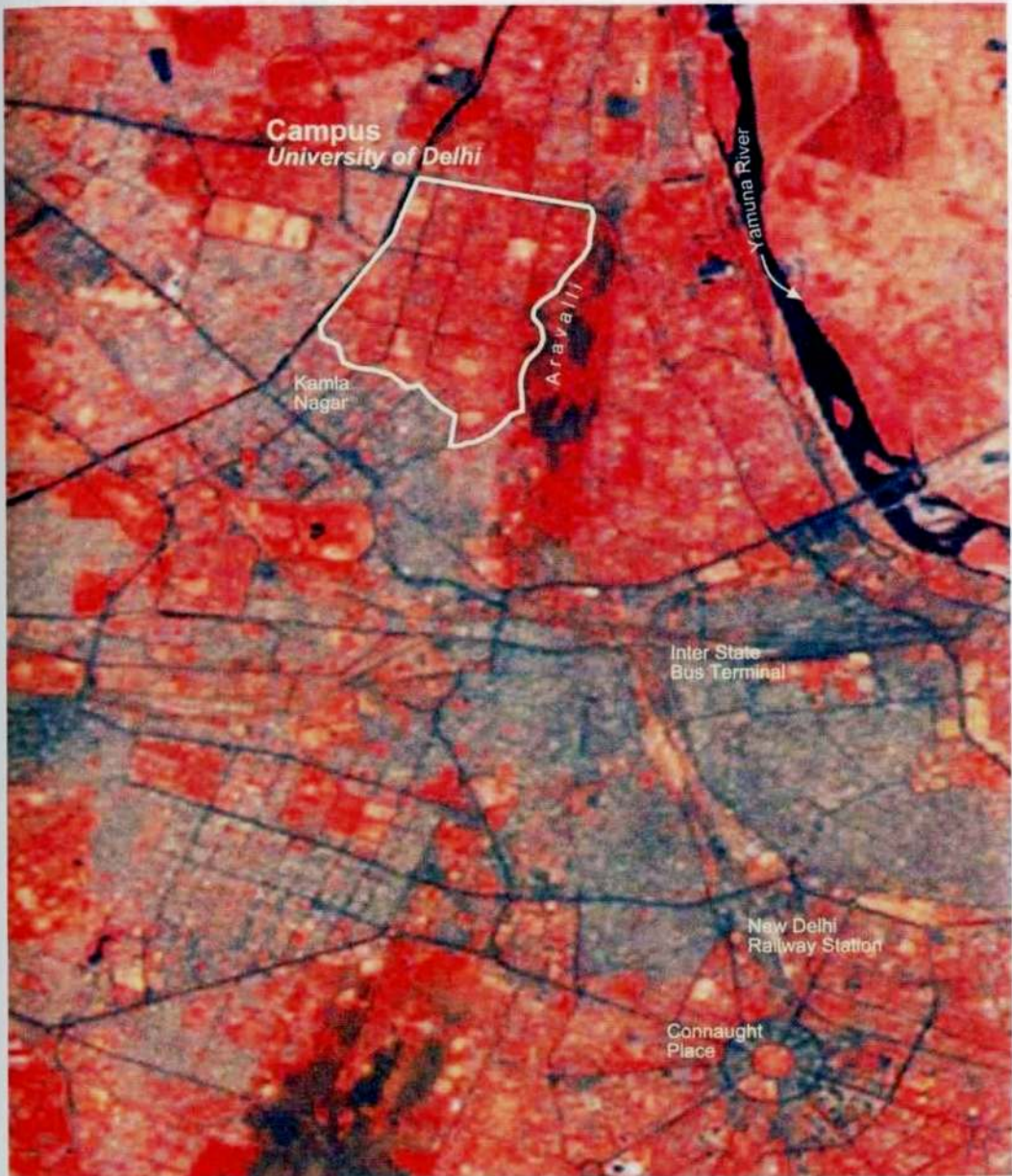
Campus as a Spatial Unit for Mapping Crime

The Campus of the University of Delhi is situated in the northern section of the city of Delhi. It lies eight kilometers from the House of Parliament, is three kilometers to the north of the Interstate Bus Terminal and six kilometers from the New Delhi Railway Station. (Fig. 1). Established in 1922, the University of Delhi struggled to find a site and was uprooted seven times before dropping anchor at its present location in 1933.

Situated within 28° 40'30" to 28° 41' 10" north latitude and 77° 12'30" to 77° 13'30" east longitude, the eastern limb of the rectangular-shaped Campus is bound by the last spur of the Aravalli hill popularly known as the Ridge. Along its south-eastern edge is the Civil Lines, a residential colony of select bureaucrats and elite businessmen. While this natural and political boundary abuts the southern and southeastern edge, on the southwest is the thriving market of Kamla Nagar. To its north and northwest lies a string of low and middle-income residential colonies. Encapsulated within this hinterland of contrasting land use, all of which provide a different service to the Campus, it evolved organically rather than along a preconceived plan. The internal morphology is a grid-like pattern of twelve roads along which are positioned the colleges, hostels, departments, institutes, libraries and administrative offices.

Set within these precincts, the Campus during 1989 to 2002, recorded 1659 incidents of crime.

Fig. 1 : Campus of the University of Delhi



False Colour Composite (FCC) Delhi IRS-ID

With an average annual crime rate of 119, the graph of crime shows an escalating trend from 55 crimes in 1989 that doubled to 112 in 1995 and touched the figure 197 in 2002. (Fig. 2)

Almost 81 per cent of the total crime was committed for property and involved burglary, theft and forgery for vehicles, cash and jewelry. Fourteen per cent of the crime was targeted at people and include simple hurt to murder, abduction to kidnapping and eve teasing to rape. Women were victims of one third of the total crime recorded against people. Twenty per cent of the total crimes committed on Campus in the last four years were heinous. These included murder, rape, dacoity, burglary, grievous hurt, abduction, and attempt to murder, kidnapping and robbery. Such crimes belong to the serious category where punishment could range from five years imprisonment to a lifetime. The majority of 74 per cent crime on the Campus was of the general cognizable type. Gambling, theft, petty theft, hooliganism, physical assault, forgery, extortion and even eve teasing and sexual harassment belonged to this group. About 2 per cent of the crime-involved evasion of excise duty, sales tax or liquor tax, punishment against which involve a fine and a few months in lock up. (Table 1)

Table 1
Type of Crime on Campus : 1989-2002

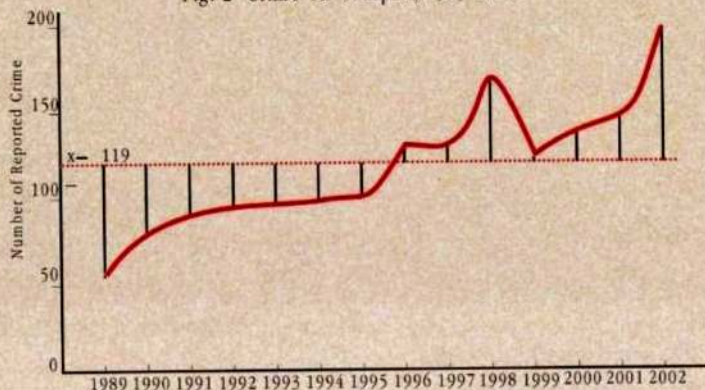
Category	Total incidence	Per cent to total
Cognizable General	1234	74.3
Cognizable Heinous	332	20.0
Non Cognizable	46	2.8
Others	48	2.9
Total	1659	100.0

Based on FIR Register 1, Maurice Nagar Police Station, 1989-2002

Campus crime scenario over the last 14 years has undergone a change in composition. Crime against property has risen from 69 per cent in 1989-1993 to 83 per cent in 1999-2002. Along with cash, vehicles and jewelry, computers and mobile phones emerge as new items on the list of crime. While crime against people fell from a total of 18 per cent of the total crime in 1989-1993 to 13 per cent in 1989-2002, within this group crime against women showed an increase from 3.7 to 5.6 per cent. In the period under consideration crime against women has doubled from 17 to 34 cases (Table 2).

In order to grasp the finer temporal variation, data on crime were broken into months, weekends and also into hourly systems. In these years an average of 50 crimes were reported each month. Winter had a lower rate of crime than summer. When juxtaposed with the academic

Fig. 2 Crime on Campus, 1989-2002



Based on FIR Register 1, Maurice Nagar Police Station, 1999-2002

calendar of the Campus, thirty per cent of all crime occurred during July, August and September, the months of admission and post admission, while during October, November and January, the months of regular teaching, the per cent to total crime dropped to 17 per cent. Even crime against women begins to rise from June and peaks in September. Another high is seen in March, a month nearing the annual examinations.

shows that weekdays register nearly one and halftimes more crime than the weekends. In cases of crime against women there is a distinct high on Saturdays, Mondays and Thursdays and low on Fridays and Sundays. However when the type of crime against women is inspected the more serious crimes like rape and molestation cluster around a weekend (Fig 4).

The prime time for crime is 12 pm to 6 pm.

Table 2
Changing Profile of the Composition of Crime on Campus : 1989-2002

Crime against	1989-1993		1994-1998		1999-2002	
	Number	Per cent to total	Number	Per cent to Total	Number	Per cent to total
Men	65	14.00	55	9.02	45	7.40
Women	17	3.70	22	3.60	34	5.60
People	82	17.66	77	12.40	79	13.10
Property	322	69.40	519	86.00	500	83.00
Act and State laws	60	12.95	14	2.30	15	3.00
Others	0	00.00	00	00.00	9	1.00
Total	464	100.00	610	100.00	603	100.00

Based on FIR Register I, Maurice Nagar Police Station, 1989-2002.

Although it would be premature to draw a correlation between the frequency of crime and the academic calendar it can be suggested that a new flock of students is a more vulnerable target (Fig 3).

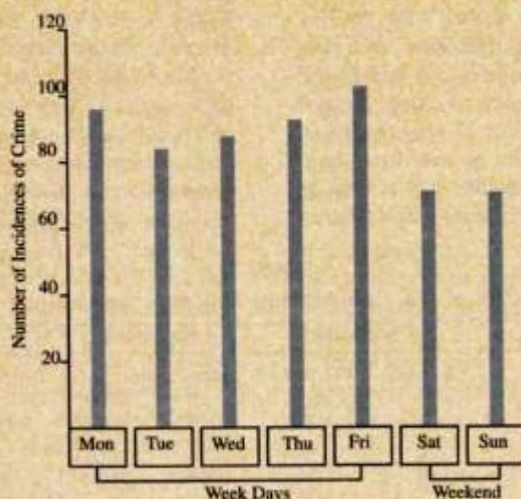
A weekday versus weekend comparison

Forty six per cent of all reported crime takes place during these hours. But when heinous crime like murder and dacoity are isolated it becomes apparent that the late hours of the night between 9 pm and 12 pm are the more opportune moments.



Based on FIR Register I, Maurice Nagar Police Station, 1999-2002

Fig. 4 Incidence of Crime throughout the Week, 1999-2002



Based on FIR Register 1, Maurice Nagar Police Station, 1999-2002.

This is the analysis of crime that is reported. The poll conducted among women hostellers fills the gap left by that crime which is experienced but remains unreported. The registers of the first information report at the Maurice Nagar police station record a total of 73 crimes against women during 1989-2002. Of these 23 cases are for molestation. To these can be added another 15 cases of eve teasing. Thus if records are to be believed the Campus has been witness to only 50 cases of different forms of sexual harassment in 14 years! (Table 3)

The dark side of Campus life emerges with the survey, which shows that nearly 80 per cent of the sample (533) had endured some form of sexual harassment, a figure much beyond and much above the recorded statistics. Lewd looks, vulgar stares, pinching and pulling clothes, catcalls, whistles, exhibitionism were common forms of sexual harassment experienced by women. As much as 78 per cent of the respondents had been approached and "not so innocently asked about the direction to a college or place." (Table 4) Nearly equal per cent of the women had suffered

Table 3
Incidence of Reported Crime Against Women 1989-2002

Type of Crime	Number	Per cent to total
Molestation	23	31.51
Eve Teasing	15	20.55
Kidnapping	10	13.70
Rape	9	12.33
Dowry	8	10.95
Sexual harassment	5	6.80
Missing	2	2.76
Selling	1	1.40
Total	73	100.00

Based on FIR Registrar 1, Maurice Nagar Police Station, 1989-2002

Table-4
Forms of Sexual Harassment in the Campus

Form	Number of women hostelers	Per cent to total*
Unnecessary asking the way	416	78.00
Lewd looks	410	77.00
Using sexually abusive language	394	74.00
Stalking and chasing	310	58.00
Offering unwelcome lift	217	41.00
Tracing phone number	92	17.00
Molestation	25	05.00
Physical assault	13	03.00
Robbery without physical harm	03	01.00
Rape	00	00.00

*Based on Primary Survey 2002. * Total Respondents 533, Multiple responses permitted.*

looks of vulgarity and sexually abusive language. More than half the women allege that they had been stalked and offered an unwelcome lift. These are overtures that most women on Campus have to contend with daily and most "had been approached by men who offer money to go out with them" (India Today, February 10, 2003).

On Campus the occasions for sexual harassment coincide with certain festivals or days of special events. When asked to rank the 10 most common days of sexual harassment, weekends did figure in this number, but more than the day or week or month of the year, certain festivals and days of special events were perceived as occasions on which a woman is likely to be sexually harassed. In this rank, Holi,

the festival of color, topped the chart, followed by Valentine's Day and Diwali. Events which carry a stamp of man-woman intimacy, like the Rose Day or Friendship Day seem to give men a license to harass women on Campus. (Table 5)

Not only do women hostelers perceive that crime increases on particular occasions of the year but for most of them the prime time for such crime is between 5 and 8 p.m. This contrasts sharply with the hours of occurrence of reported crime, where afternoons emerge as period of higher criminal activity.

The reported crime and the poll on Campus reveal that crime on Campus especially against women, has increased. Certain months, days and hours are more susceptible to crime. These dimensions need to be incorporated into any plan that is drawn to create a secure Campus.

Accidents in the conventional sense of the term are not a crime, but they cannot be ignored for they add to the perils of the Campus. Nearly 30 per cent of all the first information reports lodged at the Maurice Nagar police station were cases of accidents. Six hundred and forty three accidents have occurred on Campus in these 14 years, at a rate of four accidents per month and approximately one per week!

The seriousness of these accidents on Campus comes to the fore when it is realized that they put to risk a larger number of people

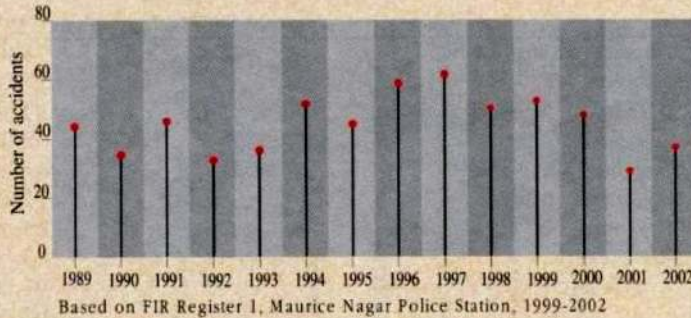
Table 5

Occasions of Fear of Sexual Harassment

Occasion	Rank
Holi (March)	1
Valentine's Day (14 February)	2
Diwali (October)	3
Rose day (7 February)	4
National holidays	5
Weekend	6
Friendship Day (first Sunday of August)	7
Delhi University Students Election (August)	8
Eid	9
University flower show (End February)	10

Based on Primary Survey 2002

Fig. 5
 Vehicular Accidents on Campus, 1989-2002



than suggested by their numerical count (Fig 5).

A sample of 171 accidents that occurred between 1999 and 2002 were analysed and found to involve 205 vehicles and 78 pedestrians. Of the total accidents some were fatal and many others left multiple injuries both of the kind, physical and mental which have no record. Fifty per cent of the vehicles that were involved in accidents were four wheelers, involving 62 cars and 35 buses. Although a large number of accidents blemish the Campus environment, their role is given much less attention. Perhaps the fact that they are seen as features of sheer chance and not "rash and careless" driving is the reason to their looming presence but limited recognition. Many factors contribute to make the Campus a crucible for crime.

Geography of Crime Opportunity: Campus in the Crime Capital of India

A campus in any city is not immune to the problems, which occur in the city and society at large. The Campus has without doubt in local parlance 'gone down' very much in the last 10 to 15 years, but it has experienced probably as much deterioration as any other part of the metropolis it is nested within. Christened after the city, the campus of the University draws its air of insecurity from the habitat being Delhi. The National Capital Territory reported a crime rate of 432 per one

lakh population, against the national average of 178 crimes per one lakh population. It cannot be denied that much of the problem of crime lies outside the Campus. After all, cognizable criminal activity in Delhi since 1989 to 1999 have grown from 30,523 to 58,710. On an average, 2,115 burglaries, 775 kidnappings, 503 murders, 285 cases of rape were reported every year in Delhi from 1989 to 1999. The National Crime Bureau records for 1999 reveal that Delhi has a crime rate which is two and a half times higher than the national average. For the Campus to experience crime embedded in a 'defamed' city is almost inevitable!

While the macro-forces are beyond the control of the educators, precautionary measures could have been taken if over the years, the University authorities had not been indifferent and lax towards the deteriorating ecology of the Campus. The unplanned growth, the bloated floating population, its thoroughfare status, faulty urban design and unkept infrastructure have turned the Campus into a receptacle for crime.

Campus Only in Name: Unplanned Growth

The landscape of the Campus is a melange of colleges, hostels, departments, private houses, shops, everything put up in haste without a plan. No two buildings are alike. No construction is an effort towards harmony with

the environs. On the one end is the colonial architecture of St. Stephens College and Miranda House on the other is the modern constructions of Daulat Ram and Khalsa college. Whereas some colleges like Hindu, Kirori Mal and St. Stephens College are sprawled over 20 acres, and some postgraduate departments like Zoology, Geology and Anthropology occupy 7 acres of land each. Many others huddle in small rooms of the Arts Faculty building. Much of the growth has been rapid and most of it unplanned. (Fig. 6)

Built in a hurry, the Campus of today is markedly different from that of yesteryears. In 1939, there were only three colleges; in 2002 there are 10. Postgraduate faculties have increased from 9 in 1939 to 47 in 2002. Resident facilities both for students and staff has seen an unprecedented surge. From one hostel in 1939 there are now 23 hostels on the Campus today. (Table 6)

Whereas the first block of residences for the teaching staff with an accommodation capacity of 22 families was built in 1944, today there are 13 blocks with 464 families. Similarly, while the first residential block for the non-teaching families was built in 1952 with a housing capacity of 40 flats, today the Campus has 9 blocks with a residential capacity for 560 families. Individually all these components: colleges, departments,

faculties, hostels, libraries and residential space for teaching and non-teaching staff are features of any campus, yet in case of the Campus of the University of Delhi their ensemble is far from being tasteful. The hurriedly built urban construction without integration and overall design makes it a Campus only in name but not in place! This is most apparent from the type of population which frequents the Campus.

Bloated Floating Population

The Campus of the University of Delhi lies within the Census of Delhi ward number C-13. However, there are no population data available for the residents and non-residents of the Campus or the users of the Campus and those who just pass through as transit passengers. On the voters list are 6100 people. The records of the Maurice Nagar police station state that the area under their jurisdiction has a residential population of 22,000 and a floating population of 36,000. But this seems like a gross underestimation. (Table 7)

Compared to the other university in the metropolis like Jawahar Lal Nehru University, the Campus of the University of Delhi has a population density that is 8 times more. Jawahar Lal Nehru University has an area of four square kilometer and population of 3,892 students, 370 teaching staff, and 1,350 non-teaching staff. This adds to 5,612 people,

Table 6
Growth of the Campus : 1939-2002

Decade	Colleges	Departments/ Faculties	Hostels	Libraries*	Residential Block for Staff	
					Teaching staff	Non-teaching staff
1939	3	9	1	1	0	0
1949	6	18	7	1	1	0
1959	9	29	12	3	4	1
1969	10	38	16	4	8	3
1979	10	39	19	4	12	8
1989	10	42	19	5	12	9
1999	10	47	23	5	13	9
2002	10	47	23*	5	13	9

*Based on Records and Primary Survey, 2003. * Three hostels were inaugurated in 2001-2002 but these are located outside the boundary of the Campus and therefore, have not been considered.*

Fig. 6 Campus Land Use, 2002
University of Delhi

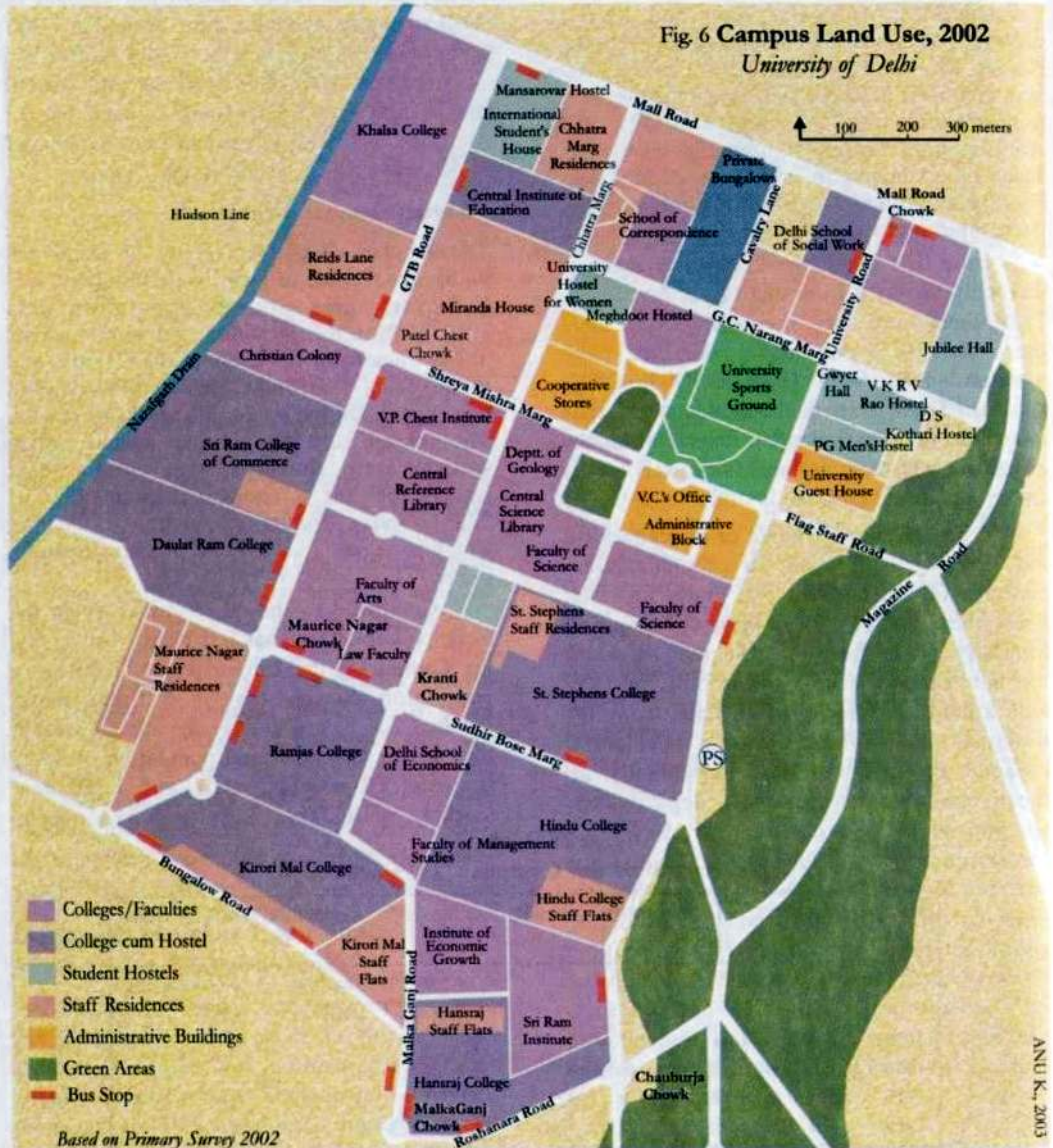


Table 7
A Realistic Estimate of the Day Time Population of the Campus

<u>Estimates of population of the Campus by the Police Station</u>	Population
<i>Permanent resident population</i>	
Teaching and non-teaching population	16,000
Christian Colony	5,000
Jai Hind Basti (opp. Christian Colony)	1,000
Total	22,000
<i>Floating population</i>	36,000
Permanent and Floating Population according to Police Station	58,000
<u>Estimates of the population of the Campus by the author</u>	
<u>Population accounted</u>	
No. of seats in the graduate and postgraduate courses on Campus	33,965
Teaching faculty on Campus	1,785
Non teaching staff on Campus	3,200
Number of staff residences on Campus (469) 5 per family	1,876
Number of non - teaching staff residences on Campus (560)	2,240
Number of private houses (9)	90
Number of shops on Campus (65)	128
Number of public phone booths (19)	38
Number of police personal	109
Population of Christian colony	5,000
Jai Hind Basti (opp. Christian colony)	1,000
	55,431
<u>Population difficult to account</u>	
Rickshaw pullers	*
Vendors	*
Users of the Ridge (mainly for leisure)	*
Thoroughfare users	*
Bus stops 34 Buses services 418	*
Estimate of Permanent and Floating Population by the author	80,000 - 90,000
Population on Campus during the day	10,000 persons per square kilometre

*Note: * Difficult to estimate*

giving it a population density of 1,402 persons per square kilometer.

Besides the density of urban built form and the people, there is crowding created by vehicles. Thirty four bus stops strung along the roads of the Campus through which ply 418 services to different destinations in Delhi

and eleven special buses tailor-made for students add to the traffic on the road. The common mode of internal transport is the cycle rickshaw, their popularity is evident from the fact that many are seen swirling round the Campus.

In addition to the population for whom

the Campus is a destination for work, studies or providing services to the educational community and the population that resides within this eight square kilometer area like the people in private homes or bustees there are other two kinds of people who come through or to the Campus. One group uses the Campus as a thoroughfare and the other come for the Ridge. For both these groups the Campus has little personal value in the sense that they are outsiders who are non-users of the Campus but are users of the space of the Campus.

A Thoroughfare Campus

There is no wall, gate or natural boundary that knits the Campus into a cohesive entity. Though the serried rows of colleges, hostels, department are a group which can be called a Campus, the landscape is an open territory which in effect is free for all. The roads, especially the one coming via the Ridge and the other joining the Mall road, cut through the Campus connecting central to north Delhi. The Campus therefore serves as, a bypass or a short cut for commuters. There is a non-stop rush of vehicles in and out of the Campus all day long. For them it is a thoroughfare Campus.

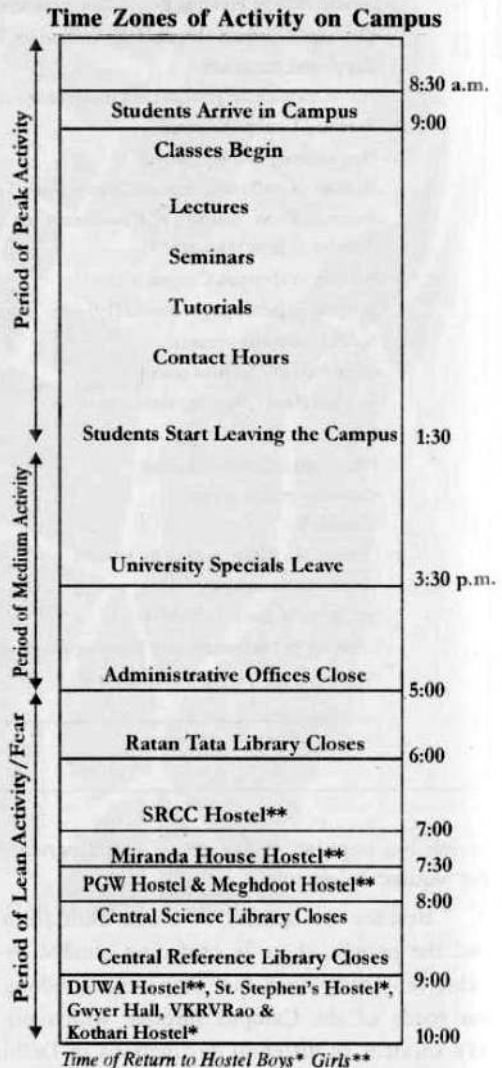
Most Campus roads are narrow, there are no four lane drives except for the Mall road and there is no scope of even constructing a roundabout at 5 out of the 6 chowks. As a result strangers, some mischievous ruffians and even the seasoned criminals easily comb through the Campus. In addition, in speed this traffic also puts the Campus in a high risk zone for accidents.

The Ridge which skirts the eastern boundary of the Campus, is another area daily frequented by a large outside population. Supporting vegetation of babul, peepul, ber, accacia and other xerophytic species and covering 78 square kilometer area, the Ridge is the prime green belt of Delhi. Representing the last spur of the Aravalli range, the Ridge in the Campus covers an area of about one square kilometer. In the morning and evening

rows of vehicles parked outside of the Ridge are testimony to the fact that the Campus attracts a large number of outsiders. With them come the vehicles, the noise, the strangers and also some thieves who whisk away the vehicles. The bloated floating population imposes a distinct zone of time on Campus activity.

The university awakes to its daily routine at 9:00 a.m. The special and public buses and personal modes of transport arrive in a rush to

Fig 7



the Campus. Most lectures on Campus terminate by 3 or 3:30 p.m. Thus, forenoon and afternoon are time of hustle-bustle on Campus. As the day ends the last fleet of University special buses take the majority of the students out by 3:45p.m. (Fig. 7).

The administrative office in the Campus close-by 5.00 pm. Apart from a lone scholar in his or her study and some students in the science labs virtually all colleges and departments are empty by 5.00 pm. Some libraries do function but at low key. The work hours of the 5 main libraries on Campus vary according to weekday, weekend and proximity to annual examinations. Most close by 7 pm while two remain open till 9 pm. However, attendance in libraries shows that barely 10 to 20 students per library study late.

Thus the Campus begins to quiet by 4 p.m. In most women hostels 8:00 p.m is the time to return indoors. What is interesting is that while timings to return to the hostel are imposed on women, men are allowed to "hang out" till odd hours.

But the gender bias on Campus does not end here. Of the 10 colleges only two are exclusively for women. Of the 3,705 seats in the 23 hostels, 57 per cent are occupied by men. Even more surprising is the fact that of the total of 623 addresses of the faculty that are listed in the telephone directory of the University only 155 or 25 per cent are women. Among the non-teaching staff of 3,200 only 10 per cent are women. Only 15 per cent of the total of 109 police strength stationed on Campus are women. The Campus clearly is a male dominated space.

An observation that could give an interesting perspective on the Campus crime psychology is the clear dominance of men over women. As evening and night sets in the streets have more men than women. Most women students fear the time of dusk and night and carry the perception that "the dark is unsafe for women as it lures the lone shark to attack." Adding to the woes is the faulty design and lax upkeep of the Campus.

Faulty Design and Malfunctioning Infrastructure

The design of the Campus is indifferent towards any scope for natural surveillance. All the colleges, departments, hostels and even staff accommodation have a typical character high walls, numerous gates and an "inward looking" signature of design. The Chhatra marg alone has 15 main gates, 3 back gates and a stretch of colleges, hostels within its walls. Caged between high walls most of the structures are such that a shout for help from the street would go unheard, unseen by any of the residents or even by the chowkidars who guard these individual citadels. Since the Campus was built without a plan and its turf is open to one and all the principle of design is geared to look after individual space rather than treating the entire Campus as a common public space. The inward-looking architecture deters natural surveillance and allows the hoodlum a free field to roam and strike at the prey.

Lack of maintenance of simple but essential infrastructure like pavements and streetlights is a potential signal to the criminals that this is a public space that is poorly kept and uncared for. The Campus roads are forced to accommodate growing surge of vehicular traffic with the result the walkways are continuously being narrowed. The gaping disjointed slabs of tiles along with their potholed surface make this two feet narrow space difficult to use as a pathway. One is therefore forced to step out on the road.

Poor street lighting adds to the eerie element. More than 38 per cent of the 680 street lights on Campus do not function. On the Flag Staff road, which slopes through the Ridge, 93 per cent of the street lights were defunct, on the Malkagunj road the percentage was 77 and on G.C.Narang Marg 61 per cent of the street lights were not functioning. Based on repeated checks for three different months what emerges is that on an average only 60 per cent of the street lights on Campus burn. The crown foliage of trees that line the streets diffuses the illumination of lights that do function. Thus, many areas of the Campus remain shrouded in dark. The reduced visibility increases opportunity for attackers to strike unobserved. (Table 8)

Table 8
Dark Roads of the Campus : State of Streetlights

Road	Number of Street lights installed	Functional	Non-Functional	Non-functional as per cent to total
Flagstaff road	14	1	1	93
Malkagunj road	13	3	10	77
GC Narang marg	18	7	11	61
Cavalry Lane	4	2	2	50
University road	43	22	21	49
Sudhir Bose marg	22	12	10	46
Mall road	58	35	23	40
Roshanara road	14	10	4	29
Chhatra marg	58	43	15	26
Bungalow road	17	13	4	24
Shreya Mishra marg	24	19	5	21
Guru Teg Bahadur marg	55	45	10	18
Total	340	212	128	38

Based on Primary Survey, 2003.

Thus at night the nature of the public space changes. During the day floating population bring the Campus to life but at night not only are the streets lonely and dark but the space is also dominated by men. Women students fear the night and ascribe their experience of crime to the late hours of the day.

While it is true that crime on Campus cannot be ascribed by the design, the waxing and waning of population or the use of Campus as a transit zone of traffic or a place for walks in the Ridge. Even unkept infrastructure and derelict landscape does not cause crime. A society driven by frustration and immorality is the root of all crime yet it cannot be denied that the ecology of the Campus provides a congenial environ for crime to strike. After all crime operates within a context that frames opportunities and the vulnerable ecology of students and space make the Campus a place that attracts criminals. So the question that begs to be asked is, where does crime on Campus occur?

Mapping Crime

Crime has victims and perpetrators both of who have a definite geographic coordinate at any given time. In plotting the spatial

occurrence of crime on Campus two broad kinds of crime locations are identified. In the inside space of the Campus are the colleges, faculties, departments and residences and the other is the outside space, for instance, are the roads and chowks. Of 603 crimes reported for 1999-2002 the former witnessed 237 incidences and the latter 361 with ratio of 1: 2. Overall the frequency of crime within the academic institutions is low with a rate of about 34 per year or 3 per month. But there are intra-spatial variations. Classifying the inner space into colleges, departments, hostels, private residences and other such places reveals a situation where colleges outnumber all other institutes in terms of total number of reported crime. (Table 9)

Forty-five per cent took place within the bounds of 10 colleges, which are located on Campus. Hansraj and Khalsa take the lead with 19 offences, followed by 13 each from Hindu and Kirori Mal College (Fig. 8). Among the 61 reported crimes, 21 per cent are burglaries and 18 per cent are theft of vehicles. Boys' colleges take lead over girls' colleges in terms of the number of incidences of crime. It is not surprising that boys colleges register

Fig. 8 Crime Within the Precincts of Institutions of the Campus, 1999 - 2002
University of Delhi



Table 9
Spatial Pattern of Recorded Crime on the Campus, 1999-2002

Location	Type	Number of incidences of crime
Inside	Colleges	125
	Department/ Faculties	64
	Hostels	19
	Private Houses	18
	Others (adm., shops)	8
	<i>Subtotal</i>	<i>237</i>
Outside	Roads	325
	Chowks	36
	<i>Subtotal</i>	<i>361</i>
	Location not identifiable	5
Grand Total		603

Based on FIR Register 1, Maurice Nagar Police Station, 1999-2002.

more crime and the sweep of crime is also vast. In the four years under scrutiny it is the boys/coeducational colleges that have witnessed growing cases of fights, ragging, forgery, narcotics, cheating, physical assault and grievous hurt.

Catering to a wide spectrum of disciplines, the Campus offers 47 postgraduation courses within the Arts, Science, Law and Social Science Faculties. These places of the higher tier of education however, record only half the number of crimes when compared with the colleges. Of the 34 cases of reported crimes 47 per cent were burglaries, 20 per cent of defacement and 15 per cent of vehicular thefts. Among all the postgraduate institutes, the Delhi School of Economics carries the tag of witnessing the maximum number of burglaries and vehicular thefts. When compared with the colleges the postgraduate departments are relatively free of reported crime like ragging, physical assault and other such incivilities.

Even though 3,705 students reside in the 23 hostels on Campus there are only 13 incidences of reported crime within their premises, barely 1 every 4 months. Since most hostelers do not possess a vehicle, the category of vehicular theft, common in colleges and departments is significantly missing in their

list of crime. In the large number of residential flats of both the teaching and non-teaching staff only one crime is reported every 3 months, burglary being most frequent.

If a collective assessment of the inside spaces of the Campus is made on the basis of the records then they seem safe, thefts and burglaries are few. Perhaps the criminal is aware that academic institutions may be storehouses of knowledge but are bereft of material wealth. Is the Campus a high crime pocket in Delhi? To find an answer to this would involve an elaborate spatial analysis of crime in the city, an exercise beyond the scope of this research. But the facts do make the Campus a place of problem if not according to the records then certainly in light of the unreported incidences of crime.

While the high walls and security guards may ward off burglars and thieves, there lurks within academic institutions an ugly element of crime against women much of which goes unreported. The in-depth report by the Gender Studies Group reveals that sexual harassment between students and staff and also between peer groups is prevalent in both colleges and departments. Nearly 4.8 per cent of the women students in hostelers and non-hostelers report having faced sexual harassment from the

teaching and non-teaching staff" (1996). This percentage, the report concedes, is not "representative of the extent of faculty harassment because in the survey 34 per cent of the women respondents studied in women's college." Their survey further clarifies that it is fear of reprisal and consequences upon their career that prevent many from sharing their experience of sexual harassment by their teachers and supervisors. Seven per cent of the women students express sexual harassment by their peer group. The places where sexual harassment from fellow students was inflicted most were the canteen or the library. Though not catalogued, sexual harassment within the premises of colleges and faculties deny women a safe place to study and to explore fully their academic state within the Campus. The map of crime on Campus would be transformed if all these unreported cases were to find entry into the log of crime. While the inside space is riddled with a low level of recorded crime but an additional number of unreported crime, the roads on the Campus depict an elevated density of both (Fig. 9).

The 12 roads and 6 chowks have a different length and land use along their bank. The three main roads, which run nearly parallel to each other from west to east, are Guru Teg Bahadur marg, Chhatra marg and the University road. All the three are of almost equal length. Of these three, the University Road is edged by the Ridge and has the largest number of boys hostel and it also serves the administrative wing of the University of Delhi. Lined next to the Chhatra marg are the major colleges, the Arts and Science faculties and clustered together in one corner are five girls hostel, giving the Chhatra marg perhaps the highest density of women residents in a square kilometer of Delhi's urban space. The Guru Teg Bahadur marg has strung along its course the 3 major undergraduate colleges and a large section of the residential flats of the non-teaching staff. The difference between the three is not just a rank but of a ratio of incidence 1:3, that is the Chhatra marg has three times more crime than either of the other two roads. Chhatra marg has a maximum load of 142 out of 493

crimes that the Campus has reported on its roads in the four years from 1999-2002. Nearly 23 per cent of the crime on the roads of the Campus takes place along this 1,500 meter stretch. On this road 28 per cent of all crime against property and 27 per cent of the total crime recorded against women occur. (Table 10)

To reconfirm that Chhatra marg is the high crime zone, information of crime against women was plotted not for 4 but a 14 years period from 1989 to 2002. Among the 73 incidences of reported crime against women, 28 per cent of all addresses belonged to Chhatra marg thus earning the first rank. The Shreya Mishra marg, Mall road and University Road all are zones with 7 to 8 criminal episodes against women. It is indeed ironic that among all the roads that lace through the Campus the one which personifies a place of students-chhatra is also the location where the largest number of crimes occur. While Chhatra marg records the largest number of crime, it is the G.C. Narang road which is ranked highest one among women students for fear of crime, specially various forms of sexual harassment (Fig. 10)

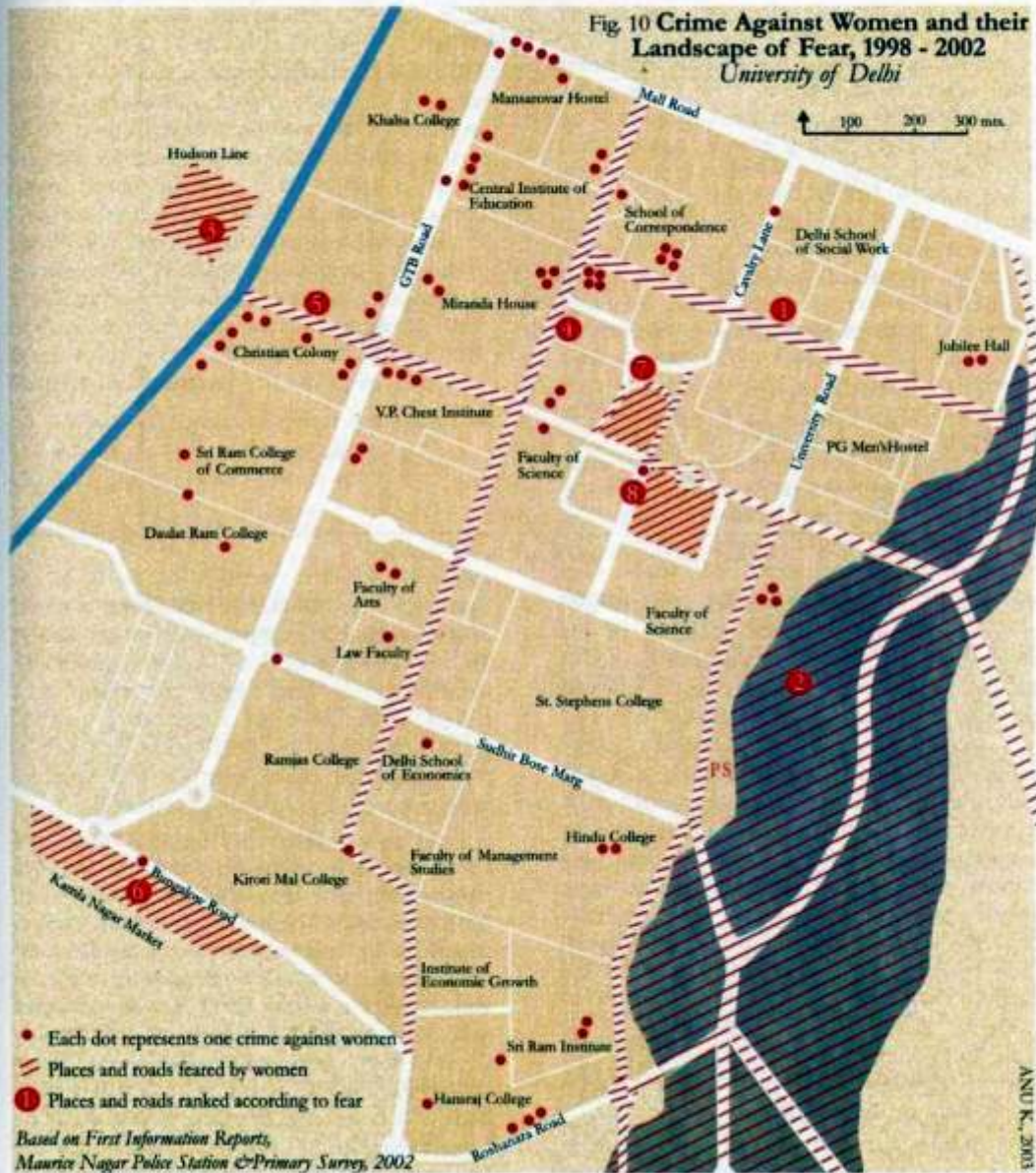
G.C. Narang road is approximately a 400 metre long lane which runs west to east and along which are located private bungalows, women hostels and the School of Correspondence Studies. Since the School of Correspondence Studies which enrolls over one lakh candidates is located on this road, it brings a large number of students, especially boys to this place. That is perhaps the reason for the women hostellers fear of this street.

Another hot bed of fear of crime is the Hudson Line. This north-south running lane near the Najafgarh drain is situated outside the boundary of the Maurice Nagar police station. However, Hudson Line is very much a student's pocket. Unable to find a seat in hostel of the Campus, students sublet rooms and apartments. The local real estate agent estimates that in the Hudson Line a 1,000 students reside. A spot check revealed that the Laxmi Hostel with a capacity to house 40 women and house number 258 both exemplify

Fig. 9 Crime on the Campus 1999 - 2002
University of Delhi



Fig. 10 Crime Against Women and their Landscape of Fear, 1998 - 2002
University of Delhi



- Each dot represents one crime against women
- ▨ Places and roads feared by women
- ① Places and roads ranked according to fear

Based on First Information Reports,
Maurice Nagar Police Station & Primary Survey, 2002

ANU K., 2003

Table 10
Rank of Roads According to Number of Accidents : 1999-2002

Roads	Length of Road (metres)	Incidence of Accidents	Frequency of Accidents per 100 meter
Mall road	1,100	47	4.27
Roshanara road	500	20	4.00
Bungalow road	800	11	1.37
Chhatra marg	1,500	18	1.20
University road	1,600	17	1.06
Sudhir Bose marg	1,200	8	0.66
Guru Teg Bahadur marg	1,500	10	0.66
Shriya Mishra marg	400	1	0.25
Cavalry lane	200	0	0
Malkaganj road	400	0	0
GC Narang marg	400	0	0
Flagstaff marg	600	0	0
Total on Chowks		29	
Other roads & chowks		10	

*Based on FIR Register I, Maurice Nagar Police Station, 1999-2002

the popularity of Hudson Lines as a place of residence among students. Cashing in the proximity to the Campus, owners of houses in the area have not only sublet rooms to students but also converted their residential premises into teaching shops, tuition bureaus, cyber cafes and other desk top publishing facilities. The sheer number of students especially men is again the reason why this particular area has a high rank for fear of crime. Hudson Line reflects the fact that if the Maurice Nagar police station is in service to the University of Delhi, then it needs to redraw its territorial limit to include areas in the vicinity of the Campus, which support a high density of students. After all the authorities of the University cannot evade responsibility for students who are unable to find a place within the hostels in the Campus.

Besides the roads, sex offences occur in parks, open grounds and other unsupervised recreational spaces. The Ridge is feared as it allows offenders to trap their victims without being seen and its dense foliage provides ample opportunities for criminals to escape.

Similarly, the University Gardens possess characteristics of anonymity, low observability and an absence of local social control. It, therefore, ranks high among the terrain most feared for incidences of crime. Along with the distinct nodes in the distribution of reported and unreported crime even theft of vehicles depicts specific points of occurrence.

Mapping the high occurrence of vehicular theft revealed three locales: the Ridge, Bungalow Road and the compound of the Arts Faculty. The Ridge attracts the walkers who drive in their vehicles inside the Campus. The Bungalow road is a parking zone of vehicles whose owners go to shop at the Kamla market, while the Arts Faculty offers the only large parking space for vehicles of staff and students of the Campus. It is clear that vehicle theft is concentrated in places where there are larger number of vehicles, which provide opportunity to steal either the vehicle or its accessories. Just as crime has a definite pattern so do accidents show a distinct concentration.

The Campus has been witness to 171 accidents in the four years, 1999 to 2002.

Every 60 meters of the streets of the Campus has been a site of a vehicular accident in the last four years. Locating them at the points of occurrence shows that nearly 17 per cent of the accidents group around the six chowks with the Maurice Nagar chowk suffering a total 11 accidents. Among the roads it is the Mall road, which has seen the maximum number of accidents and they cluster at two points where Mall road turns into the main Campus. Roshanara road is yet another road that closely follows the Mall in terms of frequency of occurrence of accident. In terms of number of accidents it has half the number compared to Mall road which has seen 47 accidents. Both these roads are link roads that connect the Campus to other parts of Delhi (Fig. 11).

Given the spatio-temporal occurrence of crime how do the protectors and users of the Campus guard against such a risk?

Countering the Risk of Crime

In an effort to mitigate crime on Campus various agents from the police to the student are at work. The inauguration of a police station exclusively for the Campus in 1989 was a fortuitous decision towards combating crime. Prior to this, a police chowki was stationed on the Campus under the Roshanara police station with a gap of a year 1988-1989 under Roop Nagar police station. A symbol of protection and control, lock-up facilities, augmented strength that include high ranking officials are the advantages a police station has over a chowki. Even the first information reports can be lodged only in a police station. Situated within the premises of the Campus the Maurice Nagar police station does allow easy access to report crime. For effective management the police has divided the area of the Campus into 3 divisions and 6 beats. (Fig.12) Sensitive towards crime against women, 15 per cent of the police force on Campus are women. Infact the Campus has the largest contingent of women police in Delhi. Eight pickets and barricades along with four patrolling vans are deployed to patrol the Campus. While the police takes charge of the roads, an additional force of over 200 security

guards are employed by the University of Delhi authorities to keep watch of colleges, departments, hostels and residential staff flats. In addition there are the resident wardens, tutors and members of various disciplinary committees who have powers to question and report any kind of incivilities. Stringent rules on women students to return to hostels at the prescribed time, and inspecting identity cards for entry into resident halls are ways employed to deter criminal activity. Along with walls, fences, gates and alarms are efforts to provide students with a host of in-house facilities. Public phone booths, photocopying machines, canteens, cable television, cyber-surfing are refurbishing hostels in an attempt to prevent students, specially women from having to seek such services out on the streets. Social groups further contribute to the geography of policing the Campus by organizing street plays and debates, circulating pamphlets and pasting posters, dispatching press notes and researching on the victims of crime. A string of voluntary organizations on the Campus have raised their voice against the menace of crime. Stree Adhikar Sangathan, Swabhimani, Goonda Virodhi Janvadi Mahila Samiti, Saheli, Forum Against Sexual Harassment, All India Democratic Women's Association, Students Federation of India, All India Students Association, Gender Study Group, Women Development Cell, among others alert the authorities for ensuring a secure Campus. While the police patrol and the activists try to awaken the conscience of public, the women students adopt "avoidance" as their primary behavior to combat the risk of crime.

Deserted locations, unlit streets, dark hours, congregation of men are places very often avoided by students. Excess of cash or jewelry is rarely carried. When in places they perceive as risk zone or when trailed by strangers, women hostelers often quicken their pace, cross the road or prefer to board a rickshaw even though the distance to be covered is short. (Table 11). Sometimes male friends or family are requested as chaperons. To arm oneself against crime, weapons or rape alarms have not made their way into the Campus as yet. Students, therefore, employ

Fig. 11 Vehicular Accidents 1999 - 2002
Campus, University of Delhi

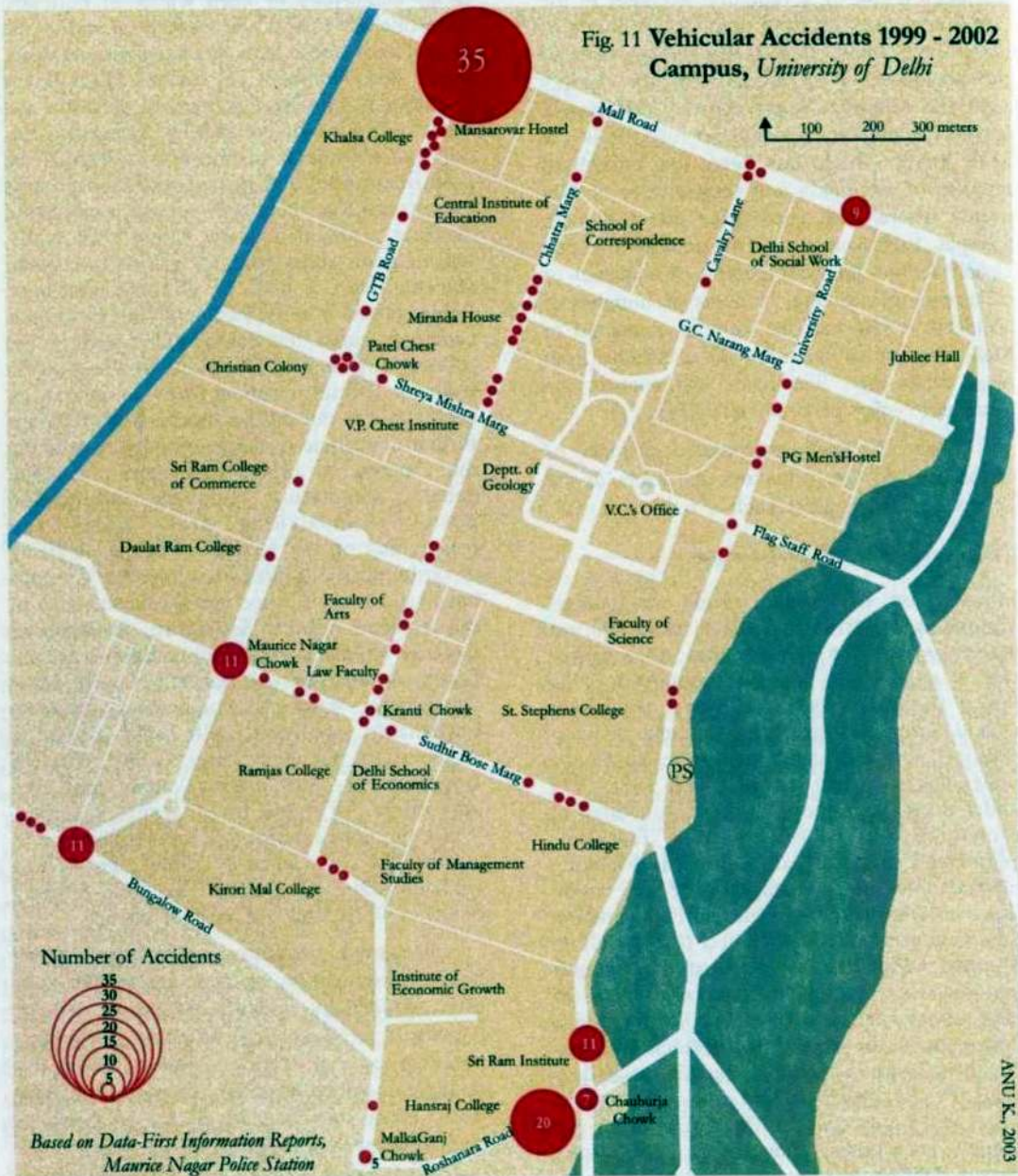


Table 11
Measures Adopted by Women Hostellers to Avoid Risk of Crime on Campus

Measures	Very Often	Often	Seldom	Never	Total
Avoid deserted areas	78.05	16.70	4.50	0.75	100
Avoid carrying too much cash or wearing jewelry	60.80	26.83	8.81	3.56	100
Avoid taking lift from strangers	54.78	29.65	14.63	0.94	100
Avoid areas where men congregate	50.46	29.50	17.60	2.44	100
Walk only in well lit areas	30.76	53.84	12.40	3.00	100
When stalked by strangers, walk quickly, cross the road or seek a crowd	23.82	69.70	5.20	0.56	100
Get a male friend or family for escort	6.40	14.70	53.70	25.20	100
Carry a rape alarm or weapon	0.00	0.37	2.45	97.18	100

Primary Survey 2002

several methods to combat the risk of crime. An additional strategy is to avoid certain places after dark. Roads where opportunities for concealed attack are exacerbated by poor lighting and faulty building design are avoided. Sudhir Bose Marg, G.C. Narang road, the University road and University Gardens are all places best not traversed after the sunset and the students avoid these places. Women, therefore develop individual mental maps of places where they fear assault largely as a result of their past experience. Thus, the landscape of fear carries with it the unreported social encounter with crime that is never reflected in the statistics. (Table 12)

To the list of efforts towards reducing crime could be added installation of electronic

Table 12

Places Avoided by Women Students after Sunset

Location	Number of students	Places Avoided
Sudhir Bose marg	443	1
University garden	275	2
G.C. Narang marg	215	3
Mall road	193	4
University road	74	5

Based on Primary Survey 2002.

Note: Total Sample 533 women hostellers.

alarms, help lines, flying squads, web cameras, website of the dos and don'ts to safeguard against crime, monitoring crime incidents, self defense classes, security clubs, distribution of free rape alarms. But to make the Campus an oasis of safety within a city riddled with crime the initiative taken has to be much more assiduous and imaginative. At the end of the day-policing, voicing, walling, avoiding are only small steps with big hopes. One such plan under consideration is the Compact Campus Plan C.C.P. The highlights of this plan are to install gates at seven entry points of the Campus and to allow restricted movement through three points, divert all buses to the main roads and allow only those vehicles to ply in the Campus which have official work in the University. Enclosing all the women hostels within a compact space is an essential part of this CCP. The approach of this plan is strategic, to guard a porous boundary to prevent infiltration of the outsider element. But mapping of crime on Campus reveals that what is needed is an internal overhaul of the environment. It is essential to provide integrated land use, landscape and circulation plan and instead of a CCP create a SSCP, a Sustainable Security Campus Plan. While laudable as an abstract idea how would this be achieved?

Imagine that a group of area planners, architects, landscape designers, transport expert, and right minded academics are given an eight kilometer stretch of land to design the Campus. What would their blueprint be? Would they build walls, barricades and pickets to cut the internal space into cubbyholes? Would they commission a huge machinery of security to patrol the area like a jail? Would they adopt a piecemeal approach to guard certain vulnerable spaces and leave the rest? Would they create a Campus without a signage, street lights, hard shoulders or parking? Would locks, bolts, walls and alarms or webcams become the symbols of security? Would they not merge the intervening spaces between hostels colleges, faculties and residential flats? Would they not knit a major part of the Ridge into the Campus? Would they not consider the entire space as the responsibility of the University? Would they not divert the thoroughfare traffic outside their confine, even if it involved tunneling the main road or slicing through the Ridge or giving up some of their institutional land to build a grid road on the outskirts?

A Sustainable Security Campus Plan

The key principles to the creation of a Sustainable Security Campus Plan are insulation and integration (Fig. 13). The Campus needs to be protected from outsiders, and internally it needs to be knit into a cohesive unit. This demands a structural change in the flow of traffic along with the re-alteration of its land use. A two-tier flow of traffic, one on the periphery and the other at the core needs to be chalked. Bisecting the Ridge, the peripheral road would follow the Magazine road, and join the Roshanara road near Malka Ganj. Connecting further with the Bungalow road and traversing through the Maurice Nagar residential flats, for this road to meet up with the Mall Road, the Najafgarh drain would have to be paved. Traffic originating from south and central Delhi would follow this loop to reach their destination.

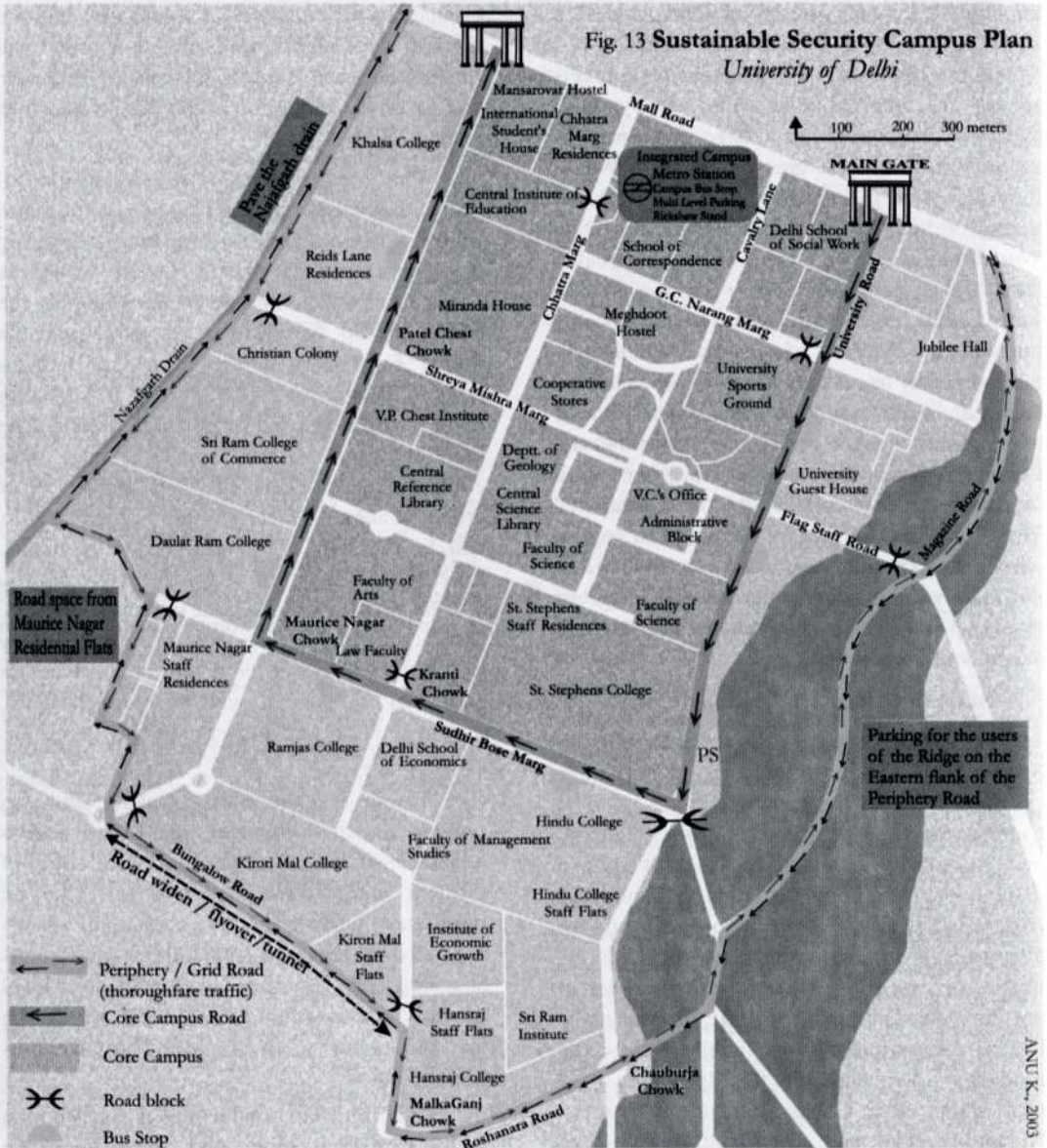
Traversing through the Ridge, this peripheral road would deliver three immediate benefits: it would deflect the thoroughfare users of the Campus to the periphery, it would also relocate users of the Ridge towards the eastern end and finally allow the Campus to have an exclusive section of the Ridge for which they would own responsibility.

The ideal modality to streamline all traffic that heads into the Campus would be to follow a one-way traffic movement. Entering via the University road on which would be constructed the main gate to the Campus, the traffic would be allowed to move via the Sudhir Bose marg to the Guru Teg Bahadur marg to reconnect to the Mall road. The Chattra marg would be closed to all public traffic. The area enclosed within this U shaped road contains the pockets of high incidence of crime, places of fear, all the women hostels and is the hub of all activity on Campus. Filtering the quantum of traffic in the core is a strategy that would deliver immense benefits. The core needs to be simultaneously refurbished with a crime deterrent construction plan that includes a well-lit hard shoulder, modern signage and a spatial security arrangement.

To absorb the offset traffic, and yet provide transport services, the Metro station under-construction at the northern edge of Chattra marg, needs to function like an integrated multi-transport base. The buses specially run for the students, the main Campus bus stop, the rickshaw stand and split-level car park, are essential features that need to be incorporated to create this Multi Base Campus Metro station.

Acquiring land under illegal construction in the Christian colony and sacrificing some land of the residential flats of the staff and non-teaching staff are other ways to create space at key places within the Campus. Reshuffling the location of bus stops, shops and installation of road blocks and gates at

Fig. 13 Sustainable Security Campus Plan
University of Delhi



critical points are other ingredients to a Sustainable Security Campus Plan (SSCP). Deflecting the traffic, reorienting the land use and redrawing the internal circulation is a dire need of the hour.

Though far fetched, by acquiring all public space, the roads and pathways, the Ridge and also private bungalows and shops through acquisition and merger, a structurally innovative design of the Campus can be reunited. This is a daunting but not an impossible task. After all if for laying the Metro in Delhi many green areas have been annihilated, private property acquired, slums and shops demolished, inner fountain space of the central park in Connaught Place usurped, then for designing a secure Campus of the largest university of India, land can be

negotiated, bargains can be struck and a plan be envisioned.

Mapping of crime on Campus reveals that criminals and victims have far too many ways and far too many spaces than can be weeded or guarded. While it is virtually impossible to stop a determined individual from committing an unlawful act, what could be done is to make the task of the criminal difficult. An imaginatively healthy and not merely a Compact Campus plan is the need of the day. After all hoping to deter criminals by casting a network of gates on the boundary of the Campus is like killing mosquitoes without draining the swamp. It will not yield sustainable security. The Campus authorities have to stop being repairmen and try to become visionaries.

Research Energy : The research gained energy from a team of students Shikha, Neeti, Meeta, Deeptima, Deebanjali, Amrita, Poonam, Akriti, Anuradha and Aditya who felt strongly about the issue of crime on the Campus and the contribution of their discipline, geography. Their voluntary help and high-spirited rechecks took the research to completion.

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MAP SERIES : 10 INDIAN DIASPORA

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"The sun never sets on Indian diaspora", thus proclaims the *Report of the High Level Committee on Indian Diaspora*, brought out by the Indian Council of World Affairs, New Delhi. It provides rare information on the number and chronicle of Indian diaspora, as scattered over different countries of the world in 2001. No maps are included to represent the distribution. Map Series:10 intends to occupy this space left by the Report.

Diaspora literally means 'dispersal'. The term was initially used for the Jews who historically moved out of their homeland in search of new economic pastures wherever. Now the expression is suffixed to a variety of communities, such as the Chinese diaspora, Irish diaspora, Greek diaspora, and of course, Indian diaspora, whose members are settled in large numbers outside the countries of their origin, maintaining links back home through visits, marriages, and remittances.

The Indian diaspora has two components: Non-Resident Indians (NRI's), residing abroad but maintaining Indian passports; and Persons of Indian Origin (PIO's), no longer Indian citizen but whose at least one of the parents or grandparents or great-grandparents was a citizen of India, as defined in the Government on India Act 1935, or of other territories which became a part of India thereafter. Spouses of

persons belonging to either of the above two categories are also considered as PIO's. Thus, the Indian diaspora includes the Indian citizens abroad, Indians naturalised in some other country, and descendants of the two above.

We are concerned here with the Indian diaspora as making a continuing scatter since the colonial era and during the post-independence period of Indian history. More precisely, this can be taken as effective since 1834, when the British abolished slavery and were in search of indentured labour from any of their colonies as replacement of the African slaves to work on their newly raised plantations, construction projects, and other public works. Indentured labour was subsequently joined by labour groups and individuals. India, with a large reservoir of the poor, served as a major source.

The number of Indian diaspora, dispersed over 134 countries, is estimated at around 25 million. This makes just about one-fourth of one per cent of India's population. On the eve of the partition of the Indian subcontinent in 1947, 4 million diaspora made around one per cent of the then population, by comparison.

The number of Indian diaspora exceeds one million in 8 countries; in 25 countries, their number is more than one hundred thousand each (Table 1). On the other extreme,

the Indian diaspora is less than one thousand each in 58 countries. Some 60 tiny countries are without any Indian diaspora.

No less than 57 per cent of the Indian diaspora is confined to the three neighbouring countries of Nepal, Sri Lanka and Myanmar. The Commonwealth Countries, that is United Kingdom and its former colonies (including Myanmar but excluding United States) account for 55 per cent of the Indian diaspora. About 12 per cent of the Indian diaspora is shared by the Gulf Region.

A tabular description of the Indian diaspora is presented below:

United Kingdom

- Indians 1.2 million in a population of 56.9 million or 2.1 per cent
- Two-thirds of the Indian community in Europe based in the United Kingdom
- Historical bond through trade, transport, education and Indian army
- For education, before independence; as blue collar workers after World War II; repatriates from East Africa in 60's and 70's; and doctors and other professionals since 60's.
- Diverse Indian community but Punjabi and Gujarati in large majority.

Caribbean Region

- Primarily Trinidad and Tobago, Guyana and Suriname
- Indian diaspora came as indentured labour; starting in 1836 in Guyana, 1845 in Trinidad and Tobago, and 1873 in Suriname
- 90 per cent from North Bihar and Eastern Uttar Pradesh.

Mauritius

- Persons of Indian Origin 70 per cent of total population

- Indentured labour since 1834
- Largely Bhojpuris.

Fiji Islands

- Arrival as indentured labour in 1879
- 75 per cent from Bihar and Uttar Pradesh; 25 per cent from Tamil Nadu and Andhra Pradesh
- Gradually evolved as a well-off, educated community
- Facing manifest hostility since 1999, when an POI recorded a landslide victory as the leader of Labour party and natives reacted.

East Africa

- Kenya, Tanzania and Uganda
- The flow began in 1860's when 30,000 Indians, mostly Sikhs from Punjab, were brought on a three year contract to provide labor for various public works
- Subsequently joined by Gujaratis as free immigrants
- Outflow started in 1960's on these countries gaining independence from the United Kingdom.

South Africa

- Beginning made in 1860, as indentured labour
- Gujaratis arrived as free immigrants
- Tamils and Telugus (from former Madras Province) make two-thirds; the rest from Bengal Province (North Bihar and West Bengal), Bombay Province and Saurashtra
- Indian immigrants granted citizenship in 1962.

South-East Asia

- In large numbers in Myanmar, Malaysia, and Singapore
- To Myanmar, when it became a British province in 1887
- To Malaysia, indentured labour during 1910-1930

- To Singapore, 1825-1875 a penal colony, some convicts from India; indentured labour from Madras Province since 1834 to work on public works; now a destination for professionals and students
- Thailand and Indonesia new destinations today
- Large majority of immigrants from Madras Province, Punjab Province and Cochin-Travancore states.

Australia

- Arrival of camel handlers in 1860
- Punjabi Sikhs and Muslims came as agricultural labourers, hawkers and traders during the later half of the nineteenth century
- Sizeable inflow of Indian immigrants in 1930's from Jalandhar district of Punjab
- Now students and professionals are arriving in large numbers.

Canada

- 0.85 million in a country of 30 million or 2.8 per cent
- Punjabis in majority
- Repatriates from Africa, Caribbeans and Fiji
- In professions, manufacturing and retailing

Continental Europe

- Indian community migrated to the colonial countries from their colonies
- To France from Madagascar, Mauritius, Seychelles and Indo - China; from Pondicherry in India
- To Portugal, from Mozambique and Angola; from Goa, Daman and Diu in India
- To Netherlands, from Suriname
- To Austria, nurses from Kerala and labourers from rural Punjab
- To Greece - as labour on the port.

Reunion Islands

- A French department since 1819
- Indentured labour; France used Pondicherry as the base for recruitment
- Gujaratis came as free immigrants.

United States

- 1.68 million in 2000; twofold from 0.82 million in 1990
- Third among Asians, after Chinese and Filipinos
- Big concentration in California, New York, New Jersey, Texas and Illinois
- Diversity of India represented
- Per capita income higher by 55 per cent of the U.S. average
- Immigration in waves - first, as agriculturists migrating southward from British Columbia (Canada); second, as retailers, motel owners and educationists after 1965, refuge seekers from the British colonies in Africa (sixties), Caribbeans (seventies), and Fiji (eighties); and third, professionals, doctors and engineers in large numbers in nineties onward.
- Abolition of immigration quota set the pace.

Gulf Region

- Saudi Arabia 1.2 million, U.A.E. 0.75 million, Oman 0.45 million, Kuwait 0.2 million, Bahrain 0.15 million, and Qatar 0.1 million
- Only a few could acquire citizenship
- Indian migration followed the oil boom, picked up after the slowing down of migration from South Korea and Yemen
- Majority from South India, specially Kerala.
- In Saudi Arabia, 85 per cent in general labour and technical jobs, 10 per cent in white collar avenues and the remaining in professions

- In U.A.E., constituted in 1971, 75 per cent labourers
- Oman, only country in this region to give citizenship to foreign nationals liberally, and guarantee freedom of worship.

Israel

- After formation of Israel as a country in 1948, about 30,000 Jews shifted from India
- A large majority from Cochin and Mumbai
- Cochin Jews adopted agriculture as a source of livelihood.

Former Socialist Countries

- In very small numbers in Russia, East Europe (Poland, Hungary, Czech Lands, Slovakia, Rumania, Albania, Serbia, Bulgaria), and Central Asia (Kazakhstan, Uzbekistan, and Turkmenistan)
- Friendly but not receptive to immigrants
- Now students and businessmen making an entry.

A colonial backdrop to the Indian diaspora is evident. The process was in the nature of globalisation of labour, manipulated by the British. An economic crisis at home and the promise of a rewarding opportunity abroad, even if far distant, set its pace and momentum over time.

The first wave of emigration was by sea to the island colonies of the Britain. It was in the form of indentured labour, substituting the African slaves, to work on the plantation estates, raising sugarcane in particular. The destinations were mostly tropical. With gradual weakening and eventual abolition of the indentured labour system, emigration assumed a shorter run and seasonal character. The purpose also got diversified to several

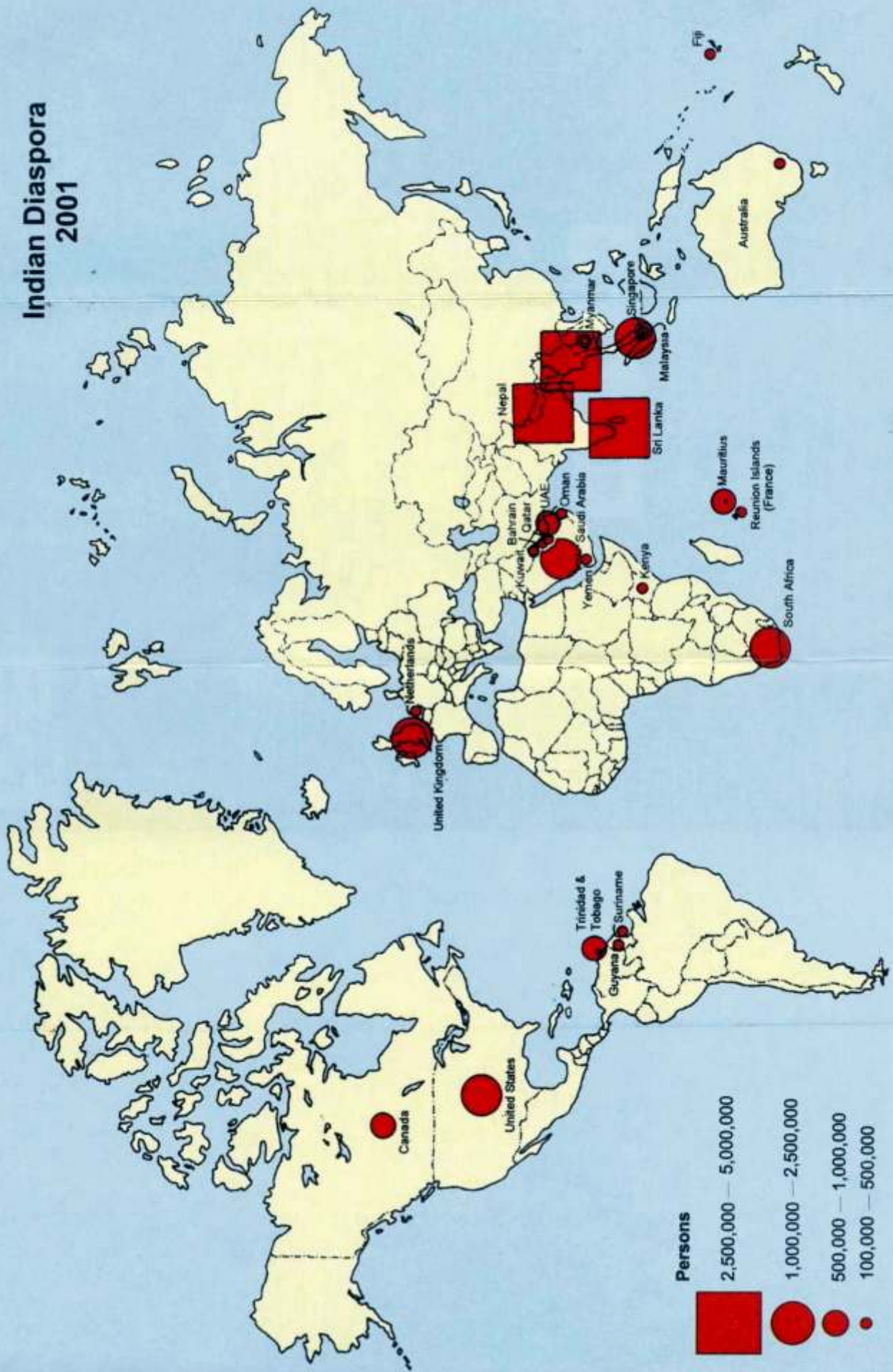
activities, such as retailing, railway construction and public works.

In the post-colonial period, emigration was directed mainly to temperate lands, mostly as working class, in the post - World War II Europe, and as technical and professional personnel in Anglo-America. A large number of Indian repatriates from the former British colonies of East Africa, the Caribbean islands and Fiji became twice emigrants. Most of them opted for a developed country, primarily United Kingdom, Canada, United States, Australia and New Zealand, as their new home in place of resettling in India. Emigration to the Gulf countries stands as a category in itself, being in the nature of labour flow.

Before Independence or during the colonial period, source areas of emigration were located mainly in the British Provinces, particularly Bengal (more specifically North Bihar and Eastern Uttar Pradesh), Madras (southern districts, by and large) and Punjab (notably the Bist Doab), and also in coastal princely states, now forming part of Gujarat and Kerala. Some emigration originated also from the former colonies of the Portugal and France in India. Indentured labour predominated in the case of British Provinces or the French / Portuguese colonies and group/free labour in respect of princely states.

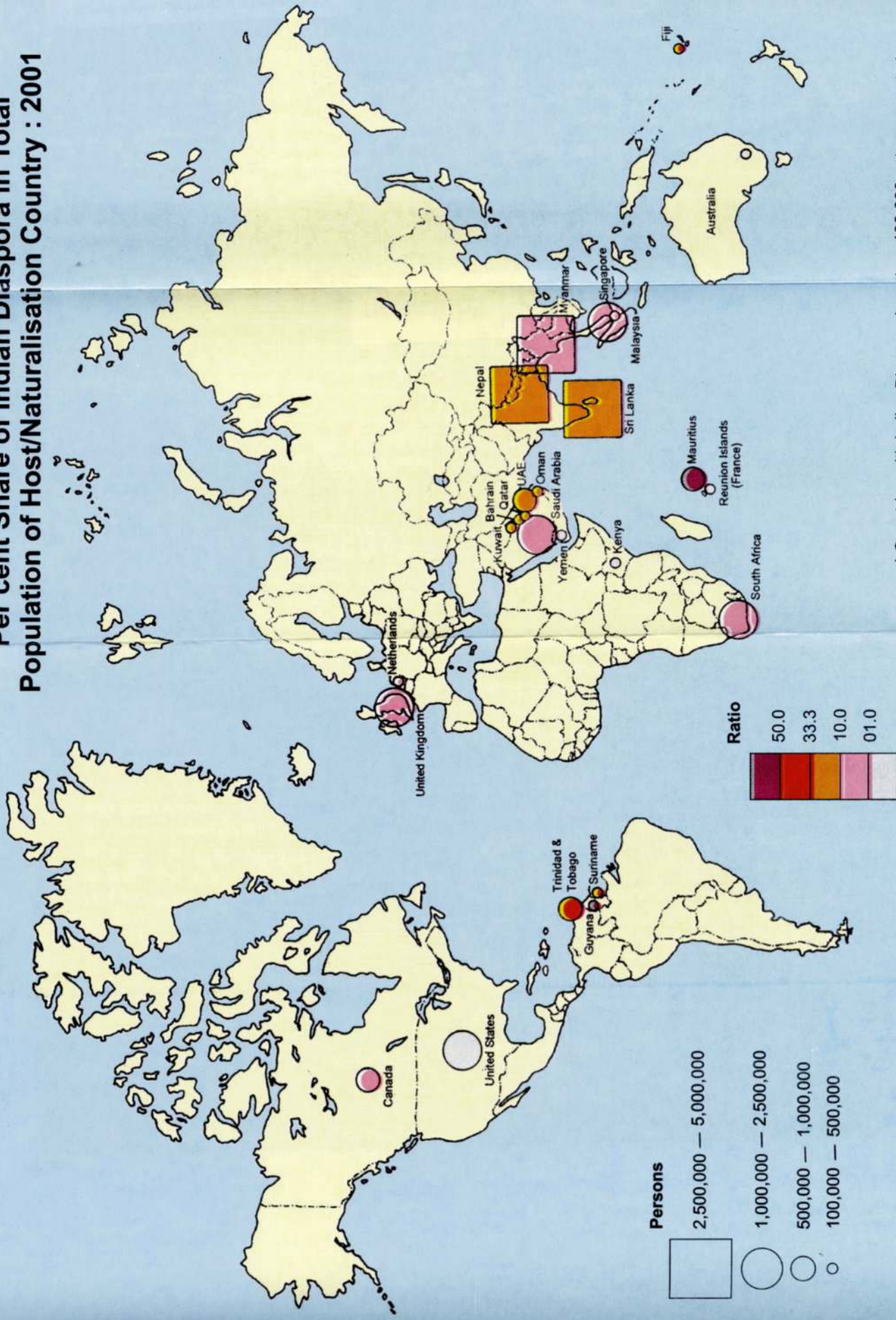
Today, the stream of emigration is directed to four countries, United States, Canada, Australia and New Zealand, where entry is relatively less restricted and economic opportunities distinctly lucrative. The former socialist countries, which were politically most friendly, were the least recipient of the Indian diaspora.

Indian Diaspora 2001



* Countries with Indian Diaspora less than 100,000 not represented.

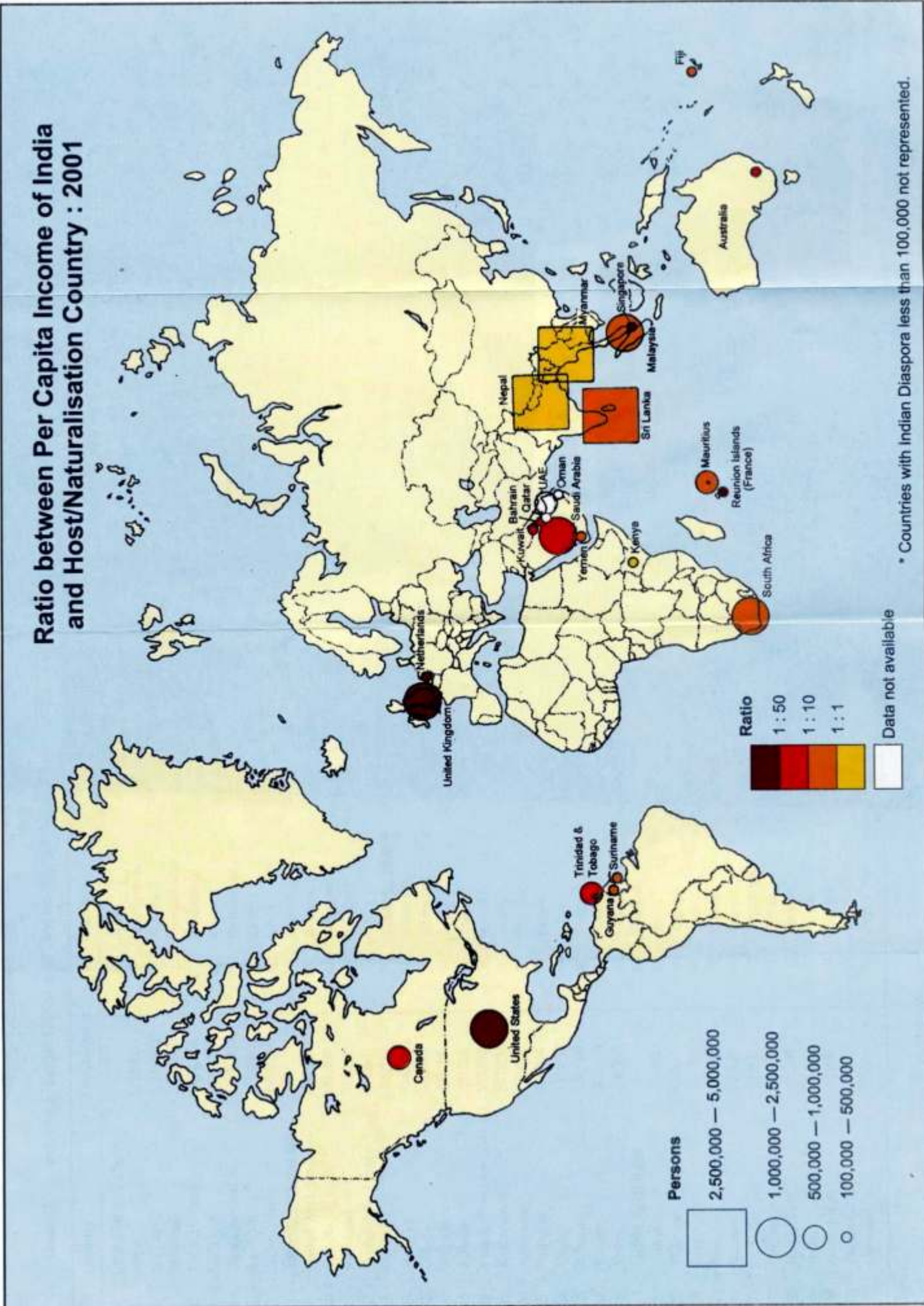
Per cent Share of Indian Diaspora in Total Population of Host/Naturalisation Country : 2001



* Countries with Indian Diaspora less than 100,000 not represented.

MAP 2

Ratio between Per Capita Income of India and Host/Naturalisation Country : 2001



* Countries with Indian Diaspora less than 100,000 not represented.

MAP 3

Table 1: Countrywise Estimated Size of Indian Diaspora, 2001

Country	Population	Country	Population
<u>1,000,000 and above</u>			
1 Nepal	5,000,000	38 Spain	29,000
2 Sri Lanka	3,500,000	39 Madagascar	29,000
3 Myanmar	2,902,000	40 Nigeria	25,000
4 United States	1,678,765	41 Mozambique	20,870
5 Malaysia	1,665,000	42 Zimbabwe	16,700
6 Saudi Arabia	1,500,000	43 Russia	16,044
7 United Kingdom	1,200,000	44 Switzerland	13,500
8 South Africa	1,000,000	45 Zambia	13,000
<u>100,000 to 1,000,000</u>		46 Libya	12,400
9 United Arab Emirates	950,000	47 Uganda	12,000
10 Canada	851,000	48 Austria	11,945
11 Mauritius	715,756	49 Lebanon	11,025
12 Trinidad & Tobago	500,600	50 Sweden	11,000
13 Guyana	395,350	51 Japan	10,000
14 Fiji	336,829	<u>1,000 to 10,000</u>	
15 Oman	312,000	52 Maldives	9,001
16 Singapore	307,000	53 Botswana	9,000
17 Kuwait	295,000	54 Brunei	7,600
18 France (Reunion Islands)	285,055	55 Greece	7,000
19 Netherlands	217,000	56 Belgium	7,000
20 Australia	190,000	57 Norway	5,630
21 Suriname	150,456	58 Seychelles	5,000
22 Qatar	131,000	59 Ghana	3,800
23 Bahrain	130,000	60 Ukraine	3,400
24 Kenya	102,500	61 South Korea	2,700
25 Yemen	100,900	62 Barbados	2,200
<u>10,000 to 100,000</u>		63 Panama	2,164
26 Tanzania	90,000	64 Denmark	2,152
27 Thailand	85,000	65 Brazil	1,900
28 Italy	71,500	66 Taiwan	1,800
29 Portugal	70,000	67 Syria	1,800
30 Jamaica	61,500	68 Eritrea	1,753
31 New Zealand	55,000	69 Ireland	1,600
32 Indonesia	55,000	70 Argentina	1,600
33 Hong Kong	50,500	71 Sudan	1,500
34 Israel	45,300	72 Bhutan	1,500
35 Guadeloupe	40,000	73 Egypt	1,390
36 Philippines	38,000	74 Finland	1,170
37 Germany	35,000	75 Kazakhstan	1,127
		76 Papua New Guinea	1,000

Country	Population	Country	Population		
Less than 1,000					
77	Jordan	930	106	St. Vincent & The Grenadines	160
78	Poland	825	107	Peru	145
79	Iran	800	108	Gambia	135
80	Ethiopia	734	109	Laos	125
81	Venezuela	690	110	Chad	125
82	Uzbekistan	690	111	Namibia	110
83	Chile	650	112	Iraq	110
84	Belize	500	113	Slovakia	100
85	Afghanistan	500	114	Kyrgyzstan	100
86	Romania	491	115	Tunisia	70
87	Benin	450	116	Belarus	70
88	Czech Republic	420	117	Vanuatu	50
89	Tajikistan	400	118	Comoros	50
90	Mexico	400	119	Algeria	45
91	Morocco	375	120	Mongolia	35
92	Vietnam	320	121	G.Bissau	25
93	China	305	122	Guatemala	22
94	Turkey	300	123	Senegal	21
95	Cyprus	300	124	Solomon Islands	20
96	Cote d'Ivoire	300	125	Mali	20
97	Cambodia	300	126	Dominica	20
98	Burundi	300	127	Colombia	20
99	Angola	295	128	Bulgaria	20
100	Djibouti	280	129	Costa Rica	16
101	Cameroon	250	130	Croatia	10
102	Azerbaijan	250	131	Lithuania	5
103	St. Lucia	200	132	North Korea	5
104	Armenia	200	133	Ecuador	5
105	Andorra	200	134	Cape Verde	4

Source : Indian Council of World Affairs: *Report of the High Level Committee on Indian Diaspora*, New Delhi, 2001.

Table 2: Some Parameters of Indian Diaspora, 2001

Country*	Number (in million)	Percentage share in population of host/naturalisation country *	Ratio between per capita income of India and host/naturalisation country
1 Nepal	5.00	21.2	1:0.5
2 Sri Lanka	3.50	17.9	1:2
3 Myanmar	2.90	6.0	NA**
4 United States	1.68	0.6	1:76
5 Malaysia	1.67	7.0	1:8
6 Saudi Arabia	1.50	7.0	1:16
7 United Kingdom	1.20	2.1	1:53
8 South Africa	1.00	2.3	1:6
9 United Arab Emirates	0.95	31.9	NA**
10 Canada	0.85	2.8	1:46
11 Mauritius	0.72	59.8	1:8
12 Trinidad & Tobago	0.50	38.2	1:12
13 Guyana	0.40	51.6	1:4
14 Fiji	0.34	40.9	1:5
15 Oman	0.31	12.7	NA**
16 Singapore	0.31	7.5	1:54
17 Kuwait	0.30	14.8	1:39
18 France (Reunion Islands)	0.29	0.5	1:49
19 Netherlands	0.22	1.4	1:52
20 Australia	0.19	1.0	1:43
21 Suriname	0.15	35.8	1:4
22 Qatar	0.13	21.9	NA**
23 Bahrain	0.13	18.2	1:20
24 Kenya	0.10	0.3	1:0.7
25 Yemen	0.10	0.6	1:1

Sources: (i) Indian Council of World Affairs: *Report of the High Level Committee on Indian Diaspora*, New Delhi, 2001.

(ii) World Bank: *World Development Report, 2003*, Washington DC.

* Countries with atleast 100,000 Indian diaspora have only been taken into account.

** NA stands for 'data not available'

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