Food Insecurity Atlas of Urban India

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and

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The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.
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The external boundaries and coastlines of India agree with the Record/Master Copy certified by Survey of India.
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The spellings of names in this map have been taken from various sources.

PREFACE

In early 2000, the M. S. Swaminathan Research Foundation (MSSRF) and the World Food Programme of the United Nations (WFP) agreed to collaborate in preparing the following Atlases with financial assistance from the Vulnerability Analysis and Mapping unit of WFP Rome.

- Food Insecurity Atlas of Rural India
- Food Insecurity Atlas of Urban India
- Sustainability of Food Security Atlas of India

Shri Atal Bihari Vajpayee, Hon'ble Prime Minister of India, released the first in this series, dealing with rural India, on 24 April 2001 at New Delhi. The second Atlas, relating to urban areas, was released by H. E. the President of India, Dr. A. P. J. Abdul Kalam, on 23 October 2002 at New Delhi. The third Atlas in this series is planned to be released on early next year. All these Atlases have been designed as tools for the formulation of appropriate public policies and for effective public action.

Releasing the Food Insecurity Atlas of Rural India, Prime Minister Vajpayee set the following goal: "The sacred mission of a 'Hunger Free India' needs the co-operative efforts of the Central and State Governments, local self-government bodies, non-governmental organisations, international agencies, and above all, our citizens. We can indeed banish hunger from our country in a short time. Let us resolve to make this mission substantially successful by 2007, which will mark the 60th anniversary of our Independence."

The findings reported in the Rural and Urban Food Insecurity Atlases support the above views and indicate how the goal of a hunger-free India can be converted from a vision into reality.

For assessing food insecurity in India, three groups of indicators had been used, namely, *availability*, which is a function of production and distribution; *access*, which is a function of purchasing power; and *absorption*, which is a function of environmental hygiene, quality of drinking water, primary health care, and primary education. In assessing food insecurity in urban areas, we have used 17 indicators relating to food access and absorption.

We have adopted a broad definition of Food Insecurity. The definition covers not only the physical-access to food today, but also the possible problems that may arise in future in terms of livelihood access. Inadequate calorie consumption below a norm, which is more popularly referred to as normative "hunger", is only one of the 17 indicators used. For example the poorest people in Madhya Pradesh both in Urban and Rural areas have a higher calorie intake than many other states. Calorie intake of urban poor in Madhya Pradesh is higher than the calorie intake of ten other states. Thus the problem of Madhya Pradesh is not inadequate calorie consumption, but better livelihood access. This is also true for the entire country.

The Atlas is meant to analyse the long-term problems of food insecurity, so that corrective measures can be taken in advance. Since the purchasing power and livelihood access are the key issues, the urban Atlas has given more weight to livelihood access indicators. Factors such as education, skill formation, better infrastructure, investment in development activities and so on provided today will have an impact on the livelihood access tomorrow. The livelihood access today is the outcome of past investment in human resource and infrastructure development.

The composite food insecurity Index shows the approximate average position of the state or a town or a city. None of the states are completely food insecure or fully food secure. All the states have their strengths and weaknesses. The Atlas is meant to help the states to take advantage of their strengths and eliminate their weaknesses.

Also, we decided to undertake a disaggregated level of analysis of urban areas, since urban settlements or towns do not constitute a homogenous category. Towns vary a great deal with regard to their size, the basic characteristics of their economy, and the nature of linkages they have with their hinterland. The size classes adopted in this study are: metropolitan cities, big towns, medium towns, and small towns. Such a disaggregated analysis has revealed that the quantitative and qualitative dimensions of food insecurity vary a great deal across different size classes of towns, with small towns generally being in a more vulnerable position. The analysis of towns essentially refers to early nineties.

The nature of the problem of urban food insecurity also tends to vary across States. Hence, the hunger-free India strategy will have to be based on a decentralised approach, rooted in the principle, 'think, plan, and act locally and support nationally'. Fortunately, the emergence of grassroots level democratic institutions based on the 74th Amendment of the Constitution provides a unique opportunity for dealing with issues relating to ending hunger in a decentralised manner by 2007. There is need to train at least two men and two women members of each elected local body as Food Security Managers, capable of initiating a well-designed analysis - awareness - action chain within the boundaries of the concerned municipality/corporation.

The Food Security Compact for each town/city will have to pay attention to rural - urban linkages. The persistence of poverty and deprivation in rural areas has acted as a push factor for assetless families to migrate to urban areas. Urban growth in India is more a reflection of rural distress than an outcome of agricultural modernisation resulting in labour displacement. Such a rural-urban continuum in food insecurity needs attention. High priority has to be accorded to generating greater opportunities for rural non-farm employment, as stressed in the Food Insecurity Atlas of Rural India. Also, the degradation of common property resources and lack of farming systems diversification and value addition, coupled with the expanding water emergency, accelerate the migration of the rural poor to towns and cities, creating a new class of environmental refugees.

Increasing slum population, deteriorating sanitary conditions, increasing incidence of malaria, tuberculosis, and HIV/AIDS, inadequate health care facilities at affordable prices, drinking water shortages, ingress of sea water in the aquifer in coastal towns and cities, rising unemployment among the poor, low levels of food intake by the poor—particularly women and children—and lack of effective social safety nets capable of insulating the poor from hunger and extreme deprivation, are all factors which contribute to urban food insecurity.

Urbanization is among the predominating demographic factors of recent decades. According to the International Food Policy Research Institute, by 2020, from the present 4.9 billion, the population in the developing countries will grow to nearly 6.8 billion and 90 percent of this increase will be concentrated in rapidly expanding cities and towns. This rapid urbanization is accompanied by an increase in poverty, food insecurity and malnutrition. Such negative changes are very likely to outpace the corresponding changes of rural areas. An estimated 600 million people live in slums in Asia, Africa, and Latin American cities and towns.

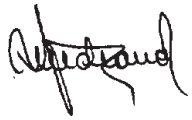
Recognizing this context (and drawing sustenance from the goals of the World Food Summit of 1996), the Executive Board of the UN World Food Programme released the policy document *Urban Food Insecurity, Strategies for WFP* in May 2002. The document recommends the need for member-states to urgently address both the causes and symptoms of urban food insecurity. The Board further resolved that WFP food assistance in emergency and development settings should address urban food insecurity. WFP should expand its analysis of food needs in urban settings and its efforts in urban programming, as the number of people experiencing poverty, food insecurity, and malnutrition in urban areas is increasing.

MSSRF and WFP are jointly convinced that this atlas of food insecurity (and indeed all analysis of human dis-advantage) is only the first step; moving from analysis to action is the critical requirement. As we jointly observed in the Rural Atlas: "The onus is on us to develop and re-orient the existing programmes so that they fully serve the needs of the food insecure; particularly pregnant and nursing women, children and the old and infirm."

We hope that the implications of the Rural and Urban Atlases will be studied at the State, district, block, town, and village levels, so that the necessary fusion of political action, professional knowledge, and people's involvement can be achieved. Synergy between public policy and people power can help us to achieve seemingly impossible things sooner that what most people may believe possible. It would be useful to recall in this context the words of Dr. Samuel Johnson who prepared the first English dictionary in spite of discouragement from friends: "If all possible objections had first to be met, nothing new would ever be attempted."

What is needed is bold and imaginative action that will help people to work towards the elimination of hunger hot spots, which are also concurrently the poverty hot spots in the country. In this endeavour, we should remember what Mahatma Gandhi said at Noakhali in 1946: "To the hungry, God is Bread; this God should prevail in every house and hut in the country." The aim of these Atlases is to spread a message of hope and not of despair. The facts presented reveal great scope for mutual learning among States, cities, and towns. Such a process will help to purchase time by enlarging the extrapolation domain of experiences and achievements. The most urgent task in urban areas is the building of social capital through an integrated package of regulation, education, and social mobilisation.

In preparing these Atlases, we are acutely aware of the limitations imposed by the quality of data available. The situation in urban areas is a dynamic one. Although the most recent data have been used, it is still probable that in several cases events may have overtaken the progress made in data collection and compilation. We shall therefore appreciate comments relating to either data obsolescence or misinterpretation. It is our hope that these Atlases can be periodically updated, so that they remain relevant to policymakers as useful guides while deciding the course of public action and investment.



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CHAPTER 1

Dimensions of Urban Food Insecurity

1.1 Introduction

The problem of food insecurity is a complex one. An urban background adds unique features to it. In this chapter, we look at some of these problems. In the remaining chapters, we study all aspects that have a bearing on urban food insecurity at the State level. In the concluding chapter, we single out the most pressing issues to be taken up for policy actions.

At the outset, we may briefly explain what we mean by 'food security'. Unless explained, the meaning remains vague. In 1996, the Food and Agricultural Organization defined the term 'food security' in a report titled *Food for All* (FAO 1996). Food security can be looked at from three different viewpoints: first, availability of food, which depends upon production and distribution; second, access to food that is guided by one's purchasing power; and third, food absorption. Food absorption implies being able to assimilate the food eaten in order to lead a healthy and long life. Even if food is available and affordable, if it is not fully absorbed into the body, the purpose is not achieved. Sanitation, clean drinking water, and primary health care keep people healthy and away from disease. Thus, for the purpose of our study, food security has a broader perspective.

Slightly more than one-fourths of the Indian population live in urban areas. Urban incomes are higher than rural incomes. Wages and salaries are higher. Roads, transport, and electricity are available for many who live in urban areas. Schools and hospitals are within reachable distances. It is not necessary for urban residents to go long distances for their daily requirements of life, such as food, water, fuel, and so on. On the face of it life appears to be easier and better for urban people compared to rural folk. However, a closer look makes one wonder whether urban lower income groups are really better off than their rural counterparts.

As retail sales are generally good in urban areas, food availability may not be a problem. Food affordability of the poorer section is the main concern. A well-managed public distribution system will help to improve the availability at affordable prices. All the same, urban food prices are higher than rural prices for many essential food items. Further, the casual nature of employment and intermittent periods of unemployment of the urban poor reduce the affordability of good quality food. The problems of livelihood influence food intake sooner or later. In addition, shrinking job markets for regular employment, the problems of rural migrants, and the exploitation of contract labour on construction and other work sites add to the urban woes.

Slums, congestion, homeless families, street children, severe water shortages, polluted air, stinking water bodies, mountains of garbage, unhygienic work conditions, are all unique to the urban environment. Though health infrastructure, such as the availability of doctors and hospitals, is better in urban areas, the benefits may not reach the lower strata, unless cheap public health care is extended to the poor.

Liberalisation of the national economy influences urban people more than the rural people. It may have implications like opportunities for regular employment shrinking during restructuring of the economy. The

skills of the poor would first become redundant. Dependence on petty self-employment and casual employment will increase. Another aspect, which is difficult to establish, is the increased availability of more expensive junk foods and the demonstration effect of the urban middle classes on the poor households. A decline in the calorie intake per consumer unit, lower nutritional values of average diets, and higher cost of calories may be attributed to this. Thus deficient food consumption, pathetic living conditions, and casual work opportunities of the poorest in urban areas leave them susceptible to recurring hunger, disease, morbidity, and shortened life spans.

Policies that only touch upon the visible effect and not the core causes of food insecurity only offer temporary solutions. The reasons for hunger, misery, and health hazards are ingrained in the very pattern of economic growth and urbanisation. These unique features make urban food insecurity much tougher to deal with than rural food insecurity. We shall study the problems in the order of food availability, food access, and food absorption.

1.2 Issues and Approaches to Urban Food Insecurity

a) Availability and affordability

In the urban set-up, a combination of factors such as a competitive retail network, the existence of a public distribution system, and the supply position of the State together determine the availability of food. Given the widespread network of retail trade, this is not a problem in most urban areas in normal times.[1] The major issue is affordability. The supply position and the proximity to areas of abundant food production make a difference to urban retail prices. It may also have a link to the intensity of urbanisation. If a large percentage of the urban population is spread out in small towns closer to the centres of abundant agricultural production, food prices may be low and the quantities consumed by lower income groups may be relatively high. In other words, States deficient in food production and with large urban populations are likely to have higher prices and lower levels of cereal consumption by the lowest deciles.

Affordability of the lower income groups depends upon incomes and prices. Prices are often higher in urban areas. The real benefit depends upon their relative increase. If incomes are growing slower than food prices for the low-income groups, even their staple food consumption would be low. On the other hand, a well-run public distribution system commensurate with the demand may compensate for the lack of natural supply to the State, and lead to higher levels of consumption and better food security. Affordability of food at the average level may have a bearing on the average per capita net State domestic product of the urban people, but not on the consumption of the lower income groups.

There are other factors that influence urban cereal consumption by the lower income groups. Better incomes lead to the substitution of cereals in the diet with non-cereal high value foods. By the same token, the cereal consumption of the high-income urban population may be lower than that of the lower income groups. Hence in urban areas, we expect higher consumption of cereals by the lower income groups compared to the average levels of consumption. If this trend is not seen, it may mean that the affordability of the lower income groups is very low—which is a matter of concern.

Further, if we look at the average patterns of food consumption, we can determine whether food

[1] We have not considered disaster situations, as the data on persons affected, particularly in urban areas in the various States, are not reliable. Natural disasters as well as man-made situations such as social and community tensions together may render the urban poor highly vulnerable, as it happened in the case of Ahmedabad and other cities of Gujarat. Natural disasters have already been studied at the State level in our Rural Food Insecurity Atlas. Since we cannot study the distinct impact in urban areas, we have not considered disaster proneness.

consumption is adequate at the average level. The State per capita net domestic product has a direct bearing on the level of diversification of the food basket. Richer States have a more diversified food basket than the poorer States. If the average patterns of food consumption were deficient in the essential nutrients, the plight of the urban poor would be even worse.

b) Physical access to food

Calorie consumption has been declining in recent years even for the low-income groups. Cereal consumption, which constitutes the bulk of the calories for the low-income groups, is also declining. The reason could be an increase in food prices not commensurate with an increase in incomes. Prices and consumption can also be observed across the States to see if the price of cereals has a bearing on the consumption. The share of expenditure spent on food is lower in urban areas compared to rural areas. If the lower share of expenditure is not giving enough calories to the urban poor, the inability to increase expenditure on food and consume more calories may be due to other pressing expenses in the urban set-up, though we may not be able to capture all of them in the present study.

Another important and related observation is the declining levels of poverty as well as the calorie consumption. It has been established by many studies that the poverty measured has no relevance to underlying calorie norms stipulated in 1971–72 (Palmer-Jones and Sen 2001). Underfed population is far higher than that shown by the head count ratio of poverty. This paradox necessitates a serious review of measuring poverty or disassociating poverty from food security. Even if we rationalise the calorie norm and take a much lower level of requirement, underfed population and head count ratio of poverty are not related.

A word of caution regarding the National Sample Survey (NSS) data on which calorie and poverty estimates are based is in order at this juncture. Some economists are of the view that the lower levels of calorie consumption by the lower income groups could be due to non-inclusion of the food eaten outside the house. They recommend adjustment for the meals eaten outside the house by the urban poor. However, the 1993–94 NSS data did not show large levels of consumption outside the house. Some experts opine that NSS is not accurate in recording the consumption of minor food items and hence the data on calorie consumption should not be taken seriously. Despite the controversy, the shrinking food basket at the average level and the declining calorie consumption by low-income groups need attention.

Another issue is the comparability of the 55th Round NSS data pertaining to 1999–2000 to the data of the previous Rounds, particularly the 50th Round of 1993–94. The present controversy is about the reference period of the 55th Round data. Canvassing of two survey schedules to the household, with a 7-day recall period and a 30-day recall period, is supposed to have biased all the estimates towards the 7-day recall period, which is thought to make a person give a more detailed account than the longer recall period. Hence all the estimates are supposed to be overestimates, compared to the previous Rounds. In case we find a decline in the cereal consumption of the lowest 10 percent of the population over this period, does this mean that it is even lower? At least the decline in the consumption of cereals as well as calories by the low-income groups falling below acceptable levels needs an explanation.

Comparison across the States within a Round should not pose much of a problem. Particularly, the comparisons of the lowest 10 percent across the States within each Round and the comparison of their relative position should be free from biases. This has been attempted in our study. We seek to explain the differentials across the States in terms of the intensity of urbanisation and the proximity of urban centres

to rural production centres and general food production levels of the State. We also seek to examine the hypothesis that non-food expenditure—for example, housing and clothing—constitutes a larger percentage of the income, leaving less for food consumption, of the lower expenditure classes in urban areas.

c) Access to livelihoods

Ultimately long-term food security depends upon livelihood security. Levels of unemployment in urban areas are often higher than in rural areas, more so due to the higher percentage of educated unemployed. Thus in the urban scenario, poverty and low incomes do not have a one-to-one correspondence with unemployment. Many unemployed may not be poor. At the same time we cannot afford to overlook the incidence of unemployment among the low-income classes. Not only levels of unemployment among the lower expenditure classes but also the pattern of employment among the lower deciles is important. Casual employment and the levels of daily wages paid have a bearing on the food security position of the vulnerable groups. The intensity of urbanisation may also be relevant to employment patterns and wage levels.

In this connection, the impact of liberalisation on urban employment of the lower income classes may be of some interest, though it is difficult to assess the same. At least across the States, GDP growth may be compared to the pattern of employment at the average level and in the lowest 10 percent.

The next important issue is the measurement of urban poverty. Apart from the calorie and food intake base of the measured poverty ratio discussed earlier, the measurement of poverty has other implications. Measurement of poverty should ideally include some indication of living standards apart from the money income.

We need to consider the negative externalities of living in slums under unhygienic conditions and high levels of atmospheric pollution. Poverty measurements should also take into account sanitation, hygiene, and basic amenities such as electricity, toilet facilities, and safe drinking water and so on, along with money income or expenditure. Basic amenities should be given more importance.

Assets such as consumer durables should be given less importance in determining the standard of living for several reasons. Possession of consumer durables does not indicate higher living standards. Consumer durables are used beyond their expected lifetime in the poor countries, because of the availability of cheap labour for maintenance. The price of these goods is higher than the intrinsic value. Sometimes these may be cheaper than good quality food in urban areas. Probably those that reduce drudgery, such as transport equipment, cooking facilities like gas stoves and pressure cookers, fans, and such like, when purchased new should be added to the standard of living. Permanent dwelling structures may be considered as indicating living standards. Lack of safe drinking water, lack of toilet facilities, proximity to dirty water bodies and garbage dumps should be taken as negative aspects of living standards. It is imperative to search for alternative measurements of poverty based on the quality of life. Or again, the income should be adjusted for the lack of basic amenities, to reflect real poverty.

d) Discrimination by caste and gender

Though it is argued that caste has no relevance in the urban set-up from the point of view of exclusion and isolation, the fact remains that a large number of Scheduled Caste people belong to the lower income groups. Certain occupations—such as garbage disposal, cleaning drains, cleaning roads, and work in the tanneries—are assigned to them. Some of them may be regular salaried jobs. Sufficient protection at the work place is not available to them. Most of those who work as casual workers also belong to the Scheduled Castes. We have limited data to examine this aspect.

Wage differentials between male and female workers, particularly among the wage labour, are a sign of gender discrimination. Another important differential among the lower income groups would be in respect of literacy. There is more demand for education in the urban environment than in the rural set-up. However, boys are sent to school and girls are sent to work to earn a living. Information on school enrolments and dropouts would reveal more.

e) *Absorption and assimilation of food into the body —Relevance of sanitation and healthcare*

If food is not absorbed and assimilated into the body, just eating well does not keep a person healthy. Food absorption is hampered if a person is suffering from disease. Both temporary and long-term ailments are of concern to us. Many children and adults belonging to the poverty groups cannot assimilate and absorb nutritionally rich foods. Many suffer from diarrhoea, malaria, cholera, typhoid, viral fevers, respiratory diseases, and a number of other air-borne and water-borne infections. Frequent sickness reduces their capacity to absorb and assimilate food. Availability of safe drinking water, pollution-free air, dirt-free surroundings, personal hygiene and primary health facilities determine the incidence of disease. Some amount of immunity may be developed over a period of time, but low levels of food absorption further weaken the body's defensive mechanism. Those who are forced to live in unhygienic surroundings may fall into this vicious circle of eating less as they are sick and falling sick because they eat less. Hence sanitation and health care facilities are crucial for urban food security. Low levels of calorie intake by the lower expenditure groups may also have a bearing on this aspect.

(i) Slums, garbage, and polluted water

Slums, polluted water bodies, undisposed garbage, improper drainage, industrial toxic pollutants in water as well as in air, are all unique to urban environments. Sanitation is a massive problem in the cities. The very nature of their existence in slum areas, under most unhygienic conditions, often next to a large stinking open drain or extensive garbage dumps, puts the disadvantaged inhabitants of big cities at risk. Even in many smaller towns, garbage disposal and sewage systems are very unsatisfactory. The poor are exposed to dirt strewn all over more than anybody else. In the rainy season, flooding, clogged drains, overflowing sewage water, and free-floating garbage bring ill health. Contamination of drinking water is inevitable. The result is disease, morbidity, and mortality, which are more apparent among infants and children.

We shall study hygiene and sanitation in the urban areas in general and within the slums in particular. Inter-State differences may show that slum dwellers in the big cities are better off than those in the small towns. Industrial pollution as well as biological contamination of water in the urban areas are critical parameters. Measures for reduction of pollution and the relative effectiveness of carrot-and-stick policies will be given some attention in this study.

Shortages of water supply as well as water pollution are common in many urban areas. Natural water bodies such as rivers and backwaters are heavily polluted with biological and chemical toxins. Untreated sewage and wastewater with industrial pollutants are let into these water bodies, either legally or illegally. Garbage is regularly dumped along the banks. During rains, all the biological pollutants including faecal matter seep into the rivers. The Yamuna river in Delhi, the Hugli river in Calcutta, the Cooum river in Madras, and Bombay's Mahim creek are outstanding examples. Almost all cities have polluted water bodies and rivers nearby. It takes a massive effort to clean up these water bodies. Coastal cities may also have technical problems of lack of natural gradient for rivers to flow and hence they remain stagnant and dirty.

Providing health is not as easy as it appears to be in the urban areas. Biological and chemical toxins are found not only in the open water bodies but also in the drinking water. Sewage water seeps and leaks into

the pipelines of drinking water. Groundwater in some cities, made available through shallow pumps, contains biological and chemical contamination (Datta 1999). Only water obtained from considerable depth is free from pollutants. In the case of supply from the municipal waterworks, the contamination occurs due to defective supply lines and seepage into the pipelines of drinking water. Pollution is often not reported due to lack of awareness and testing facilities. Only some information is available on pollution levels of water supply.

The preference for male children and neglect of the girl child in respect of food as well as medical care leads to higher mortality rates for female children. High prices of quality foods and high costs of medical care from private hospitals induce the neglect of the girl child. Discrimination in feeding and neglect of illness ultimately results in more deaths of girls compared to boys. The preference for boys leads in extreme cases to foeticide and sex selective abortions in the middle and higher income groups. Highly skewed juvenile sex ratios are found in urban areas.

(ii) Health infrastructure and health status

Health infrastructure is better in big cities than small towns. However, the benefit to the poor is determined by the government health care facilities. Some States provide better health care than others. Such States also show lower infant mortality rates and higher life expectancies. Measurement of malnutrition in children by weight-for-age and height-for-age is universally adopted. Such growth disorders are widespread, even among the non-poor. Targets to achieve reduction in malnutrition and improvement of the health status, especially among the urban slum population, should probably begin with sanitation and health care and then go on to better food and nutrition.

In this book, we shall make an attempt to see the effectiveness of supplementary nutrition in a situation of severe problems of sanitation and lack of public health. The relationship of morbidity to calorie intake is another area of further research. Lower health status of the low-income urban population, despite higher incomes and low poverty rates and better hospital facilities, may be due to lack of sanitation, clean water, and clean air. We shall examine this aspect within the limitations of the data.

Food vending, unhygienic slaughterhouses, dirty eating houses, contaminated foods, all add to the problems of urban food security. Health and nutrition programmes should be undertaken along with the programmes of sanitation and hygiene in urban areas.

Here again the pattern of urbanisation may make a difference to health facilities and basic amenities. Big cities get better facilities than small towns. Sanitation and garbage disposal may be a problem for small cities, but by virtue of less congestion, they may have less pollution of air and water. Again, industrial towns may have better facilities but higher pollutants in the air.

Ultimately the question of economic well-being measured in terms of money hides all the problems of health and sanitation. In places where the poverty ratios are low, sanitation, basic amenities, and health status may be worse. Places with higher poverty ratios may have better health. Hence, there is need to synthesise all aspects to determine urban well-being and food security.

We emphasise a multi-pronged approach in policy implications. To achieve total food security of the urban low-expenditure classes, all aspects will have to be taken care of. Public distribution systems, ICDS type programmes, education, wage employment programmes will all have to go together. In addition, cleaning up of water bodies, recycling of water, garbage disposal, and measures to reduce air pollution should be tackled effectively.

1.3 Indicators of Urban Food Insecurity

The aim of this study is to look at all these aspects of food and health status and provide a comparative picture of food security and vulnerability at the State level. In the processes of analysis we take up some of the issues mentioned above and try to throw more light on them. In the end, the objective is to recommend policies that can effectively reduce risks of various types to the urban disadvantaged.

Indicators can be categorised into sensor indicators that are the root cause of the problem, response indicators that show the symptoms of the problem, and outcome indicators that occur as a result of the problem. It would be good to conceptualise the issues of urban food insecurity in terms of these indicators and their cause and effect relationships. Ideally we should contemplate an urban food insecurity model that connects food insecurity to overall development. If prosperity percolates to the lower sections, States with high per capita incomes should reflect the welfare of the lower deciles.

However, from the practical point of view of the complex interrelationships, the distinction between sensor indicators and response indicators and outcome indicators is rather blurred. Sometimes it is difficult to establish exact cause and effect relationships between indicators. There is also circular causation. For example, poverty, sanitation, and ill health are related. Poverty is the root cause and it forces people to stay in slums with poor sanitation and hence ill health is caused. Frequent ill health and morbidity over a period of time may lead to mental retardation and act as an impediment to skill formation and education and keep people in poverty. This may go on from one generation to another. Ill health is also caused by lack of affordable health infrastructure. Similarly, it is difficult to say whether we should call lack of female literacy, which is the root cause of discrimination, a sensor indicator or a response indicator, caused by discrimination. To avoid such controversies, we have decided not to group the indicators as per the above categorisation of cause and effect. However, a categorisation as food availability indicators, food access indicators, and food absorption indicators has been attempted. There is scope for argument as to whether an indicator should go as access indicator or absorption indicator. For example, 'calorie intake' can be considered as access to food. It can also be taken as an indicator of food absorption. 'Female literacy' would be an access indicator as it improves livelihood and food access. It also increases nutrition knowledge and general awareness and helps to reduce infant and child mortality rates and so is more closely connected to food absorption and assimilation. Juvenile sex ratio arising out of discrimination in food intake and access to medical facilities is even more difficult to place in any particular category. Since it is an outcome indicator caused by higher female mortality, we have placed it under absorption and nutritional status category. Despite some grey areas, we have stuck to this categorisation, as it will help us to situate the problems in the perspective of food insecurity. The ultimate focus is not on the categorisation but on the indicators. What is important is not the indicator per se, but its interrelationships with other factors and its representative character. The indicators can sometimes be directly used for policy direction.

1.4 Organisation of the Study

This study is organised into six chapters. This first chapter introduces the topic. The second chapter is on food availability and affordability. Food availability, physical access to food, levels of food consumption, and the public distribution system that facilitates affordability are included here. The third chapter is on livelihood access to food and discrimination in livelihood access. The fourth chapter is on food absorption and assimilation for better health and long life. This chapter covers conditions of health and hygiene. Problems of slums and sanitation are included. The fifth chapter gives the Urban Food Insecurity Map

and describes the typologies. The sixth one covers the existing policies and programmes, both micro as well as macro, that are relevant to the livelihood security as well as the health and nutrition situation of the people.

As we study the dimensions and discuss the relevant issues, we choose the indicators that best represent the food insecurity of the vulnerable sections and the disadvantaged. Most of the indicators chosen describe the deprivation aspects or describe the position of the most vulnerable sections. They do not always represent the average situation. For example, we analyse the cereal consumption and calorie per capita at the average level as well as the consumption of the lowest 10 per cent of the population. It shows how much less they are eating compared to consumption norms. Each of the chosen indicators is mapped separately for visual emphasis on the worse-off States.

a) Composite food insecurity index and mapping of urban food insecurity

We have adopted three different methods of aggregation of the indicators to get three different indices:

- Weighted urban food insecurity index
- Unweighted urban food insecurity index
- Simple ranking index

For the calculation of the unweighted and weighted indices, we have arranged the selected indicators into six groups:

1. Availability and affordability
2. Livelihood access
3. Housing access
4. Discrimination
5. Sanitation and health
6. Nutritional outcome

The simple ranking index is an aggregation of the ranks of the selected indicators. There are 17 such indicators.

Indicators for the first group come from the discussions in the second chapter. Indicators for the second, third, and fourth groups come from the third chapter on livelihood access. Those for the fifth and the sixth groups come from the fourth chapter on food absorption and assimilation. The choice of the final indicators included in each group depend upon the principal component analysis and the factor loadings. These groups are combined into separate indices. The weight for each group has been based on the strength of association between the index and the average total per capita expenditure of the State.

b) Sources of data

The main sources of data are the Census of India and National Sample Surveys. Sample Registration Surveys (SRS) were used for life expectancy and infant mortality rates. We have also taken data from National Family Health Surveys, Pollution Control Boards, *Health Information of India* compiled by the Ministry of Health, and the *Environmental Compendium*. The sources of data have been mentioned at the appropriate places. Sometimes information on the same aspect is available both from NSS and the Census. In such cases, based on the appropriateness of the purpose, we have preferred one to the other, and we have elaborated the reasons for the preference. The reference period differs across the indicators. We tried our best to use the data for the second half of the 1990s, except in cases where it has not been available for this period.

The north-eastern States except Assam have been excluded from the study, as the NSS data was not reliable for these. There were some other data gaps that have been filled in a logical manner. For Jammu and Kashmir, SRS data are not available. Hence some estimates given by the Census of India have been used. The Scheduled Caste data was that of 1981 for Jammu and Kashmir. In addition, available data are not always reliable. In some aspects, such as the number of hospital and dispensary beds, the data are very sketchy and refer to various time periods, not recent and not

strictly comparable. Yet we have used it since it is the only piece of information on hospital facilities.

c) *Limitations of the study*

The main aim of the study is to analyse the food security problems of urban areas by bringing the existing data together in a comprehensive manner. The major emphasis is on the hardships of the urban low-income classes. The insights gained from examining the problems from various angles help us in identifying the most pressing problems of the urban areas and the urban disadvantaged. The important and immediate policy directions are spelt out.

Though some of the urban problems are of utmost importance, such as garbage disposal, sanitation and hygiene, polluted water bodies, polluted air, and slums and so on, sufficient data are not available on these aspects. Hence our analysis may not completely reflect the gravity of the issues. This does not mean that the problems are unimportant. Similarly, data on unhygienic food sold and contamination of food and food adulteration have not been touched.

There is limitation to the interpretation of the relative position of a State as the most food insecure or less food insecure. The relative position has been what the data reflects now. There may have been improvements that are not reflected in the data. There might have been deteriorations that are not evident either. Further, the cause and effect relationships between indicators are not very direct. There are many other factors that were not studied, such as urban governance as well as awareness and organisation of the people that put pressure on the government to provide certain types of services more effectively in some States than in the others. We are also not in a position to assess the impact of urban patterns on food security. Only a few suggestions of interrelationship have been explored. Further research is needed in this area. Hence one has to interpret the study as a bird's-eye view of food insecurity as it appears from the available State level information at present. As we approach specific States and specific communities, the problems may be more complex. The positions of the States change drastically with more information made available. Despite the limitations we strongly believe that this study contributes towards an understanding of urban food insecurity—a neglected area for policy.

CHAPTER 2

Food Availability and Food Affordability

If we want everybody to eat well, we have to make sure that all types of foods are available in adequate quantities and at affordable prices. One would eat well if one can afford it. Hence, food intake in itself is an indirect measure of affordability. Availability will be better if food production is high in the State. Inflow of food items into the urban areas improves the availability. Public distribution through ration shops and sales through retail networks are the major avenues of inflow. However, we could not estimate the availability of foodgrains in urban areas due to paucity of data. Urban areas have high densities of population and higher incomes. Higher concentrated demand for all items of food induces better supply of food by private trade. Hence, the availability of food is less of a problem in normal times.[1]

In this chapter we shall discuss four main issues. The first is the deficit or surplus of food production in relation to actual and expected consumption. The second issue is the level of staple food intake and calorie intake at the average level and for the lowest 10 percent of the population. We shall examine the impact of abundant food availability on the calorie intake of the lower income groups. The third aspect considered is the effect of urbanisation and food deficits on the food intake of the lowest 10 percent of the population. The role of the public distribution system (PDS) in improving availability and affordability of food in urban areas is the fourth.

At the end of the chapter we have chosen two key indicators that have a bearing upon the food affordability of the poor in urban areas. The availability of cheap foodgrains from government ration shops greatly improves the affordability of the poor. Hence, the per capita consumption out of PDS has been chosen as a key indicator. The calorie intake of the lowest 10 percent of the population bears testimony to the ultimate affordability of all food items. We have taken it as the second indicator. The chosen indicators are mapped and the relative positions of the States are discussed. These indicators go into the calculation of the Food Affordability Index of the poor. This Index finally becomes a part of the Food Insecurity Index in the fifth chapter.

Throughout the study we have used the words "low-income groups" as being synonymous with "lower expenditure classes" and more specifically to the lowest 10 percent, unless otherwise mentioned. The percentage of people below the poverty line specified by the government has been referred to as the poverty group. The poverty group is a bigger entity and very often includes the lower expenditure classes that constitute the lowest 10 percent. However, there may be some States where the head count ratio of poverty is less than 10 percent. Hence when we are considering the lowest 10 percent, we are mostly considering only the most vulnerable part of the poverty group.

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[1] Availability gets severely disrupted in times of disasters such as heavy rains, floods, cyclones, earthquakes, and social tensions and riots. Due to paucity of data separately on the urban population affected, we have not studied this aspect

The intensity of urbanisation has been examined with the help of two features. The first is the share of urban population to the total population in the State. The second is the concentration of urban population in big towns and cities.

Our a priori hypothesis is that the food basket is much more diversified in the urban areas of the richer States than in the poorer ones. The staple food consumption and calorie consumption of the lower expenditure groups is a function of the production situation in the States as well as the intensity of urbanisation. Both factors influence the food intake of the lower income classes via prices. Lower income groups eat well in the States with higher food production, as prices would be lower. The States with lower intensity of urbanisation may have lesser demand and lower levels of food prices. A pattern where most of the urban population resides in a large number of relatively smaller towns further keeps food prices low, being closer to the places of production. When the urban population is concentrated in a few big cities, the food consumption of the lowest deciles will be worse off, particularly in food- deficit States.

2.1 Food Availability

a) Food intake at the average level

Food availability depends upon the production within the State and inflow from other States. Data on movements on account of PDS, procurement, and private trade are not available separately for urban areas. Net production per capita is used as a proxy for food availability in the State for rural and urban areas put together. Urban consumption per capita tells us whether urban people are eating enough of all foods at the average level. If food consumption is deficient at the average level, the consumption of the lower income groups becomes even more deficient. As incomes increase, cereal consumption declines and the consumption of other food items increase. However, as incomes increase, calorie consumption also increases. The decline in cereal consumption accompanied by higher calorie consumption is the sign of real prosperity. But, for the poor, if cereal consumption declines, with low levels of total calorie intake, the possibilities of hunger loom large. We shall investigate these aspects.

b) Net production of cereals

Production within the State is the most important source of availability. Of all foods, the staple food is cereals. Cereals account for a major part of the calorie intake in the diet of the lower income groups.[2] Hence we shall first consider the cereal production per capita and its adequacy compared to the Indian Council of Medical Research (ICMR) norm.[3] As per this norm, the per capita monthly cereal consumption requirement is 12.6 kg. The calculated index shows that the per capita net availability of cereals out of production (in kg per month) in various States is high for some, such as Haryana and the Punjab. They produce far above their requirements. Madhya Pradesh, Uttar Pradesh, and Himachal Pradesh produce 30 to 50 percent above the State requirement.[4] States such as Rajasthan produce just about enough. All the other States are deficient in food production, going by the ICMR norm. Again, some States produce much below the requirement. Kerala produces only 14 percent of the consumption norm. Gujarat produces about 52 percent, Maharashtra about 58 percent, and Assam 78 percent of the requirement. The States that produce just about

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2 For the lower income groups, cereal contributes as much as 70 to 80 percent of the calories. NSS 50th Round, *Sarvekshana*.

3 ICMR has specific norms for recommended daily allowance per person of all food items that make for a balanced diet.

4 The net production per capita refers to the triennium average for the years 1997–98 to 2000–01. From the total production 13 percent has been deducted for seed, feed, and wastage and divided by the 2001 population of the State to arrive at net production per capita. The annual net production was then converted to monthly net availability.

enough for themselves (above 90 percent) are Andhra Pradesh, Orissa, Bihar, and Karnataka. (Table 2.1)

Table 2.1
Per Capita Production and Per Capita Consumption of Cereals (kg per month)

		1	2	3	4
Sl. No	State	Net production per capita (1997-98 to 99-2000)	Ratio of net production to ICMR norm	Consumption per capita (1999-2000)	Ratio of consumption to net production per capita
1	Andhra Pradesh	11.82	0.94	10.94	0.93
2	Assam	9.85	0.78	12.26	1.24
3	Bihar	11.70	0.93	12.70	1.09
4	Gujarat	6.53	0.52	8.49	1.30
5	Haryana	40.96	3.25	9.36	0.23
6	Himachal Pradesh	16.82	1.34	10.33	0.61
7	Jammu & Kashmir	9.95	0.79	12.84	1.29
8	Karnataka	11.84	0.94	10.21	0.86
9	Kerala	1.73	0.14	9.25	5.35
10	Madhya Pradesh	18.88	1.50	11.09	0.59
11	Maharashtra	7.34	0.58	9.35	1.27
12	Orissa	11.36	0.90	14.51	1.28
13	Punjab	68.74	5.46	9.21	0.13
14	Rajasthan	13.57	1.08	11.56	0.85
15	Tamil Nadu	9.91	0.79	9.65	0.97
16	Uttar Pradesh	17.47	1.39	10.79	0.62
17	West Bengal	13.04	1.04	11.17	0.86
18	Delhi *	40.96	3.25	9.36	0.23
19	Chandigarh *	54.85	4.35	9.29	0.18
20	Pondicherry *	9.91	0.79	9.65	0.97
	All India	13.26	1.05	10.42	0.79

Source: Economic Survey, 2000-2001 & NSSO 55th Round, Report No. 457

*: Haryana data used for Delhi, average of Haryana and Punjab used for Chandigarh, and Tamil Nadu data used for Pondicherry

However, the average consumption may be lower or higher than the ideal consumption norm, depending upon the diversification of the food basket and the relative prosperity and affordability of the population. This ratio of urban consumption per capita to the total production per capita also tells us the share of urban cereal consumption in the total net production of the State. The excess or deficit of production has two implications. First, it indicates the supply position compared to urban demand within the State. The second is the implication for prices. The inflow may be high from other States, if there is a deficit in net production. This results in more of the transport cost being added to the price of the foodgrains. In turn, this would have an adverse impact on the consumption of the lower deciles. The ratio of per capita urban consumption to the total per capita net production shows that the consumption per capita on the average is higher than production per capita of cereals in Kerala, Gujarat, Orissa, Assam, Maharashtra, Jammu & Kashmir, and Bihar. The demand for foodgrains in these States is expected to

be high compared to the supply. In all these States there is need for more efficient public distribution systems. The prices of cereals are higher in the States with large consumption/production gaps.

The implicit prices paid for cereals on the average by all classes are negatively correlated to the ratio of net production to requirement. When production is more than the requirement, the implicit prices paid are lower for cereals. The correlation coefficient is -0.515 and this was found to be significant across the States. Hence, local production and availability seem to be important factors affecting prices as well as the cereal consumption of the urban poor. (Table 2.1)

c) *Diversification of the food basket at the average level*

As incomes increase, the food basket gets diversified. Cereal consumption declines and the consumption of other foods increase. Even though people spend a smaller share of their income on food, they spend more in absolute terms. The urban food basket is more diversified than the rural. Urban people consume less of cereals and more of the other items. Protective foods such as pulses, fruits and vegetables, milk, eggs, and fish are easily available in the urban set-up. However, the prices are often high and out of reach for the poor.

Let us see if the food basket of the average urban consumer matches the requirement of a balanced diet. We have taken the food intake levels recommended by ICMR as the requirement per capita per day and have compared it with the average consumption per capita of various food items as per the NSS 55th Round in 1999-2000.[5]

We have calculated an Index of Consumption by taking the ratio of requirement to actual consumption. An index value of 1 indicates that the requirement is the same as consumption. An index value higher than 1 indicates consumption above the requirement and an index value of less than 1 indicates consumption below the requirement.

In urban diets, cereal consumption appears to be below the norm by about 5 to 25 percent in many Sates. Only in Bihar, Orissa, and Jammu & Kashmir, was the cereal consumption above the norm. In the more urbanised areas such as Delhi, Chandigarh, and Gujarat, cereal consumption was about 30 to 35 percent below the norm. Regarding non-cereal foods, the consumption of sugar was above the ICMR norm in 11 out of 20 States. Sugar consumption in all the other States varied between 98 and 74 percent of the requirement. The lowest level of sugar consumption per capita, at about 74 percent, was found to be in the case of Assam. Edible oil consumption was above the prescribed norm in 8 out of 20 States. Barring Orissa where the edible oil consumption was only 65 percent of the requirement, the per capita average consumption in the rest of the States was not less than 79 percent of the requirement. Gujarat has consumed about 60 percent and Maharashtra on average consumed about 27 percent more than the recommended level of edible oils.

Thus, most of the calorie decline due to less than recommended levels of cereal consumption in the average urban diet in many States was made up by higher levels of consumption of other energy foods particularly sugar, edible oils, and probably milk fats. The data on the consumption of fat per consumer unit at the average level across the States supports this view. For all India the fat consumptionwas about 60 gm per consumer unit, contributing about 600 kcal to the diet per day if we assume that 100 gm of fat gives roughly 1000 kcal of energy (see the last column of Table 2.5).

Consumption of pulses was up to the mark only in Himachal Pradesh and Chandigarh. In the urban

[5] However, it is difficult to judge which items are overstated and which are understated. It is believed that non-cereal food consumption gets exaggerated in the diets of the low-income groups if the recall period is one week and not one month.

areas of many other States, the consumption was between 75 to 80 percent of the requirement. In West Bengal, Kerala, Orissa, and Assam, the pulses consumption was quite low, probably due to the high levels of consumption of fish in all these States, except Orissa.

The situation appears to be better with respect to milk. In 10 out of the 20 States, the consumption of milk was up to the mark, and on the high side in Chandigarh, Delhi, the Punjab, Haryana, and Gujarat.

Consumption of fruits was very high in Delhi and Chandigarh, moderate in the Punjab and Haryana, but low in the others. Vegetables were not consumed in adequate quantities in any of the States. Fish was consumed in sufficient quantities only in Assam, Kerala, and West Bengal. The consumption of eggs and meat was far below the requirement in all the States. The consumption of pulses was not high enough to compensate for the deficient consumption of eggs, meat, and fish.

While it comes to protective foods such as pulses, milk, eggs, fish, meat, vegetables, and fruits, the consumption levels were too low in many States. If we look at protein foods such as pulses, milk, nuts and so on, the total intake was not sufficient, though the protein intake itself may not be affected. It is because the cereal protein that has been consumed in adequate quantities compensates the deficit in protein from other foods.

The only noticeable diversification seems to be towards an increase in the energy foods. Some States consumed adequate milk. Consumption of protective foods rich in protein and vitamins was grossly inadequate. The lower levels of consumption of cereals and pulses in many States seem to have been compensated by more fat and sugar than protective foods such as vegetables, fruits, milk, eggs, fish, meat, and so on. In Andhra Pradesh, Tamil Nadu, Pondicherry, and Assam, per capita consumption was not up to the mark for any of the food items. In Kerala and West Bengal, except for fish, all the other items were consumed below the recommended level. Only in a few States and Union Territories such as Delhi, the Punjab, Chandigarh, Jammu & Kashmir, and Himachal Pradesh, was the food basket more diversified so that that the average per capita consumption of four to five food items was either close to, or above, the norm. Thus, we cannot claim that the urban food basket is well diversified and balanced even at the average level. (Tables 2.2 and 2.3)

2.2 Food Intake of the Urban Lower Income Classes

a) Cereal consumption and calorie intake

The average urban cereal consumption is lower than the rural. It has been found that for the country as a whole and also for many States across the expenditure classes, cereal consumption has been declining since the 1970s. This trend is clear from the National Sample Surveys. For the country as a whole, the average urban per capita monthly consumption of cereals declined from 11.36 kg in 1970–71 to 10.63 kg in 1993–94, and further to 10.42 kg in 1999–2000. In 1993–94, cereal consumption by the lowest 10 percent has been 9.51 kg per capita per month. It has marginally increased to 9.55 kg in 1999–2000. However, notwithstanding this marginal increase, the calorie consumption of the lowest 10 percent has declined over the same period, from 1893 kcal per consumer unit to 1889 kcal. Instead of an expected increase due to overestimation, there has been a marginal decline. Many others who have analysed the NSS data have also noticed the declining trend even for the lower expenditure classes (Radhakrishna 2001).

As we have already discussed in the context of the diversification of the food basket, cereal consumption was low in some States at the average level in 1999–

Table 2.2

Per Capita Consumption of Food Items (kg/month)

		1	2	3	4	5	6	7	8	9	10
Sl. No	State	Cereals	Pulses & Pulse products	Milk*	Edible oil	Eggs*	Fish & Prawn	Meats	Vegetables	Fruits	Sugar
1	Andhra Pradesh	10.94	0.87	3.96	0.60	0.32	0.08	0.29	2.93	0.97	0.67
2	Assam	12.26	0.75	1.93	0.55	0.34	0.79	0.23	2.25	0.80	0.64
3	Bihar	12.70	0.93	3.06	0.52	0.16	0.16	0.20	2.76	0.80	0.67
4	Gujarat	8.49	1.03	5.92	1.05	0.11	0.03	0.12	3.31	1.01	1.16
5	Haryana	9.36	1.05	8.13	0.63	0.12	0.00	0.07	2.81	1.21	1.49
6	Himachal Pradesh	10.33	1.40	9.07	0.73	0.31	0.01	0.18	3.06	1.23	1.16
7	Jammu & Kashmir	12.84	0.93	7.22	0.77	0.27	0.01	0.56	3.69	1.29	0.72
8	Karnataka	10.21	1.04	4.56	0.59	0.31	0.12	0.33	2.85	1.12	0.97
9	Kerala	9.25	0.69	3.14	0.46	0.40	1.88	0.33	1.66	1.02	0.88
10	Madhya Pradesh	11.09	1.00	3.90	0.64	0.14	0.05	0.12	3.22	0.82	1.02
11	Maharashtra	9.35	1.02	4.31	0.84	0.24	0.15	0.29	3.17	1.16	1.15
12	Orissa	14.51	0.74	1.77	0.43	0.21	0.35	0.19	3.41	0.78	0.66
13	Punjab	9.21	1.17	8.76	0.67	0.18	0.00	0.08	3.65	1.17	1.62
14	Rajasthan	11.56	0.96	6.95	0.62	0.07	0.00	0.11	2.97	0.76	1.16
15	Tamil Nadu	9.65	1.02	4.29	0.58	0.47	0.18	0.35	3.16	1.17	0.75
16	Uttar Pradesh	10.79	0.98	4.74	0.60	0.14	0.03	0.24	2.64	1.13	1.06
17	West Bengal	11.17	0.60	2.37	0.68	0.58	0.86	0.25	2.88	0.93	0.68
18	Delhi	8.61	1.17	7.86	0.74	0.24	0.12	0.26	3.29	1.94	1.07
19	Chandigarh	8.74	1.39	9.48	0.76	0.31	0.00	0.13	3.65	1.83	1.35
20	Pondicherry	9.62	1.00	4.18	0.64	0.56	0.43	0.26	3.33	0.93	0.67
	All India	10.42	1.00	4.59	0.72	0.26	0.22	0.24	3.02	1.06	1.00

Source: NSSO 55th Round Report No. 461

* One litre of milk is taken as 900 grams; one egg is taken as 125 grams

Table 2.3

Per Capita Consumption Index of Food Items with ICMR Norm

		1	2	3	4	5	6	7	8	9	10
Sl.No.	State	Cereals	Sugar	Pulses	Total Veg.	Fruits	Edible oil	Milk	Eggs	Meats	Fish and Prawn
	ICMR Norm(gms)	420	30	40	125	50	22	150	45	25	25
1	Andhra Pradesh	0.87	0.74	0.73	0.78	0.64	0.91	0.88	0.24	0.39	0.11
2	Assam	0.97	0.71	0.63	0.60	0.53	0.83	0.43	0.25	0.31	1.05
3	Bihar	1.01	0.74	0.78	0.74	0.53	0.79	0.68	0.12	0.27	0.21
4	Gujarat	0.67	1.29	0.86	0.88	0.68	1.59	1.32	0.08	0.16	0.04
5	Haryana	0.74	1.66	0.88	0.75	0.80	0.95	1.81	0.09	0.09	0.00
6	Himachal Pradesh	0.82	1.29	1.17	0.82	0.82	1.11	2.02	0.23	0.24	0.01
7	Jammu & Kashmir	1.02	0.80	0.78	0.98	0.86	1.17	1.60	0.20	0.75	0.01
8	Karnataka	0.81	1.08	0.87	0.76	0.75	0.89	1.01	0.23	0.44	0.16
9	Kerala	0.73	0.98	0.58	0.44	0.68	0.70	0.70	0.30	0.44	2.51
10	Madhya Pradesh	0.88	1.13	0.83	0.86	0.55	0.97	0.87	0.10	0.16	0.07
11	Maharashtra	0.74	1.28	0.85	0.85	0.77	1.27	0.96	0.18	0.39	0.20
12	Orissa	1.15	0.73	0.62	0.91	0.52	0.65	0.39	0.16	0.25	0.47
13	Punjab	0.73	1.80	0.98	0.97	0.78	1.02	1.95	0.14	0.11	0.00
14	Rajasthan	0.92	1.29	0.80	0.79	0.50	0.94	1.54	0.05	0.15	0.00
15	Tamil Nadu	0.77	0.83	0.85	0.84	0.78	0.88	0.95	0.34	0.47	0.24
16	Uttar Pradesh	0.86	1.18	0.82	0.70	0.76	0.91	1.05	0.11	0.32	0.04
17	West Bengal	0.89	0.76	0.50	0.77	0.62	1.03	0.53	0.43	0.33	1.15
18	Delhi	0.68	1.19	0.98	0.88	1.29	1.12	1.75	0.18	0.35	0.16
19	Chandigarh	0.69	1.50	1.16	0.97	1.22	1.15	2.11	0.23	0.17	0.00
20	Pondicherry	0.76	0.74	0.83	0.89	0.62	0.97	0.93	0.41	0.35	0.57
	All India	0.83	1.11	0.83	0.81	0.71	1.09	1.02	0.19	0.32	0.29

Source: NSSO 55th Round Report No. 461

2000. However, it is not of much concern to us. The average calorie intake of the urban population in all the States was found to be fairly high and above 2100 kcal, both in the NSS 50th Round (1993–94) as well as the 55th Round (1999–2000). Before we analyse the calorie data of the 55th Round, some explanations are necessary here. The data are taken from the draft report. Hence there are some inconsistencies for certain States and for some expenditure classes. For all the northeastern States as well as Jammu & Kashmir, for which data were not collected for the previous Rounds, the calorie consumption reported was very high and unreliable. Also, the sample size for some of the expenditure classes in the urban areas was too small to be representative. NSS has not yet corrected the inconsistencies in the draft report. The final report is not available at the time of drafting this study. Hence we have not included the northeastern States in our analysis. Though to some extent Jammu & Kashmir may also have the same problem, it has been included. Higher estimates for Himachal Pradesh and Jammu & Kashmir could also be due to too small a sample that is not representative, particularly for the lower expenditure groups. This adds a new dimension to the estimates already considered to be high.

However, what is striking is that despite all this bias towards overestimation, the actual calorie consumption of the lowest deciles in many States was quite low and below acceptable levels. There is no reason to worry about the decline in cereal consumption at the average level as long as calorie consumption is up to the mark. Even the demand projections can now take a lower level of average consumption of cereals. Predictably, the urban rich reduce cereal consumption and shift to more high-value protein foods and hence the average consumption of cereals falls. If we expect increase in incomes to have an impact in reducing cereal consumption across the expenditure classes, the lower expenditure classes should typically be consuming more cereal than the average for all classes.

But, in all the States the lowest 10 percent consumed less cereal than the average for the State. This is an alarming trend, as it would mean lower calorie consumption as well. The average calorie consumption for the lowest 10 percent in the urban areas for the country as a whole has declined marginally over the NSS Rounds. At least for the poor, cereal consumption and calorie consumption go together as cereals provide the major part of the calories consumed. (Table 2.4)

The per capita monthly cereal consumption of the poorest 10 percent was lowest in Kerala at 6.93. It was also low in Gujarat, Haryana, Chandigarh, and Delhi at around 7 kg. In Tamil Nadu, Pondicherry, Karnataka, Uttar Pradesh, and the Punjab, the cereal consumption of the poorest 10 percent was around 8 kg per capita per month.

Let us look at the calorie consumption of the poorest deciles across the States. This was high only in Himachal Pradesh, Jammu & Kashmir, Orissa, and Rajasthan. Even if we take 1900 kcal as a reasonable level of consumption per consumer unit per day for moderate urban workers, only the poorest in the Punjab, Delhi, and West Bengal qualified as having adequate food intake. In many States, low levels of cereal consumption were also accompanied by low levels of calorie consumption.

In all the States, the cereal consumption of the lowest 10 percent was below the national average. However, this is not to say that cereals are the sole contributors to calorie consumption. It is important to improve cereal intake along with other nutritive foods. All the States have to look at the needs of the urban poor, though some of them might have tackled the problems of their rural poor. Particularly low levels of consumption of cereals as well as calories by urban lower income groups were seen in Andhra Pradesh, Karnataka, Tamil Nadu, Pondicherry, Kerala,

Table 2.4

Cereal Consumption and Calorie Intake

		1	2	3	4	5	6	7	8
Sl. No	State	Cereal consumption of the lowest ten percent	Cereal consumption for all classes	Calorie intake by the lowest ten percent	Calorie intake by all classes	Cereal consumption of the lowest ten percent	Cereal consumption for all classes	Calorie intake by the lowest ten percent	Calorie intake by all classes
		(kg/month)	(kg/month)	(kcal/cu/day)	(kcal/cu/day)	(kg/month)	(kg/month)	(kcal/cu/day)	(kcal/cu/day)
		(1999-2000)	(1999-2000)	(1999-2000)	(1999-2000)	(1993-1994)	(1993-1994)	(1993-1994)	(1993-1994)
1	Andhra Pradesh	9.67	10.94	1842	2508	9.64	11.30	1768	2455
2	Assam	10.68	12.26	1876	2630	10.65	12.05	1950	2543
3	Bihar	9.87	12.70	1813	2645	10.48	12.82	1860	2667
4	Gujarat	7.62	8.49	1829	2518	7.89	8.96	1744	2491
5	Haryana	7.66	9.36	1692	2665	9.19	10.46	1886	2616
6	Himachal Pradesh	10.47	10.33	2222	3218	12.47	11.01	2366	2914
7	Jammu & Kashmir	11.51	12.84	2357	5955	11.48	11.48	2397	2950
8	Karnataka	8.57	10.21	1776	2494	8.39	10.87	1662	2485
9	Kerala	6.93	9.25	1581	2498	7.18	9.46	1549	2445
10	Madhya Pradesh	9.51	11.09	1867	2904	10.17	11.32	1917	2556
11	Maharashtra	9.74	9.35	1867	2484	9.43	9.37	1835	2432
12	Orissa	13.03	14.51	2100	2802	11.39	13.36	1962	2754
13	Punjab	8.06	9.21	1979	2667	7.96	9.01	1903	2569
14	Rajasthan	10.19	11.56	2071	2869	10.35	11.52	1983	2704
15	Tamil Nadu	8.04	9.65	1676	2509	7.28	10.05	1442	2366
16	Uttar Pradesh	8.83	10.79	1765	2610	9.91	11.08	1890	2615
17	West Bengal	10.03	11.17	1900	2597	10.56	11.64	1914	2587
18	Delhi	7.96	8.61	1943	2623	7.35	8.99	1758	2895
19	Chandigarh	7.03	8.74	1803	2741	8.34	9.00	1946	2839
20	Pondicherry	8.20	9.62	1665	2441	7.94	10.27	1545	2440
	All India	9.55	10.42	1890	2637	9.51	10.63	1893	2542

Source: NSSO 55th Round Report No.457, NSSO 55th Round Report No.471, NSSO 50th Round Report No.402 & NSSO *Sarvekshana* Vol.XXI, No.2, 73rd Issue, 1997 (Kcal/cu/day = Kilocalories per consumer unit per day)

Maharashtra, Gujarat, Madhya Pradesh, Uttar Pradesh, Chandigarh, Assam, and Bihar.

The shortfall of calories consumed over the adopted norm indicates the depth of hunger. Thus we can say that the urban poor in the above States experience various depths of hunger. Kerala, with the lowest level of 1580 kcal, and Tamil Nadu, with 1675 kcal per consumer unit per day, show grave hunger. If we consider 1890 kcal per consumer unit per day as the acceptable level of calorie consumption for urban people, and estimate the percentage of population consuming less than this level, we get an idea of the spread of hunger in the State. The figure of 1890 kcal is chosen for the sake of estimation convenience. It is close to 1900 kcal, which we think is reasonable. It constitutes 70 percent of the international norm of 2,700 kcal for which NSS gives direct estimates. In the country as a whole, 13.4 percent of the population consume less than 1890 kcal. The percentage varies between 1.40 percent in Jammu & Kashmir to 19.10 percent in Tamil Nadu. Delhi has about 10.5 percent of the population consuming less than this norm.

The estimates of cereal consumption and calorie consumption across the States for the 50th Round data are different from that of 55th Round for the lowest 10 percent of the population as well as the average level. According to some researchers, the overestimation at the average level in the 55th Round could be as high as 14 percent for cereal consumption (Sen 2002). If such "overestimated" data show a decline in consumption instead of an expected increase for the lowest 10 percent in urban India, the actual consumption would have been much lower. This is a cause for serious concern. The actual consumption of cereals per capita per month for the lowest 10 percent might have further declined to as low as 8.21 for the country as a whole in 1999–2000 if we apply 14 percent reduction. This also implies much lower calorie consumption. (Appendix 2.1)

Still, we would not like to make such an inference because there is no uniform bias towards overestimation in the 55th Round. The calorie intake levels as well as cereal intake levels of the lowest 10 percent are high for some States and low for the others in the 55th Round as compared to the 50th Round. Hence it is very difficult to judge whether there is bias at all, and if so how much of it is for the lower income groups. For the time being we refrain from deriving any conclusions.

b) Pulses consumption and protein intake

Another important food that provides both calories and protein in the diet is pulses. Just as with coarse cereals, the production, availability and consumption of pulses have been declining over a period of time. A look at the quantity of consumption of pulses may be of interest to us. Pulses consumption is higher among the urban population as compared to the rural population due to higher affordability. Average pulses consumption was about 1 kg per capita per month for the country as a whole in 1999–2000 compared to the ICMR norm of 1.20 kg per month. At the average level for the urban consumer, the shortfall in consumption is not very high in many States. Shortfall of pulse protein is more than compensated by cereal protein and other protein-rich foods, so as not to show any appreciable decline in protein consumption at the average level. (Table 2.5) [6]

ICMR has reduced the pulse requirement from 70 gm to 40 gm per capita per day in their revised recommendations in 1989, probably due to reduced availability. For a balanced diet they might have increased the corresponding consumption of animal protein foods such as fish, meat, and eggs. However, since animal protein is even more expensive, its

[6] The slight discrepancy in the per capita monthly consumption of pulses and pulse products between table numbers 2.2 and 2.5 is due to the difference in the source publications. The source for Table 2.5 enables us to calculate the per capita monthly consumption of the lower deciles.

Table 2.5

Consumption of Pulses, Pulse Products, Protein and Fat Intake (1999-2000)

		1	2	3	4	5	6
Sl. No	State	Pulses & Pulse Products (kg/month/capita)		Protein Intake (gm/cu/day)		Fat Intake (gm/cu/day)	
		Lowest 10 percent	All Classes	Lowest 10 percent	All Classes	Lowest 10 percent	All Classes
1	Andhra Pradesh	0.46	0.86	43.75	62.00	23.54	50.70
2	Assam	0.37	0.72	46.66	68.30	17.05	46.80
3	Bihar	0.47	0.86	50.60	74.40	18.80	41.70
4	Gujarat	0.62	0.99	50.33	66.90	46.14	82.00
5	Haryana	0.51	0.88	57.44	50.71	31.28	69.10
6	Himachal Pradesh	0.78	1.22	67.74	90.90	38.11	86.70
7	Jammu & Kashmir	0.59	0.85	65.59	119.90	43.20	82.40
8	Karnataka	0.65	1.00	46.74	65.20	29.70	54.90
9	Kerala	0.26	0.58	39.66	69.10	26.41	53.70
10	Madhya Pradesh	0.68	0.98	56.41	74.10	27.28	74.10
11	Maharashtra	0.67	0.99	53.86	68.10	32.22	64.10
12	Orissa	0.31	0.73	48.20	70.50	12.40	33.40
13	Punjab	0.64	0.99	57.77	78.70	43.95	70.30
14	Rajasthan	0.41	0.94	66.80	86.50	37.37	75.50
15	Tamil Nadu	0.51	0.97	40.57	63.90	25.24	53.40
16	Uttar Pradesh	0.50	0.96	52.90	76.00	24.40	55.80
17	West Bengal	0.35	0.59	47.03	67.60	22.32	48.90
18	Delhi	0.69	1.05	56.64	74.80	45.42	75.70
19	Chandigarh	0.77	1.21	53.69	80.50	38.52	79.50
20	Pondicherry	0.51	0.94	39.79	62.90	24.82	52.60
	All India	0.54	0.96	52.72	71.50	26.56	60.70

Source: NSSO 55th Round Report No. 457 & NSSO 55th Round Report No.471

consumption also has been low.

There are wide variations in the consumption of pulses and pulse products across the States. Consumption was highest in Himachal Pradesh, Chandigarh, and Delhi at the average level. Pulses consumption at the average level was below the ICMR norm in all the other States. Pulses consumption was very low and far below the recommended level of 1.20 kg per month in many States, and almost half of the recommended level for the lowest 10 per cent population, particularly low in Kerala, Assam, Orissa, and West Bengal. (Table 2.5)

The National Nutritional Monitoring Bureau has considered 60 gm of protein per consumer unit per day as adequate. The nutritional intake data for the NSS 55th Round show that just as calorie consumption at the average level, protein intake is also adequate. However, protein intake has been far from adequate in the diets of the lowest 10 percent in almost all the States except Himachal Pradesh, Jammu & Kashmir, and Rajasthan. We shall discuss protein calorie malnutrition and its possible consequences in the next chapter. At present it suffices to say that the high prices of all protein foods, including pulses, have adversely

affected the diets of the lowest 10 percent in the urban areas.

The difference between pulses and other protein food is that while pulses also contribute to calories, the consumption of milk, eggs, and fish only helps protein intake. Further, at low levels of calorie consumption, the adequacy of protein consumption is of not of much use as protective food. The decline in calorie consumption at the average level compared to the earlier decades is probably due to the removal of pulses from the diets of the people, both due to non-availability and high prices.

Hence, it is important to improve the affordability of cereals as well as pulses via incomes as well as lower prices of these grains. One has to work for higher cereal consumption as well as higher calorie consumption by the urban poor in all the States where calorie consumption has been particularly low. Cheaper grain can help in enhancing cereal consumption as well as protein consumption. Lower prices of cereals lead to saving of money that can be used for the diversification of the food basket. The income effect hidden in the price decline would help diversification.

c) *Is low calorie consumption acceptable?*

Many economists do not take the problem of low levels of consumption by the lower deciles seriously. The average consumption is given more importance. Some economists observe that the dampening of the cereal demand is due to changes in the tastes and preferences of the people. Wherever infrastructure developments make more of the other food items available, the cereal consumption declines. It is argued that this is not a sign of deterioration of human welfare (Rao 2000). The demonstration effect and the availability of a variety of foods, some of which may be more nutritious than cereals, could be one of the reasons for an increase in the cost of calories consumed by the urban poor. While we respect the preferences and the right of the people to enjoy the foods they want, affordability of adequate calories becomes an important issue. Ideally, they should be equipped to relish all they want to eat without reducing calorie consumption per consumer unit.

Another important point is whether a person is able to utilise these nutrients effectively, in the absence of sufficient calories. Unless one consumes adequate calories, protein and other nutrients are not useful to the body. Further, many micronutrients get better absorbed into the body only if a balanced diet sufficient in calories is eaten. Varieties of foods that enhance the absorption of nutrients are ideal. For example, the absorption of iron improves if there are traces of vitamin C in the food. Hence, the bottom line for food security is the minimum calorie consumption per consumer unit. Sufficient calories should be consumed, and it is better if they come from a variety of foods.

Some economists argue that the NSS data underestimate cereal consumption as well as calorie consumption of the lower expenditure classes, as a large amount of food is consumed outside the house (Minhas 1991). Lower expenditure classes are also expected to get a large number of free meals. Interestingly, the 50th Round data for 1993–94 has shown that the number of meals eaten away from home by the lower expenditure classes was not very high. The urban meals data show that the meals consumed away from home for the country as a whole are as low as 3.53 percent. In some States such as Tamil Nadu and Himachal Pradesh, these are as high as 7.5 percent. In Kerala, about 5.08 percent of the meals are eaten out.

For the low-income groups, the percentage of meals taken outside the home were high only in some States. In Pondicherry, as much of 20 percent of the meals consumed were eaten away from home. In Tamil Nadu, it was about 16 percent, while in Kerala it was 5.41 percent; in Andhra Pradesh, the lowest 10

Table 2.6
Average Number of Meals Taken (meals/month/household)

		1	2	3	4	5	6
Sl. No	State	At home	Free	On payment	Free + Paid	Total	Percentage of (Free + Paid) to total
1	Andhra Pradesh	310	10	2	12	322	3.73
2	Assam	292	2	1	3	295	1.02
3	Bihar	302	3	2	5	307	1.63
4	Gujarat	274	5	3	8	282	2.84
5	Haryana	318	7	2	9	327	2.75
6	Himachal Pradesh	228	8	11	19	247	7.69
7	Jammu & Kashmir	374	7	2	9	383	2.35
8	Karnataka	303	7	5	12	315	3.81
9	Kerala	336	9	9	18	354	5.08
10	Madhya Pradesh	315	5	2	7	322	2.17
11	Maharashtra	277	5	4	9	286	3.15
12	Orissa	299	6	4	10	309	3.24
13	Punjab	383	4	1	5	388	1.29
14	Rajasthan	316	5	1	6	322	1.86
15	Tamil Nadu	311	18	7	25	336	7.44
16	Uttar Pradesh	341	6	1	7	348	2.01
17	West Bengal	237	5	5	10	247	4.05
18	Delhi	264	2	3	5	269	1.86
19	Chandigarh	276	15	10	25	301	8.31
20	Pondicherry	368	19	4	23	391	5.88
	All India	301	7	4	11	312	3.53

Source: NSSO 50th Round, *Sarvekshana* Vol.XXI, No.2, 73rd Issue, 1997

percent of the population consumed 4.57 percent, and in Karnataka 2.24 percent, of the total meals away from home. Even if we adjust the calorie intake of the 50th Round upwards for consumption away from home, it remains low for the lower deciles. Upward adjustment is done by increasing the calorie consumption in the same proportion as the meals eaten outside. For example, if 20 percent of the total meals are taken away from home the average calorie consumption per consumer unit per day is increased by the same percentage. Tamil Nadu, Pondicherry, Kerala, Karnataka, Andhra Pradesh, Assam, and Bihar would still be below 1900 kcal (see Tables 2.6 and 2.7). On the whole, if we go by the 50th Round meals data, substantial portions of the meals were taken at home. Even in a place like Tamil Nadu, notwithstanding better public distribution systems, the mid-day meal programmes, and ICDS programmes, the per consumer calorie consumption was too low.

The problem of low levels of calorie consumption appears to be persistent and serious. Paradoxically, overall prosperity as well as destitution reduces cereal consumption. Reduction in cereal consumption due to the diversification of the food basket by the rich is not a matter of concern, as long as calorie consumption is reasonably high. Destitution reduces cereal consumption without adequate diversification and thus results in low levels of calorie consumption. However, calorie consumption per consumer unit has consistently increased with income from the lowest

Table 2.7
Calorie Intake Adjusted for Meals Taken Away from Home

		1	2	3
Sl. No	State	Calorie intake of the lowest 10 percent (kcal/cu/day)	Percentage of meals taken away from home by the lowest 10 percent	Calorie intake enhanced by the percentage of meals taken away from home
1	Andhra Pradesh	1768	4.57	1849
2	Assam	1950	0.70	1964
3	Bihar	1860	0.35	1867
4	Gujarat	1744	2.12	1781
5	Karnataka	1662	2.24	1700
6	Kerala	1549	5.41	1632
7	Madhya Pradesh	1917	1.66	1949
8	Maharashtra	1835	1.61	1865
9	Tamil Nadu	1442	15.94	1672
10	Uttar Pradesh	1890	1.58	1920
11	Chandigarh	1946	16.80	2272
12	Pondicherry	1546	20.22	1858
	All India	1893	3.84	1966

Source: NSSO 50th Round, *Sarvekshana* Vol.XXI, No.2, 73rd Issue, 1997

10 percent to the top 10 percent. In all the States where the diversification of the food basket is limited at the average level, the dependence of the lowest deciles on cereals for most of their calories is inevitable. Hence, there is a strong case for providing cheap foodgrains to the needy, particularly when the national granary is overflowing. There is probably a lot of sense in going back to universal PDS for a particular variety of cereals. The rich will get automatically eliminated.

2.3 Food Prices and Expenditure on Food

We have not attempted time series analysis of retail prices. Analysis at the average level does not help us to assess the impact of prices on low-income urban consumers. Hence, we have mainly elaborated the various issues that influence the prices paid by the low-income urban consumer, with the help of cross-section data. Though urban incomes are higher than rural incomes, relative prices of commodities are also higher. In recent years inflation has been low at 4.5 percent. Yet there is no substantial evidence to believe that incomes for the poor have been growing at a faster rate than retail prices. Affordability depends upon not just higher wages but on the quantum of employment and the overall income growth relative to food prices. The cross-section data seem to support this view.

Implicit prices calculated for all classes and for the lowest deciles for the 55th Round NSS data show that the implicit prices paid by the poor for cereals are always lower than the prices paid by all the classes on average. This is uniformly so in all the States without exception, though the price differential is high in some and low in others. (Table 2.8)

Thus it is clear that the quality and hence the prices of foodgrains are lower for lower expenditure groups. Not withstanding lower prices paid, relative prices are likely to be high for the poor. The poor often purchase their needs on a daily basis, in small quantities. Shops operating in poor neighbourhoods often enjoy a monopoly as they sell on credit and the weights used

Table 2.8
Implicit Prices of Cereals and Calories

		1	2	3	4	5
Sl No	State	Average Price paid by the lowest ten percent (Rs./kg)	Average price paid by all classes (Rs./kg)	Calorie intake of the lowest ten percent (kcal/cu/day)	Expenditure on food of lowest ten percent (Rs./capita)	Price for 1000 Kcal
1	Andhra Pradesh	8.69	11.01	1842	194	3.50
2	Assam	10.62	12.55	1876	216	3.84
3	Bihar	9.48	10.10	1813	171	3.15
4	Gujarat	8.29	9.74	1829	239	4.35
5	Haryana	7.40	8.37	1692	183	3.61
6	Himachal Pradesh	9.08	10.76	2222	236	3.53
7	Jammu & Kashmir	9.98	11.61	2357	314	4.44
8	Karnataka	9.34	11.57	1776	202	3.80
9	Kerala	10.12	11.43	1581	216	4.56
10	Madhya Pradesh	7.63	8.76	1867	159	2.85
11	Maharashtra	7.13	10.73	1867	140	2.51
12	Orissa	8.78	9.68	2100	177	2.80
13	Punjab	7.70	8.20	1979	223	3.76
14	Rajasthan	7.16	8.01	2071	210	3.38
15	Tamil Nadu	7.59	10.93	1676	197	3.92
16	Uttar Pradesh	7.77	8.52	1765	163	3.07
17	West Bengal	10.62	12.15	1900	217	3.80
18	Delhi	8.85	10.22	1943	268	4.60
19	Chandigarh	9.28	9.81	1803	261	4.83
20	Pondicherry	8.84	11.26	1665	182	3.65

Source: NSSO 55th Round Report No. 457

may be approximate. Unless the quality of the food, accuracy of weights, and interest component on items purchased on credit are differentiated, we cannot assess the impact of prices on the consumption of the lower deciles.

It has long been realised that price indices are different for different fractile groups of the population (Bhattacharya et al 1991). The indirect impact will only be on the health status. Low-priced food is not always less nutritious, as was the case with coarse cereals or coarse varieties as against fine varieties. However, adulterated foods are often sold at lower prices. Cereals, pulses, fruits and vegetables that are partially spoilt will have smaller edible content and nutritional value. The price versus quality compromise may lead to deterioration of nutrition value and edible content.

We have also looked at the relative price paid for 1000 calories per day and the total expenditure of the lowest deciles on food in various States. This allows us to take into consideration the entire consumption basket of the poor and not just the cereals. The average monthly expenditure on food per capita by the bottom expenditure classes across the States shows a great variation. It was lowest at Rs.140 in Maharashtra and highest in Jammu & Kashmir at Rs.314. Similarly, the total average expenditure of the lowest 10 percent was highest in Jammu & Kashmir at Rs.476, compared to Rs.266 in Orissa. However in both these States,

Table 2.9
Expenditure on Rent, Food and Clothing (Rs.)

		1	2	3	4	5	6	7
S.No	States	Per person expenditure by the lowest percent			Expenditure as a percentage of total expense by the lowest 10 percent			Ave. consumer expenditure of the lowest 10 percent
		on rent	on food	on clothing	on rent	on food	on clothing	
1	Andhra Pradesh	9.69	193.55	16.44	3.30	66.04	5.61	293.09
2	Assam	2.79	216.01	17.17	0.92	71.20	5.66	303.39
3	Bihar	1.56	171.24	5.86	0.63	69.34	2.37	246.96
4	Gujarat	5.17	238.86	22.45	1.39	64.17	6.03	372.21
5	Haryana	3.33	183.18	12.28	0.99	54.41	3.65	336.66
6	Himachal Pradesh	7.10	235.61	7.10	1.61	53.50	1.61	440.37
7	Jammu & Kashmir	2.57	314.25	30.51	0.54	66.01	6.41	476.08
8	Karnataka	5.37	202.27	21.70	1.65	61.94	6.64	326.58
9	Kerala	0.29	216.31	21.27	0.08	63.38	6.23	341.27
10	Madhya Pradesh	2.25	159.49	22.59	0.85	60.26	8.54	264.67
11	Maharashtra	3.38	140.28	24.91	1.08	44.69	7.93	313.93
12	Orissa	3.71	176.64	15.91	1.45	68.82	6.20	256.66
13	Punjab	5.20	223.15	26.18	1.36	58.47	6.86	381.64
14	Rajasthan	1.84	210.00	25.95	0.54	61.35	7.58	342.29
15	Tamil Nadu	8.28	196.88	11.06	2.62	62.20	3.49	316.52
16	Uttar Pradesh	0.74	162.71	18.16	0.28	62.31	6.95	261.13
17	West Bengal	2.31	216.83	21.07	0.72	67.64	6.57	320.58
18	Delhi	11.07	268.33	21.28	2.57	62.25	4.94	431.06
19	Chandigarh	9.23	261.15	24.28	2.17	61.30	5.70	425.99
20	Pondicherry	4.59	182.35	14.57	1.66	65.87	5.26	276.85
	All India	2.99	185.78	20.04	1.03	64.06	6.91	290.02

Source: NSSO 55th Round Report No. 457

the lowest 10 percent in urban areas eat sufficient calories, due to higher incomes in Jammu & Kashmir and lower prices of food in Orissa. There may be differences in the food basket but the calorie adequacy is met. No doubt, with higher incomes, the people of Jammu & Kashmir can afford more expensive foods and hence they pay the highest price per kcal at Rs. 4.44 per day. In contrast, despite low incomes, the price paid in Orissa is only Rs. 2.80. There are other States where prices are high compared to incomes, thus forcing the poor to eat less. For example, in Kerala the price paid per kcal is higher than that of Jammu & Kashmir at Rs.4.56, whereas the total consumer expenditure is only Rs.341.27. Relative income differentials and relative price differentials influence calorie consumption. Thus Kerala seems to be at a disadvantage compared to Maharashtra where the price differentials are much higher than the income differentials. Per capita total expenditure of the lowest 10 percent in Kerala is higher than that of Maharashtra by about 8 percent whereas the price per kcal is higher by about 48 percent. It is possible that the food habits of Kerala may be more skewed towards expensive foods such as fish compared to the food in Maharashtra that has only cereals. (Tables 2.8 and 2.9)

For the lowest 10 percent of the population, adequate calories are equally important. The factors that facilitate better calorie consumption are lower food prices coupled with higher incomes. Hence, we cannot take higher levels of wages as the prosperity index of the lower income groups. Further, higher average prosperity in the urban areas in a State cannot be taken as a sign of the welfare of the poor in that State.

There are many other factors that make food expensive to the urban consumer. Availability of food is much better in urban areas than remote rural areas, as the major demand comes from the higher income groups. In addition to the supply and demand conditions, the price of food depends upon transport costs and trade competition. Trade in foodgrains, particularly the wholesale trade, is monopolised in many States. Transportation costs are high as private trade uses expensive diesel trucks for road transportation (Chandra 2000). Hence, the supply position within the States and in the neighbouring States as well as freedom of movement influence prices. The effect of abundant supply on prices paid at the average level is supported by the cross- section data. Net availability and surplus of per capita production over the ICMR per capita norm has significant negative correlation with the average implicit price of cereals, the coefficient of correlation being -0.581 for 20 States. The implicit price paid for cereals is lower in food-surplus States than in food-deficit States.

To find out if the urban poor have any substantial expenses on housing, clothing, and so on that prevent them from spending more on food, we have examined the pattern of expenditure on food and non-food items such as rent and clothing. Expenditure on food is lowest in Maharashtra at 44.69 percent, with the highest at 71.20 percent in Assam. The share of rent in the total expenditure for the lowest 10 percent is no more than 1 percent for the country as a whole. It is highest at 3.30 percent in Andhra Pradesh and at 2.57 percent in Delhi. Surprisingly, the share of expenditure on clothing is higher than rent at 6.91 percent for urban India It varies between 1.61 percent in Himachal Pradesh to 8.54 percent in Madhya Pradesh. Thus, cost of housing does not seem to have any influence on the food expenditure and calorie intake of the urban poor. (Table 2.9)

2.4 Intensity of Urbanisation and Food Intake of the Poor

We have dealt with two aspects of urbanisation: the share of urban population in the total population of the State and the concentration of urban population in cities and big towns. The intensity of urbanisation is more when the share of urban population is larger and when the population is concentrated in big towns and cities. Ideally, these two aspects can be studied together, if we calculate the 'Gini ratio', using the distribution of population and the distribution of the number of urban entities in various size classes of towns. However, such an exercise has not been undertaken. The main reason is the non-availability of data on urban agglomerations as per the 2001 Census. At present, data are available as per administrative entities, such as municipality, corporation, or town panchayat. Each administrative unit is considered as a separate town or city, though they are contiguous areas. Urban agglomeration on the other hand takes care of the continuous urban spread and well-recognised urban outgrowths. Unless we take into consideration such well-recognised agglomerations as a single entity, the 'Gini ratio' will be lower even when the intensity of urbanisation is high in a particular State (Appendix 2.2). Another disadvantage is that the urban outgrowths have been left out of the town population. At present the total town and city population is lower than the urban population of the States.

There can be many reasons for the lower levels of cereal consumption and food intake by the lower sections of the people. The intensity of urbanisation may have an indirect influence. The urbanisation of nineteenth century Europe and twentieth century East Asia helped work force to shift to high paid regular employment in the growing organised industrial sector. In India, the increasing urbanisation is mostly due to a shift to the unorganised service sector. Poor, unskilled workers migrate to urban areas in search of work and end up as casual labour or are self-employed as vendors and semi-skilled workers. They occupy the lower rungs of the urban economic ladder. Higher urbanisation leads to more demand for food and prices are higher. Even though wages are higher than in rural areas, the uncertain nature and irregular days of employment may force the urban low-income groups to settle for low intake of food in terms of calories. The situation would be worse when urban centres are not close to areas of abundant food surpluses. As has been observed, the adequacy of production plays an important role via prices paid for food items. The nature of employment also has a bearing on the affordability.

Let us first examine the level of urbanisation and concentration of urban population across the States before we link them up to food intake via employment and food prices. India is still predominantly rural. For the country as a whole, the urban population is only 27.78 percent in 2001 compared to about 25.71 percent in the 1991 Census. The share of urban population has increased by just 2.06 percent in the past decade. Previous decades have shown a larger increase in urban population (see Table 2.10). Thus the process of urbanisation has decelerated to some extent, though there are variations across the States.

Table 2. 10
Share of urban population in India (%)

Year	Share of urban population	Increase In the share
1951	17.29	3.43
1961	17.97	0.68
1971	19.91	1.94
1981	23.34	3.43
1991	25.72	2.38
2001	27.78	2.06

The Union Territories of Delhi, Chandigarh, and Pondicherry comprise only big cities and hence have high urban populations. Goa, Daman and Diu, Lakshadweep, and the Andaman and Nicobar Islands also record relatively high urban populations. If we look at the bigger States, the most urbanised in 2001 was Tamil Nadu with 43.86 percent population in urban areas. It also shows the highest increase in urban population, at about 10 percent. It has been argued by some that Tamil Nadu may have overestimated the urban population. However, a closer look at the sources of overestimation indicates that it cannot be high even if present.[7]

After Tamil Nadu, Maharashtra has the highest percentage of urban population at 42.40 percent. Gujarat has an urban population of 37.35 percent, and both the Punjab and Karnataka account for about 34 percent. Himachal Pradesh, Bihar, Sikkim, Assam, and Orissa are the least urbanised States, with urban populations of less than 15 percent. (Table 2.11)

Some States show concentration of more than 40 percent of the population in big towns and the others show a more spread-out picture, with people living mostly in smaller and medium-sized towns. It is interesting to note that most of the States with levels of urbanisation above or close to the all-India average

7 See Appendix 2.1

Table 2.11
Intensity of Urbanisation

		1	2	3	4
S.No.	State	Percentage of population living in towns less than 50000	Percentage of population living in towns 50000-2 lakh	Percentage of population living in towns above 2 lakh	Percentage of urban population
1	Andhra Pradesh	13.47	36.33	50.21	27.08
2	Assam	47.23	28.10	24.67	12.72
3	Bihar	29.18	34.53	36.29	10.47
4	Gujarat	19.59	26.87	53.54	37.35
5	Haryana	24.09	37.98	37.92	29.00
6	Himachal Pradesh	76.10	23.90	0.00	9.79
7	Jammu & Kashmir	31.76	10.74	57.50	24.88
8	Karnataka	25.31	22.52	52.17	33.98
9	Kerala	41.61	25.31	33.08	25.97
10	Madhya Pradesh	36.01	25.16	38.83	26.67
11	Maharashtra	14.70	11.27	74.03	42.40
12	Orissa	37.76	26.92	35.32	14.97
13	Punjab	25.37	30.30	44.32	33.95
14	Rajasthan	29.58	23.09	47.33	23.38
15	Tamil Nadu	42.95	21.65	35.41	43.86
16	Uttar Pradesh	29.74	22.23	48.04	20.78
17	West Bengal	17.05	30.62	52.33	28.03
18	Delhi	7.23	13.89	78.88	93.01
19	Chandigarh	0.00	0.00	100.00	89.78
20	Pondicherry	12.85	12.64	74.51	66.57
	All India	26.22	23.73	50.05	27.78

Source: Census of India 2001

have shown concentrations of population of more than 2 lakhs in big towns and cities. Andhra Pradesh, Gujarat, Karnataka, Maharashtra, the Punjab, and West Bengal show this pattern. All these States also have more than the national average level of urbanisation. The exceptions are Haryana and Tamil Nadu. One-thirds of the urban population of these two States are in small towns of less than 50000 population, though both show higher than the national average of urbanisation. However, these two States may have a large population of 40 percent and more in big towns by the next decade. A closer study of urban agglomerations may put them in this category.

In States like Himachal Pradesh, Bihar, Assam, Uttar Pradesh, Rajasthan, Kerala, and Madhya Pradesh, with lower levels and less than average urbanisation, most of the population live in small and medium towns.

The next important issue is to examine whether the urban poor in the States with higher intensity of urbanisation are worse off than the other States. There seems to be a negative relationship between the level of urbanisation and the cereal intake of the lowest 10 percent of the population. Cereal intake is more crucial to the urban low income groups, since more than 80 percent of their calories come from cereals. As we

have already noticed, not only cereal consumption, but also calorie consumption of the lowest deciles in some States is lower than the acceptable levels.

The level of urbanisation represented by the share of urban population in the total population shows a significant negative correlation with per capita cereal intake of the lowest 10 percent of the population in the urban areas. In other words, higher the share of urban population, lower the consumption of the cereals by the lowest 10 percent.

However, significant correlation was not found between the concentrations of urban population and cereal intake. The main reason is the exception of Kerala and Tamil Nadu where the levels of calorie intake are low, despite lesser concentrations of urban population in cities and big towns. The urban population is more spread out in small and medium-sized towns. When we exclude these two States, we find the significant correlation of 0.501 for 18 States. In general, wherever urbanisation is tilted towards smaller towns, cereal consumption as well as calorie intake of the lowest 10 percent of the urban population is higher.

Kerala and Tamil Nadu are deficit States for cereal production and their livelihood patterns also show a large percentage of casual labour. Hence here the affordability of the lower income groups must be minimal, leading in turn to low levels of cereal and calorie consumption. These States have to depend upon other States for staple foods. High prices coupled with risky livelihoods influence the calorie and cereal intake of their poorest. In all the States with surpluses in cereal production and lower intensity of urbanisation, the calorie intake of the lowest 10 percent is high.

Thus, food security in the States appears to be a function of the intensity of urbanisation and the availability of abundant supply of at least the staple foods. Himachal Pradesh, Jammu & Kashmir, the Punjab, Haryana, Rajasthan, Madhya Pradesh, Bihar, and Orissa, illustrate this situation. The results of the multiple regression exercise also support this view. The level of urbanisation, surplus or deficit position of the State, and percentage of casual labour among the low income population turn out to be significant factors in explaining the variations in cereal consumption as well as calorie intake. (Appendix 2.3)

2.5 The Role of the Public Distribution System

The public distribution system (PDS) has shrunk in recent years. The changeover to the Targeted Public Distribution System (TPDS) has drastically changed its use after 1997. There are other problems that have contributed to the decline of PDS. The increase in the issue price of rice and wheat in the TPDS and a decline or non-escalation of prices in the open market have contributed to the reduced use of PDS by the urban people. Other issues such as lack of reliability, low quality of PDS grain, and diversion of PDS grain to the open market have added to the crisis of low levels of purchase from ration shops and piling up of stocks with the Food Corporation of India.

The so-called TPDS has missed its target consumers by a huge margin as witnessed by the piling up of stocks and the numbers of persons consuming inadequate calories. There are several factors at work, like the increase in price of PDS foodgrains, reduction in the quantity distributed, creation of Above Poverty Line (APL) and Below Poverty Line (BPL) categories, and so on. Then there are the issues of relative efficiency of implementation, the relative prosperity of the State, identification of APL and BPL population, the allotment of BPL foodgrains to the State, and finally the efficiency of the system in reaching it to the needy (Madhura Swaminathan 2002).

The policy of dual pricing has also bred corruption. Bogus ration cards, large-scale diversion

of PDS foodgrains to the open market, undermeasurement, reporting of large distribution and storage losses, irregular supply and variations in entitlements are found in almost all the States to some degree or other.[8] Denial of ration cards to migrants is also common in many States. The poorest of the poor get excluded more than the others.

PDS has no doubt operated more extensively in the urban set-up than in the rural areas in earlier years, before the introduction of TPDS (Howes and Jha 1992). The best years for PDS were the early 1990s. Since then, the off-take has declined for the country as a whole. In 1991, 21 million tonnes of grain were distributed through the system of public provisions. In 2000, it has declined to a mere 12.1 million tonnes. In 2001, the distribution may not exceed 10 million tonnes, and 2002 is expected to be worse.

Let us see the impact on the per capita consumption of PDS foodgrains for all classes and for the lowest 10 percent of the urban population, in 1993–94 and in 1999–2000. Data available from the NSS 50th Round and NSS 55th Round show that for the country as a whole, the distribution through PDS has declined from 1.14 kg per person per month to 0.97 kg per person per month from 1993–94 to 1999–2000.[9]

In some States, particularly the southern States, PDS was extended beyond the support of the central government, whereas in others, resources were not made available after 1996. In Bihar and Orissa, after the introduction of TPDS, allocation has increased substantially. Though Orissa seems to have made the foodgrains available to the urban population, in Bihar the distribution was not good and the increase in consumption was minimal.

Irrespective of differences in the policies and problems of implementation, the States that reach foodgrains to the needy at affordable prices are the best States for availability and affordability.

The consumption of cereals from PDS is a valid indicator of the efficient working of the system. We have examined PDS consumption in 1993–94 as well as 1999–2000, at the average level and for the lowest deciles across the States. [10]

The consumption of PDS foodgrains was too insignificant in many States to make an impact on the calorie consumption of the poor. As per the NSS 55th Round data, the per capita monthly consumption of foodgrains out of PDS in urban India was highest in Jammu & Kashmir at 5.08 kg, followed by Kerala at 4.02 kg, Tamil Nadu at 2.48 kg, Delhi at 1.82 kg. In Orissa per capita consumption of PDS rice was 1.68 kg, higher compared to Andhra Pradesh at 1.48 kg and Karnataka at 1.16 kg. In Bihar it was low at 0.23 kg. (Table 2.12)

There has been a substantial decline, by 40 to 50 percent, in PDS distribution at the average level in Assam, Gujarat, Haryana, Madhya Pradesh, Rajasthan, West Bengal, Chandigarh, and Pondicherry and to a lesser extent in Delhi. Jammu & Kashmir, Tamil Nadu, Bihar, and Orissa distributed more PDS grain after the introduction of TPDS.

Very few States have distributed at least one-thirds of the per capita requirement, even to the lowest 10 percent of the population. Only Jammu & Kashmir, Kerala, and Himachal Pradesh provided more than 3 kg per capita per month in 1993–94 to the lowest 10 percent in urban areas. In 1999–2000, Jammu & Kashmir, Kerala, Tamil Nadu, and Delhi have done

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8 Tata Economic Consultancy Services, New Delhi. " Study to Assess the Extent of Diversion of PDS Commodities", February 1998.

9 The problem of non-comparability may also arise in the case of PDS.

10 The specially reclassified information has been made available by NSSO for limited circulation.

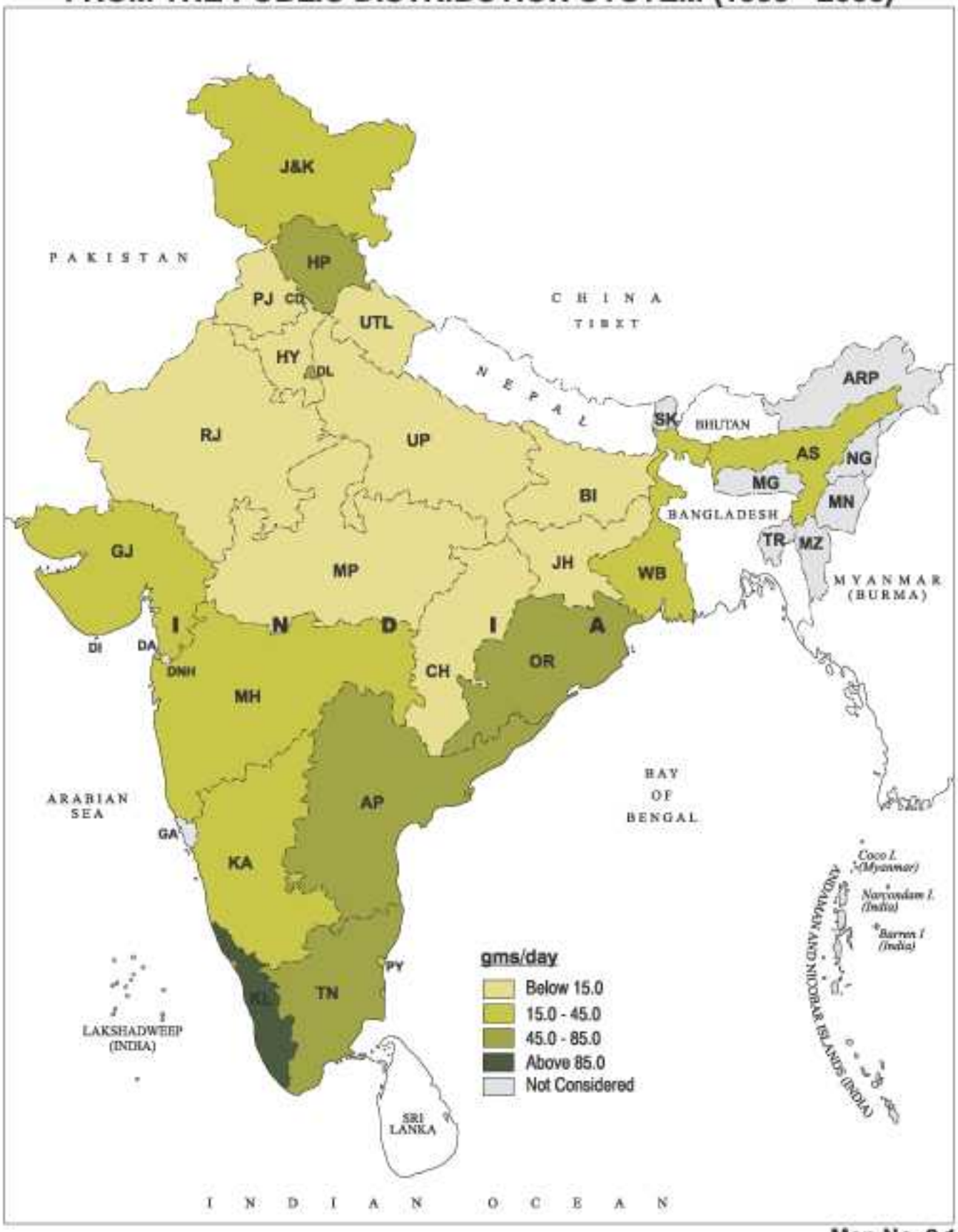
Table 2.12

Consumption from PDS

		1	2	3	4	5	6	7
S.No.	States	Consumption of PDS by the lowest 10 percent (kg/month) (1993-94)	Consumption of PDS by all classes (kg/month) (1993-94)	Consumption of PDS by the lowest 10 percent (kg/month) (1999-2000)	Consumption of PDS by all classes (kg/month) (1999-2000)	Percentage change in PDS all classes	Estimated percentage of diversion to allotment of wheat	Estimated percentage of diversion to allotment of rice
1	Andhra Pradesh	2.53	1.71	2.04	1.48	-13.45	15.00	19.00
2	Assam	1.07	1.11	1.61	0.62	-44.14	NA	NA
3	Bihar	0.07	0.15	0.29	0.23	53.33	44.00	34.00
4	Gujarat	1.59	0.82	1.01	0.49	-40.24	23.00	21.00
5	Haryana	0.08	0.13	0.04	0.06	-53.85	53.00	44.00
6	Himachal Pradesh	3.31	2.50	2.11	1.37	-45.20	47.00	18.00
7	Jammu & Kashmir	5.43	4.44	5.09	5.08	14.41	28.00	29.00
8	Karnataka	0.97	1.54	1.18	1.16	-24.68	30.00	18.00
9	Kerala	4.54	4.31	4.78	4.02	-6.73	28.00	23.00
10	Madhya Pradesh	0.63	0.47	0.34	0.24	-48.94	20.00	24.00
11	Maharashtra	0.58	0.82	0.77	0.56	-31.71	26.00	30.00
12	Orissa	0.11	0.48	1.53	1.68	250.00	39.00	54.00
13	Punjab	0.09	0.07	0.45	0.12	71.43	69.00	40.00
14	Rajasthan	1.30	0.91	0.31	0.18	-80.22	31.00	36.00
15	Tamil Nadu	1.75	1.94	3.25	2.48	27.84	24.00	33.00
16	Uttar Pradesh	0.07	0.26	0.36	0.27	3.85	46.00	49.00
17	West Bengal	1.03	1.61	0.89	0.62	-61.49	40.00	34.00
18	Delhi	1.95	2.24	3.08	1.82	-18.75	53.00	53.00
19	Chandigarh	1.25	0.31	0.07	0.14	-54.84	NA	NA
20	Pondicherry	1.19	1.60	1.57	0.99	-38.13	NA	NA
	All India	0.96	1.14	0.91	0.97	-14.91	NA	NA

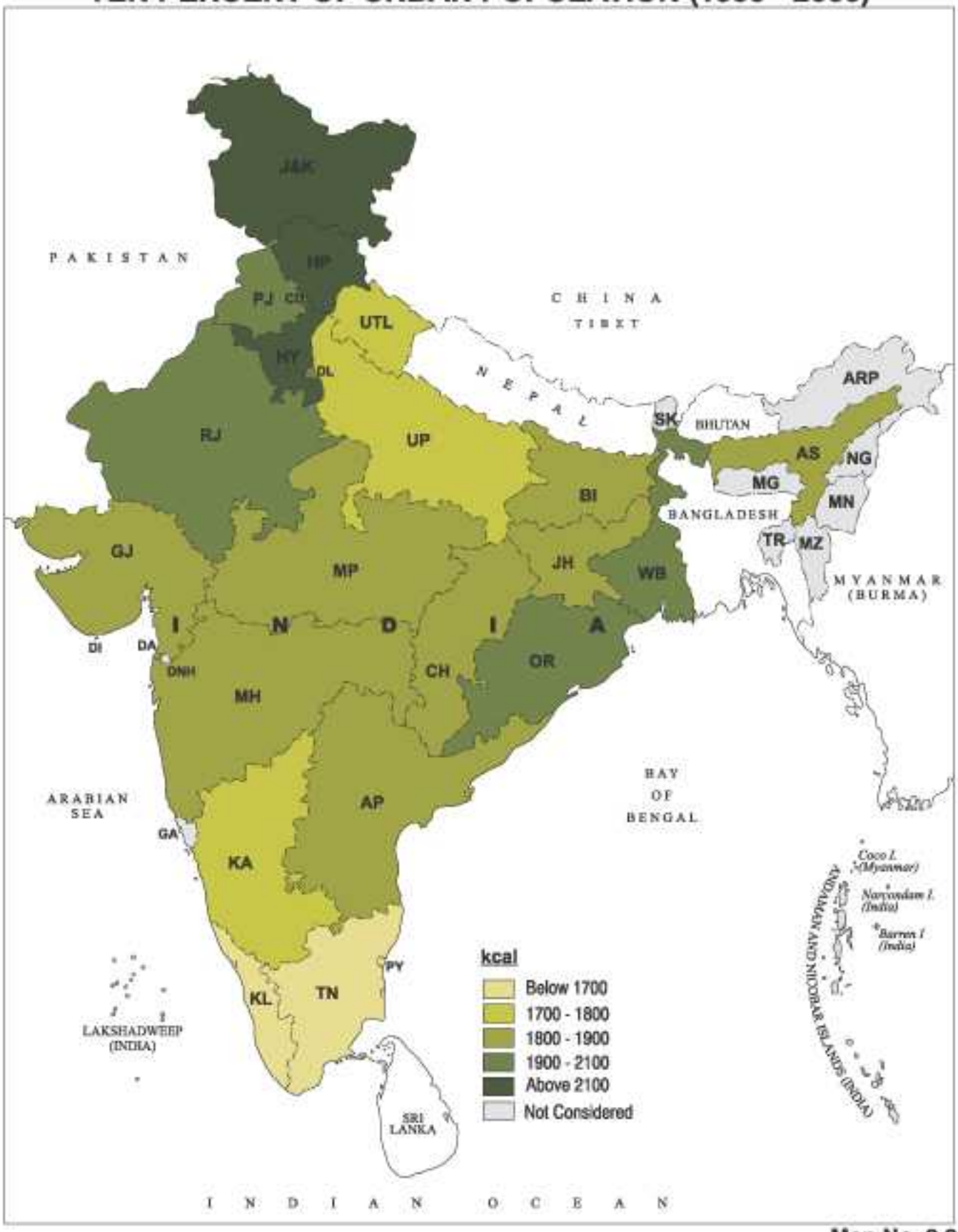
Source: NSSO 50th Round Report No. 402, NSSO 55th Round Report No.457, & Tata Economic Consultancy Services

PER CAPITA URBAN CONSUMPTION OF FOOD GRAINS FROM THE PUBLIC DISTRIBUTION SYSTEM (1999 - 2000)



Map No. 2.1

PER CONSUMER UNIT CALORIE INTAKE BY LOWEST TEN PERCENT OF URBAN POPULATION (1999 - 2000)



Map No. 2.2

so. Thus the impact of PDS on the nutritional status of the population has been negligible even for the lowest 10 percent. It appears as if PDS has become ineffective even in best-managed States such as Kerala. This is a danger signal for the food security of the vulnerable. It is important to make PDS grain available to the low-income population at low prices.

As the official poverty levels are high in poor States and more persons are covered under PDS in these States, the per capita consumption is high. The use of PDS is also more in the States with deficit production and higher prices in urban areas, such as Tamil Nadu and Kerala.

Again, the overall prosperity of the urban population, the relative supply position of foodgrains in the States, and low prices of food all have a bearing on PDS consumption. In the Punjab, Haryana, Chandigarh, and to some extent in Rajasthan and Uttar Pradesh, the consumption from PDS is very low in urban areas. In Uttar Pradesh and Rajasthan, foodgrain prices may already have been low enough to dissuade purchase from ration shops.

A study by Tata Economic Consultancy Services has estimated the percentage of diversion of foodgrains from PDS to the open market. The overall diversion for the country was estimated as 36 percent of wheat and 31 percent of rice and 23 percent of sugar. The States with the largest diversion for wheat were the Punjab, Haryana, and Delhi at more than 50 percent followed by Himachal Pradesh, Uttar Pradesh, and Bihar, West Bengal, and Orissa, at about 40 to 47 percent. Andhra Pradesh has the least diversion rate at 16 percent for wheat.

In respect of rice, the diversion has been estimated to be highest in Orissa at 54 percent, followed by 53 percent in Delhi, 49 percent in Uttar Pradesh, and 44 percent in Haryana. It was lowest at 19 percent in Andhra Pradesh. The diversion of rice and in Kerala was estimated at 23 percent and in Tamil Nadu at 33 percent.

The Tata Economic Consultancy Services study refers to 1998, and covers 71 districts all over India. Twelve fair price shops and 120 beneficiaries are covered in each district. The method used to arrive at the rates of diversion from PDS is calculation of the difference between the estimated total receipts by the beneficiaries and the total off-take of the district. Some government officials are of the view that the estimates of diversion are too high and the method of estimation of the receipt by the beneficiaries may not capture all the receipts. More detailed surveys are required to assess the diversion.

2.6 Affordability Index

After looking into the interrelationships between various factors and examining the capacity of various indicators to explain the variations in the calorie consumption of the lowest 10 percent of urban population, we have decided to use only two indicators for affordability and availability—the consumption of foodgrains per capita out of PDS and the calorie consumption of the lowest 10 per cent of the population (Map 2.1 and Map 2.2).

We have chosen the consumption of PDS grain per capita as a key indicator of food availability, not so much because of the quantity of consumption, but more to reflect the capacity of the system to reach food to the poor. This is clearly seen in the average per capita consumption. Now that the Committee on Long-term Grain Policy has recommended repealing the targeted distribution system and making it universal, the ability of the State to do so is crucial.

We have chosen the calorie consumption of the lowest 10 percent of population as the other key indicator. Factors like surplus or deficit in cereal consumption, average cereal consumption, the percentage of population consuming less than 1890 kcal, are all closely correlated to the calorie consumption of the lowest 10 percent of population.

Table 2.13
Food Affordability Index

		1	2	3	4	5	
Sl No	State	Per capita consumption of of PDS foodgrains (gm/day)	PDS Consumption Index	Calorie intake by the lowest 10 percent (kcal/cu/day)	Calorie Intake Index	Food Affordability Index	Rank
1	Andhra Pradesh	49.33	0.64	1842	0.66	0.653	13
2	Assam	19.00	0.87	1876	0.62	0.745	8
3	Bihar	7.67	0.96	1813	0.70	0.829	3
4	Gujarat	16.33	0.89	1829	0.68	0.786	6
5	Haryana	2.00	1.00	2212	0.19	0.593	15
6	Himachal Pradesh	45.67	0.67	2222	0.17	0.421	19
7	Jammu & Kashmir	38.67	0.72	2357	0.00	0.361	20
8	Karnataka	38.67	0.72	1776	0.75	0.735	10
9	Kerala	134.00	0.00	1581	1.00	0.500	17
10	Madhya Pradesh	8.00	0.95	1867	0.63	0.793	5
11	Maharashtra	18.67	0.87	1867	0.63	0.753	7
12	Orissa	56.00	0.59	2100	0.33	0.461	18
13	Punjab	3.67	0.99	1979	0.49	0.737	9
14	Rajasthan	6.00	0.97	2071	0.37	0.669	12
15	Tamil Nadu	82.67	0.39	1676	0.88	0.633	14
16	Uttar Pradesh	9.00	0.95	1765	0.76	0.855	1
17	West Bengal	20.67	0.86	1900	0.59	0.723	11
18	Delhi	60.67	0.56	1943	0.53	0.544	16
19	Chandigarh	4.67	0.98	1803	0.71	0.847	2
20	Pondicherry	42.00	0.70	1665	0.89	0.794	4

Even the average calorie consumption of the State is correlated to the calorie consumption of the lowest 10 percent. Hence we have taken this calorie consumption of the lowest 10 percent as the representation of the affordability of food in urban areas. If urban lower expenditure classes are eating well, it reflects a good affordability position of the entire urban area. It also reflects whether prosperity has been reaching the urban poor or not.

We have calculated the Affordability Index with these two indicators without giving any weights. In effect, they get equal weight. (Table 2.13) The State that has fared the best has been assigned the last rank (i.e., 20) and the State that has come out worst has been given rank 1.

Jammu & Kashmir, Himachal Pradesh, and Orissa are the best in terms of the Affordability Index, followed by Delhi. This is an expected outcome, because the poorer sections eat well in these States. Low prices as well as relatively high incomes reflected by low poverty levels have lead to better calorie consumption through a diversified food basket. In Orissa, there are three advantages for the urban poor. First, prices are low, due to better availability. Second, though poverty is very high, consumption is concentrated in cereals, and cereal prices are low in Orissa. Third, the public distribution system seems to be fairly good in urban Orissa after the introduction

of TPDS. As we have already mentioned, affordability depends upon the prices paid, incomes received, and the public distribution system.

Uttar Pradesh, Chandigarh, Bihar, and Pondicherry, with low levels of consumption of PDS grain and low intake of calories come out as the worst States in terms of affordability. The problem of Pondicherry is two-fold. It is close to the deficit States and prices are high. Also, the per capita incomes are not as high as that of Haryana or Delhi or the Punjab. Low levels of consumption are purely due to low affordability and lack of support from PDS. The case of Chandigarh is an enigma. It could be a problem of the sample not being representative or there could be some underfed and exploited construction and migrant labour. It is not clear. Further investigation is needed in this case. (Table 2.13)

Appendix 2.1

Controversy About the Reference Period of National Sample Surveys

Right from the inception of the consumption surveys of the National Sample Surveys (NSS), the choice of a suitable reference period has been a bone of contention. A special investigation into this issue was carried out during March–April 1952 under the guidance of P.C. Mahalanobis, based on 1254 households of 76 villages of West Bengal. The households were divided into two groups. The consumption details collected from one group were by actual weighing of the food items. Data collection for the second group was through administering questionnaires, and here again the group was divided into two, one in which the questions pertained to a reference period of one week and in another the reference period was one month.

It was found that in the 7-day reference period, the consumption figures recorded were much higher than that obtained from the one-month recall period. It was also found that the one-month recall generated information that corresponded more closely to the data obtained on the basis of actual weighing of the food items (Mahalanobis and Sen 1954). This led to the conclusion that the one-month reference period was better suited for the purpose of estimating food consumption through the survey methodology in India, although a one-week reference period was the standard then in budget surveys in the West.

The one-month reference period has been consistently used for consumption surveys for food items in India since then. However, during the 1990s, the question of the most suitable reference period for food consumption resurfaced. This was due to many reasons, but essentially because past NSS Rounds have thrown up certain puzzles regarding food consumption that have yet to be resolved. NSS figures of cereal consumption have shown lower growth than the official estimates of cereal production. Secondly, though this slow growth has been attributed to a shift in food consumption pattern to other foods, NSS itself has consistently estimated lower consumption of most non-cereals food items.

In an effort to test whether some of these differences are due to recall, the NSS, in its recent thin samples, experimented with alternative schedules administered to independent sub-samples during the course of the same survey. This was done for Rounds 51 through 54. In all these Rounds, one half of the sample (Type 1) had a reference period of 30 days for all items, and the other half (Type 2) had one week, one month, and one year reference periods for different items. But since the Type 2 schedule was not comparable to the previous surveys, the results by this schedule were not tabulated in the NSS reports on consumer expenditure for the relevant Rounds. All available analyses of consumer expenditure and of poverty during the 1990s are based on the Type I schedule.

However, in a separate report, NSSO released comparative results on consumer expenditure and its distribution, as obtained from Type 1 and Type 2 schedules canvassed during Rounds 51 to 54. From the results, it emerges that the one-week recall gives much higher estimates of overall food consumption, exactly as Mahalanobis had found in the early NSS surveys and confirmed through pilot investigation in West Bengal villages in 1952.

The latest Round of NSS relating to rural and urban consumption expenditure has excited much interest even before the publication of the results. NSS has chosen to incorporate both the one-week and the one-month recall periods for the same sample, such that two different schedules of Type 1 (one month) and Type 2 (one week) have been canvassed from every sample.

Now the argument is that, since both types of schedules have been used on the same households, there would have been a pressure for consistency between answers to the 7-day and the 30-day reference periods on the part of both respondents and investigators. It is very likely that when the same household is questioned with a one-week as well as one-month recall period, the answers will be tested by simple multiplication of the one-week reply for the monthly response. Hence, the results cannot be treated as independent. Both are likely to differ from the earlier Rounds, depending upon the exact conflation of the reference period.

The credibility of NSS can be salvaged if the experimental nature of the 55th Round is stressed, and all data available from it are released for independent research. However, another Consumer Expenditure Survey using a large sample will need to be conducted as soon as possible to give results which are officially comparable with previous Rounds, while incorporating whatever valid lessons might have been learnt in this and previous experimental surveys (Chandrasekhar and Ghosh).

[Based on Sen 2002]

Appendix 2.2

Concepts and Definitions

All areas under municipal corporations, municipalities, cantonment boards, nagar panchayats, or town panchayats have been considered to be urban areas. In addition, all other areas that satisfy the following criteria have been taken to belong to this category.

- A minimum population of 5000
- A density of population of 400 persons per sq. kilometres
- At least 75 percent of male working population engaged in non-agricultural pursuits

Due to their predominantly urban character, university campuses, project sites, etc., have been considered as census towns, even though the population is less than 5000.

Both villages and towns can have populations of 5000 and 10,000. Hence it is possible for the State governments to declare some villages as town panchayats. Hence we have looked into all towns with a population of 5000 or less that were classified as nagar panchayats or town panchayats. Tamil Nadu and Madhya Pradesh appear to have a large number of towns/nagar panchayats.

There are 180 town panchayats in Tamil Nadu with a population of 10,000 or less. Tamil Nadu has the largest number of town panchayats. They accounted for 6.6 percent of the urban population of Tamil Nadu. Town panchayats with a population of 5000 or less are only 11. The population of these

Table A2.2.1
Town Panchayats in Tamil Nadu in 2001

Size Classes	No. of TP	Population in TP	Population in TP as a percentage of total *urban population
Less than 5000	11	42,721	0.157
Between 5000-10,000	169	13,73,933	5.044
* Urban population of Tamil Nadu 2,72,41,553			

places as a percentage of total urban population is negligible at less than 1 percent. Hence, the overestimation seems to be minimal on this account. For assertion of overestimation or otherwise, we have to await the full results of the 2001 Census.

The Census authorities have introduced a new concept of urban outgrowth in the 2001 Census. An urban outgrowth is a village that has urban characteristics, but it is not contiguous. Urban outgrowths are not separately listed, but their population has been included in the urban population and not in the population of towns. Hence the population of all the towns does not correspond to the urban population of the States. Further, the Census was not conducted in parts of Gujarat, due to the earthquake. However, the estimated population has been added to the total urban population.

The concept of urban agglomerations has been introduced since the 1971 Census. An urban agglomeration is a continuous urban spread constituting a city or town and its adjoining urban outgrowth or two or more physically contiguous cities/ towns together with continuous, well-recognized urban outgrowths, if any, of such cities /towns.

Table A2.2.2 gives the population of urban agglomerations in the four major cities.

Table A2.2.2
Urban Agglomerations in Major Cities

Name	Population 1991	Population 2001
Chennai	54,21,985	64,24,624
Greater Mumbai	1,25,96,243	1,63,68,084
Kolkata	1,10,21,918	1,32,16,546
Delhi	84,19,084	1,27,91,458

The distribution of population among various size classes of States is given in Table A2.2.3.

Table A2.2.3

Pattern of Urbanisation

		1	2	3	4	5	6	7
Sl No.	State	Percentage of population living in towns below 5000	Percentage of population living in towns 5000-10000	Percentage of population living in towns 10000-20000	Percentage of population living in towns 20000-50000	Percentage of population living in towns less than 50000	Percentage of population living in towns 50000-2lakh	Percentage of population living in towns above 2lakhs
1	Andhra Pradesh	0.04	0.73	2.54	10.16	13.47	36.33	50.21
2	Assam	0.56	10.91	15.52	20.24	47.23	28.10	24.67
3	Bihar	0.00	0.50	3.60	25.08	29.18	34.53	36.29
4	Gujarat	0.25	1.10	4.92	13.31	19.59	26.87	53.54
5	Haryana	0.07	2.14	8.79	13.08	24.09	37.98	37.92
6	Himachal Pradesh	12.07	19.10	19.06	25.87	76.10	23.90	0.00
7	Jammu & Kashmir	2.84	7.23	12.69	9.00	31.76	10.74	57.50
8	Karnataka	0.19	1.56	5.37	18.19	25.31	22.52	52.17
9	Kerala	0.06	1.60	7.63	32.32	41.61	25.31	33.08
10	Madhya Pradesh	0.25	4.34	13.45	17.97	36.01	25.16	38.83
11	Maharashtra	0.07	0.89	3.63	10.11	14.70	11.27	74.03
12	Orissa	2.37	3.24	13.13	19.03	37.76	26.92	35.32
13	Punjab	0.33	2.56	9.99	12.49	25.37	30.30	44.32
14	Rajasthan	0.15	1.17	7.32	20.93	29.58	23.09	47.33
15	Tamil Nadu	0.21	6.31	17.46	18.97	42.95	21.65	35.41
16	Uttar Pradesh	0.14	3.04	11.00	15.56	29.74	22.23	48.04
17	West Bengal	0.56	4.05	4.88	7.56	17.05	30.62	52.33
18	Delhi	0.08	0.49	1.22	5.44	7.23	13.89	78.88
19	Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	100.00
20	Pandichery	0.00	1.26	0.00	11.59	12.85	12.64	74.51
21	Arunachal Pradesh	3.72	15.40	43.23	37.66	100.00	0.00	0.00
22	Manipur	3.53	20.94	17.33	19.64	61.44	38.56	0.00
23	Meghalaya	0.00	1.91	24.55	31.28	57.74	42.26	0.00
24	Mizoram	5.51	10.48	15.19	16.73	47.92	0.00	52.08
25	Nagaland	0.00	0.00	12.89	34.40	47.29	52.71	0.00
26	Tripura	0.00	10.65	21.12	33.37	65.14	34.86	0.00
	All India	0.36	2.85	8.08	14.93	26.22	23.73	50.05

Source: Census of India 2001

Appendix 2.3

Cereal Consumption and Urbanisation

An attempt was made to examine the functional realtionship between food intake and level of urbanisation. The variables considerd were as follows.

1. Calorie Intake = Kcal per consumer unit (kcal/cu)
2. Cereal intake = Kg per capita per month (kg/capita)
3. Urbanisation = Proportion of urban population to total population of the State (ur/tp)
4. Casual labour = Population belonging to the casual labour household type in urban areas (clhh)
5. Surplus/deficit of net cereal production per capita in (kg/month) over the consumption norms per capita per month recommended by ICMR (np/icmr)
6. Unemployment = Percentage of unemployed in current daily status (unemdst)

The following multiple regression functions have been fitted.

1.Kcal/cu = f (ur/tp, clhh, np/icmr)
2.Kcal/cu = f (ur/tp, clhh, kg/capita)
3.Kg/capita = f (ur/tp, clhh, np/icmr)
4.Kcal/cu = f(ur/tp, unemdst)

The results are summarised below

1.Kcal/cu = 2213.46 - 3.90 (ur/tp) - 5.80 (clhh) + 32.66 (np/icmr)
(10.3) (-1.94) (-1.27) (0.81)
Multiple R = 0.55
R^2 = 0.300 (2.29)

2.Kcal/cu = 1587.74 + 64.24 (kg/capita) - 0.59 9 (ur/tp) - 6.56 (clhh)
(4.31) (2.18) (-0.29) (-1.93)
Multiple R = 0.66
R^2 = 0.44 (4.17)

3.Kg/capita = 12.61 - 0.03 (ur/tp) - 0.04 (clhh) - 0.39 (np/icmr)
(8.16) (-2.23) (-1.38) (-1.37)
Multiple R = 0.65
R^2 = 0.42 (3.83)

4.Kcal/cu = 2250.93 - 2.96(ur/tp) - 3.04 (unemdst)
(19.18) (-2.73) (-1.82)
Multiple R= 0.60
R^2 = 0.36 (4.80)

The figures in brackets are F values or t values

Table A2.3.1

Correlation Matrix

	1	2	3	4	5	6
1	1.000					
2	0.554	1.000				
3	-0.282	-0.574	1.000			
4	-0.370	-0.019	-0.208	1.000		
5	0.212	-0.385	0.459	-0.581	1.000	
6	-0.486*	-0.016	-0.139	0.486*	-0.433	1.000

1 Calorie intake of the lowest ten percent
2 Per capita cereal consumption of lowest ten percent
3 Urbanisation
4 Percentage of causal labour among the lowest ten percent
5 Surplus of per capita net production over ICMR norm of 12.6 Kg/capita
6 Percentage of unemployed in current daily status

Table A2.3.2

Calorie Intake and Urbanisation

		1	2	3	4	5	6
Sl. No.	States	Calorie intake of the lowest 10 percent	Per capita cereal consumption of lowest 10 percent	Urbanisation	Percentage of casual labour among the lowest 10 percent	Surplus of per capita net prod. over ICMR cons. norm 12.6 kg/capita	Current daily status unemployment rate
1	Andhra Pradesh	1841.57	9.67	27.08	44.13	0.94	76
2	Assam	1876.11	10.68	12.72	31.85	0.78	119
3	Bihar	1813.00	9.87	10.47	38.23	0.93	93
4	Gujarat	1828.77	7.62	37.35	41.75	0.52	42
5	Haryana	2212.20	7.66	29.00	33.12	3.25	45
6	Himachal Pradesh	2222.28	10.47	9.79	24.53	1.33	78
7	Jammu & Kashmir	2356.61	11.50	24.88	49.43	0.79	66
8	Karnataka	1776.14	8.57	33.98	42.29	0.94	54
9	Kerala	1580.95	6.93	25.97	58.03	0.14	191
10	Madhya Pradesh	1867.18	9.51	26.67	51.29	1.50	70
11	Maharashtra	1866.51	9.74	42.40	38.85	0.58	81
12	Orissa	2100.00	13.03	14.97	39.65	0.90	95
13	Punjab	1978.75	8.06	33.95	30.90	5.46	49
14	Rajasthan	2071.24	10.19	23.38	25.29	1.08	45
15	Tamil Nadu	1675.70	8.04	43.86	46.17	0.79	89
16	Uttar Pradesh	1765.00	8.83	20.78	35.33	1.39	62
17	West Bengal	1900.37	10.03	28.03	32.13	1.04	106
18	Delhi	1942.88	7.96	93.01	22.67	3.25	41
19	Chandigarh	1802.70	7.03	89.78	16.90	4.35	81

Chapter 3

Food Access and Livelihood Access

Access to food depends upon access to livelihoods. Income earned depends upon having a job. The type of job held also matters. Types of employment and income earned influence conditions of living as well. Higher standards of living and cleaner surroundings reduce the risk of falling ill. The capacity of a person to spend on medical facilities to avoid prolonged illness also depends upon the income earned. Better health means better food absorption, nutritional status, and longer life spans. Thus, livelihood access is related to food access on the one hand and food absorption on the other.

The more the number of people in low paid jobs, larger the poverty. The risk of losing their jobs is more of a concern for those engaged in casual work. The demand for casual labour is erratic and fluctuates according to varying needs. Moreover, any situation of uncertainty and postponement of work leads first to the termination of casual workers. Those who are self-employed in petty businesses such as roadside vendors, cobblers, small eateries, transport operators (rickshaws, handcarts, etc.), and so on also face the risk of uncertain incomes. The probability of hunger and malnutrition increases with the number of poor in general and the unemployed among the poor in particular.

The capacity to earn increases with levels of education and work opportunities for the educated and semi-skilled. Education makes a difference to the earnings in an urban set-up, not only through skilled work but also with the ability to resist exploitation. The fallout of poverty is poor housing as well as inadequate facilities. This chapter deals with the issues of poverty, unemployment, pattern of employment, education, and housing, within the limitations of the data.

Discrimination in the work place is equally important. Men get higher wages than women for the same type of work. Scheduled Caste populations are mainly in menial jobs such as garbage disposal, cleaning toilets and roads, and so on. Child labour and street children are also the consequence of poverty. The problem of slums is also due to poverty. However, we have taken up this issue in the next chapter.

Work opportunities attract migrants to urban areas. In addition, migrants are brought in as contract labour, mainly for construction work in urban areas. New rural migrants face problems in urban areas and are ill prepared to face urban life, particularly those who are virtually in bonded labour. Temporary housing structures that are illegal, high urban prices of food, lack of amenities such as electricity, fair-price ration shops, and medical facilities, and possibilities of exploitation by employers as well as traders, adds to the misery of the urban poor. The 2001 Census has not yet released data on migration; hence we have not dealt with it in detail.

In the context of urban livelihoods and living conditions, one has to take note of the contrast in the living conditions of the rich and the poor. In contrast to urban poverty, urban wealth is conspicuous. The most important fact about the urban set-up is that opulence co-exists with utter deprivation. Urban areas are the centres of industrial development. The urban

economy is highly fragmented in terms of mainstream economy and the periphery. Most of the poor are at the periphery and do not equitably share the fruits of urban prosperity. The bigger the urban entity, the sharper are the differences between the haves and the have-nots.

However, the possibility of improving livelihoods and standards of living depends upon two aspects. The first is the natural process of trickle-down to the poor. The second is the provision for income transfers and basic amenities by responsible governments.

Prosperity is a function of the pace and pattern of economic growth and the consequent distribution of income. The ability of the economy to create jobs for the illiterates and literates, and its resilience in providing training facilities for the skills and education needed, is important for urban prosperity. In short, not only economic growth but also the pattern of growth and its capacity to enhance both labour absorption and labour productivity has a bearing on unemployment and poverty in urban areas. Hence, we shall touch upon these issues as well. Last, the level and pattern of urbanisation has a bearing upon the capacity of towns and cities not only to attract people but also to provide them more employment and better amenities. The amount of investment on basic amenities in low-income colonies by way of housing, electricity, roads, and drinking water is important for the welfare of the urban poor.

We have examined the following major aspects of urban food access. The first is the extent of poverty and the link between poverty and deficient calorie consumption. A related issue to poverty is the perceived purchasing power of the poor. The second issue is influence of patterns of employment on the deficient calorie consumption of the urban low-income classes. The third is about the level and pattern of urbanisation and its relation to the livelihood pattern in general and that of the low expenditure classes. The fourth issue is the extent of impact of the economic reforms and the consequent structural adjustment on poverty and unemployment in urban areas.

As a part of the analysis we have computed three different indices—livelihood index, housing index, and livelihood discrimination index—using some important indicators. These indices are used in the final food insecurity map. These indicators used in the indices have been presented as maps at relevant points.

3.1 Urban Poverty

a) Percentage of population below poverty line

The percentage of population below poverty line is popularly known as head count ratio. The number of poor and the trends in poverty have always been controversial issues. Based on the methodology used, the percentage varies. It also varies depending upon the specific poverty line used. The poverty controversy escalated due to the additional complications of the NSS 55th Round data regarding overestimation of total expenditure. Use of this data for calculating poverty results in underestimation of the head count ratio.

As per the official estimates, urban poverty had declined from 32.36 percent in 1993–94 to 23.62 percent in the year 1999–2000. Many economists object to the comparison of poverty ratios over time. Such sharp decline in urban poverty by about 7.74 percent does not appear plausible.

Alternate estimates of poverty can be worked out based on the total consumer expenditure data available in the employment schedule (Sundaram 2001a). However, these data underestimate the consumption expenditure and overestimate poverty. As per these estimates, urban poverty for all India was 28.76 percent in 1999–2000 as against 30.37 percent in 1993–94. It shows a much smaller decline of about 1.61 percent in urban poverty for the country as a whole. There has not been any agreement on the adjustments suggested to make the NSS 55th Round

data and 50th Round data comparable with each other. The estimated number of the urban poor stood at 67.40 million as per the NSS 55th Round expenditure schedule and the 2001 Census. An alternate estimate puts the number of the urban poor at 82 million persons as per the 55th Round employment schedule and different poverty lines.

Due to the multiple controversies, it is difficult to comment upon the reduction or increase of poverty in urban India. The relative positions of the States as per the expenditure schedule and the employment schedule have not changed drastically over the period of the Rounds, though there are some exceptions.

The States are compared across the board for the same year, based on the 55th Round consumption data, to examine the factors that have an impact on poverty at the State level. While there may be underestimates of poverty, the bias across the States was assumed to be uniform. Moreover the bias, if any, is expected to be the least for low-income groups. For our final calculations of the livelihood index as well as the urban food insecurity index, official poverty estimates have been used.

First let us look at the State-specific poverty lines that give us an idea about the relative differences in the cost of living in urban areas. Wherever the poverty line was high, the cost of living was expected to be relatively high. As per the Planning Commission's study, the poverty line was highest for Maharashtra at Rs.539, followed by Rs.511 for Karnataka, and Rs.505 for Delhi. The lowest poverty lines were for Assam at Rs. 343, followed by Bihar at Rs. 379, and the Punjab at 388. The head count ratio of poverty depends upon the overall levels of income. When the levels of income are high even with the poverty line high, the number of persons below poverty line would be low. Delhi is a case in point. Similarly, even when the poverty line was low the poverty ratio was high in Bihar, where incomes are very low. (Table 3.1)

Poverty ratios were the highest for Madhya Pradesh, Bihar, Orissa, Uttar Pradesh, and Andhra Pradesh, as per the official estimates as well as the independent estimates, both in 1993–94 and 1999–2000. The Punjab, Delhi, Chandigarh, Haryana, Himachal Pradesh, Jammu & Kashmir, and Assam had the lowest poverty ratios in both periods. The others such as Tamil Nadu, Maharashtra, Gujarat, Karnataka, Kerala were in the middle level. (Table 3.1 and Map 3.1)

Factors that influence poverty are important. Logically, there are some features that influence poverty and others that get influenced by poverty. The factors that influence poverty are related to income and employment. Wages per worker, percentage of unemployed, population belonging to the casual labour households, percentage of population belonging to the self-employed household type, and casual labour among the lowest 10 percent are some of the factors that lead to poverty. We have examined these factors across the States and found that they influence poverty. These factors together explain about 80 percent of the variations across the States, though the overriding influence was that of daily wages. (Appendix 3.1) The coefficient for daily wages comes out as the most significant.

b) Poverty and food intake

The expected logical relationship between poverty and food intake was negative. If you are poor you eat less. The more the number of poor, the more will be the number of underfed! Hence we expect a positive relationship between the percentage of poor and the percentage of underfed. In the second chapter we have seen that this relationship holds. The average calorie intake per consumer unit per day was much higher than the calorie intake of the people in the lowest expenditure classes, constituting the lowest 10 percent of the population. Poor people actually eat less even in terms of calories, much less than the rich and much less than the average. This relationship holds good

Table 3.1
Urban Poverty (Head Count Ratio)

Sl. No	State	1	2	3	4	5
		State-specific Poverty lines (Rs./capita/month) (Planning Commission)	Planning Commission Estimates		Alternate Estimates	
			Percentage of population BPL (1993-94)	Percentage of population BPL (1999-2000) (Exp. Sch.)	Percentage of population BPL (1993-94)	Percentage of population BPL (1999-2000) (Employ. Sch.)
1	Andhra Pradesh	457.40	38.33	26.63	35.44	32.28
2	Assam	343.99	7.73	7.47	10.13	12.45
3	Bihar	379.78	34.50	32.91	45.03	45.10
4	Gujarat	474.41	27.89	15.59	28.86	21.70
5	Haryana	420.20	16.38	9.99	13.40	13.79
6	Himachal Pradesh	420.20	9.18	4.63	N.A	N.A
7	Jammu & Kashmir	420.20	9.18	1.98	N.A	N.A
8	Karnataka	511.44	40.14	25.25	32.41	24.55
9	Kerala	477.06	24.55	20.27	28.20	31.89
10	Madhya Pradesh	481.65	48.38	38.44	46.02	46.29
11	Maharashtra	539.71	35.15	26.81	33.52	32.16
12	Orissa	473.12	41.64	42.83	36.99	34.27
13	Punjab	388.15	11.35	5.75	6.79	6.74
14	Rajasthan	485.92	30.49	19.85	30.60	24.36
15	Tamil Nadu	475.60	39.77	22.11	37.83	29.82
16	Uttar Pradesh	416.29	35.39	30.89	34.23	36.39
17	West Bengal	409.22	22.41	14.86	20.97	16.74
18	Delhi	505.45	16.03	9.42	N.A	N.A
19	Chandigarh	420.20	11.35	5.75	N.A	N.A
20	Pondicherry	475.60	39.77	22.11	N.A	N.A
	All India	454.11	32.36	23.62	30.37	28.76

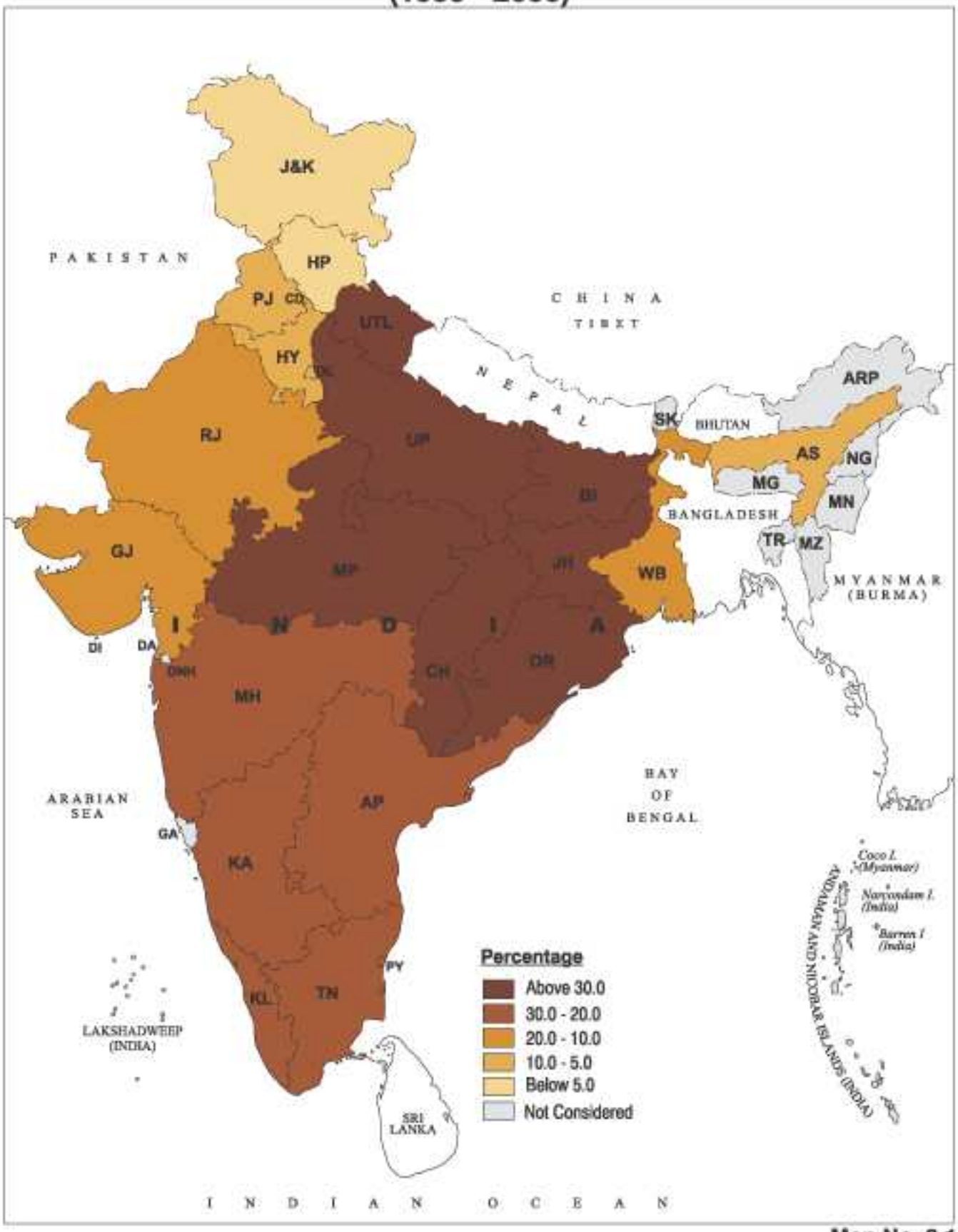
Source: Planning Commission estimates based on NSS 50th and 55th Rounds. Alternate estimates, Sundaram 2001a

only when we are looking at a homogenous group of rural or urban set-up within a State.

We cannot extend this to a heterogeneous group with varying consumption patterns, varying income distribution patterns, and varying price scenarios. As we have already seen, each State has a varying average calorie intake level that appears to be rather stable in relative terms over a period of time. Hence, we cannot extend this correspondence of income and calorie intake beyond the State level. In this context it is useful to see how far we can use the head count ratio of poverty as a proxy for deficient calorie intake.

The poverty line is the total money expenditure of the monthly per capita expenditure class in which

PERCENTAGE OF URBAN POPULATION BELOW POVERTY LINE (1999 - 2000)



Map No. 3.1

calorie consumption reaches the level of 2100 kcal.[1] Let us say now we go a step further and compute the percentage of population consuming less than 2100 kcal per consumer unit per day. We also compute the percentage of population below a stipulated poverty line in terms of money as rupees per capita per month across the States using the same sample survey. Then we expect a positive relationship between the percentage of population below poverty line and percentage of population consuming less than 2100 kcal.

At the all-India level, the percentage of poor was 23.62, whereas the percentage of population consuming less than 2100 kcal per consumer unit was 31.1. Not only was the percentage of underfed much higher, there was also insignificant negative correlation of – 0.273 for the 55th Round NSS data.

If we presume that the consumption level of 2100 kcal was too high to define the urban underfed in the year 2000, we can scale it down to a more reasonable level of 1890 kcal per consumer unit. The percentage of population consuming less than 1890 kcal was 16.2 for urban India. Even here, the percentage of people below poverty line has no significant correlation with the percentage of underfed population across the States. The coefficient of correlation was – 0.326 and insignificant. There was a perverse relationship between calorie intake and head count ratio of poverty.

Further, calorie intake at the stipulated State-specific poverty line differs from State to State and probably from period to period. Now let us look at the average calorie intake of the expenditure classes in which the State-specific poverty lines fall. Calorie consumption was around 2100 kcal only in 5 of the 20 States and Union territories. In the other 15 States, the consumption was far above or far below the norm in the expenditure class that has the State-specific poverty line. Moreover, we can clearly see that in the States with higher calorie intake, poverty was higher. Bihar, Orissa, Uttar Pradesh, and Madhya Pradesh show levels of consumption above 2100 kcal but the percentage of poor below the poverty line are very high and above 30 percent. The Punjab, Haryana, Gujarat, Assam, and Chandigarh with low poverty lines seem to have low poverty and also lower average calorie consumption at the poverty line. (Table 3.2)

This is not peculiar to the 55th Round. A similar relationship was found for the 50th Round data as well (Palmer-Jones and Sen 2001). However, the difference between percentage of population below poverty line and the percentage of population consuming less than 2100 kcal was much higher for the 50th Round. This gap appears to be smaller for the 55th Round data. This could be due to the overestimation of consumption in the 55th Round.

There have been many interpretations for this discrepancy (Bhalla 2000, Deaton 2000, Ravallion 2000, Visaria 2000, Abhijit Sen 2002). Some refer to the methodological problem of freezing the food basket at base year and looking at the changes in inflation rates alone. Others blame the deflator used as having outdated weighting. Some blame the recall periods. Yet others criticise the quality of NSS data and the method of collection.

Not only the head count ratio but also the other measures that link up calorie intake to income and expenditure, for the purpose of counting people below a given cut- off point, turn out to be erroneous. FAO has estimated the percentage of undernourished population consuming less than 1810 kcal for India by distributing the available calorie supply of the country among the various expenditure groups in the

[1] Based on the calorie norms of 2100 kcal per person, poverty lines were determined for the NSS 28th Round, 1973–74, consumer expenditure data. It worked out to Rs.56.64 for urban India at 1972–73 prices. State-specific poverty lines were first formed for the base year. Later they were updated to the current year by using State-specific consumer price indices.

proportion of the total expenditure. (FAO 2000, FAO 2001). The measure implies one-to-one correspondence between the expenditure pattern and the calorie intake pattern. As a result, the number of persons consuming less than 1810 kcal increases. FAO's estimate for the country as a whole was 23 percent.[2] The percentage of population consuming less than 1890 kcal per consumer unit was lower in the 55th Round at 16.4 percent and worked out to 46.23 million. Thus the FAO estimate of undernourished was closer to the percentage of poor that stands at 23.62 percent and higher than the percentage of undernourished.

The long and short of all this discussion is that one-to-one correspondence does not exist between calorie intake and head count ratio of poverty. Hence, head count ratio of poverty cannot be a proxy for deficient calorie intake. Conditions that vary widely across the States influence the food intake and income relationship.

The lack of correspondence between calorie intake and poverty across the States is due to several reasons. It was mainly due to the method of measurement involved in the head count ratio. Second, over-riding considerations of prices relative to incomes and relative to quality determine the calorie intake. The third important reason is that poverty affects the diversification of the food basket based on food habits. Fourth, the relative prosperity of the urban population in the State influences food habits. It is not easy to permanently link food intake to income or expenditure. It is a dynamic situation.

The main conclusion is that we might as well de-link poverty from calorie intake. Moreover, food intake fluctuates. Undernourishment is transient in India given the nature of employment available to the poor even in the urban areas. Under these circumstances, a targeted PDS is more likely to fail than a universal one. Allocation of grain based on head count ratio may or may not suit a situation. The demand for PDS was determined by the relative price and income situation. This changes from one year to the other. Hence the requirement changes. Thus a universal public distribution system recommended by the Committee on Long-term Grain Policy is more likely to succeed than the targeted one.

However in times of high prices of foodgrains or during shortages, dual pricing was not tenable. A lower PDS price and a higher market price would induce the diversion of PDS foodgrains into the open market. There are two possible solutions to this. The best way is to deal only with coarse varieties of foodgrains that are much cheaper and normally purchased by the poor so that there is not much competition from the middle-income groups. Second, the PDS should ideally be under the control of self-help groups and low-income consumers themselves.

c) *The paradox of urban poverty*

Urban poverty has another dimension not common to rural poverty. More than one-fifths of the urban population lived in slums as per the 2001 census. There were about 61.58 million persons living in urban slums. The figure is close to the estimated number of poor. Severe undernourishment and appalling living conditions seem to co-exist with considerable collective purchasing power.

Time and again many, including international agencies, have regarded the slums of the big cities with great interest. Established settlements such as Dharavi in Bombay and others in Delhi are like any other housing colony with facilities of trade, finance, and services, albeit low key and of low quality. We find transistor radios, record players, fans, pressure cookers, television sets, VCRs, refrigerators, and so on. We find people possessing even gold and silver jewellery, crockery, cycles, motorcycles, residential houses, and land.

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[2] FAO's estimate of 225 million assumes a lower population of 976.3 million for the country.

Table 3.2
Calorie Intake and Poverty Lines

Sl. No	State	1 State-specific poverty lines (Rs./capita/month) (Planning Comission)	2 Average calorie intake at the State-specific poverty lines kcal /cu /day	3 Percentage of population consuming <1890 kcal	4 Percentage of population consuming <2160 kcal
1	Andhra Pradesh	457.40	2179	17.60	33.70
2	Assam	343.99	1891	14.70	31.40
3	Bihar	379.78	2396	14.00	27.10
4	Gujarat	474.41	1988	16.40	26.10
5	Haryana	420.20	1806	13.90	31.80
6	Himachal Pradesh	420.20	2114	4.30	9.30
7	Jammu & Kashmir	420.20	2261	1.70	8.50
8	Karnataka	511.44	2275	19.00	33.90
9	Kerala	477.06	2040	19.80	35.10
10	Madhya Pradesh	481.65	2409	17.20	32.00
11	Maharashtra	539.71	2172	18.40	34.70
12	Orissa	473.12	3028	6.20	15.40
13	Punjab	388.15	1962	11.70	27.80
14	Rajasthan	485.92	2488	7.40	18.80
15	Tamil Nadu	475.60	2032	22.50	38.40
16	Uttar Pradesh	416.29	2401	16.70	30.70
17	West Bengal	409.22	2153	14.20	30.70
18	Delhi	505.45	2171	14.00	27.50
19	Chandigarh	420.20	1867	11.20	21.90
20	Pondicherry	475.60	2089	18.50	36.10
	All India	454.11	2359	16.20	31.10

Source: Planning Commission estimates based on NSS 55th Round data, NSS 55th Round, Report No.471

The affordability of the urban poverty groups has been the point of discussion on several occasions. Their perceived affordability was the basis of housing loans to the slum dwellers. The potential market for consumer durables has been referred to as the BOP (bottom of the pyramid) market (Prahlad and Hammand 2002). Some people doubt the extent of poverty. Many studies reported that the urban poor borrow at interest rates close to 100 percent. Those who cannot afford clean drinking water and toilet facilities seem to be able to buy gold and silver jewellery! The paradox does exist and is visible to every one, though it appears to have been just an accepted way of life in the urban slums for decades.

At the all-India level the per capita monthly expenditure on consumer durables was found to vary from Rs.3 per capita per month to about Rs.6 per capita in the expenditure groups with monthly per capita expenditure of less than Rs. 500. The all- India urban poverty line was Rs 477. Thus the poor spend about Rs.36 to Rs.72 every year on consumer

durables. If we apply the proportion of households in these monthly per capita expenditure (MPCE) classes, we find that about 67 million people are in the 4 lowest MPCE classes in urban India. The calculations show that, annually, the urban poor spend about 3.7 billion rupees on consumer durables. (Table 3.3) No wonder the multinationals and other businesses eye this segment with interest as a potential market.

There are two aspects to the spending on consumer durables. The real intrinsic value of the consumer durables has been overstated. The data does not tell us whether the consumer durables purchased are new or second-hand. Most of them could be second- hand goods used beyond their life span, kept in usable condition with regular maintenance. They are relatively expensive considering their condition. However, they are much cheaper than brand new goods. The 3.7 billion rupee purchases are spread over a variety of goods over many consumers, none of whom can afford to buy new goods. Repair and maintenance activities of such goods also provide livelihoods to many self-employed. Thus, the second-hand goods market generates income as well as demand. These goods are the assets, which are pawned or sold again in the same market when the need arises. Thus, the total value of 3.7 billion could be the recycled value of many transactions, of the same goods changing hands and value added due to upkeep.

Another important reason for the high value of the transactions is the availability of credit for these items. Many goods are sold on credit and money collected from the consumers in a flexible manner as and when they have jobs, albeit at a very high interest rate to compensate for the waiting period and the risk involved. Unless a substantial shift occurs in the employment pattern of the poverty groups, a shift from casual labour to regular salaried category, it will be difficult to move them to a regular market of new goods on hire purchase.

However, if one tries to replace the second-hand goods market with new purchases, without providing alternative credit and job facilities, the result would be loss of jobs and further dependence on moneylenders. Some multinationals have been forming self-help groups to promote savings for the hire purchase of consumer durables.

The main reason for discussing consumer durables is that it points to the methods of income generation and survival strategies of the urban poor. The chunk of poor is so big that it has an economy of its own. The supply and demand that exists within the group

Table 3.3

Monthly Per Capita Value of Consumption of Consumer Durables among Lowest Four Expenditure Classes

MPCE Class	1	2	3	4
	Value (Rs) per capita per month	Percentage of population in each class	Estimated population (million) (2001)	Value of consumer durables (Rs. million)
Rs 000-300	3.00	3.80	10.84	390.37
Rs 300-350	3.62	3.70	10.56	458.65
Rs 350-425	4.63	7.50	21.40	1189.08
Rs 425-500	5.89	8.60	24.54	1734.53
4 Classes (BPL)		23.60	67.34	3772.62

Source: NSS 55th Round, Report No. 461

may enable some of them to survive without much reference to the rest of the economy. Second, spending on second-hand consumer durables at relatively high prices was mainly due to the demonstration effect of the rest of the urban economy. This may have adverse consequences to the expenditure on food.

Consumer durables is an area that needs more research, to assess whether such buying can help divert wasteful expenditure on alcohol, tobacco, etc., or whether it only makes people more indebted for goods that they cannot really afford. Government-sponsored initiatives such as sale of gas stoves through hire purchase and credit to women self- help groups was quite successful and helped women to overcome the drudgery of firewood collection as well as exposure to smoke.[3] The ultimate usefulness of such efforts depends upon the affordability and the need felt for the products, rather than pushing a scheme for profitability.

3.2 Urban Labour Force and Unemployment

a) Increase in the dependency burden

A brief look at labour force participation (LFP) is worthwhile before we consider unemployment. The Task Force on Employment Opportunities appointed by the Planning Commission noted in its report that the labour force has been growing slower than the population in India. Labour force participation was lower for urban India compared to rural India, because poverty and lack of education induce higher levels of participation by women and children to make both ends meet. For urban India, LFP ratio has declined. As per the 2001 census, 35.4 percent of the population supports the remaining 65.6 percent in urban India.

The LFP ratio has fallen for urban India over the past two NSS Rounds. LFP ratio of urban males per thousand has fallen slightly from 543 to 542 if we consider the usual status criteria. The reduction was higher from 532 to 528 if we consider current daily status. The decline in the LFP ratio of urban females per thousand was sharper over this period from 165 to 147 for usual status of principal plus subsidiary work and from 132 to 123 for current daily status. (Table 3.4)

Unless one assumes that there has been considerable increase in the total earnings of households to compensate for a decline in labour force participation in all the expenditure groups, the increasing dependency burden is not welcome. The population is now growing faster than the labour force. The population growth has been 1.93 as against the growth of the labour force in the category of usual and subsidiary status at 1.03. If the trend continues the dependency burden would increase for the country.

One of the major reasons for the increase in the dependency burden could be a change in the age composition of the population towards older age groups. A large number of people in the older age groups seem to have retired from work in recent years. The LFP ratio might have declined as a result. In the younger age groups, the withdrawal from labour force could be for education.

On one hand, even a moderate increase in incomes would persuade older persons, young children, and women to withdraw from the labour force. On the other, a downturn in the economy and redundancies due to structural changes and higher competition from new entrants into the labour force as population crosses a billion may result in prolonged periods of joblessness. This may discourage the

[3] The Deepam Scheme of the Government of Andhra Pradesh and the efforts of some multinationals promoting the product through self- help groups saving are examples in this area.

Table 3.4
Urban Labour Force (1999-2000)

Sl. No.	State	1	2	3	4	5	6
		Per thousand persons in labour force Usual status (principal + subsidiary)					
		All persons			Persons above 15 years		
		Male	Female	Persons	Male	Female	Persons
1	Andhra Pradesh	532	184	362	779	259	522
2	Assam	565	138	368	788	176	503
3	Bihar	466	82	287	757	125	459
4	Gujarat	547	138	352	792	183	493
5	Haryana	520	101	323	759	155	482
6	Himachal Pradesh	533	142	344	738	203	484
7	Jammu & Kashmir	500	68	296	751	98	435
8	Karnataka	562	186	378	783	252	520
9	Kerala	591	254	415	794	332	550
10	Madhya Pradesh	509	136	331	782	204	504
11	Maharashtra	563	146	367	796	208	521
12	Orissa	511	153	339	760	221	499
13	Punjab	565	128	363	811	174	513
14	Rajasthan	499	141	332	759	208	503
15	Tamil Nadu	585	227	410	801	303	555
16	Uttar Pradesh	512	97	317	798	151	498
17	West Bengal	612	129	378	805	165	502
18	Delhi	546	109	343	770	148	485
19	Chandigarh	566	153	369	792	213	515
20	Pondicherry	574	181	368	779	246	501
	All India	542	147	354	787	209	510

Source: NSS 55th Round, Report No. 458

unsuitable and less qualified men and women into withdrawing from the labour force. Since the decline in the LFP ratio has occurred in all the age groups both for men and women (Task Force on Employment Opportunities 2001), we may conclude that both factors may have been at work.

If we examine the LFP ratio in the urban areas across the States, we find that Bihar had the lowest LFP both for men and women.[4] Bihar is followed by Jammu & Kashmir, with a lower ratio for all persons. However, in the case of Jammu & Kashmir, the participation of women was lowest for the whole country at just about 68 per thousand, while the participation of men was higher than in some of the other States. The dependency burden was more than 70 percent in these two States. Uttar Pradesh, Haryana, and Madhya Pradesh also show lower participation and higher dependency burden of more than 65

[4] Some of the northeastern States, which we have not included in the analysis, show lower rates than Bihar.

percent. Rajasthan, Orissa, and Delhi come next in order, with dependency ratios of 65 percent and above. In Haryana and Delhi the participation of women was relatively lower. Even the participation of men was not very high though it was better than Madhya Pradesh, Rajasthan, and Orissa. In Orissa, participation of women was above the national average and close to average in the case of Rajasthan. The reasons for the differences are not clear unless we go into the detailed age composition and educational activities. Poverty normally induces higher participation of women. However, it is not consistent across the States.

In the age group of 15 years and above, LFP was the highest for the southern States of Tamil Nadu, Kerala, Andhra Pradesh, and Karnataka, mainly because of the very high participation of women. This was the highest in Kerala at 332 per thousand for persons above 15 years. The figure stands at 303 for Tamil Nadu and 259 for Andhra Pradesh. Participation of men in the age group of above 15 years was high in the Punjab, Tamil Nadu, and West Bengal at more than 800 persons per thousand.

b) Unemployment

(i) Unemployed in the total population

In a country where very few hold regular salaried jobs, measurement of unemployment and employment has to be more comprehensive. Hence the National Sample Survey adopted 4 alternative measures. (Appendix 3.2) Usual status refers to a one-year status. Weekly status refers to one week. Both these refer to the number of persons employed or unemployed. The current daily status unemployment rate was the most inclusive measure suited for the casual work available in Indian conditions. Based on the reported time disposition of the person on each day of the reference week, person-days in employment are aggregated to generate estimates of employment and unemployment. Person-day unemployment is derived as a percentage of person-days in the labour force. In other words, it is a measure in terms of person-days and not in terms of number of persons. This measure captures the within the week unemployment of those classified as employed on the weekly status.

The percentage of unemployed to the total population is generally quite low. It is because total population consists of employed, unemployed, and those not in the labour force. Since a large percentage was not in the labour force, the number of unemployed to the total population appears rather low. It does not adequately reflect the vulnerability of the person. The daily status unemployment was about 2.6 percent in 1999–2000. It was higher than the usual status employment at 1.8 percent and weekly status unemployment at 2.1. The State with the highest percentage of unemployment was Kerala with 6.9 percent. It is not surprising, with high literacy rates and low industrialisation. High wages and unionisation are the other factors that restrict employment. Other States with high levels of unemployment were West Bengal with 3.9 percent, Tamil Nadu with 3.4 percent, Pondicherry with 4.4 percent, Assam with 4.1 percent, and Chandigarh with 3.0 percent (NSS 55th Round, Report no. 455).

(ii) Unemployment rate

Unemployment rate is defined as the number of persons unemployed per thousand persons in the labour force. The unemployment rate had increased over the period of the NSS Rounds particularly in the current daily status that gives a more inclusive definition of unemployment. It has increased from 74 per thousand to 77 per thousand. A comparison between the States reveals that for some the unemployment figures have increased and for others, decreased. Those that have shown a decline in unemployment were West Bengal, Gujarat, Haryana, Tamil Nadu, Orissa, Karnataka, and Andhra Pradesh. The decline was highest in the case of West Bengal followed by Gujarat and Haryana. The Union Territories of Chandigarh and Pondicherry have also shown a decline in the unemployment rate. In all the

other States, it has increased. Thus, there are 11 States/ Union territories where unemployment declined. In the remaining 9 States, it has increased. For urban India as a whole, unemployment rates increased as per usual status, weekly status, and daily status. Increasing dependency burden with increasing rate of unemployment among the labour force are disturbing trends, unless we can conclusively prove that labour productivity at all levels has increased substantially to compensate for the reduction in employment as well as labour force participation. (Table 3.5)

The data shows that in general for urban India usual principal status unemployed was higher for educated persons than average unemployment for the age group above 15 years. It was higher for females than males. Highest unemployment for educated females was in Kerala at 419 per thousand, followed by Bihar, Orissa, and West Bengal. In Kerala, the male educated unemployment rate was fairly low at 99 per thousand.

The number of educated unemployed was high among males in Orissa, followed by Bihar and Assam, at 140, 124, and 121 per thousand respectively. One of the reasons for the high rate of unemployment among the urban educated appears to be the lack of opportunities. Backwardness of the State, lower levels of industrialisation, and urbanization could be some of the reasons.

The southern States, that have shown the highest labour force participation of women, show lower than all-India average unemployment rates for women in Tamil Nadu, Andhra Pradesh, and Karnataka. However, in Kerala, the incidence of unemployment was the highest for women. Another interesting observation was that in all these four southern States, educated male unemployment was fairly low. All the same, the difference in unemployment between the sexes was glaring. More educated women were unemployed in these States. There seems to be a clear preference for educated men compared to educated women in employment. Let us now turn our attention to unemployment and poverty.

c) *Unemployment and poverty*

Unemployment and poverty were believed to be unrelated, particularly in the urban context. Poverty was a bigger problem than unemployment. Many analysts concluded that the problem of the urban poor was not work availability (Kundu 1994). The cross classification of unemployment and expenditure given in the report of the Task Force on Employment Opportunities reveal some interesting facts. The usual status unemployment rate across the expenditure classes show that the unemployment rate has not been high for the lower expenditure classes, compared to higher expenditure classes. Unemployment has increased with income up to the middle expenditure level and then declined. It was highest for the middle expenditure level at 8.12 percent. The usual status employment rate captures the picture of the regular salaried classes better. (Appendix 3.3)

However, the picture changes if one considers the incidence of unemployment as per current daily status. It was high for the lowest expenditure class at 9.61 percent and declined consistently with an increase in average expenditure to 4.1 percent in the top expenditure class. Current daily status unemployment rate captures the problems of the casual workers more accurately.

Unemployment of the dimension of almost 10 percent for the urban poor spending less than Rs. 300 per capita per month is quite alarming and makes one worry about the deteriorating situation of work availability, notwithstanding the claims of labour productivity gains at the average level. High incidence of unemployment has direct implication to lower food intake by the poor. Accordingly, we find a strong and significant relationship between current daily status unemployment and calorie intake across the States. Thus, while the head count ratio of poverty was not

Table 3.5

Urban Unemployment Rates (Persons per thousand)

Sl.No.	State	1	2	3	4	5	6	7	8	9	10	11	12
		Unemployment rate usual status						Unemployment rate current daily status					
		1993-1994			1999-2000			1993-1994			1999-2000		
		Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
1	Andhra Pradesh	35	43	37	42	42	42	75	95	80	72	89	76
2	Assam	62	289	97	91	223	113	65	256	94	99	219	119
3	Bihar	71	112	76	76	94	79	83	123	87	87	135	93
4	Gujarat	33	62	37	21	26	22	57	78	60	40	54	42
5	Haryana	26	80	32	27	46	29	65	72	66	45	49	45
6	Himachal Pradesh	41	4	34	63	118	72	40	12	34	70	119	78
7	Jammu & Kashmir	62	152	76	47	128	54	71	140	82	60	134	66
8	Karnataka	34	75	43	30	47	34	56	89	63	53	59	54
9	Kerala	76	244	120	69	264	125	141	278	177	155	282	191
10	Madhya Pradesh	57	46	55	43	16	38	70	59	68	72	57	70
11	Maharashtra	46	58	49	61	78	64	60	78	63	77	100	81
12	Orissa	73	78	74	72	67	71	98	93	98	98	82	95
13	Punjab	33	86	38	31	35	32	39	58	41	48	53	49
14	Rajasthan	20	8	18	27	37	29	26	15	24	47	35	45
15	Tamil Nadu	49	84	59	39	58	44	86	127	97	90	86	89
16	Uttar Pradesh	36	16	34	45	46	45	48	48	48	63	50	62
17	West Bengal	77	196	96	77	111	82	102	208	121	100	139	106
18	Delhi	9	64	15	32	53	35	16	61	21	40	42	41
19	Chandigarh	34	235	76	39	144	58	71	213	102	44	229	81
20	Pondicherry	57	126	73	35	69	44	138	185	149	131	104	125
	All India	45	82	52	48	71	52	67	105	74	73	94	77

Source: NSS 50th and 55th Round, Reports Nos. 458 & 409

significantly related to the unemployment rate across the State, lower expenditure classes appear to suffer from high levels of unemployment in the urban areas. This again raises the question of using head count ratio of poverty for all policy decisions.

3.3 Patterns of Employment

The problems of the poor are related to the types of jobs they hold. In this context, it is more useful to study the distribution of the entire urban population in various occupational household types, rather than just taking the workers into consideration. Given the high levels of dependency, the sources of income to the entire population may be of greater interest. Further, the distribution of the poorest 10 percent into various household types helps us to assess the risk of hunger to this vulnerable section. The larger the component of casual employment among the poor, the greater the risk of hunger malnutrition and unhygienic environments leading to disease.

a) Dependence on casual labour employment

(i) Distribution of the total population among the occupational household types

In urban India as a whole, about 14 percent of the population belong to the casual labour households category, 39 percent to the self-employed household category, and 40 percent to the regular wage and salaried category. Thus about 53 percent of the entire urban population belong to self-employed and casual labour household types.

In Kerala, 27 percent of the urban population belonged to the casual labour households. In Andhra Pradesh and Gujarat it was about 20 percent of the population. Tamil Nadu, Orissa, and Karnataka also had about 17 to 18 percent of population in this category. Chandigarh, Delhi, Himachal Pradesh, and the Punjab indicated less than 10 percent of population in casual labour households. Chandigarh had the lowest percent of population in this category at 3.2 percent. (Table 3.6)

The population belonging to the regular wage salaried category of households was very high in Chandigarh with 59.9 percent, followed by Maharashtra and Delhi with about 50 percent. In all the States with a higher share of population in the regular employment household type, the head count ratio of poverty was low. However, Maharashtra was the exception, where even with a higher percentage population in the regular earning category, the head count ratio of poverty had not come down. Assam was characterised by low percent of population in casual labour household type and low level of poverty. The number of self-employed was quite high in Assam.

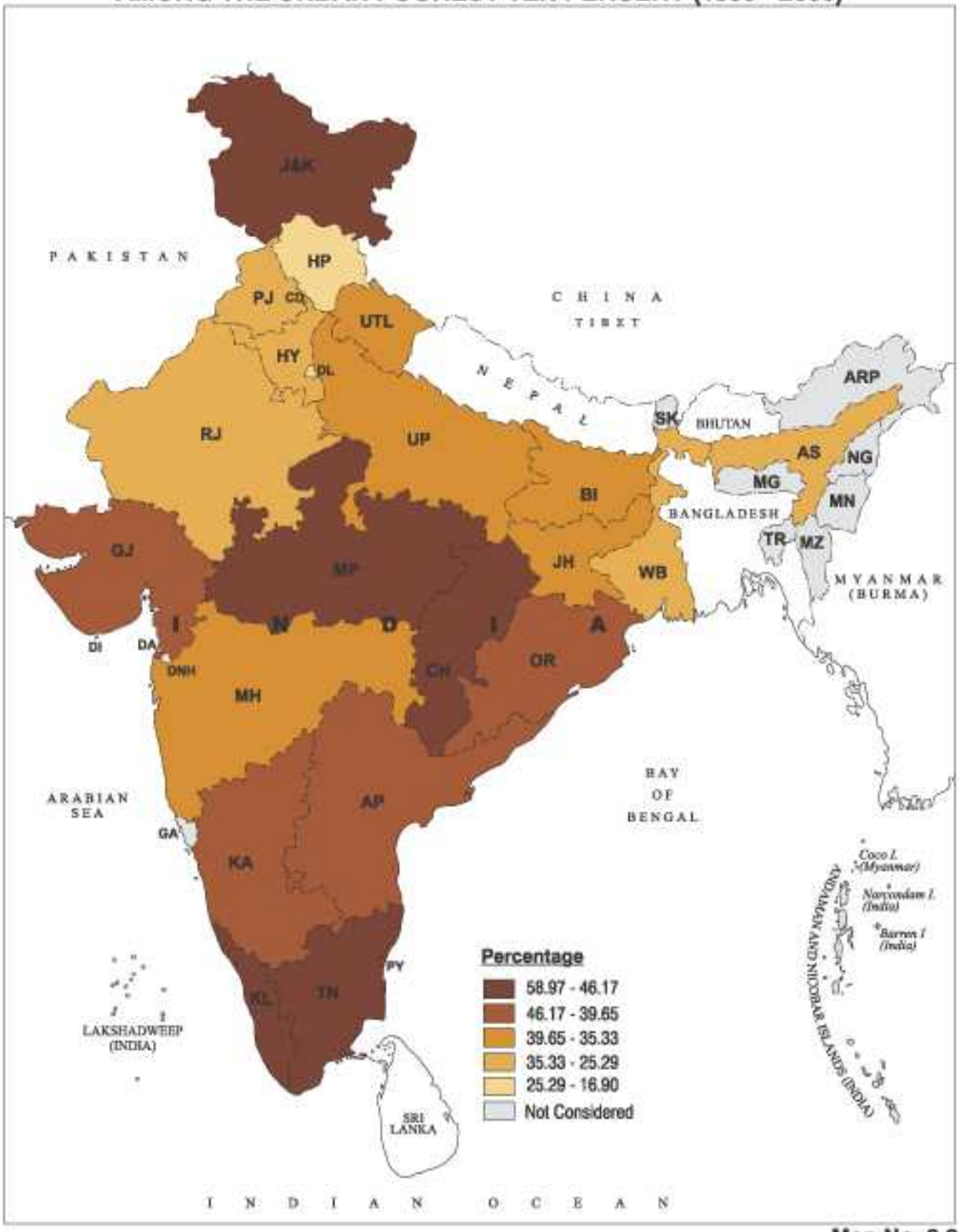
(ii) Distribution of the population in the lowest deciles

Among the lowest expenditure deciles, the pattern of employment is different from that of the total population. For urban India, as against the 14 percent of population in the category of casual labour households at the average level, the percentage was about 38 percent among the lowest deciles. The salaried and regular employment household type had only about 15 percent of the people from the lowest deciles, while about 40 percent of the population belonged to the self-employed household type.

Another interesting aspect of the employment pattern was that the dependence on self-employment was about the same for the total population as well as the lowest levels. Probably self-employment is the choice of last resort when a person fails to get a job at an expected level of employment. Percentage of population belonging to casual labour household type had a significant positive relationship with daily status unemployment across the States, the correlation coefficient being 0.462.

The State level data shows that about 60 percent of the population among the lower deciles in Pondicherry and Kerala belonged to casual labour

PERCENTAGE OF POPULATION BELONGING TO THE LABOUR HOUSEHOLDS AMONG THE URBAN POOREST TEN PERCENT (1999 - 2000)



Map No. 3.2

Table 3.6

Percentage of Population in Differrent Occupational Household Types

Sl.No	States	Percentage of population among the lowest 10 percent			Percentage of population for all classes			
		Self-employed	Regular wage/ salaried	Casual labour	Self-employed	Regular wage/ salaried	Casual labour	Others
1	Andhra Pradesh	35.08	15.00	44.13	33.10	40.00	20.20	6.40
2	Assam	40.99	6.63	31.85	42.60	40.60	6.80	10.00
3	Bihar	44.96	8.70	38.23	43.90	32.70	11.80	11.50
4	Gujarat	40.21	14.79	41.75	39.40	37.00	19.90	3.80
5	Haryana	36.91	18.22	33.12	43.30	36.00	12.90	7.60
6	Himachal Pradesh	38.78	15.43	24.53	26.20	44.40	6.80	22.30
7	Jammu & Kashmir	57.24	28.25	49.43	41.40	42.50	10.10	6.10
8	Karnataka	36.45	18.34	42.29	36.20	39.90	17.50	6.10
9	Kerala	24.95	15.09	58.03	35.20	30.10	27.20	7.30
10	Madhya Pradesh	29.19	16.02	51.29	40.50	37.20	15.50	6.60
11	Maharashtra	41.28	17.60	38.85	32.30	51.50	12.20	4.00
12	Orissa	44.70	10.34	39.65	34.10	39.10	18.50	8.10
13	Punjab	39.50	26.92	30.90	46.70	38.20	9.80	5.20
14	Rajasthan	49.14	21.17	25.29	44.60	38.90	11.40	5.10
15	Tamil Nadu	29.73	19.31	46.17	33.80	42.30	17.60	5.80
16	Uttar Pradesh	49.22	9.17	35.33	50.80	32.00	10.00	7.20
17	West Bengal	50.20	15.97	32.13	41.60	41.30	10.40	6.70
18	Delhi	40.26	33.11	22.67	40.20	50.80	4.10	4.70
19	Chandigarh	58.41	22.86	16.90	30.90	59.90	3.20	6.00
20	Pondicherry	9.04	23.95	58.97	27.60	41.30	24.30	6.60
	All India	41.34	15.16	37.49	39.30	40.20	14.10	6.30

Source: NSS 55th Round, Report No.472 & Report No.458

household category. Madhya Pradesh, Jammu & Kashmir, Tamil Nadu, Andhra Pradesh, Gujarat, and Karnataka also indicated a high percentage, varying between 40 and 50 percent. Everywhere else casual labour household types claimed a share of 20 to 40 percent among the lowest deciles. Even Chandigarh and Delhi, that registered a low dependence on casual labour in general, have shown as much as 17 and 23 percent of the low-income population in this category.

The employment pattern and the dependence on casual labour employment were related to those reporting food inadequacy. Those not having two square meals a day throughout the year are more among the casual labour in urban areas. Thus in Bihar there was about 11 percent of the casual labour reporting inadequacy of food (NSS 55th Round Report no. 466). About 7 percent of the casual labour households in Orissa and Assam seem to have reported non- adequacy of food.

The vulnerability of the lower income groups has been more accurately represented by the percentage of casual labour in the lowest 10 percent. This indicator is also closely related to several others such as the percentage of total population in the casual

labour household type, unemployment, and so on. Hence it has been chosen as an important indicator of urban food insecurity. (Map 3.2)

b) Child labour

Details of urban child labour and their occupational structure would be forthcoming from the 2001 Census. The full details have not been released State-wise. Hence we briefly considered the workers in the age groups 5 to 14 as per the NSS 55th Round data. (Table 3.7) The age composition of the principal workers gives us information about the number of workers in the tender ages less than 10 and school-going age above 10. Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, and Rajasthan recorded the presence of child workers in the tender ages of 5–9. These States have urban illiteracy and urban poverty of considerable dimensions. Hence, the incidence of child labour is not surprising. However, the presence of child workers of this age group in the Punjab and Chandigarh despite low levels of poverty as well as illiteracy is surprising. Andhra Pradesh tops the list with the highest incidence of child labour at 11 per thousand. Child labour in the age group of 5–9 could be treated as child abuse and immediate steps should be taken to eradicate the same.

In the age group of 10 to 14 years, the incidence of child labour was high in all the States. Again, Andhra Pradesh tops the list, followed by Karnataka and Uttar Pradesh. It is remarkable that Kerala has the lowest incidence of child labour. Improving school attendance and literacy rates and removal of poverty are essential for eradicating child labour. It cannot be wished away just because it is small in percentage terms. (Table 3.7)

Broadly, we can draw an important conclusion from the analysis. It appears that higher dependency on casual labour is inevitable for low income households, regular salaried jobs proving difficult to come by. Probably a shift to salaried and regular jobs is a necessary condition for poverty alleviation and long-term food security but it is not the only condition for food security. Judging from outlier States such as Maharashtra, other factors such as wages, cost of living, and deficit in net production would also have a bearing on food intake and food security.

Table 3.7
Child Labour Per Thousand Persons

Sl. No.	State	1	2
		Usual status principal workers	
		Age 5-9	Age 10-14
1	Andhra Pradesh	11	75
2	Assam	4	41
3	Bihar	0	36
4	Gujarat	0	21
5	Haryana	0	47
6	Himachal Pradesh	0	29
7	Jammu & Kashmir	0	11
8	Karnataka	0	73
9	Kerala	0	5
10	Madhya Pradesh	4	32
11	Maharashtra	0	28
12	Orissa	0	15
13	Punjab	4	34
14	Rajasthan	6	46
15	Tamil Nadu	1	61
16	Uttar Pradesh	4	72
17	West Bengal	1	43
18	Delhi	0	37
19	Chandigarh	4	16
20	Pondicherry	0	0
	All India	3	46

Source: NSS 55th Round, Report No. 458

3.4 Literacy and Education Levels in Urban India

The break-up of the literacy rates between urban and rural areas at the State level are not available from the recent 2001 Census. Hence we have considered the rates of illiteracy available in the NSS 55th Round.

About 27.70 percent of the urban population could not read or write. There were 12 percent more illiterate women than men. The largest number of illiterates was found in urban Bihar, followed by Uttar Pradesh, Rajasthan, Andhra Pradesh, and Haryana, with more than 30 percent in all these States. The States with highest literacy were Kerala and Himachal Pradesh, with illiterates less than 15 percent. Many other States had illiteracy rates around 20 percent. (Table 3.8)

The percentage of persons educated up to the primary level was 20 to 30 percent of the urban population. Madhya Pradesh gets pride of place along with Tamil Nadu as the State with the largest percentage of literates at the primary level. Himachal Pradesh and Chandigarh had about 40 percent of the population with educational qualifications of secondary level and above. Even Kerala, with its traditional base for literacy, had only 27.70 percent of urban population reaching secondary school level and beyond.

Literacy levels may have something to do with the industrial nature of the town. The more industrialised the urban centres, the more will be the concentration of educated persons. However, where literacy rates reported were high but employment opportunities and industrialisation were limited, open unemployment was high as in Kerala. Further, there could be some differences between the reported educational qualifications and the actual educational achievements in some States.

Differences exist between male and female literacy levels across the States. The lowest female literacy was found in Bihar, followed by Uttar Pradesh. About 49 percent of the females in urban areas in Bihar and 44 percent in Uttar Pradesh cannot read and write. Differences in male and female literacy were more in the case of Rajasthan, Bihar, Haryana, and Jammu & Kashmir. The lowest difference of 3 to 4 percent was found in Kerala and Pondicherry.

For the urban population, levels of literacy are very important. Without an improvement in literacy, it is not possible to achieve a shift to regular wage/ salaried employment. The percentage of urban illiteracy was negatively and significantly related to State Domestic Product across the States. Literacy, and particularly the percentage of those with educational qualifications above the secondary level, was high in Himachal Pradesh, Delhi, and Chandigarh. These State have a lower percentage of casual workers and lower levels of poverty.

While literacy is not the sole cause for structural change in employment or alleviation of poverty, it appears to be an important component of it. (Appendix 3.4) About 75 percent of the variations in the percentage of population in the regular wage and salaried households can be explained with literacy, gross domestic product per capita, and urbanisation. Levels of literacy are also important for better livelihoods, since exploitation of labour would be minimal. Higher wages and unionisation of labour helped urban Kerala get higher incomes, though work opportunities are limited and unemployment is widespread. Thus literacy, livelihood access, and food access are related in the long term. Hence, we have chosen percentage of illiterates to the total population as a key indicator of livelihood access in urban India. (Map 3.3)

3.5 Wages of Casual Labour

Wages are important as incomes depend upon the level of wages. As per the minimum wage legislation in the country, the daily wage per day for specified scheduled employments have been fixed and are revised periodically. The Central Government has fixed the wage for 44 types of employments between Rs. 47.53 and 90.10 per day. The lowest minimum wage fixed was Rs. 25.96 by the Government of Andhra Pradesh. Uniform wage was fixed for all works

Table 3.8
Literacy Data (By General Educational Level)

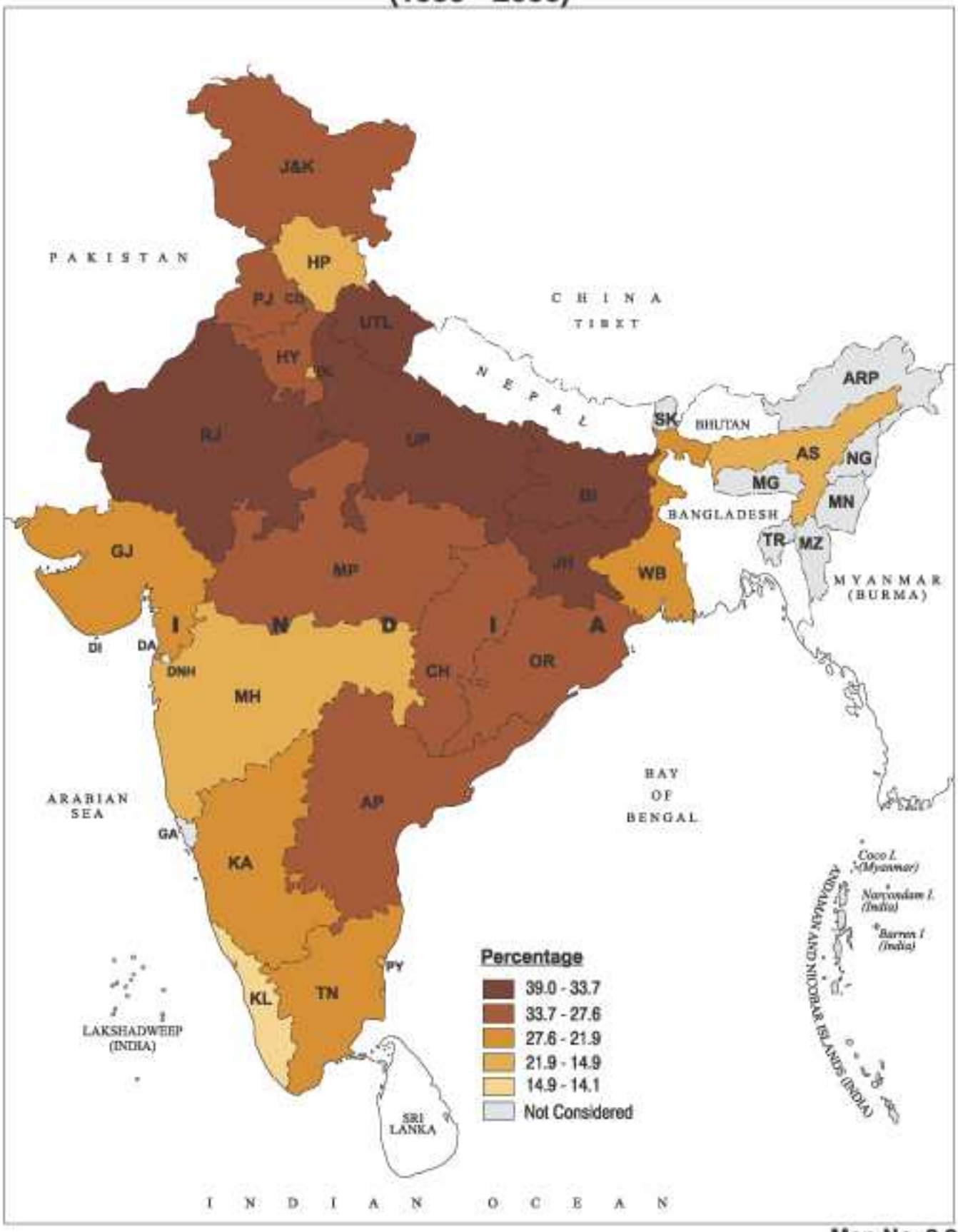
Sl.No.	State	1	2	3	4	5	6
		Percentage of illiterates			Percentage of literates up to		
		Persons	Males	Females	Primary	Middle	Secondary & above
1	Andhra Pradesh	31.80	24.70	39.10	29.20	12.90	26.00
2	Assam	19.50	15.20	24.40	28.70	19.30	32.10
3	Bihar	39.00	30.10	49.10	25.70	10.40	24.90
4	Gujarat	23.70	18.20	29.70	31.20	16.90	28.20
5	Haryana	31.30	23.80	39.90	28.20	12.80	27.60
6	Himachal Pradesh	14.90	11.50	18.50	30.40	12.90	41.50
7	Jammu & Kashmir	31.90	24.00	40.70	25.50	12.70	30.00
8	Karnataka	25.40	20.80	30.10	24.80	16.40	33.20
9	Kerala	14.10	12.40	15.70	30.30	27.70	27.70
10	Madhya Pradesh	30.60	23.50	38.40	34.20	11.20	23.80
11	Maharashtra	21.30	15.90	27.40	30.80	18.50	29.20
12	Orissa	30.50	22.80	38.80	30.20	16.80	22.40
13	Punjab	27.60	23.20	32.70	30.30	11.10	30.90
14	Rajasthan	33.70	23.60	45.20	31.30	11.50	23.50
15	Tamil Nadu	21.90	16.60	27.50	34.50	15.40	28.00
16	Uttar Pradesh	37.50	31.00	44.90	29.80	10.40	22.00
17	West Bengal	24.30	18.80	30.10	32.00	15.60	27.90
18	Delhi	20.30	16.00	25.20	28.20	12.50	38.90
19	Chandigarh	21.00	17.90	24.40	25.90	10.90	42.00
20	Pondicherry	20.80	18.80	23.20	33.20	16.70	29.00
	All India	27.70	21.60	34.30	30.20	14.50	27.30

Source: NSS 55th Round, Report No. 458

in Jammu & Kashmir, Orissa, and Himachal Pradesh. Haryana and the Punjab have fixed wages with very little variation across employments. The differences in the maximum wages fixed varied greatly between Rs. 30 and 184 in the case of Kerala (GOI Labour Bureau 2001). Variation in the wages fixed would eventually lead to discrimination against caste and gender. Minimum wages, further, can be the basis for wage differentials in the labour market. Actual wages paid on public works have not been recorded by NSS for urban areas. It is not clear how much of public work is carried out by government agencies in urban areas.

Wages for casual labour engaged in activities other than government public works was collected by the NSS for 1999–2000. The average wage for males and females put together was highest in Jammu & Kashmir at Rs. 94 per day, followed by Kerala and the Punjab at Rs. 93 and 80, respectively. Delhi was close behind with Rs. 79. The States with lowest wage rates were Bihar and Orissa. Himachal Pradesh, Haryana, Rajasthan, and Gujarat show higher level of wages, while Uttar Pradesh and Maharashtra had relatively lower levels of wages. The southern States show

PERCENTAGE OF ILLITERATES TO TOTAL URBAN POPULATION (1999 - 2000)



Map No. 3.3

variations. Tamil Nadu and Pondicherry show relatively higher level of wages, whereas Andhra Pradesh and Karnataka report fairly lower level of wages.

As expected, wage rates were high in the States with lower levels of poverty and low in the States with higher levels of poverty. Availability of work, schedule of wages, and the bargaining power of labour impact on the poverty levels of casual labour households. (Table 3.9)

Table 3.9

Average Daily Wages for Causal Workers of age 5 and above Engaged in Activities Other Than Public Works (Rs)

S.No.	State	1	2	3
		Male	Female	Person
1	Andhra Pradesh	56.75	39.42	51.60
2	Assam	70.95	51.59	65.58
3	Bihar	50.26	31.40	46.91
4	Gujarat	67.13	40.12	61.55
5	Haryana	68.47	47.74	64.62
6	Himachal Pradesh	70.99	50.30	69.18
7	Jammu & Kashmir	97.65	71.48	93.83
8	Karnataka	61.01	39.35	55.16
9	Kerala	102.35	47.19	93.13
10	Madhya Pradesh	43.87	29.59	39.83
11	Maharashtra	61.70	29.18	54.09
12	Orissa	39.02	27.09	35.62
13	Punjab	82.40	53.09	80.40
14	Rajasthan	67.07	43.35	63.78
15	Tamil Nadu	72.27	46.99	66.34
16	Uttar Pradesh	51.13	37.41	50.00
17	West Bengal	55.27	29.11	51.15
18	Delhi	82.15	54.56	79.73
19	Chandigarh	72.18	35.99	67.63
20	Pondicherry	76.34	38.19	66.31
	All India	62.26	37.71	56.96

Source: NSS 55th Round, Report No. 458.

In this context, the depressed wages of female workers is of great concern to us. In the workforce, especially in the lower income groups, work participation is quite high for females. Wages are about 60 percent lower for women compared to men in urban India. We shall consider this aspect in the section on gender discrimination.

3.6 Livelihood Access Index of Urban India

A livelihood access index has been computed using three indicators. Many other indicators such as wages, self-employment, higher levels of education, and so on are related to these indicators. After considering several indicators, we have selected these three.[5]

1. Percentage of population below the poverty line
2. Percentage of population in the casual labour household type among the lowest 10 percent expenditure classes
3. Percentage of illiterate population to the total population

All the indicators get the same weightage. The indicators are first converted into indices and then averaged together to get the livelihood index. (Table 3.10) Himachal Pradesh, Chandigarh, and Delhi come out as best for livelihood access, followed by Assam, the Punjab, West Bengal, and Haryana. The States that fare badly in the livelihood index are Madhya Pradesh, Bihar, Orissa, and Uttar Pradesh, all of which show lower than the average level of urbanisation—the kind of urbanisation prevalent obviously not bringing prosperity to these States. In a way, the rural problems of these States seem to have spilt over to the urban areas. They also fared quite badly in the *Rural Atlas* (MSSRF - WFP 2001).

[5] The choice of these three indicators was made after considering the correlation coefficients, the factor loadings, and the grouping characteristics as principal components in the principal component analysis.

Table 3.10
Livelihood Access Index

Sl. No	State	1	2	3	4	5	6	7	8
		Percentage of population BPL		Percentage of population in the lowest 10 percent in casual labour household type		Percentage of illiterates to total population		Livelihood Access Index	Rank
		Percent	Index	Percent	Index	Percent	Index		
1	Andhra Pradesh	26.63	0.60	44.13	0.65	31.8	0.71	0.654	5
2	Assam	7.47	0.13	31.85	0.36	19.5	0.22	0.236	17
3	Bihar	32.91	0.76	38.23	0.51	39.0	1.00	0.755	2
4	Gujarat	15.59	0.33	41.75	0.59	23.7	0.39	0.436	13
5	Haryana	9.99	0.20	33.12	0.39	31.3	0.69	0.424	14
6	Himachal Pradesh	4.63	0.06	24.53	0.18	14.9	0.03	0.093	20
7	Jammu & Kashmir	1.98	0.00	49.43	0.77	31.9	0.71	0.496	9
8	Karnataka	25.25	0.57	42.29	0.60	25.4	0.45	0.542	7
9	Kerala	20.27	0.45	58.03	0.98	14.1	0.00	0.475	10
10	Madhya Pradesh	38.44	0.89	51.29	0.82	30.6	0.66	0.791	1
11	Maharashtra	26.81	0.61	38.85	0.52	21.3	0.29	0.473	12
12	Orissa	42.83	1.00	39.65	0.54	30.5	0.66	0.733	3
13	Punjab	5.75	0.09	30.90	0.33	27.6	0.54	0.322	16
14	Rajasthan	19.85	0.44	25.29	0.20	33.7	0.79	0.474	11
15	Tamil Nadu	22.11	0.49	46.17	0.70	21.9	0.31	0.501	8
16	Uttar Pradesh	30.89	0.71	35.33	0.44	37.5	0.94	0.695	4
17	West Bengal	14.86	0.32	32.13	0.36	24.3	0.41	0.362	15
18	Delhi	9.42	0.18	22.67	0.14	20.3	0.25	0.189	18
19	Chandigarh	5.75	0.09	16.90	0.00	21.0	0.28	0.123	19
20	Pondicherry	22.11	0.49	58.97	1.00	20.8	0.27	0.587	6
	All India	23.62		37.49		27.70		0.204	

3.7 Housing and Basic Amenities

The problem of shelter is indirectly related to food security. As we have already discussed in the previous chapter, the expenditure on rent is less than 10 percent of their incomes for the lowest expenditure classes. Hence housing does not seem to really reduce the expenditure of the poor on food. However its impact on sanitation and hygiene is quite clear. People, particularly in big cities and mega cities, live on pavements and in slums, as housing is expensive.

All those who cannot afford shelter are forced to live in most unhygienic conditions. Even if they eat enough, they may not be able absorb and assimilate the food to achieve the expected nutritional status. They are susceptible to disease, growth disorders, and shorter life spans. There was a significant correlation between the population without drinking water facilities and kutcha housing. Hence it is appropriate to include the entire population living in temporary structures and semi-permanent houses in urban areas as the population at the risk of disease. However, we

have put it in the livelihood access section, since the type of employment and poverty position influence the type of dwellings.

The type of dwelling is also an indirect pointer to the lack of amenities within the premises. Due to its implications to food insecurity, we have chosen two indicators of housing. (Table 3.11) The percentage of households living in kutcha temporary structures and the percentage living in semi-permanent structures across the States represent the magnitude of the population at the risk of exposure to diseases.

The 2001 Census data on housing and homeless population has not been made available yet. We had to depend upon the 1991 Census data and the data for 1993–94 given in the NSS 50th Round. As per the 1991 census data, 0.75 percent of the population in urban India is homeless. Over the decade from 1981 to 1991, the percentage has gone up slightly, by about 0.05 percent. Even if we presume that the same percentage of population would continue to remain homeless, more than 2.14 million will be homeless at present. This estimate is obtained by applying the 1991

Table 3.11
Housing Index

Sl. No	State	1	2	3	4	5	6
		Percentage of households living in kutcha houses (1993-94)		Percentage of households living in semi-pucca houses (1993-94)		Housing Index	Rank
		Percent	Index	Percent	Index		
1	Andhra Pradesh	17.70	0.62	15.80	0.34	0.477	7
2	Assam	27.70	1.00	26.40	0.66	0.830	1
3	Bihar	9.90	0.32	25.80	0.64	0.479	6
4	Gujarat	4.30	0.10	15.70	0.34	0.218	14
5	Haryana	5.40	0.14	4.60	0.00	0.071	20
6	Himachal Pradesh	2.80	0.04	10.40	0.18	0.109	18
7	Jammu & Kashmir	3.20	0.06	10.50	0.18	0.118	17
8	Karnataka	6.90	0.20	25.90	0.65	0.423	9
9	Kerala	12.70	0.42	19.60	0.45	0.439	8
10	Madhya Pradesh	4.20	0.10	37.60	1.00	0.548	4
11	Maharashtra	4.90	0.12	20.40	0.48	0.301	12
12	Orissa	25.40	0.91	15.60	0.33	0.622	2
13	Punjab	2.70	0.04	8.10	0.11	0.072	19
14	Rajasthan	8.00	0.24	8.20	0.11	0.176	15
15	Tamil Nadu	16.20	0.56	19.80	0.46	0.509	5
16	Uttar Pradesh	8.90	0.28	18.00	0.41	0.341	11
17	West Bengal	9.20	0.29	22.80	0.55	0.420	10
18	Delhi	14.60	0.50	6.70	0.06	0.280	13
19	Chandigarh	1.70	0.00	15.00	0.32	0.158	16
20	Pondicherry	23.40	0.83	15.30	0.32	0.579	3
	All India	9.90		19.50		0.209	

Source: National Human Development Report 2000, 50th Round of NSSO as reported in Statistical Abstract of India 1998, CSO, April 1999

proportion to the 2001 Census urban population. The largest percentage of homeless population was in Himachal Pradesh and Gujarat, followed by Maharashtra and Madhya Pradesh. The situation seems to have deteriorated in these States since 1981 (Gupta and Mitra 2002). In absolute terms, Maharashtra would probably top the list of the homeless.

We find the largest number of kutcha houses in Assam, Orissa, and Pondicherry, followed by Andhra Pradesh, Tamil Nadu, Delhi, and Kerala. Though the livelihood situation is better in Delhi, it still has a large percentage of temporary housing. Chandigarh, the Punjab, Himachal Pradesh, and Jammu & Kashmir all have less than 4 percent of the households living in temporary structures. The type of housing does not seem to have any particular relationship to the level of urbanisation or concentration of urban population. Probably it has a relationship with seasonal migrant population, who come from other areas in search of work. More research has to go into this aspect. (Map 3.4)

The percentage of population living in semi-permanent structures was quite high. Madhya Pradesh tops the list with 37.60 percent. Assam, Bihar, Karnataka, West Bengal, and Maharashtra follow, with about 20 to 26 percent of households living in semi-permanent houses. Haryana, Delhi, the Punjab, and Rajasthan had less than 10 percent living in semi-permanent structures, with the percentage for Haryana being only 4.6. The semi-permanent nature of the dwelling probably has a bearing upon the levels of prosperity in general, though it has no relationship to the head count ratio of poverty. (Map 3.5)

The housing index computed combines these two indicators to give an idea of the shelter requirements of the poor. It puts Assam on the top as the worst State for shelter, which needs further investigation as the State has a low level of poverty. Orissa, Pondicherry, and Madhya Pradesh also have severe problems of shelter. The better-off States are Haryana, the Punjab, Himachal Pradesh, and Jammu & Kashmir. The housing index has been included in the final composite index and in the urban food insecurity map.

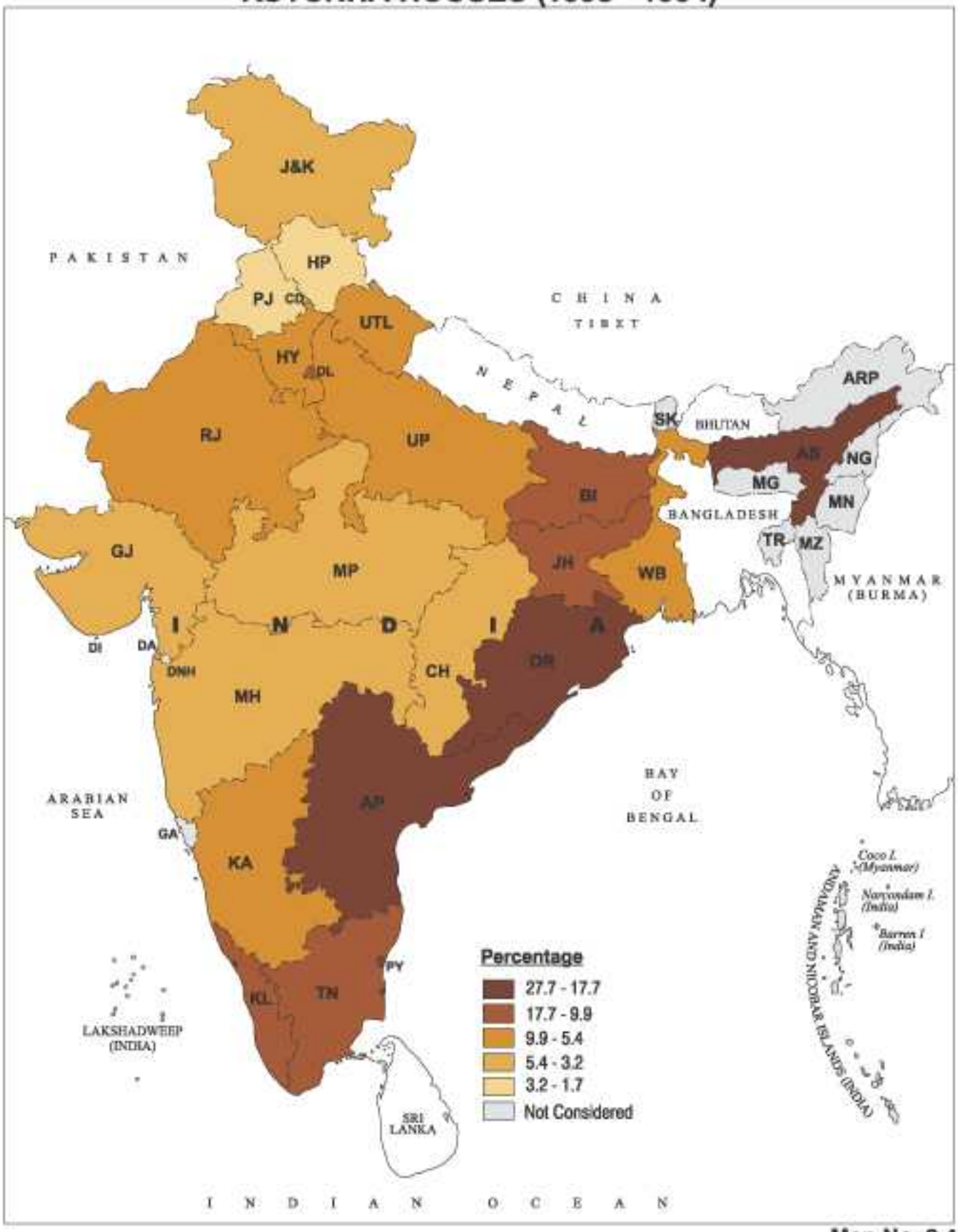
Data on amenities to households are available from the NSS 52nd Round which refers to 1995–96. About 23 percent of the households in urban India do not have access to toilet facilities. The worst possible situation is in Pondicherry with 57.7 percent, followed by Orissa with 42.40 percent. Madhya Pradesh, Tamil Nadu, and Bihar had problems of access to toilets for about 30 to 35 percent of households. The only State that seems to have good toilet facilities was Assam with just about 4 percent of the households not having access to toilet facilities. Kerala, Delhi, West Bengal, and Jammu & Kashmir have 10 to 11 percent without toilet facilities. The rest fall in between, with percentages ranging from 20 to 25 percent. However, one should bear in mind the fact that access to toilets by itself does not mean that the facilities are adequate. Further, running water may not be available in all toilets. Many common toilets may be unusable. Others may be unhygienic. If we include all these sanitation riders, many urban toilet facilities could be woefully inadequate (Kundu 2001).

Other amenities, such as drainage, are not available to about 20 percent of the urban households in the country as a whole. Kerala appears to be the worst affected, where 72 percent of urban households do not have drainage facilities. Orissa and Pondicherry seem to have more than 50 percent of households without drainage facilities. On the other hand, Delhi, Chandigarh, Haryana, and Uttar Pradesh appear to fare well in this aspect. (Table 3.12)

3.8 Discrimination in Livelihood Access

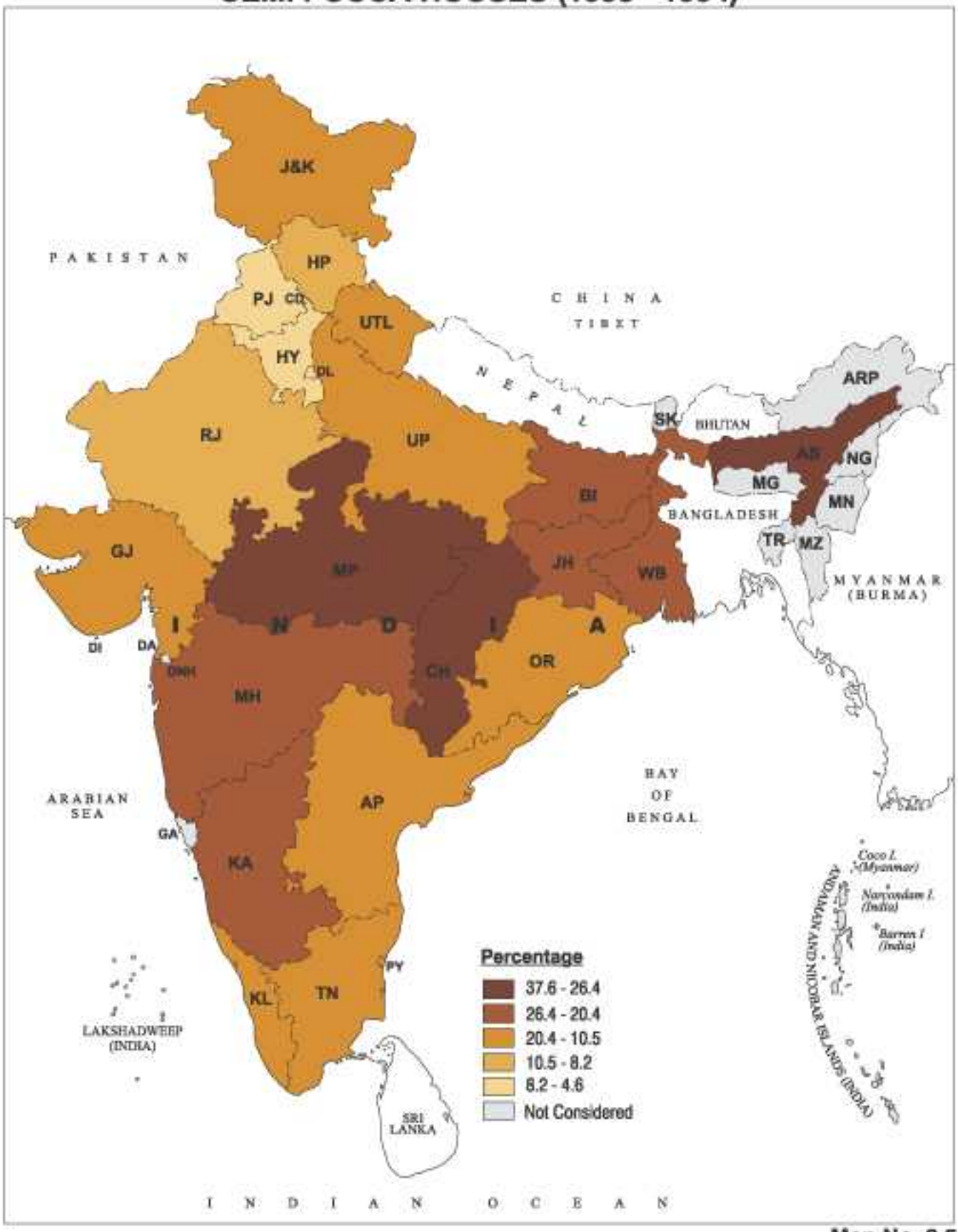
The difference in wages for similar work is referred to as wage discrimination. There could be other types of discrimination, such as job discrimination and occupational discrimination. There have been

PERCENTAGE OF URBAN HOUSEHOLDS LIVING IN KUTCHHA HOUSES (1993 - 1994)



Map No. 3.4

PERCENTAGE OF URBAN HOUSEHOLDS LIVING IN SEMI PUCCA HOUSES (1993 - 1994)



Map No. 3.5

Table 3.12
Basic Amenities in Households

Sl.No.	State	1 Percentage of households without access to toilet facilities (1995-96)	2 Percentage of households without drainage facilities (1995-96)	3 Percentage of households without electricity connection (1991)
1	Andhra Pradesh	28.60	22.50	26.69
2	Assam	3.90	35.20	36.79
3	Bihar	33.40	24.90	41.23
4	Gujarat	20.50	13.90	17.04
5	Haryana	21.30	6.00	10.87
6	Himachal Pradesh	14.60	26.60	3.76
7	Jammu & Kashmir	11.30	25.20	N.A
8	Karnataka	25.30	15.70	23.73
9	Kerala	10.20	72.00	32.35
10	Madhya Pradesh	35.40	23.00	27.48
11	Maharashtra	17.30	10.00	13.93
12	Orissa	42.40	51.50	37.89
13	Punjab	17.50	11.40	5.40
14	Rajasthan	25.30	15.10	23.33
15	Tamil Nadu	34.00	29.70	23.20
16	Uttar Pradesh	22.30	9.30	32.24
17	West Bengal	11.60	26.70	29.81
18	Delhi	10.60	4.80	18.62
19	Chandigarh	12.50	4.30	14.52
20	Pondicherry	57.70	56.70	28.29
	All India	23.00	20.20	24.22

Source: NSS 52nd Round, Report No. 445 : Safe drinking water = Taps + tubewells/hand pumps

attempts to segregate and measure various types of discrimination (Divakaran 1996). There is also discrimination in access to literacy, education and skills. These kinds of discrimination cause heavy loss of income as well as productivity of the workers. Discrimination at the social level translates itself to discrimination in livelihood access, food access, access to medical relief. The ultimate result will be lower life expectancies and higher mortality rates compared to the rest of society. In this section we shall deal with the symptoms of discrimination in livelihood access and in the next chapter we shall take up the outcomes of sex discrimination. Empirical analysis of such discrimination is outside the scope of this book. However, the aim of this section is to look at the evidence of discrimination in the data with a few simple calculations.

a) Caste discrimination

Discrimination results in high incidence of unemployment and poverty. Caste discrimination is less obvious in the wage differential since such data are not available. But the evidence of other types of discrimination that results in lower earnings for

Scheduled Castes (SC) and Scheduled Tribes (ST) is an evidence of unfairness to this group. The 2001 Census data has not been released on SCs and STs. Hence, the NSS 52nd Round data pertaining to 1995–96 was used for the present analysis.

The share of ST population in the urban population was very low, at about 3.40 percent in the country as a whole. State-wise data supports the fact that their presence in urban areas was low. Only in Orissa, 10.9 percent of the urban population comprised Scheduled Tribes. In Madhya Pradesh, Bihar, and Assam the share of ST population was about 6 to 7 percent. Everywhere else it was lower than 4 percent.

The share of Scheduled Caste[6] population was higher than that of Scheduled Tribe population in the urban areas of all the States. It was the highest in the Punjab, followed by Haryana, at about 28 and 21 percent respectively. In about 10 States it was less than 15 percent. For the country as a whole it was 14.35 percent. Only in the urban areas of Jammu & Kashmir, Pondicherry, and Kerala was the percentage less than 9.

The 1991 Census figures are different from these, though for many States the ranks do not change. For some States the figures change. We considered the NSS data for the status of Scheduled Castes in the lower MPCE classes and used the 1991 Census data for the discrimination index. (Tables 3.13 and 3.14; Map 3.6)

While the very presence of SCs in the urban population does not show their vulnerability, their status is obvious if we observe their distribution among the lowest 4 MPCE classes. There were more Scheduled Caste people in the lower income groups than the other sections of the society. For urban India as a whole, 47 percent of the SC population was in the lowest four MPCE classes. For the other sections of the society other than backward classes, only 20 percent belong to the lower income groups.

The percentage of the SC population in the lower MPCE classes was about 77 and 74 in Orissa and Bihar, about 59 in Uttar Pradesh, and 58 in Madhya Pradesh. Andhra Pradesh, Tamil Nadu, Assam, West Bengal, and Rajasthan had around 50 percent of the Scheduled Caste population in the lower expenditure classes.

Uniformly in all the States, with the exception of Himachal Pradesh, the degree of poverty incidence, represented by the higher percentage of SCs in the lower MPCE classes, was obvious. We have already established the fact that the poor in the lower MPCE classes eat less than the average. Thus, more people in the Scheduled Caste population are poor and likely to eat less and go hungry at times. Hence, we are justified in equating the larger share of SC population as a larger incidence of food insecurity. We have included the share of the Scheduled Caste population as an indicator of discrimination in livelihood access in the food insecurity index.

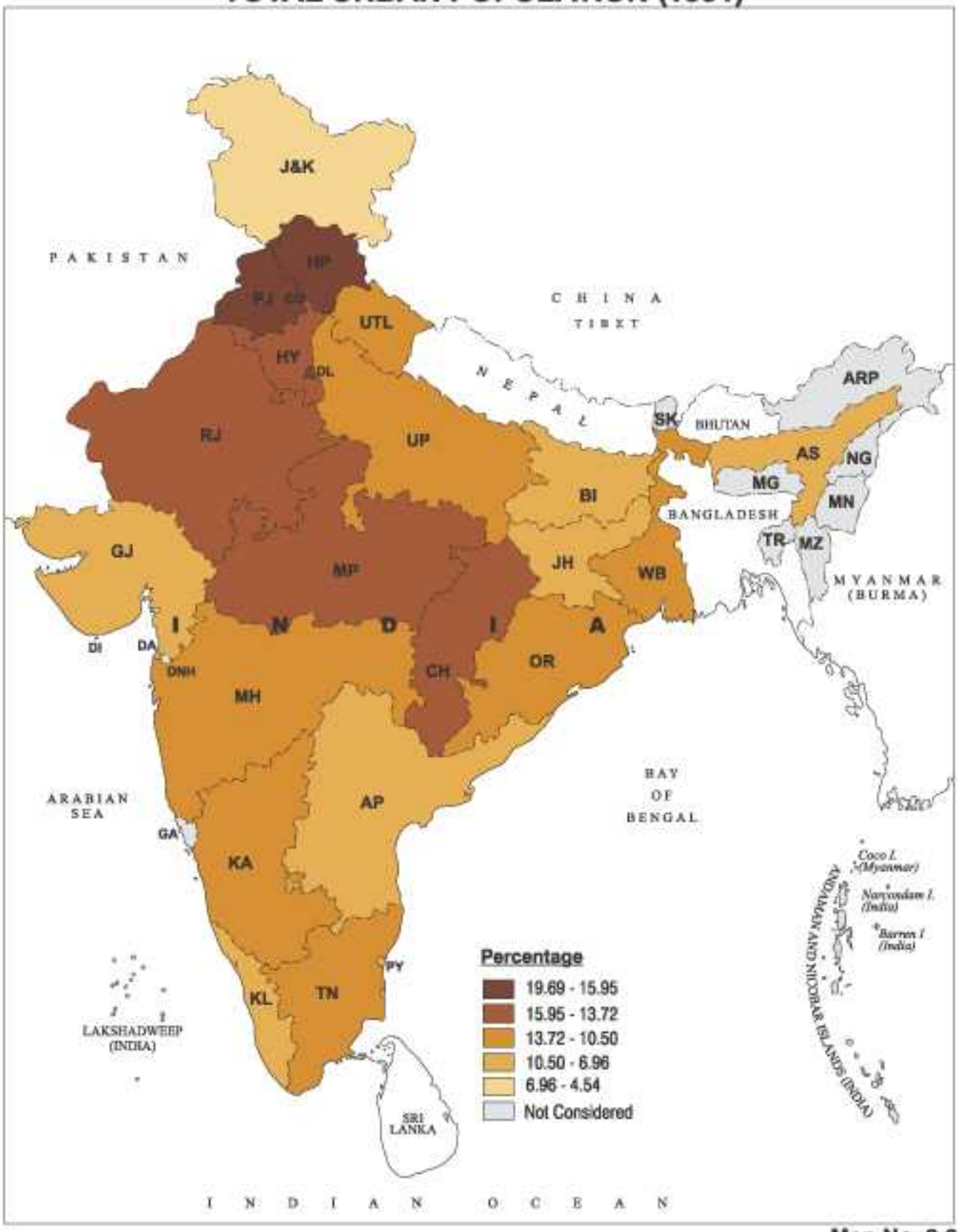
As the data reveal, all the SC population is not food insecure. Due to the paucity of data on sharper indicators of discrimination in terms of occupations and jobs, we have chosen this indicator. However, an important observation is that when a State as whole gets prosperous the SCs also seem to benefit, though the percentage of poor in the other social classes benefit much more. Data for the Punjab, Himachal Pradesh, Delhi and Chandigarh illustrate this point.

b) Gender discrimination

Gender Discrimination in livelihood access is represented as the difference in daily wages paid for

[6] The number depends upon the notification of the Castes by the respective State Governments. Most of the variation across the States could be due to the difference in the inclusion and exclusion of certain Castes and Sub-Castes in this category of Scheduled Castes. It is finally the perception of the people and the Governments that determine their status as Scheduled Castes.

PERCENTAGE OF SCHEDULED CASTE POPULATION TO TOTAL URBAN POPULATION (1991)



Map No. 3.6

Table 3.13

Percentage of Population in Different Social Groups **Percentage in the First Four Income Groups**

Sl. No	State	All Classes				Lowest four MPCE Classes				
		Scheduled Tribes	Scheduled Castes	Other Backward Classes		Scheduled Tribes	Scheduled Castes	Other Backward Classes	Others	All Classes
1	Andhra Pradesh	3.01	12.91	37.84	100	52.60	51.30	38.90	22.70	33.40
2	Assam	6.05	10.21	13.69	100	28.70	51.30	36.70	30.10	33.10
3	Bihar	6.04	12.01	46.77	100	63.10	74.60	62.90	25.70	54.60
4	Gujarat	4.16	14.43	23.45	100	44.10	35.10	30.10	8.80	19.00
5	Haryana	_	20.50	21.47	100	0.00	38.00	13.60	11.20	16.10
6	Himachal Pradesh	_	18.16	7.11	100	0.00	14.60	42.50	2.20	7.30
7	Jammu & Kashmir	_	8.16	2.60	100	0.00	22.60	13.80	4.80	6.60
8	Karnataka	4.50	10.79	30.65	100	49.80	44.80	26.30	16.00	23.80
9	Kerala	_	6.38	55.32	100	0.00	26.60	26.50	16.40	22.90
10	Madhya Pradesh	7.32	13.73	36.47	100	54.40	58.20	51.40	25.50	41.60
11	Maharashtra	3.13	13.19	18.49	100	36.20	33.90	26.90	17.80	22.30
12	Orissa	10.90	17.54	22.81	100	67.80	76.90	46.40	34.00	48.00
13	Punjab	1.35	27.76	13.37	100	31.70	33.70	22.80	11.50	19.40
14	Rajasthan	3.76	18.41	26.66	100	28.80	51.50	28.60	13.70	25.30
15	Tamil Nadu	0.85	12.66	68.13	100	52.60	51.30	38.90	22.70	33.40
16	Uttar Pradesh	0.94	15.62	31.26	100	42.70	58.90	53.60	34.20	44.30
17	West Bengal	1.92	17.85	6.14	100	52.50	50.60	31.50	23.50	29.30
18	Delhi	_	15.77	10.66	100	0.00	25.60	7.00	3.80	7.20
19	Chandigarh	_	14.09	10.32	100	0.00	22.50	16.30	4.90	9.00
20	Pondicherry	_	7.68	81.73	100	0.00	39.10	23.20	24.60	24.40
	All India	3.40	14.35	30.38	100	43.10	47.50	36.90	20.00	29.90

Source: NSS 55th Round, Report No. 472

Table 3.14
Discrimination Index

Sl. No	State	1	2	3	4	5	6
		Percentage of Scheduled Caste population to total population 1991		Ratio of male wage to female wage (1999-2000)		Discrimination Index	Rank
		Percent	Index	Percent	Index		
1	Andhra Pradesh	10.25	0.38	1.44	0.09	0.232	18
2	Assam	9.22	0.31	1.38	0.01	0.158	19
3	Bihar	9.99	0.36	1.60	0.29	0.324	14
4	Gujarat	8.15	0.24	1.67	0.38	0.309	16
5	Haryana	14.20	0.64	1.43	0.08	0.359	12
6	Himachal Pradesh	18.47	0.92	1.41	0.05	0.486	8
7	Jammu & Kashmir	4.54	0.00	1.37	0.00	-0.002	20
8	Karnataka	12.40	0.52	1.55	0.23	0.372	11
9	Kerala	6.96	0.16	2.17	1.00	0.579	6
10	Madhya Pradesh	13.72	0.61	1.48	0.14	0.373	10
11	Maharashtra	10.50	0.39	2.11	0.93	0.662	2
12	Orissa	13.00	0.56	1.44	0.09	0.323	15
13	Punjab	19.69	1.00	1.55	0.23	0.614	4
14	Rajasthan	14.95	0.69	1.48	0.14	0.412	9
15	Tamil Nadu	11.97	0.49	1.54	0.21	0.350	13
16	Uttar Pradesh	12.51	0.53	1.37	0.00	0.261	17
17	West Bengal	13.23	0.57	1.90	0.66	0.617	3
18	Delhi	18.73	0.94	1.51	0.17	0.553	7
19	Chandigarh	15.95	0.75	2.01	0.79	0.774	1
20	Pondicherry	10.36	0.38	2.00	0.79	0.585	5
	All India	11.89		1.65		0.190	

Source: Col 1 Census of India 1991

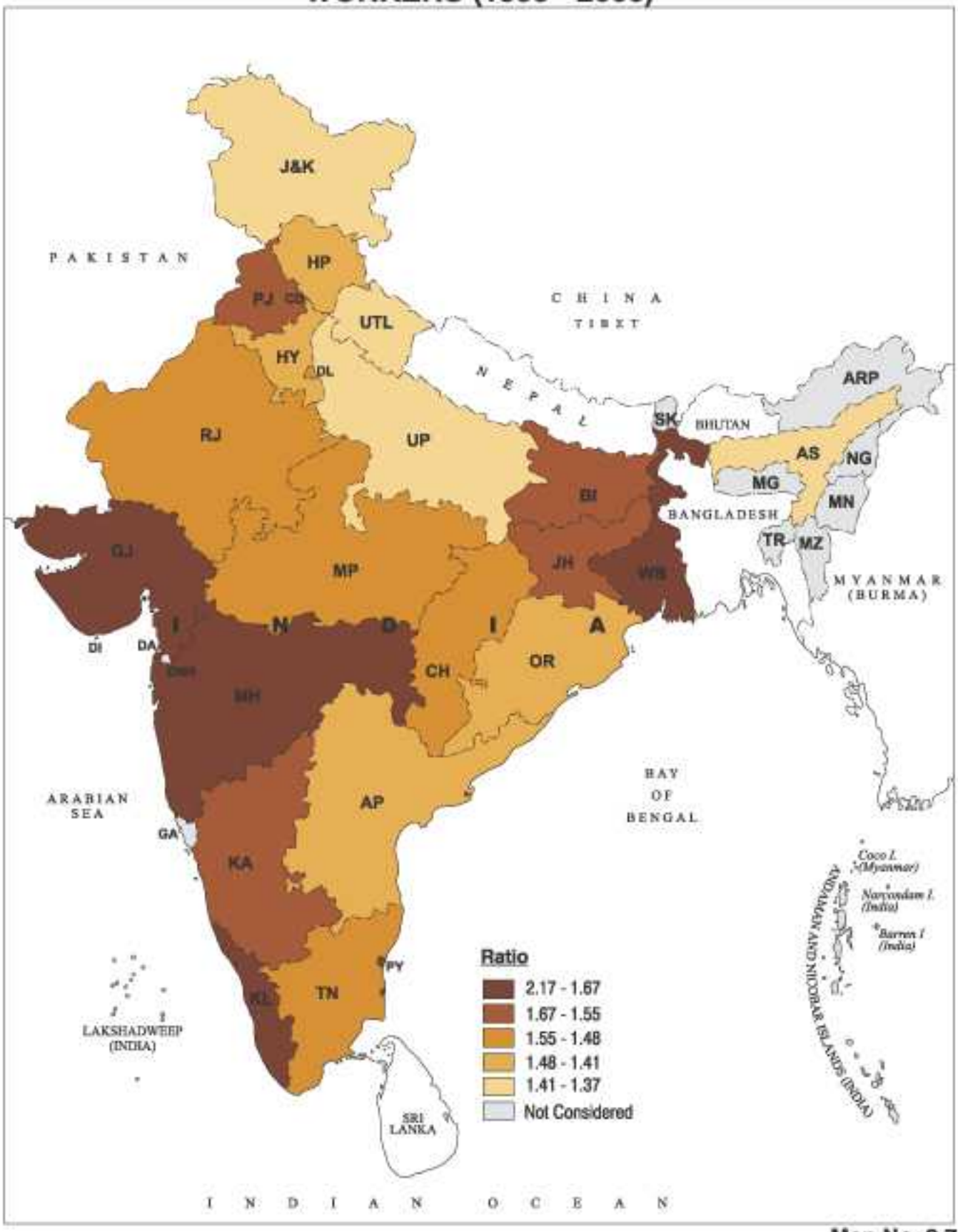
casual work. This has been taken as the major indicator of discrimination and included as one of the important indicators. As we have already discussed in the section on wages, wage discrimination has been alarmingly high in urban India.

(i) Wage discrimination

Wages of female casual labour has been about 60 percent lower than those of their male counterparts for the country as whole. The highest differences in wages were found in Kerala, Maharashtra, Chandigarh, Pondicherry, and West Bengal. The difference was more than double, except in West Bengal where it was almost double. Assam, Jammu & Kashmir, and Uttar Pradesh reported the lowest difference, with the female wage being 40 percent lower than the male wage. In almost all the other parts of the country, the difference varied between 40 and 60 percent. (Table 3.14; Map 3.7)

However, unfairness and bias against women can be found in many other areas. In the context of livelihood access, one has to consider literacy, labour

RATIO OF MALE WAGE TO FEMALE WAGE FOR URBAN CASUAL WORKERS (1999 - 2000)



Map No. 3.7

force participation, unemployment rates, employment pattern, as well as earnings. Freedom to exercise the option to work or not to work is also important. Ideally, the urban environment should be fairer to women than the rural environment. Though we are not comparing the urban/ rural situation, the very level of discrepancy should be a pointer to this fact. We shall briefly recapture the findings of discrepancy in literacy, labour force participation, unemployment, and employment from the previous sections. The data have been put together in Appendix 3.5.

(ii) Incidence of illiteracy

Although illiteracy has been declining for women as well, the differences remain high. As per the NSS 55th Round survey in 1999–2000, there were about 13 percent more illiterate women than men, even in urban India. The difference may increase in the lower income groups. NSS 50th Round data (NSSO 1997 *Sarvekshana*) has clearly shown that in urban India school dropouts were more among girls than boys. Boys were sent to school and girls were sent to work either outside or within the home.

(iii) Withdrawal from labour force due to lack of skills

The decline in labour force participation in urban India over the two NSS Rounds was mainly due to decline in female participation. And it was found in all the age groups. One of the reasons for withdrawal from the labour force could be prolonged joblessness and redundancy experienced by female workers due to lesser skills rather than a substantial improvement in productivity by other workers and increase in family incomes. This area needs further research.

(iv) High incidence of unemployment: Preference for men

As revealed in the section on unemployment, there seem to be a clear preference for educated men compared to educated women in employment. Many more educated females were unemployed than men for the same levels of education. Particularly in the southern States, educated men get jobs and females remain unemployed. This also supports the view of joblessness leading to withdrawal from the labour force.

(v) Unfairness in employment

Another interesting fact is that, in the category of usually employed in the principal status, more female workers were employed as casual labour than male workers. As far as regular salaried employment was concerned, higher percentage of males were employed than females. However, these figures hide more than they reveal. Unless we probe further about the positions given and salaries paid, we cannot come to conclusions about the fairness of employment.

The States differ widely in all these aspects. A more rigorous analysis is necessary for capturing the reasons and suggesting remedial measures. Hence, for the time being we can only conclude that even in urban India gender discrimination in livelihood access is high. Its impact is bound to be higher for lower income groups.

c) *Discrimination index*

A discrimination index was computed with one indicator to represent caste discrimination and another to represent gender discrimination. These indicators have been converted into indices and averaged together to get the discrimination index for the States. (Table 3.14) This index was included in the final composite urban food insecurity index in Chapter 5. The discrimination index shows that discrimination was highest in Chandigarh, followed by Maharashtra, West Bengal, the Punjab, and Pondicherry. It is interesting that such dissimilar States have come together. This could be due to the inclusion of the SC population and its differential dispersion across the States, which is not entirely due to discrimination. Discrimination was lowest in Jammu & Kashmir, Assam, Andhra Pradesh, Uttar Pradesh, and Gujarat. (Table 3.14)

3.9 Urbanisation and Livelihood Security

Urbanisation is not a sufficient condition for livelihood security. Towns and cities attract more people into urban areas as they offer more job opportunities than rural areas. However, the growth of urbanisation has decelerated in the past decade, probably due to the declining capacity of cites and towns to offer more lucrative employment to people. Delhi is not only an exception to the national trend, but also fares well as the best provider of livelihoods in the livelihood index.[7] Based on our limited analysis, we may conclude that urbanisation could be one of the important factors in the creation of non-farm jobs in the economy. However, it is not a sufficient condition for providing livelihood security.

In theory, urbanisation is a corollary of economic growth and transformation into an industrial economy. Economic growth and its capacity to create more jobs determine livelihood opportunities. The capacity to generate jobs is the elasticity of employment with respect to economic growth. The elasticity of employment with respect to Gross Domestic Product has declined over the last two decades. Elasticity was 0.41 between 1983 and 1993–94. It had come down to 0. 15 from 1993–94 to 1999–2000 (Task Force on Employment Opportunities 2001). In other words, the economy is losing its capacity to create employment and is generating lesser jobs than before. This phenomenon explains increasing casual labour and reliance on self-employment and probably even the withdrawal from the labour force and increasing dependency burden. Further, in all the non-agricultural sectors with the exception of construction, elasticity was less than 0.50. It would mean that one percent growth in GDP induces only half a percent growth in employment. Economic growth itself has declined over the Plan periods. The annual compound rate of growth of GDP was 6.5 percent during the Eighth Plan period. It has decelerated to 5.4 percent in the Ninth Plan period. This may have serious implications to long-term urban livelihood security. Safety nets assume added importance for the urban lower income classes who hold risky livelihoods.

[7] Annual average compound rate of growth of urban population for the country as a whole was 2.75. For Delhi, it was 4.23.

APPENDIX 3.1

Factors Influencing Poverty

An attempt was made to examine the functional relationship between poverty and the factors of employment. The variables considered were as follows.

1) Percentage of population below poverty line (poverty)
2) Daily wages of casual labour (persons) (dwg)
3) Percentage of unemployed by current daily status (unemdst)
4) Percentage of population in the self-employed and casual labour household types among the lowest 10 percent (secl)
5) Percentage of population in the casual labour household type for all classes (hhcl)

The following multiple regression functions have been fitted.

1. Poverty = f (dwg, unemdst, secl, hhcl)

The results are summarised below

1. Poverty = 51.324 - 0.617 (dwg) + 2.254 (unemdst) + 0.00314 (secl) - 0.135 (hhcl)
(-5.20) (1.60) (0.15) (-0.64)

Multiple R = 0.808

R^2 = 0.652

(7.82)

The t values and F values for the co-efficients are given in brackets

Table A3.1.1
Correlation Matrix

	1	*2*	*3*	*4*	*5*
1	1.000				
2	-0.765**	1.000			
3	0.750	0.209	1.000		
4	-0.126	0.098	-0.216	1.000	
5	-0.090	0.010	0.053	0.159	1.000

1 Percentage of population BPL
2 Daily wages of persons
3 Percentage of unemployed by current daily status
4 Percentage of self-employed and casual labour among the lowest 10 percent
5 Percentage of households in the casual labour category

Table A3.1.2
Calorie Intake and Urbanisation

		1	2	3	4	5
Sl. No.	States	Percentage of population BPL (1999-2000)	Daily wages of persons	Percentage of unemployment by current daily status (1999-2000)	Percentage of self-employed and casual labour in the lowest 10 percent	Percentage of households in casual labour
1	Andhra Pradesh	26.63	51.60	2.60	79.22	40.00
2	Assam	7.47	65.58	4.10	72.84	6.80
3	Bihar	32.91	46.91	2.60	83.19	11.80
4	Gujarat	15.59	61.55	1.40	63.31	6.80
5	Haryana	9.99	64.62	1.40	106.67	10.10
6	Himachal Pradesh	4.63	69.18	2.60	78.74	17.50
7	Jammu & Kashmir	1.98	93.83	1.90	82.99	27.20
8	Karnataka	25.25	55.16	2.00	80.49	15.50
9	Kerala	20.27	93.13	6.90	80.13	12.20
10	Madhya Pradesh	38.44	39.83	2.20	84.35	18.50
11	Maharashtra	26.81	54.09	2.90	70.40	9.80
12	Orissa	42.83	35.62	2.90	74.42	11.40
13	Punjab	5.75	80.40	1.70	84.55	10.00
14	Rajasthan	19.85	63.78	1.40	82.33	10.40
15	Tamil Nadu	22.11	66.34	3.40	62.93	4.10
16	Uttar Pradesh	30.89	50.00	1.80	75.31	3.20
17	West Bengal	14.86	51.15	3.90	68.02	24.30
18	Delhi	9.42	79.73	1.40	70.03	12.90
19	Chandigarh	5.75	67.63	3.00	81.96	19.90
20	Pondicherry	22.11	66.31	4.40	75.91	17.60

APPENDIX 3.2

Measurement of Unemployment : Alternative Measures

The NSSO provides four different measures of employment and unemployment, which capture different facets of the employment-unemployment situation following the recommendations of the Expert (Dantwala) Committee on Unemployment.

- Usual Principal Status (UPS): A person is counted as being in the labour force on principal usual activity basis if she/he was either engaged in economic activity (work) or reported seeking/being available for work for the major part of the preceding 365 days. Those classified as being in the labour force on this basis are further classified as being employed or unemployed depending on whether the majority of the days in the labour force was spent in economic activity or in seeking/being available for work. The Usual Principal Status unemployment rate is the proportion of those classified as unemployed on this basis expressed as a percentage of those classified as being in the labour force. On this criterion, persons can be counted as being employed even if they were unemployed (or were outside the labour force)

for a significant part of the year. Equally, a person can be counted as unemployed even though she/he may have been employed for part of the year.

- Usual Principal and Subsidiary Status (UPSS): This provides a more inclusive measure covering, in addition, the participation in economic activity on a more or less regular basis of those classified as unemployed on the Usual Principal Status as also of those classified as being outside the labour force on the same criterion. This would result in a larger proportion of the population as being in the labour force with a higher proportion of workers and lower unemployment rates relative to the UPS criterion.
- Current Weekly Status (CWS): The reference period here is the week i.e. the 7 days preceding the interview. A person is counted as employed if she/he was engaged in economic activity for at least one hour on any day during the reference week. A person not being engaged in economic activity even for one hour on any day but reporting seeking/being available for work during the reference week is classified as unemployed. To the extent that employment varies seasonally over the year, the labour force participation rates on the Current Weekly Status would tend to be lower. However, reflecting the unemployment during the current week of those classified as being employed on the UPS (and the UPSS) criterion, the Current Weekly Status unemployment rates would tend to be higher. The difference between the unemployment rates on the Current Weekly Status and that on the Usual Status would provide one measure of seasonal unemployment.
- Current Daily Status (CDS): Based on the reported time-disposition of the person on each day of the reference week (in units of half-day where needed by the presence of multiple activities within a day), person-days in employment (unemployment) are aggregated to generate estimates of person-days in employment/unemployment. The person-day unemployment rate is derived as the ratio of person-days in unemployment to the person-days in the labour force (i.e. person-days in employment plus person-days in unemployment). This measure captures the 'within-week' unemployment of those classified as employed on the Weekly Status. The CDS measure of unemployment is widely agreed to be the one that most fully captures open unemployment in the country.

APPENDIX 3.3

Labour Force Participation and Unemployment *

Table 3.3.1 - Labour Force Participation Rates by Sex and Age, 1983 to 1999-2000

Age Group	1983		1987-88		1993-94		1999-00	
	Male	Female	Male	Female	Male	Female	Male	Female
5-9	7	7	5	3	4	4	3	2
10-14	114	65	92	66	71	47	52	37
15-19	472	164	429	169	404	142	366	121
20-24	816	218	792	225	772	230	755	191
25-29	965	242	967	244	958	248	951	214
30-34	985	267	985	282	983	283	980	245
35-39	987	292	989	313	990	304	986	289
40-44	982	305	986	311	984	320	980	285
45-49	977	284	977	307	976	317	974	269
50-54	943	270	944	269	945	287	939	264
55-59	843	230	849	235	856	225	811	208
60+	509	124	482	123	443	114	402	94
All ages	536	155	534	162	542	164	542	147

Note: Classification is based on those classified in the labour force on Usual Status Basis

Source: NSS 38th, 43rd, 50th and 55th Rounds.

Table 3.3.2 – Urban Unemployment Rates by Household Monthly Per Capita Expenditure Class (percent of labour force)

Monthly Per Capita Expenditure Class	Unemployment Rate (UPSS)	Unemployment Rate (CDS)
0-300	2.91	9.61
300-350	5.21	9.67
350-425	4.08	8.20
425-500	5.43	9.20
500-575	5.81	9.20
575-665	8.12	8.63
665-775	5.85	8.19
775-915	4.95	7.18
915-1120	5.08	6.65
1120-1500	4.21	5.68
1500-1925	3.49	4.67
1925 & above	2.99	4.10
All	4.63	7.65

Source: NSS 55th Round 1999-2000

*The Tables are taken from “Task Force on Employment Opportunities- June 2001”

APPENDIX 3.4

Employment and Urbanisation

An attempt was made to examine the functional relationship between employment

and the level of urbanisation, GDP, literacy, and unemployment. The variables considered were as follows.

1. Regsalaried = Percentage of population in the Regular wage/salaried household type

2. Urbanisation = Proportion of urban population to total population of the State (ur/tp)

3. SDP = Per capita State Domestic Product (sdp)

4. Unemployment = Percentage of unemployed as per current daily status (unemdst)

5. Literacy = Percentage of literate upto primary level (literacy)

The following multiple regression functions have been fitted.

1.Regsalaried = f (ur/tp, sdp, unemdst, literacy)

The results are summarised below.

1.Regsalaried = 40.136 + 0.021 (ur/tp) + 0.0004 (sdp) -0.0273(clhh) -0.212 (literacy)

(3.02) (0.149) (1.30) (- 0.78) (-.48)

Multiple R = 0.75

R^2 = 0.565

(4.86)

Table A3.4.1

Correlation Matrix

	1	2	3	4	5
1	1.000				
2	0.700**	1.000			
3	0.729**	0.935**	1.000		
4	-0.207	-0.139	-0.061	1.000	
5	-0.165	-0.046	-0.077	0.190	1.000

1 Percentage of population in the regular salary household (Regsalaried)
2 Proportion of urban population to total population of the State (ur/tp)
3 Per capita State Domestic Product (SDP)
4 Percentage of unemployed by current daily status (unemdst)
5 Percentage of literate up to primary level (literacy)

Table 3.4.2

		1	2	3	4	5
Sl. No.	State	Percentage of population among all classes as regular salaried	Percentage of urban population	Per capita State GDP 1999-2000	Current daily status unemployment rate	Percentage of literate & up to primary
1	Andhra Pradesh	40.00	27.08	14715	76	29.20
2	Assam	40.60	12.72	9612	119	28.70
3	Bihar	32.70	10.47	6328	93	25.70
4	Gujarat	37.00	37.35	18625	42	31.20
5	Haryana	36.00	29.00	21114	45	28.20
6	Himachal Pradesh	44.40	9.79	15012	78	30.40
7	Jammu & Kashmir	42.50	24.88	12338	66	25.50
8	Karnataka	39.90	33.98	16343	54	24.80
9	Kerala	30.10	25.97	18262	191	30.30
10	Madhya Pradesh	37.20	26.67	10907	70	34.20
11	Maharashtra	51.50	42.40	23398	81	30.80
12	Orissa	39.10	14.97	9162	95	30.20
13	Punjab	38.20	33.95	23040	49	30.30
14	Rajasthan	38.90	23.38	12533	45	31.30
15	Tamil Nadu	42.30	43.86	19141	89	34.50
16	Uttar Pradesh	32.00	20.78	9765	62	29.80
17	West Bengal	41.30	28.03	15569	106	32.00
18	Delhi	50.80	93.01	35705	41	28.20
19	Chandigarh	59.90	89.78	46347	81	25.90
20	Pondicherry	41.30	66.57	31768	125	33.20
	All India	40.20	27.78		77	30.20

Appendix 3.5

Male-Female Differences in Livelihood Access

Table 3.5.1 Urban Labour Force Per Thousand Population

Sl. No	State	Usual status principal + subsidiary			(F - M)
		Persons	Males	Females	Differentials
1	Andhra Pradesh	362	532	184	-348
2	Assam	368	565	138	-427
3	Bihar	287	466	82	-384
4	Gujarat	352	547	138	-409
5	Haryana	323	520	101	-419
6	Himachal Pradesh	344	533	142	-391
7	Jammu & Kashmir	296	500	68	-432
8	Karnataka	378	562	186	-376
9	Kerala	415	591	254	-337
10	Madhya Pradesh	331	509	136	-373
11	Maharashtra	367	563	146	-417
12	Orissa	339	511	153	-358
13	Punjab	363	565	128	-437
14	Rajasthan	332	499	141	-358
15	Tamil Nadu	410	585	227	-358
16	Uttar Pradesh	317	512	97	-415
17	West Bengal	378	612	129	-483
18	Delhi	343	546	109	-437
19	Chandigarh	369	566	153	-413
20	Pondicherry	368	574	181	-393
	All India	354	542	147	-395

Source: NSS 55th Round, Report No. 458

Appendix 3.5 contd….

Table 3.5.2 Percentage of Illiterates

Sl.No.	State	Percentage of illiterates		
		Persons	Males	Females
1	Andhra Pradesh	31.80	24.70	39.10
2	Assam	19.50	15.20	24.40
3	Bihar	39.00	30.10	49.10
4	Gujarat	23.70	18.20	29.70
5	Haryana	31.30	23.80	39.90
6	Himachal Pradesh	14.90	11.50	18.50
7	Jammu & Kashmir	31.90	24.00	40.70
8	Karnataka	25.40	20.80	30.10
9	Kerala	14.10	12.40	15.70
10	Madhya Pradesh	30.60	23.50	38.40
11	Maharashtra	21.30	15.90	27.40
12	Orissa	30.50	22.80	38.80
13	Punjab	27.60	23.20	32.70
14	Rajasthan	33.70	23.60	45.20
15	Tamil Nadu	21.90	16.60	27.50
16	Uttar Pradesh	37.50	31.00	44.90
17	West Bengal	24.30	18.80	30.10
18	Delhi	20.30	16.00	25.20
19	Chandigarh	21.00	17.90	24.40
20	Pondicherry	20.80	18.80	23.20
	All India	27.70	21.60	34.30

Source: NSS 55th Round, Report No. 458

Appendix 3.5 contd

Table 3.5.3 Unemployment per Thousand Persons in Labour Force

Sl. No	State	Usual status				Current weekly status				Current daily status			
		Persons	Male	Female	Differentials	Persons	Male	Female	Differentials	Persons	Male	Female	Differentials
1	Andhra Pradesh	42	42	42	0	51	48	60	12	76	72	89	17
2	Assam	113	91	223	132	104	84	197	113	119	99	219	120
3	Bihar	79	76	94	18	83	77	118	41	93	87	135	48
4	Gujarat	22	21	26	5	28	27	34	7	42	40	54	14
5	Haryana	29	27	46	19	38	38	39	1	45	45	49	4
6	Himachal Pradesh	72	63	118	55	73	67	99	32	78	70	119	49
7	Jammu & Kashmir	54	47	128	81	57	51	114	63	66	60	134	74
8	Karnataka	34	30	47	17	40	38	47	9	54	53	59	6
9	Kerala	125	69	264	195	138	97	235	138	191	155	282	127
10	Madhya Pradesh	38	43	16	-27	56	60	38	-22	70	72	57	-15
11	Maharashtra	64	61	78	17	68	65	81	16	81	77	100	23
12	Orissa	71	72	67	-5	80	82	73	-9	95	98	82	-16
13	Punjab	32	31	35	4	39	39	43	4	49	48	53	5
14	Rajasthan	29	27	37	10	38	40	27	-13	45	47	35	-12
15	Tamil Nadu	44	39	58	19	52	49	60	11	89	90	86	-4
16	Uttar Pradesh	45	45	46	1	52	53	42	-11	62	63	50	-13
17	West Bengal	82	77	111	34	87	82	115	33	106	100	139	39
18	Delhi	35	32	53	21	34	34	39	5	41	40	42	2
19	Chandigarh	58	39	144	105	81	40	238	198	81	44	229	185
20	Pondicherry	44	35	69	34	75	71	86	15	125	131	104	-27
	All India	52	48	71	23	59	56	73	17	77	73	94	21

Source: NSS 55th Round, Report No.458

Appendix 3.5 contd….

Table 3.5.4 Unemployment Rate Among the Educated

Sl. No.	State	Usual status				Current weekly status			
		Persons	Male	Female	Differentials	Persons	Male	Female	Differentials
1	Andhra Pradesh	72	61	145	84	77	64	167	103
2	Assam	156	121	316	195	148	115	299	184
3	Bihar	134	124	294	170	138	126	319	193
4	Gujarat	30	27	52	25	33	31	51	20
5	Haryana	40	34	90	56	41	36	76	40
6	Himachal Pradesh	104	87	191	104	103	88	171	83
7	Jammu & Kashmir	82	69	194	125	81	69	180	111
8	Karnataka	56	48	94	46	59	52	92	40
9	Kerala	212	99	419	320	207	115	369	254
10	Madhya Pradesh	59	58	73	15	62	60	85	25
11	Maharashtra	75	68	117	49	75	69	106	37
12	Orissa	156	140	286	146	158	144	268	124
13	Punjab	49	47	64	17	56	49	94	45
14	Rajasthan	40	36	79	43	42	39	56	17
15	Tamil Nadu	70	51	148	97	75	59	147	88
16	Uttar Pradesh	79	71	172	101	82	75	167	92
17	West Bengal	121	98	292	194	118	93	285	192
18	Delhi	47	42	79	37	46	43	68	25
19	Chandigarh	77	49	175	126	102	49	263	214
20	Pondicherry	74	60	134	74	96	84	156	72
	All India	52	48	71	23	82	69	158	89

Source: NSS 55th Round, Report No.458

Appendix 3.5 contd…

Table 3.5.5 Percentage of Usually Employed by Category of Employment in the Principal + Subsidiary Status

Sl. No.	State	Self-employed				Casual labour				Regular employees			
		Persons	Male	Female	Differentials	Persons	Male	Female	Differentials	Persons	Male	Female	Differentials
1	Andhra Pradesh	36.7	35.8	39.3	3.5	24.6	22.2	32.2	10.0	38.7	42.0	28.5	-13.5
2	Assam	44.7	48.3	25.1	-23.2	12.4	11.2	19.3	8.1	42.9	40.5	55.6	15.1
3	Bihar	53.7	54.1	51.3	-2.8	16.1	14.9	23.5	8.6	30.2	31.0	25.2	-5.8
4	Gujarat	41.0	40.8	41.9	1.1	24.9	23.3	31.7	8.4	34.1	35.9	26.4	-9.5
5	Haryana	44.8	43.3	53.5	10.2	12.4	12.3	13.5	1.2	42.8	44.4	33.0	-11.4
6	Himachal Pradesh	37.6	33.7	53.3	19.6	10.8	12.0	6.1	-5.9	51.6	54.3	40.6	-13.7
7	Jammu & Kashmir	48.1	48.9	41	-7.9	11.5	10.7	17.7	7.0	40.4	40.4	41.3	0.9
8	Karnataka	38.8	37.9	41.5	3.6	21.6	20.4	25.9	5.5	39.6	41.7	32.6	-9.1
9	Kerala	41.3	37.4	50.9	13.5	29.6	34.6	17.2	-17.4	29.1	28.0	31.9	3.9
10	Madhya Pradesh	46.3	45.2	50.4	5.2	20.7	17.9	32.4	14.5	33.0	36.9	17.2	-19.7
11	Maharashtra	33.8	33.0	37.4	4.4	14.7	13.0	21.6	8.6	51.5	54.0	41.0	-13.0
12	Orissa	42.8	41.9	46.0	4.1	21.4	18.2	32.8	14.6	35.8	39.9	21.2	-18.7
13	Punjab	47.7	47.4	49.1	1.7	11.4	12.2	7.5	-4.7	40.9	40.4	43.4	3.0
14	Rajasthan	49.9	46.1	65.3	19.2	13.6	13.5	13.8	0.3	36.5	40.4	20.9	-19.5
15	Tamil Nadu	34.7	33.0	39.4	6.4	21.2	21.6	19.9	-1.7	44.1	45.4	40.7	-4.7
16	Uttar Pradesh	55.0	53.1	66.1	13	12.7	13.5	8.2	-5.3	32.3	33.4	25.7	-7.7
17	West Bengal	43.2	43.1	43.6	0.5	16.8	17.0	16.3	-0.7	40.0	39.9	40.1	0.2
18	Delhi	41.1	41.9	36.4	-5.5	4.1	4.0	4.5	0.5	54.8	54.1	59.1	5.0
19	Chandigarh	33.1	36.2	19.4	-16.8	5.4	5.5	4.7	-0.8	61.5	58.3	75.9	17.6
20	Pondicherry	29.3	29.2	29.8	0.6	29.9	29.8	29.7	-0.1	40.8	41.0	40.5	-0.5
	All India	42.2	41.5	45.3	3.8	17.8	16.8	21.4	4.6	40.0	41.7	33.3	-8.4

Source: NSS 55th Round, Report No. 458

CHAPTER 4

Food Absorption and Nutritional Status

Let us reiterate the fact that holding a job, buying food, and eating is just not enough to remain healthy and live long. The diet needs to be a balanced one. Diets deficient in vitamins and micro-nutrients lead to long-term growth disorders. The road to a healthy and long life is proper food absorption and assimilation into the body. Nutritional security cannot be achieved without clean drinking water, environmental hygiene, and primary health care. Proper absorption and assimilation of food into the body translate into better nutritional outcomes such as lower child and infant mortality rates and higher life expectancies.

In this chapter, we shall first consider the problems of sanitation and environmental hygiene that expose people to the risk of disease. Typical urban problems of slums, garbage disposal, water pollution, lack of basic amenities such as clean drinking water, toilet facilities, etc., come under this category. A sanitation and health index has been calculated to study the position across the States.

At the end, there is a discussion on nutrition outcomes such as growth disorders, mortality rates, and life expectancy across the States. Juvenile sex ratio adverse to females is a result of higher mortality of females than males. Hence, it gets special attention. Finally, we have calculated a nutritional outcome index using relevant indicators.

4.1 Slums and Slum Dwellers

The National Sample Survey Organisation defines a slum as "a compact area with a collection of poorly built tenements, mostly of temporary nature, crowded together, usually with inadequate facilities of sanitation and drinking water." Municipalities officially declare some areas as slums. These are notified slums. There may be other areas that fit this description but not notified. Data on slum population are available from the 2001 Census. The NSS 49th Round, with the reference period of 1992–93, has more information about the facilities in slums. Both the NSS and the Census considered both declared as well as undeclared slums. Slums in towns and cities with a population of 50,000 and above were considered in the Census. Other towns were excluded. Despite the uniform definition adopted in the Census, there could be underestimation of slums in some States. Those that have shown keen interest in identifying slums, such as Andhra Pradesh, may appear worse off than States such as Uttar Pradesh that declare some towns as being free from slums. Exclusion of towns with a population of less than 50,000 results in the underestimation of slums in the States that have more small towns than big towns.

a. Slum population

We have used the percentage of population living in slums to the total urban population in the year 2001 as one of the key indicators of the problems of food absorption, even with the data being weak. It is because many studies have shown that slums dwellers are the most vulnerable sections of population in urban areas. Some studies have shown that slums have a number of migrants from rural areas that have come in search of work. Many slum dwellers are casual

workers. The conditions of slums are appalling, particularly due to lack of toilet facilities, clogged public toilets, flooding during the rainy season, lack of drainage facilities, and so on (Kundu 2001). There are other problems such as alcoholism among the poor households. Such conditions have an immediate impact on the morbidity and mortality of the slum dwellers. A study sponsored by World Bank in the slums of Delhi has shown that slum population is more susceptible to illness. (Gupta and Arup Mitra 2002)

Now let us briefly look at the distribution of slum population among the States as per the 1991 Census and 2001 Census. There seems to be wide variations in the percentage of population in slums. In the country as a whole, the percentage of population living in slums has remained around 21.5 percent of the urban population, whereas the slum population of some States has declined drastically and in others there has been a substantial increase. This could be due to changes in coverage and notification, or to genuine reductions and increases. A remarkable reduction in slum population has occurred in Himachal Pradesh, where the percentage of slum population had declined from 28 percent a decade ago to none in 2001, a total transformation for the better. Considering that Himachal Pradesh fares well in terms of many indicators, slums might have been eliminated. Chandigarh, Jammu & Kashmir, Pondicherry, Bihar, and Assam have also reported a substantial reduction in slum population. The States that reported substantial increase were Haryana, Madhya Pradesh, and Andhra Pradesh

In 2001, the percentage of slum population was the highest in Haryana, Andhra Pradesh, and Maharashtra. These three States had about a third of the urban population living in slums. In the case of Haryana, the annual rate of growth of urban population was the highest at 4.19 percent from 1991 to 2001. This may have resulted in more slums in urban Haryana. The urban population of Maharashtra had an annual compound growth rate of 2.8 percent. The slum population of Maharashtra increased by about 6.75 percent over the period. In Andhra Pradesh, urban population has grown slowly. The annual compound rate of growth of population was 1.35 percent. Urban Andhra Pradesh seems to have more poverty than rural Andhra Pradesh (MSSRF - WFP 2001) and slum population could be an indication of lack of urban amenities and neglect of the urban poor compared to the rural poor. (Table 4.1 and Map 4.1)

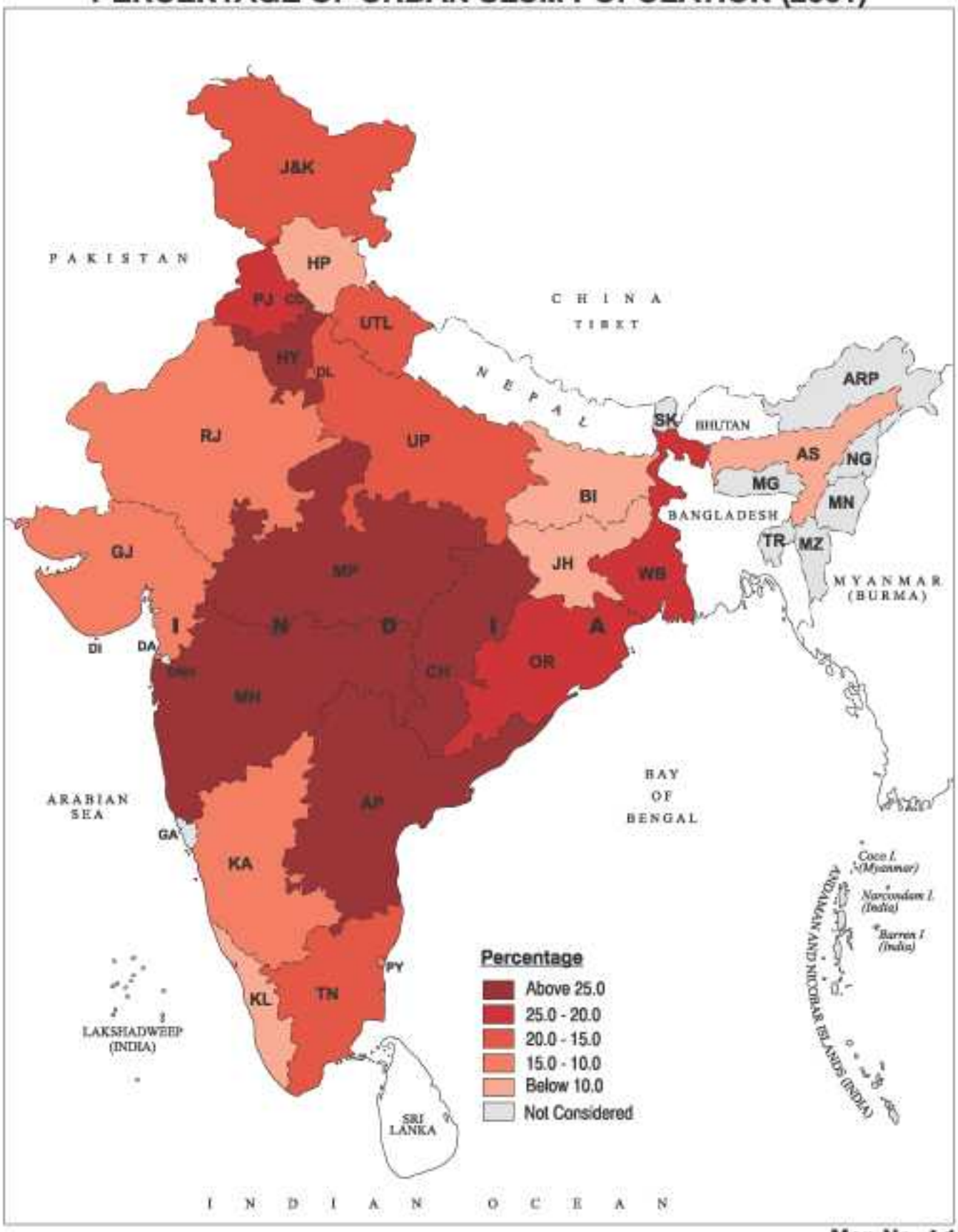
The other States that show higher slum populations, ranging between 20 to 30 percent of the urban population, were Madhya Pradesh, West Bengal, and Orissa. Those in the range of slum population between 10 and 20 percent were the Punjab, Tamil Nadu, Delhi, Uttar Pradesh, Jammu & Kashmir, Rajasthan, Chandigarh, and Pondicherry. Urban Karnataka and Gujarat have a slum population about 11 and 10 percent respectively. Bihar had about 9 percent of urban population in the slums and Assam about 6 percent.

The State with no slums in the year 2001 was Himachal Pradesh, followed by Kerala at about 1.12 percent. Both the States had low-level urbanisation and there was no concentration of urban population. More than the level of urbanisation, these States have a track record of providing good health infrastructures. Literacy levels are also high. Thus, the interesting observation is that not only the lack of concentration of urban population but also the availability of urban amenities and the levels of literacy seem to bring down the number of slums.

b. Facilities in the slums

NSS 49th Round provides data on slums. Though we learn about the presence of a facility in a slum, there is no information about its condition. Maharashtra has the largest number of slum dwellers at 32.55 percent of urban population. About 13.7 million

PERCENTAGE OF URBAN SLUM POPULATION (2001)



Map No. 4.1

Table 4.1

Urban Slums

Sl. No.	State	1 Percentage of slum population to total urban population (1991)	2 Percentage of slum population 2001	3 Percentage of slums with drinking water facility through taps	4 Percentage of slums with drinking water facility from tubewells hand pumps	5 Percentage of slums with pucca houses	6 Percentage of slums with kutcha houses	7 Percentage of slums without latrine facility	8 Percentage of slums with open sewerage	9 Percentage of slums without garbage disposal systems
1	Andhra Pradesh	24.10	32.54	65.20	28.80	14.30	55.20	63.40	84.70	41.50
2	Assam	18.00	5.82	N.A	N.A	N.A	N.A	0.70	85.4	79.8
3	Bihar	23.70	8.91	35.50	64.50	10.80	36.90	100.00	100.00	67.60
4	Gujarat	18.10	10.22	49.70	19.30	22.40	52.00	46.90	81.50	21.10
5	Haryana	16.90	33.07	85.60	14.40	69.40	13.80	57.50	87.30	85.40
6	Himachal Pradesh	28.00	0.00	N.A	N.A	N.A	N.A	100.00	100.00	0.00
7	Jammu & Kashmir	32.20	17.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Karnataka	9.30	11.23	20.90	76.10	6.70	78.30	82.30	95.10	15.10
9	Kerala	15.90	1.12	N.A	N.A	N.A	N.A	99.40	100.00	99.40
10	Madhya Pradesh	13.70	25.36	51.30	48.70	9.70	30.60	88.20	95.80	69.40
11	Maharashtra	25.80	32.55	95.60	4.40	50.10	13.90	23.50	80.50	25.80
12	Orissa	19.90	22.26	39.10	58.80	48.40	1.80	100.00	100.00	43.30
13	Punjab	23.60	20.14	11.10	88.90	11.10	87.10	100.00	100.00	98.00
14	Rajasthan	23.80	14.12	81.50	18.50	44.30	20.60	62.00	100.00	71.30
15	Tamil Nadu	18.70	19.49	58.80	20.70	5.30	77.90	83.00	91.30	35.30
16	Uttar Pradesh	21.10	18.51	30.10	69.90	27.70	21.50	72.30	84.10	43.10
17	West Bengal	27.80	22.42	79.40	20.60	44.10	8.70	17.20	71.50	30.40
18	Delhi	26.50	18.93	90.00	10.00	69.60	4.60	42.50	53.60	5.30
19	Chandigarh	28.00	13.24	0.00	0.00	0.00	0.00	0.00	100.00	100.00
20	Pondicherry	29.60	14.10	0.00	0.00	0.00	0.00	100.00	100.00	100.00
	All India	(GT) 21.3	21.58	64.80	31.10	30.50	35.40	54.40	83.10	34.80

Source: Census of India 1991& 2001; NSS 49th Round, Report No.417

people live in the urban slums of Maharashtra. As per the NSS 42nd Round data for 1993, these slums were better off in terms of drinking water facilities through taps, toilet facilities, and permanent houses. About 95 percent of slums in Maharashtra get drinking water from taps. About half the slums have permanent dwelling constructions. Twenty-three percent of the slums do not have toilet facilities. Only 20 percent of the slums have electricity. Electricity is available in more slums in Karnataka, Bihar, and the Punjab compared to Maharashtra, Delhi, and West Bengal. The slums in Tamil Nadu, Karnataka, and the Punjab predominantly (more than 70 percent) consist of temporary dwellings. Slums of mega cities are better off than the smaller cities and towns in respect of drinking water facilities and permanent constructions, but not in other facilities. These statistics do not reveal all the problems of slums.

Almost all the slums, about 83 percent of them in the country, have open sewage systems. Delhi has underground sewage in at least half the slums. Garbage disposal systems are poor in all the slums except in Delhi. Flooding in rainy season also occurs in some slums. Open sewage, lack of garbage disposal methods, and lack of toilet facilities, coupled with flooding in the rainy season, are deadly combinations that spread disease.

Thus it appears that services in the slums are better in Delhi, followed by West Bengal and Maharashtra, though they are far from satisfactory. The situation in towns in other States appears to be even worse.

The distribution of the slum population within the States between Class 1 and Class 2 cities and towns will also throw some light on the type of policies required. In all the States, about 67 percent of the slum population is in Class 1 cities and towns with a population of above 3 lakh. About 10.8 percent live in Class 2 towns with a population of less than a lakh and more than 50,000. Interestingly, in 1991, small towns with a population of less than 50,000 also seem to be having 22 percent of the population in slums. Probably more attention is needed in these small towns.

Among the metropolitan cities of Kolkata, Greater Mumbai, Delhi, and Chennai, the estimated slum population is the highest at 58.55 lakh in Mumbai, followed by 43.13 lakh in Kolkata, and 32.62 lakh in Delhi. Slum population was 19.1 lakh in the city of Chennai. Both in Mumbai and Delhi the slum population has increased at a faster rate over two decades.

4.2 Sanitation and Hygiene

a. Garbage disposal and generation of solid waste

As per the figures given by the Central Pollution Control Board, Mumbai produces 5355 tonnes of municipal solid waste per day, followed by 4,000 tonnes in Delhi, 3,600 tonnes in Kolkata, and 3124 tonnes in Chennai. Per capita waste produced was the largest in Chennai at 0.657 kg/day compared to 0.383 kg/day in Kolkata. Solid waste contains only about 20 percent that can be recycled. 40 percent is vegetables and leaves and 41 percent is stone and ashes. Among the major cities per capita solid waste produced was the highest in Kanpur, Lucknow, and Surat. They produce about 0.600 kg per day. Lowest per capita solid waste was produced in Nagpur at about 0.273 kg perday. (Table 4.2)

In terms of tonnage per day, the largest amount of garbage was generated in Mumbai, at 5355 tonnes. The amount of garbage produced has relevance to the problems of collection, transportation, and disposal. Incineration is not used in India, as the moisture content of the garbage is very high. Open burning and burning of chemical material produce toxic gases harmful to the population. Landfill sites contaminate the groundwater if they are not maintained properly. Open dumping of garbage serves as breeding grounds for rats, mosquitoes, and

Table 4.2
Garbage Disposal

S.No.	City	1 Municipal solid waste (TPD)	2 Per capita waste (kg/day)
1	Ahmedabad	1683	0.585
2	Bangalore	2000	0.484
3	Bhopal	546	0.514
4	Mumbai	5355	0.436
5	Kolkata	3692	0.383
6	Coimbatore	350	0.429
7	Delhi	4000	0.475
8	Hyderadad	1566	0.382
9	Indore	350	0.321
10	Jaipur	580	0.398
11	Kanpur	1200	0.640
12	Kochi	347	0.518
13	Lucknow	1010	0.623
14	Ludhiana	400	0.384
15	Chennai	3124	0.657
16	Madurai	370	0.392
17	Nagpur	443	0.273
18	Patna	330	0.360
19	Pune	700	0.312
20	Surat	900	0.600
21	Vadodara	400	0.389
22	Varanasi	412	0.400
23	Visakhapatnam	300	0.400

Source: Central Pollution Control Board, *Management of Municipal Solid Waste,* 2000

TPD = Tonnes per day

cockroaches. Garbage disposal practices are not hygienic at present. Fifty percent of the garbage in Class 1 cities and 78 percent in Class 2 cities is collected manually and simply dumped in sites that are supposed to be landfills. Most of these dumping grounds are just uncontrolled dumping grounds for household, industrial, and hospital wastes. The garbage is not properly spread or compacted. Present methods of garbage collection and disposal are far from satisfactory. As a result, we find a lot of garbage strewn all over the towns and cities. Used plastic bags create several problems. They enter the drains and clog them. In the recent years the use of thin bags has been banned in many cities, though it is yet to be properly enforced.

Solid waste management practices must include creating awareness among the people not to throw waste on the roads and roadsides. The best method of waste management consists of the segregation and collection of solid waste from the household directly, provision of litter bins, abolition of open waste storage bins and public dumping grounds, doing away with manual loading of waste, conversion of bio-degradable waste into organic fertiliser through vermicomposting or microbial composting, and so on. Plastics and such other stuff that can be recycled should be segregated and sold. Bio- medical waste, industrial waste, and slaughterhouse waste should be disposed off separately.

As per the NSS 54th Round for 1998-99, local government authorities catered to the needs of only 13.7 percent of the households. About 71 percent handled the garbage disposal themselves from the household premises. In Gujarat, West Bengal, and Karnataka local authorities collected garbage from about 20 to 30 percent of the households. In about 12 percent of the households private parties employed for this purpose handled the garbage. (Appendix 4.1)

Garbage collected in urban areas is either dumped in community dumping areas or individual household dumping spots. Only 1.4 percent of the garbage is now taken to biogas plants or manure pits.

b. Wastewater generation, collection, treatment, and disposal

The critical insanitary conditions in many cities and towns in India are due to the fact that even minimum

facilities for collection, treatment, and disposal of wastewater do not exist. Sufficient information is not available on the amount of wastewater generated. Most of the wastewater is let into natural drains that join rivers, lakes, ponds, or creeks. There are open drains in many towns. Thus in all the cities and towns we find polluted water bodies that become breeding grounds for mosquitoes, disease, and infections. However, if one realises the economic value of water recycling, steps could be taken to water treatment. Sewage water contains some valuable nutrients that can be separated and used as organic manure. Further, water can be purified as required for many uses. It can be successfully used for the development of green belts within the city as well as outside the city. Water-scarce cities and towns can benefit from the recycled water. It can be used for flushing of toilets.

Some information was collected by NSS in the 54th Round on the drainage arrangements in various States. Drainage arrangements refer to the built up channels for carrying wastewater away from the premises of a building to a drainage system, a drainage flow, or a water deposit. Four categories such as no drainage, open kutcha, open pucca, and underground system have been differentiated.

c. Perceptions about deterioration of sanitation in urban areas

The NSS 54th Round survey for the year 1998-99 collected information about the concern of the people and the opinion of the people as to the increase or decrease in some key sanitation problems—such as flies, mosquitoes, foul odour—and knowledge about the pollution of the drinking water used by them.

For urban India, about 68.5 percent of the people reported concern about the problem of flies, about 84 percent were worried about mosquitoes, and about 36.1 percent complained about foul odour. Those showing concern about one or more of the problems were highest in the Punjab. About 89 percent of households in the Punjab, 86 percent in Haryana and Orissa, 80 percent in Uttar Pradesh, were concerned about the problems related to flies, mosquitoes, and foul odour. States with less concern were Kerala and Gujarat. (Appendix 4.2)

Going by the perception of the people living in urban areas, environmental sanitation has deteriorated in many States. At the national level, about 41 percent of the urban population reported an increase in flies, 64 percent reported increased problem of mosquitoes, and about 30 percent reported increase in foul odour. Such surveys show the awareness of the people about the problems and reveal the deterioration of the situation over the recall period of one year.

Across the States, about 75 percent reported increase in the problem of flies in Uttar Pradesh, about 72 percent in the Punjab and Haryana, about 68 percent in Orissa, and 63 percent in Bihar. Similarly, increased concerns about mosquitoes were expressed by more than the 80 percent of the respondents in Uttar Pradesh, West Bengal, and Bihar, and about 75 percent in Rajasthan, the Punjab, and Haryana. Foul odour was said to be on the increase by about 50 percent in the States of Bihar, the Punjab, and Haryana.

In the southern States of Kerala, Tamil Nadu, and Andhra Pradesh, and the western States of Maharashtra and Gujarat, fewer people complained about flies and bad odour. However, the menace of mosquitoes appears to be increasing in most places. A combined percentage shows 60 to 70 percent of population in Uttar Pradesh, Bihar, the Punjab, Haryana, and Orissa think the problems have increased in their States. In Kerala and Maharashtra, only about 25 to 28 percentage of people complained regarding the deterioration of sanitation over the past 5 years. Andhra Pradesh, Karnataka, Tamil Nadu, and Gujarat had moderate complaints. (Table 4.3)

d. Access to toilet facilities

The most serious problem of sanitation is toilet

facilities. It has not been given adequate attention. Construction of more public latrines is not the solution, unless one makes sure of continuous supply of running water 24 hours a day, along with proper maintenance of flushing mechanisms, taps, and so on. Frequent cleaning with disinfectants is another requirement. Permanent underground sewage, proper drainage, and equipment to remove clogging are a must. Then comes the question of adequacy of toilets.

The starting point for solving the problem of toilets in urban areas is water recycling and proper drainage. Often the cities along the coast find drainage a serious issue. With high tide, water treated or untreated let into the sea gets back into the drains and makes the problem of drainage worse. The best solution would be continuous recycling of water, use of the water for green belts, and disposal of treated water into water bodies if found excess. Treated water can be used for many purposes.

We cannot solve the problems of sanitation and provision of toilets without solving the problem of water supply and flooding. Lack of latrines and use of open areas add to the biological contamination of water through seepage. Use of shallow pump sets for

Table 4.3

Perception of People about Deterioration in Sanitation Over the Past 5 Years

		1	2	3	4	5
		Percentage of households reporting problems of increase in			Households reporting	Rank
Sl. No	State	Flies	Mosquitoes	Foul odour	deterioration	
1	Andhra Pradesh	28.80	56.20	26.80	37.27	11
2	Assam	43.70	54.30	31.50	43.17	10
3	Bihar	63.20	86.10	52.10	67.13	2
4	Gujarat	30.70	44.40	29.20	34.77	12
5	Haryana	72.20	76.50	51.90	66.87	3
6	Himachal Pradesh	0.00	0.00	0.00	0.00	17
7	Jammu & Kashmir	0.00	0.00	0.00	0.00	17
8	Karnataka	23.80	44.50	25.00	31.10	14
9	Kerala	12.10	55.60	7.60	25.10	16
10	Madhya Pradesh	46.20	76.50	40.80	54.50	7
11	Maharashtra	16.90	51.80	16.30	28.33	15
12	Orissa	68.30	74.10	47.10	63.17	5
13	Punjab	71.90	74.50	53.40	66.60	4
14	Rajasthan	52.30	78.20	35.40	55.30	6
15	Tamil Nadu	30.30	47.10	19.20	32.20	13
16	Uttar Pradesh	75.80	87.90	44.80	69.50	1
17	West Bengal	49.30	81.50	22.40	51.07	8
18	Delhi	0.00	0.00	0.00	0.00	17
19	Chandigarh	0.00	0.00	0.00	0.00	17
20	Pondicherry	0.00	0.00	0.00	0.00	17
	All India	41.60	64.30	30.40	45.43	9

Source: NSS 54th Round, Report No.449

drinking water in some affected areas result in contaminated drinking water.

Due to its importance to sanitation the percentage of households without access to toilet facilities was taken as one of the important indicators of sanitation. (Table 4.4 and Map 4.2)

The NSS 54th Round referring to 1998-99 has collected detailed information on sanitation. Those who do not use latrines use open areas. In urban India, about 26 percent of the households are without any toilet facilities. Septic tanks were used by about 35 percent of the urban households and only 22 percent used the sewage system. It is alarming to know that there are still about 6 percent of households that use service latrines, which require scavenging services. Despite laws to eradicate scavenging, it continues, and appears to be high in Assam and Uttar Pradesh.

Households without toilet facilities in urban areas appear to be the most in Bihar at 45.3 percent, followed by Orissa with a percentage of 35.8 percent. Andhra Pradesh, Tamil Nadu, and Karnataka still have more than 30 percent of households without toilet facilities. In Haryana, 32.9 percent of households were without any toilet facility.

Kerala is far ahead of all the States in providing toilet facilities, with only the very small percentage of 5 not having any in 1998-99. The other better-off States were the Punjab, Maharashtra, and West Bengal where less than 15 percent of households reported lack of toilet facilities. (Appendix 4.3)

Better sanitation seems to depend upon higher levels of literacy and greater commitment from the government, as in the case of Kerala. However, the most important factor is the administrative will of the local authorities to eliminate the problems of sanitation. It is surprising what Kerala could do could not be achieved by the other three southern States. The situation has deteriorated in respect of toilets in the case of many States from 1995-96 to 1998-99. However, what is striking is the remarkable reduction in the percentage of population without latrines achieved in Kerala and Maharashtra, while in all the other States the percentage went up probably due to higher population pressure and lower and fewer facilities created. Assam does not qualify for praise, though the percentage of population without latrines was lower than that of Kerala and Maharashtra, because 20 percent of the households in urban Assam still use scavenging services, which can be considered as a step backwards. Though data on toilet facilities were available from the NSS 54th Round of 1998-99, for the purpose of the sanitation and health index, we have used only the 49th Round data (for 1995-96), the reason being lack of data for Delhi, Jammu & Kashmir, Himachal Pradesh, and so on in the later Round.

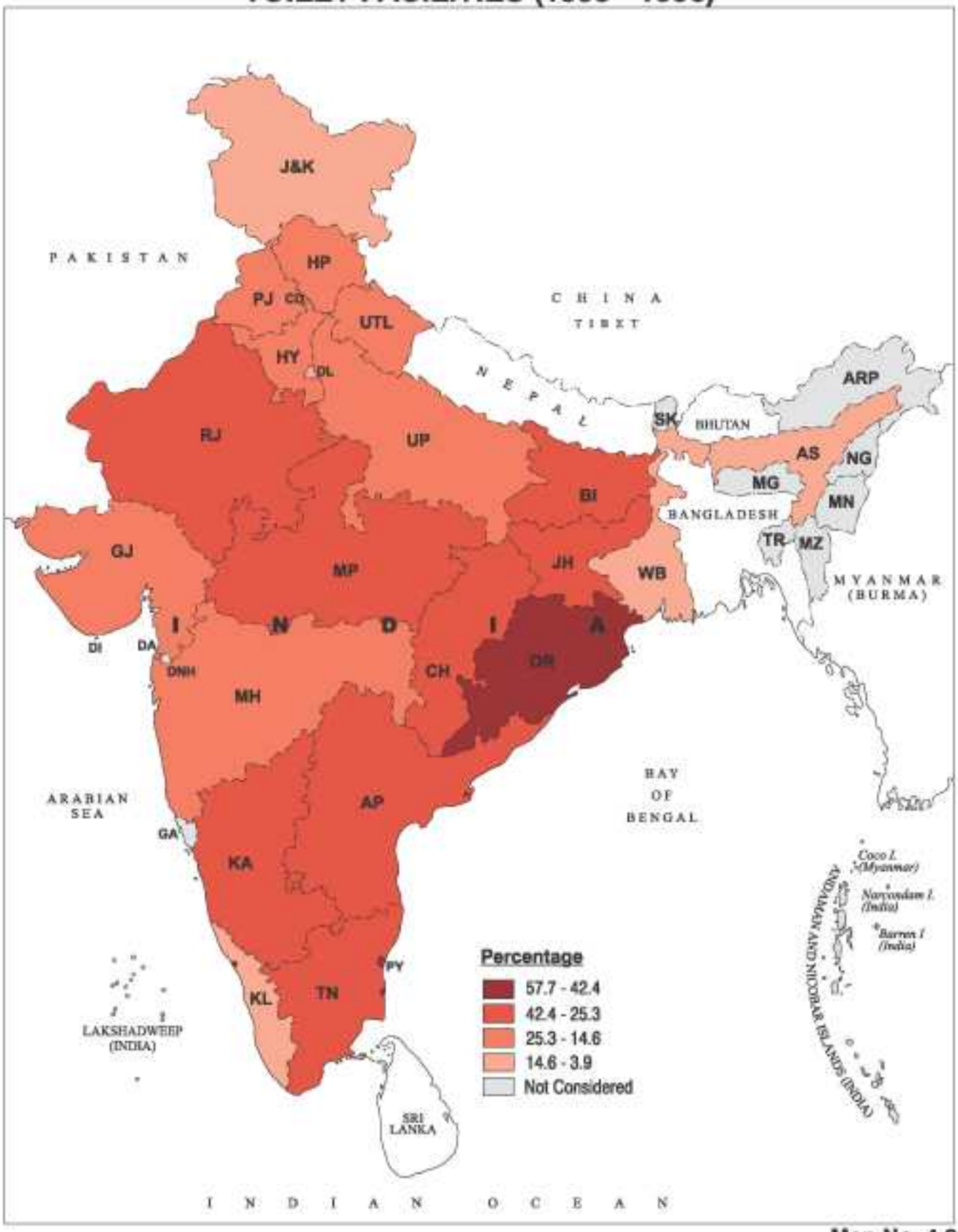
4.3 Safe Drinking Water

a. Availability of drinking water in urban India

Safe drinking water is one of the most important indicators of food absorption. Many water-borne infections spread due to the use of unsafe drinking water. However, the word 'safe' needs further qualification. The attribute of being safe is generally assigned to water from piped municipal supplies, tubewells, and hand pumps. Though water from these sources is relatively safer than other sources, it is however possible for all these sources to get contaminated. For urban India as a whole, about 70 percent of the drinking water supplied has been through taps. About 21 percent comes through tubewells and hand pumps installed in some areas.

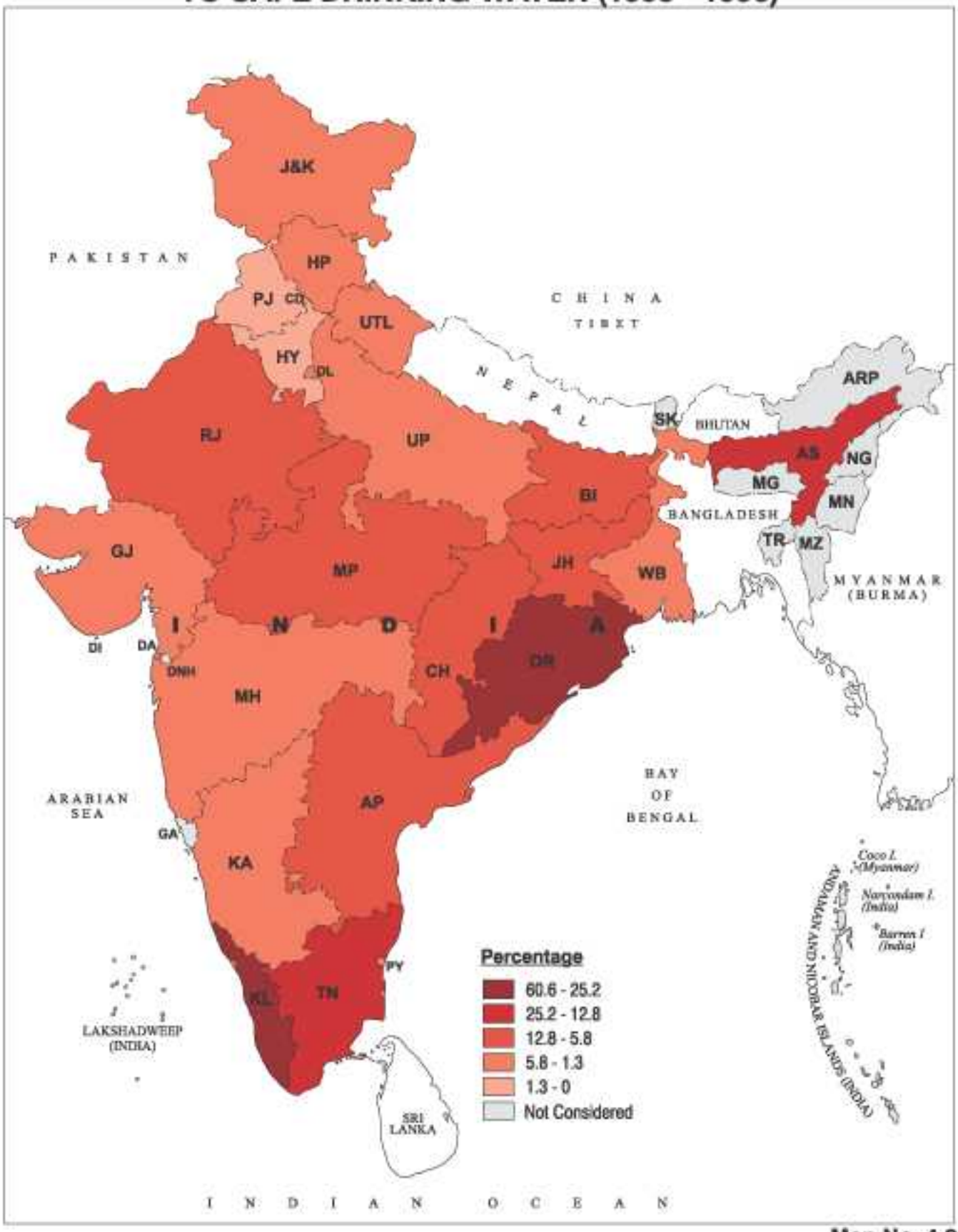
Both in 1988 and 1998, around 70 percent of urban India received safe drinking water through taps and municipal water supplies. The percentage of population covered has declined slightly from 72.2 percent to 70.1 percent. The provision of water through tubewells and hand pumps has increased from 17.2 percent to about 21.3 percent. It clearly shows that urban areas have not made any long-term

PERCENTAGE OF URBAN HOUSEHOLDS WITHOUT ACCESS TO TOILET FACILITIES (1995 - 1996)



Map No. 4.2

PERCENTAGE OF URBAN POPULATION NOT HAVING ACCESS TO SAFE DRINKING WATER (1995 - 1996)



Map No. 4.3

Table 4.4

Sanitation and Health Index

		1	2	3	4	5	6	7	8	9	10
Sl. No.	State	Percentage of slum population to total urban population (2001)	Percentage of slum population index	Percentage of hh without access to toilet facilities (1995-96)	Percentage of hh without toilet facilities index	Percentage of hh not having access to safe drinking water (1995-96)	Percentage of hh without access to safe drinking water index	No. of persons per hospital/ dispensary bed (1996)	No. of persons per hospital/ dispensary bed index	Sanitation and Health Index	Rank
1	Andhra Pradesh	32.54	0.98	28.60	0.46	7.20	0.12	541.19	0.03	0.40	3
2	Assam	5.82	0.18	3.90	0.00	24.80	0.41	314.79	0.01	0.15	19
3	Bihar	8.91	0.27	33.40	0.55	12.50	0.21	467.41	0.02	0.26	10
4	Gujarat	10.22	0.31	20.50	0.31	1.30	0.02	239.67	0.01	0.16	17
5	Haryana	33.07	1.00	21.30	0.32	1.10	0.02	650.81	0.04	0.34	7
6	Himachal Pradesh	0.00	0.00	14.60	0.20	3.40	0.06	114.41	0.00	0.06	20
7	Jammu & Kashmir	17.87	0.54	11.30	0.14	2.20	0.04	15151.05	1.00	0.43	2
8	Karnataka	11.23	0.34	25.30	0.40	5.30	0.09	426.47	0.02	0.21	15
9	Kerala	1.12	0.03	10.20	0.12	60.60	1.00	246.44	0.01	0.29	9
10	Madhya Pradesh	25.36	0.77	35.40	0.59	8.90	0.15	1437.50	0.09	0.40	4
11	Maharashtra	32.55	0.98	17.30	0.25	3.00	0.05	478.07	0.02	0.33	8
12	Orissa	22.26	0.67	42.40	0.72	25.20	0.42	465.11	0.02	0.46	1
13	Punjab	20.14	0.61	17.50	0.25	0.70	0.01	505.26	0.03	0.22	14
14	Rajasthan	14.12	0.43	25.30	0.40	5.80	0.10	563.77	0.03	0.24	12
15	Tamil Nadu	19.49	0.59	34.00	0.56	12.80	0.21	454.40	0.02	0.35	6
16	Uttar Pradesh	18.51	0.56	22.30	0.34	2.40	0.04	686.64	0.04	0.24	11
17	West Bengal	22.42	0.68	11.60	0.14	4.60	0.08	419.41	0.02	0.23	13
18	Delhi	18.93	0.57	10.60	0.12	2.30	0.04	562.90	0.03	0.19	16
19	Chandigarh	13.24	0.40	12.50	0.16	0.00	0.00	1381.24	0.08	0.16	18
20	Pondicherry	14.10	0.43	57.70	1.00	4.40	0.07	223.36	0.01	0.38	5
	All India	21.58		23.00		7.80		467.83			

Source: Census of India, 2001; NSS 52nd Round, Report No. 445; *Health Information of India, 1995-96*

arrangements to provide piped water to their residents. There has been heavy reliance on groundwater for all purposes. The total urban population covered by safe drinking water consists of about 91 percent. There is still about 10 percent of the population who do not get safe drinking water. An estimated 15 percent of urban households did not get sufficient drinking water throughout the year. In the months of April, May, and June, about 11 to 15 percent of households face severe drinking water shortages. In many urban areas, those facing shortages resort to buying water or borrowing from neighbours who get water. About 18 percent of urban households also depend on supplementary sources of supply (NSS Report No. 449). Drinking water has been available either within the house or within the premises of the dwelling for about 75 percent of the households in urban areas. The remaining 25 percent had to walk a distance of about half a kilometre or so.

b. Availability of drinking water in the urban areas of the States

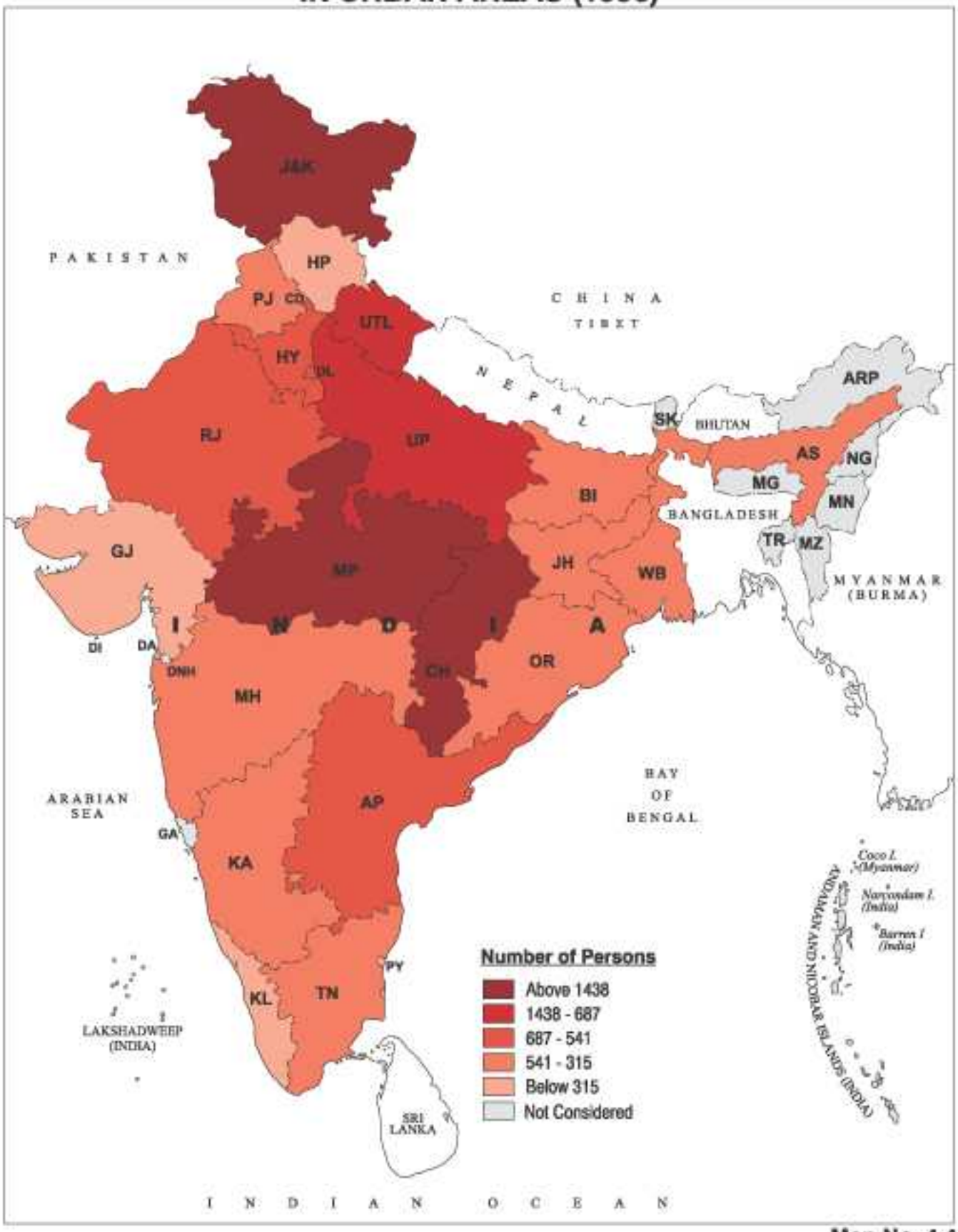
While for urban India as a whole the percentage of population without access to safe drinking water was not high, it varied widely across the States. We have used the NSS 49th Round 1995-96 data for the sanitation and health index, as the 1998 data were not available for all the States. Kerala had about 60 percent of households without 'safe' drinking water facilities. In urban Kerala, the main source of drinking water was not from taps and tubewells, but dug wells. Hence, it shows a high percentage of not having access to safe drinking water. There was no information on the quality of well water in urban Kerala. The percentage not having access to safe drinking water had come down to 56.2 percent in 1998-99. There was an effort to supply more people with water through taps and tubewells. In Orissa and Assam, about 25 percent of the population depended on sources other than taps and tubewells in 1995-96, and in 1998-99 the percentage without access to safe drinking water increased to about 30 percent in Orissa. In Assam, the percentage declined to about 20 percent. Tamil Nadu as well as Bihar had about 12 percent population depending on unsafe sources. The percentage had declined to about 7.2 percent in Tamil Nadu. (Table 4.4 and Map 4.3)

4.4 Medical Facilities

Not only sanitation but also the availability of medical facilities plays a part in the health security of the people. Urban areas are normally better off than rural areas. However, the number of doctors and hospitals may not be adequate for the population. We could get only some sketchy data on the number of hospital beds available, from a publication titled *Health Information of India*. Even this information does not pertain to one period. Alternate data sources have not been available. The data just shows the availability of hospital beds. The quality of medical care is not known. The hospitals may or may not have sufficient doctors, medical supplies, and equipment. Normally in urban areas hospitals also get a large number of patients from the surrounding rural areas. Hence the beds required would be much more than the requirement of the urban population. However, we find the condition quite appalling even if we only look at the availability of hospital beds. Public health care is an area to which immediate attention must be paid.

The data shows that the number of persons per hospital bed was the highest in Jammu & Kashmir, at more than 15,000 people per bed. Probably the coverage could have been low for this State and not reliable due to the constant problem of militancy. After Jammu & Kashmir was Madhya Pradesh, followed by Chandigarh, with 1437 and 1381 persons per bed respectively. Further investigation is necessary into these figures. All the other States had about half that number. Himachal Pradesh was in the best position with one bed available for 114 persons. Pondicherry had 223.36 persons per bed, Gujarat had 239, Kerala

NUMBER OF PERSONS PER HOSPITAL AND DISPENSARY BED IN URBAN AREAS (1996)



Map No. 4.4

had 246.44, Assam had about 314 persons per bed. All the other States had more than 400 persons per bed, showing the need for improvement in health care in the cities. There might have been more beds made available since 1996 to which the data mostly pertains. Even so it is not known whether facilities have kept pace with population growth. (Table 4.4 and Map 4.4)

4.5 Sanitation and Health Index

We have chosen four indicators for the sanitation and health index:

1. Percentage of population in the slums
2. Percentage of households without access to toilet facilities
3. Percentage of population not having access to safe drinking water
4. Number of persons per hospital and dispensary bed

The sanitation and health index shows Orissa as being the worst State. Jammu & Kashmir and Andhra Pradesh follow. Then comes the State of Madhya Pradesh. It appears that urban Andhra Pradesh has been sliding down in many respects and far behind the other southern States. Himachal Pradesh, Assam, Chandigarh, Delhi, and Karnataka were the best in terms of sanitation and healthcare. The others were in the middle positions. It appears that Karnataka and Maharashtra are trying hard to improve things, whereas Tamil Nadu, which has had a head start in these areas, has been sliding down, probably due reduced investment in these areas. While the ground realities are not completely reflected here, the indications appear to be clear. (Table 4.4)

4.6 Nutritional Outcomes

The ultimate proof of achieving food security is in the long-term nutritional outcomes such as low mortality rates, high life expectancies, and fewer growth disorders. Infant mortality rates and growth disorders such as stunting, wasting, and underweight reflect the child health. Life expectancy and chronic energy deficiency reflect adult health. Further the long-term outcome of discrimination against girls in food and health care arising out of social bias against reflects in the juvenile sex ratio. These three aspects go into the nutritional outcome index given at the end of this section. We could not get information for all the States on growth disorders. Though we have discussed the problem within the limits of the available data, we could not include it in the nutritional outcome index.

a. Maternal and child nutrition

Nutrition is a key determinant of health throughout the entire life cycle of an individual. Poor nutrition often starts *in uteri* and extends, particularly for girls and women, well into adolescent and adult life. It also spans generations. Adequate nutrition can help to determine how strongly one grows, how well one learns in school, how healthy one's children are, and how well one works in the home and in an outside job. Undernutrition that occurs during childhood, adolescence, and pregnancy has an additive negative impact on the birth weight of infants. Maternal malnutrition—as reflected by low weight gains during pregnancy—and poor health are related to low birth weight. A low birth weight infant is thus more likely to be underweight or stunted in early life. The mother influences the nutritional status of her child through her breast-feeding practices. The consequences of an inadequate maternal milk supply in this population, for satisfactory development after the infant reaches about three months of age, are far more serious than is currently accepted.

The problem of some micro-nutrient deficiencies such as iron and iodine have been most severe in India, where 88 percent of pregnant women are anaemic. Anaemia increases the risk of death from haemorrhage in childbirth. Iodine deficiency is the world's leading single cause of preventable brain damage and mental retardation.

The combination of malnutrition and infectious disease can be particularly pernicious. Protein-energy malnutrition can impair the immune system, leaving malnourished children less able to battle common diseases such as measles and diarrhoea.

During infancy and early childhood, frequent or prolonged infections and inadequate intakes of nutrients—particularly energy proteins, vitamin A, zinc, and iron— exacerbate the effects of foetal growth retardation. Most growth faltering, resulting in underweight and stunting, occurs within a relatively short period—from before birth until about two years of age. Undernutrition in early childhood has serious consequences. Underweight children tend to have more severe illnesses, including diarrhoea and pneumonia.

(i). Nutritional status of children

Children's body measurements are particularly sensitive to changes in the intake of proteins and calories as well as to the onset of disease. Because of this, the most commonly used measures of childhood nutritional status are anthropometric, and relate to the child's height, weight, and age. The three most commonly used anthropometric indices to assess children's growth status are weight-for-height, height-for-age, and weight-for-age.

Low weight-for-height indicates wasting or thinness, and reflects in most cases a recent and severe process of weight loss, which is often associated with acute starvation and/or severe disease. Low height-for-age indicates stunting (stunted growth), and reflects a process of failure to reach linear growth potential as a result of sub-optimal health and/or nutritional conditions. Weight-for-age is more difficult to interpret, since it is influenced by both the height of the child (height-for-age) and his/her weight (weight-for-height). Generally, a low weight-for-age is considered to indicate underweight and, in the absence of significant wasting in a community like low height-for-age, reflects sub-optimal long-term health and nutritional conditions.

Growth is the most sensitive and readily measured indicator of health and nutrition for the individual child. It is also a more general index of health in a community because it is dynamic and reflects positive change. However, because of the exclusive nature of a young infant's diet and the limited ability of the digestive tract to deal with excessive intakes of some nutrients, feedings for the young must closely match nutrient needs. In most developing countries with generally poor environmental conditions, average infant growth in weight and height is satisfactory until about three months of age, when it begins to fall off. Growth faltering at this age may occur as the child outgrows its mother's capacity to produce breast milk and to provide adequate supplementation. In introducing weaning foods, there may be diverse effects from timing, such as early or late weaning, and from the types of foods used. This process also has great geographic and cultural variations.

The National Family Health Surveys (NFHS) give us State-wise information on stunting, wasting, and underweight. However, the information has not been available for all the 20 States considered in our study and hence has not been included in the nutritional outcome index. Pooled data from nutritional surveys have been used to compute the percentage of children who were stunted/severely stunted, underweight/severely underweight. The growth status of a child was assessed in terms of height-for-age and weight-for-age. The height-for-age index measures linear growth retardation. Children reported as having less height for their age, compared to the National Centre for Health Statistics (NCHS) standard, are considered to be stunted. Stunting is expressed as a number of standard deviation from the international reference median of height-for-age. The percentage in the category of severe stunting indicates the prevalence of chronic

undernutrition, which often results from a failure to receive adequate nutrition over a long period of time or from chronic or recurrent diarrhoea.

In urban India, 15.4 percent of children were severely stunted whereas 35.6 percent were stunted. In the case of severely stunted children under three years of age, Bihar was in the worst position with 24 percent, followed by Uttar Pradesh with 22 percent, Rajasthan with 21 percent, and Assam with 20 percent. Kerala occupied the best position in this regard with only 7 percent of severely stunted children less than three years of age. Andhra Pradesh and West Bengal were in the next best position with 9.3 and 9.5 percent severely stunted under-three children. (Table 4.5)

Underweight children under five years of age have been similarly classified. Children whose weights-for-age were 3 standard deviations away from the NCHS international reference median weight-for-age were expressed as being severely underweight. It was found that many Indian adults and children of well-nourished, affluent families were not far from the international median (Gopalan 1995). For the country as a whole, 11.6 percent of children less than 3-years-old were severely underweight and 38.4 percent were underweight. Madhya Pradesh had the largest percentage of severely underweight children

Table 4.5
NFHS (below -3 SD) & (below -2 SD) Underweight, Stunting, and Wasting (1998-1999)

		1	2	3	4	5	6
Sl. No.	State	Underweight below -3 SD	Stunting below -3 SD	Wasting below -3 SD	Underweight below -2 SD	Stunting below -2 SD	Wasting below -2 SD
1	Andhra Pradesh	6.8	9.3	0.4	28.6	29.7	7.6
2	Assam	6.5	20.2	1.6	27.3	37.1	10.4
3	Bihar	12.1	24.2	3.8	47.4	42.2	17.1
4	Gujarat	9.4	18.8	2.1	38.1	38.5	11.3
5	Haryana	7.6	18.1	1.0	31.3	40.3	5.5
6	Himachal Pradesh	–	–	–	–	–	–
7	Jammu & Kashmir	–	–	–	–	–	–
8	Karnataka	–	–	–	–	–	–
9	Kerala	2.9	7.1	0.7	22.4	18.5	10.9
10	Madhya Pradesh	19.5	19.6	4.0	44.3	39.8	17.3
11	Maharashtra	10.9	11.1	1.6	44.1	33.3	15.7
12	Orissa	16.7	14.3	3.6	45.3	37.0	23.6
13	Punjab	6.1	11.4	0.5	18.6	29.4	7.4
14	Rajasthan	15.1	21.4	1.3	46.0	44.0	8.6
15	Tamil Nadu	9.6	11.8	4.5	33.5	27.1	20.6
16	Uttar Pradesh	16.3	21.8	2.4	42.6	46.7	9.5
17	West Bengal	9.3	9.5	0.8	31.5	25.5	11.1
18	Delhi	10.1	18.0	4.1	34.7	36.8	12.5
19	Chandigarh	–	–	–	–	–	–
20	Pondicherry	–	–	–	–	–	–
	All India	11.6	15.4	2.2	38.4	35.6	13.1

Source: NFHS 2, 1998-99. Note : SD = Standard deviations

less than three years of age with 19 percent. Orissa and Uttar Pradesh followed with a figure close to 16 percent. Kerala, the Punjab, Assam, and Andhra Pradesh were at the other end of the scale with about 6 to 7 percent of severely underweight children under three years of age. Thus, both in terms of infant mortality rates and growth disorders, Kerala turns out to be the best State for child nutritional status. IMR as well as growth disorders were worst in Orissa, Uttar Pradesh, and Bihar.

(ii). Infant Mortality Rate

Various problems of nutrition and health care result in death of children below the age of one. The infant mortality rate gives the number of deaths below the age of one as a proportion of the number of live births. IMR is normally expressed as the number of deaths per thousand. The basic data are provided by Sample Registration Surveys conducted by the Census authority from time to time. Normally, they are combined over years to get a more representative sample. We have taken IMR as a sharp indicator for the food insecurity map of India. (Map 4.5 and Table 4.6)

The problem of nutrition starts with the malnutrition of pregnant women and is manifested in low birth weight children and infant deaths. The process of malnutrition starts much before the infant is born. Infant mortality is also a result of a lack of immunisation, medical help, safe drinking water, and a number of other problems related to poverty. It has a relationship of varying degrees with a large number of other factors (see Appendix 5.2). Infant mortality is significantly related to population below poverty line and illiteracy. It is negatively related to population in wages, poor casual labour, population without access to safe drinking water, and number of persons per hospital or dispensary bed.

The data we have used pertains to the 1997-99 period. It was found that Orissa occupied the worst position with 65 deaths per 1000 live births, followed by Uttar Pradesh at 64 deaths. Rajasthan and Haryana occupy the third and fourth worst positions with 59 and 58 deaths respectively. Jammu & Kashmir was in the best position with 6 infant deaths per thousand births. Pondicherry occupies the second best position, with 15 deaths per 1000 births followed by Kerala and Karnataka with 16 and 24 deaths per 1000 births respectively. Other States fall in between.

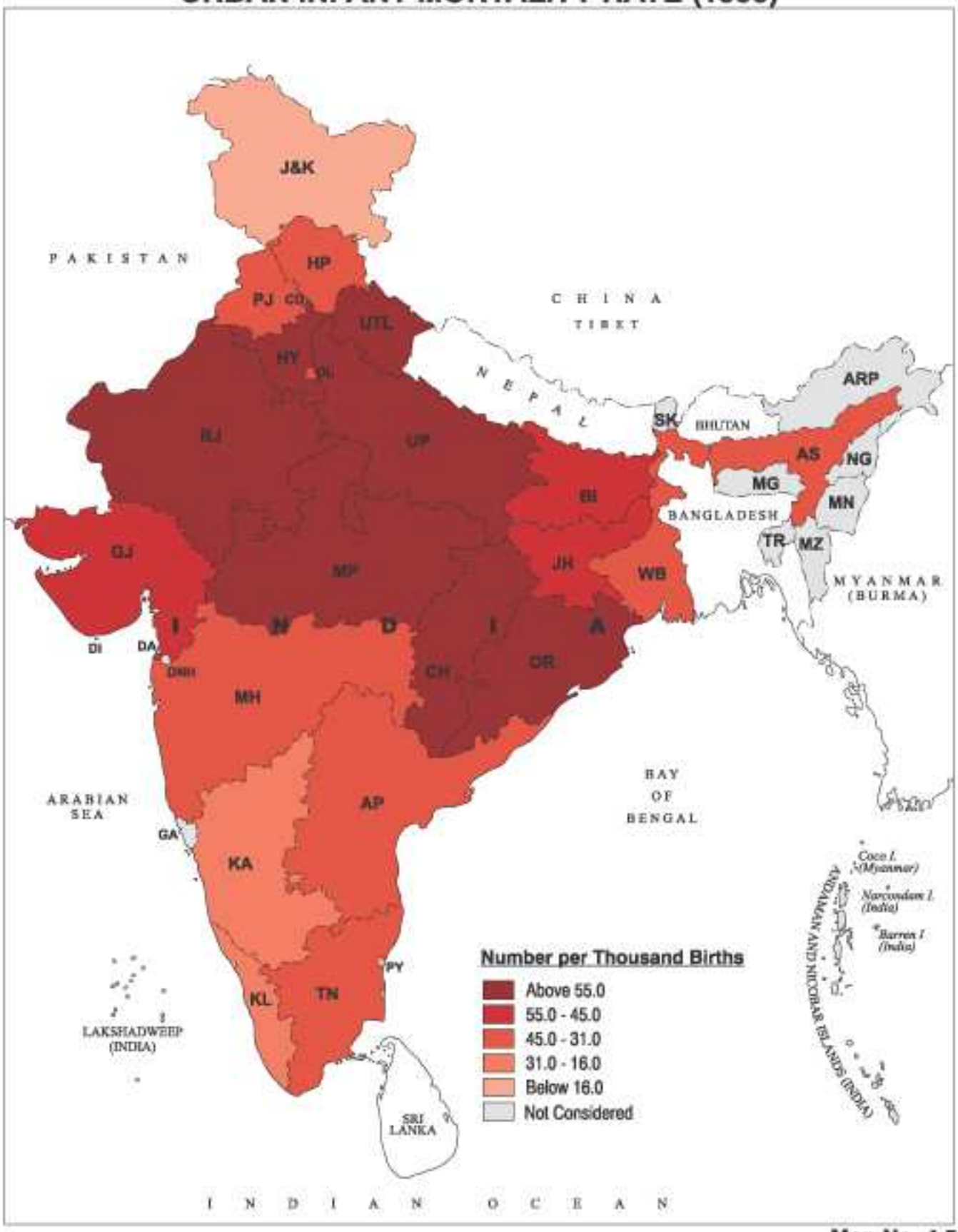
b. Adult Nutrition

Life Expectancy

The status of adult health can be examined in terms of several indicators like life expectancy, maternal mortality rates, and chronic energy deficiency. Life expectancy is one of the most important of these indicators. The long-term outcome of food insecurity is ultimately an improvement in the life expectancy of the population. Increasing life expectancy is a pointer to the improving food security of India. However, life expectancies are low in many of the States. The country as a whole has not yet achieved the desired levels of life expectancy. Life expectancy at age one was used an indicator of nutritional outcome, included in the nutritional outcome index. (Table 4.6 and Map 4.6)

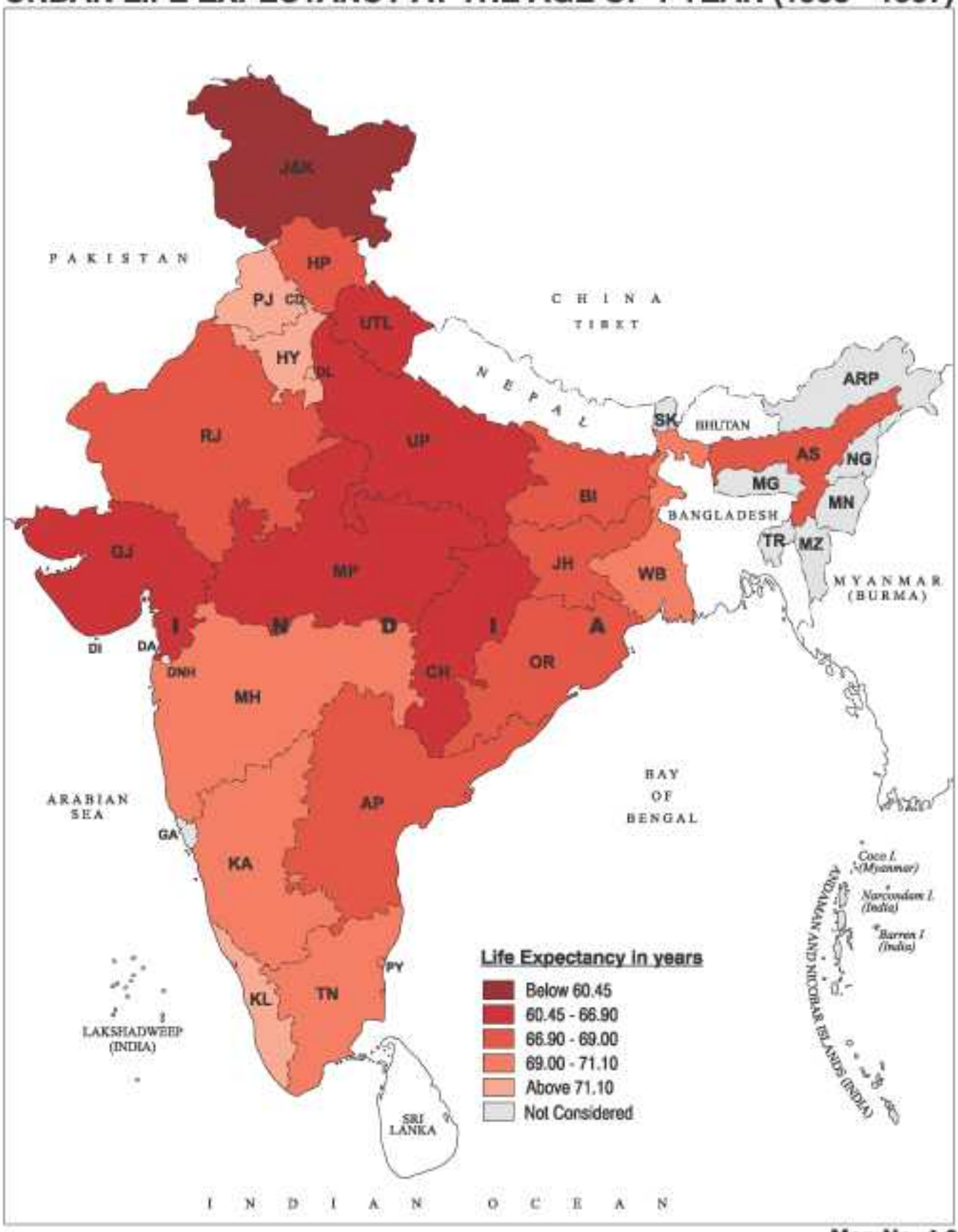
It was obvious from the data that Jammu & Kashmir occupies the worst position in life expectancy at age one at 60.5 years. In the case of Jammu & Kashmir, Sample Registration Surveys were not conducted for some years. Hence we had to use the last available figure, which refers to 1981. Uttar Pradesh comes next with a life expectancy of 65.6 years, followed by Gujarat and Madhya Pradesh at 66.9 years, and Andhra Pradesh at 68 years. The best State for life expectancy at the age of one was Kerala with 73.8 years, followed by the Punjab and Chandigarh, where the figure was 72.6 years. Delhi and Haryana fall in third place with a figure of 71.5 years. All the other States had life expectancies in the middle positions.

URBAN INFANT MORTALITY RATE (1999)



Map No. 4.5

URBAN LIFE EXPECTANCY AT THE AGE OF 1 YEAR (1993 - 1997)



Map No. 4.6

Table 4.6

Nutritional Outcome Index

		1	2	3	4	5	6	7	8	9	10
Sl. No.	State	IMR (deaths per thousand live births) (1999)	IMR index	Life expectancy at age 1 (1993-97)	Life expectancy index	Percentage of population suffering from acute or chronic ailments (1995-96)	Morbidity index	Juvenile sex ratio (0-6 yrs) (males to 1000 females) (2001)	Juvenile sex ratio index	Nutritional Outcome Index	Rank
1	Andhra Pradesh	37	0.52	68.0	0.43	6.1	0.28	1.04	0.00	0.31	13
2	Assam	36	0.51	68.7	0.38	8.7	0.54	1.07	0.13	0.39	11
3	Bihar	51	0.76	69.0	0.36	4.2	0.09	1.08	0.17	0.35	12
4	Gujarat	45	0.66	66.9	0.52	3.6	0.03	1.21	0.74	0.49	5
5	Haryana	58	0.88	71.5	0.17	6.3	0.30	1.24	0.87	0.56	2
6	Himachal Pradesh	38	0.54	68.8	0.37	6.8	0.35	1.17	0.57	0.46	7
7	Jammu & Kashmir	6	0.00	60.5	1.00	5.4	0.21	1.15	0.48	0.42	9
8	Karnataka	24	0.30	69.4	0.33	4.0	0.07	1.06	0.09	0.20	19
9	Kerala	16	0.17	73.8	0.00	8.8	0.55	1.04	0.00	0.18	20
10	Madhya Pradesh	55	0.83	66.9	0.52	3.7	0.04	1.10	0.26	0.41	10
11	Maharashtra	31	0.42	71.1	0.20	4.8	0.15	1.10	0.26	0.26	17
12	Orissa	65	1.00	68.4	0.40	6.2	0.29	1.08	0.17	0.47	6
13	Punjab	39	0.56	72.6	0.09	8.5	0.52	1.27	1.00	0.54	3
14	Rajasthan	59	0.90	68.3	0.41	3.3	0.00	1.13	0.39	0.43	8
15	Tamil Nadu	39	0.56	69.6	0.31	5.8	0.25	1.05	0.04	0.29	16
16	Uttar Pradesh	64	0.98	65.6	0.61	7.2	0.39	1.14	0.43	0.61	1
17	West Bengal	40	0.57	70.6	0.24	6.5	0.32	1.05	0.04	0.29	14
18	Delhi	31	0.42	71.5	0.17	4.3	0.10	1.15	0.48	0.29	15
19	Chandigarh	27	0.35	72.6	0.09	13.3	1.00	1.18	0.61	0.51	4
20	Pondicherry	15	0.15	69.6	0.31	6.7	0.34	1.05	0.04	0.21	18
	All India	44		69.2		5.5		1.11			

Source: Registrar General of Census, Sample Registration Survey Bulletin 1999 -2000;

Registrar General of Census, India, SRS Analytical Studies Report No.1; Human Development Report, Census of India 2001

Note: For life expectancy values of Delhi, Chandigarh, and Pondicherry,

the values of Haryana, the Punjab, and Tamil Nadu, respectively, have been substituted.

c. Morbidity

Frequent illness makes a person less alert and impairs his mental and physical faculties. A sick person cannot absorb the food eaten properly to get the benefit of health and long life. Moreover, a weakened person is susceptible to more diseases and long-term growth disorders. Since illness directly interferes with food absorption and assimilation into the body we have included the percentage of population suffering from acute and chronic ailments as one of the indicators of food absorption. Such a percentage was low at 5.5 for the country as a whole. This could be due to those reporting illness belonging to better- off households and not necessarily in the low-income category, though many in the low-income category actually suffer from more ailments. A study from the slums of Delhi has shown that about 57% of the respondents had been ill in the last 6 months (Gupta and Mitra, 2002). Higher reporting and higher awareness of the diseases result in a larger percentage reporting illness. States with lower literacy such as Uttar Pradesh have reported more ailments than a more literate State such as Tamil Nadu. Hence, it is very difficult to estimate the bias arising out of better reporting.

The largest percentage of population suffering from ailments was reported by Chandigarh at about 13 percent. Kerala, the Punjab, and Assam had around 8 to 9 percent population suffering from chronic diseases. The States reporting a small percentage with chronic diseases were Rajasthan with 3.3 percent, Gujarat with 3.6 percent, and Madhya Pradesh with 3.7 percent. Delhi, Maharashtra, and Bihar have shown less than 5 percent population reporting chronic ailments. The problem of medical help for the chronically diseased has to figure in the policy. (Table 4.6 and Map 4.7)

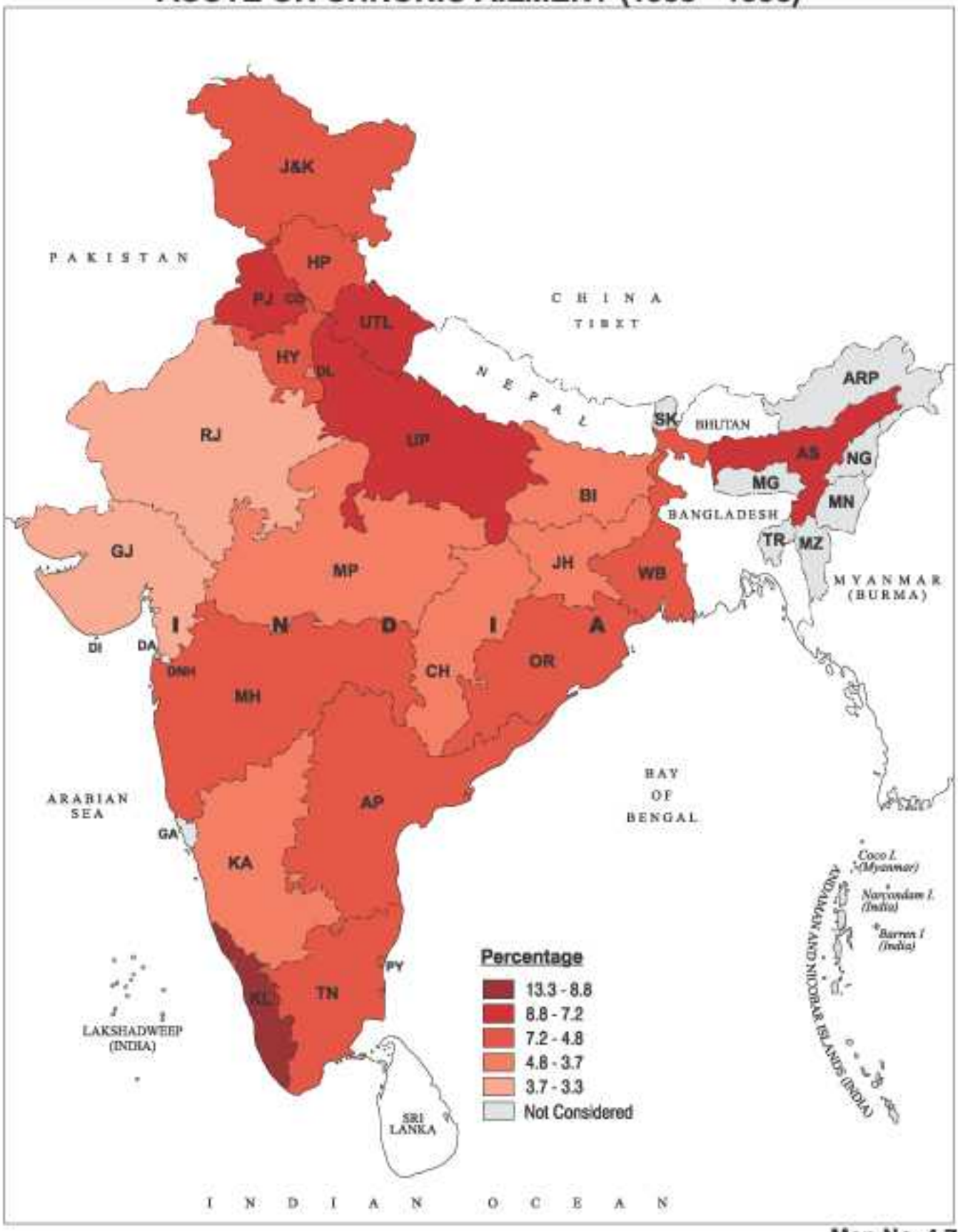
d. Juvenile sex ratio

It is obvious from the 2001 Census figures that the sex ratio has been turning adverse to women since 1971. The number of men per thousand women steadily increased from 1029 in 1901 to 1072 in 2001. There was a slight improvement in the sex ratio, from 1079 in 1991 to 1072 in 2001, which has been hailed as progress by some. The regional variations clearly show that in the northern States of the Punjab, Haryana and Rajasthan, sex ratios were more adverse than in the southern States (Visaria 2002).

The juvenile sex ratio refers to the sex ratio of individuals aged 0 to 6 years. This indicator is better than the adult sex ratio because it is free from migration noise (Agnihotri 2000). The juvenile sex ratio reflects birth and survival positions better than the adult sex ratio. It is quite remarkable that the total sex ratios were not as adverse as the juvenile sex ratios. The reason for a better sex ratio of adults is the very nature of women who outlive men biologically. Left to nature, the sex ratio would have been 1002 to 1006 women per thousand men.

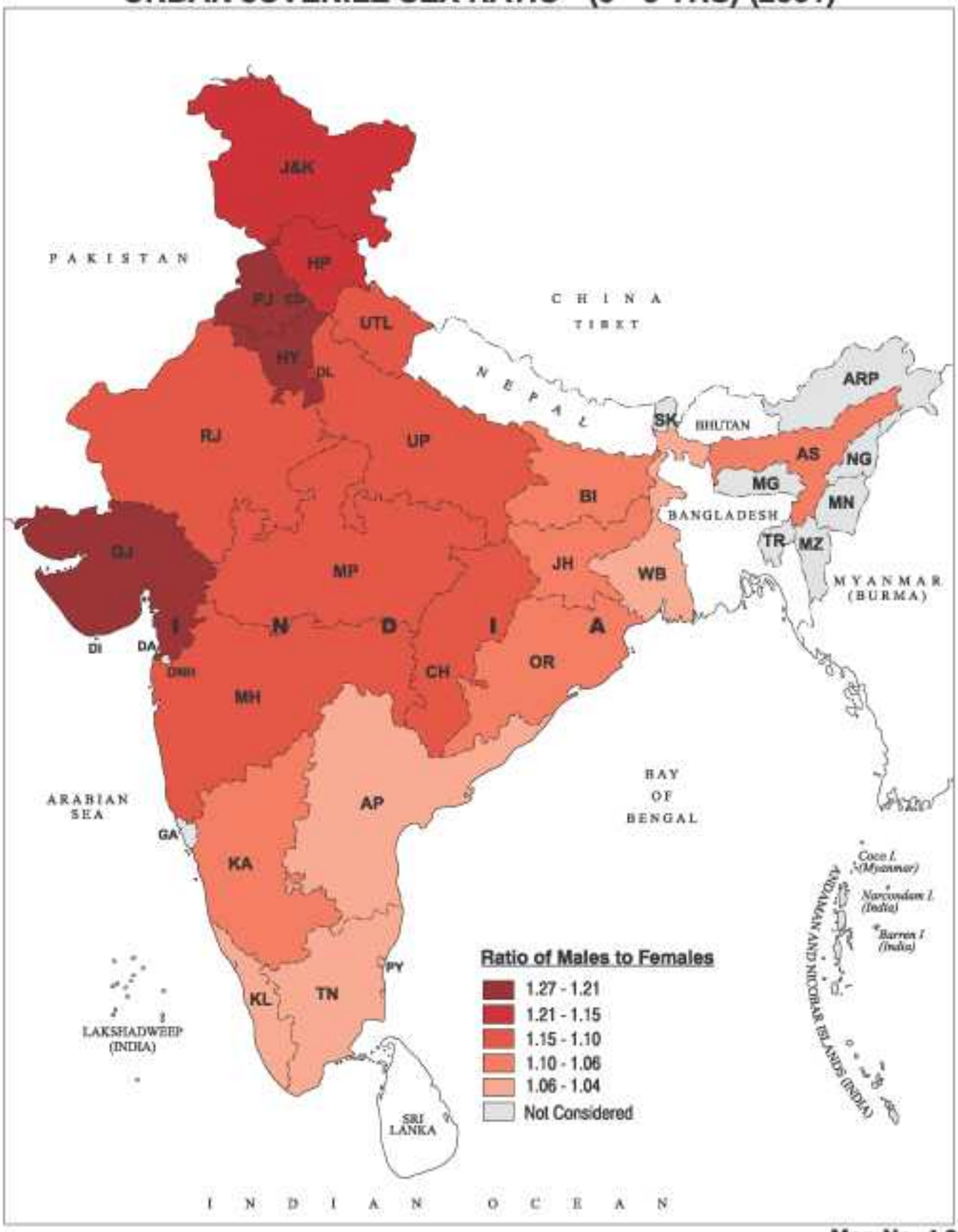
The improvement observed in the Indian case from 1079 to 1072 per thousand women was nothing but the higher survival of women in the higher age groups compared to men. In all the States without an exception, the juvenile sex ratio was adverse, though the adult sex ratio was positive in some States. There is no reason why the juvenile sex ratio should be adverse if things were left to nature. Female infants are more sturdy than the their male counterparts. To turn this natural tendency upside down, subtle but definite bias is being exercised in the feeding of the girl child and giving her timely medical care, which ultimately results in more female deaths compared to male deaths. Hence, it is question of food security for females. Thus, there is enough evidence to believe that an adverse juvenile sex ratio is an indicator of discrimination of a severe kind that threatens the lives of many girls and women. Hence we have considered it as an important indicator. Juvenile sex ratio across the States has been given in Table 4.6 and Map 4.8.

PERCENTAGE OF URBAN POPULATION SUFFERING FROM ACUTE OR CHRONIC AILMENT (1995 - 1996)



Map No. 4.7

URBAN JUVENILE SEX RATIO - (0 - 6 YRS) (2001)



Map No. 4.8

Juvenile sex ratio has been represented as males per thousand females rather than females per thousand males. The reason for inversing the ratio was to depict the worst possible condition. Thus, all the indicators except life expectancy were made to have the same direction. The Punjab was in the worst position with 1027 males to 1000 females, followed by Haryana and Gujarat with 1024 and 1021 males to 1000 females, respectively. Andhra Pradesh and Kerala were in the best position with 1004 males to 1000 females. Tamil Nadu, West Bengal, and Pondicherry occupy the next position with 1005 males to 1000 females.

4.7 Nutritional Outcome Index

a. The index

The nutritional outcome index consists of four indicators:

1. Infant mortality rates
2. Life expectancy at age one
3. Morbidity
4. Juvenile sex ratio

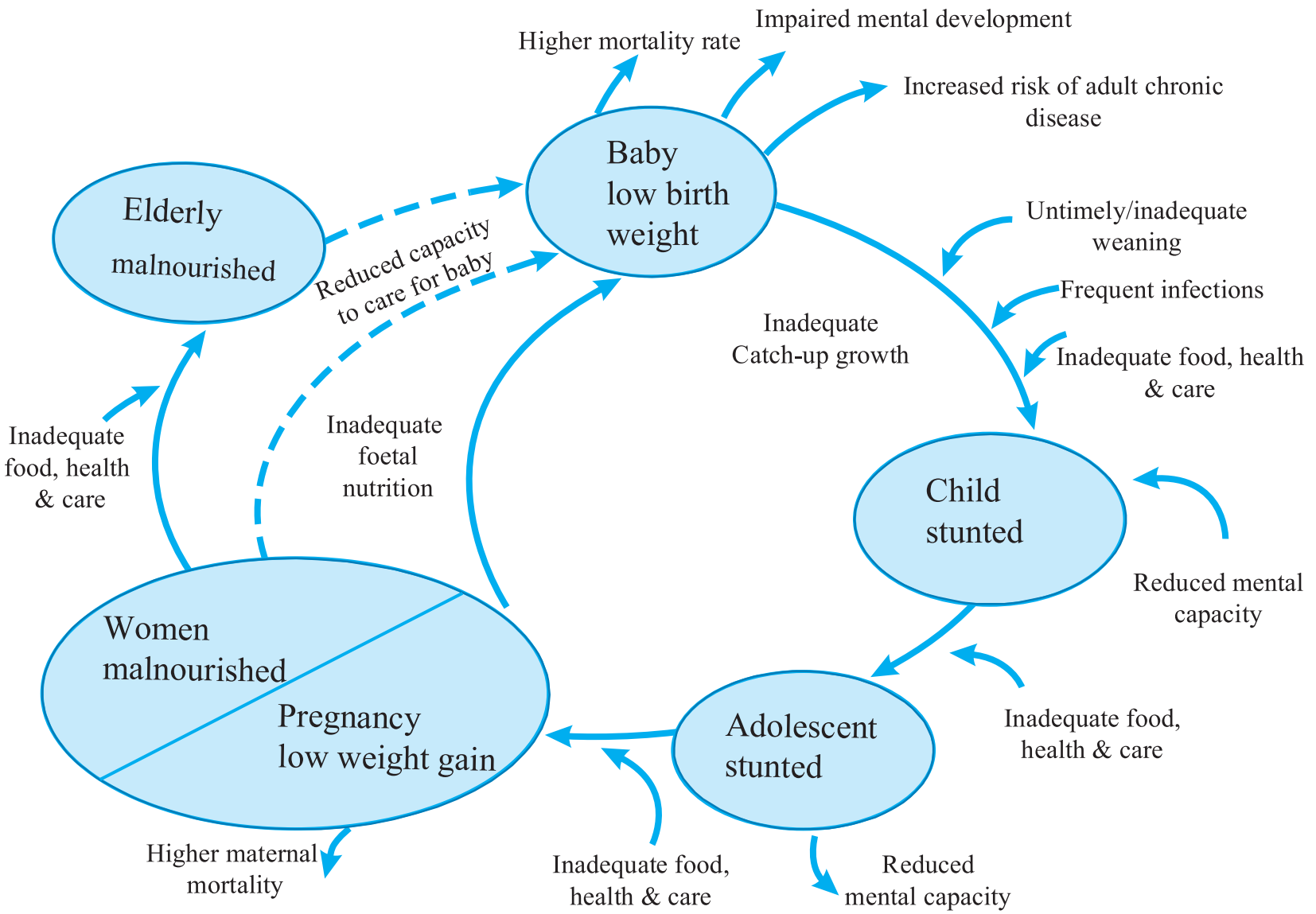
The combined nutritional index shows that nutritional outcome is worst in Uttar Pradesh, followed by Haryana and the Punjab. The juvenile sex ratio and higher percentage of people suffering from chronic ailments pull down Haryana and the Punjab. Moreover, IMR is fairly high in urban Haryana. The State that shows the best position is, as expected, Kerala. Karnataka, Pondicherry, and Maharashtra were close behind. It is a little surprising that Tamil Nadu has not fared so well. Maharashtra, particularly, seems to have made an effort to improve basic amenities and the health care system in urban areas. The finding throws up an important implication for policy, that the nutritional outcome depends upon a continued effort by government to constantly improve amenities and public services such as health care. The prosperity of the urban areas does not automatically trickle down. With urban concentration likely to increase in the near future, massive levels of investment and effort are needed to realise the goals of food security. Another important point to bear in mind is that the exemplary performance of Kerala is not only due to the government provision of amenities, but also to the hidden prosperity of its urban population which comes from outside remittances and not through the incomes generated within the State. Kerala 's SDP per capita could have been grossly underestimated. (Table 4.6)

b. Nutritional interventions and life cycle approach

Many governments and organisations have nominally supported the integration of nutrition into health programmes, but progress has been slow in bringing nutrition into the areas of public health where it plays such an important role. Good nutrition builds needed immunity, enables young children to develop strong bodies and minds, and healthy mothers give birth to healthier babies. The life cycle provides a strong framework for discussing the challenges facing human nutrition.

Nutrition intervention can have beneficial impact at a variety of stages of human development. Undernutrition impacts a newborn differently than it does a pregnant woman or an adolescent boy. Each type of nutritional problem demands not only a scientific understanding of nutrition but also a grasp of the cultural and sociological mores of the community. An integral part of ensuring the success of these interventions is the inclusion of families and communities in the preliminary evaluation of nutrition needs and throughout the nutrition programme. A nutrition programme would be successful if these differences are realised and a special supplement to suit the tastes and preferences of the community prepared. In this context, food-to—food fortification and enrichment of suitable foods with essential micro-nutrients such as iron, vitamin A, iodine etc., assumes added importance.

Life Cycle: the proposed causal links



Source: UN Commission on the Nutrition Challenges of the 21st century (United Nations University Press)

Appendix 4.1

Garbage

		1	2	3	4	5	6
Sl. No	State	Percentage of households having arrangement for removal of garbage					
		Local authorities	Private arrangement among residents	Household members	Other arrangements	N.R.	All
1	Andhra Pradesh	14.50	8.10	75.30	2.20	_	100
2	Assam	4.00	9.30	78.10	8.70	_	100
3	Bihar	2.00	7.60	82.60	7.60	0.20	100
4	Gujarat	28.80	9.10	60.90	1.30	_	100
5	Haryana	8.40	14.60	76.90	0.10	_	100
6	Himachal Pradesh	_	_	_	_	_	_
7	Jammu & Kashmir	_	_	_	_	_	_
8	Karnataka	20.40	4.80	70.30	4.50	_	100
9	Kerala	2.40	1.90	93.40	2.30	_	100
10	Madhya Pradesh	5.70	6.70	84.90	2.60	0.10	100
11	Maharashtra	6.90	22.60	65.20	5.30	_	100
12	Orissa	3.00	0.40	96.40	0.20	_	100
13	Punjab	3.40	13.60	78.70	4.30	_	100
14	Rajasthan	15.10	8.80	74.60	1.50	_	100
15	Tamil Nadu	17.90	3.00	76.40	2.70	_	100
16	Uttar Pradesh	14.40	14.50	69.00	2.10	_	100
17	West Bengal	28.70	8.80	59.70	2.80	_	100
18	Delhi	_	_	_	_	_	_
19	Chandigarh	_	_	_	_	_	_
20	Pondicherry	_	_	_	_	_	_
	All India	13.70	11.90	71.20	3.20	_	100

Source: NSS 54th Round, Report No. 449

N.R. = Not reported

Appendix 4.2

Concern about Problems of Sanitation

		1	2	3	4
Sl. No	State	Percentage of households expressing concern about problem of			
		Flies	Mosquitoes	Foul odour	Average
1	Andhra Pradesh	53.10	86.80	47.60	62.50
2	Assam	77.20	83.50	58.10	72.93
3	Bihar	74.40	95.30	64.80	78.17
4	Gujarat	52.90	77.30	39.60	56.60
5	Haryana	89.50	98.40	70.40	86.10
6	Himachal Pradesh	–	–	–	–
7	Jammu & Kashmir	–	–	–	–
8	Karnataka	57.50	81.10	50.90	63.17
9	Kerala	37.70	89.00	19.70	48.80
10	Madhya Pradesh	66.30	90.40	54.00	70.23
11	Maharashtra	52.20	88.80	47.50	62.83
12	Orissa	89.70	92.00	76.00	85.90
13	Punjab	97.80	99.10	70.20	89.03
14	Rajasthan	62.90	90.20	40.60	64.57
15	Tamil Nadu	61.10	82.50	42.30	61.97
16	Uttar Pradesh	86.00	98.20	56.80	80.33
17	West Bengal	73.10	97.00	43.40	71.17
18	Delhi	–	–	–	–
19	Chandigarh	–	–	–	–
20	Pondicherry	–	–	–	–
	All India	65.80	89.60	50.10	68.50

Source: NSS 54th Round, Report No. 449

Appendix 4.3

Toilet Facilities

		1	2	3	4	5	6	7	8
		Percentage of households using latrine of type							
Sl. No	State	No latrine used	Service latrine	Septic tank	Pour flush pit	Sewerage system	Other	N.R.	All
1	Andhra Pradesh	30.80	1.20	42.90	4.60	17.90	2.40	0.10	100
2	Assam	0.20	20.10	61.10	3.30	1.00	12.50	_	100
3	Bihar	45.30	5.20	45.20	3.60	0.20	0.30	0.20	100
4	Gujarat	21.10	1.80	33.80	7.20	35.80	0.40	_	100
5	Haryana	32.90	9.70	7.50	16.50	32.30	1.10	_	100
6	Himachal Pradesh	_	_	_	_	_	_	_	_
7	Jammu & Kashmir	_	_	_	_	_	_	_	_
8	Karnataka	30.00	1.80	22.00	18.10	27.40	0.70	_	100
9	Kerala	5.10	3.60	48.80	25.50	7.80	9.30	_	100
10	Madhya Pradesh	45.20	6.20	40.30	4.90	3.50	0.00	_	100
11	Maharashtra	15.80	1.60	30.30	4.60	47.40	0.30	_	100
12	Orissa	35.80	7.70	50.50	3.40	0.80	1.70	_	100
13	Punjab	14.80	1.30	23.40	6.50	50.30	3.70	_	100
14	Rajasthan	25.50	5.20	33.30	19.30	7.20	9.60	_	100
15	Tamil Nadu	32.50	3.00	33.80	6.50	22.30	1.80	_	100
16	Uttar Pradesh	28.20	17.70	32.20	10.70	11.00	0.10	_	100
17	West Bengal	15.20	5.10	55.80	7.20	11.00	5.80	_	100
18	Delhi	_	_	_	_	_	_	_	_
19	Chandigarh	_	_	_	_	_	_	_	_
20	Pondicherry	_	_	_	_	_	_	_	_
	All India	25.50	5.90	35.20	8.40	22.50	2.50		100

Source: NSS 54th Round, Report No. 449

N.R. = Not reported

Chapter 5

Urban Food Insecurity Map of India

The final map of food insecurity has been derived with the help of various indicators and indices as described in the introductory chapter. The three aspects of food insecurity—food availability, food access, and food absorption—that were analysed in detail in the second, third, and fourth chapters have been consolidated into a single map.

Urban development in the country has over the years focused attention mainly on industrialisation and the financial markets rather than on livelihood generation or the improvement of the nutritional status of the population. Even in the relatively advanced States, livelihood creation and nutritional status are neglected areas of urban development. Further, the levels of industrialisation, the growth of non-farm employment, and the pattern of urbanisation differ from State to State. Affluent lifestyles and large State Domestic Product per capita coexist with a large percentage of vulnerable population who cannot afford to eat a balanced diet, drink unpolluted water, breathe clean air, and have a decent roof over their heads. Many urban poverty groups suffer from growth disorders, nutritional deficiencies, and diseases and have shorter lifespans. The preceding chapters have highlighted these facts.

We used several indicators of food insecurity but finally chose 17 as the key indicators. These indicators have already been discussed in various chapters and mapped. The list of indicators, the data, and the sources are given in Appendix 5.1. The correlation matrix of the 17 indicators is presented in Appendix 5.2.

5.1 Methodology of Indexing and Mapping Food Insecurity

There are several methods of getting a composite index of urban food insecurity. The choice of indicators is the most difficult task. For the present purpose, the indicators have been chosen after an extensive observation of interdependencies and clustering characteristics. The correlation matrix of all the available indicators has been useful to look into the interrelationships of various indicators. In the principal component analysis, the factor loadings and components extracted were useful to decide upon the grouping of the indicators. For example, the decision to keep housing as a separate indicator was based on the principal component extracted. However, the principal component method was not used directly for indexing as we found that the extracted components were unsuitable to explain food insecurity in terms of food access, livelihood access, and factors that affect food absorption and nutritional status. The indicators across the three major groups enter the principal components making it difficult to tag the components as availability, access, and absorption. Thus the principal component method is not suited for analysis in the chosen framework of the three 'a's of food security.

Based on these observations to suit our purpose of explaining food insecurity in terms of food availability, food access, and food absorption, we have classified the indicators into 6 groups. Indicators within each group are not correlated with each other. There are some indicators that are correlated across the

groups and we have allowed them to remain, as they are important to explain the performance of the group. Hence, the index of livelihood access and the sanitation and health index are closely correlated. The livelihood access index consists of population below poverty line, percentage of casual labour among the lower income classes, and percentage of illiterates in the population. The sanitation and health index consists of percentage of slum population, percentage of families without toilet facilities, percentage of households without safe drinking water, and number of persons per hospital and dispensary beds. Both the indices are closely correlated as poverty and illiteracy go with slum dwellings, lack of toilets, lack of safe drinking water facilities, and so on. However, there are some States that are good in the livelihood access index but do very poorly on health facilities. Jammu & Kashmir is good for food affordability and housing and lack of discrimination in society, but has very poor sanitation and health facilities.

The indicators and the group indices are as follows:

I. Food availability and affordability
   1. Per capita consumption of foodgrains out of PDS
   2. Per consumer unit daily intake of calories for the lowest ten percent

II. Livelihood access
   3. Percentage of population below poverty line
   4. Percentage of population dependent on casual labour among the lowest ten percent households
   5. Percentage of illiterates to the total population

III. Access to housing
   6. Percentage of households living in kutcha houses (temporary structures)
   7. Percentage of households living in semi-pucca houses (semi-permanent structures)

IV. Discrimination in livelihood access
   8. Percentage of Scheduled Caste population
   9. Ratio of male wage to female wage for casual workers other than public works

V. Access to sanitation and health
   10. Percentage of slum population to total population
   11. Percentage of households without toilet facilities
   12. Percentage of household without safe drinking water
   13. Number of persons per hospital and dispensary bed

VI. Nutritional outcome
   14. Infant mortality rate (number of deaths/1000 live births)
   15. Life expectancy at age one
   16. Percentage of population suffering from acute and chronic ailments (morbidity)
   17. Juvenile sex ratio (0–6 years)

Tables 5.1 to 5.6 present these group indices and the indicators used in their calculation. The method of calculation of the group index has been simple. Each indicator is first converted into an individual index. The individual index for an indicator measures the distance of the State from the worst possible value among the States, as a proportion of the difference between the best value and the worst value.[1] An index value of 0.85 for a State means that it has to travel a distance of 85 percent to reach the level of the best possible State. A value of 0.15 means that this State has to travel a distance of only 15 percent to reach

[1] All the final data on indicators chosen were made unidirectional so that larger values represent the worst situation. Life expectancy at age one could not be changed. Hence, the indexing formula adopted subtracts the maximum value for all the State from the life expectancy of that State. The numerator of the formula changes to (X max - X ij), instead of (X ij - X min)

Table 5.1
Food Affordability Index

Sl. No	State	1	2	3	4
		PDS foodgrains consumption index	Calorie intake of the lowest 10 percent index	Food Affordability Index	Rank
1	Andhra Pradesh	0.64	0.66	0.653	13
2	Assam	0.87	0.62	0.745	8
3	Bihar	0.96	0.70	0.829	3
4	Gujarat	0.89	0.68	0.786	6
5	Haryana	1.00	0.19	0.593	15
6	Himachal Pradesh	0.67	0.17	0.421	19
7	Jammu & Kashmir	0.72	0.00	0.361	20
8	Karnataka	0.72	0.75	0.735	10
9	Kerala	0.00	1.00	0.500	17
10	Madhya Pradesh	0.95	0.63	0.793	5
11	Maharashtra	0.87	0.63	0.753	7
12	Orissa	0.59	0.33	0.461	18
13	Punjab	0.99	0.49	0.737	9
14	Rajasthan	0.97	0.37	0.669	12
15	Tamil Nadu	0.39	0.88	0.633	14
16	Uttar Pradesh	0.95	0.76	0.855	1
17	West Bengal	0.86	0.59	0.723	11
18	Delhi	0.56	0.53	0.544	16
19	Chandigarh	0.98	0.71	0.847	2
20	Pondicherry	0.70	0.89	0.794	4
	SD	0.25	0.26	0.147	

the level of best State. The best State gets a value of zero, the worst possible gets a value of 1, indicating it has to travel the entire distance of 100 percent from worst to best. The worst possible situation is equal to one and the best possible situation is equal to zero. The others are between zero and one. The group index is nothing but the average of all individual indices calculated from the chosen indicators. Equal weight was given to all the indicators in the group index.

The group index has been calculated as follows:

$$I_1 = \left\{ \sum_{i=1}^{n} \{(Xij - X_{imn})/(X_{imx} - X_{imn})\}/n \right\}$$

where,

I_1 = group index one

X_{ij} = i^{th} indicator in the group for the j^{th} State

X_{imx} = i^{th} indicator in the State with maximum value

X_{imn} = i^{th} indicator of the State with minimum value

'i' = 1 to n indicators

'j' = 1 to k States considered in the group index

The method of indexing gives more importance to the deviation of a particular State from the best or the worst. The standard deviation of the index depends

Table 5.2
Livelihood Access Index

Sl. No	State	1	2	3	4	5
		Percentage of population BPL index	Percentage of casual labour in the lowest 10 percent index	Percentage of illiteracy index	Livelihood Access Index	Rank
1	Andhra Pradesh	0.60	0.65	0.71	0.654	5
2	Assam	0.13	0.36	0.22	0.236	17
3	Bihar	0.76	0.51	1.00	0.755	2
4	Gujarat	0.33	0.59	0.39	0.436	13
5	Haryana	0.20	0.39	0.69	0.424	14
6	Himachal Pradesh	0.06	0.18	0.03	0.093	20
7	Jammu & Kashmir	0.00	0.77	0.71	0.496	9
8	Karnataka	0.57	0.60	0.45	0.542	7
9	Kerala	0.45	0.98	0.00	0.475	10
10	Madhya Pradesh	0.89	0.82	0.66	0.791	1
11	Maharashtra	0.61	0.52	0.29	0.473	12
12	Orissa	1.00	0.54	0.66	0.733	3
13	Punjab	0.09	0.33	0.54	0.322	16
14	Rajasthan	0.44	0.20	0.79	0.474	11
15	Tamil Nadu	0.49	0.70	0.31	0.501	8
16	Uttar Pradesh	0.71	0.44	0.94	0.695	4
17	West Bengal	0.32	0.36	0.41	0.362	15
18	Delhi	0.18	0.14	0.25	0.189	18
19	Chandigarh	0.09	0.00	0.28	0.123	19
20	Pondicherry	0.49	1.00	0.27	0.587	6
	SD	0.29	0.27	0.28	0.204	

upon the distribution and skewness of the data series. The index value itself will remain low as in the case of average life expectancy, juvenile sex ratio, and morbidity. Even though Kerala, Karnataka, Pondicherry, and Tamil Nadu rank high they do not gain much in the final index. When the variation is very high between the States, the better off States fare better than the worse off ones, as in the case of calorie intake of the lowest ten percent, consumption out of PDS, etc. The largest variation in terms of the co-efficient of variation is found in the indicators representing the number of persons per hospital beds and the percentage of population not having access to safe drinking water. The lowest variation is found for life expectancy, percentage of illiterates, and juvenile sex ratio. After converting the data into indices we find that the relative position of the State does not change. The standard deviation of the indices is the highest in the case of wage differentials, persons living in temporary houses, and juvenile sex ratio. The lowest level of standard deviation is found in the case of life expectancy and number of persons per hospital bed. Thus, the standard deviation of the index does not follow the coefficient of variation found in the data, but the distribution of the States. Thus the standard deviation of hospital beds with highest

Table 5.3
Housing Index

Sl. No	State	1	2	3	4
		Percentage of hh living in kutcha houses Index	Percentage of hh living in semi- pucca houses Index	Housing Index	Rank
1	Andhra Pradesh	0.62	0.34	0.477	7
2	Assam	1.00	0.66	0.830	1
3	Bihar	0.32	0.64	0.479	6
4	Gujarat	0.10	0.34	0.218	14
5	Haryana	0.14	0.00	0.071	20
6	Himachal Pradesh	0.04	0.18	0.109	18
7	Jammu & Kashmir	0.06	0.18	0.118	17
8	Karnataka	0.20	0.65	0.423	9
9	Kerala	0.42	0.45	0.439	8
10	Madhya Pradesh	0.10	1.00	0.548	4
11	Maharashtra	0.12	0.48	0.301	12
12	Orissa	0.91	0.33	0.622	2
13	Punjab	0.04	0.11	0.072	19
14	Rajasthan	0.24	0.11	0.176	15
15	Tamil Nadu	0.56	0.46	0.509	5
16	Uttar Pradesh	0.28	0.41	0.341	11
17	West Bengal	0.29	0.55	0.420	10
18	Delhi	0.50	0.06	0.280	13
19	Chandigarh	0.00	0.32	0.158	16
20	Pondicherry	0.83	0.32	0.579	3
	SD	0.31	0.25	0.209	

coefficient of variation in the data, and the life expectancy at age one with lowest coefficient of variation, show the same standard deviation of the indices. The method of indexing and aggregation reduce the variation in the final composite index. The implicit and explicit weight of each index have been discussed in another section.

We had initially chosen more than 35 indicators. We eliminated many and reduced them to 17. We have used many indicators that represent the deprivation and vulnerability of the urban disadvantaged and indicators that pose risk to the health of the urban poor. However, there are some indicators that show the average situation in the urban areas rather than that of the poorer sections. The 4 indicators of the nutritional outcome index—life expectancy, infant mortality, morbidity, and juvenile sex ratio—represent the average situation in the State and not the nutritional status of the poor. Availability of hospital beds also represents the average situation rather than the availability of beds to the lower income groups. Thus, out of the 17 indicators chosen, 5 indicators depict the average situation in the State, with the remaining 12 representing the position of the disadvantaged urban people. It is true that better status of the poorer sections improves the average nutritional status of the population and hence better average may mean better position for all. However,

Table 5.4
Discrimination Index

Sl. No	State	1	2	3	4
		Percentage of SC population Index	Average daily wage differentials Index	Discrimination Index	Rank
1	Andhra Pradesh	0.38	0.09	0.232	18
2	Assam	0.31	0.01	0.158	19
3	Bihar	0.36	0.29	0.324	14
4	Gujarat	0.24	0.38	0.309	16
5	Haryana	0.64	0.08	0.359	12
6	Himachal Pradesh	0.92	0.05	0.486	8
7	Jammu & Kashmir	0.00	0.00	0.000	20
8	Karnataka	0.52	0.23	0.372	11
9	Kerala	0.16	1.00	0.579	6
10	Madhya Pradesh	0.61	0.14	0.373	10
11	Maharashtra	0.39	0.93	0.662	2
12	Orissa	0.56	0.09	0.323	15
13	Punjab	1.00	0.23	0.614	4
14	Rajasthan	0.69	0.14	0.412	9
15	Tamil Nadu	0.49	0.21	0.350	13
16	Uttar Pradesh	0.53	0.00	0.261	17
17	West Bengal	0.57	0.66	0.617	3
18	Delhi	0.94	0.17	0.553	7
19	Chandigarh	0.75	0.79	0.774	1
20	Pondicherry	0.38	0.79	0.585	5
	SD	0.26	0.33	0.190	

this cannot be taken for granted if the inequalities of access are high.

5.2 The Six Indices of Urban Food Insecurity

Most of these indicators represent deprivation and vulnerability of the lower income classes. These have already been mapped individually, to show the position of the States. The first index consists of the food consumption of the lowest deciles and the average consumption of foodgrains out of PDS. These two have been chosen as they implicitly reflect the affordability, availability as well as the government transfers of food to the poor. The second index is that of livelihood access in urban areas. The indicators included are percentage of population below poverty line, percentage of casual labour in the lowest ten percent, and percentage of illiterates. This index reflects only the livelihood access situation of the poor. We have also computed a discrimination index, using the concentration of Scheduled Caste population and the wage differentials between male and female workers. This index also reflects the discrimination that exists among the disadvantaged sections. The fourth index computed is the housing index, of persons living in kutcha dwellings and semi-pucca houses, most

Table 5.5
Sanitation and Health Index

Sl. No	State	1 Percentage of slum population index	2 Percentage of hh without toilet facilities index	3 Percentage of hh without access to safe drinking water index	4 No. of persons per hospital/dispensary bed index	5 Sanitation and Health Index	6 Rank
1	Andhra Pradesh	0.98	0.46	0.12	0.03	0.398	3
2	Assam	0.18	0.00	0.41	0.01	0.150	19
3	Bihar	0.27	0.55	0.21	0.02	0.262	10
4	Gujarat	0.31	0.31	0.02	0.01	0.162	17
5	Haryana	1.00	0.32	0.02	0.04	0.344	7
6	Himachal Pradesh	0.00	0.20	0.06	0.00	0.064	20
7	Jammu & Kashmir	0.54	0.14	0.04	1.00	0.429	2
8	Karnataka	0.34	0.40	0.09	0.02	0.211	15
9	Kerala	0.03	0.12	1.00	0.01	0.290	9
10	Madhya Pradesh	0.77	0.59	0.15	0.09	0.397	4
11	Maharashtra	0.98	0.25	0.05	0.02	0.327	8
12	Orissa	0.67	0.72	0.42	0.02	0.457	1
13	Punjab	0.61	0.25	0.01	0.03	0.225	14
14	Rajasthan	0.43	0.40	0.10	0.03	0.238	12
15	Tamil Nadu	0.59	0.56	0.21	0.02	0.346	6
16	Uttar Pradesh	0.56	0.34	0.04	0.04	0.245	11
17	West Bengal	0.68	0.14	0.08	0.02	0.229	13
18	Delhi	0.57	0.12	0.04	0.03	0.191	16
19	Chandigarh	0.40	0.16	0.00	0.08	0.161	18
20	Pondicherry	0.43	1.00	0.07	0.01	0.377	5
	SD	0.29	0.24	0.23	0.22	0.106	

of which are presumably in slums. This index also represents the living conditions of the low-income population. The fifth index is for the sanitation and health infrastructure. The indicators considered are percentage of slum population, percentage of households without any toilet facilities, percentage of households without safe drinking water, and the number of persons per hospital bed. This index too only considers the low-income groups. The sixth index is that of the final nutritional status of the urban population consisting of infant mortality rates (IMR), life expectancy at age one, morbidity, and juvenile sex ratio. This index represents the average condition of the population. We have included juvenile sex ratio in the nutritional status, as it means discrimination of females in respect of food and medical care and leads to the death of more female babies and girls compared to male babies and boys.

We have taken enough care in the choice of the indicators to avoid any significant correlation between the indicators within the index computed. We have used the factor analysis and factor loadings as well as correlation matrix to decide on the indicators

Table 5.6
Nutritional Outcome Index

Sl. No	State	1	2	3	4	5	6
		IMR Index	Life Expectancy Index	Morbidity Index	Juvenile sex ratio Index	Nutritional outcome Index	Rank
1	Andhra Pradesh	0.52	0.43	0.28	0.00	0.309	13
2	Assam	0.51	0.38	0.54	0.13	0.390	11
3	Bihar	0.76	0.36	0.09	0.17	0.346	12
4	Gujarat	0.66	0.52	0.03	0.74	0.486	5
5	Haryana	0.88	0.17	0.30	0.87	0.556	2
6	Himachal Pradesh	0.54	0.37	0.35	0.57	0.457	7
7	Jammu & Kashmir	0.00	1.00	0.21	0.48	0.422	9
8	Karnataka	0.30	0.33	0.07	0.09	0.197	19
9	Kerala	0.17	0.00	0.55	0.00	0.179	20
10	Madhya Pradesh	0.83	0.52	0.04	0.26	0.412	10
11	Maharashtra	0.42	0.20	0.15	0.26	0.258	17
12	Orissa	1.00	0.40	0.29	0.17	0.467	6
13	Punjab	0.56	0.09	0.52	1.00	0.542	3
14	Rajasthan	0.90	0.41	0.00	0.39	0.425	8
15	Tamil Nadu	0.56	0.31	0.25	0.04	0.291	16
16	Uttar Pradesh	0.98	0.61	0.39	0.43	0.605	1
17	West Bengal	0.57	0.24	0.32	0.04	0.294	14
18	Delhi	0.42	0.17	0.10	0.48	0.293	15
19	Chandigarh	0.35	0.09	1.00	0.61	0.513	4
20	Pondicherry	0.15	0.31	0.34	0.04	0.212	18
	SD	0.28	0.22	0.24	0.30	0.126	

included. (Appendix 5.3) A regression analysis has shown that these indices explain about 80 percent of the variations in the urban per capita total expenditure, a proxy for per capita urban income.

5.3 Composite Index of Urban Food Insecurity

a) Unweighted composite index

Three methods were used to get the composite index of urban food insecurity. In the first method, the 6 group indices were simply averaged together to get the unweighted composite index of urban food insecurity, without any explicit weight being given. All the 6 indices and all the 6 aspects get the same weight. However since 3 of the 6 group indices indicate the livelihood access situation, this gets half the weight implicitly. Two out of 6 indices describe sanitation and health, thus 33 percent weight goes to the absorption indicators. About 17 percent weight goes to availability and affordability of food or the physical access to food. Lower implicit weight to availability factors is expected as availability is not a problem in urban areas, but actual access and affordability are dependent upon the livelihood access. The unweighted

Table 5.7
Unweighted Composite Index of Urban Food Insecurity

Sl. No	State	1 Food Affordability Index	2 Livelihood Access Index	3 Housing Index	4 Discrimination Index	5 Sanitation and Health Index	6 Nutritional Outcome Index	7 Composite Index	8 Rank
1	Andhra Pradesh	0.653	0.654	0.477	0.232	0.398	0.309	0.454	7
2	Assam	0.745	0.236	0.830	0.158	0.150	0.390	0.418	12
3	Bihar	0.829	0.755	0.479	0.324	0.262	0.346	0.499	5
4	Gujarat	0.786	0.436	0.218	0.309	0.162	0.486	0.400	15
5	Haryana	0.593	0.424	0.071	0.359	0.344	0.556	0.391	17
6	Himachal Pradesh	0.421	0.093	0.109	0.486	0.064	0.457	0.272	20
7	Jammu & Kashmir	0.361	0.496	0.118	0.000	0.429	0.422	0.304	19
8	Karnataka	0.735	0.542	0.423	0.372	0.211	0.197	0.413	13
9	Kerala	0.500	0.475	0.439	0.579	0.290	0.179	0.410	14
10	Madhya Pradesh	0.793	0.791	0.548	0.373	0.397	0.412	0.552	1
11	Maharashtra	0.753	0.473	0.301	0.662	0.327	0.258	0.462	6
12	Orissa	0.461	0.733	0.622	0.323	0.457	0.467	0.511	3
13	Punjab	0.737	0.322	0.072	0.614	0.225	0.542	0.419	11
14	Rajasthan	0.669	0.474	0.176	0.412	0.238	0.425	0.399	16
15	Tamil Nadu	0.633	0.501	0.509	0.350	0.346	0.291	0.438	9
16	Uttar Pradesh	0.855	0.695	0.341	0.261	0.245	0.605	0.500	4
17	West Bengal	0.723	0.362	0.420	0.617	0.229	0.294	0.441	8
18	Delhi	0.544	0.189	0.280	0.553	0.191	0.293	0.342	18
19	Chandigarh	0.847	0.123	0.158	0.774	0.161	0.513	0.429	10
20	Pondicherry	0.794	0.587	0.579	0.585	0.377	0.212	0.522	2
	SD	0.147	0.204	0.209	0.190	0.106	0.126	0.071	

composite index has been presented in Table 5.7. The final food insecurity map based on this composite index has been shown in Map 5.1. We shall discuss the map and its implications in the next section.

b) Weighted composite index

In the second method we have assigned some weights to these 6 group indices, based on the strength of association of these group indices to the total average urban per capita consumer expenditure of the particular State in 1999–2000.[2] This is a proxy for the State Domestic Product (SDP) or net income per capita of the urban areas. It is a proxy for the prosperity of the urban areas of the State. Since SDP is not available separately for urban and rural areas, we have taken the average per capita expenditure. Per capita SDP at current prices for the year 1999–2000 is obviously influenced by urban incomes and it shows a significant correlation of 0.763 with average total consumer expenditure per capita per month. Hence, we can safely use the total consumer expenditure as a proxy for urban per capita SDP.

[2] The correlation coefficients are added up and the percentage strength is decided. This method of weighting has been used by many economists in recent years to give weights to indicators.

The relative prosperity of the State influences all these indices. All except the discrimination index show a negative significant relationship with the per capita total consumer expenditure. It means that wherever the average total consumer expenditure is high, the index value is low, showing higher levels of food security. The group indices are all insecurity indices and the higher values show larger insecurity. The trickle-down effect of prosperity seems to improve livelihood access, represented by lower percentage of casual workers, lower poverty, lower illiteracy, and better housing.

The higher the prosperity in terms of average total expenditure of the urban areas in a State, health and sanitation improve in terms of lower percentage of slum population, better amenities of drinking water and toilet facilities, and better access to hospitals and dispensaries. Even the nutritional outcome and physical access to food improve for the poor with the levels of total expenditure, though the correlation is not significant (Appendix 5.4). Only the discrimination index shows a positive significant relationship, meaning thereby that discrimination is high where urban prosperity is high. In terms of our index it means that wherever urban prosperity is found, Scheduled Caste population is high and male-female wage differentials are high. In other words, urban prosperity brings in more jobs for more people who occupy the lower rungs of the urban economy. Though female labour is paid much less than male labour, female labour participation among the lower rungs increases, more to increase the total income of the household.

Food insecurity factors that influence or get influenced by the relative prosperity or wealth of the State are given more weight than the other factors. We have added up all the correlations and found the percentage weight of each correlation (see Appendix 5.4) and determined the weights. Obviously the most important factor turns out to be the livelihood access of the urban poor. It gets a weight of 32.5 percent. Even logically, affordability of food depends upon livelihood access. The next important factor has been sanitation and health, with a weight of 19.9 percent. Discrimination by way of wage differentials between sexes and the percentage of Scheduled Caste population gets a weight of 18.7 percent. Access to good housing gets a weight of 19.4 percent. Food availability and physical access to food gets a weight of 8.9 percent and nutritional outcome in terms of life expectancy and mortality and morbidity rates gets a weight of 0.6 percent, i.e., slightly more than half a percent. In other words, it is clear that while money income, amenities, and housing improve with the prosperity of the urban areas, the actual calorie intake and nutritional outcome are not significantly related to urban prosperity.

To put it in another way, urban prosperity, represented in general by higher per capita income, by itself does not mean increased physical access to food for the poorest and improvement in the nutritional status of the population. Urban prosperity, no doubt, translates itself to larger employment, income, amenities, and housing at the average level. There is a weak relationship between employment and urban prosperity. It is interesting that employment opportunities improve for the poor as well as for the others as average urban prosperity increases.

In effect, the 3 group indices of livelihood—the livelihood access index, the discrimination in livelihood access index, and the housing index—together get an overwhelming weight of 70 percent. Two group indices—food absorption and nutritional status—get a weight of about 20 percent. The sole index of availability and food access gets a weight of 8.9 percent. (Table 5.8) By taking the above weights, we are predominantly measuring the livelihood security and basic amenities at the average level. The final map is in effect the map of livelihood access.

Table 5.8
Weighted Composite Index of Urban Food Insecurity

Sl No	State	1 Food Affordability Index	2 Livelihood Access Index	3 Housing Index	4 Discrimination Index	5 Sanitation & Health Index	6 Nutritional Outcome Index	Composite Index	Rank
	Weight	0.089	0.325	0.194	0.187	0.199	0.006		
1	Andhra Pradesh	0.058	0.213	0.093	0.043	0.079	0.002	0.488	5
2	Assam	0.066	0.077	0.161	0.029	0.030	0.002	0.366	13
3	Bihar	0.074	0.245	0.093	0.061	0.052	0.002	0.527	4
4	Gujarat	0.070	0.142	0.042	0.058	0.032	0.003	0.346	15
5	Haryana	0.053	0.138	0.014	0.067	0.069	0.003	0.343	16
6	Himachal Pradesh	0.037	0.030	0.021	0.091	0.013	0.003	0.195	20
7	Jammu & Kashmir	0.032	0.161	0.023	0.000	0.085	0.003	0.304	19
8	Karnataka	0.065	0.176	0.082	0.070	0.042	0.001	0.437	10
9	Kerala	0.045	0.154	0.085	0.108	0.058	0.001	0.451	9
10	Madhya Pradesh	0.071	0.257	0.106	0.070	0.079	0.002	0.585	1
11	Maharashtra	0.067	0.154	0.058	0.124	0.065	0.002	0.470	6
12	Orissa	0.041	0.238	0.121	0.060	0.091	0.003	0.554	3
13	Punjab	0.066	0.105	0.014	0.115	0.045	0.003	0.347	14
14	Rajasthan	0.060	0.154	0.034	0.077	0.047	0.003	0.375	12
15	Tamil Nadu	0.056	0.163	0.099	0.066	0.069	0.002	0.454	8
16	Uttar Pradesh	0.076	0.226	0.066	0.049	0.049	0.004	0.469	7
17	West Bengal	0.064	0.118	0.081	0.115	0.046	0.002	0.426	11
18	Delhi	0.048	0.062	0.054	0.103	0.038	0.002	0.308	18
19	Chandigarh	0.075	0.040	0.031	0.145	0.032	0.003	0.326	17
20	Pondicherry	0.071	0.191	0.112	0.109	0.075	0.001	0.560	2
	SD	0.010	0.070	0.050	0.040	0.040	0.001	0.100	

Note: The weights were derived based on the correlations between the average consumer expenditure and the six different indices. The correlation coefficient of each index was expressed as the ratio of their total correltion to the average comsumer expenditure. These ratios were used as weights for the respective indices.

c) Cumulative ranking index

In the third method, we have ranked all the 17 indicators and added the ranks together to get the cumulative rank. The cumulative index has been divided by the number of indicators, to get the mapping index. This was the method used in the *Rural Food Insecurity Atlas* (MSSRF - WFP 2001). This has also been used by many other studies on the physical quality of life. Himachal Pradesh, Jammu & Kashmir, and Delhi come out as the best States, and Madhya Pradesh, Uttar Pradesh, and Orissa occupy the lowest positions. Himachal Pradesh, Delhi and Jammu & Kashmir occupy the best three positions. (Appendix 5.5)

d) Mapping methodology

What is remarkable is that the weighted and unweighted indices as well as ranking index give more or less the same ranks to some States. Madhya Pradesh

and Orissa occupy the lowest two positions in all the indices. Pondicherry occupies the lowest position in both the weighted and unweighted indices. Himachal Pradesh, Jammu & Kashmir, and Delhi occupy the best positions in all the three indices. Thus, we are convinced that Madhya Pradesh, Orissa, and Pondicherry can be put in the most food insecure category and Himachal Pradesh, Jammu & Kashmir, and Delhi can be put in the top category. This also shows that the indicators chosen are fairly robust and are not greatly influenced by the aggregation into indices.

Thus 5 of the above mentioned 6 States do not change their positions, whatever may be the method of aggregation. The position of Pondicherry comes out better at rank 12 in the cumulative mapping index. However, both in the weighted index and unweighted index the rank remains the same. The reason is that a majority of the 17 indicators, and particularly the livelihood and sanitation indicators, consistently show lower ranks for the bottom States and high ranks for the top States. Hence we have assigned the top and the bottom positions to these States. Himachal Pradesh, Jammu & Kashmir, and Delhi are put in dark green, the fifth category of 'most food secure' States. Madhya Pradesh, Orissa, and Pondicherry are shown in deep red as the first category of 'extremely food insecure' States.

Of the remaining 14 States, many get similar ranks in all the three indices. For some States, the ranks differ by one or two positions. Uttar Pradesh and Bihar figure among the 5 States at the lower end. Similarly, Haryana, the Punjab, Gujarat, and Rajasthan hold better positions in the weighted as well as unweighted indices. The 14 States get their respective ranks because of a combination of good and bad features. We cannot really club them on any one or two features. They fare better in livelihood and better amenities.

While the best and worst remain the same, the middle categories differ between the weighted map and the unweighted map. In both indices the actual values of the index calculated are not the same. The weighted index has a slightly higher index value than the unweighted. The value for the weighted index varies between 0.59 and 0.20, that for the un-weighted varies between 0.55 and 0.27. The 14 States are divided into three middle categories by applying the natural break method available in the GIS Arc View software. The software automatically detects the natural break based on the distribution and divides the States into the required number of categories for the mapping purpose. The advantage of natural break as against equal intervals is that the intervals are decided based on the distribution of the States in the given range. The problem with the equal intervals could be overclustering of the States in one or two categories.

We have produced two maps—one for unweighted composite index and the other for weighted composite index. The final maps have five categories. The pre-determined 3 extremely food insecure States of Madhya Pradesh, Orissa, and Pondicherry are put in dark red as the first category. The three most food secure—Himachal Pradesh, Jammu & Kashmir, and Delhi—are put in dark green as the fifth category. The States with fairly low ranking that are 'severely food insecure' are put in dark brown as the second category. The 'moderately food insecure' States belonging to the third category are in light yellow. The 'moderately food secure' States of the fourth category are in light green, indicating a better situation. The composite index has the limits of zero and one, like any other index. Due to aggregation the values are bunched in the centre. However, the distribution is tilted towards greater food security. The closer the index value to 1, the more food insecure the urban people are in that State. The closer the composite index to zero, the more secure the urban population are.

e) Problems of aggregation

We have already dealt with the problems of aggregation. It is worthwhile cautioning a second time that the simple adding up of the indicators poses some problems, which influence the interpretation of the relative position of the States in the map. The rank of a State differs from one indicator to another. It may happen that except for a State with an extreme value, most of the States would be in the middle ranges. A normal distribution or a skewed distribution to the right or left can occur. While adding up the ranks, the difference between the States is reduced. The final cumulative ranking index would have very little difference between the States. In such instances, actual comparison and value judgements based on such comparisons become problematic. Hence, the map is useful only to make broad comparisons across typologies, but not for attaching specific importance to relative positions vis-à-vis other States. To facilitate such comparison and to avoid value judgement in such cases, individual maps based on the actual data have been provided in the other chapters. The composite map has to be interpreted carefully.

The Urban Food Insecurity Map of India gives an overall picture of the food insecurity situation at the State level. A map is an advocacy tool and it attracts the attention of readers, heightens their awareness, and highlights the general situation. The food insecurity map does not reveal everything about the food insecurity of a State. It is necessary to go through a series of maps and indices and interrelationships on each aspect to understand the complex food insecurity situation. A map is a good beginning to do this. If one were to start with the map and go beyond the indicators of the map, searching for answers to questions, then the story of food insecurity would be unfolded.

5.4 Food Insecurity in Urban India: A Step Towards a Food Insecurity Model

The final index is only for the purpose of final mapping of the combined food insecurity situation. The major emphasis of the study has been on individual indicators and the analysis of the vulnerability situation and the policy implications. The final index is not the aim of the study, because all the indices, including the human development index, suffer from aggregation bias and also the bias of excluding the more relevant indicators for which data are not available.

However we did not undertake a more detailed empirical analysis of the data, though it is possible. The simple correlations do not adequately explain the cause and effect relationship, as there can be many spurious relationships. In the present case, even the observations are limited to 20 States. States with extreme values have an impact on the correlations. An alternative could have been the use of pooled data, of cross-sectional as well as limited time series data, to solve the problem of the limited number of observations. It could have been possible to build some specific relationships and get co-efficients with multiple regressions and two stage least square methods. It was not attempted for two reasons. First, if the NSS 55th Round data are not comparable with others, the analysis cannot be extended to 1999–2000, particularly for calorie intake and cereal intake. Second, the analysis undertaken shows that there is a possible shift in the pattern of employment and problems of food insecurity in the past five years, diverging the paths of different typologies of States, the best and the worst. Some of these we could capture. These details would be lost if the analysis stopped with the NSS 50th Round.

The ideal way is to build a food insecurity model depicting the interrelationships more accurately rather than simple aggregation into a food insecurity index. A closer look at the indicators chosen will help us in interpreting the composite food insecurity map better. The parameters of food availability, food access, and food absorption have overlapping influence on each

other and are not isolated factors. Some of these influences have already been discussed. It may be noted that the distinction of the indicators as representing food availability, access, or absorption is arbitrary. Some of the indicators such as female literacy that influence livelihood access also influence nutritional knowledge and health status. While calorie consumption is considered as an indicator of food access, it also leads to the problems of poor nutrition such as protein calorie malnutrition. It might as well have been included under food absorption.

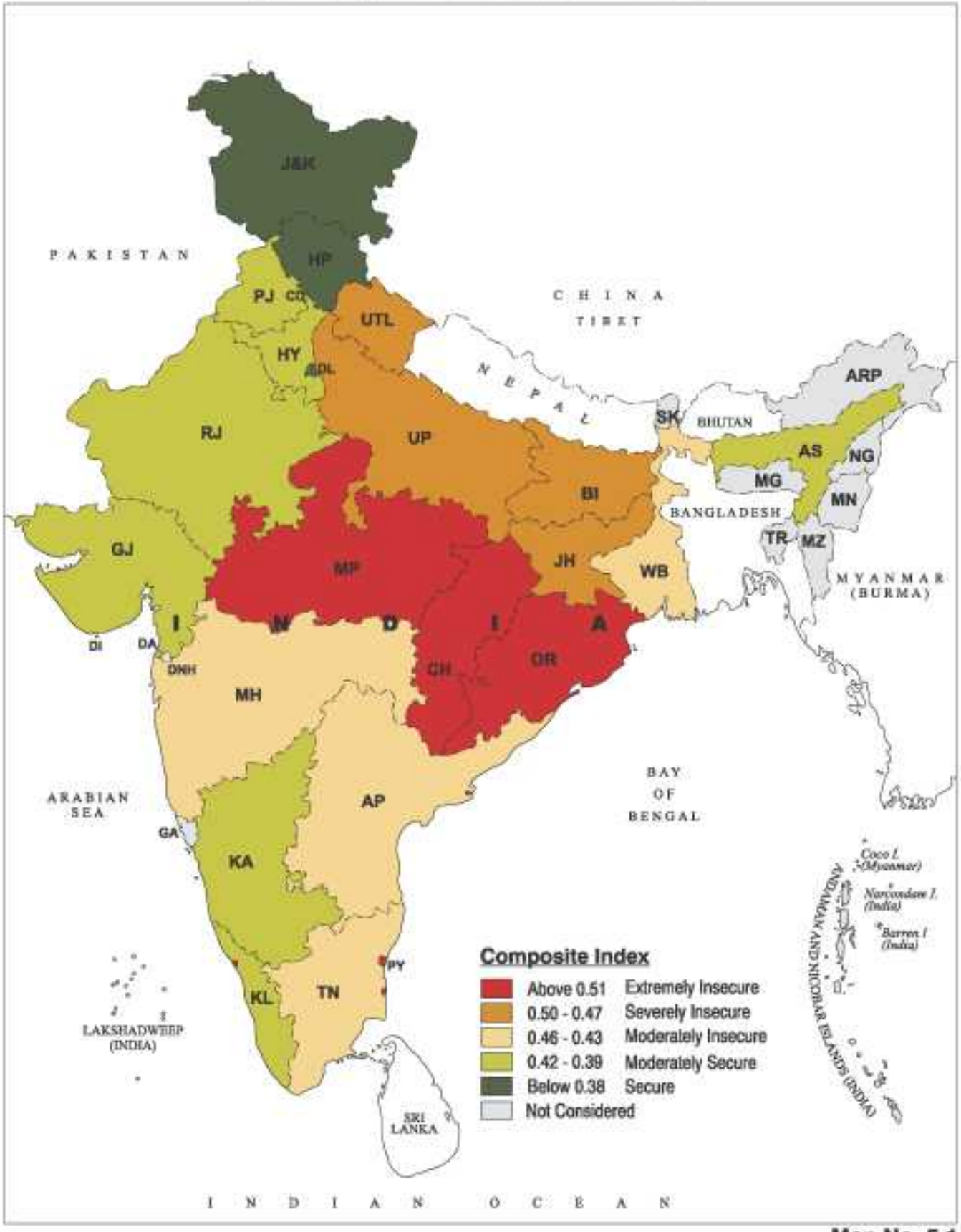
However, a simplification of the three major categories and a conceptual relationship which links these three aspects—starting with availability and affordability, leading to consumption and absorption for the final nutritional outcome—is useful for better understanding of the situation. Some variables are endogenous to the system and others are exogenously determined. Exogenous factors, such as prices and availability, depend upon the supply position of the State and the demand that exists due to higher levels of urbanisation and the distribution of population across urban centres. Once availability is assured, the livelihoods determine the affordability and level of physical consumption, given the discrimination that exists and the safety nets that are in place. The livelihoods also determine the types of housing and slum dwellings. The level of consumption and knowledge of nutrition that has a bearing on female literacy determine the nutritional outcome, given the facilities of sanitation and health. But, here the result is not immediate, it occurs with a lag. Only if the States have been enjoying these facilities for a long time can we see the impact on nutritional outcome. Others, such as prices and infrastructure, help affordability and livelihood opportunities. Sanitation and health facilities determine levels of morbidity in the short run, growth disorders and infant and child mortality rates in the medium term, and life expectancy in the long run. Livelihoods in turn depend upon the rates of literacy and education levels and the pattern of employment and level of wages. If the pattern of employment has more casual workers, the risk of job loss and food insecurity increases.

The final aim of the study is to lay the foundation for a more comprehensive food insecurity model of urban India. The present study will help to understand the inter- relationships between the indicators. Each of these simplified relationships can be transformed into a set of equations and the estimated equations will help to obtain the co-efficients, if we can work with a time series data or pooled data of cross-section as well as discrete time points. An empirical model capable of forecasting can be obtained by introducing the influence of policy on outcomes. This is for future researchers to take on. In this study, we have been content with giving a conceptual model of urban food insecurity. However, for the purpose of modelling we need to have more reliable data. It will be erroneous to mix the characters of the lower sections of population with the average levels of mortality. One has to get data on the nutritional outcomes of the poorer sections alone. Either 30 percent or 50 percent of the lower deciles has to be chosen for the study, at least in respect of some indicators, to trace livelihood security to better absorption and nutritional status in a time series analysis. In the present context, we will be content with looking at some typologies of the States to try to find out if there are some aspects common to these States.

5.5 Urban Food Insecurity Typologies

Food insecurity in urban India has been depicted in Maps 5.1 and 5.2. They differ from each other in respect of the 3 middle typologies. The top and the bottom typologies in dark green and dark red are the same. The differences are clear from the maps. In this section, we shall only discuss Map 5.1 that depicts the unweighted composite index of urban food insecurity. Only a passing reference has been made occasionally

FOOD INSECURITY MAP OF URBAN INDIA
(Unweighted Composite Index)



Map No. 5.1

to the weighted index.

I. Food secure urban population, shown in dark green

Himachal Pradesh, Jammu & Kashmir, and Delhi are the most food secure and are shown in dark green. Of the 17 indicators considered for Himachal Pradesh, only 5 get a rank lower than fifteen. Hence, on the whole the State fares well. Similarly in the case of Jammu & Kashmir, the 6 indicators show a rank lower than fifteen. With regard to Delhi, only 7 out of the 17 indicators show a rank below fifteen. Delhi comes out as one of the food secure areas, as it does not get a rank of less than 6 for any indicator.

Himachal Pradesh comes out as the best State as calorie consumption of the lower income classes is good and poverty is low. Only one-fourth of the poor depend upon casual labour. The number of literates is high, next only to Kerala. Urban areas do not have slums at all. As little as 2.8 percent of households live in temporary structures and about 10 percent live in semi-permanent houses. Wage differentials are low between males and females. Basic amenities are good. Safe drinking water is available to all but 3.4 percent of population. Hospital facilities are the best in the country, better than in Kerala. One hospital bed is available for every 144 persons. Juvenile sex ratio shows lower discrimination.

Jammu & Kashmir is also judged as one of the best States for many indicators. It has highest calorie consumption by the poor, lowest level of poverty, lowest number of temporary constructions and semi-permanent houses in the urban areas of the State. The Scheduled Caste population is lowest in the country. Wage differentials between women and men are the lowest for the country. Jammu & Kashmir has the lowest IMR, much lower than Kerala. Unfortunately, as we could not get the latest data on life expectancy in Jammu & Kashmir, we have used 1981 data and hence life expectancy appears to be low. This may have increased substantially in the State. Many basic amenities such as toilet facilities and drinking water are good. There are however a few disadvantages. Slum population is not so low. A large number of poor depend upon casual labour for employment in the towns. Literacy levels are also low.

Delhi has a fewer number of casual labourers compared to the southern States. Compared to the growth rate of urban workers for all India at 1.34 percent, the work force of Delhi has grown at 6.84 percent between 1990 and 1998 as per the Economic Census. This has helped Delhi's poor to eat better. In addition, Delhi is also in close proximity to Haryana, the Punjab, and Uttar Pradesh—all foodgrain surplus States. Delhi also fares better in basic amenities such as housing, safe drinking water, toilet facilities, hospital beds, and so on. It fares better in terms of many indicators. Basic amenities are good, probably due to a large amount of development funds invested in the capital city. Delhi also has a comparatively smaller percentage of population, less than 20 percent, in slums. IMR rates are very low in Delhi.

However, these three vary greatly in the level of urbanisation.[3] Himachal Pradesh has about 10 percent of its population in urban areas. Seventy-six percent of this urban population live in small towns with less than 50,000 population. Only less than 24 percent of the urban population live in towns with a population between 50,000 and 2 lakh. There are no metropolitan cities in Himachal Pradesh. The urban scenario is an extension of the rural scenario, which is good (WFP–MSSRF 2001). The ills of urbanisation have not touched the State. Moreover, the governance in this small State with a sparse population is probably good.

Jammu & Kashmir is a larger State and about

[3] Urbanisation refers to the share of urban population in the total population of the State.

one-fourth of the population is urban, concentrated in big towns. About 57 percent of the urban population lived in towns with a population of more than 2 lakh. There are no metropolitan cities in this State. In general the ills of urbanisation are only beginning to show in terms of increased casual labour. Probably, the rural prosperity of better land base and food security has spilt over to urban Jammu & Kashmir.

Delhi is almost completely urban at 93 percent and particularly fared well in the growth of workers as well as urbanisation in 2001.

Thus, it can be seen that, irrespective of the level of urbanisation, prosperity can occur, provided the food supply to the area is good and better livelihood opportunities are provided to people. The other important issue is the provision of basic amenities. Thus the three 'a' formula works—better food availability at affordable prices due to better supply position or PDS, better food access through better paid, less risky jobs, and finally, better food absorption through better basic amenities of sanitation and health.

2. *Moderately food secure urban population, shown in light green*

Haryana, Rajasthan, Gujarat, Kerala, Karnataka, Assam, and the Punjab, in that order, come out as moderately food secure and are shown in light green. The composite index for these States varies between 0.39 to 0.42, a difference of just 3 points making the position worse by 7 ranks. Thus Haryana and the Punjab are apart by 3 points and 7 ranks. The positive and negative features vary and we shall look at some common points for these States. Gujarat, Rajasthan, the Punjab, Haryana, and Assam remain in light green both in the weighted and unweighted index. Kerala and Karnataka also add to the secure States in the unweighted index (see Tables 5.7 and 5.8).

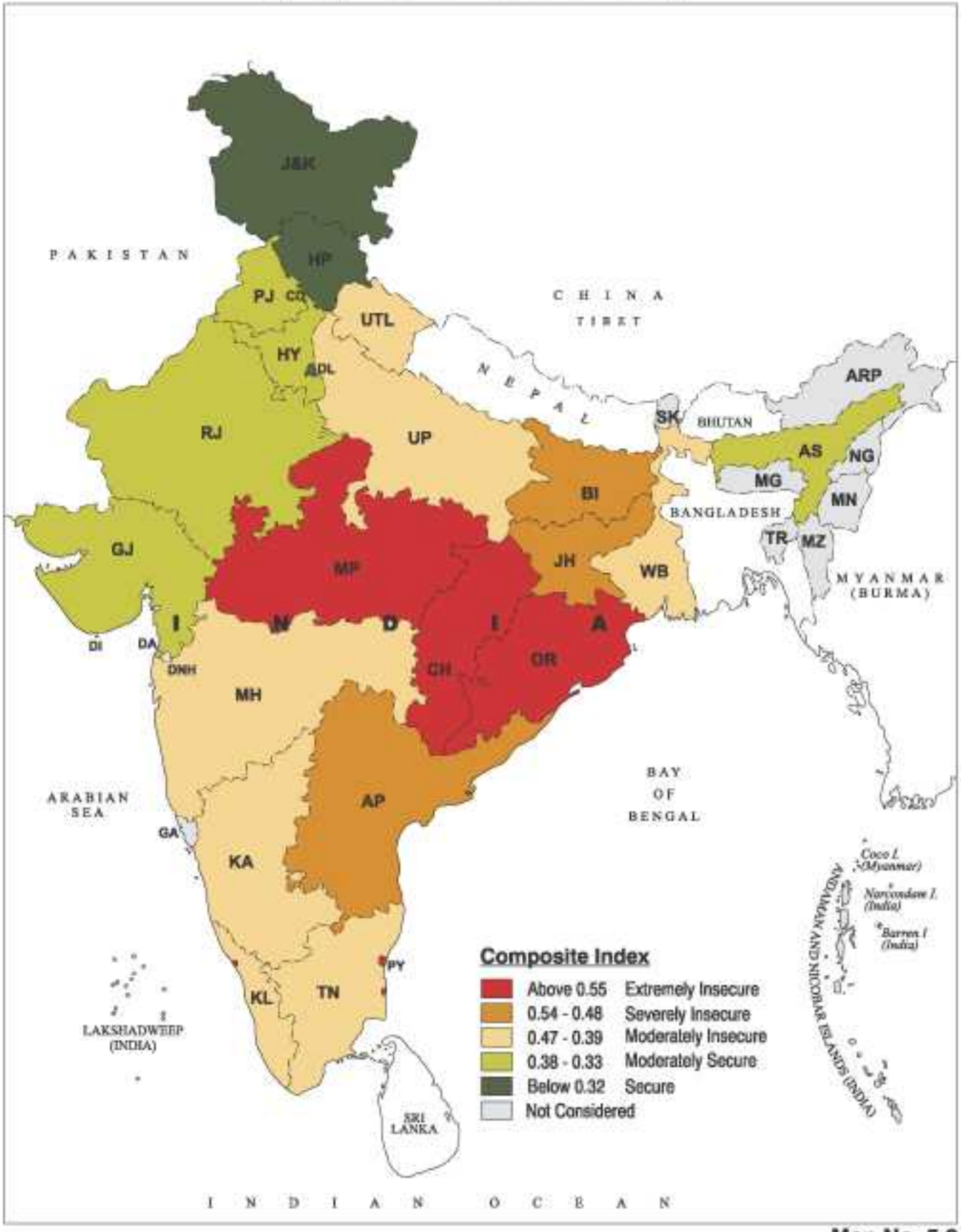
The positive feature is the availability of food at affordable prices, so that the calorie consumption of the lowest ten percent is not very low. It is above the accepted level of 1890 kcal per consumer unit in all the States except the deficit States of Kerala Karnataka, Gujarat, and Assam. But the PDS position is better in Kerala and Karnataka. Thus the affordability index is better in all the States, except in Assam and Gujarat.

Poverty levels are low in all the States except Karnataka. Even here it is below 30 percent. Illiteracy is less than 30 percent, except in Haryana and Rajasthan. Slum population is less than 20 percent, except in Haryana. Thus, the livelihood position is good in all the States, except in Karnataka. Sanitation and health facilities are good in all the States, except in the case of Haryana. Housing is about the best in Haryana. As regards nutritional outcomes, Kerala, Karnataka, and Assam are good. The position of Haryana, the Punjab, Rajasthan, and Gujarat is not up to the mark due to adverse sex ratio and fairly high mortality rates. Though the Punjab is better in terms of life expectancy and low IMR, its position goes down in the nutritional index due to adverse juvenile sex ratio.

Thus the light green States either have better food availability and livelihood access but poor nutritional outcomes as in Haryana, the Punjab, Rajasthan, Gujarat, and Assam. Alternately they have good sanitation and health facilities and better nutritional outcomes as in Karnataka and Kerala.

The States in light green—barring Assam—show moderate to high urbanisation, close to or above the all-India level. Kerala and Rajasthan show moderate levels of urbanisation, around 25 percent. Assam is an exception with low level of urban population at 12.72 percent. Haryana, the Punjab, Gujarat, and Karnataka show fairly high levels of urbanisation with about 30 to 37 percent urban population. There are metropolitan cities in all these States, except in Assam and Kerala. Gujarat has 3 metropolitan cities of more than one million population. The dispersal of urban population shows that only in Gujarat and Karnataka slightly more than 50 percent of population is in big

FOOD INSECURITY MAP OF URBAN INDIA
(Weighted Composite Index)



Map No. 5.2

towns of more than 2 lakh. Thus the urban population seems to be fairly well dispersed among the small towns and not concentrated in big cities in most of the States in this category. Another important feature is that poverty ratios are fairly low. The infant mortality rates are low and life expectancies are fairly high in many States, except a few. These are the three important features of this typology. These are also common to the dark green typology except for the level of urbanisation. Though the employment is casual, wages are higher in many of the States, providing better livelihood access.

3. Most food insecure urban population, shown in deep red

Urban Madhya Pradesh occupies the lowest position in this category. It is fairly insecure in respect of 8 indicators out of the total 17 indicators chosen. For 8 indicators Madhya Pradesh ranks less than 6. Percentage of poverty is high. Percentage of casual labour among the lowest ten percent, percentage of illiterates, percentage living in temporary structures, percentage of slum population, are all high. Toilet facilities are not available to many. Safe drinking water is available only to a few. Hospital beds are inadequate for the population. IMR is high and life expectancy is low. Thus the State fares poorly both in livelihood as well as basic urban amenities and nutritional outcomes. It occupies the worst position in all the three indices— the weighted, the un-weighted, and the cumulative ranking index.

However, the State is better off as far as calorie consumption is concerned. Consumption of the lowest ten percent of population in urban Madhya Pradesh is higher than some other States such as Tamil Nadu and Kerala. Poverty levels are high and wages are low in Madhya Pradesh. Temporary structures are negligible, though there are many semi-permanent houses.

Morbidity rates are very low in this State compared to many others. This could be more due to under-reporting. Wage differentials between men and women are not high. The sex ratio is also better than many other States. However, Madhya Pradesh goes down in the aggregate, since it has high rank only in respect of 4 out of 17 indicators.

Madhya Pradesh is not highly urbanised, with the urban population about 27 percent and not concentrated in big towns. About 61 percent of urban population live in towns below 2 lakh population. Thus, poverty and low-paid casual employment pull the State down both in urban and rural areas (WFP–MSSRF 2001). Small towns do not have amenities and they also do not have more permanent job opportunities.

The growth of workers in urban Madhya Pradesh has slowed down considerably in the 1990s compared to the earlier decade. This could be one of the reasons for the increase in casual employment among the poor. As per the Economic Census, the rate of growth of work force from 1990 to 1998 was only 1.38 percent in Madhya Pradesh. It is close to the all-India average and higher than many other States. The problem is probably the casual nature of jobs and the low wages in urban Madhya Pradesh. These problems persist even in rural Madhya Pradesh, going by the *Food Insecurity Atlas of Rural India*.

Next comes Orissa, which shows very low urbanisation at just 14 percent. There are no big cities in the State. About 65 percent of the urban population live in small towns of less than 2 lakh population. The State has high levels of poverty. A large percentage of poor are employed as casual labour. Wages are very low. Literacy levels are low. The rural problems seem to have spilt over to urban Orissa. Small towns do not seem to have good amenities. Slum population is fairly high, above 20 percent. Toilet facilities are not available to a majority of urban population in Orissa. Infant mortality rates are the highest and life expectancy is low.

4. Severely food insecure urban population, shown in dark brown

Two States—Uttar Pradesh and Bihar—are in dark brown. Just as the States in red, these are not highly urbanised, with the urban population being less than 25 percent. There are not many big towns in these States. Uttar Pradesh has 52 percent of urban population in small towns of less than 2 lakh. What pulls Uttar Pradesh and Bihar down is their position with regard to long-term outcomes. In Bihar, about 64 percent of urban population live in towns with less than 2 lakh population. Urbanisation is only 10 percent in Bihar. Nutritional outcomes such as mortality rates and life expectancy are not good. Health facilities are poor. Calorie consumption of the lowest ten percent is lower than 1890 kcal. Poverty is high at about 33 percent. Illiteracy is high.

The States in dark brown share many features of the States in red and are only a shade better than them. All the four States are more or less in one typology. This typology is characterised by low urbanisation, with the urban population mostly living in small towns of less than 2 lakh population. Small towns in these States do not have many basic amenities, particularly related to health and sanitation. As a consequence they all have poor nutritional outcomes such as high IMR and low life expectancies. Poverty levels are particularly high and employment for the poor is mostly casual labour. There is not much prosperity to spread around. Rural problems have spilt over to urban areas with severe constraints to employment and low wages.

5. Moderately food insecure urban population, shown in light yellow

Andhra Pradesh, Tamil Nadu, Maharashtra, and West Bengal fall into the category of States in light yellow. Two of these States are highly urbanised and two are moderately urbanised. These States have various problems regarding food availability and consumption. They had a good public distribution system and fairly good livelihood opportunities, though the levels of industrialisation are not high in all the States.

None of the States are in the ideal position of being totally food secure in all aspects. The typologies are not meant to certify States as 'good' or to tag certain States as 'bad'. They point out the common problems of food availability, food access, or food absorption in these States. The consolidation of problems into typologies brings us to policy implications.

5.6 Impact of Growth in Income and Employment on Livelihood security

The map of urban food security just explained is more or less a map of livelihood access. The variations across the States in food insecurity bears examination of the trickle down effect. Overall economic development and the urban prosperity are expected to trickle down to the poor through more work opportunities and larger earnings. We can depend to some extent on the overall economic growth, if it helps in reducing food insecurity. (Appendix 5.6)

For the country as a whole, per capita income growth has been decelerating. It was only 1.9 percent in 2000–2001. Over the ten year period of NSS Rounds between 1982–83 and 1993–94 it was 3 percent. From 1993–94 to 1999–2000 it rose to 4.46 percent. For the decade as a whole, from 1990–91 to 1999–2000, it was 3.9 percent (Economic Survey 2002). Head count ratio of urban poverty declined from 40.79 percent in 1983 to 32.36 percent in 1993–94 and further to about 28 percent in 1999–2000, even if we use only the employment survey, which is less controversial. From 1983 to 1993–94 and from 1993–94 to 1999–2000, the growth in urban employment has decelerated for the country as a whole from 2.9 percent to 2.4 percent in urban areas. For the same period rural employment also decelerated from 1.8 percent to 1.3 percent. Unemployment has

increased as a consequence. The structure of employment shifted towards casual work. As per the 55th Round NSS employment data, the population dependent on casual labour has increased from 1983 to 1999-2000 by about 2 percent in urban areas. The population dependent on regular salaries /wages, has declined by more than 3 percent over the same time. Among workers, casual employment and self-employment increased and regular salaried employment declined over the NSS Rounds. Thus the problem was decelerating growth rates of employment with accelerating incomes lead to greater inequalities. The inequality represented by gini ratio of total consumer expenditure has increased for urban India from 0.330 in 1983 to 0.341 in 1999-2000 (Planning Commission 2002).

The overall prosperity of the rural sector and its capacity to diversify and provide livelihoods out side crop production also has a bearing on migration, urbanisation and urban poverty. Migration by itself is not a sign of distress. Increase in casual labour and daily status unemployment along with migration would indicate distress migration. Hence the total State net Domestic Product (SDP) is more relevant than the income of the urban sector alone. As per the Economic Census 1998, the rate of growth of non-farm workers in rural areas was 2.88 percent from 1980–1990 but decelerated to 2.15 percent between 1990–1998. Non-farm workers in urban areas grew at a rate of 2.84 percent in the previous decade between 1980 and 1990, but declined to 1.71 percent from 1990 to 1998. Probably this is one of the reasons for a fall in the rate of urbanisation in the past decade. As against the expected population projection of about 320 to 330 million urban population in the country by the turn of the century, the 2001, urban population was only about 285.5 million (National Institute of Urban Affairs 1990).

The average level of SDP and the rates of growth of income and employment do not seem to influence the food insecurity Index. The elasticity of food insecurity with respect to the level of per capita SDP at constant prices was -15.33 percent. However it was not significant. It means that one percent change in SDP can bring about a 15 percent reduction in food insecurity, but it is not certain. It is because in some States such as Delhi, Haryana Gujarat and Kerala, there is some indication of higher level of SDP contributing to better food security. In other States such as Himachal Pradesh, Assam, Jammu and Kashmir, and Rajasthan the food insecurity was low despite low level of per capita SDP. There was better livelihood security. Similarly, the rate of growth of SDP has an elasticity of -4.75 with food insecurity index, meaning thereby, one percent growth in SDP can bring about a 4.75 percent decline. This again is not significant and hence uncertain. We may conclude that the trickle down strategy of economic growth does not work even in the case of urban poor. The inference is that a large number of poor people are completely outside the stream of mainstream economy. The solutions lie only in public spending on special programmes, amenities sanitation and health care.

Appendix 5.1

Indicators for Food Insecurity Atlas of Urban India

		1		2		3		4	
Sl. No.	State	Per capita consumption of foodgrains from PDS* (1999-2000)	Rank	Per consumer unit per diem intake of calorie (kcal) by lowest 10 percent of population (1999-2000)	Rank	Percentage of population below poverty line (1999-2000)	Rank	Percentage of population dependent on causal labour among lowest 10 % households (1999-2000)	Rank
		CNPDS		PCINTCAL		PPBPL		PCASL10P	
1	Andhra Pradesh	49.33	16	1841.57	9	26.63	6	44.13	6
2	Assam	19.00	10	1876.11	12	7.47	16	31.85	15
3	Bihar	7.67	5	1813.00	7	32.91	3	38.23	11
4	Gujarat	16.33	8	1828.77	8	15.59	12	41.75	8
5	Haryana	2.00	1	2212.20	18	9.99	14	33.12	13
6	Himachal Pradesh	45.67	15	2222.28	19	4.63	19	24.53	18
7	Jammu & Kashmir	38.67	12	2356.61	20	1.98	20	49.43	4
8	Karnataka	38.67	12	1776.14	5	25.25	7	42.29	7
9	Kerala	134.00	20	1580.95	1	20.27	10	58.03	2
10	Madhya Pradesh	8.00	6	1867.18	11	38.44	2	51.29	3
11	Maharashtra	18.67	9	1866.51	10	26.81	5	38.85	10
12	Orissa	56.00	17	2100.00	17	42.83	1	39.65	9
13	Punjab	3.67	2	1978.75	15	5.75	17	30.90	16
14	Rajasthan	6.00	4	2071.24	16	19.85	11	25.29	17
15	Tamil Nadu	82.67	19	1675.70	3	22.11	8	46.17	5
16	Uttar Pradesh	9.00	7	1765.00	4	30.89	4	35.33	12
17	West Bengal	20.67	11	1900.37	13	14.86	13	32.13	14
18	Delhi	60.67	18	1942.88	14	9.42	15	22.67	19
19	Chandigarh	4.67	3	1802.70	6	5.75	17	16.90	20
20	Pondicherry	42.00	14	1664.74	2	22.11	8	58.97	1
	All India	32.33		1889.96		23.62		37.49	
	Mean	33.17		1907.14		19.18		38.08	
	SD	32.90		199.40		11.79		11.39	
	CV	0.99		0.10		0.61		0.30	

5		6		7		8		9	
Percentage of illiterates to total population (1999-2000)	Rank	Percentage of households living in kutcha houses (1993-94)	Rank	Percentage of households living in semi-pucca houses (1993-94)	Rank	Percentage of Scheduled Caste population to total population (1991)	Rank	Ratio of male wage to female wage for causal workers above 5 years other than public works (1999-2000)	Rank
PILLIT		PHHLKTH		PHHSPH		PSCPOP		ADWD	
31.8	5	17.7	4	15.8	10	10.25	15	1.44	15
19.5	18	27.7	1	26.4	2	9.22	17	1.38	18
39.0	1	9.9	8	25.8	4	9.99	16	1.60	7
23.7	12	4.3	15	15.7	11	8.15	18	1.67	6
31.3	6	5.4	13	4.6	20	14.20	6	1.43	16
14.9	19	2.8	18	10.4	16	18.47	3	1.41	17
31.9	4	3.2	17	10.5	15	4.54	20	1.37	20
25.4	10	6.9	12	25.9	3	12.40	11	1.55	9
14.1	20	12.7	7	19.6	8	6.96	19	2.17	1
30.6	7	4.2	16	37.6	1	13.72	7	1.48	12
21.3	14	4.9	14	20.4	6	10.50	13	2.11	2
30.5	8	25.4	2	15.6	12	13.00	9	1.44	14
27.6	9	2.7	19	8.1	18	19.69	1	1.55	8
33.7	3	8.0	11	8.2	17	14.95	5	1.48	13
21.9	13	16.2	5	19.8	7	11.97	12	1.54	10
37.5	2	8.9	10	18.0	9	12.51	10	1.37	19
24.3	11	9.2	9	22.8	5	13.23	8	1.90	5
20.3	17	14.6	6	6.7	19	18.73	2	1.51	11
21.0	15	1.7	20	15.0	14	15.95	4	2.01	3
20.8	16	23.4	3	15.3	13	10.36	14	2.00	4
27.7		9.9		19.5		11.89		1.65	
26.06		10.49		17.11		12.44		1.62	
7.03		7.95		8.09		3.93		0.26	
0.27		0.76		0.47		0.32		0.16	

Appendix 5.1 (Contd...)

Indicators for Food Insecurity Atlas of Urban India

		10		11		12		13	
Sl. No.	State	Percentage of slum population to total urban population (2001)	Rank	Percentage of households without access to toilet facilities (1995-96)	Rank	Percentage of population not having access to safe drinking water (1995-96)	Rank	No. of persons per hospital & dispensary bed (1996)	Rank
		PSLPOP		PHHWOT		PPWOASDW		NHBPLP	
1	Andhra Pradesh	32.54	3	28.6	6	7.2	7	541.19	8
2	Assam	5.82	18	3.9	20	24.8	3	314.79	16
3	Bihar	8.91	17	33.4	5	12.5	5	467.41	11
4	Gujarat	10.22	16	20.5	11	1.3	17	239.67	18
5	Haryana	33.07	1	21.3	10	1.1	18	650.81	5
6	Himachal Pradesh	0.00	20	14.6	14	3.4	12	114.41	20
7	Jammu & Kashmir	17.87	11	11.3	17	2.2	16	15151.05	1
8	Karnataka	11.23	15	25.3	7	5.3	9	426.47	14
9	Kerala	1.12	19	10.2	19	60.6	1	246.44	17
10	Madhya Pradesh	25.36	4	35.4	3	8.9	6	1437.50	2
11	Maharashtra	32.55	2	17.3	13	3.0	13	478.07	10
12	Orissa	22.26	6	42.4	2	25.2	2	465.11	12
13	Punjab	20.14	7	17.5	12	0.7	19	505.26	9
14	Rajasthan	14.12	12	25.3	7	5.8	11	563.77	6
15	Tamil Nadu	19.49	8	34.0	4	12.8	4	454.40	13
16	Uttar Pradesh	18.51	10	22.3	9	2.4	14	686.64	4
17	West Bengal	22.42	5	11.6	16	4.6	10	419.41	15
18	Delhi	18.93	9	10.6	18	2.3	15	562.90	7
19	Chandigarh	13.24	14	12.5	15	0.0	20	1381.24	3
20	Pondicherry	14.10	13	57.7	1	4.4	11	223.36	19
	All India	21.58		23		7.8		467.83	
	Mean	17.10		22.79		9.43		1266.50	
	SD	9.55		12.99		14.03		3285.01	
	CV	0.56		0.57		1.49		2.59	

14		15		16		17	
Infant mortality rate (deaths per thousand live births) (1999)	Rank	Life expectancy at age 1 year** (1993-97)	Rank	Percentage of population suffering from acute or chronic ailment (1995-96)	Rank	Juvenile sex ratio (0-6 yrs) (males to 1000 females) (2001)	Rank
IMR		LIFEXP1		MORD		SEXRATJV	
37	12	68.0	5	6.1	11	1.04	19
36	13	68.7	8	8.7	3	1.07	14
51	6	69.0	10	4.2	16	1.08	12
45	7	66.9	3	3.6	19	1.21	3
58	4	71.5	16	6.3	9	1.24	2
38	11	68.8	9	6.8	6	1.17	5
6	20	60.5	1	5.4	13	1.15	6
24	17	69.4	11	4.0	17	1.06	15
16	18	73.8	20	8.8	2	1.04	19
55	5	66.9	3	3.7	18	1.10	10
31	14	71.1	15	4.8	14	1.10	10
65	1	68.4	7	6.2	10	1.08	12
39	9	72.6	18	8.5	4	1.27	1
59	3	68.3	6	3.3	20	1.13	9
39	9	69.6	12	5.8	12	1.05	16
64	2	65.6	2	7.2	5	1.14	8
40	8	70.6	14	6.5	8	1.05	16
31	14	71.5	16	4.3	15	1.15	6
27	16	72.6	18	13.3	1	1.18	4
15	19	69.6	12	6.7	7	1.05	16
44		69.2		5.5		1.11	
38.82		69.17		6.21		1.12	
16.52		2.94		2.37		0.07	
0.43		0.04		0.38		0.06	

Appendix 5.1 (Contd…)

Source:

Col. 1: NSS 55th Round, Report No. 461, 1999-2000.

* Data for Haryana is not available and hence taken from the draft tables specially prepared for official purposes.

Col. 2: NSS 55th Round, Report No. 457 & 471, 1999-2000.

Col. 3: NSS 55th Round, 1999-2000 (Planning Commission Estimates).

Col. 4: NSS 55th Round, Report No. 472, 1999-2000.

Col. 5: NSS 55th Round, Report No.458, 1999-2000.

Col. 6,7: GOI, Planning Commission, March 2002

Col. 8: Census of India, 1991

Col. 9: NSS 55th Round, Report No.458, 1999-2000.

Col. 10: Census of India, 2001

Col: 11,12: NSS 52nd Round, Report No. 445, 1995-96.

Note: Safe drinking water = taps + tubewells/hand pumps

Col. 13: Health Information of India, 1995-96.

Col. 14: Registrar General of Census, Sample Registration Survey Bulletin, 1999-2000.

Col. 15: Registrar General of Census, SRS Analytical Studies - Report No.1 of 2000, 1992-96 & 1993-97.

Note: The values of Haryana, the Punjab and Tamil Nadu were substituted for Delhi, Chandigarh and Pondicherry respectively.

** Census 1981 (this figure is taken since census was not conducted in J&K in 1991), Life expectancy figure used is the average of the male and female life expectancy from the 1981 Census.

Col. 16: NSS 52nd Round, Report No:441, 1995-96.

Col. 17: Census of India, 2001

Appendix 5.2

Correlation Matrix of Indicators

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	1																
2	-0.323	1															
3	0.072	-0.375	1														
4	0.472*	-0.370	0.431	1													
5	-0.524*	0.250	0.432	0.003	1												
6	0.384	-0.290	0.304	0.270	-0.118	1											
7	-0.014	-0.510*	0.555*	0.398	0.037	0.142	1										
8	-0.279	0.202	-0.184	-0.694**	-0.087	-0.236	-0.333	1									
9	0.259	-0.551*	0.012	0.221	-0.504*	-0.077	0.140	-0.182	1								
10	-0.300	0.183	0.270	0.036	0.421	-0.052	-0.085	0.090	-0.090	1							
11	0.003	-0.239	0.661**	0.493*	0.318	0.352	0.170	-0.056	-0.002	0.213	1						
12	0.722**	-0.367	0.239	0.431	-0.318	0.445*	0.279	-0.398	0.281	-0.406	-0.082	1					
13	-0.002	0.527*	-0.325	0.213	0.226	-0.250	-0.164	-0.445*	-0.229	0.057	-0.205	-0.146	1				
14	-0.438	0.161	0.482*	-0.322	0.566**	0.018	0.051	0.351	-0.459*	0.281	0.228	-0.135	-0.438	1			
15	0.200	-0.413	-0.099	-0.256	-0.491*	0.046	-0.099	0.463*	0.569**	-0.039	-0.117	0.273	-0.696**	-0.042	1		
16	0.070	-0.169	-0.399	-0.259	-0.364	0.052	-0.133	0.144	0.325	-0.210	-0.309	0.209	-0.058	-0.255	0.407	1	
17	-0.507*	0.501*	-0.533*	-0.516*	0.114	-0.609**	-0.586**	0.472*	-0.246	0.081	-0.314	-0.495*	0.127	0.207	0.032	0.137	1

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

Appendix 5.3

Correlation Matrix of Indices

	Food Affordability Index	Livelihood Access Index	Housing Index	Discrimination Index	Sanitation & Health Index	Nutritional Outcome Index
Food Affordability Index	1.000					
Livelihood Access Index	0.188	1.000				
Housing Index	0.214	0.423	1.000			
Discrimination Index	0.260	-0.418	-0.229	1.000		
Sanitation and Health Index	-0.222	0.721**	0.277	-0.307	1.000	
Nutritional Outcome Index	0.075	-0.103	-0.458*	-0.211	-0.175	1.000

Appendix 5.4

Derivation of Weights for Weighted Composite Index

Sl. No	State	Ave. consumer expenditure of all classes	Food Afford -ability Index	Livelihood Access Index	Housing Index	Discrimi-nation Index	Sanitation & Health Index	Nutritional Outcome Index
1	Andhra Pradesh	773.52	0.653	0.654	0.477	0.232	0.398	0.309
2	Assam	814.12	0.745	0.236	0.830	0.158	0.150	0.390
3	Bihar	601.90	0.829	0.755	0.479	0.324	0.262	0.346
4	Gujarat	891.68	0.786	0.436	0.218	0.309	0.162	0.486
5	Haryana	912.08	0.593	0.424	0.071	0.359	0.344	0.556
6	Himachal Pradesh	1243.25	0.421	0.093	0.109	0.486	0.064	0.457
7	Jammu & Kashmir	952.84	0.361	0.496	0.118	0.000	0.429	0.422
8	Karnataka	910.99	0.735	0.542	0.423	0.372	0.211	0.197
9	Kerala	932.62	0.500	0.475	0.439	0.579	0.290	0.179
10	Madhya Pradesh	693.56	0.793	0.791	0.548	0.373	0.397	0.412
11	Maharashtra	973.33	0.753	0.473	0.301	0.662	0.327	0.258
12	Orissa	618.49	0.461	0.733	0.622	0.323	0.457	0.467
13	Punjab	898.82	0.737	0.322	0.072	0.614	0.225	0.542
14	Rajasthan	795.81	0.669	0.474	0.176	0.412	0.238	0.425
15	Tamil Nadu	971.63	0.633	0.501	0.509	0.350	0.346	0.291
16	Uttar Pradesh	690.33	0.855	0.695	0.341	0.261	0.245	0.605
17	West Bengal	866.59	0.723	0.362	0.420	0.617	0.229	0.294
18	Delhi	1383.59	0.544	0.189	0.280	0.553	0.191	0.293
19	Chandigarh	1435.56	0.847	0.123	0.158	0.774	0.161	0.513
20	Pondicherry	784.27	0.794	0.587	0.579	0.585	0.377	0.212

Appendix 5.4 Contd…

Derivation of Weights for Weighted Composite Index

	Correlation figures of the indices with ave. consumer expenditure of all classes		Absolute values of correlation of indices with average consumer expenditure	Ratio of correlation of each index to total (weights used)
Average Consumer Exp	1.000			
Food Affordability Index	0.230	Food Affordability Index	0.230	0.089
Livelihood Access Index	-0.842**	Livelihood Access Index	0.842	0.325
Discrimination Index	-0.484*	Discrimination Index	0.484	0.187
Housing Index	-0.501*	Housing Index	0.501	0.194
Sanitation and Health Index	-0.515*	Sanitation and Health Index	0.515	0.199
Nutritional Outcome Index	0.015	Nutritional Outcome Index	0.015	0.006
		Total Correlation	2.587	1.00

** Significant at 0.01 level (2-tailed)
* Significant at 0.05 level (2-tailed)

Appendix 5.5

Cummulative Ranking Index of Urban Food Insecurity

Sl. No	State	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10	Rank 11	Rank 12	Rank 13	Rank 14	Rank 15	Rank 16	Rank 17	Cumu-lative Index	Mapp-ing Index	Mapping Rank
1	Andhra Pradesh	16	9	6	6	5	15	15	4	10	3	6	7	8	12	5	11	19	157	9.24	16
2	Assam	10	12	16	15	18	17	18	1	2	18	20	3	16	13	8	3	14	204	12.00	4
3	Bihar	5	7	3	11	1	16	7	8	4	17	5	5	11	6	10	16	12	144	8.47	17
4	Gujarat	8	8	12	8	12	18	6	15	11	16	11	17	18	7	3	19	3	192	11.29	7
5	Haryana	1	18	14	13	6	6	16	13	20	1	10	18	5	4	16	9	2	172	10.12	13
6	Himachal Pradesh	15	19	19	18	19	3	17	18	16	20	14	12	20	11	9	6	5	241	14.18	1
7	Jammu & Kashmir	12	20	20	4	4	20	20	17	15	11	17	16	1	20	1	13	6	217	12.76	3
8	Karnataka	12	5	7	7	10	11	9	12	3	15	7	9	14	17	11	17	15	181	10.65	9
9	Kerala	20	1	10	2	20	19	1	7	8	19	19	1	17	18	20	2	19	203	11.94	5
10	Madhya Pradesh	6	11	2	3	7	7	12	16	1	4	3	6	2	5	3	18	10	116	6.82	20
11	Maharashtra	9	10	5	10	14	13	2	14	6	2	13	13	10	14	15	14	10	174	10.24	11
12	Orissa	17	17	1	9	8	9	14	2	12	6	2	2	12	1	7	10	12	141	8.29	18
13	Punjab	2	15	17	16	9	1	8	19	18	7	12	19	9	9	18	4	1	184	10.82	8
14	Rajasthan	4	16	11	17	3	5	13	11	17	12	7	11	6	3	6	20	9	171	10.06	14
15	Tamil Nadu	19	3	8	5	13	12	10	5	7	8	4	4	13	9	12	12	16	160	9.41	15
16	Uttar Pradesh	7	4	4	12	2	10	19	10	9	10	9	14	4	2	2	5	8	131	7.71	19
17	West Bengal	11	13	13	14	11	8	5	9	5	5	16	10	15	8	14	8	16	181	10.65	9
18	Delhi	18	14	15	19	17	2	11	6	19	9	18	15	7	14	16	15	6	221	13.00	2
19	Chandigarh	3	6	17	20	15	4	3	20	14	14	15	20	3	16	18	1	4	193	11.35	6
20	Pondicherry	14	2	8	1	16	14	4	3	13	13	1	11	19	19	12	7	16	173	10.18	12

Appendix 5.6

Rates of Growth of Net State Domestic Product and Employment

		1	2	3	4
Sl. No	State	Per Capita SDP (Rs.) at Constant Prices (Advance estimate) 1999-2000	Rate of Growth of Per Capita SDP at Constant prices 1990-91 to 1999-2000	Compound rate of Growth in Urban Employment (Percentage) 1983 to 1993-94	1993-94 to 1999-2000
1	Andhra Pradesh	4086.93	6.228	3.7	2.2
2	Assam	2669.63	2.055	1.0	2.7
3	Bihar	1757.53	3.651	0.9	3.6
4	Gujarat	5172.89	7.186	3.3	2.3
5	Haryana	5864.19	4.413	3.8	0.8
6	Himachal Pradesh	4169.42	4.993	2.6	0.8
7	Jammu & Kashmir	3426.75	7.478	3.1	0.3
8	Karnataka	4539.09	6.397	2.2	2.8
9	Kerala	5072.07	9.460	4.4	3.2
10	Madhya Pradesh	3029.30	4.739	3.3	3.3
11	Maharashtra	6498.54	5.652	2.9	1.9
12	Orissa	2544.65	4.352	3.3	3.4
13	Punjab	6405.78	3.322	2.1	2.6
14	Rajasthan	3480.91	6.396	2.8	2.4
15	Tamil Nadu	5316.21	7.846	2.4	1.6
16	Uttar Pradesh	2712.12	4.191	2.9	3.3
17	West Bengal	4324.12	6.204	2.0	0.8
18	Delhi	9916.68	5.593	3.7	2.6

Source: Economic Survey (Various Issue); Planning Commission 2002,

The Current SDP was deflated by the Whole Sale Price Index to get the SDP at 1980-81 Prices.

Log Y = a + b T was used to get the Compound Growth Rate.

CHAPTER 6

Policy Implications

6.1. Findings and Implications

This chapter summarises the major findings of the study and suggests approaches to improving food safety nets. The existing policies and programmes have been discussed briefly before the approaches have been spelt out.

1. From previous analysis, it is obvious that food intake at the average level is not an indication of the food intake of the urban lower expenditure classes. The lowest deciles in all the States appear to eat less compared to the average. Their diets contain very little protective foods such as pulses, milk, fruits, and vegetables.

2. The study has shown that the cereal intake of the lowest 10 percent of the population is negatively related to urbanisation, represented by the share of urban population across the States. In other words, in the States with a larger share of urban population, the bottom 10 percent eats less.

3. The head count ratio of poverty does not reflect the calorie base, though the poor eat less and need cheaper foodgrains. Head count ratio and calorie intake are dissociated and diverging over years, as has been observed by many. Since there is a possibility of missing out the needy through the arbitrary selection of the BPL category and since the need for PDS is more for the urban poor, it is necessary to de-link head count ratio of poverty from allocation of PDS foodgrains and make PDS universal as recommended by the Committee on Long-Term Grain Policy.

4. An important finding of the Task Force on Employment Opportunities is relevant at present. Current daily status unemployment rate has been on the rise in urban India. This type of unemployment was as high as 9.5 percent for the lower expenditure classes that fall in the poverty group, for the country as a whole. Daily status unemployment seems to influence the calorie intake of the lowest deciles across the States. The higher the rate of unemployment, the lower the calorie intake of the lowest 10 percent. This has an implication for food-for-work programmes. Employment status can become an indicator to identify the target groups.

5. The pattern of employment of the poor shows that a large proportion of people in the lowest income groups are either casual workers or self-employed in petty businesses with uncertain incomes. Casualisation of employment has been on the rise, as noted by many analysts in the field. Those belonging to the casual labour household type are more vulnerable and may have higher incidence of daily status unemployment.

6. As has been pointed out by many, for the country as a whole, there is very little chance of economic growth touching the lives of the urban poor and changing the employment patterns, at least in the near future. Regular job opportunities have been shrinking.

7. Gender disparities in wages, in literacy, in the incidence of unemployment and the type of employment, and the deteriorating sex ratio all point to the discrimination against women in urban India.
8. Problems of slums, mounting garbage, menace of mosquitoes, and lack of toilet facilities appear to be serious in the urban areas. Some States have made considerable progress in certain areas of sanitation and hygiene. It clearly shows that cleaner cities and towns is an achievable goal.
9. None of the States are free from problems. However, the remarkable achievement of some States can provide guidance to others. For example, better food affordability achieved by Jammu & Kashmir, better livelihood access achieved by Himachal Pradesh, Delhi and Assam, better sanitation and health achieved by Himachal Pradesh and Assam, high standards of nutritional status achieved by Kerala and Karnataka prove beyond doubt that our cities and towns can be made clean, green, and food secure.

6.2 Existing Programmes of Poverty Alleviation and Urban Development

Centrally Sponsored Programmes in Urban Areas

There are a number of Centrally-sponsored schemes to improve the economic and physical infrastructure and also provide essential facilities and services in urban areas. These schemes have made some positive difference to the quality of life in urban areas though the magnitude of the problem of urbanisation demands faster and larger interventions in urban areas. Centrally-sponsored programmes in urban areas having components of basic services can be placed in two categories, viz., (a) Physical and Social Development Programmes and (b) Poverty Alleviation Programmes.

a. Physical and Social Development Programmes

(i). Integrated development of small and medium towns (IDSMT)

The integrated development of small and medium towns (IDSMT) was initiated in the year 1979–80 to improve economic and physical infrastructure, to provide essential facilities and services, and to slow down the growth of large cities by developing small and medium towns through increased investments in these towns. It is an on-going scheme. The development of small urban centres would help in reducing migration to large cities and support the growth of surrounding rural areas as well.

The main objectives of the IDSMT scheme are

- improving infrastructure facilities and helping in the creation of durable public assets in small and medium towns
- decentralising economic growth and employment opportunities and promoting dispersed urbanisation
- increasing the availability of sites with infrastructural facilities for housing, commercial, and industrial uses
- integrating spatial and socio-economic planning as envisaged in the 74th Amendment Act, 1992, of the Constitution
- promoting resource-generating schemes for urban local bodies to improve their overall financial position

(ii). Infrastructure development in mega cities

The Centrally-sponsored scheme for infrastructure development in mega cities was initiated in 1993–94. The primary objective of the scheme is to enable the mega cities to build a revolving fund by the end of the Ninth Plan for sustained investment in urban infrastructure through adoption of direct and indirect cost recovery measures.

The scheme is applicable to Mumbai, Kolkata, Chennai, Bangalore, and Hyderabad. The funds under the scheme are canalised through a specialised institution/nodal agency at the State level. The share of the Central and State Governments is 25 percent each; the balance 50 percent has to be met from institutional finance/capital markets. The scheme consists of a suitable mix/basket of remunerative, user charge-based, and basic services projects.

The nodal agencies are required to provide project-related finance for urban infrastructure including water supply, sewerage, drainage, sanitation, city transport networks, land development, slum improvement, and solid waste management, among other things.

(iii). National Capital Region

The National Capital Region (NCR) planning model has been specially formulated for fostering and promoting balanced and harmonised development around Delhi. To give fillip to the regional development process, NCR has been visualised as a Common Economic Zone requiring a consensus approach by the member-States (Haryana, Uttar Pradesh, and the Union Territory of Delhi) on the rationalisation of fiscal measures, banking systems, integrated transport and communication systems, improved power and water supply—all of which influence trade, commerce, and industrial activities in the region.

(iv). Accelerated urban water supply

The accelerated urban water supply programme aims at providing water supply to towns with a population of less than 20000 as per the 1991 Census, with 2151 towns qualifying for consideration under the scheme.

(v). Low cost sanitation

The scheme to promote low cost sanitation was envisaged to convert existing dry latrines into low cost pour-flush latrines. The objective of the scheme, as far as the sanitation part is concerned, is to eliminate manual scavenging totally.

(vi). Urban transport

Urban transport is one of the most important components of urban infrastructure. As cities grow in population and size, the demand for transport increases proportionately. A good network of roads coupled with an efficient mass urban transport system makes a substantial contribution to the efficiency of the cities and enables them to become catalysts for economic, social, and political development.

b. Poverty Alleviation Programmes

(i). Prime Minister's Rozgar Yojana (PMRY)

The Prime Minister of India announced this scheme on 15 August 1993 and it was launched all over the country on 2 October 1993, the birth anniversary of Mahatma Gandhi. The main objective of PMRY was to provide easy subsidised financial assistance to educated unemployed youth for starting their enterprises in the manufacturing, business, service, and trade sectors. Initially, the scheme was aimed at providing self-employment to one million educated unemployed youth in the country by setting up 7,00,000 micro enterprises through inducting service and business ventures over a period of 2 □ years. The scheme was a stupendous success and caught the imagination of the youth. Overwhelmed with the response and ever-increasing need, the government has decided to make it a permanent scheme and has framed modalities and guidelines for its successful implementation and to fulfil the purpose for which it was designed.

(ii). Swarna Jayanthi Shahri Rozgar Yojana (SJSRY)

Three urban poverty alleviation schemes—Urban Basic Services for the Poor (UBSP), Nehru Rozgar Yojana (NRY), and Prime Minister's Integrated Urban Poverty Eradication Programme (PMIUPEP)—stand subsumed in a new scheme called Swarna Jayanthi Shahri Rozgar Yojana (SJSRY). This seeks to provide

gainful employment to the urban unemployed through encouraging the setting up of self-employed ventures or provision of wage employment. SJSRY consists of two special schemes—the Urban Self Employment Programme (USEP) and the Urban Wage Employment Programme (UWEP). This is funded on a 75:25 basis between the Centre and the States. In 2001–02, an allocation of Rs. 168 crore has been provided for various components of this programme.

To play an effective role in coordination and organising training, monitoring, evaluation, and dissemination of information, a new component named Information, Education and Communication (IEC) has been evolved under SJSRY. It is proposed to have co-ordinated and uniform levels of training across the country for training of trainers, elected representative, functionaries of urban local bodies, and field functionaries like project officers, community organisers, etc., through National Training Institutes and selected State Training/Field Training Institutes.

(iii). Development of women and children in urban areas

This programme aims at helping groups of poor urban women in taking up self-employment ventures. The group should consist of at least 10 women. Where the group sets itself up as a thrift and credit society, in addition to its self-employment ventures, it will be eligible for an additional grant as revolving fund.

(iv). National Slum Policy

The main aims of this policy are

- to integrate slum settlements and the communities residing within them into the urban area as a whole
- to strengthen the legal and policy framework to facilitate the process of slum development and improvement on a sustainable basis
- to establish a framework for involving all stakeholders for the efficient and smooth implementation of policy objectives

Slum improvement boards of State governments also undertake some schemes, generally with assistance from international agencies. Three types of schemes are being implemented in the country for slum improvement, slum upgradation, and slum reconstruction. Their approaches vary depending on (a) the status of the land on which the slum development project is to be taken up and whether the ownership right of the land, viz., *patta*, is to be given to the beneficiary, (b) the socio-economic conditions of the slum dwellers, and (c) the conditions laid down by the financing agency with respect to cost recovery.

The *Valmiki-Ambedkar Malin Basti Awas Yojana (VAMBAY)*, for housing loans, and its sub-component, the *Nirmal Bharat Abhiyan*, for integrating sanitation with housing development, are new schemes for slum improvement proposed by the Government of India.

(v). National Renewal Fund

The National Renewal Fund (NRF) was set up by the Government of India in February 1992 to act as a safety net for the workforce to offset the adverse effects of downsizing. It provided for retraining, redeployment, counselling, and placement services for employment of workers displaced after July 1991, owing to the closure of industrial establishments or to the implementation of schemes of retrenchment or voluntary retirement.

Involvement of International Agencies in Urban Development

a. The World Bank

The World Bank (WB) has made its presence felt in the urban sector by providing concessional finance to State governments for their urban development

projects. WB has funded both infrastructure projects as well as slum development projects. It has given loans to several State governments for roads and flyovers in their urban areas.

WB's development projects for slums dates back to the 1970s. Tamil Nadu was one of the first few States that provided urban low cost housing for slum dwellers with the Bank's help. Such projects have been under implementation in Maharashtra, Gujarat, and Uttar Pradesh too.

More recently, the World Bank launched the Urban Slum Population Project to encourage population control measures by providing family planning and health services in health posts. Two such projects are currently under implementation in the city of Chennai and in Mumbai's Dharavi.[1]

The Central Ministry of Urban Development monitors the implementation of these WB-aided projects.

b. FAO, WFP, and other agencies

The involvement of international agencies in food assistance programmes has been mainly restricted to rural areas. Only recently are some of these agencies planning to enter into urban food security arena. Monitoring urban food security is still a relatively new and unexplored area, though many of these organisations have been involved for many years in other food security initiatives.

The Food and Agricultural Organisation (FAO) offers technical assistance to mayors, city executives, and urban planners in the areas of food production in peri-urban areas, meeting the food demand through increased supplies, and market regulation, public health, and environmental issues. Policy management structures for urban food supply and distribution have been developed and disseminated as technical assistance.

The World Food Programme (WFP) has already gained considerable experience in the field of Vulnerability Analysis and Mapping in rural areas. Now they need to enter the urban scenario. WFP can play an important role in NPRY and urban ICDS.

Overseas Development Administration (ODA), a British agency, is funding many slum improvement projects in Andhra Pradesh, Madhya Pradesh, West Bengal, Orissa, and Kerala. The Government of Netherlands has been involved in a pilot slum improvement project in Bangalore.

The International Food Policy Research Institute (IFPRI) has a long history of studying the factors that underscore household food security as well as government food policies and programmes on food consumption patterns and nutrition.

Save the Children Fund has developed a systematic method and Risk Map programme that classifies population as Food Economy Groups.

CARE has pioneered household livelihood studies for urban food security. Livelihood strategies, including informal employment resources use and access to credit, and formal assistance are the areas in which help has been extended.

6.3 Approaches to ending Urban Food Insecurity

Remedies for the urban ills—low calorie intake, unemployment of the poorer sections, deteriorating sanitation and hygiene, and poor nutritional status—will have to be found immediately. Action on policies and programmes are needed in three specific areas.

First, there is urgent need to improve cereal consumption, calorie intake, and nutritional supplementation of the diets of the urban poor. The poorest ten percent in the states with high urban concentration need immediate attention. This

[1] Dharavi, Asia's largest urban slum, appears to have benefited from the development schemes of several agencies including the World Bank.

necessitates universal and flexible PDS, handled by the stakeholders themselves. Nutritional improvement of the people of all ages requires a life-cycle approach. Appropriate programmes will have to be designed and all food-based programmes should ultimately be brought under one umbrella, instead of being operated in parallel lines.

Second, immediate attention has to be paid to the unemployment status of casual workers. Providing food-for-work as well as employment guarantee schemes is important. The self-employed among the poor also need organisation and help to carry on their activities successfully.

Women are often targeted for food-for-work projects as a result of the key role they play in ensuring household food security. Food-for-work activities that are not coupled with childcare support in urban areas can hinder the participation of women with small children in programme activities. Childcare should be incorporated in all urban food-for-work activities targeting women, participants rotating in the child-carer role. Food-for-work projects must be sensitive to the domestic demands of women, and daily work schedules need to be organised according to women's household responsibilities.

The third important area is provision of basic amenities. Provision of safe drinking water, ensuring sufficient water supply for sanitation and household use, and proper disposal of garbage should get top priority. Recycling of used water may be supplied for flushing toilets. Segregation of garbage and recycling of waste can profitably provide jobs for many and keep the cities clean. Peri-urban green belts will have to be developed.

PART II

STUDY ACROSS DIFFERENT SIZE CLASSES OF TOWNS

CHAPTER 7

Introduction

This study is an analysis of the extent and nature of the problem of food security across different size classes of towns in urban India. The concept of food security is multidimensional in nature and there are at least three basic dimensions that are generally considered while studying this issue. These dimensions are availability of food, access to food, and absorption of food. For the country as a whole, availability of foodgrains refers to the sum total of foodgrains produced within the country plus net imports plus the change in stock. In the 1960s, India was a large importer of foodgrains and attained self-sufficiency in foodgrain production only from the mid-70s onwards when domestic production increased and imports dropped to negligible levels. The problem of food security over 40 years ago was thus primarily caused by deficiency of supply. However, today the problem of food security seems to be related to the deficiency of demand (Patnaik 2002). There has been an unprecedented build-up of over 58 million tonnes of public foodgrains stocks in the country.[1] Today, India faces the very disturbing situation of the existence of huge food stocks on the one hand and the prevalence of malnourishment, hunger, and poverty on a very large scale, on the other. The current situation in the country clearly showcases the point that availability of foodgrains does not guarantee access to foodgrains. The food security of a population is thus related to another important dimension of the problem, namely, access to food. Access to foodgrains is in turn related to the purchasing power of the population and the nature of the public distribution system (PDS) for foodgrains that prevails in the country. In the urban context, the nature of development of private trade and market facilities also influence the access to food. There is yet another dimension of food security which relates to the absorption of food in the body. It is becoming increasingly evident that non-nutritional factors do influence the nutritional and health status of the population. As Swaminathan (2001b) succinctly puts it, "… biological absorption of food in the body is related to the consumption of clean drinking water, as well as to environmental hygiene, primary health care and primary education". It is with this understanding of the concept of food security that we analyse the problem across different size classes of towns in urban India.

The rationale or the need for a disaggregated level analysis of urban areas—a study of different size classes of towns—lies in the fact that urban settlements or towns do not constitute a homogenous category. Towns vary a great deal with regard to their size, the basic characteristics of their economy, and the nature of linkages they have with their hinterland. These three aspects of variation are themselves inter-related. Large metropolises often have a strong economic basis for their growth and their hinterland ranging across State boundaries would also be very large. On the contrary, smaller size classes of towns are in general dependent on the local, regional economy and also serve the needs of the local area. Given these variations across towns, it would be meaningful to group the towns into different

[1] The figure refers to rice and wheat stocks only. Government of India, *Economic Survey, 2001–2002*

population size classes and study the problem of food security across these different size classes of towns. The size classes we have adopted in the study are: [2]

Class 1	Metropolitan Cities	Population above 10,00,000
Class 2	Big Towns	Population in the range of 2,00,000 to 10,00,000
Class 3	Medium Towns	Population in the range of 50,000 to 2,00,000
Class 4	Small Towns	Population below 50,000

This study has been carried out with the perspective that urban problems—problems relating to food security in urban areas—cannot be viewed in isolation from, or without regard to, rural problems. In other words, aspects of food insecurity in urban areas are closely linked to aspects of food insecurity in rural areas. Underlying this view is the understanding that the process of urbanisation experienced by an area is related to the overall development process of that area. Therefore, urban patterns, which are the ultimate outcome of urban processes, do reflect the developmental experiences of an area. While this perspective underlies the study, a comprehensive analysis of the nature of interaction between larger developmental experiences and the process of urbanisation (that determine the pattern of urbanisation) is beyond our scope. However, we do identify broad regions that exhibit different patterns of urbanisation and use these patterns as a backdrop against which food insecurity in different types of towns is studied.

In this chapter, we identify the broad patterns of urbanisation and discuss the nature of urbanisation observed in the country. We identify three distinctly different urban patterns that provide a backdrop for the study of food insecurity in different size classes of towns. In Chapter 8, we discuss food insecurity in metropolitan cities. Given that the influence of large metropolitan cities range across States, we shall treat the metropolitan cities separately without explicitly taking into account the States in which they are located. This chapter highlights the variation in the problem of food security across the metropolitan cities. In Chapter 9, we deal with food insecurity in big, medium, and small towns. Here we highlight the variation in the problem of food security across (a) different size classes of towns in the country as a whole; (b) different size classes of towns in various regions of the country; and (c) States for any one size class of towns. The tenth and concluding chapter summarises the broad general conclusions and raises policy issues arising from the study.

The main findings of the study are: First, the problems of food security vary a great deal across different size classes of towns and are very severe in the small towns of the country. The variation in the concerns is also the highest among small towns. Second, while the intensity of urban problems in general is much less severe in metropolitan cities compared to other urban areas, the overall magnitude of the issue is very critical. Though the metropolitan cities are better off in relative terms, the problems are massive. Third, there is a great deal of variation in the nature of the problem of food security even within a particular size class of towns, say, the metropolitan cities or big towns. The nature of the problems of food security also tends to vary across States that exhibit different urban patterns. The policy implications of these findings, in brief, are given that the problems of food security are very acute in the small towns of the country, it is necessary to deal with them on a priority basis; and given that they vary a great deal across different size classes of towns, it is necessary to create a system where the issues can be approached in a decentralised manner.

[2] The size classes we have adopted are determined by the sample design used by the National Sample Survey Organisation.

This study has certain drawbacks. First, it deals with only two dimensions of food security—food access and food absorption. Aspects relating to food availability have not been discussed due to lack of relevant data at the town level. Basic data to estimate availability of foodgrains or consumption levels of the population in towns are not available. Second, aspects regarding the functioning of PDS in towns have not been considered due to non-availability of relevant data. Third, development of private trade in foodgrains in towns has also not been considered due to lack of data. Fourth, we do not have town level data on the health status of the population. Fifth, while the extent and nature of the problem of food security will vary across different sections of the population even within a town, we have not dealt with this issue of differential access. Our concern here is to study the nature of deprivation experienced by the general population across different size classes of towns. Needless to say, the deprivation experienced by the poorer sections is likely to be of a much greater order compared to the non-poor sections in any urban area (Kundu 1993).

The study considers all the States and Union Territories of India and pertains to the decade of the 1990s, particularly to the early '90s. Census and National Sample Surveys are the basic sources of data. For the year 1991, we have relied very heavily on the following two Census publications: the *All India Town Directory*, and *Housing and Amenities*. For the year 2001, we have relied on the electronic version of the Census publication, *Provisional Population Totals, Paper 2 of 2001*. The National Sample Survey Organisation (NSSO), in the 50th and 55th Rounds, pertaining to the years 1993–94 and 1999–2000 respectively, conducted surveys on the employment and unemployment situation across the cities and towns of India, which we have used. Apart from the Census and NSSO, we have also relied on data from the Central Pollution Control Board, to give us an idea about the status of cities with regard to problems of pollution and environmental hygiene.

7.1 Nature of Urbanisation in India

There are three basic features that distinguish an urban settlement (namely, a town) from a rural settlement (namely, a village): the size of the settlement in terms of its population; the density of population in the settlement; and the nature of workforce in the settlement. A town, compared to a village, in general, is relatively larger in size, is more crowded, and has a greater percentage of its workers in non-agricultural activities. The Indian Census recognises these important dimensions and defines an urban place as:

(i) any place with a municipality, corporation, or cantonment, or notified town area; or

(ii) any other place which satisfies the following criteria:

  a) a minimum population of 5000

  b) a population density of at least 400 per sq.km

  c) at least 75 percent of the male working population in the non-agricultural sector

Urbanisation is the process whereby larger and larger proportions of population live in urban areas. There are two ways in which this process can come about: first, by accretion of population to already existing towns, and second, by the transformation of a rural area into an urban area. The specific manner in which the process of urbanisation comes about in a particular region is related to the nature of the overall development process experienced by that region.

With this brief introduction on urbanisation, let us now discuss the pattern of urbanisation experienced by the country. The salient features of urbanisation in India come out clearly from Tables 7.1 and 7.2. We find that the overall pattern of urbanisation in India is the pattern generally observed in the developing countries of the world whose characteristic features are (a) low degree of urbanisation; (b) a high rate of growth of urban population; and (c) increasing concentration of population in large towns. From

Table 7.1
Some Salient Features of Urbanisation in India, LDR and MDR

Year	Degree of urbanisation			Percentage of urban population in million plus cities		
	India	LDR	MDR	India	LDR	MDR
1950	17.30	17.30	54.70	15.25	22.50	29.10
1970	19.80	25.10	67.50	19.96	30.90	33.90
1990	25.50	34.70	73.60	23.00	34.30	35.40

Note: 1. LDR- Less Developed Regions, comprising Africa, Asia(excluding Japan), Latin America, Caribbean, Melanesia, Micronesia, and Polynesia
2 MDR- More Developed Regions, comprising Europe,North America, Australia, New Zealand, and Japan
3 Degree of urbanisation is the percentage of population living in urban areas
4 Data on population in million plus cities for India refers to the years 1951, 1971, and 1991 respectively

Source: United Nations 1995

Table 7.2
Some Indices of Urban Growth in India, LDR and MDR

Region	Rate of growth-urban population		Rate of growth-rural population		Urban-rural growth differential		Rate of urbanisation	
	1950-70	1970-90	1950-70	1970-90	1950-70	1970-90	1950-70	1970-90
India	2.92	3.48	2.07	1.78	0.85	1.70	0.68	1.29
LDR	4.22	3.84	1.79	1.48	2.43	2.36	1.88	1.63
MDR	2.15	1.10	-0.59	-0.39	2.74	1.49	1.06	0.43

Source: United Nations 1995

Table 7.1 we find that, even as late as 1990, close to two-thirds of the population of the developing world were living in villages, and just about one-third in towns and cities. In other words, the degree of urbanisation—the percentage of population living in urban areas—is quite low in the developing world compared to that in the developed world. In India, the proportion of population in urban areas is even lower than the overall position of all developing countries. By 1991, India had just about one-fourth of its population in its urban areas. While the level of urbanisation in the developing countries is low, the urban pattern here is marked by high and increasing concentrations of population in big metropolitan cities. In India, nearly one-fourth of its urban population lived in its metropolitan cities in 1990, and this percentage has witnessed a sharp increase over the years. This process of increasing concentration of urban population in big towns is largely due to very rapid growth of all urban areas in India, a pattern that holds also for other developing countries. From 1970 to 1990, we find that urban growth rate in India was three times as high as that in the developed region of the world. This rapid growth of urban population in the developing region is not just related to higher natural growth but also to rural-urban migration. There are at least two measures of urban growth—the urban/rural growth differential (URGD) and the rate of

urbanisation—that clearly indicate this. URGD is the difference between the growth rate of urban population and rural population while rate of urbanisation is the rate of growth of degree of urbanisation, that is, the rate at which the proportion of population living in urban areas increases. Both these measures, for India, show an increase in 1970–90 compared to 1950–70, suggesting that migration from rural to urban areas continued to play a significant role in the country's urban process.

To sum up, the salient aspects of the urban growth pattern in India, as in the case of other developing countries, relates to the low level or degree of urbanisation combined with a relatively high rate of urban growth and a high and increasing concentration of urban population in large cities. This pattern of urbanisation has important implications for food security in urban areas and therefore it is useful to briefly discuss this link.

The pattern of urbanisation experienced by India is closely linked to the overall process of development experience of the country. In the post-Independence period, while India made substantial progress in the agricultural, industrial, and social sectors, there was also a high degree of imbalance in the process of development. As far as the agricultural sector is concerned, comprehensive technological and institutional breakthroughs did not come about and even the Green Revolution had a narrow base and sweep. The Green Revolution package of high-yielding variety seeds, irrigation facilities, fertilisers, and pesticides, not only by-passed large sections of the poor peasantry and labourers in the countryside, but also had a narrow spatial reach. The Green Revolution created some enclaves of agricultural growth but did not make a dent on rural poverty. While this is the experience of the agricultural sector, on the industrial front too, industries developed as entities with limited absorptive capacity. The extent and nature of industrial development has been such that a large number of poor migrants to urban areas cannot be absorbed in the industrial sector. India has seen neither an agricultural revolution nor an industrial revolution and more than two-thirds of the work force are still dependent on agriculture. While the persistence of poverty and insecurity in rural areas has acted as a push factor for the poor to migrate to urban areas, it has led to a bloated tertiary sector or an informal sector in urban areas. A specific consequence of this pattern of urbanisation is the development of slums and squatter settlements, characterised by low levels of living in unsanitary conditions for the urban poor. This pattern of urban growth also leads to high levels of unemployment and underemployment. The problem of food security in urban areas is thus closely linked to the overall development experience of the country. Aspects of food security in urban areas are linked to aspects of food security in rural areas. Urban growth in India is more a reflection of rural distress than an outcome of agricultural modernisation or rapid industrialisation.

While we have so far looked at the overall pattern of urbanisation in India and discussed the implication of this pattern for food security, it is important to consider the variations in the pattern of urbanisation across the length and breadth of the country. Given that the process of development is uneven across space, the patterns of urbanisation are also not uniform. The uneven development of the process of urbanisation is clearly evident in Table 7.3. While the overall level of urbanisation in the country was about 28 percent in 2001, there is wide variation across States. Maharashtra, Gujarat, and Tamil Nadu have had more than one-third of their population living in urban areas in 1991 as well as 2001, while in Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar, and Orissa this proportion was less than one-fourth. The north-eastern States, with the exception of Mizoram, exhibit very low levels of urbanisation. The town density, a measure of the spread of urbanisation, indicates that

Table 7.3

Salient Features of Urbanisation across the States and Union Territories,1991 and 2001

S.No.	State/ Union Territory	Degree of urbanisation		Town density		Percentage of population in large cities		Rate of growth of urban population	URGD
		1991	2001	1991	2001	1991	2001	1991-2001	1991-2001
1	Andhra Pradesh	26.89	27.08	0.96	0.76	40.96	50.21	1.37	0.09
2	Arunachal Pradesh	12.80	20.41	0.12	0.20	0.00	0.00	7.25	5.82
3	Assam	11.10	12.72	1.19	1.59	23.49	24.67	3.14	1.59
4	Bihar	13.14	13.36	1.56	1.45	31.48	33.93	2.59	0.19
5	Goa	41.01	49.77	8.37	11.89	0.00	0.00	3.38	3.60
6	Gujarat	34.49	37.35	1.35	1.23	48.37	53.54	2.87	1.27
7	Haryana	24.63	29.00	2.13	2.40	20.56	37.92	4.19	2.30
8	Himachal Pradesh	8.69	9.79	1.04	1.02	0.00	0.00	2.85	1.34
9	Jammu & Kashmir	23.83	24.88	N.A.	0.74	N.A.	57.50	3.14	0.59
10	Karnataka	30.92	33.98	1.60	1.41	43.51	52.18	2.57	1.42
11	Kerala	26.39	25.97	5.07	4.09	28.49	33.08	8.84	3.86
12	Madhya Pradesh	23.18	24.98	1.05	1.10	33.04	40.84	2.83	1.01
13	Maharashtra	38.69	42.40	1.09	1.23	69.81	74.03	2.99	1.57
14	Manipur	27.52	23.88	1.39	1.48	0.00	38.56	1.21	-1.95
15	Meghalaya	18.60	19.63	0.54	0.71	0.00	0.00	3.21	0.69
16	Mizoram	46.10	49.50	1.04	1.04	0.00	52.08	3.33	1.40
17	Nagaland	17.21	17.74	0.54	0.54	0.00	0.00	5.42	0.38
18	Orissa	13.38	14.97	0.80	0.89	29.72	35.32	2.64	1.34
19	Punjab	29.55	33.95	2.38	3.12	41.96	44.32	3.24	2.08
20	Rajasthan	22.88	23.38	0.65	0.65	39.73	47.33	2.75	0.29
21	Sikkim	9.10	11.10	1.13	1.27	0.00	0.00	4.95	2.29
22	Tamil Nadu	34.15	43.86	3.61	6.40	36.72	35.40	3.63	4.16
23	Tripura	15.30	17.02	1.72	2.19	0.00	0.00	2.56	1.30
24	Uttar Pradesh	19.84	21.02	2.56	2.68	41.74	46.45	2.88	0.74
25	West Bengal	27.48	28.03	4.30	4.23	41.78	52.33	1.86	0.28
1	Andaman & Nicobar	26.71	32.67	0.12	0.36	0.00	0.00	4.50	2.95
2	Chandigarh	89.69	89.78	43.86	8.77	88.67	100.00	3.46	0.09
3	Dadra & Nagar Haveli	8.47	22.89	2.04	4.07	0.00	0.00	15.71	12.73
4	Daman & Diu	46.80	36.26	17.86	17.86	0.00	0.00	1.89	-4.54
5	Delhi	89.93	93.01	21.58	41.81	88.63	78.88	4.23	4.08
6	Lakshadweep	56.31	44.47	125.00	93.75	0.00	0.00	-0.77	-4.83
7	Pondicherry	64.00	66.57	22.36	12.20	39.28	74.51	2.29	1.15
	INDIA	25.71	27.78	1.51	1.63	44.57	50.13	2.75	1.08

Note:
1. Figures for Jammu & Kashmir for the year 1991 are on the basis of estimated population.
2. Figures for the new states of Jharkand, Chattisgarh, and Uttaranchal for 2001 have been added to their original states, to facilitate comparison over time.
3. Town density is number of towns per 1000 sqkm.
4. Large cities are cities with a population size of 2,00,000 and above.
5. N.A. = not available.

Source: Census of India 1991 (a); Census of India 1991 (b); Census of India 2001 (a); Census of India 2001 (b)

the urban spread was relatively better in Tamil Nadu, the Punjab, and Haryana—States that also have a high level of urbanisation—while the spread was very low in Orissa and Rajasthan—States that also have a low level of urbanisation. Similarly, when we consider concentration of urban population, we find that at one extreme we have Maharashtra with three-fourths of urban population in large cities[3] and at the other extreme we have a number of States that do not have even a single large city. Analysing the growth rate of urban population and the growth differential between urban and rural areas across States, we find that while the urban areas, in general, have been growing at high rates, the differentials between urban and rural areas vary widely across the country. From 1991 to 2001, in the country as a whole, the annual population growth rate in urban areas was at 2.75 percent and 1.67 percent in rural areas. The URGD for the country as a whole was positive at 1.08 percent. The pattern of growth varied widely across States: in Bihar, Rajasthan, and Uttar Pradesh there is hardly any difference between the population growth rate in urban and rural areas, while it is quite high in the southern States, with the exception of Andhra Pradesh.

On the basis of the variation with regard to the major aspects of urbanisation, we have identified three distinctly different patterns of urbanisation across the States and Union Territories of India, as can be seen from Table 7.4 and Map 7.1. States that are grouped in Pattern 1 exhibit relatively high levels of urbanisation, better spread of towns, and a higher extent of concentration of urban population in large cities. The rate of growth of urban population is also quite high and the urban/rural growth differential is much higher than the average rate for the country as a whole. This indicates that rural-urban migration plays a significant role in the urban process here. Pattern 2 exhibits low levels of urbanisation combined with a relatively lower spread of urban settlements. Concentration of urban population was at moderate levels in 1991 but increased rapidly over the decade and was quite high by 2001. In Pattern 2, while urban areas have grown rapidly, the difference between urban and rural areas in terms of population growth is quite low. This suggests that here urban growth is essentially related to the natural growth of urban population and rural-urban migration does not seem to be an important contributory factor to urban growth. Pattern 3, essentially the northeastern States along with Sikkim, shows very low levels of urbanisation, extremely low levels of urban concentration, and a low level of urban spread. While Pattern 3 is similar to Pattern 2 with regard to levels of urbanisation, the crucial differences between the two is with regard to the absence of metropolitan cities as well as a much lower town density in the latter. [4]

We would like to note that the patterns we have identified are to be taken as broad patterns, reflecting the broad contours of urbanisation. Within each broad pattern we can identify some States that deviate from the rest in one way or the other. For instance, it is well known that Kerala's urban pattern, which is an urban-rural continuum, is quite different from that exhibited by any other State in the country. Even though Kerala does not have a high level of urbanisation or very high concentration of urban population, we think it fits in better with the States of Pattern 1 than with the other patterns. Similarly, the Union Territories in Pattern 1, with the exception of Dadra and Nagar Haveli, have a high level of urbanisation but with regard to other aspects of urbanisation, such as urban concentration and urban-rural growth differential, they do not quite exhibit the same pattern. As the Union Territories are

[3] A large city is one that has a population above 2,00,000.

[4] There are two other studies that have worked out a composite index of urbanisation for States that captures the level as well as the spread of urbanisation for the years 1981 and 1991. The grouping of the States by both these studies according to the value of the composite index corresponds with our grouping here. See Ramachandran 1991 and Rukmani 1994.

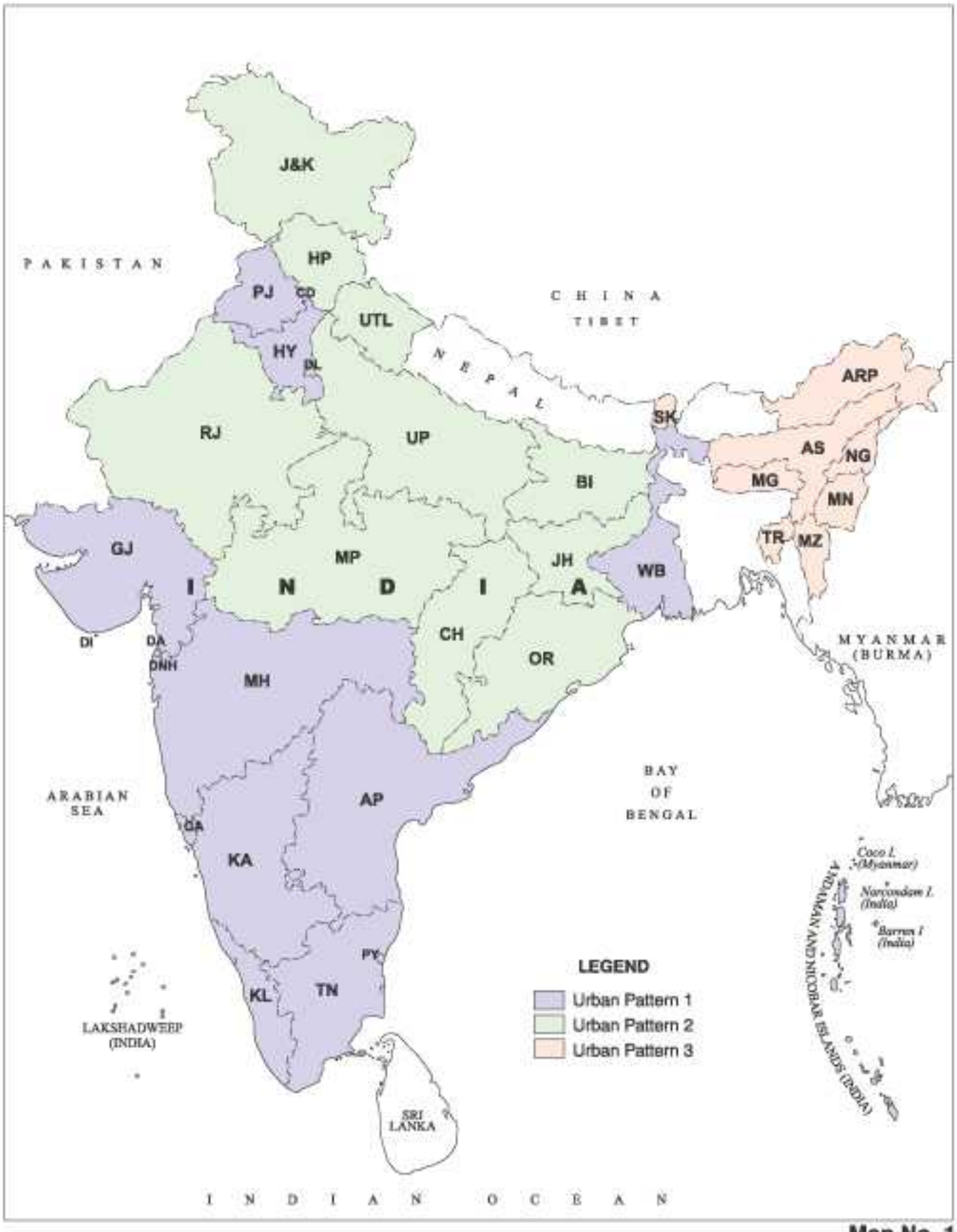
Table 7.4

Patterns of Urbanisation across the States and Union Territories,1991 and 2001

Urban Patterns	State / Union Territory	Degree of urbanisation		Town density		Percentage of population in large cities		Rate of growth-urban population	URGD
		1991	2001	1991	2001	1991	2001	1991-2001	1991-2001
Pattern 1	Maharashtra	38.69	42.40	1.09	1.23	69.81	74.03	2.99	1.57
	Gujarat	34.49	37.35	1.35	1.23	48.37	53.54	2.87	1.27
	Tamil Nadu	34.15	43.86	3.61	6.40	36.72	35.40	3.63	4.16
	Karnataka	30.92	33.98	1.60	1.41	43.51	52.18	2.57	1.42
	Punjab	29.55	33.95	2.38	3.12	41.96	44.32	3.24	2.08
	West Bengal	27.48	28.03	4.30	4.23	41.78	52.33	1.86	0.28
	Andhra Pradesh	26.89	27.08	0.96	0.76	40.96	50.21	1.37	0.09
	Kerala	26.39	25.97	5.07	4.09	28.49	33.08	8.84	3.86
	Haryana	24.63	29.00	2.13	2.40	20.56	37.92	4.19	2.30
	Delhi	89.93	93.01	21.58	41.81	88.63	78.88	4.23	4.08
	Chandigarh	89.69	89.78	43.86	8.77	88.67	100.00	3.46	0.09
	Pondicherry	64.00	66.57	22.36	12.20	39.28	74.51	2.29	1.15
	Lakshadweep	56.31	44.47	125.00	93.75	0.00	0.00	-0.77	-4.83
	Daman & Diu	46.80	36.26	17.86	17.86	0.00	0.00	1.89	-4.54
	Goa	41.01	49.77	8.37	11.89	0.00	0.00	3.38	3.60
	Andaman & Nicobar	26.71	32.67	0.12	0.36	0.00	0.00	4.50	2.95
	Dadra & Nagar Haveli	8.47	22.89	2.04	4.07	0.00	0.00	15.71	12.73
	Pattern 1	32.78	36.23	1.88	2.13	49.30	54.83	2.71	1.56
Pattern 2	Madhya Pradesh	23.18	24.98	1.05	1.10	33.04	40.84	2.83	1.01
	Rajasthan	22.88	23.38	0.65	0.65	39.73	47.33	2.75	0.29
	Uttar Pradesh	19.84	21.02	2.56	2.68	41.74	46.45	2.88	0.74
	Orissa	13.38	14.97	0.80	0.89	29.72	35.32	2.64	1.34
	Bihar	13.14	13.36	1.56	1.45	31.48	33.93	2.59	0.19
	Himachal Pradesh	8.69	9.79	1.04	1.02	0.00	0.00	2.85	1.34
	Jammu & Kashmir	23.83	24.88	N.A.	0.74	N.A.	57.50	3.14	0.59
	Pattern 2	18.64	19.68	1.29	1.31	36.81	42.71	2.80	0.68
Pattern 3	Mizoram	46.10	49.50	1.04	1.04	0.00	52.08	3.33	1.40
	Manipur	27.52	23.88	1.39	1.48	0.00	38.56	1.21	-1.95
	Meghalaya	18.60	19.63	0.54	0.71	0.00	0.00	3.21	0.69
	Nagaland	17.21	17.74	0.54	0.54	0.00	0.00	5.42	0.38
	Tripura	15.30	17.02	1.72	2.19	0.00	0.00	2.56	1.30
	Arunachal Pradesh	12.80	20.41	0.12	0.20	0.00	0.00	7.25	5.82
	Assam	11.10	12.72	1.19	1.59	23.49	24.67	3.14	1.59
	Sikkim	9.10	11.10	1.13	1.27	0.00	0.00	4.95	2.29
	Pattern 3	13.83	15.45	0.77	0.97	13.22	21.23	3.16	1.33
	INDIA	25.71	27.78	1.51	1.63	44.57	50.13	2.75	1.08

Source: Table-7.3.

URBAN PATTERNS OF INDIA



Map No. 1

geographically contiguous to the major States that exhibit Pattern 1 and as the urban population of all Union Territories account for only about 5 percent of the country's urban population and since they have high levels of urbanisation, we have decided to group these in Pattern 1. Similarly, within Pattern 2 all the States do not exhibit a homogenous urban pattern. Uttar Pradesh has a better urban spread compared to the other States in this group but it is similar to the other States with regard to the level of urbanisation and URGD. Himachal Pradesh in Pattern 2 and Mizoram and Manipur in Pattern 3 may be considered as outliers but we have chosen to give weightage to geographical contiguity.

Even though the urban patterns we have identified are very broad, inasmuch as they reflect the variation in the development process across the country they would be useful as a backdrop against which food insecurity in different types of towns is studied.

To recapitulate the salient aspects of urbanisation in India: First, the level or degree of urbanisation in the country is low with just about 28 percent of the population living in urban areas in the year 2001. Second, the population growth rate in urban areas is very rapid. Third, the primacy factor, the concentration of urban population in large cities is significant with half the urban population residing in large cities. Fourth, there is a great deal of variation across States in all these features of urbanisation. These aspects of urban growth, as noted earlier, have important implications for the problem of food insecurity in urban areas. First of all, the specific urban pattern experienced by India indicates that urban deprivation cannot be seen in isolation from rural deprivation. The persistence of poverty in rural areas has resulted in distress-induced urbanisation. The poor who migrate from rural to urban areas cannot get absorbed in the organised industrial sector. This leaves the urban areas with a bloated informal sector, characterised by irregularity of employment opportunities and low levels of wages leading to uncertainity and insecurity for the workers engaged in it. Given this, the problem of food security in urban areas needs to be contextualised in the larger developmental processes experienced by the country.

Second, the variation in urban patterns across the country is a reflection of the uneven process of development and there are a number of strands to this. There are dissimilarities in the extent and nature of urbanisation across States and regions in the country as well as across different size classes of towns in the country. The extent of variations also differs from one State to another and from one type of town to another. The wide differences in the process of urbanisation may also result in variations in the nature of urban concerns across space as well as across different size classes of towns. It is therefore necessary to have a decentralised approach to the issue of urban problems.

CHAPTER 8

Food Insecurity In Metropolitan Cities

In this chapter we discuss the problem of food insecurity across the metropolitan cities of India.[1] Metropolitan cities have a reach and influence that is much beyond their immediate hinterland and therefore it is meaningful to analyse their problems separately. For instance, Mumbai—the most populous city of India—has attracted and continues to attract migrants from all over the country and its hinterland, in some sense, is the entire country. Mumbai has been graphically described an amazing mosaic of villages and townships from all over India (Sharma 2000). But the fact that larger metropolises serve an area much larger than their immediate hinterland does not mean that metropolitan cities are not part of any local or regional context. Metropolitan cities are also influenced by their regional economy and while a State-wise analysis does not make sense, we make an attempt to contextualise the metros in the broad urban patterns we have identified across the country.

8.1 Population Growth in Metropolitan Cities

The importance of metropolitan cities in the urban system is also indicated by the fact that they support a significant proportion of urban population. In 1981, there were 10 metropolitan cities in the country and they accounted for 20 percent of the country's urban population; in 1991, the 18 metropolises accounted for 23 percent of urban population and in 2001, the 27 metropolises accounted for 26 percent of urban population. This suggests that the metropolitan cities have been growing rapidly over time. Table 8.1 gives the population of the metropolises of 1991 and 2001 and Maps 8.1 and 8.2 show the location of metropolitan cities. We find that metropolitan cities vary a great deal with regard to their size. In 2001, there was only one city, Greater Mumbai, that had a population above 10 million, closely followed by Delhi with a population of 9.8 million. Kolkata, Chennai, and Bangalore, with populations above 4 million came a distant third, while the majority of the metros had less than 2 million population. In 1991, 13 out of 18 metropolitan cities were in States that exhibit urban Pattern 1. The other five metropolises were in States that exhibit urban Pattern 2.[2] In 2001, of the 27 metropolitan cities in the country, 18 were in urban Pattern 1 States while 9 were in Pattern 2 States. Of the five new metros in Pattern 1, three—Thane, Pimpri Chinchwad, and Haora—are actually satellite towns of Greater Mumbai, Pune, and Kolkata respectively and have figured as independent towns due to the definition we have adopted of treating only the core city as an independent unit. Maharashtra had the largest number of metropolitan cities in 1991 as well as in 2001, with 4 and 7 respectively. Gujarat had 3 metropolitan cities—Ahmedabad, Vadodara, and Surat. In the southern part of the country, apart from the capital cities of Chennai, Hyderabad, and Bangalore, there were no other metropolitan cities and Kerala is

[1] A metropolitan city is one that has a population above 1 million in its core city. The Census concept of urban agglomeration—the core city along with the satellite towns that develop around it—is not the definition we have adopted here.

[2] For the sake of convenience we refer to them as Pattern 1 cities and Pattern 2 cities.

Table 8.1

Growth of Population in Metropolitan Cities, 1991 and 2001

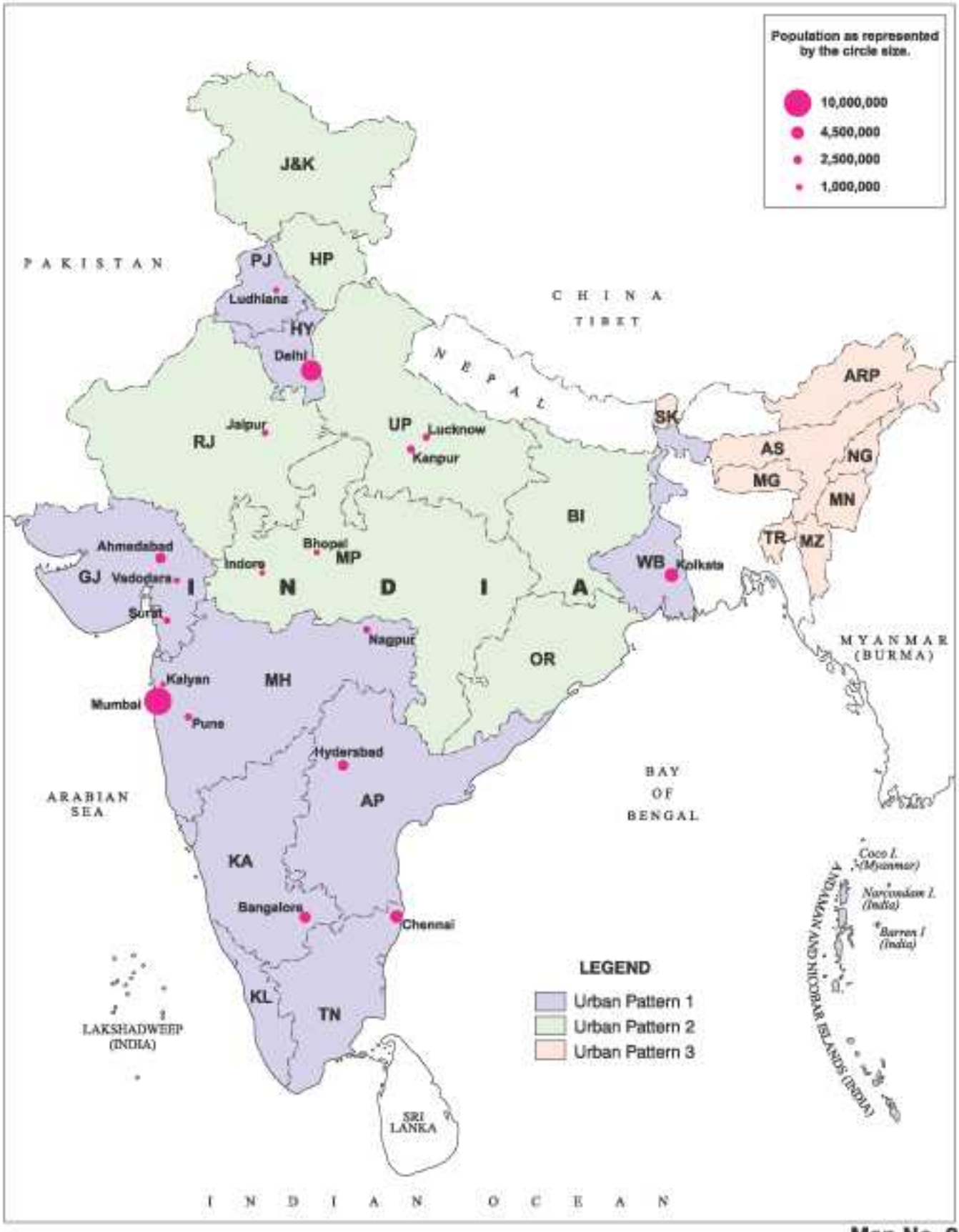
Urban patterns	S.No.	City	Population		Density of population		Rate of growth of population in the city	Rate of growth of urban population in the State
			1991	2001	1991	2001	1991-2001	1991-2001
Pattern 1	1	Greater Mumbai	9925891	11914398	21284	25548	1.84	2.99
	2	Delhi	7206704	9817439	16717	22774	3.14	4.23
	3	Kolkata	4399819	4580544	23733	24708	0.40	1.86
	4	Chennai	3841396	4216268	22077	24231	0.94	3.63
	5	Bangalore	3302296	4292223	20756	26978	2.66	2.57
	6	Hyderabad	3058093	3449878	17325	19545	1.21	1.37
	7	Ahmedabad	2954526	3515361	15818	18821	1.75	2.87
	8	Nagpur	1624752	2051320	7481	9446	2.36	2.99
	9	Pune	1566651	2540069	10722	17385	4.95	2.99
	10	Surat	1505872	2433787	13547	21894	4.92	2.87
	11	Vadodara	1061598	1306035	9806	12064	2.09	2.87
	12	Ludhiana	1042740	1395053	7743	10359	2.95	3.24
	13	Kalyan	1014557	1193266	4504	5297	1.64	2.99
	14	Haora	950435	1008704	18369	19493	0.60	1.86
	15	Thane	803389	1261517	5588	8775	4.62	2.99
	16	Nashik	656925	1076967	2535	4157	5.07	2.99
	17	Faridabad	617717	1054981	3466	5919	5.50	4.19
	18	Pimpri Chinchwad	517083	1006417	5940	11561	6.89	2.99
			46050444	58114227	13380	16885	2.35	
Pattern 2	1	Kanpur	1879420	2532138	7046	9493	3.03	2.88
	2	Lucknow	1619115	2207340	5221	7118	3.15	2.88
	3	Jaipur	1458483	2324319	7278	11598	4.77	2.75
	4	Indore	1091674	1597441	8387	12272	3.88	2.83
	5	Bhopal	1062771	1433875	3730	5033	3.04	2.83
	6	Patna	956417	1376950	8932	12859	3.71	2.59
	7	Varanasi	932399	1100748	11227	13254	1.67	2.88
	8	Agra	891790	1259979	7396	10450	3.52	2.88
	9	Meerut	753778	1074229	5312	7571	3.61	2.88
			10645847	14907019	6472	9063	3.42	
All Metros			56696291	73021246	11146	14355	2.56	

Note: Density of population is the number of persons per sqkm. Density for 2001 is calculated using 1991 area.

Source: 1. Census of India 1991 (a)

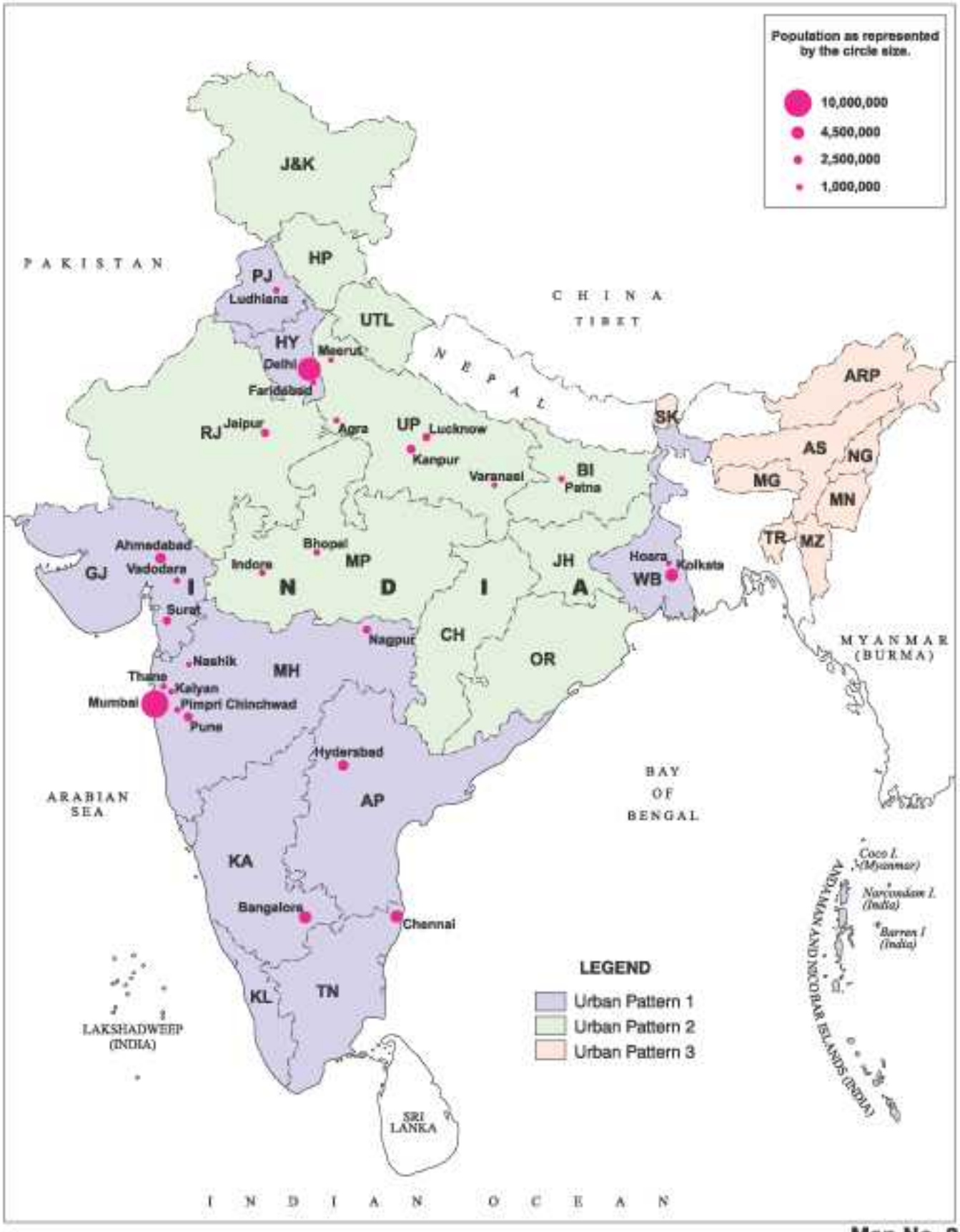
2. Census of India 2001 (a)

Metropolitan Cities of 1991



Map No. 2

Metropolitan Cities of 2001



Map No. 3

marked by their absence.[3] Of the 4 new metros in Pattern 2, three were located in Uttar Pradesh—Varanasi, Agra, and Meerut—and one city, Patna, in Bihar. In the east, Kolkata was the only metropolitan city until 1991 while Patna emerged as one in 2001. States with urban Pattern 3, the northeastern States did not have any metropolitan city even by 2001. Guwahati in Assam, Imphal in Manipur, and Aizawl in Mizoram are the three big towns in this region with a population above 2, 00,000 but below 1 million.

Metropolitan cities vary a great deal not only with regard to population size but also with regard to population density. Cities in Pattern 1 are much more crowded, at least twice as crowded as cities in Pattern 2. Kolkata, with 23,000 persons per sq. km was the most crowded city in 1991, closely followed by Chennai and Mumbai. In 2001, Bangalore had emerged as the most crowded city with 27,000 persons per sq. km, followed by Mumbai and Kolkata.[4] Nashik was the least crowded city with 2500 persons/sq. km in 1991 and about 4000 persons/sq. km in 2001. In the urban areas of the country as a whole, population density was only 3668 in 1991 and 4850 in 2001. On an average, the metropolitan cities were three times as crowded as urban areas of the country as a whole.

Analysing the growth rate of population in metropolitan cities, we find that all metropolitan cities taken together have registered an annual compound growth rate of 2.56 percent over 1991–2001. This is lower than the corresponding rate of growth of population experienced by all urban areas at 2.75 percent. This indicates that metropolitan cities taken together have grown at rates lower than the other urban settlements in the country. However, there is a great deal of variation in the growth rate of population across metropolitan cities, within the States that exhibit Pattern 1 as well as those in Pattern 2. In general, cities in Pattern 2 have a lower population density and have also grown at rates much higher than those of Pattern 1. The annual rate of growth of Pattern 2 cities is about one percentage point greater than the cities in Pattern 1. The variation in growth rates of Pattern 1 cities and Pattern 2 cities also brings out another interesting feature of urban growth. From Table 8.1 we find that all cities in Pattern 2, with the exception of Varanasi, have been growing at rates higher than the overall urban growth rate of their respective States. This has not been the case in Pattern 1 metros, where only 7 out of 18 cities have grown at rates higher than the urban areas of their State. This suggests that growth of urban population in Pattern 2 States is essentially related to growth of the metropolitan cities while in the case of Pattern 1 States the core cities of metropolises are not growing rapidly and the contribution of other size classes of towns to urban population growth is quite significant. While the cities in Pattern 1 are not growing rapidly, it is quite likely that the peripheral areas around the core cities grow at rapid rates. Given that the definition we have adopted treats the peripheral areas as independent urban units, we have to analyse the growth of satellite towns separately. When we consider the satellite towns around the core cities, we find that the metros of Pattern 1 are experiencing a sprawl or an urban extension while in Pattern 2 the core cities of the metros are growing rapidly. (Table 8.2) In order to understand the nature of growth of population in a city, whether essentially related to natural growth of population or related to migration of population into cities, we have calculated the natural growth rate of population in the urban areas of States and using this we have estimated the rate of migration to cities and

[3] As noted earlier, Kerala's urban pattern is quite different from that exhibited by other States and ideally Kerala should be treated separately.

[4] Population density for 2001 has been worked out using 1991 area, as the area figures of 2001 are not yet available.

Table 8.2

Growth Rate of Population in the Metropolitan Cities, Satellite Towns and Urban Agglomerations, 1991-2001

Urban patterns	S.No.	City	Annual compound growth rate of population in 1991-2001			Estimated rate of migration 1991-2001		
			Core city	Satellite towns	Urban agglomerations	Core city	Satellite towns	Urban agglomerations
Pattern 1	1	Greater Mumbai	1.84	5.25	2.65	0.21	3.62	1.02
	2	Delhi	3.14	9.39	4.27	1.46	7.71	2.59
	3	Kolkata	0.40	2.69	1.83	-0.59	1.70	0.84
	4	Chennai	0.94	3.40	1.71	-0.28	2.18	0.49
	5	Bangalore	2.66	5.35	3.25	1.07	3.76	1.66
	6	Hyderabad	1.21	4.94	2.45	-0.37	3.36	0.87
	7	Ahmedabad	1.75	10.87	3.16	0.04	9.16	1.45
	8	Nagpur	2.36	6.20	2.47	0.73	4.57	0.84
	9	Pune	4.95	2.74	4.18	3.32	1.11	2.55
	10	Surat	4.92	39.98	6.35	3.21	38.27	4.64
	11	Vadodara	2.09	11.07	2.85	0.38	9.36	1.14
	12	Nashik	5.07	0.93	4.74	3.44	-0.70	3.11
Pattern 2	1	Kanpur	3.03	0.51	2.86	0.98	-1.54	0.81
	2	Lucknow	3.15	1.75	3.11	1.10	-0.30	1.06
	3	Indore	3.88	9.12	3.98	2.23	7.47	2.33
	4	Patna	3.71	8.72	4.50	2.06	7.07	2.85
	5	Varanasi	1.67	1.21	1.63	-0.38	-0.84	-0.42
	6	Agra	3.52	0.88	3.38	1.47	-1.17	1.33
	7	Meerut	3.61	-0.3	3.23	1.56	-2.35	1.18

Note: 1. Of the 18 cities in Pattern 1, Haora, Pimpri Chinchwad, Kalyan, and Thane are not listed separately as they are satellite towns of Kolkata, Pune, and Mumbai respectively. Ludhiana and Faridabad are not urban agglomerations. Bhopal became an urban agglomeration only in 2001 and Jaipur is not considered as an agglomeration in 2001.

2. Migration rate is the difference between actual growth rate of population and natural growth rate of population in urban areas. Refer to footnote 5 in the text for method of calculation.

Source: 1. Census of India 1991 (b) 2. Census of India 2001 (a) 3. Registrar General, India 1999

their satellite towns.[5] We find that influx of migrants into the core cities is an important aspect in Pattern 2, while in Pattern 1 it is the satellite towns that receive migrants. With the exception of Varanasi and perhaps also Kanpur, all other cities in Pattern 2 have received migrants, whereas in Pattern 1, 7 out of 12 core cities, that is, half the total number of cities, are either stagnant or losing population. The core cities of Chennai, Hyderabad, and Kolkata are losing population, while Mumbai, Ahmedabad, Nagpur, and

[5] We have worked out the natural growth rate in the urban areas of various States, for the decade 1991-2001, on the basis of Sample Registration Surveys (SRS) data. We assume the natural growth rate of a metropolitan city to be the same as what prevails in the urban parts of the State to which the city belongs. As we have data on natural growth rate only up to 1997, in our estimation of natural growth rate for the decade 1991–2001 we assumed that the 1997 rate continued to prevail up to 2001. Therefore, our estimate of natural growth rate is likely to be an overestimation and consequently our estimation of migration, which is the difference between urban growth and natural growth, is likely to be an underestimation.

Vadodara are stagnant. Except Nashik, all other cities of Pattern 1 have experienced urban extension or urban sprawl. Cities of Pattern 2 show a contrasting pattern in that the population growth is essentially in the core cities and not in satellite towns, with the exception of Indore and Patna. In sum, there is a great deal of variation across the metropolitan cities with regard to their pattern of population growth: Pattern 1 cities are much more densely populated and are experiencing a sprawl while Pattern 2 cities are relatively less densely populated and growth of population is occurring essentially in the core cities. In the Pattern 1 cities, urban problems are associated with urban sprawl while in the Pattern 2 cities, urban problems are related to the crowding of the core cities. With this brief introduction on the growth of metropolitan cities, let us discuss one of the important dimensions of food security, namely, access to food.

8.2 Access to Food Across Metropolitan Cities, Early 1990s

For people living in urban areas, access to food generally depends on their ability to buy food in the market. The purchasing power of the population in turn is dependent on access to income and wealth. In the absence of data on income and wealth, we shall look at factors that broadly determine the level of earnings of the population, namely, access to employment and quality of employment. The ability of people to access food in the market is likely to be low in an area where the availability of employment is low or unemployment is high. In other words, we expect an inverse relationship between access to food and rate of unemployment. Apart from the absolute level of employment, it is also the quality of employment or the type of employment—casual employment or regular wage employment or self-employment—that determines the income earning ability of the population and therefore their ability to purchase food in the market. Access to regular employment guarantees a regular salary and therefore also guarantees a relatively better access to food. On the contrary, casual employment normally fetches an income that is not only low but also irregular and therefore provides a relatively lower access to food. Similarly, the ability for people to access food would be low in an area where the incidence of poverty is high. Apart from these tangible economic factors, there are also social factors that determine access to food. Discrimination against girls and women have resulted in unequal access to food, nutrition, and health care for females. With this broad understanding of the nature of the relationship that prevails between food security and other aspects, let us assess the status of different metropolitan cities with regard to food access. Our attempt will be to evaluate the status of metropolitan cities with regard to each one of the aspects discussed above and finally attempt a ranking across these cities with regard to food access.

a) Aspects relating to unemployment

A very large section of our urban population is deprived of secure employment and remains unemployed for long spells of time. Inability to find employment will necessarily curtail the ability of people to buy food in the market. The rate of unemployment therefore has implications for food security.[6] The extent of food insecurity is likely to be

[6] Unemployment rate is defined as the number of persons unemployed per thousand persons in the labour force. Definition of the various estimates of unemployment, as given by NSSO, are as follows:

- Usual Status Approach to unemployment indicates the proportion of persons unemployed for a relatively longer period during a reference period of 365 days.
- Current Daily Status gives the average volume of unemployment on a day during the survey year. It is the most inclusive rate of unemployment as it captures the unemployed days of the chronically unemployed, the unemployed days of the usually employed who become intermittently unemployed during the reference week, and the unemployed days of those classified as employed according to the priority criterion of current weekly status.

Table 8.3
Unemployment Rates in Metropolitan Cities, 1993-94

Urban patterns	S.No.	City	Unemployment Rate in 1993-94					
			Male			Female		
			Usual (adjusted)	Current daily status	Index of under-employment	Usual (adjusted)	Current daily status	Index of under-employment
Pattern 1	1	Greater Mumbai	53	60	113	71	93	131
	2	Delhi	9	16	178	64	65	102
	3	Kolkata	50	85	170	149	180	121
	4	Chennai	53	94	177	117	157	134
	5	Hyderabad	20	37	185	6	57	950
	6	Bangalore	38	58	153	134	156	116
	7	Ahmedabad	44	55	125	137	138	101
	8	Pune	48	55	115	61	67	110
	9	Nagpur	57	73	128	58	122	210
	10	Surat	52	74	142	29	44	152
	11	Vadodara	18	28	156	25	31	124
	12	Ludhiana	7	11	157	37	0	0
	13	Kalyan	26	28	108	179	112	63
Pattern 2	1	Kanpur	54	56	104	30	31	103
	2	Lucknow	32	51	159	0	0	0
	3	Jaipur	3	10	333	8	9	113
	4	Indore	44	45	102	37	28	76
	5	Bhopal	46	55	120	74	138	186
All Metro Cities			38	52	137	86	100	116
Urban India			40	68	170	63	109	173

Note: Unemployment rates are with reference to persons aged 15 years and above.
Source: NSSO 2001, Report No. 462

higher in areas where people experience higher rates of unemployment. Table 8.3 provides the rate of unemployment across the 18 metropolitan cities during the year 1993–94. From the Table it is clear that the rate of unemployment for males and females by current daily status was lower in the metropolitan cities compared to all urban areas of the country. This indicates that the position of metropolitan cities with regard to unemployment was better compared to urban areas in general. Among the metropolitan cities, unemployment rates were generally higher in Pattern 1 cities compared to Pattern 2 cities. An approximate index of underemployment—the ratio of current daily status unemployment to usual status unemployment—was also much higher in Pattern 1 compared to Pattern 2 cities. Among the Pattern 1 cities, unemployment rates were generally higher for females than for males while it was the other way around among the Pattern 2 cities. Variation in unemployment rates across metropolitan cities was also much higher among females than for males. Coefficient of variation (in percentage terms) for unemployment rates of females is 80 while the corresponding rate for males is 49. In sum, while the position of metropolitan cities with regard to unemployment was relatively better compared to the

urban areas of the country, there was a great deal of variation across the metropolitan cities themselves.

Chronic unemployment or the usual status unemployment for males was highest in Nagpur at 5.7 percent while the current daily status unemployment, which is a more comprehensive measure of unemployment, was highest in Chennai at 9 percent in 1993–94. Considering both the measures of unemployment, we find that among the Pattern 1 cities, Chennai, Kolkata, Bangalore, Ahmedabad, and Nagpur had the most distressing conditions with high levels of unemployment among males as well as females. Mumbai, Pune, and Surat reported high levels of unemployment for males but low levels of unemployment for females. In Delhi, Hyderabad, Vadodara, and Ludhiana it was low levels of unemployment among males as well as females. An approximate index of underemployment, the ratio of daily status unemployment to usual status unemployment, indicate that while Chennai and Kolkata had high levels of underemployment among males and females, Mumbai reported high levels of underemployment only among females while in the case of Delhi it was only among males. In the Pattern 2 cities, levels of daily status unemployment among males and females were quite low with the exception of Bhopal where it was high in the case of females. The difference between the two measures of unemployment was quite high for females only in the city of Bhopal.[7] The relatively low levels of unemployment and underemployment in general, in Pattern 2 cities, perhaps reflect the level and nature of development of the States where these cities are located.

b) Aspects relating to employment

Table 8.4 presents the worker-population ratio or the work participation rate (WPR) and the status of employment for males and females in the metropolitan cities.[8] WPR for females in urban India in 1993–94 was a strikingly low figure of 223 workers for every 1000 persons. In metropolitan cities, WPR for females was even lower at 181. WPR for males in the metropolitan cities was however the same as in urban India as a whole, around 767 workers for every thousand persons. While WPR indicates access to employment, it is important to look at the status or nature of employment as a crucial determinant of purchasing power and therefore access to food.[9] Regular salaried or wage workers formed a much higher proportion of work force among males and females in the metropolitan cities compared to all urban areas. On the other hand, the proportion of workers engaged as casual labour was relatively low in the metropolitan cities. Even while the proportion of workers in the casual labour category is lower than those engaged in other categories, it is important to look at this category as it has implications for the level of earnings as well as the nature of working condition. Given that access to food is related to the purchasing power of the workers as well as the nature of contractual arrangements workers enter into, we expect that the ability to access food would be low and the extent of insecurity would be high if workers are engaged in casual work[10]. We therefore expect the variation in the extent of casualisation of labour force to reflect the variation in food access across space.

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7 Lucknow reports zero unemployment for females, see NSSO 2001.

8 Refers to the proportion of usually employed persons of age 15 years and above

9 Definitions adopted in the NSSO for different categories of workers is as follows:

Self-Employed: Persons who operated their own farm or non-farm enterprises or were engaged independently in a profession or trade on own account or with one or a few partners were deemed to be self-employed in household enterprises.

Regular Salaried/ Wage employee: These were persons who worked in others' farm or non-farm enterprises (both household and non-household) and, in return, received salary or wages on a regular basis.

Casual Wage Labour: A person who was casually engaged in others' farm or non-farm enterprises (both household and non-household) and, in return, received wages according to the terms of the daily or periodic work contract

10 Regular Employment and Casual Employment are correlated in the case of males as well as females across the 18 cities: value of correlation coefficient for males is –0.64 (at 1 percent significant level) and for females –0.58 (at 5 percent significant level).

Table 8.4

Work Participation Rate (WPR) and Status of Employment of Usually Employed Persons in Metropolitan Cities, 1993-94

Urban patterns	S.No	City	Male				Female			
			WPR	Self-employed	Regular employees	Casual labour	WPR	Self-employed	Regular employees	Casual labour
Pattern 1	1	Greater Mumbai	773	325	654	21	221	276	692	32
	2	Delhi	796	441	452	107	132	242	576	182
	3	Kolkata	803	339	544	117	183	284	623	93
	4	Chennai	773	290	464	246	227	133	637	230
	5	Hyderabad	750	313	555	132	164	212	479	309
	6	Bangalore	763	318	535	147	162	296	623	81
	7	Ahmedabad	764	356	513	131	196	439	270	291
	8	Pune	699	333	613	54	261	277	600	123
	9	Nagpur	727	388	448	164	212	385	362	253
	10	Surat	773	316	537	147	231	429	333	238
	11	Vadodara	879	221	722	57	116	241	404	345
	12	Ludhiana	883	386	434	180	104	519	375	106
	13	Kalyan	742	247	659	94	165	164	697	139
Pattern 2	1	Kanpur	558	470	482	48	131	366	580	54
	2	Lucknow	759	443	489	68	82	402	402	196
	3	Jaipur	720	364	607	29	128	469	531	0
	4	Indore	753	421	396	183	235	498	260	242
	5	Bhopal	685	276	593	131	176	205	509	286
All Metro Cities			767	353	540	107	181	282	569	149
Urban India			768	415	425	160	223	446	293	261

Note: 1. WPR is defined as usually employed persons (principal and subsidiary) above 15 years of age per 1000 persons.
2. Status of employment is given for 1000 usually employed persons (ps+ss), aged 15 years and above.

Source: NSSO 2001, Report No. 462

From Table 8.4 we find that WPR for males as well as females was relatively lower in Pattern 2 cities compared to Pattern 1 cities. With regard to the extent of casual labour, of the five cities in Pattern 2, two cities—Indore and Bhopal—had a high percentage of casual labour among males and females while in Kanpur and Jaipur it was low.[11] In Lucknow, the extent of casualisation was low among males while it was high among females. Among the 13 cities in Pattern 1, the pattern of employment varied a great deal between males and females and at least four broad patterns may be identified. Among males, Delhi, Kolkata, Chennai, Surat, and Ludhiana had high levels of casualisation as well as WPR; Hyderabad, Bangalore, Ahmedabad, and Nagpur had high levels of casualisation combined with low extent of work participation; Mumbai and Vadodara had low levels of casualisation with high levels of WPR; Pune and Kalyan had low levels of casualisation and WPR. In the case of females, while Chennai, Ahmedabad, Surat, and Nagpur had high

[11] Extent of casual labour among females is reported to be nil in Jaipur, see NSSO 2001, Report No. 462

Table 8.5
Pattern of Employment Across Metropolitan Cities, 1993-94

Proportion of casual labour	Levels of unemployment		Levels of unemployment	
	Male		Female	
	High	Low	High	Low
High	Chennai Ahmedabad Nagpur Kolkata Bangalore Bhopal Surat	Delhi Hyderabad Ludhiana Indore	Chennai Ahmedabad Nagpur Bhopal	Delhi Hyderabad Surat Vadodara Indore Lucknow
Low	Mumbai Pune Kanpur	Vadodara Kalyan Lucknow Jaipur	Kolkata Bangalore Kalyan	Mumbai Pune Kanpur Ludhiana Jaipur

Note: High refers to above average levels and Low refers to below average levels with regard to the average for the metropolitan cities as a whole.

Source: Tables 8.3 and 8.4

levels of casual labour as well as WPR, Delhi, Hyderabad, and Vadodara had high casualisation combined with low WPR. Mumbai, Kolkata, and Pune had low levels of casualisation but high WPR; Bangalore, Ludhiana and Kalyan had low levels of casual labour as well as WPR. There are only four cities in Pattern 1 that exhibit the same type of pattern for males and females. In Chennai and Surat, the level of casual labour as well as the work participation rate was high for males and females; in Mumbai casualisation is low but work participation rate is high for males and females; in Hyderabad, casualisation is high but work participation rate is low, and in Kalyan both these aspects are at a low level for both males and females.

Having seen the levels of unemployment and extent of casualisation of the work force across the metropolitan cities, it is clear that the type of problems faced by the cities vary a great deal. Some cities have problems of high levels of unemployment as well as high extent of casual labour—Chennai, Ahmedabad, Nagpur, Bhopal, etc.—while some cities have low levels of unemployment but high levels of casual labour—Delhi, Hyderabad, Indore, etcetera. (Table 8.5) There is also a high degree of variation in the extent and nature of problems across the cities with regard to the employment pattern of males and females.

c) *Aspects relating to poverty and inequality*

Dubey and Mahadevia have calculated the incidence of poverty and inequality among the metropolitan cities, using the household level consumer expenditure data from NSSO. In 1993—94, the head count ratio (HCR)—the percentage of poor in the total population—was much lower in metropolitan cities taken together, at 20.64 percent, compared to all urban areas of the country, at 32.87 percent (Dubey and Mahadevia 2001). The position of the metropolitan cities with regard to unemployment, casualisation of labour force, and poverty was thus relatively better compared to other urban areas.

Table 8.6

Poverty and Inequality Across Metropolitan Cities, 1993-94

Urban patterns	S.No.	City	HCR	Gini
Pattern 1	1	Greater Mumbai	9.21	0.30
	2	Delhi	24.65	0.41
	3	Kolkata	9.00	0.33
	4	Chennai	32.27	0.37
	5	Hyderabad	17.73	0.32
	6	Bangalore	11.42	0.27
	7	Ahmedabad	32.81	0.33
	8	Pune	21.67	0.37
	9	Nagpur	50.05	0.35
	10	Surat	11.06	0.23
	11	Vadodara	25.33	0.40
	12	Ludhiana	0.96	0.24
	13	Kalyan	8.70	0.27
Pattern 2	1	Kanpur	27.92	0.34
	2	Lucknow	19.28	0.27
	3	Jaipur	19.39	0.27
	4	Indore	37.98	0.37
	5	Bhopal	36.71	0.37
All Metro Cities			20.64	0.35

Note: 1. HCR- Head Count Ratio
2. Gini- Gini co-efficient of consumption expenditure

Source: Dubey and Mahadevia 2001

Levels of poverty and inequality varied a great deal among the metropolitan cities. In Chennai, Delhi, Pune, Vadodara, Indore, and Bhopal, levels of poverty as well as inequality was high, while in Mumbai and Kolkata levels of poverty were quite low but not levels of inequality. In Nagpur, HCR of poverty was as high as 50 percent while in Ludhiana it was almost nil. (Table 8.6) There appears to be some correspondence between extent of casualisation of labour force and poverty: Chennai, Delhi, Ahmedabad, Nagpur, Bhopal, and Indore had high levels of casual labour among females as well as high levels of poverty.[12] Similarly, extent of casual labour as well as poverty was low in Mumbai. While extent of casual labour as well as unemployment was generally higher in Pattern 1 cities compared to Pattern 2 cities, the pattern of poverty across metropolitan cities was not so clear-cut.

Dubey and Mahadevia have also calculated the incidence of poverty for each household type categorised by the main income source of the household. According to their study, the incidence of poverty was highest among casual labour households in all the metropolitan cities except Surat. Their study also shows that in some cities, such as Indore, Nagpur, Bhopal, Ahmedabad, Chennai, and Delhi, even regular employment was of a poor quality with high incidence of poverty even among households with regular wages.

d) Aspects relating to basic literacy

Access to education has a bearing on employment and therefore on purchasing power. Unfortunately, data on different educational levels of the population in the metropolitan cities are not available. In the absence of this information, we shall use data on basic levels of literacy. An analysis of literacy rates across the metropolitan cities bring out the clear divide between Pattern 1 cities and Pattern 2 cities. (Table 8.7) Cities of Pattern 2 had a below average level of literacy in 1991 as well as 2001 for males and females (except in the case of Varanasi for males in 2001). The male-female differentials in literacy rates were also much higher among the Pattern 2 cities compared to the Pattern 1 cities. Percentage of literates among males as well as females was the highest in Chennai in 1991 and in Kalyan in 2001. The lowest literacy rate for females prevailed in Bhopal in 1991 and Varanasi in 2001. Among males, literacy was the lowest in Ludhiana in 1991 and in Meerut in 2001. Another interesting point that comes out from Table 8.7 is that basic literacy rates were higher in the metropolitan cities compared to all urban areas for males as well as females in 1991 and in 2001. However, the differential between the metropolitan cities and all urban areas

[12] Value of rank correlation between HCR and extent of casual labour among females is 0.52 and is significant at 5 percent level.

Table 8.7
Literacy Rate in Metropolitan Cities, 1991 and 2001

Urban patterns	S.No.	City	Literacy rate, 1991			Male-Female differentials in literacy	Literacy rate, 2001			Male-Female differentials in literacy
			Male	Female	Total		Male	Female	Total	
Pattern 1	1	Greater Mumbai	76.63	64.74	71.28	84	82.29	71.51	77.46	87
	2	Delhi	69.59	57.73	64.20	83	76.50	67.31	72.34	88
	3	Kolkata	74.72	64.50	70.18	86	77.72	71.38	74.85	92
	4	Chennai	77.30	65.60	71.65	85	77.26	68.57	73.03	89
	5	Hyderabad	65.99	52.86	59.63	80	73.94	64.78	69.49	88
	6	Bangalore	74.63	63.93	69.53	86	80.48	74.27	77.51	92
	7	Ahmedabad	72.96	59.93	66.83	82	78.34	67.77	73.38	87
	8	Pune	75.08	63.14	69.33	84	81.43	72.25	77.04	89
	9	Nagpur	75.33	63.83	69.82	85	82.78	74.60	78.82	90
	10	Surat	69.22	56.05	63.21	81	76.82	66.00	72.10	86
	11	Vadodara	75.93	64.89	70.71	85	82.11	74.32	78.40	91
	12	Ludhiana	63.13	56.71	60.29	90	72.18	68.04	70.38	94
	13	Kalyan	75.16	64.01	69.96	85	83.52	75.37	79.70	90
	14	Haora	-	-	-	-	81.04	72.75	77.25	90
	15	Thane	-	-	-	-	82.20	72.67	77.77	88
	16	Nashik	-	-	-	-	79.66	66.41	73.54	83
	17	Faridabad	-	-	-	-	75.11	60.49	68.54	81
	18	Pimpri Chinchwad	-	-	-	-	79.39	67.87	74.09	85
Pattern 2	1	Kanpur	68.69	53.36	61.76	78	73.36	71.59	72.54	98
	2	Lucknow	66.30	53.49	60.35	81	72.65	64.12	68.63	88
	3	Jaipur	67.20	48.39	58.46	72	74.27	58.98	67.14	79
	4	Indore	71.47	57.29	64.75	80	77.64	65.10	71.69	84
	5	Bhopal	66.48	52.77	60.01	79	74.01	62.92	68.76	85
	6	Patna	-	-	-	-	76.71	65.17	71.45	85
	7	Varanasi	-	-	-	-	78.53	41.05	60.95	52
	8	Agra	-	-	-	-	75.84	53.26	65.35	70
	9	Meerut	-	-	-	-	64.00	52.12	58.43	81
All Metro Cities			72.60	60.45	66.98	83	78.01	68.05	73.40	87
Urban India			68.74	53.84	61.70	78	75.69	63.90	70.10	84

Note: Male-Female differentials refer to (Literacy rate-F / Literacy rate-M) × 100.
Source: Census of India 1991 (c); Census of India 2001 (a)

was narrowing over the '90s. Every metropolitan city, be it a Pattern 1 city or a Pattern 2 city, has registered an increase over the '90s both in the female literacy rate and male literacy rate. The gender gap in literacy has come down over the decade in all the metropolitan cities. In Kanpur, the gender differential in literacy rates was almost nil by 2001.

e) Aspects relating to gender discrimination

An analysis of the juvenile sex ratio across the metropolitan cities, for the population from 0 to 6 years of age, is undertaken with the premise that low

Table 8.8

Juvenile Sex Ratio in Metropolitan Cities, 1991 and 2001

Urban patterns	S.No.	City	Juvenile sex ratio (0 - 6 years)	
			1991	2001
Pattern 1	1	Greater Mumbai	933	913
	2	Delhi	918	865
	3	Kolkata	955	923
	4	Chennai	962	968
	5	Hyderabad	963	951
	6	Bangalore	947	945
	7	Ahmedabad	897	792
	8	Pune	948	906
	9	Nagpur	944	939
	10	Surat	920	825
	11	Vadodara	913	838
	12	Ludhiana	867	818
	13	Kalyan	937	881
	14	Haora	_	932
	15	Thane	_	915
	16	Nashik	_	905
	17	Faridabad	_	848
	18	Pimpri Chinchwad	_	893
Pattern 2	1	Kanpur	943	827
	2	Lucknow	946	902
	3	Jaipur	907	880
	4	Indore	930	903
	5	Bhopal	941	936
	6	Patna	_	908
	7	Varanasi	_	898
	8	Agra	_	799
	9	Meerut	_	868
All Metro Cities			933	890
Urban India			935	903

Source: Census of India 1991 (c); Census of India 2001 (a)

sex ratios reflect the access disadvantages faced by girl children. Low sex ratios reflect a negation of the biological advantages girl children have. In societies like ours where bias against females operate, the juvenile sex ratio can be indicative of the disadvantages faced by girl children with regard to access to food and nutrition, basic health care, and immunisation (Agnihotri 2000). Table 8.8 presents data on the juvenile sex ratio in the metropolitan cities in 1991 and 2001. Over the decade a very disturbing trend emerges. All the metropolitan cities, with the exception of Chennai, had registered a decline in this ratio. The drastic decline has meant that there were only 890 girls for every 1000 boys in 2001, when we consider all the metropolitan cities together. This was a sharp decline from the ratio of 933 in the year 1991. Another disturbing trend that can be noted from the Table is that over the decade the differential between all urban areas and the metropolitan cities was widening. Factors that were responsible for lowering the sex ratio seemed to operate more prominently in the metropolian cities. In the north and northwestern parts of India that have had a history of female discrimination, the cities of Ahmedabad, Surat, Vadodara, Delhi, Ludhiana, and Jaipur had a below average level of sex ratio in 1991 and 2001. In 1991, 7 out of 18 cities—39 percent—had a below average level of 935 girls per 1000 boys. In 2001, there was a further worsening of the situation and 12 out of 27 cities, i.e., 44 percent of all metros, had a below average level of sex ratio of 903 girls per 1000 boys. Chennai is the only city that has had a high juvenile sex ratio of 968 girls to 1000 boys and the ratio has registered an increase over the decade. While Chennai fared poorly with regard to economic aspects, it has fared well with regard to social factors.

f) Food Access Index — Simple ranking method

Having looked at various factors that influence the ability of the population to access food, we shall now discuss a ranking method that will reflect the relative position of metropolitan cities with regard to the issue of food access. We have essentially used 5 indicators

Table 8.9
Food Access Index of Metropolitan Cities, Simple Ranking Method, Early 1990s

S.No.	City	Ranks of cities for various indicators of food access								Cumulative rank
		Unemployment rate (current daily status)		Extent of casual labour		Head count ratio	Literacy rate		Juvenile sex ratio	
		Male	Female	Male	Female		Male	Female		
1	Greater Mumbai	5	8	18	17	15	17	16	8	104
2	Kalyan	14	7	12	11	17	14	14	9	98
3	Pune	8	9	15	12	9	13	11	15	92
4	Jaipur	18	16	17	18	10	5	1	3	88
5	Kolkata	2	1	10	14	16	12	15	16	86
6	Vadodara	14	13	14	1	7	16	17	4	86
7	Lucknow	11	17	13	9	11	3	5	13	82
8	Bangalore	6	3	5	15	14	11	13	14	81
9	Kanpur	7	13	16	16	6	6	4	11	79
10	Ludhiana	17	17	3	13	18	1	7	1	77
11	Delhi	16	10	11	10	8	8	9	5	77
12	Chennai	1	2	1	8	5	18	18	17	70
13	Hyderabad	13	11	7	2	12	2	3	18	68
14	Indore	12	15	2	6	2	9	8	7	61
15	Surat	3	12	5	7	13	7	6	6	59
16	Nagpur	4	6	4	5	1	15	12	12	59
17	Ahmedabad	8	4	8	3	4	10	10	2	49
18	Bhopal	8	4	8	4	3	4	2	10	43

Source: Tables 8.3 to 8.8

to assess the position of cities with regard to this aspect. The indicators are:

- Levels of unemployment among the workers, measured using the current daily status approach (males and females), pertaining to the year 1993–94
- Proportion of population engaged in casual labour (males and females), pertaining to the year 1993–94
- Levels of literacy (males and females), pertaining to the year 1991
- Levels of poverty (HCR), pertaining to the year 1993–94
- Juvenile sex ratio, pertaining to the year 1991

While we had earlier discussed the levels of inequality in consumption expenditure across the metropolitan cities, we have not included this aspect in the calculation of an access index for food, because we find poverty and inequality to be closely correlated.[13] With regard to employment, we have used such dimensions that capture the vulnerability of the population in a better way—for example, casual labour and daily status unemployment. We have used the simple ranking method to analyse the position of different metropolitan cities with regard to each indicator that we have considered. The cities have been ranked for each indicator. A city that fares the best

[13] The rank correlation between HCR and Gini is 0.68 and is significant at 1 percent level.

with regard to a particular indicator has been assigned the last rank (i.e., 18) and a city that fares the worst, the first rank (i.e., 1). A cumulative rank for each city, which is the sum of individual ranks with regard to the indicators, has been worked out. Taking the median value of the cumulative rank as the cut-off point, cities with equal or below the median value may be treated as having a relatively unsatisfactory position.

Using the simple ranking method and the median, which is a positional average, we can identify the 9 out of the 18 metropolitan cities where the position regarding access to food is relatively unsatisfactory. From Table 8.9 we find that Bhopal, Ahmedabad, Nagpur, Surat, Indore, Hyderabad, Chennai, Delhi, and Ludhiana have a cumulative rank value that is lower than the median value of 78.5 and may therefore be taken to have a relatively unfavourable position with regard to access to food. The rest of the cities may be considered to have a relatively favourable position. Greater Mumbai figures as the city with the best position while Bhopal figures as the city with the worst. Of the 5 cities in Pattern 2, Bhopal and Indore have a poor ranking; Kanpur is just above average; Jaipur and Lucknow fare well essentially because of low levels of casual labour and open unemployment even though they have very low levels of literacy. Among the major metropolitan cities, Hyderabad, Chennai, and Delhi fare poorly.

g) Food Access Index — Composite index method

We have also worked out a composite index of food access, as a simple average of the individual indices of the chosen indicators. Indices for casual labour, unemployment, poverty, literacy, and sex ratio will be used to work out the composite index of food access. The advantage of a composite index over the simple ranking method is that here for each indicator we will know not only the position of a city with regard to other cities but also the exact distance the city has to travel to attain the best position prevailing among the metropolitan cities for that particular indicator, given that the value of the index always lies between 0 and 1. To work out an index of any chosen indicator, we will identify the minimum and maximum value of the series and using the actual value for the city, we will work out the distance the city has to travel to attain the best possible position. The formula used to work out the individual index is as follows:

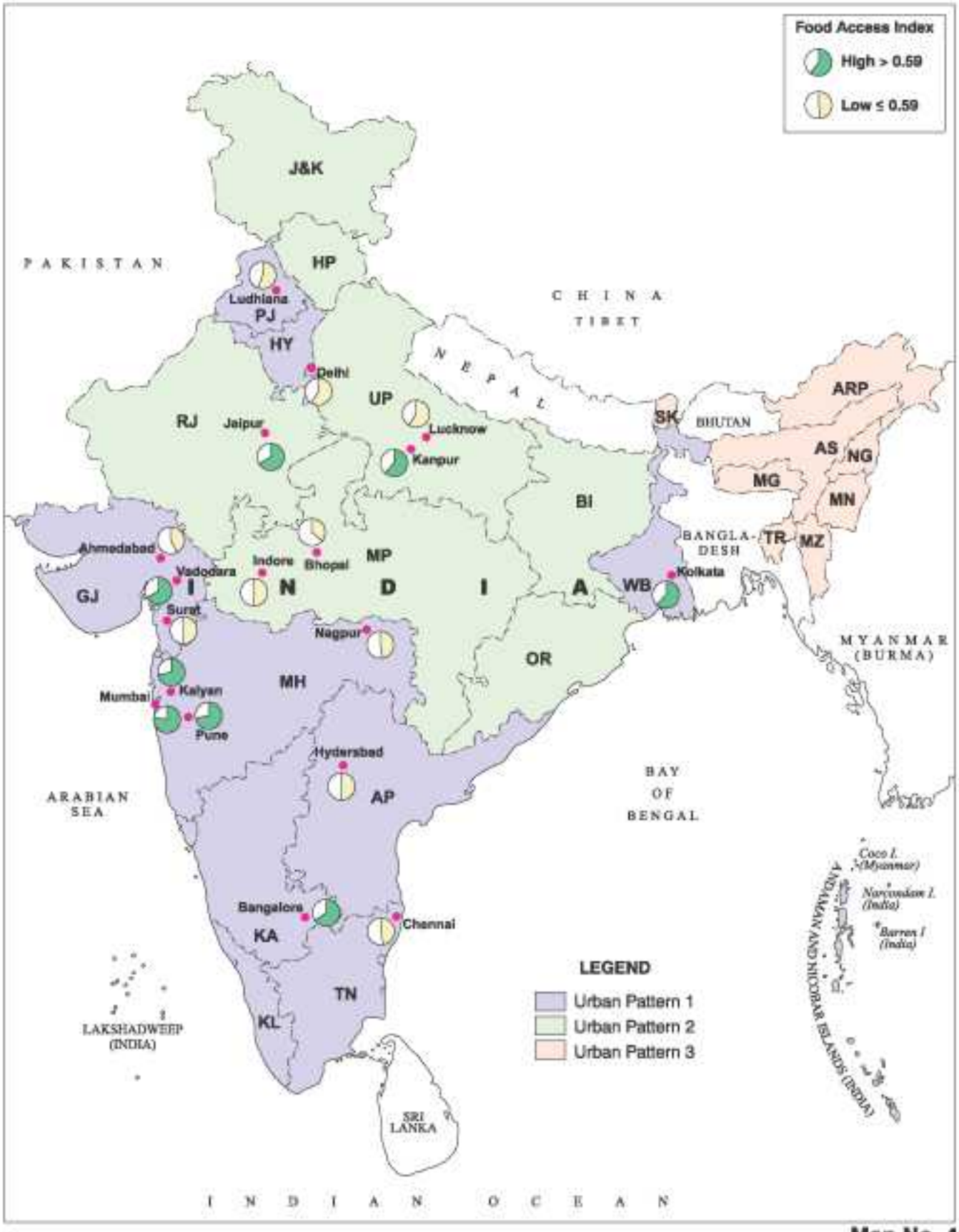
Index = (actual value minus minimum value) / (maximum value minus minimum value), if the indicator is such where a higher value denotes better access to food such as in the case of literacy and sex ratio.

For indicators such as unemployment, poverty, etc. where a lower value denotes better access to food, the formula is as follows:

Index = (maximum value minus actual value) / (maximum value minus minimum value).

Using this method too, we find that Greater Mumbai has the best position while Bhopal has the worst position with regard to food access. (Table 8.10 and Map 8.3) The value of the index of food access in Mumbai is more than twice that in Bhopal. While Mumbai, with the first rank, has to make up a shortfall in food access of about 22 percent, Bhopal has to make up a shortfall of 64 percent. Among the major metropolises, Chennai has the worst position, with a shortfall of 52 percent. Of the 18 metropolitan cities, 10 cities have a composite index value that is lower than the median value, indicating that more than half the metros have a relatively unfavourable position. Of these 7 cities are in States that exhibit urban Pattern 1 and 3 cities are in Pattern 2 States. In other words, 54 percent of Pattern 1 cities and 60 percent of Pattern 2 cities fare poorly. The 4 cities that get the bottom most ranks— Bhopal, Ahmedabad, Nagpur, Chennai—have high levels of unemployment, casualisation, and poverty.

Food Access Index in Metropolitan cities, Early Nineties



Map No. 4

Table 8.10

Food Access Index of Metropolitan Cities, Ranking by Composite Index Method, Early 1990s

S.No.	City	Values of indices of food access								Composite index of food access
		Index of unemployment		Index of casual labour		Index of poverty	Index of literacy		Index of juvenile sex ratio	
		Male	Female	Male	Female		Male	Female		
1	Greater Mumbai	0.40	0.48	1.00	0.91	0.83	0.95	0.95	0.69	0.78
2	Kalyan	0.79	0.38	0.68	0.60	0.84	0.85	0.91	0.73	0.72
3	Pune	0.46	0.63	0.85	0.64	0.58	0.84	0.86	0.84	0.71
4	Vadodara	0.79	0.83	0.84	0.00	0.50	0.90	0.96	0.48	0.66
5	Jaipur	1.00	0.95	0.96	1.00	0.62	0.29	0.00	0.42	0.66
6	Bangalore	0.43	0.13	0.44	0.77	0.79	0.81	0.90	0.83	0.64
7	Kolkata	0.11	0.00	0.57	0.73	0.84	0.82	0.94	0.92	0.62
8	Kanpur	0.45	0.83	0.88	0.84	0.45	0.39	0.29	0.79	0.62
9	Delhi	0.93	0.64	0.62	0.47	0.52	0.46	0.54	0.53	0.59
10	Lucknow	0.51	1.00	0.79	0.43	0.63	0.22	0.30	0.82	0.59
11	Ludhiana	0.99	1.00	0.29	0.69	1.00	0.00	0.48	0.00	0.56
12	Hyderabad	0.68	0.68	0.51	0.10	0.66	0.20	0.26	1.00	0.51
13	Indore	0.58	0.84	0.28	0.30	0.25	0.59	0.52	0.66	0.50
14	Surat	0.24	0.76	0.44	0.31	0.78	0.43	0.45	0.55	0.50
15	Chennai	0.00	0.13	0.00	0.33	0.36	1.00	1.00	0.99	0.48
16	Nagpur	0.25	0.32	0.36	0.27	0.00	0.86	0.90	0.80	0.47
17	Ahmedabad	0.46	0.23	0.51	0.16	0.35	0.69	0.67	0.31	0.42
18	Bhopal	0.46	0.23	0.51	0.17	0.27	0.24	0.25	0.77	0.36

Source Tables 8.3 to 8.8

Comparing the ranking of cities by the simple ranking method and the composite index method, we find that there is a very close correspondence between the two methods. Even though individual ranking of some cities have changed, if we were to group the cities as those that face a relatively favourable situation (those above the median value) and those that face a relatively unfavourable situation (those equal to or below the median value) with regard to food access, then we find there is not much significant variation in ranking between the two methods. The composite index method, apart from giving us the relative position of the city, also gives us the extent of shortfall experienced by the city.

8.3 Access to Food Across Metropolitan Cities, Late 1990s

a) Food Access Index— Composite index method

The 55th Round of NSS pertaining to the year 1999–2000 used the 1991 Census for the sampling frame and collected data on employment and unemployment in the cities and towns of India.[14]

[14] Abhijit Sen (2002) has a detailed discussion on the reliability of data from the 55th Round of NSS, which he points out may not be comparable to those from earlier Rounds.

Table 8.11
Slum Population in Metropolitan Cities, 2001

S.No.	City	Slum population	Total population	Percentage of slum population
1	Greater Mumbai	5823510	11914398	48.88
2	Delhi	1854685	9817439	18.89
3	Kolkata	1490811	4580544	32.55
4	Chennai	1079414	4216268	25.60
5	Bangalore	345200	4292223	8.04
6	Hyderabad	601336	3449878	17.43
7	Ahmedabad	439843	3515361	12.51
8	Nagpur	726664	2051320	35.42
9	Pune	531337	2540069	20.92
10	Surat	406018	2433787	16.68
11	Vadodara	107289	1306035	8.21
12	Ludhiana	314759	1395053	22.56
13	Kalyan	34854	1193266	2.92
14	Haora	118235	1008704	11.72
15	Thane	420276	1261517	33.32
16	Nashik	142234	1076967	13.21
17	Faridabad	491131	1054981	46.55
18	Pimpri Chinchwad	129357	1006417	12.85
		15056953	58114227	25.91
1	Kanpur	368808	2532138	14.57
2	Lucknow	0	2207340	0.00
3	Jaipur	350353	2324319	15.07
4	Indore	259577	1597441	16.25
5	Bhopal	126346	1433875	8.81
6	Patna	3511	1376950	0.25
7	Varanasi	138183	1100748	12.55
8	Agra	121890	1259979	9.67
9	Meerut	471316	1074229	43.87
		1839984	12699679	14.49
All Metro Cities		16896937	70813906	23.86

Note: No slum population has been reported in Lucknow. This is being scrutinized by the Census. Slum population of Patna is partial and is being subjected to scrutiny.

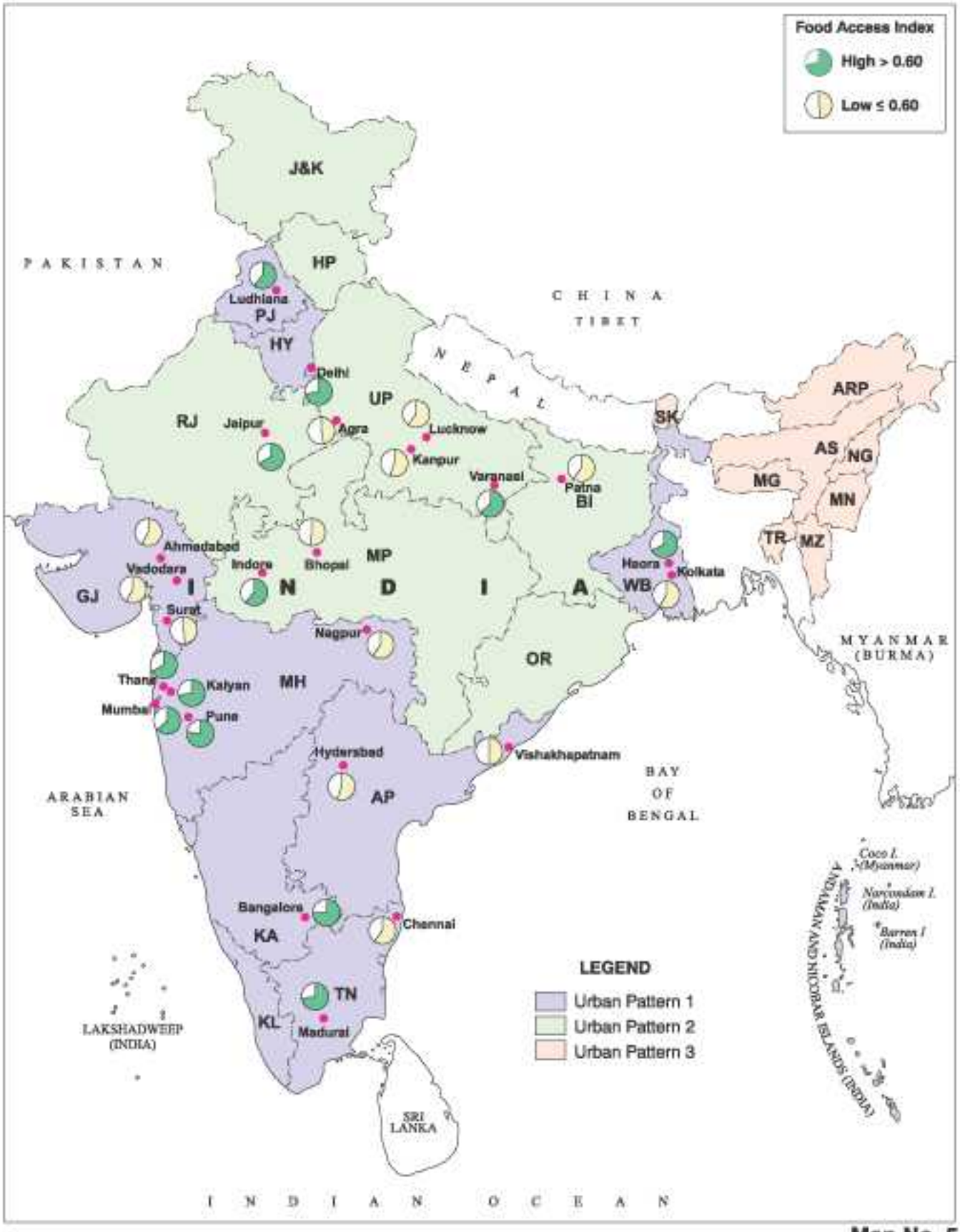
Source: www.censusindia.net/results/slum 1.html

While the 50th Round (1993–94) had considered all the 18 metropolitan cities of 1991, the 55th Round gave information for 7 more cities, i.e., for a total number of 25 cities. Of the 7 new cities, 5 had become metropolitan cities by 2001 while two, Madurai and Visakhapatnam, were not metropolitan cities even by 2001. The 55th Round of NSS has not considered 4 metropolitan cities of 2001—Meerut, Faridabad, Pimpri Chinchwad, and Nashik. Even though the reasons for inclusion or exclusion of cities in the 55th Round are not clear, our analysis shall consider all the 25 cities as metropolitan cities, because NSSO considers them to be so. Making use of this data for aspects relating to employment and data on levels of literacy, percentage of population living in slums, and the juvenile sex ratio from the Census of 2001, we have computed an index of food access for the metropolitan cities. We will discuss the data on slum population and then discuss the food access index for the late'90s.

In using the data on slums, we encounter problems such as non-reportage of slums in some cities. For instance, Lucknow has reported that there are no slums in the city! Nonetheless, since this is the only indicator on level of living that is available, we will use this data to compute an index of access to food in the various metropolitan cities. In general, cities of Pattern 1 have a higher percentage of population in slums compared to cities of Pattern 2, with the exception of Meerut that has about 44 percent of its population in slums. Greater Mumbai reports the highest percentage of population living in slums at 48.88 percent. Kolkata has one- third of its population in slums while in Chennai the corresponding proportion is one-fourth and it is one-fifth in Delhi. (Table 8.11)

Table 8.12 gives the Food Access Index computed by the composite index for the metropolitan cities for the late 1990s. As mentioned above, we have used data on employment and unemployment for the year 1999–2000 from the 55th Round of NSS and data on literacy, slum population, and juvenile sex ratio from the 2001 Census. Of the 25 cities considered, 13 cities— 9 out of 18 cities in Pattern 1 and 4 out of 7 cities in Pattern 2—have a value of composite index

Food Access Index in Metropolitan cities, Late Nineties



Map No. 5

Table 8.12

Food Access Index of Metropolitan Cities, Ranking by Composite Index Method, Late 1990s

S.No.	City	Values of various indices								Composite index of food access
		Index of unemployment		Index of casual labour		Index of literacy		Index of slum population	Index of sex ratio	
		Male	Female	Male	Female	Male	Female			
1	Pune	0.60	0.92	0.83	0.92	0.79	0.91	0.57	0.65	0.77
2	Bangalore	0.64	0.72	0.55	0.72	0.70	0.97	0.84	0.87	0.75
3	Madurai	0.64	0.61	0.40	0.69	1.00	0.97	0.61	0.89	0.73
4	Delhi	0.76	0.86	1.00	0.97	0.37	0.77	0.61	0.45	0.72
5	Kalyan	0.07	0.57	0.83	0.78	0.96	1.00	0.94	0.51	0.71
6	Haora	0.00	0.51	0.84	0.78	0.75	0.92	0.76	0.80	0.67
7	Jaipur	0.71	0.94	0.88	0.90	0.18	0.52	0.69	0.50	0.67
8	Thane	0.33	0.53	0.65	0.99	0.85	0.92	0.32	0.70	0.66
9	Greater Mumbai	0.14	0.54	0.98	0.95	0.86	0.89	0.00	0.69	0.63
10	Varanasi	0.34	0.95	0.92	0.94	0.54	0.00	0.74	0.60	0.63
11	Ludhiana	1.00	0.97	0.52	0.91	0.00	0.79	0.54	0.15	0.61
12	Indore	0.14	1.00	0.50	0.76	0.46	0.70	0.67	0.63	0.61
13	Nagpur	0.22	0.88	0.25	0.47	0.90	0.98	0.28	0.84	0.60
14	Chennai	0.06	0.86	0.29	0.83	0.43	0.80	0.48	1.00	0.59
15	Patna	0.28	0.00	0.86	0.85	0.38	0.70	0.99	0.66	0.59
16	Lucknow	0.64	0.62	0.41	0.69	0.04	0.67	1.00	0.63	0.59
17	Vadodara	0.49	0.69	0.52	0.07	0.84	0.97	0.83	0.26	0.58
18	Kolkata	0.31	0.63	0.53	0.75	0.47	0.88	0.33	0.74	0.58
19	Ahmedabad	0.83	0.98	0.00	0.76	0.52	0.78	0.74	0.00	0.58
20	Kanpur	0.00	0.99	0.56	1.00	0.10	0.89	0.70	0.20	0.55
21	Hyderabad	0.30	0.79	0.55	0.28	0.15	0.69	0.64	0.90	0.54
22	Bhopal	0.01	0.73	0.46	0.54	0.16	0.64	0.82	0.82	0.52
23	Vishakhapatnam	0.24	0.29	0.01	0.88	0.19	0.64	0.74	0.99	0.50
24	Surat	0.88	0.95	0.12	0.00	0.39	0.73	0.66	0.19	0.49
25	Agra	0.29	0.98	0.01	1.00	0.31	0.36	0.80	0.04	0.47

Source: NSSO 2001, Report No. 462; Census of India 2001 (a)

lower than the median value. By the composite index method, Pune has the best position followed by Bangalore and Delhi while the worst position is held by Agra, followed by Surat and Vishakapatnam. Pune has a composite index of 0 .77 indicating that it has a shortfall in food access of 23 percent. Agra, with the lowest rank, has a shortfall in food access to the tune of 53 percent. (Map 8.4) Comparing Map 8.3 and Map 8.4 we find that the broad pattern with respect to the food access position of cities has remained more or less the same over the decade.

b) *Food Access Index - Comparison of early 1990s and late 1990s*

In order to compare the position of metropolitan cities over the 1990s with regard to food access, we shall consider the indicators that are common to both the periods for the 18 metropolitan cities.

Table 8.13

Food Access Index of Metropolitan Cities, Early 1990s and Late 1990s, A Comparison

S.No.	City	Composite index of food access			
		1993-94	Rank	1999-00	Rank
1	Greater Mumbai	0.77	1	0.63	4
2	Pune	0.73	2	0.78	1
3	Kalyan	0.70	3	0.61	6
4	Vadodara	0.68	4	0.49	14
5	Jaipur	0.66	5	0.58	8
6	Kanpur	0.64	6	0.51	13
7	Bangalore	0.62	7	0.69	2
8	Delhi	0.60	8	0.68	3
9	Kolkata	0.58	9	0.54	11
10	Lucknow	0.58	10	0.41	17
11	Nagpur	0.54	12	0.63	5
12	Indore	0.54	11	0.56	10
13	Chennai	0.49	14	0.56	9
14	Hyderabad	0.49	15	0.44	15
15	Ludhiana	0.49	13	0.58	7
16	Surat	0.45	16	0.42	16
17	Ahmedabad	0.43	17	0.52	12
18	Bhopal	0.38	18	0.38	18

Note: Composite index has been calculated using a total number of 7 indicators on which data is available for both the years. The indicators are casual labour (M and F), current daily status unemployment (M and F), literacy rate (M and F), and juvenile sex ratio.

Source: Tables 8.3 to 8.8; NSSO 2001, Report No. 462

From Table 8.13 we find that Mumbai has lost its first position to Pune. Mumbai's rank has slipped down from 1 to 4, while Kolkata's rank has slipped from 9 to 11. Delhi, Chennai, and Bangalore have improved their position dramatically over the period. Bangalore has moved up from a rank of 7 to 2, Delhi from 8 to 3, and Chennai from 14 to 9. Improvement in the relative position in access to food has come about due to various reasons: in Bangalore it may be attributed to a decline in unemployment reported among males and females over the quinquennium; in Chennai there was a sharp fall in proportion of female workers engaged in casual labour, from 230 out of 1000 workers in 1993–94 to 112 out of 1000 workers in 1999–2000. It has to be noted that the decline in casual labour among females in Chennai has not meant an increase in the proportion of regular salaried but an increase of the self-employed. Chennai has also recorded a sharp fall in unemployment rate among females, from 15.7 percent to 4.5 percent. Delhi's improved position may be attributed to a sharp decline in casual labour employment among males as well as females, by more than 10 percentage points. Bhopal, Surat, and Hyderabad have retained their status as cities with low ranks. Ahmedabad has however improved its position from 17 to 12.[15] Bhopal has the lowest rank with regard to food access in both the periods and has a shortfall of 62 percent, exactly the same percentage in both periods. A fall in Greater Mumbai's position is related to an increase in casual labour employment as well as an increase in the rate of unemployment among males and females in the city. The ranks obtained by the cities over the two time points that we have considered seem to be significantly correlated: the value of correlation is 0.57 and is significant at 5 percent level.

[15] For a detailed account of the Ahmedabad scenario, see Mahadevia 2002.

Availability of cheap food would improve the ability of people to buy and consume food. A study conducted in the city of Kolkata highlights the importance of 'street foods' in meeting the nutritional needs of the poor. We give some extracts from this study:

A total of 911 consumers were interviewed… Approximately 80 percent of the respondents were male, ranging in age from 19 to 48 years, with an average age of 34. Women had dual careers, working both inside and outside the home, with little time for culinary chores. To these women and their husbands, street food was a solution for their eating during the day…Many of the consumers lived far from Calcutta, with daily commuting distances ranging from 20 to 100km.

The nutritional value of the food sold in the streets was assessed by analysing some popular meals. An average 500g meal contained 20 to 30g of protein, 12 to 15g of vegetable fat, 174 to 183g of carbohydrate, and provided approximately 1000 kcal. The meals cost between Rs.4 and Rs.8 (mean Rs.5). The analysis indicates that street foods may be the least expensive means of obtaining a nutritionally balanced meal outside the home, provided the consumer is informed and able to choose the proper combination of food.

On the basis of this study policy guidelines are being prepared to promote sustainable development of the street food sector in the city according to sound administrative, hygienic, and environmental requirements.

Source: Chakravarty and C. Canet, *Street Foods in Calcutta,* www.fao.org

8.4 Aspects Relating to Food Absorption

An important dimension of food security is the ability of the population to absorb food. Biological absorption of food in the body is related to the consumption of clean drinking water as well as environmental hygiene (Swaminathan 2001b). As discussed earlier, we do not have town level data on the health status of the population. It is therefore not possible to calculate various anthropometric measures of nutrition or health across the metropolitan cities. On the basis of data from the Census, it is however possible to assess the variation in access to basic amenities across households in different metropolitan cities. The Census of 1991 provides data on households that have access to safe drinking water, toilets, and electricity. According to the Census, if a household has access to drinking water supplies from a tap, hand pump, or tube well situated within or outside the premises, it is considered as having access to 'safe drinking water'. We also have data on the quality of housing as well as on the availability of beds in medical institutions. Tables 8.14 and 8.15 provide some basic details on access to amenities for households across metropolitan cities. Access to amenities for households varied across urban patterns, especially with regard to access to toilets and electricity. In the Pattern 1 cities, nearly 80 percent of the households reported access to toilets while the corresponding percentage for Pattern 2 cities was only 74 percent. Similarly, in Pattern 1 less than 2 percent of households had no access to any of the three amenities, while in Pattern 2 this percentage was much higher—about 3 percent of households. Even in the city of Delhi, that had the relatively best position with regard to drinking water for households, 4 percent of households did not have access to safe drinking water. Chennai had the worst position where nearly 30 percent of households did not have safe drinking water. Among the Pattern 1 metros, Chennai, Bangalore, Hyderabad, and Nagpur fared very poorly with regard to drinking water. Among the Pattern 2 cities, the problem of drinking water was less severe in Jaipur and Bhopal while in Kanpur, Lucknow, and Indore more than 10 percent

Table 8.14

Access to Basic Amenities for Households Across Metropolitan Cities, 1991

Urban pattern	S.No.	City	Percentage of households that have access to				Percentage of households that do not have access to any of the three facilities	Percentage of households that occupy kutcha or semi-pucca houses	Availability of no.of beds in medical institutions per 1000 population
			Safe drinking water	Toilet	Electricity	All three facilities			
Pattern 1	1	Greater Mumbai	96.39	78.18	89.61	74.42	1.35	9.43	0.98
	2	Delhi	96.56	68.75	83.09	64.88	1.02	14.52	1.55
	3	Kolkata	94.40	94.98	89.32	82.67	0.20	16.82	3.21
	4	Chennai	71.14	82.33	83.46	56.36	3.91	24.96	3.32
	5	Hyderabad	86.48	89.34	90.44	76.01	1.27	20.39	3.77
	6	Bangalore	82.89	84.21	82.85	65.73	2.05	12.23	4.03
	7	Ahmedabad	91.79	71.51	79.35	63.90	2.10	12.63	4.24
	8	Pune	95.46	85.69	91.56	80.53	0.72	19.47	4.31
	9	Nagpur	73.73	72.35	82.82	54.39	5.75	40.82	2.79
	10	Surat	90.71	69.95	78.65	62.47	2.44	28.10	3.43
	11	Vadodara	92.74	77.92	85.75	71.78	1.64	20.98	3.73
	12	Ludhiana	95.85	86.55	96.14	82.22	0.16	6.58	2.01
	13	Kalyan	95.38	71.87	94.13	69.36	0.57	9.43	0.98
			90.69	79.18	86.41	69.70	1.65	16.11	2.55
Pattern 2	1	Kanpur	88.83	74.76	75.25	62.78	3.69	16.19	0.63
	2	Lucknow	88.05	73.41	76.21	63.62	5.10	12.29	3.16
	3	Jaipur	90.42	79.49	82.73	70.77	1.84	9.75	2.66
	4	Indore	88.62	67.68	83.22	58.71	2.15	32.58	4.48
	5	Bhopal	93.26	71.31	85.91	65.41	1.61	31.39	2.81
			89.64	73.80	79.92	64.40	3.06	18.55	2.53
All Metro Cities			90.24	78.09	85.13	68.98	3.80	16.37	2.55
Urban India			81.16	63.76	75.78	50.38	5.88	27.25	2.61

Note: 1. For Indore, the entire data set refers to the Indore urban agglomeration and not the core city.
2. Data on Housing, for all the cities, refer to urban agglomeration.
3. Medical institutions comprise hospitals, dispensaries, health centres, nursing homes, and family planning centres.
4. Data on beds in medical institutions have been combined for Mumbai and Kalyan.

Source: Census of India 1991(d)

of households did not have access to safe drinking water.

Kolkata reported the best position with regard to toilet facilities with 95 percent of its households having access to toilets. In Indore, which had the worst possible position among the metropolitan cities, nearly one-third of households did not have access to toilets. It is well recognised that having an exclusive sanitary facility is culturally and epidemiologically significant even if the latrine is qualitatively inferior (Nayar 1997). Jaipur, where 80 percent of households reported access to toilets, was the only metropolitan city where use of human labour for the disposal of night soil was prevalent even in the year 1991. Even though Jaipur reported the prevalence of a sewerage system, 'head load' was one of the most prevalent methods of night soil disposal.

Table 8.15

Index of Basic Amenities for Metropolitan Cities, Ranking by Composite Index Method, 1991

S.No.	City	Values of indices of basic amenities					Composite index of basic amenities
		Access to safe drinking water	Access to toilets	Access to electricity	Access to housing	Availability of medical beds	
1	Ludhiana	0.97	0.69	1.00	1.00	0.36	0.80
2	Pune	0.96	0.66	0.78	0.62	0.96	0.80
3	Kolkata	0.92	1.00	0.67	0.70	0.67	0.79
4	Hyderabad	0.60	0.79	0.73	0.60	0.82	0.71
5	Bangalore	0.46	0.61	0.36	0.83	0.88	0.63
6	Vadodara	0.85	0.38	0.50	0.58	0.81	0.62
7	Greater Mumbai	0.99	0.38	0.69	0.92	0.09	0.62
8	Kalyan	0.95	0.15	0.90	0.92	0.09	0.60
9	Jaipur	0.76	0.43	0.36	0.91	0.53	0.60
10	Ahmedabad	0.81	0.14	0.20	0.82	0.94	0.58
11	Delhi	1.00	0.04	0.38	0.77	0.24	0.48
12	Lucknow	0.67	0.21	0.05	0.83	0.66	0.48
13	Bhopal	0.87	0.13	0.51	0.28	0.57	0.47
14	Indore	0.69	0.00	0.38	0.24	1.00	0.46
15	Surat	0.77	0.08	0.16	0.37	0.73	0.42
16	Chennai	0.00	0.54	0.39	0.46	0.70	0.42
17	Kanpur	0.70	0.26	0.00	0.72	0.00	0.34
18	Nagpur	0.10	0.17	0.36	0.00	0.56	0.24

Source: Table 8.14

A very large percentage of households in metropolitan cities were deprived of access to all three amenities. Kolkata, had the best position in this regard, with 83 percent of households having access to all. In 10 out of 18 metropolitan cities, the proportion of households that did not have access to all three facilities ranged from one-third to one-half. Analysing data on households that do not have access to any of the three facilities, we find that Nagpur exhibited the worst position with 6 percent of households reporting no access, which was 93,000 households in 1991. Among the major metropolitan cities, Chennai had the largest number of households—1,50,000—that did not have access to all three facilities, followed by Mumbai with 1,30,000 households. Looking at the coefficient of variation in access to various amenities for households in metropolitan cities, variation is highest for toilets (10.12 percent) followed by drinking water (8.15 percent). Variation is the least when we consider access to electricity for households (6.93 percent).

Houses that are built with non-permanent materials, say, kutcha or semi-pucca materials, indicate poor quality of housing. Kutcha or semi-pucca structures are characteristic of poor households (Kundu 1993). A very high percentage of population in metropolitan cities, ranging from 7 percent in Ludhiana to 40 percent in Nagpur, lived in poor quality housing. For the households living in kutcha and semi-pucca houses, the levels of congestion were also generally high. Poor quality of housing combined with poor environmental hygiene will have implications for the health of the people residing in them. The number of poor quality houses was the highest in Chennai with 2,70,000 families occupying such houses, accounting for one-fourth of the total

households in the city. The magnitude of the problem was second highest in Mumbai with 2,51,000 families in kutcha or semi-pucca houses, though in percentage terms the problem was one of the least in Mumbai. The percentage of households that occupy kutcha or semi pucca houses was slightly more in Pattern 2 cities compared to Pattern 1 cities, though we noted earlier that the problem of slums was more severe in Pattern 1 cities.

The Census of 1991 also provides data on the number of beds in various types of medical institutions that are run by or aided by government or semi-government or local bodies and charitable institutions or social service agencies like missionaries. The number of beds in medical institution includes what is available in hospitals, nursing homes, family planning centres, health centres, and dispensaries. Such data give us an idea about the nature of in-patient facility available in medical institutions in the cities. Indore, Pune, Ahmedabad, and Bangalore had more than 4 beds per thousand population. Chennai, Kolkata, Vadodara, Hyderabad, Lucknow, and Surat had more than 3 beds per thousand population. Delhi reported an average of 1.55 beds per 1000 population while Mumbai reported an even lower figure of 0.98 beds. In sum, Kanpur and Lucknow in Uttar Pradesh, Mumbai, Kalyan and Nagpur in Maharashtra, Ludhiana, and Delhi have fared very poorly with regard to availability of beds. It is important to note that this data set reveals only the availability of medical services, and neither the quality of services nor access to services has been indicated. It is interesting to note that availability of beds is lower in metropolitan cities than all urban areas and that there is not much difference between the two urban patterns.

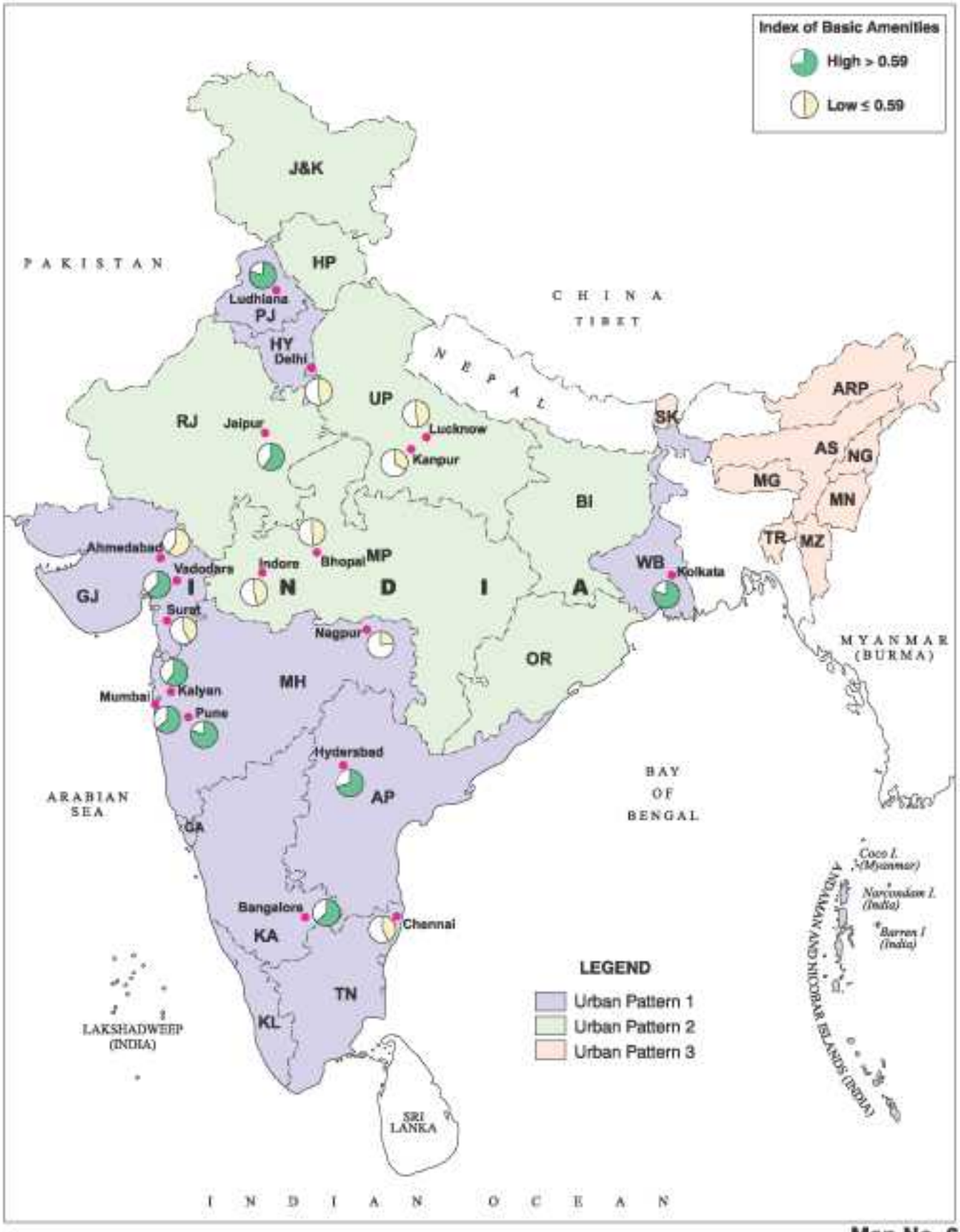
Working out a composite index of basic amenities, we find that Ludhiana comes out as the best city as a large number of households have access to safe drinking water, good quality of housing, and electricity. Pune, that has the second position, fares well with regard to drinking water and medical facilities. Kolkata fares well in terms of access to toilets as well as drinking water. Nagpur has the worst position as it fares poorly with regard to all the indicators considered. The relative position of various cities with regard to basic amenities has been depicted in Map 8.5. Comparing the food access index of the early 1990s (see Table 8.10 and Map 8.3) and the basic amenities index of 1991, we find that cities that have done well with regard to food access have also done well with regard to food absorption: Mumbai, Kalyan, Pune, Vadodara, Jaipur, Bangalore, and Kolkata fall in this category. About eight metropolitan cities—Chennai, Delhi, Nagpur, Bhopal, Ahmedabad, Surat, Indore, and Lucknow— fare poorly with regard to food access as well as absorption.[16] Ludhiana and Hyderabad fare well in terms of absorption but not so in terms of access, while Kanpur fares well in terms of food access but not food absorption. Of the 5 cities in Pattern 2, only Jaipur fares well in terms of this index of amenities, by virtue of having good housing facilities and safe drinking water.

Biological absorption of food in the body is also related to the level of pollution in the environment. Analysing the air quality data collected by the Central Pollution Control Board, we find that with regard to suspended particulate matter (SPM), except for Chennai, all other metros reported a higher level than the standard recommended by the National Ambient Air Quality Standards, which is 140 ug/m3. A high level of air pollution in terms of suspended particulate matter is a cause for concern as it has implications for respiratory diseases. (Table 8.16)

On the basis of a survey conducted by the Central Pollution Control Board across some selected cities in

[16] For the 18 metropolitan cities, rank correlation coefficient between indices of food access and basic amenities is 0.54 and is significant at 5 percent level.

Index of Basic Amenities in Metropolitan Cities, 1991



Map No. 6

Table 8.16

Solid Waste Generation and Air Quality, Metro Cities, 1990s

Urban patterns	S.No	City	Approximate quantity of solid waste (tonnes/day)	Suspended particulate matter (µg/m3)
Pattern 1	1	Greater Mumbai	5242	230
	2	Delhi	4712	355
	3	Kolkata	1741	327
	4	Chennai	2783	99
	5	Bangalore	2060	158
	6	Hyderadad	1311	158
	7	Ahmedadad	2074	261
	8	Nagpur	554	190
	9	Pune	787	185
	10	Surat	1460	NA
	11	Vadodara	509	NA
	12	Ludhiana	530	NA
	13	Kalyan	525	NA
Pattern 2	1	Kanpur	1621	390
	2	Lucknow	1369	NA
	3	Jaipur	930	283
	4	Indore	511	NA
	5	Bhopal	731	221

Note: NA = not available

Source: Central Pollution Control Board 2000; Central Pollution Control Board (undated)

the country, it can be said that the problem of solid waste disposal is relatively more acute among large metropolises, causing environmental problems and health hazards (Central Statistical Organisation 1999).

Table 8.16 gives an idea about the enormity of the problem across the metropolitan cities. The greater the generation of solid waste, the greater the task for the city authorities to put in place an improved method of waste management. The problem was certainly much more acute among Pattern 1 metropolitan cities compared to the Pattern 2 cities. The most populous city of Greater Mumbai also had the most severe problem with regard to the amount of solid waste generated per day, around 5000 tonnes.

8.5 Food Security Across Metropolitan Cities, Early 1990s

Having discussed various aspects across the 18 metropolitan cities relating to food access and basic amenities that help in food absorption, we can now estimate a composite index of food security across these cities. Given that as many as 7 out of 18 cities fared well with regard to food access as well as food absorption, and 8 out of 18 cities fared poorly with regard to both these aspects, there will also be a close correspondence between the values of composite index of food security obtained by these cities and the two major dimensions of food security, namely food access and food absorption.[17] Bhopal, Indore, Ahmedabad, Surat, Chennai, Delhi, Nagpur, and Lucknow fare poorly with regard to food access as well as absorption and therefore also in overall food security. Greater Mumbai, Kalyan, Pune, Kolkata, Bangalore, Vadodara, and Jaipur have a relatively good position with regard to food access as well as food absorption and therefore also in overall food security. Hyderabad and Ludhiana do better in terms of food absorption than food access and manage an overall high value for food security, while Kanpur that fares poorly with regard to food absorption also fares poorly in overall food security. Of the 5 Pattern 2 cities, only Jaipur has a high value of food security. Jaipur's overall favourable position is related to the low levels of open unemployment, casual labour, and poverty in the city. Jaipur also has a relatively good position with regard to housing and safe drinking water. Of the cities that do badly in terms of overall food security, Chennai and Nagpur do well in terms of literacy, juvenile sex ratio, and availability of medical beds while Bhopal, Ahmedabad, and Surat have a relatively good position

[17] For the 18 metropolitan cities, rank correlation coefficient between indices of food access and food security is 0.88 and between food absorption and food security is 0.85, and both are significant at 1 percent level.

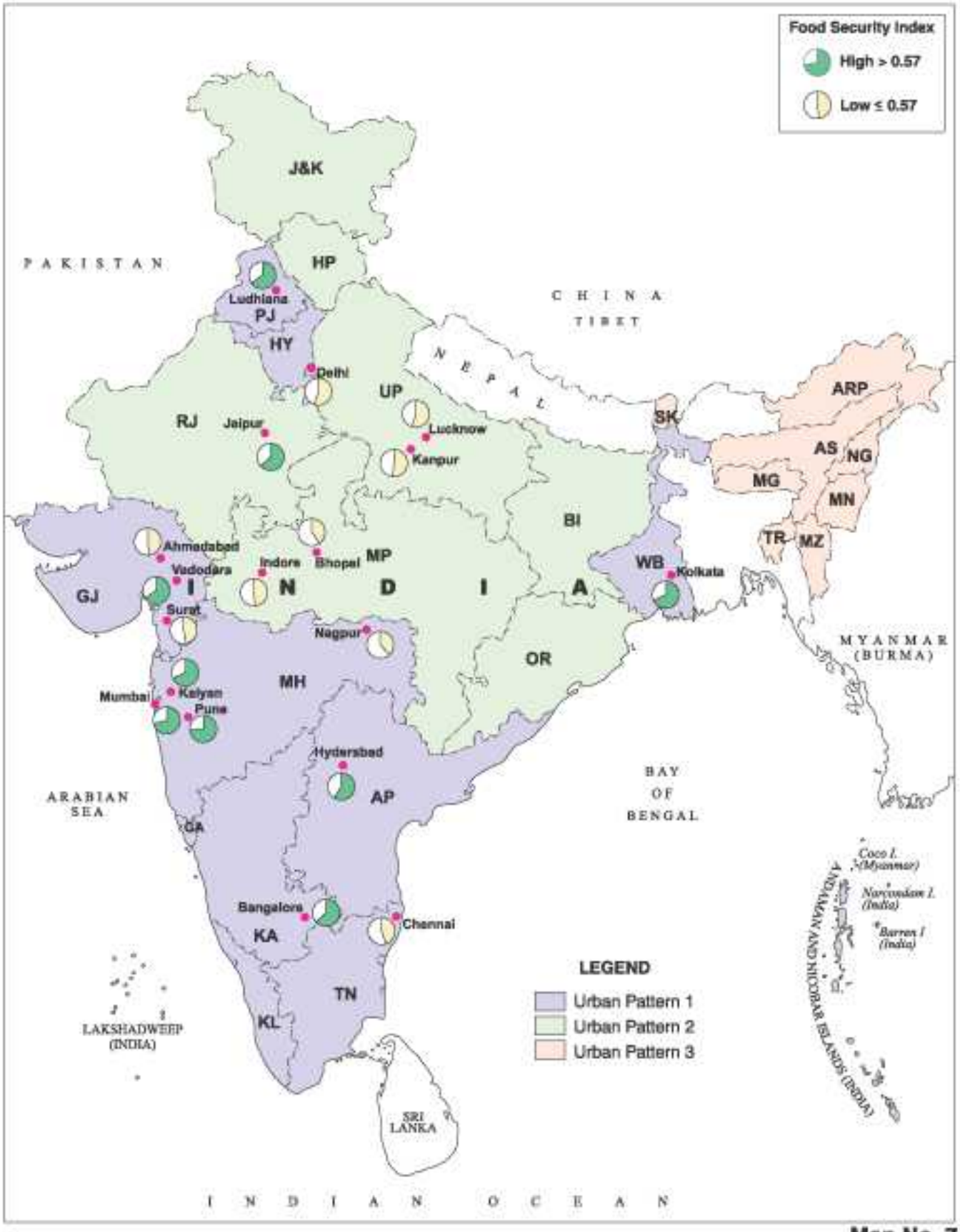
Table 8.17

Food Security Index Across the Metropolitan Cities, Early 1990s

S.No.	City	Values of indices of indicators of food security													Composite index of food security
		Safe drinking water	Toilets	Electricity	Housing	Medical beds	Unemployment		Casual labour		Poverty	Literacy		Juvenile sex ratio	
							Male	Female	Male	Female		Male	Female		
1	Pune	0.96	0.66	0.78	0.62	0.96	0.46	0.63	0.85	0.64	0.58	0.84	0.86	0.84	0.74
2	Greater Mumbai	0.99	0.38	0.69	0.92	0.09	0.40	0.48	1.00	0.91	0.83	0.95	0.95	0.69	0.71
3	Kolkata	0.92	1.00	0.67	0.70	0.67	0.11	0.00	0.57	0.73	0.84	0.82	0.94	0.92	0.68
4	Kalyan	0.95	0.15	0.90	0.92	0.09	0.79	0.38	0.68	0.60	0.84	0.85	0.91	0.73	0.68
5	Ludhiana	0.97	0.69	1.00	1.00	0.36	0.99	1.00	0.29	0.69	1.00	0.00	0.48	0.00	0.65
6	Vadodara	0.85	0.38	0.50	0.58	0.81	0.79	0.83	0.84	0.00	0.50	0.90	0.96	0.48	0.65
7	Bangalore	0.46	0.61	0.36	0.83	0.88	0.43	0.13	0.44	0.77	0.79	0.81	0.90	0.83	0.63
8	Jaipur	0.76	0.43	0.36	0.91	0.53	1.00	0.95	0.96	1.00	0.62	0.29	0.00	0.42	0.63
9	Hyderabad	0.60	0.79	0.73	0.60	0.82	0.68	0.68	0.51	0.10	0.66	0.20	0.26	1.00	0.59
10	Delhi	1.00	0.04	0.38	0.77	0.24	0.93	0.64	0.62	0.47	0.52	0.46	0.54	0.53	0.55
11	Lucknow	0.67	0.21	0.05	0.83	0.66	0.51	1.00	0.79	0.43	0.63	0.22	0.30	0.82	0.55
12	Kanpur	0.70	0.26	0.00	0.72	0.00	0.45	0.83	0.88	0.84	0.45	0.39	0.29	0.79	0.51
13	Indore	0.69	0.00	0.38	0.24	1.00	0.58	0.84	0.28	0.30	0.25	0.59	0.52	0.66	0.49
14	Ahmedabad	0.81	0.14	0.20	0.82	0.94	0.46	0.23	0.51	0.16	0.35	0.69	0.67	0.31	0.48
15	Surat	0.77	0.08	0.16	0.37	0.73	0.24	0.76	0.44	0.31	0.78	0.43	0.45	0.55	0.47
16	Chennai	0.00	0.54	0.39	0.46	0.70	0.00	0.13	0.00	0.33	0.36	1.00	1.00	0.99	0.45
17	Bhopal	0.87	0.13	0.51	0.28	0.57	0.46	0.23	0.51	0.17	0.27	0.24	0.25	0.77	0.40
18	Nagpur	0.10	0.17	0.36	0.00	0.56	0.25	0.32	0.36	0.27	0.00	0.86	0.90	0.80	0.38

Source: Tables 8.10 and 8.15

Food Security Index in Metropolitan cities, Early Nineties



Map No. 7

Table 8.18

Statement of Specific Problems of Metropolitan Cities

Urban patterns	S.No.	City	Some details of specific problems in the city
Pattern 1	1	Pune	High rate of unemployment among males; high inequality in consumption expenditure; poor housing conditions.
	2	Greater Mumbai	High rate of unemployment among males; lack of access to toilets and lack of medical beds.
	3	Kolkata	High rate of unemployment among females.
	4	Kalyan	High rate of unemployment among females; lack of access to toilets and medical beds.
	5	Ludhiana	Low juvenile sex ratio; low literacy rates among males and females; high extent of casual labour among males.
	6	Vadodara	High extent of casual labour among females; high inequality in consumption expenditure; lack of access to toilets; low juvenile sex ratio.
	7	Bangalore	High rate of unemployment among females; high extent of casual labour among males.
	8	Hyderabad	High extent of casual labour among females; low literacy rates among males and females.
	9	Delhi	Lack of access to toilets; high extent of casual labour among females; high inequality in consumption expenditure; low rates of literacy among males and females.
	10	Ahmedabad	High rate of unemployment and high extent of casual labour among females; low juvenile sex ratio; high levels of poverty; lack of access to toilets and electricity.
	11	Surat	High rate of unemployment among males; high extent of casual labour among females; low rates of literacy; lack of access to toilets.
	12	Chennai	High rate of unemployment and casual labour among males and females; high levels of poverty; lack of access to safe drinking water.
	13	Nagpur	High levels of poverty; high rate of unemployment and high extent of casual labour among males and females; lack of access to proper housing, toilets and drinking water.
Pattern 2	1	Jaipur	Low literacy rates among females and males; low juvenile sex ratio; lack of access to electricity; prevalence of human labour in disposal of night soil.
	2	Lucknow	Low literacy rates for males and females; high extent of casual labour among females; lack of access to electricity and toilets.
	3	Kanpur	Low literacy rates for males and females; lack of access to electricity, toilets, and medical beds; high levels of poverty.
	4	Indore	High levels of poverty and high extent of casual labour among males and females; lack of access to toilets and proper housing.
	5	Bhopal	High rate of unemployment and high extent of casual labour among females; high levels of poverty; low literacy rates among males and females; lack of access to toilets and housing.

with regard to safe drinking water. Of the 13 Pattern 1 cities, 8 cities have a relatively better position with regard to food security while 5 cities—Chennai, Delhi, Ahmedabad, Surat, and Nagpur fare poorly. Table 8.17 and Map 8.6 show the position of metropolitan cities with regard to overall food security. According to the composite index of food security, Pune has relatively the best position, securing the highest rank while Nagpur has the worst position, securing the lowest rank. Even though Pune has the best position

in relative terms, the city encounters certain specific problems. Problem of unemployment among males is a major concern in Pune. Similarly, in the case of Greater Mumbai, access to toilets remains a major concern. The specific problems encountered by cities are discussed in Table 8.18.

8.6 Concluding Observations

The foregoing discussion on metropolitan cities brings out the wide variation in the extent and nature of the problem across them. The nature and magnitude of the problem vary from one city to another. Even though the metropolitan cities have a reach that is much beyond their immediate hinterland, we do find a pattern with regard to the type of concerns faced by them. For the metropolitan cities of Pattern 1, urban sprawl or the rapid growth of satellite towns around the core city is a major problem. In sharp contrast to this, the rapid growth of core cities is the cause for concern for the cities of Pattern 2. The sprawl of the cities in Pattern 1 will pose major problems not only in terms of provision of civic amenities but also in terms of creation of employment opportunities. The sprawl will also accentuate the problem of waste management for the city. Similarly, casualisation of labour force and open unemployment are major problems in Pattern 1 cities while these are not grave in Pattern 2 cities. In Pattern 2, the issue is more with regard to levels of literacy, especially female literacy. The gender gap in literacy is much higher in Pattern 2 cities compared to Pattern 1 cities. Provision of basic amenities—toilets and pucca housing, in particular—is also more of a problem in Pattern 2 cities. Our analysis suggests that the larger context of a metropolitan city—whether it is located in States that exhibit urban Pattern 1 or urban Pattern 2—does determine, to a certain extent, the nature of the difficulties that prevail there.

Further, there are some metropolitan cities that may be termed as problem metros, where access to food as well as to amenities are low. Nagpur, Bhopal, Chennai, Surat, Ahmedabad, Indore, Lucknow, and Delhi fall in this category. There are also some cities that fare well with regard to both dimensions of food security like Pune, Greater Mumbai, Kolkata, Kalyan, Vadodara, Bangalore, and Jaipur. While the food security index gives the summary position of a city, every city has its strengths as well as concerns: while Chennai has a low level of overall food security, the literacy rates of the population are high; in Pune and Greater Mumbai levels of unemployment among males remain a serious concern.

Many urban problems are much less severe in metropolitan cities compared to other urban areas. Considering safe drinking water, toilets, and electricity we find that in the urban areas of the country as a whole, just about 50 percent of the households have access to all three facilities. The corresponding proportion in the metropolitan cities is of a much higher order, indicating that a smaller proportion of households in metros face deprivation with regard to basic amenities. That is, intensity of the problem seen in percentage terms is much lower in the metropolitan cities. This, however, does not mean that the overall magnitude of the problem in metros is lower compared to other size classes of towns. While the intensity of any problem, in per capita terms, may not be high in the metros, in terms of overall magnitude the problem may be very severe. Thus, approximate amount of solid waste generated in Greater Mumbai per person per day is only of the order of 0.44 kg. But, in terms of the overall magnitude of the problem, it is of the order of 5000 tonnes per day—an enormous task for the Municipal Corporation of Mumbai.

The wide variation across the metropolitan cities in the nature and extent of the problem of food security points towards the need for a decentralised approach to the issues involved. The nature of intervention has to take into account the specificities of the problem in different cities. Not only do concerns vary from one city to another but even within the same city variations exist. The issue of 'sprawl' raises numerous problems to city planners and most of these are better handled with a decentralised rather than a centralised approach.

CHAPTER 9

Food Insecurity In Big, Medium, And Small Towns

The urban system in India, as discussed earlier, comprises different size classes of towns: metropolitan cities, big towns, medium towns, and small towns. Having discussed the problem of food security across the metropolitan cities, we shall now analyse this issue across the other three size classes of towns. Unlike the metropolitan cities, the big, medium, and small towns have only a limited range of sway. They influence and in turn are influenced only by their immediate hinterland. Therefore, it is meaningful to contextualise the problem of food security across different size classes of towns, within the States where they are located as well as within the larger regions to which they belong. That is, we shall examine the problem of food security across the big, medium, and small towns in the country as a whole followed by a regional and State level discussion. Before we discuss aspects relating to food security across towns, let us analyse the distribution of population across different size classes in the various States of the country.

9.1 Distribution of Urban Population Across Different Size Classes of Towns

Over the 1990s, in the country as a whole, there is a marked increase in the proportion of population in

Table 9.1
Distribution of Urban Population Across Different Size Classes of Towns, 1991 and 2001

Year	Urban patterns	Number of towns by size class					Distribution of urban population by size class				Percentage of country's urban population
		1	2	3	4	All	1	2	3	4	
1991	Pattern 1	13	69	402	2035	2519	29.87	19.44	25.23	25.46	65.95
	Pattern 2	5	42	198	1648	1893	10.32	26.49	25.49	37.70	32.00
	Pattern 3	0	1	13	189	203	0.00	13.22	31.25	55.53	2.04
	INDIA	18	112	613	3872	4615	23.00	21.57	25.43	29.99	100.00
2001	Pattern 1	18	104	465	2255	2842	31.96	22.87	23.07	22.10	64.98
	Pattern 2	9	57	248	1741	2055	16.19	26.52	24.71	32.58	32.90
	Pattern 3	0	3	17	234	254	0.00	21.23	25.15	53.62	2.11
	INDIA	27	164	730	4230	5151	26.09	24.04	23.65	26.22	100.00

Note: 1. Size Class 1 refers to metropolitan cities; 2 refers to big towns; 3 refers to medium towns; 4 refers to small towns.

2. Census of 2001 counted 5161 towns in the country, but the census could not be held in 10 towns in Gujarat. Therefore, we consider only 5151 towns in the country.

Source: Census of India 1991 (a); Census of India 2001 (a).

metropolitan cities and big towns and a corresponding decline in medium towns and small towns. By 2001, 50 percent of urban population in the country were living in large cities. The distribution of urban population across different size classes of towns varied across the three urban patterns in the country. (Table 9.1 and Maps 9.1 and 9.2) The percentage of urban population in large cities was the highest, about 50 percent, in Pattern 1; about 40 percent in Pattern 2; and about 20 percent in Pattern 3. Even in 2001, there was a predominance of small towns in Pattern 3, accounting for more than 50 percent of the urban population, with only three big towns—Guwahati, Imphal, and Aizawl. In Pattern 2, one-third of urban population was in small towns while in Pattern 1 it was just about one-fifth. While Maps 9.1 and 9.2 give the distribution of population across the four size classes of towns in various States for the years 1991 and 2001, it has not been possible to depict the distribution of population in small States and Union Territories. These details are, however, provided in the appendices to this chapter. (Tables A9.1 and A9.2)

9.2 Problem of Food Security Across Different Size Classes of Towns

There are wide differentials between metropolitan cities, big towns, medium towns, and small towns with regard to almost every aspect of food security we have considered. Taking into account the country as a whole, we find that aspects relating to employment, literacy, and basic amenities varied a great deal across the different size classes. Table 9.2 brings out the variation in the nature and extent of the problem of employment across the different size classes of towns. The differentials across different size classes of towns, say, in terms of casualisation of labour force, were quite large among males as well as females. The proportion of casual labour in small towns, in the

Table 9.2

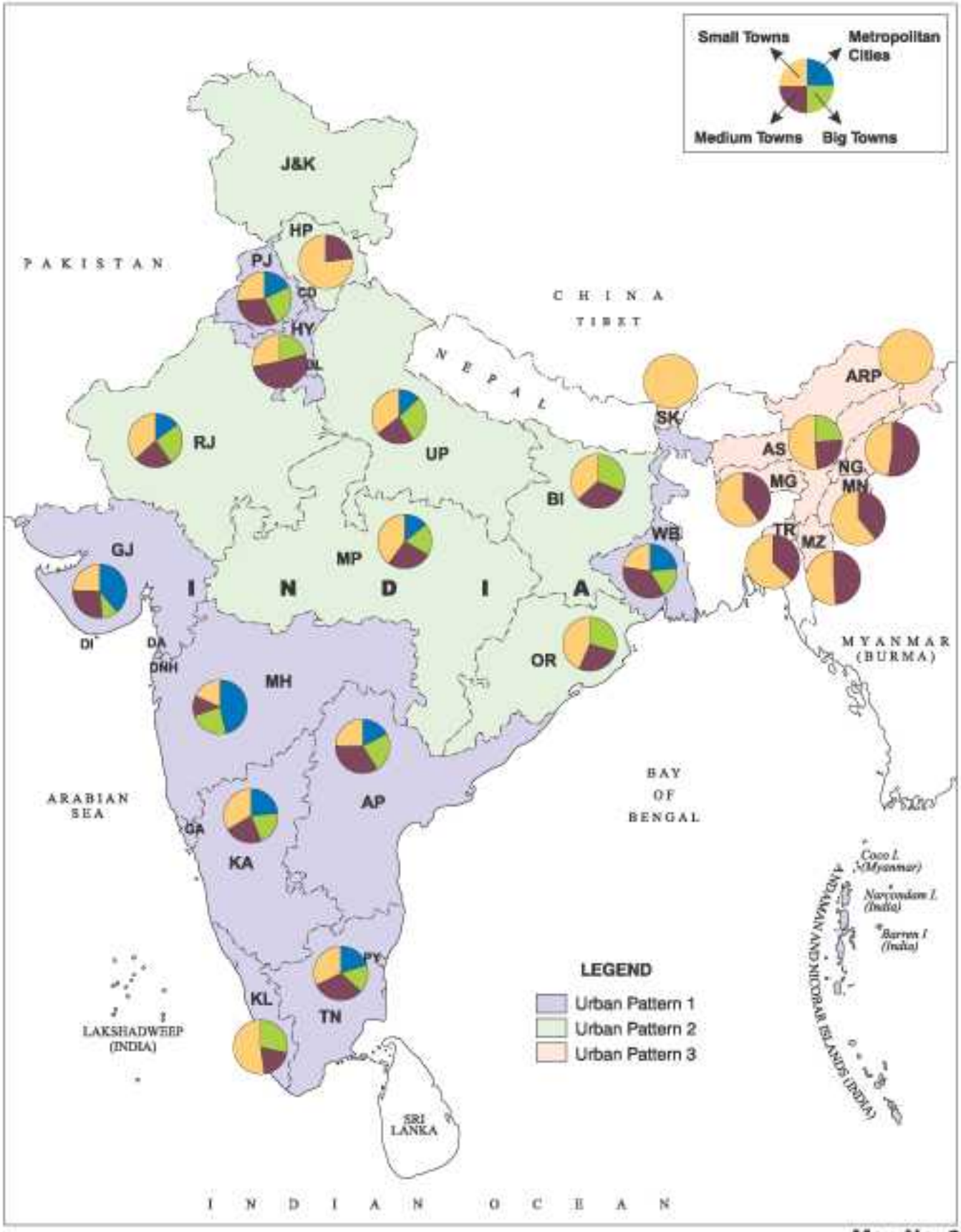
Status of Employment and Unemployment Across Different Size Classes of Towns, 1993-94

Male/Female	Aspects of employment	Metropolitan cities	Big towns	Medium towns	Small towns
Male	Proportion of Casual Labour	107	144	165	211
	Proportion of Self-employed	353	408	429	460
	Proportion of Regular Employees	540	448	406	329
	CDS-Unemployment Rate	52	68	74	72
	Usual Status Unemployment Rate	38	44	44	38
	Index of Underemployment	137	155	168	189
Female	Proportion of Casual Labour	149	212	253	337
	Proportion of Self-employed	282	455	470	504
	Proportion of Regular Employees	569	333	276	160
	CDS-Unemployment Rate	100	112	117	99
	Usual Status Unemployment Rate	86	78	65	47
	Index of Underemployment	116	144	180	211

Note: Status of employement is given for 1000 usually employed persons (ps+ss) aged 15 years and above.
CDS = Current Daily Status; US = Usual Status; Index of underemployment is given as (CDS unemp/US unemp)*100

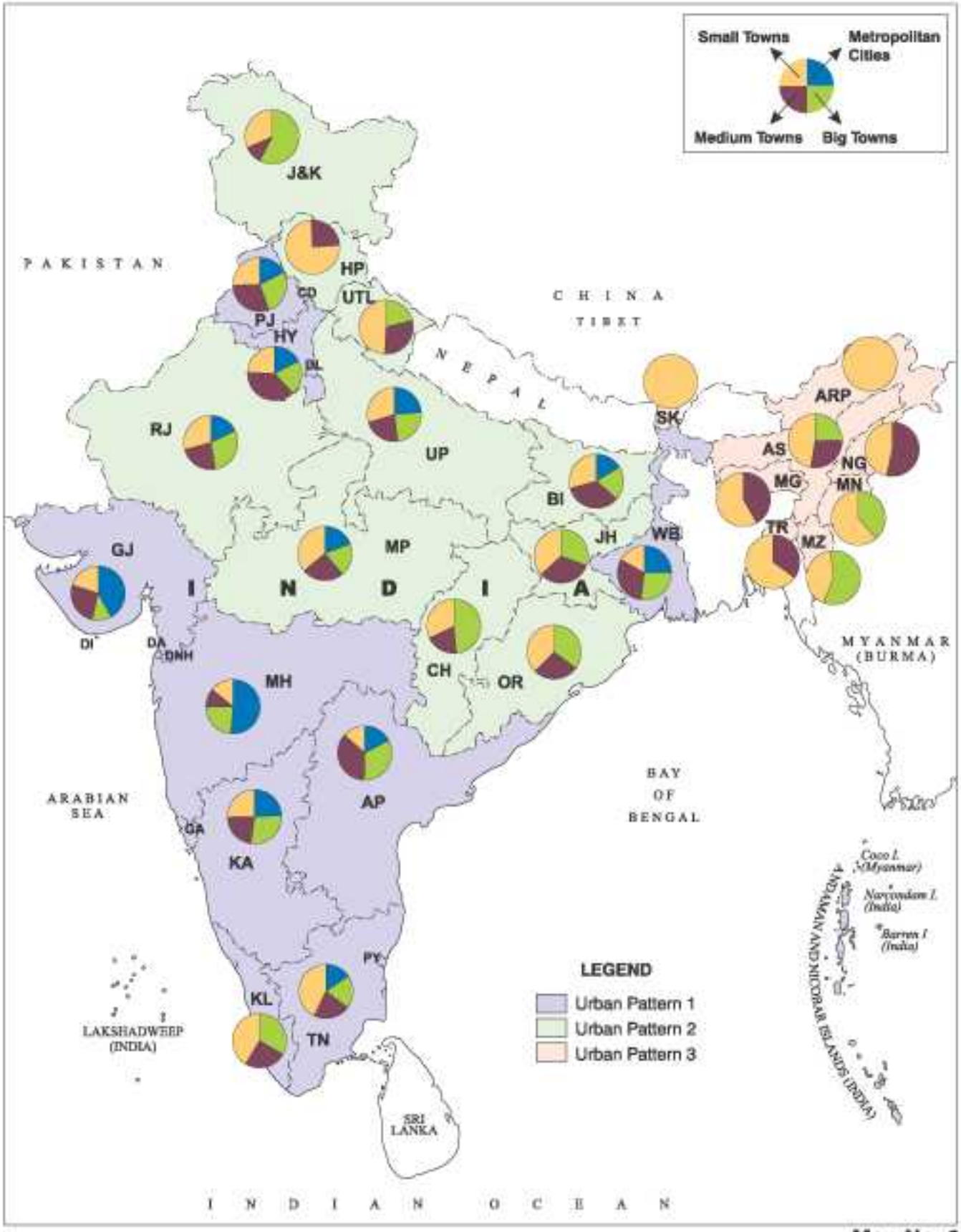
Source: NSSO 1999; NSSO 2001, Report No. 462

Percentage of Population in Different Size Classes of Towns, 1991



Map No. 8

Percentage of Population in Different Size Classes of Towns, 2001



Map No. 9

case of males as well as females, was twice as high as the level prevailing in metropolitan cities. The extent of casualisation was much higher among females compared to males. In small towns, 21 percent of males were engaged in casual labour while the corresponding proportion for females was 34 percent. The extent of casualisation of labour, among males and females, corresponded inversely with the size class of towns—the smaller the size class, the greater the problem of casualisation. As a corollary to this employment pattern, labour engaged in regular employment was much lower in small towns, especially for females. While 57 percent of the female workforce in the metropolitan cities was in regular employment, the corresponding percentage in big towns was 33, in medium towns it was 28, and in small towns it was just 16. The proportion of labour engaged in self-employment—a category that describes labour who operate on their own irrespective of their scale of operations—was also the highest in small towns among males as well as females. With regard to unemployment, while the rates were much higher for females compared to males in all size classes, the pattern of unemployment varied across males and females. Among males, the differential in unemployment rates across classes was minimal when we consider usual status unemployment but not so when we consider current daily status unemployment rates. By the latter measure the rates were much higher in small towns. On the other hand, for females the differential across classes was lower by the current daily status measure but quite high by the usual status approach, and the small towns have the lowest unemployment rates. That the differentials in terms of casualisation was larger than the differentials in terms of usual status unemployment perhaps points to the fact that the quality of employment is much more of a problem in small towns compared to open unemployment. The rough and ready measure of underemployment that we have worked out also shows that the problem of underemployment is more acute in small towns, especially among females. In sum, our discussion on aspects relating to employment clearly bring out that casualisation of labour force and high extent of underemployment, if not open unemployment, are very severe problems faced by small towns and that the intensity of these problems are lower for bigger size classes of towns.

Considering literacy rates across different size classes of towns in the country as a whole, there was a considerable degree of variation and the literacy rates were much higher for bigger size classes of towns. (Table 9.3) The differential in the literacy rates across size classes of towns was larger in the case of females. The literacy rate for males was 78 percent in metropolitan cities and 73 percent in small towns, a difference of 5 percentage points. In the case of females, the literacy rate in metropolitan cities was 68 percent while it was 59 percent in the small towns—a differential of 9 percentage points. The gender gap in literacy or the male-female differential in literacy was also the highest in small towns as indicated by the ratio of female literacy to male literacy. This ratio was 81 for the small towns and 87 for metros, improving with size. This indicates that the gender differential in literacy was the least in metropolitan cities and the largest in small towns.

It is interesting to note that the juvenile sex ratio, that is, the sex ratio for population in the age group 0 to 6 years, varied with size class of towns. In 2001, the country as a whole reported a juvenile sex ratio of 927. The rural areas recorded a much higher ratio of 934 while the urban areas recorded a ratio of 903. Within the urban areas we find the metropolitan cities had the lowest juvenile sex ratio, 890 girls for 1000 boys. This ratio improved for smaller size classes of towns and was 914 in small towns, but even this is much lower than what prevails in the rural areas of the country. The factors that are responsible for lowering the sex ratio perhaps operate on a much larger

Table 9.3
Literacy Rate and Juvenile Sex Ratio Across Different Size Classes of Towns, 2001

Literacy and Juvenile Sex Ratio	Metropolitan cities	Big towns	Medium towns	Small towns
Percentage of literates - Male	78.01	76.98	75.43	73.07
Percentage of literates - Female	68.05	66.33	63.30	58.86
Male-Female differential in literacy	87	86	84	81
Juvenile sex ratio	890	903	906	914

Note: Male-Female Differential= (Literacy rate-F / Literacy rate-M)*100;
Juvenile Sex Ratio = Number of girls per 1000 boys in the age group 0 to 6 years.
Source: Census of India 2001(a).

Table 9.4
Access to Basic Amenities for Households Across Different Size Classes of Towns, 1991

Percentage of households that have access to basic amenities	Metropolitan cities	Big towns	Medium towns	Small towns
Safe drinking water	90.24	83.14	80.61	72.79
	(100)	(92)	(89)	(81)
Toilets	78.09	69.22	62.69	48.98
	(100)	(89)	(80)	(63)
Electricity	85.13	79.23	75.12	66.18
	(100)	(93)	(88)	(78)
All three amenities	68.98	55.63	47.94	33.44
	(100)	(81)	(69)	(48)
None of the 3 amenities	3.80	4.04	5.07	9.61
	(100)	(106)	(133)	(253)
Number of medical beds per 1000 population	2.55	3.05	2.79	2.17
	(100)	(120)	(109)	(85)

Note: Figures in brackets are the indices with respect to metropolitan cities.
Source: Census of India 1991 (d).

scale in urban areas and within urban areas on a much larger scale in the bigger cities.

Access to basic amenities for households—safe drinking water, electricity, and toilets—was much better in bigger size classes of towns. (Table 9.4)[1] The percentage of households with access to all the three basic amenities was the lowest in small towns, with just about one-third of households reporting access, while the corresponding proportion in metros was two-thirds. In small towns, more than one-fourth of the households did not have access to safe drinking water, more than 50 percent of households did not have access

[1] According to the Census, if a household has access to drinking water supplies from a tap, hand pump, or tubewell situated within or outside the premises, it is considered as having access to safe drinking water.

to toilets, and more than one-third of the households did not have access to electricity. While the differentials across the different size classes of towns with regard to access to amenities was very large with regard to all the three amenities, it was the largest for toilets: 78 percent of households in metropolitan cities had access to toilets and the corresponding proportion in small towns was just 48 percent. While 4 percent of households in metropolitan cities did not have access to any of the three facilities, in small towns the corresponding proportion was nearly 10 percent, accounting for about 11,00,000 households.

With regard to medical facilities, as given by beds in medical institutions per 1000 persons, small towns had the lowest number of beds, that is, just 2 beds per 1000 persons while big towns had about 3 beds per 1000 persons. This only indicates that the availability of in-patient facility was relatively better in big towns and does not tell us anything about the level of utilisation or the quality of these services. It has, however, been pointed out that the quality of medical services declines as one moves from a large city to a small town (Kundu 1993).

Indicators of food access (access to employment and literacy) and indicators of food absorption (access to basic amenities) across different size classes of towns in the country as a whole point towards a great deal of variation in the extent of the problem across size classes and also indicate that the problems are more severe in small towns: casualisation of labour force is much higher in small towns and access to basic amenities is at a much lower level for households in small towns. Our analysis clearly points out that the problem of food security is more acute in small towns compared to the bigger size classes of towns, when we consider the country as a whole.[2] While this is the overall picture for the country as a whole, the differentials across big, medium and small towns may themselves vary across the different urban patterns we have identified.

9.3 Problem of Food Security in Big, Medium, and Small Towns Across Different Urban Patterns

Given that different urban patterns across the country reflect different development processes, it is likely that the nature of the problem of food security may vary across these three patterns. Analysing the unemployment situation across towns we find that current daily status unemployment rates are much higher in Pattern 1 compared to Pattern 2, among males as well as females, in all the three size classes of towns. (Table 9.5) A rough index of underemployment shows that this is more of a problem for females in Pattern 2, while for males the problem is more severe in Pattern 1. Underemployment is relatively much less in Pattern 3. Across all three urban patterns, the problem of underemployment is most severe in the small towns, for males and females.

Analysing the status of employment across the different size classes of towns, we find that, in general, the extent of casualisation for males and females is very high in Pattern 1, the extent of self-employment is high in Pattern 2, while the extent of regular employment is high in Pattern 3. (Table 9.6) Across all the three patterns, casualisation of labour is the highest in small towns (with the exception of females in Pattern 3), extent of self-employment is also the highest in small towns, while the incidence of regular employment is highest in big towns, for males and females. With regard to casual labour, the incidence is much higher among females in all the three patterns and across all the three different size classes of towns. In sum, in Pattern 1 the problems relate to high rates of unemployment and high levels of casual labour for males and females while in Pattern 2 the problems

[2] An investigation into the incidence of poverty across different size classes of towns, for the years 1987–88 and 1993–94 , has clearly shown that incidence of poverty is lower in large cities and higher in small towns. See Dubey, Gangopadhyay, and Wadhwa 2001.

Table 9.5

Unemployment Rates Across the Three Urban Patterns, in Different Size Classes of Towns, 1993-94

Urban patterns	Male / Female	Big towns			Medium towns			Small towns		
		CDS	US	Index of under-employment	CDS	US	Index of under-employment	CDS	US	Index of under-employment
Pattern 1	Male	70	39	179	82	43	191	83	39	213
	Female	119	85	140	124	73	170	121	56	216
Pattern 2	Male	66	54	122	59	44	134	57	35	163
	Female	69	48	144	70	38	184	48	18	267
Pattern 3	Male	72	67	107	59	52	113	54	43	126
	Female	331	358	92	110	102	108	152	121	126

Note: CDS = Current Daily Status; US = Usual Status; Unemployment rates are given for persons aged 15 years and above. Index of Underemployment= (CDS/US)*100

Source: NSSO 1999

Table 9.6

Status of Employment of Usually Employed Across the Urban Patterns in Different Size Classes of Towns, 1993-94

Urban patterns	Male / Female	Big towns			Medium towns			Small towns		
		Self-employed	Regular employees	Casual labour	Self-employed	Regular employees	Casual labour	Self-employed	Regular employees	Casual labour
Pattern 1	Male	379	452	169	399	420	181	415	344	250
	Female	442	324	234	446	286	269	461	160	379
Pattern 2	Male	456	436	108	495	373	133	537	299	164
	Female	494	344	162	547	240	213	595	145	260
Pattern 3	Male	295	608	97	441	475	84	512	389	100
	Female	198	622	180	417	459	124	577	313	110

Note: Status of employment is given for 1000 usually employed male/ female (ps+ss), aged 15 years and above.

Source: NSSO 1999

are not so much in terms of open unemployment but in terms of under- employment, especially for females, and in Pattern 3 the main problem seems to be high levels of unemployment for females.

Analysing the differentials across the three urban patterns in terms of literacy, we find that literacy rates are the highest in Pattern 3 for males and females and the male-female differential in literacy rates is also the least here. (Table 9.7) As a contrast to this, Pattern 2 has the lowest rates of literacy and the gender gap in literacy is also the highest here. In the small towns of Pattern 2, just about 50 percent of females are literates. In Pattern 1 the literacy rates are much higher than in Pattern 2. The differentials in literacy rates, across different size classes, are the least in Pattern 3 while it is the highest in Pattern 2. The females in the small towns of Pattern 2 are thus much worse off compared to their counterparts in other areas with low levels of literacy, low levels of regular employment, and high levels of underemployment. Considering the juvenile sex ratio, we find that Pattern 3 fares better than other areas. Small towns of Pattern 3 have a juvenile sex ratio of 954 while the corresponding ratio in Pattern 2 is 909 and in Pattern

Table 9.7

Literacy Rates in Different Size Classes of Towns Across Different Urban Patterns, 2001

Urban patterns	Literacy rate								
	Big towns			Medium towns			Small towns		
	Male	Female	M-F differential	Male	Female	M-F differential	Male	Female	M-F differential
Pattern 1	78.64	68.85	88	77.55	66.48	86	76.09	63.80	84
Pattern 2	74.25	61.44	83	71.21	56.48	79	68.60	50.97	74
Pattern 3	82.23	75.98	92	81.93	74.96	91	78.30	68.62	88

Note: Male-Female differential refers to (literacy rate of female / literacy rate of male)*100

Source: Census of India 2001 (a)

Table 9.8

Access to Basic Amenities for Households in Different Size Classes of Towns Across Urban Patterns,1991

Urban patterns	Safe drinking water			Toilets			Electricity			Beds/ 1000 population		
	Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns
Pattern 1	83.08	80.79	72.19	67.50	62.15	48.44	80.30	77.24	70.94	3.12	2.83	2.19
Pattern 2	84.39	81.04	75.35	71.37	61.71	46.54	77.71	69.70	58.48	2.93	2.54	1.99
Pattern 3	55.24	70.43	57.80	92.17	88.70	80.57	68.85	79.65	66.40	3.59	4.94	3.61

Source: Census of India 1991 (d)

1 it is 903.

Analysing the basic amenities across different size classes of towns, we find that across all the three urban patterns, the small towns have the worst position with regard to all the three basic amenities. (Table 9.8)[3] In Pattern 1 the problem is more with regard to access to toilets for households as well as availability of beds in medical institutions; in Pattern 2 the position with regard to drinking water is relatively the best, while toilets and electricity remain a problem for the small and medium towns but not so for big towns; the percentage of households that have access to electricity is the lowest in Pattern 3. With regard to medical services, Pattern 3 fares much better across all size classes of towns.

Our analysis clearly brings out the regional variation in the type of problem faced by towns. In Pattern 1, problems relating to unemployment and casual labour are quite severe; in Pattern 2, problems relating to underemployment among females and self-employment are acute; in Pattern 3, the main problem seems to be high levels of unemployment for females. Thus, there are variations in the nature of the employment issue across different urban patterns in the country—open unemployment and casualisation of labour is a problem in one area, while underemployment and difficulties concerning self-employment are problems in another. Similarly, with regard to literacy—particularly female literacy—the concerns are more acute in Pattern 2 than elsewhere. While access to toilet facilities is a problem in Pattern 1 and Pattern 2, access to safe drinking water is a problem in Pattern 3. Access to electricity is more of a problem in Pattern 2 and 3 and availability of beds in medical institutions is a problem in Pattern 1 and

[3] In Pattern 3, with regard to safe drinking water, the big towns have the worst position but this refers to only one town—Guwahati.

Table 9.9

Coefficient of Variation (CV) of Some Indices of Food Security Across Different Size Classes of Towns

Indices	CV (in % of some indices across towns		
	Big towns	Medium towns	Small towns
Access to amenities for households:			
1. Safe drinking water	13.73	22.85	32.50
2. Toilets	14.76	21.62	27.26
3. Electricity	8.96	14.03	19.41
Literacy - Males	5.49	6.62	6.96
Literacy - Females	9.84	13.06	14.85
CDS-Unemployment Rate-Male	40.18	46.53	68.11
CDS-Unemployment Rate-Female	78.16	68.14	100.55
Extent of Casual labour-Male	51.76	56.02	51.35
Extent of Casual labour-Female	45.92	61.69	58.70

Note: 1. In the calculation of CV, n=18 for big towns; n=30 for small towns; for the medium towns n=25 for amenities and literacy and n=24 for employment indicators. n varies across indicators as employment details are not available for Delhi while amenities details are not available for Jammu & Kashmir

2. CDS refers to Current Daily Status.

Pattern 2. Gender differentials are quite high in Pattern 2 and the least in Pattern 3. Across all the three urban patterns, the problems are more severe in small towns.

Our analysis so far has clearly brought out two points: first, problems are more severe in small towns; second, the nature of the urban problems varies widely across the country. Given this, it is necessary to place the problems in a larger regional context and have a decentralised approach to tackling them. A decentralised policy approach is necessary also because, in general, small towns that have the most severe problems are the ones where variations in these problems are the highest. Working out the co-efficient of variation for different indices across big, medium and small towns clearly indicates this. From Table 9.9 we find the variation to be the highest in small towns for all the indices except casual labour. As regards amenities, the variation in small towns is at least twice as high as that in big towns. The high level of variation in urban problems points towards the need for decentralised planning, be it for creation of amenities or dealing with employment issues.

9.4 Problem of Food Security in Big, Medium and Small Towns Across Different States and Union Territories

Our discussion so far has brought out the variation in aspects relating to food security across different size classes of towns in the country as a whole as well as across different urban patterns. Let us now discuss the nature and extent of variation in the problems of food security across States.

a) Aspects relating to food access

As we had discussed earlier, access to food would depend on the purchasing power of the population. This, in turn, is dependent on access to employment and the nature and quality of employment that is available. We shall consider the incidence of regular employment and current daily status unemployment as the indicators that explain the food access position

of towns. We expect the former to be positively correlated with food access and the latter to be negatively correlated.[4]

Using these indicators we have worked out the food access indices for the big, medium, and small classes of towns across the States and Union Territories of the country. Computing indices of food access for small towns, we find the top 3 positions are held by the northeastern States—Arunachal Pradesh, Nagaland, and Meghalaya—by virtue of high levels of regular employment and low levels of unemployment. Small towns of Kerala have the worst position by virtue of low levels of regular employment and high levels of unemployment. From Table 9.10 we find that the median value of the food access index is 0.47, and 14 States have an access index above this. Of the major States of Pattern 1, in only two—Karnataka and the Punjab—do small towns have a relatively high rank of food access index (that is, above the median value). Of the major States of Pattern 2, the small towns of Himachal Pradesh, Rajasthan, and Jammu & Kashmir have a relatively high rank of food access index. Of the Pattern 3 States, except for Assam and Tripura which have high levels of female unemployment, all other States have high food access indices in their small towns. The actual position of the States with regard to their food access index (as below the median value or above the median value) and the actual value of the food access index obtained by the States are shown in Map 9.3. It has however not been possible to depict the smaller States and Union Territories in the map.

Considering the food access situation in the medium towns of the country, we find the pattern to be more or less similar to what we had observed earlier in the case of small towns. The northeastern States, with the exception of Assam, come out with higher levels of food access indices. (Table 9.11) Of the 24 States that have medium towns, 12 have a food access value above the median value of 0.48. Of the Pattern 1 States, only the Punjab, Haryana, Gujarat, and Goa fare well with regard to food access. Of the Pattern 2 States, Himachal Pradesh, Orissa, and Rajasthan fare well.

The food access situation in big towns indicate that in 9 out of 18 States, the value of food access is above the median value of .605, a relatively better position, while in the other 9, the position is below this median value. (Table 9.12) Assam, which has fared poorly with regard to food access in small and medium towns, does well in its only one big town—Guwahati. The Punjab, Haryana, and Maharashtra fare well in Pattern 1 while Orissa, Uttar Pradesh, Rajasthan, and Himachal Pradesh fare well among the Pattern 2 States. The big towns of Orissa are Bhubaneshwar, Cuttack, Rourkela, and Brahmapur—all of which have good development of either industry or trade, which explains the relatively high levels of regular employment and low levels of unemployment and therefore high levels of food access here.

Having analysed the food access situation across all the three size classes of towns, we find access to food is a problem in some States across all three size classes of towns while in others all size classes of towns

[4] In the earlier chapter when we calculated the food access index across metropolitan cities we have considered literacy rates, poverty rates, and the juvenile sex ratio. Unfortunately, data on these aspects are not available for the different size classes of towns for 1991. We have considered regular employment and not casual employment, because in a large number of States, especially in urban Pattern 2, the incidence of self-employment is substantial. As the quality of self-employment can also be as poor as casual employment, we thought it would be more appropriate to use regular employment. Regular employment and casual employment across all three size classes for males and females are correlated and significant. For males, the values of correlation coefficient across big, medium, and small towns are –0.72, -0.53 and –0.49 respectively and all the values are significant at 1 percent level. For females, the values of correlation coefficient across big, medium, and small towns are –0.66, -0.48, -0.36 respectively. The values are significant at 1 percent level only in the case of big towns. For the medium and small towns the values are significant only at 5 percent level. n=18 for big towns, 24 for medium towns, and 30 for small towns.

Table 9.10

Food Access Index for Small Towns, 1993-94

S.No.	State/ Union Territory	CDS-Unemployment Rate-Male		CDS-Unemployment Rate-Female		Regular employees Male		Regular employees Female		Composite index of food access
		Actual Value	Index	Actual Value	Index	Actual Value	Index	Actual Value	Index	
1	Arunachal Pradesh	8	0.95	54	0.87	670	1.00	526	0.63	0.86
2	Nagaland	52	0.69	0	1.00	605	0.85	507	0.61	0.79
3	Meghalaya	14	0.92	20	0.95	578	0.79	404	0.46	0.78
4	Sikkim	20	0.88	51	0.87	436	0.46	713	0.89	0.77
5	Himachal Pradesh	37	0.78	15	0.96	553	0.73	319	0.35	0.70
6	Dadra & Nagar Haveli	8	0.95	24	0.94	543	0.71	178	0.15	0.69
7	Daman & Diu	51	0.70	75	0.81	449	0.49	281	0.30	0.57
8	Mizoram	0	1.00	0	1.00	304	0.15	66	0.00	0.54
9	Chandigarh	61	0.64	381	0.05	400	0.37	794	1.00	0.52
10	Rajasthan	25	0.85	17	0.96	336	0.23	86	0.03	0.52
11	Jammu & Kashmir	94	0.44	196	0.51	522	0.66	394	0.45	0.51
12	Punjab	35	0.79	70	0.83	301	0.14	261	0.27	0.51
13	Manipur	21	0.88	35	0.91	316	0.18	72	0.01	0.49
14	Karnataka	50	0.70	55	0.86	365	0.29	146	0.11	0.49
15	Madhya Pradesh	56	0.67	31	0.92	328	0.21	138	0.10	0.47
16	Gujarat	54	0.67	74	0.82	368	0.30	128	0.09	0.47
17	Bihar	62	0.63	31	0.92	273	0.08	237	0.23	0.47
18	Tripura	63	0.62	207	0.49	361	0.28	396	0.45	0.46
19	Haryana	96	0.43	80	0.80	418	0.42	140	0.10	0.44
20	Orissa	131	0.22	74	0.82	427	0.44	244	0.24	0.43
21	Maharashtra	77	0.54	57	0.86	351	0.26	105	0.05	0.43
22	Assam	68	0.59	284	0.29	364	0.29	421	0.49	0.42
23	Tamil Nadu	81	0.52	128	0.68	357	0.27	203	0.19	0.41
24	Uttar Pradesh	52	0.69	75	0.81	239	0.00	118	0.07	0.39
25	West Bengal	109	0.34	157	0.61	405	0.39	224	0.22	0.39
26	Andhra Pradesh	91	0.46	97	0.76	291	0.12	95	0.04	0.34
27	Goa	139	0.17	309	0.23	385	0.34	313	0.34	0.27
28	Pondicherry	154	0.08	110	0.73	262	0.05	177	0.15	0.25
29	Lakshadweep	167	0.00	402	0.00	463	0.52	345	0.38	0.23
30	Kerala	148	0.11	288	0.28	246	0.02	227	0.22	0.16

Note: Regular employees is given for 1000 usually employed persons (ps+ss) aged 15 years and above.

Source: NSSO 1999

Table 9.11
Food Access Index for Medium Towns, 1993-94

S.No.	State/ Union Territory	CDS-Unemployment Rate-Male		CDS-Unemployment Rate-Female		Regular employees Male		Regular employees Female		Composite index of food access
		Actual Value	Index	Actual Value	Index	Actual Value	Index	Actual Value	Index	
1	Himachal Pradesh	53	0.66	0	1.00	669	1.00	618	0.69	0.84
2	Meghalaya	17	0.93	69	0.76	598	0.83	574	0.63	0.79
3	Mizoram	9	1.00	9	0.97	550	0.72	309	0.23	0.73
4	Nagaland	85	0.41	110	0.62	427	0.42	821	1.00	0.61
5	Goa	60	0.60	104	0.64	517	0.64	511	0.53	0.60
6	Punjab	42	0.74	53	0.81	359	0.26	481	0.49	0.58
7	Rajasthan	16	0.94	6	0.98	396	0.35	156	0.00	0.57
8	Manipur	88	0.40	27	0.91	566	0.75	268	0.17	0.56
9	Tripura	107	0.25	243	0.15	597	0.83	813	0.99	0.55
10	Gujarat	70	0.53	75	0.74	449	0.47	383	0.34	0.52
11	Orissa	74	0.50	141	0.51	479	0.55	445	0.43	0.50
12	Haryana	62	0.59	67	0.77	452	0.48	242	0.13	0.49
13	Andaman & Nicobar	101	0.30	191	0.33	582	0.79	474	0.48	0.47
14	Maharashtra	51	0.67	101	0.65	452	0.48	209	0.08	0.47
15	Madhya Pradesh	92	0.36	106	0.63	488	0.57	359	0.31	0.47
16	Assam	48	0.70	181	0.37	385	0.32	426	0.41	0.45
17	Uttar Pradesh	44	0.73	53	0.81	288	0.09	185	0.04	0.42
18	Karnataka	71	0.53	124	0.57	428	0.42	232	0.11	0.41
19	Andhra Pradesh	71	0.53	99	0.65	400	0.36	202	0.07	0.40
20	Tamil Nadu	86	0.41	92	0.68	385	0.32	253	0.15	0.39
21	Bihar	79	0.46	109	0.62	299	0.11	183	0.04	0.31
22	West Bengal	125	0.12	286	0.00	473	0.53	482	0.49	0.28
23	Pondicherry	99	0.31	212	0.26	387	0.33	241	0.13	0.26
24	Kerala	140	0.00	194	0.32	251	0.00	282	0.19	0.13

Note: Regular employees is given for 1000 usually employed persons (ps+ss) aged 15 years and above.
Source: NSSO 1999

do well and in yet others some size classes of towns fare well while other size classes do not. Considering only the States that have all three size classes of towns, we find that in the Punjab and Rajasthan all three size classes of towns have a relatively high food access index; in Madya Pradesh, Bihar, West Bengal, Andhra Pradesh, Tamil Nadu, and Kerala all three size classes have a low food access index; Assam, Uttar Pradesh, Orissa, Gujarat, Maharashtra, Karnataka, and Haryana fall in the third category where some size classes fare well and others do not. Of the 15 States that have all three size classes of towns, only in two States—the Punjab and Rajasthan—the relative position of employment and therefore food access is good across all. In 6 States, across all size classes of towns, the relative position of employment is poor. In Karnataka, the small towns have a high food access while the big and medium towns have a low food

Table 9.12
Food Access Index for Big Towns,1993-94

S.No.	State/ Union Territory	CDS-Unemployment Rate-Males		CDS-Unemployment Rate-Females		Regular employees Males		Regular employees Females		Composite index of food access
		Actual Value	Index	Actual Value	Index	Actual Value	Index	Actual Value	Index	
1	Jammu & Kashmir	49	0.89	67	0.80	497	0.73	519	0.72	0.79
2	Rajasthan	46	0.92	25	0.93	420	0.57	506	0.69	0.78
3	Chandigarh	72	0.67	169	0.50	591	0.93	620	1.00	0.77
4	Punjab	54	0.84	76	0.77	486	0.71	476	0.60	0.73
5	Maharashtra	50	0.88	55	0.84	361	0.44	499	0.67	0.71
6	Haryana	37	1.00	78	0.77	232	0.17	516	0.71	0.66
7	Assam	72	0.67	331	0.01	622	1.00	608	0.97	0.66
8	Orissa	75	0.64	101	0.70	346	0.41	559	0.83	0.65
9	Uttar Pradesh	46	0.92	20	0.94	310	0.34	358	0.28	0.62
10	Madhya Pradesh	86	0.54	69	0.79	331	0.38	488	0.64	0.59
11	Karnataka	56	0.83	73	0.78	300	0.31	364	0.30	0.55
12	West Bengal	82	0.58	199	0.41	424	0.58	491	0.65	0.55
13	Tamil Nadu	76	0.63	141	0.58	325	0.37	434	0.49	0.52
14	Gujarat	45	0.92	0	1.00	152	0.00	256	0.00	0.48
15	Andhra Pradesh	83	0.57	106	0.68	184	0.07	469	0.59	0.48
16	Bihar	101	0.40	185	0.45	330	0.38	478	0.61	0.46
17	Pondicherry	144	0.00	197	0.41	408	0.54	468	0.58	0.39
18	Kerala	127	0.16	335	0.00	384	0.49	333	0.21	0.22

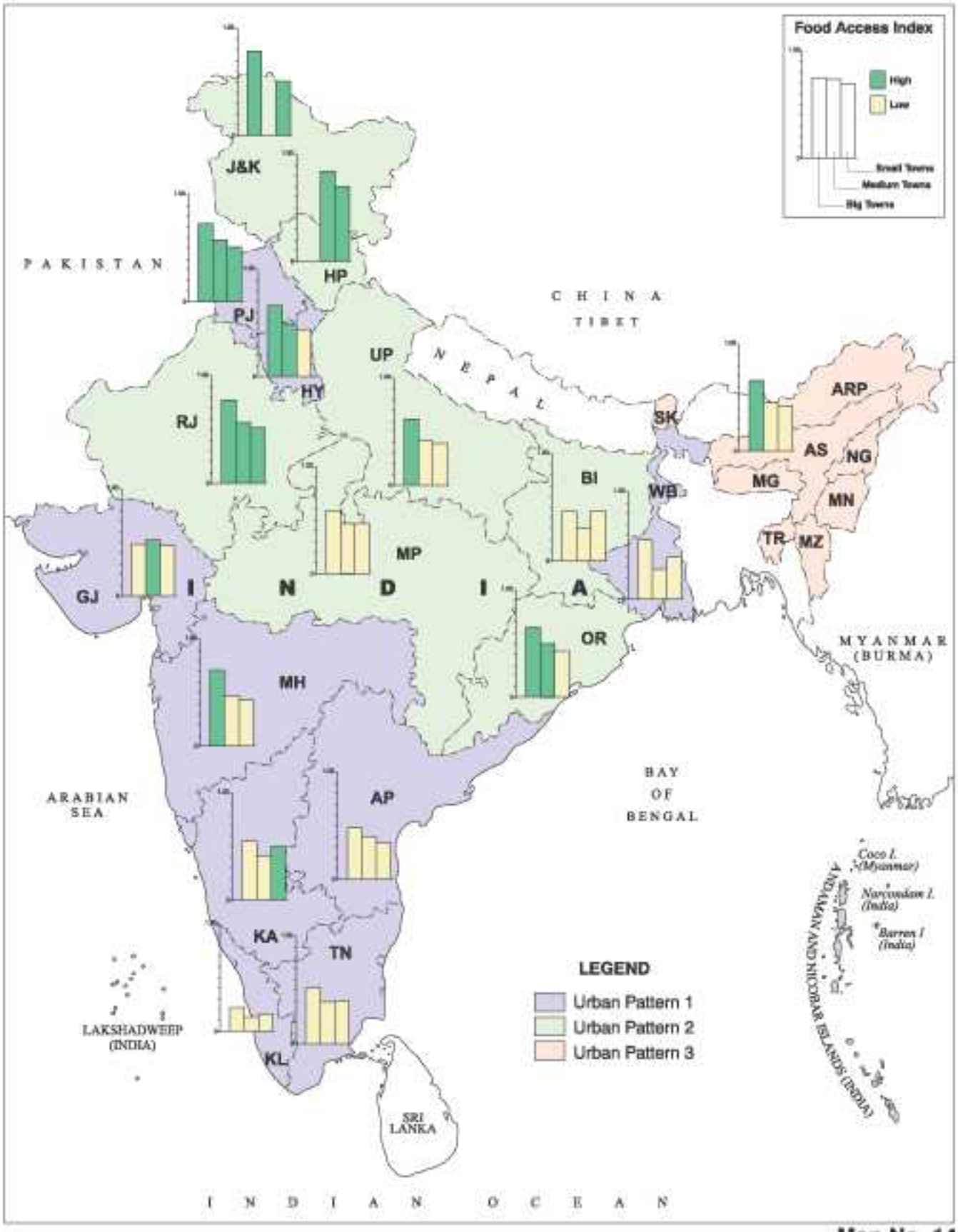
Note: Regular employees is given for 1000 usually employed persons (ps+ss) aged 15 years and above.
Source: NSSO 1999

access. In Maharashtra, Assam, and Uttar Pradesh only the big towns have a high food access, in Gujarat only the medium towns have a high food access, and in Orissa and Haryana only the big and medium towns have a high food access. Map 9.3 shows the food access position of various size classes of towns. As noted earlier, it has not been possible to show the position of the smaller States in the map and one may refer to Tables 9.10 to 9.12 to understand their position.

Having discussed aspects relating to employment, let us now analyse the literacy rates across different States. Literacy rates given in Table 9.13 refer to the year 2001. We have noted earlier that the literacy rates are generally lower for small towns compared to medium and big towns, when we consider the country as a whole. Our discussion across different urban patterns indicated that literacy rates were lower in urban Pattern 2 compared to urban Patterns 1 and 3, and that the gender gap in literacy was the highest in Pattern 2. Our State level analysis substantiates these findings: literacy rates among males and females across big, medium, and small towns was the lowest in Uttar Pradesh, Rajasthan, and Bihar and the highest in Kerala, Mizoram, and Tripura. The gender gap in literacy seems very high for small towns, especially in the States of Pattern 2. The variation in gender gap in literacy comes out clearly from Map 9.4. The male-female differential in literacy was very low in Kerala across all size classes of towns.

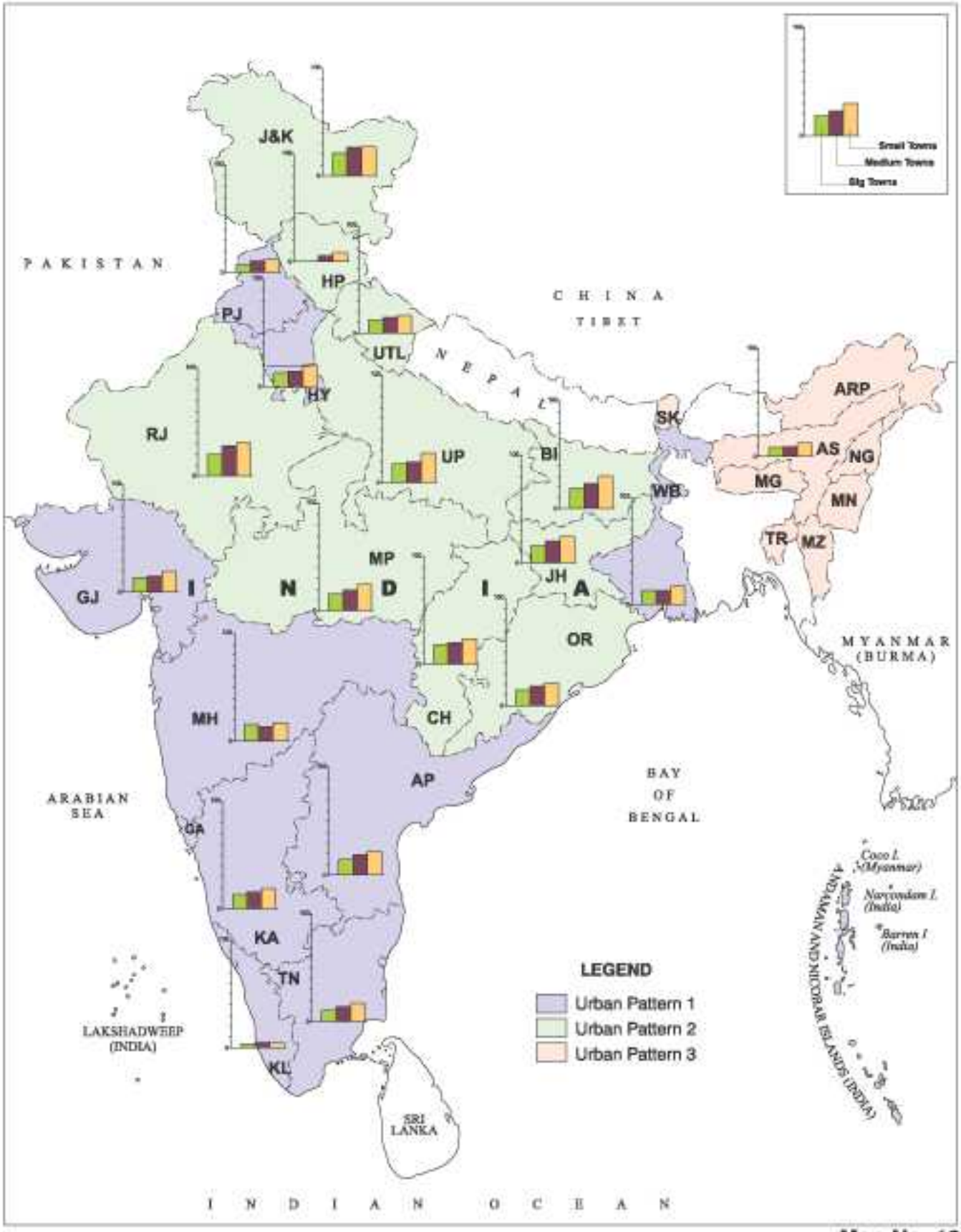
Analysing the juvenile sex ratio, for the country

Food Access Index Across Different Size Classes of Towns, 1993-94



Map No. 14

Gender Gap in Literacy Rates Across Different Size Classes of Towns, 2001



Map No. 13

Table 9.13

Literacy Rates in Different Size Classes of Towns, 2001

S.No	State/ Union Territory	Big towns			Medium towns			Small towns		
		Percentage of literates		Gender gap index	Percentage of literates		Gender gap index	Percentage of literates		Gender gap index
		Male	Female		Male	Female		Male	Female	
1	Andaman & Nicobar	_	_	_	81.28	72.22	11	77.31	68.27	12
2	Andhra Pradesh	75.14	64.49	14	72.56	58.90	19	72.64	56.99	22
3	Arunachal Pradesh	_	_	_	_	_	_	72.90	58.50	20
4	Assam	81.12	74.00	9	82.00	74.67	9	79.14	69.35	12
5	Bihar	71.98	58.60	19	68.80	52.95	23	61.17	42.79	30
6	Chandigarh	76.29	68.07	11	_	_	_	_	_	_
7	Chattisgarh	79.01	64.64	18	78.20	62.65	20	75.80	57.84	24
8	Dadra & Nagar Haveli	_	_	_	_	_	_	79.10	62.47	21
9	Daman & Diu	_	_	_	_	_	_	80.86	69.51	14
10	Delhi	81.71	70.94	13	71.48	54.43	24	72.56	55.71	23
11	Goa	_	_	_	81.03	72.88	10	79.79	70.11	12
12	Gujarat	77.52	67.23	13	78.61	67.23	14	75.83	61.25	19
13	Haryana	75.80	65.74	13	75.72	65.26	14	71.21	56.67	20
14	Himachal Pradesh	_	_	_	86.21	81.62	5	82.34	75.22	9
15	Jammu and Kashmir	71.80	56.74	21	74.39	54.83	26	72.83	53.23	27
16	Jharkhand	80.66	67.96	16	75.66	60.37	20	73.14	55.29	24
17	Karnataka	77.60	67.18	13	75.98	64.30	15	72.36	58.89	19
18	Kerala	85.57	82.67	3	84.29	80.16	5	85.34	81.76	4
19	Lakshadweep	_	_	_	_	_	_	81.83	73.06	11
20	Madhya Pradesh	78.14	65.96	16	76.57	61.90	19	72.82	54.93	25
21	Maharashtra	78.16	66.38	15	80.08	69.66	13	77.94	65.07	17
22	Manipur	84.11	74.36	12	_	_	_	73.42	55.12	25
23	Meghalaya	_	_	_	80.71	75.62	6	74.01	69.85	6
24	Mizoram	84.66	84.00	1	_	_	_	82.03	80.10	2
25	Nagaland	_	_	_	77.13	67.56	12	79.00	73.41	7
26	Orissa	81.63	69.61	15	77.33	63.36	18	76.11	60.25	21
27	Pondicherry	82.28	71.02	14	79.15	67.84	14	77.46	72.95	6
28	Punjab	75.09	69.77	7	73.72	65.89	11	71.04	62.68	12
29	Rajasthan	76.93	61.71	20	71.46	51.68	28	72.39	50.50	30
30	Sikkim	_	_	_	_	_	_	80.43	71.92	11
31	Tamil Nadu	81.90	73.48	10	81.34	69.83	14	77.48	64.29	17
32	Tripura	_	_	_	88.05	82.08	7	82.93	74.81	10
33	Uttar Pradesh	67.81	56.24	17	65.66	53.04	19	61.60	44.77	27
34	Uttaranchal	81.35	71.56	12	73.75	63.06	14	75.71	63.39	16
35	West Bengal	79.38	69.10	13	79.79	69.54	13	73.98	61.48	17
	Urban India	76.98	66.33	14	75.43	63.30	16	73.07	58.86	19

Note: The value of gender gap index lies between 0 and 100. Closer the value to zero, lower is the gender gap.

Source: Census of India 2001 (a)

Table 9.14

Juvenile Sex Ratio in Different Size Classes of Towns, 2001

S.No.	State/ Union Territory	Number of girls per 1000 boys (0 to 6 Years)		
		Big towns	Medium towns	Small towns
1	Andaman & Nicobar	—	932	985
2	Andhra Pradesh	957	960	965
3	Arunachal Pradesh	—	—	981
4	Assam	883	942	950
5	Bihar	917	932	928
6	Chandigarh	844	—	—
7	Chattisgarh	934	927	950
8	Dadra & Nagar Haveli	—	—	885
9	Daman & Diu	—	—	935
10	Delhi	871	875	859
11	Goa	—	916	920
12	Gujarat	835	829	855
13	Haryana	787	798	811
14	Himachal Pradesh	—	843	862
15	Jammu and Kashmir	864	913	877
16	Jharkhand	916	934	938
17	Karnataka	934	936	943
18	Kerala	950	955	959
19	Lakshadweep	—	—	920
20	Madhya Pradesh	889	902	913
21	Maharashtra	906	910	898
22	Manipur	1003	—	972
23	Meghalaya	—	969	962
24	Mizoram	975	—	948
25	Nagaland	—	944	926
26	Orissa	904	938	936
27	Pondicherry	945	988	947
28	Punjab	772	787	789
29	Rajasthan	889	888	886
30	Sikkim	—	—	925
31	Tamil Nadu	950	948	947
32	Tripura	—	954	945
33	UttarPradesh	858	884	904
34	Uttaranchal	902	876	867
35	West Bengal	954	951	961
	Urban India	903	906	914

Source: Census of India 2001(a)

as a whole, we found that the ratio was higher for lower size classes of towns. (see Table 9.3) That is, the metropolitan cities as a whole had the lowest juvenile sex ratio, while the small towns had the highest sex ratio. This pattern does not seem to hold true across all States. Analysing the juvenile sex ratio across the metropolitan cities we found that cities located in the north and northwestern regions of the country—Jaipur, Ludhiana, Delhi, Ahmedabad, Surat, and Vadodara—had a low sex ratio. Our analysis across different size classes of towns in the States and Union Territories of the country also indicates that areas that have had a history of female discrimination—the north and northwestern regions—had a below average level of sex ratio across all three size classes of towns in 2001. In the Punjab, Haryana, Delhi, Gujarat, Uttar Pradesh, Rajasthan, and Madhya Pradesh, big towns, medium, towns and small towns have a sex ratio that was lower than the country's average of 903, 906, and 914 respectively. (Table 9.14)

Our discussion on access to food clearly brings out the variation in this across different size classes of towns and across different States. The variation we have observed once again substantiates the need to have a decentralised policy approach.

b) Aspects relating to food absorption

As mentioned earlier, an important dimension of food security is the ability of people to absorb food. Food absorption is related to the availability of clean drinking water, environmental hygiene, sanitation, and primary health care. The Bhore Committee, that studied the public health problem in India as far back as the early days after Independence, commented that improving general sanitation is a matter of urgent importance from the point of view of controlling a large part of preventable ill health. The Committee further noted that creation of hygienic houses in adequate numbers and of adequate sizes, in areas equipped with all the facilities necessary for community life, should be the objective of the long-

On the basis of *The Global Water Supply and Sanitation Assessment 2000*, this Box highlights the health hazards of poor water supply and sanitation.

HEALTH HAZARDS OF POOR WATER SUPPLY AND SANITATION

Approximately 4 billion cases of diarrhoea each year cause 2.2 million deaths, mostly among children under the age of five. This is equivalent to one child dying every 15 seconds, or 20 jumbo jets crashing every day. These deaths represent approximately 15 percent of all child deaths under the age of five in developing countries. Water, sanitation, and hygiene interventions reduce diarrhoeal disease on average by between one-quarter and one-third.

Intestinal worms infect about 10 percent of the population of the developing world. These can be controlled through better sanitation, hygiene, and water supply. Intestinal parasitic infections can lead to malnutrition, anaemia, and retarded growth, depending upon the severity of the infection.

Cholera is a worldwide problem that can be prevented by ensuring that everyone has access to safe drinking water, adequate excreta disposal systems, and good hygiene behaviour.

Arsenic in drinking water is a major public health threat. According to data from about 25,000 tests on wells in Bangladesh, 20 percent have high levels of arsenic (above 0.05 mg/l). These wells were not, however, selected at random and may not reflect the true percentage. Many people are working hard in Bangladesh, West Bengal, and other affected areas to understand the problem and identify the solution.

Source: www.who.int/water_sanitation_health/Globassessment/Global 1.htm

term policy of the Government of India (Nayar 1997). Given the linkages between health and basic amenities, a detailed analysis across different size classes of towns in the States and Union Territories of India would indicate the extent of deprivation faced by the population with regard to these basic requisites. We shall analyse the access to basic amenities for households and also the availability of certain amenities across towns. Tables 9.15 to 9.17 provide details of basic amenities across the various States in the three different size classes of towns. Before we analyse the data it is important to remember that by 'safe drinking water' the Census refers only to water supplies from a tap, hand pump or tubewell, and drinking water from wells and tanks is considered as unsafe. In some States, such as Kerala, there is a larger dependence on well water and therefore an analysis of the Census data would indicate that Kerala has a low percentage of people with access to safe drinking water. It is well known that people of Kerala generally boil their drinking water, making it 'safe' for human consumption; and therefore the analysis of Census data on this aspect will undoubtedly be misleading. Similarly, some of the northeastern States also depend on wells and other sources of drinking water such as tanks. (For details on sources of drinking water, see Table A9.3.) Keeping this in mind, let us analyse the position of States with regard to drinking water as well as other basic amenities.

Across all the States in general, access to basic amenities—safe drinking water, toilets, electricity—was much lower for households in small towns compared to those in medium or big towns. Considering access to safe drinking water, we find that States that fared poorly did so across all size classes. Apart from the northeastern States and Kerala, Tamil Nadu and Andhra Pradesh as well as Bihar and Orissa

Table 9.15

Index of Basic Amenities for Small Towns,1991

S.No.	State/ Union Territory	Percentage of households that have access to			Number of beds per 1000 population	Indices of basic amenities				Composite index of basic amenities
		Safe drinking water	Toilets	Electricity		Safe drinking water	Toilets	Electricity	Beds	
1	Sikkim	92.89	77.09	91.99	12.70	0.95	0.68	0.86	1.00	0.87
2	Arunachal Pradesh	84.08	84.18	86.11	8.33	0.84	0.80	0.75	0.66	0.76
3	Himachal Pradesh	91.40	57.02	96.54	9.62	0.93	0.33	0.95	0.76	0.74
4	Dadra & Nagar Haveli	90.97	65.14	87.57	3.26	0.93	0.47	0.77	0.25	0.61
5	Punjab	93.60	59.43	92.68	2.00	0.96	0.37	0.87	0.16	0.59
6	Daman & Diu	86.62	45.91	95.43	4.78	0.87	0.14	0.93	0.37	0.58
7	Tripura	61.56	96.03	73.42	1.91	0.57	1.00	0.50	0.15	0.55
8	Meghalaya	68.24	80.99	75.40	3.10	0.65	0.74	0.54	0.24	0.54
9	Haryana	89.84	52.41	88.44	1.73	0.91	0.25	0.79	0.13	0.52
10	Gujarat	81.60	54.12	81.55	3.25	0.81	0.28	0.66	0.25	0.50
11	Chandigarh	97.10	50.37	81.87	0.46	1.00	0.22	0.66	0.03	0.48
12	Nagaland	49.55	69.29	72.04	5.45	0.43	0.54	0.47	0.43	0.47
13	Assam	61.65	81.79	58.96	3.76	0.58	0.76	0.21	0.29	0.46
14	Lakshadweep	18.88	64.85	99.12	3.09	0.06	0.47	1.00	0.24	0.44
15	Goa	50.71	53.56	88.22	1.88	0.44	0.27	0.79	0.15	0.41
16	Maharashtra	83.28	41.51	79.97	1.59	0.83	0.07	0.63	0.12	0.41
17	Mizoram	13.60	84.09	77.39	3.53	0.00	0.80	0.57	0.28	0.41
18	Karnataka	78.16	47.52	69.99	2.05	0.77	0.17	0.43	0.16	0.38
19	Rajasthan	82.39	46.21	67.75	2.12	0.82	0.15	0.39	0.16	0.38
20	West Bengal	81.96	59.83	55.90	2.16	0.82	0.38	0.15	0.17	0.38
21	Pondicherry	64.00	47.60	69.65	2.31	0.60	0.17	0.42	0.18	0.34
22	Uttar Pradesh	81.57	53.51	53.41	1.55	0.81	0.27	0.11	0.12	0.33
23	Andhra Pradesh	68.46	38.23	65.96	3.25	0.66	0.01	0.35	0.25	0.32
24	Delhi	92.05	47.90	55.84	0.03	0.94	0.18	0.15	0.00	0.32
25	Tamilnadu	71.57	38.62	69.35	1.71	0.69	0.02	0.42	0.13	0.32
26	Madhya Pradesh	70.97	41.78	65.86	1.88	0.69	0.07	0.35	0.15	0.31
27	Manipur	38.39	58.83	65.68	1.45	0.30	0.36	0.35	0.11	0.28
28	Kerala	23.15	67.28	62.71	2.34	0.11	0.51	0.29	0.18	0.27
29	Bihar	68.98	42.64	48.01	2.09	0.66	0.09	0.00	0.16	0.23
30	Orissa	59.23	37.58	52.82	2.81	0.55	0.00	0.09	0.22	0.22

Source: Censusf India 1991 (d)

Table 9.16
Index of Basic Amenities for Medium Towns, 1991

S.No.	State/ Union Territory	Percentage of households that have access to			Beds per 1000 population	Indices of basic amenities				Composite index of basic amenities
		Safe drinking water	Toilets	Electricity		Safe drinking water	Toilets	Electricity	Beds	
1	Meghalaya	87.31	92.36	93.88	8.53	0.91	0.91	0.96	1.00	0.95
2	Himachal Pradesh	93.36	68.36	95.23	8.50	1.00	0.45	1.00	1.00	0.86
3	Tripura	86.71	96.86	92.16	5.06	0.90	1.00	0.91	0.50	0.83
4	Andaman & Nicobar	90.91	65.72	90.55	7.90	0.96	0.40	0.87	0.91	0.78
5	Manipur	74.27	88.44	92.11	4.01	0.71	0.84	0.91	0.35	0.70
6	Goa	76.76	60.31	89.96	7.52	0.75	0.30	0.85	0.85	0.69
7	Haryana	93.49	71.67	93.63	2.49	1.00	0.52	0.95	0.13	0.65
8	Punjab	93.17	72.72	93.77	2.10	0.99	0.54	0.96	0.07	0.64
9	Gujarat	86.79	66.28	86.22	3.67	0.90	0.41	0.74	0.30	0.59
10	Assam	77.45	88.64	66.56	5.39	0.76	0.84	0.18	0.55	0.58
11	Maharashtra	87.58	55.58	83.02	2.53	0.91	0.21	0.65	0.13	0.48
12	Pondicherry	93.63	44.69	67.32	6.30	1.00	0.00	0.20	0.68	0.47
13	Rajasthan	85.80	63.73	77.14	2.47	0.88	0.36	0.48	0.12	0.46
14	Mizoram	26.23	84.76	93.63	2.35	0.00	0.77	0.95	0.11	0.46
15	West Bengal	86.14	76.95	66.36	2.30	0.89	0.62	0.18	0.10	0.45
16	Uttar Pradesh	85.81	69.74	70.44	2.41	0.88	0.48	0.29	0.12	0.44
17	Nagaland	43.25	78.85	78.74	3.16	0.25	0.65	0.53	0.22	0.42
18	Tamil Nadu	75.80	57.14	77.07	2.74	0.74	0.24	0.48	0.17	0.41
19	Karnataka	81.64	56.63	76.00	2.42	0.82	0.23	0.45	0.12	0.41
20	Madhya Pradesh	82.31	55.68	72.65	2.78	0.83	0.21	0.36	0.17	0.39
21	Kerala	38.61	74.73	70.07	5.08	0.18	0.58	0.28	0.50	0.39
22	Delhi	93.64	46.41	77.08	1.60	1.00	0.03	0.48	0.00	0.38
23	Andhra Pradesh	72.75	49.95	72.42	2.95	0.69	0.10	0.35	0.19	0.33
24	Bihar	74.36	58.02	60.16	2.51	0.71	0.26	0.00	0.13	0.28
25	Orissa	63.26	52.01	65.03	2.04	0.55	0.14	0.14	0.06	0.22

Source: Census of India 1991 (d)

fall in this category. In these States more than 30 percent of households in small towns, 28 percent of households in medium towns, and 20 percent in big towns did not have access to safe drinking water.

From Map 9.5 we find that access to toilets was the least for households in small towns across all States and the situation was quite bad across all size classes of towns in Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Orissa, and Bihar. In these States, a large proportion of households—much more than one-third—across big, medium and small towns do not have access to toilet facilities.The northeastern States and Kerala fared well. Studying the sanitary aspects in towns, we find even in this modern era there is the distressing presence of human labour in the disposal of night soil. From Map 9.6 (and Table A9.4), we find that more than 50 percent of the small and medium towns in Bihar use human labour for disposal of night soil. The problem was quite severe in Rajasthan too, even in the metropolitan city of

Table 9.17
Index of Basic Amenities for Big Towns, 1991

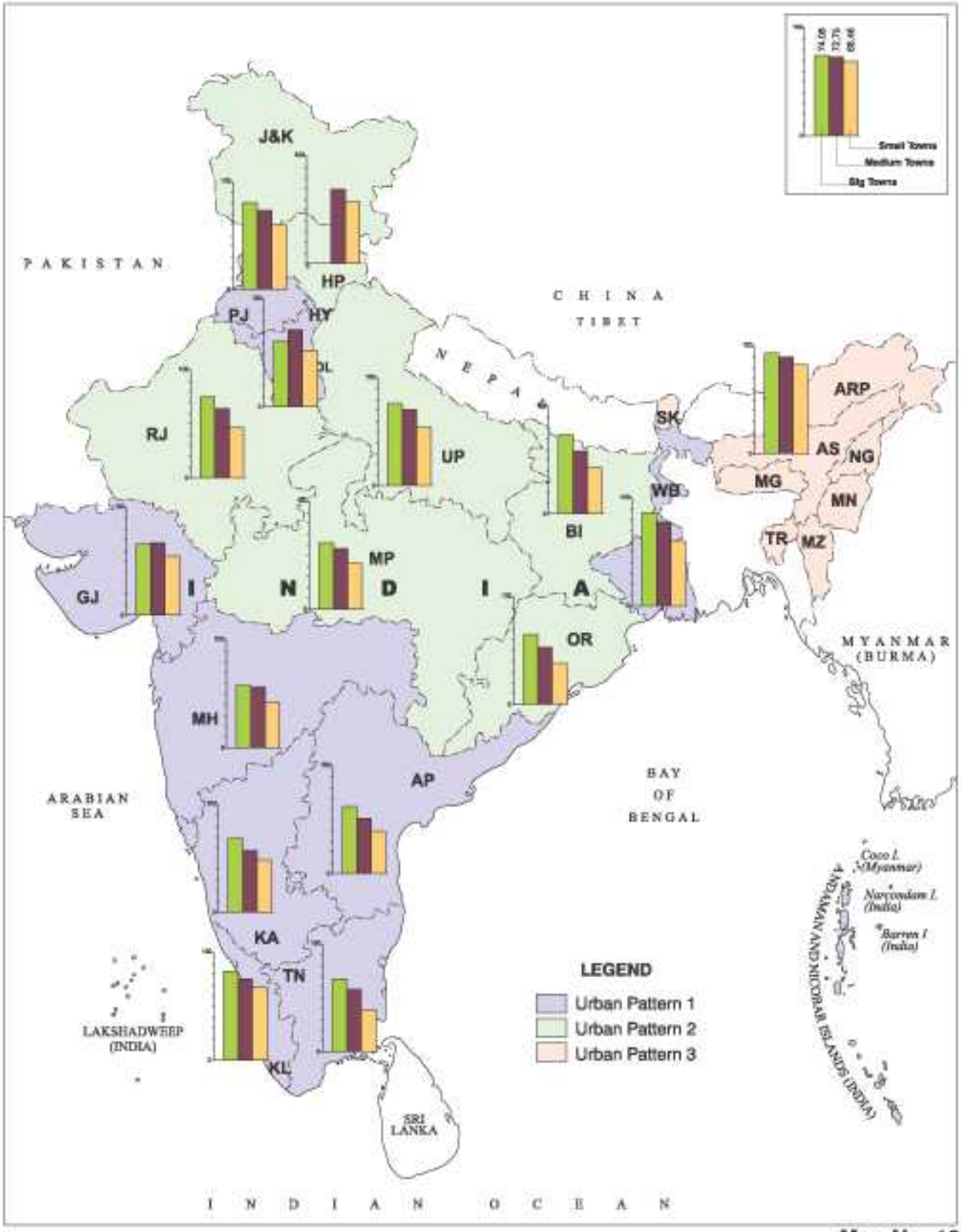
S.No.	State/ Union Territory	Percentage of households that have access to			Beds per 1000 population	Indices of basic amenities				Composite index of basic amenities
		Safe drinking water	Toilets	Electricity		Safe drinking water	Toilets	Electricity	Beds	
1	Delhi	97.13	78.61	79.85	16.85	0.99	0.62	0.40	1.00	0.75
2	Punjab	95.17	79.52	96.67	4.96	0.94	0.64	1.00	0.22	0.70
3	Chandigarh	97.75	83.47	85.89	2.66	1.00	0.75	0.61	0.07	0.61
4	Rajasthan	90.81	74.03	85.56	4.29	0.84	0.49	0.60	0.18	0.53
5	Uttar Pradesh	88.46	75.52	78.79	2.26	0.78	0.53	0.36	0.04	0.43
6	Gujarat	84.05	65.22	88.40	2.28	0.68	0.24	0.70	0.05	0.42
7	Karnataka	84.49	67.54	79.26	4.40	0.69	0.30	0.37	0.18	0.39
8	Haryana	94.01	61.00	81.74	2.29	0.91	0.12	0.46	0.05	0.38
9	Kerala	67.96	81.52	75.61	6.02	0.30	0.70	0.24	0.29	0.38
10	West Bengal	81.07	85.54	70.52	1.57	0.61	0.81	0.06	0.00	0.37
11	Tamil Nadu	79.48	66.84	83.42	2.31	0.57	0.28	0.52	0.05	0.36
12	Maharashtra	89.69	56.90	84.64	1.88	0.81	0.00	0.57	0.02	0.35
13	Pondicherry	87.97	57.34	77.86	5.08	0.77	0.01	0.32	0.23	0.33
14	Madhya Pradesh	85.05	61.16	77.93	2.96	0.70	0.12	0.33	0.09	0.31
15	Bihar	77.16	72.73	70.94	3.38	0.52	0.45	0.08	0.12	0.29
16	Assam	55.24	92.17	68.85	3.59	0.00	1.00	0.00	0.13	0.28
17	Andhra Pradesh	74.08	60.89	73.15	3.55	0.44	0.11	0.15	0.13	0.21
18	Orissa	67.60	64.00	73.35	3.16	0.29	0.20	0.16	0.10	0.19

Source: Census of India 1991 (d)

Jaipur. It was also quite acute in the case of West Bengal, Madhya Pradesh, Uttar Pradesh, the Punjab, Haryana, Himachal Pradesh, and Assam. Even the so-called developed southern States have this practice, even though the magnitude of the problem was much less here. The problem was certainly more severe among the Pattern 2 States than the Pattern 1 States. In the country as a whole, 573 towns, that is, 12 percent of the towns, reported the prevalence of head load as a method of disposal of night soil. Of these 495 towns or 86 percent are small towns. In the country as a whole, 13 percent of small towns, 12 percent of medium towns, and 5 percent of big towns report the prevalence of head load. As a contrast to this system of night soil disposal, the sewerage system can be considered to be a very hygienic and efficient method. From Map 9.7, we find that only in two States—the Punjab and Haryana—all the big and medium towns had sewer systems while in Karnataka all big towns and all medium towns in Himachal Pradesh were connected to the sewerage system.

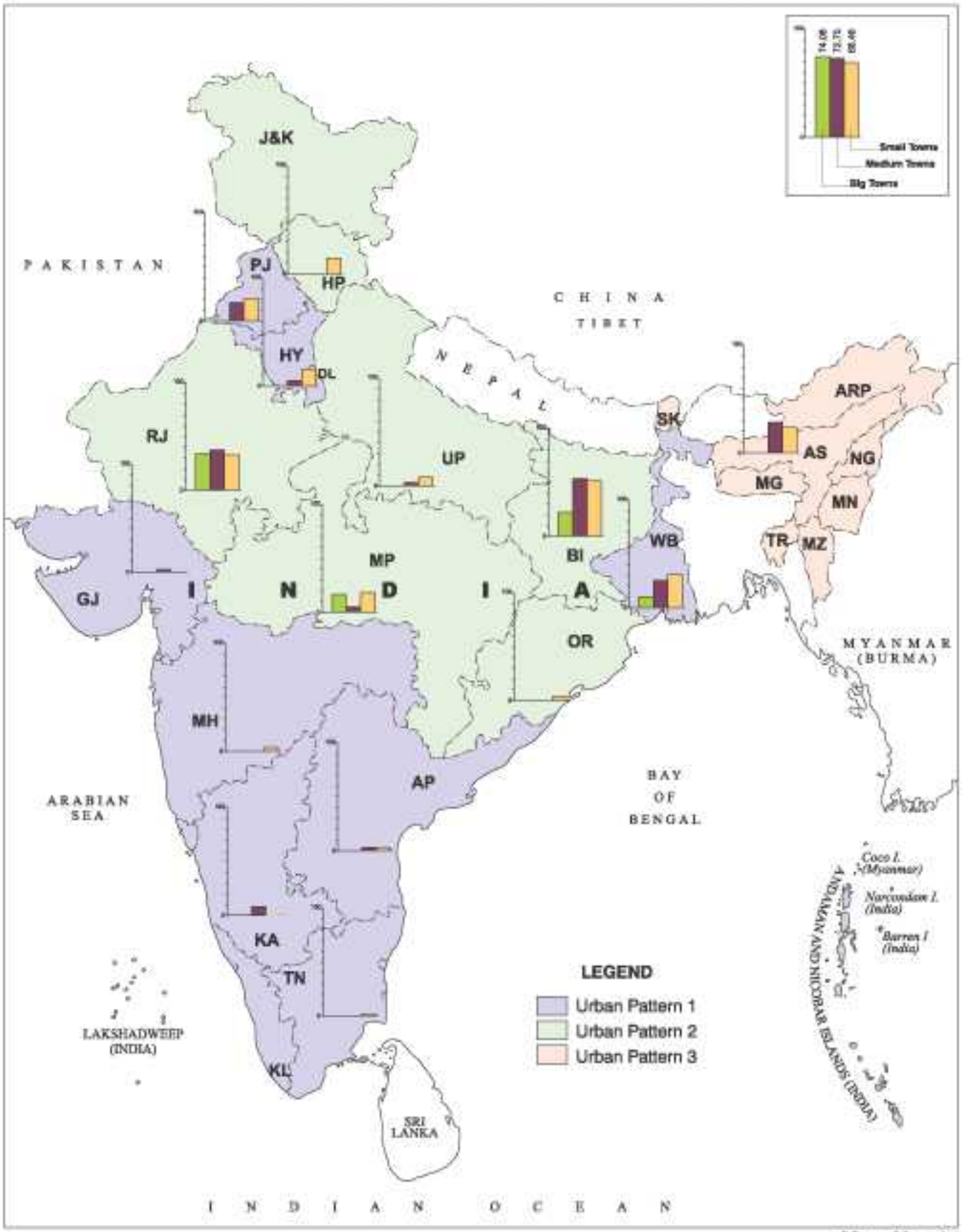
Analysing access to electricity, we find that Bihar, Orissa, Madhya Pradesh, and Uttar Pradesh of the Pattern 2 States, Kerala, Andhra Pradesh, and West Bengal among the Pattern 1 States, and Assam in Pattern 3 fared poorly across all size classes of towns in this respect. More than one-third of total households in the above mentioned States, across big, medium and small towns, did not have access to electricity. The proportion of households that did not have access to electricity was generally much higher

Percentage of Households with access to Toilet across Different Size Classes of Towns, 1991



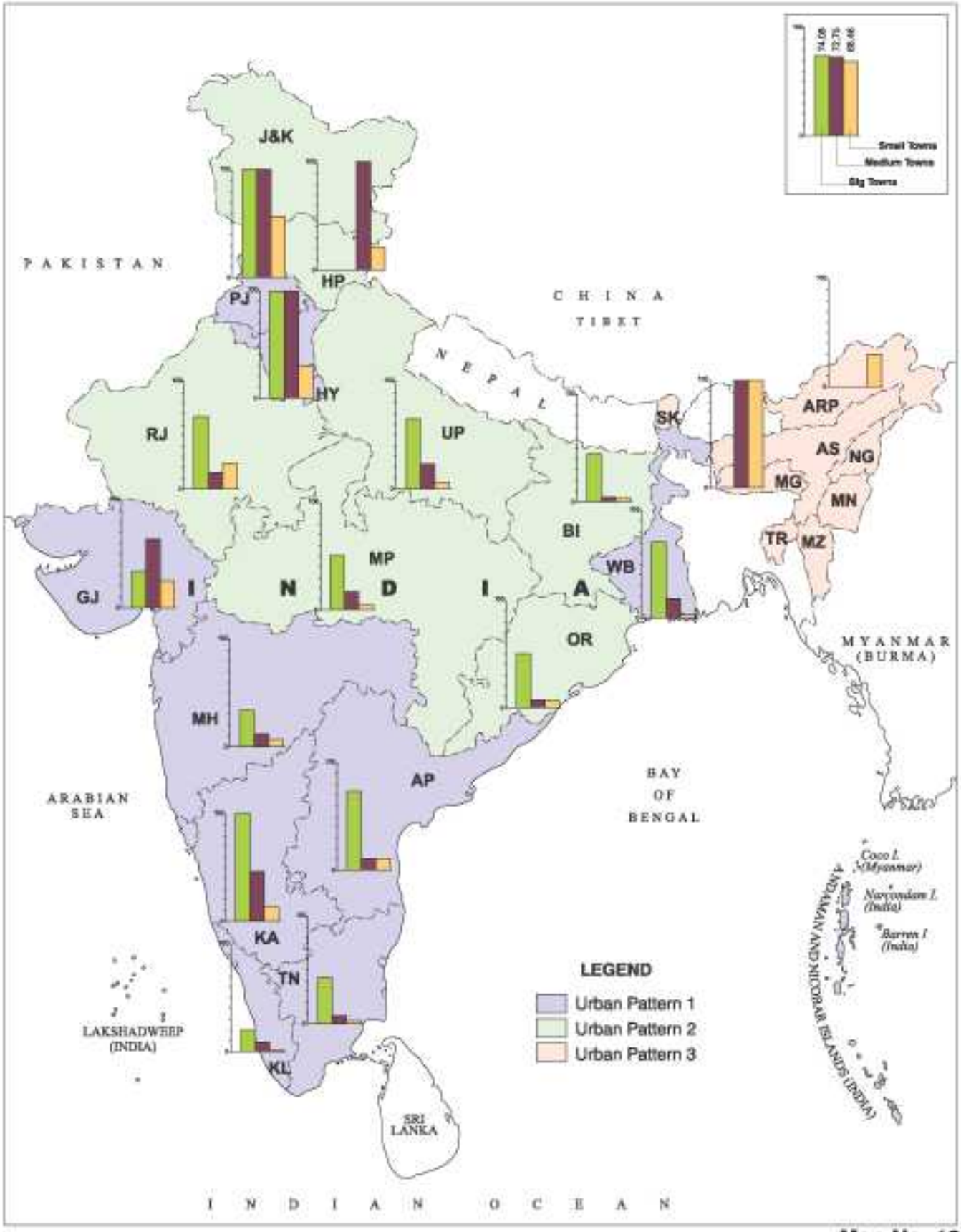
Map No. 10

Percentage of Towns that report Head Load as a Method of Disposal of Night Soil across Different Size Classes of Towns, 1991



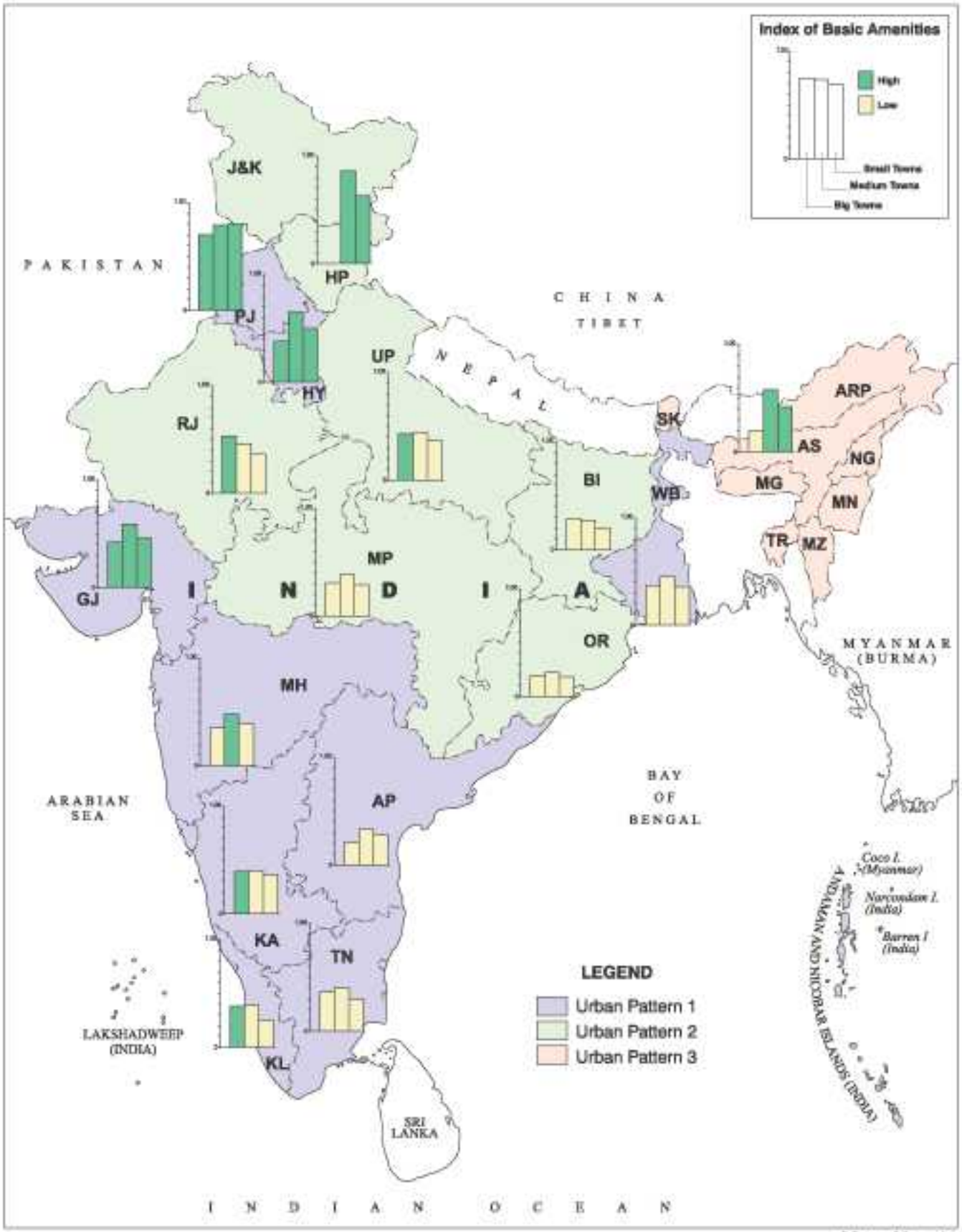
Map No. 11

Percentage of Towns that Report Availability of Sewer System, 1991



Map No. 12

Index of Basic Amenities across Different Size Classes of Towns, 1991



Map No. 15

in small towns. Considering medical services, we find that Tamil Nadu, Maharashtra Uttar Pradesh, West Bengal, and Gujarat had less than 3 beds per 1000 population across all size classes of towns.

With regard to access to safe drinking water, toilets, electricity, and medical services (as given by availability of beds per 1000 persons), we have worked out a composite index of basic amenities. These indices are depicted in Tables 9.15 to 9.17 as well as in Map 9.8. The Punjab, Haryana, and Gujarat were the only three States where all size classes of towns did well in terms of amenities. Madhya Pradesh, Bihar, Orissa, West Bengal, Andhra Pradesh, and Tamil Nadu fared poorly across all size classes of towns. Comparing Map 9.3 with Map 9.8 it is clear that only the Punjab fared well in terms of food access as well as amenities across

Table 9.18
Food Security Index for Different Size Classes of Towns, Early 1990s

S.No.	State / Union Territory	Big towns	Medium towns	Small towns
1	Andaman & Nicobar	_	0.63	_
2	Andhra Pradesh	0.38	0.36	0.33
3	Arunachal Pradesh	_	_	0.81
4	Assam	0.51	0.51	0.44
5	Bihar	0.41	0.28	0.35
6	Chandigarh	0.71	_	0.50
7	Dadra & Nagar Haveli	_	_	0.65
8	Daman & Diu	_	_	0.58
9	Goa	_	0.64	0.34
10	Gujarat	0.46	0.55	0.48
11	Haryana	0.54	0.56	0.48
12	Himachal Pradesh	_	0.85	0.72
13	Karnataka	0.53	0.40	0.44
14	Kerala	0.39	0.25	0.22
15	Lakshadweep	_	_	0.33
16	Madhya Pradesh	0.48	0.42	0.39
17	Maharashtra	0.53	0.47	0.42
18	Manipur	_	0.62	0.39
19	Meghalaya	_	0.87	0.66
20	Mizoram	_	0.58	0.48
21	Nagaland	_	0.51	0.63
22	Orissa	0.45	0.35	0.32
23	Pondicherry	0.43	0.36	0.30
24	Punjab	0.79	0.60	0.55
25	Rajasthan	0.70	0.51	0.45
26	Sikkim	_	_	0.82
27	Tamil Nadu	0.45	0.39	0.36
28	Tripura	_	0.69	0.51
29	Uttar Pradesh	0.54	0.42	0.36
30	West Bengal	0.46	0.36	0.38

Source: Tables 9.10, 9.11, 9.12, 9.15, 9.16, and 9.17.

all size classes of towns. Madhya Pradesh, Bihar, West Bengal, Andhra Pradesh, and Tamil Nadu fared poorly in terms of both these aspects. In some States, some size classes of towns did well in terms of access but not so in terms of absorption and vice versa.

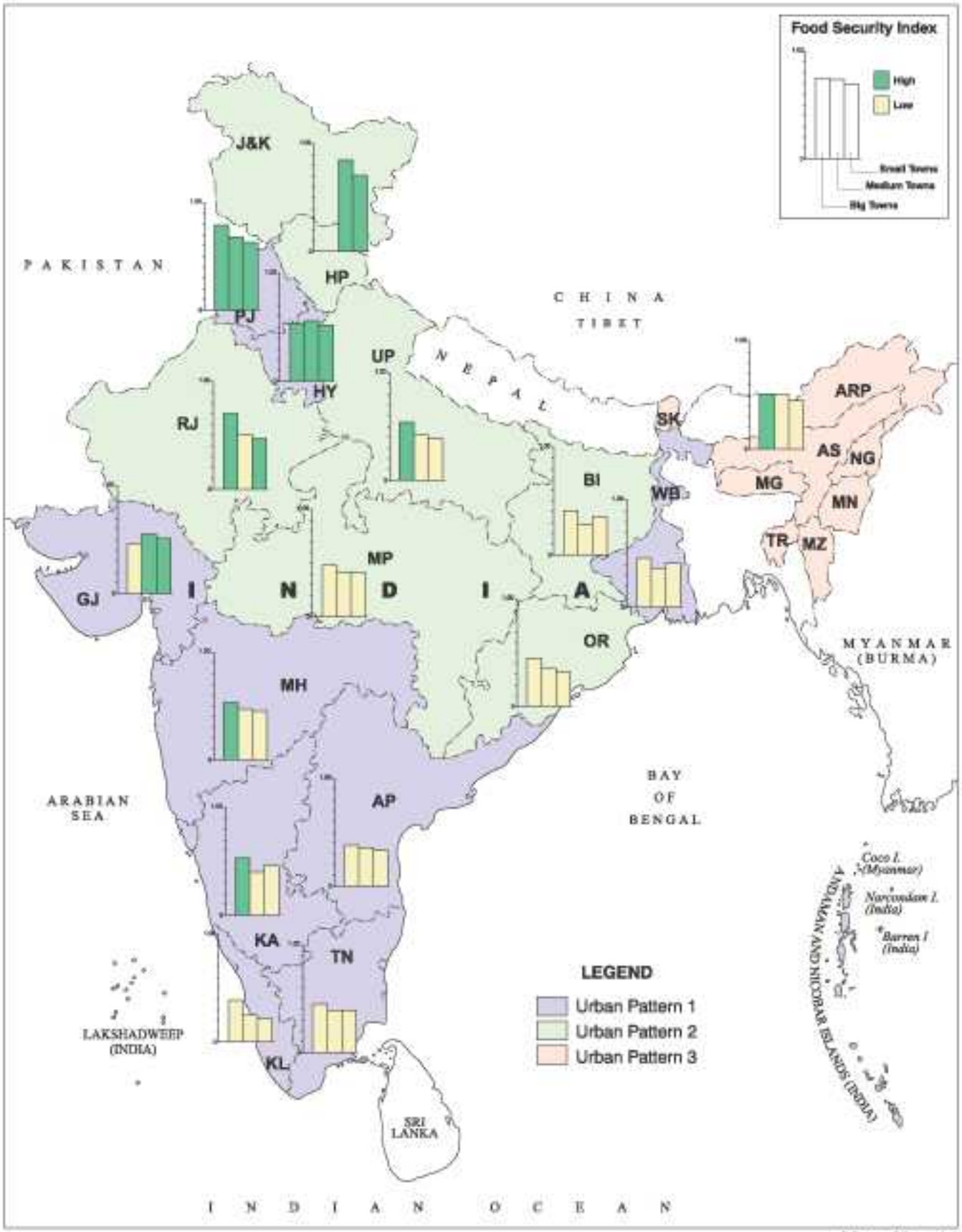
c) Aspects relating to food security

Having discussed access to basic amenities for households that help in absorption of food, we have combined the access indicators and the indicators of amenities to arrive at composite indices of food

Table 9.19
Statement of Specific Problems in Different Size Classes of Towns Across Major States

State	Some Details of Specific Problems in the State
Andhra Pradesh	Lack of availability of regular employment; lack of access to toilets and lack of availability of medical beds across the big, medium and small towns.
Assam	High levels of unemployment, particularly among females; lack of access to electricity for households across all size classes of towns.
Bihar	Lack of access to electricity for households and low levels of female literacy across all size classes of towns; lack of access to toilets, medical beds and lack of availability of regular employment, particularly in small and medium towns.
Gujarat	Lack of regular employment among males and females; lack of access to toilets and medical beds; low levels of juvenile sex ratio across all classes of towns.
Haryana	Lack of regular employment among males; lack of access to toilets and medical beds across all size classes of towns; Lack of regular employment among females in medium and small towns. Very low levels of juvenile sex ratio, particularly in the big towns.
Karnataka	Lack of access to toilets and lack of regular employment for females, particularly in small and medium towns.
Kerala	High levels of unemployment and low levels of regular employment among males and females across all three size classes of towns.
Madhya Pradesh	Lack of regular employment for females and low levels of literacy among females in small towns; lack of access to toilets across all three size classes of towns.
Maharashtra	Lack of regular employment for females in the small and medium towns; lack of access to toilets and medical beds in all three size classes of towns.
Orissa	Lack of access to all basic amenities across the big, medium, and small towns; high level of unemployment among males in the small towns.
Punjab	Lack of regular employment among males and females in the small and medium towns; lack of access to toilets and low juvenile sex ratio across all towns.
Rajasthan	Low levels of juvenile sex ratio and female literacy; lack of access to toilets and medical beds; lack of regular employment among females in small towns.
Tamil Nadu	Lack of regular employment for females, particularly in small and medium towns; lack of access to toilets, medical beds across all size classes of towns.
Uttar Pradesh	Lack of access to electricity and medical beds; lack of regular employment and low levels of female literacy across all size classes of towns.
West Bengal	Lack of access to toilets and electricity in small towns; high rate of unemployment among males in small and medium towns and among females in small, medium and big towns.

Food Security Index Across Different Size Classes of Towns, Early Nineties



Map No. 16

security across different size classes of towns in the various States. The composite index of food security is a simple average of the individual indices of the chosen indicators. Table 9.18 and Map 9.9 depict the food security position across the major States in the country. The food security situation for big towns indicate that in 8 out of 17 States the value of food security index is above the median value of 0.48; for medium towns in 10 out of 24 States the value of food security index is above the median value 0.51; and for small towns in 14 out of 29 States the value of food security index is above the median value of 0.44. The Punjab and Haryana are the only two States where all the three size classes of towns have a high value of food security index. In Madhya Pradesh, Bihar, Orissa, West Bengal, Andhra Pradesh, Tamil Nadu, and Kerala all size classes of towns have a relatively low level or low value of food security. In Karnataka, Maharashtra, and Uttar Pradesh only the big towns have a high level of food security index while medium and small towns have low levels of food security indices. The small and medium towns of Gujarat, the big and small towns of Rajasthan, and the big and medium towns of Assam fare well in terms overall food security. The composite index of food security of a State gives only its overall relative position, and even a State with a high value of food security will have certain specific problems. Table 9.19 gives details of such specific problems experienced by different size classes of towns in the major States of the country.

9.5 Concluding Observations

On the basis of our analysis of food security across big, medium, and small towns, two important points emerge. First, there are wide variations in the extent and nature of the problems across different size classes of towns; and second, the problems are not necessarily those of big towns and are most acute and most variable across small towns. Casual employment, which ensures neither a high level nor a regular income, is at a very high level, among males as well as females, in the small towns of the country. On the other hand, regular employment, which ensures regularity of wages or salary and by implication better access to food, is much lower in the small towns. Literacy rates for males as well as females are also much lower in small towns. Access to basic amenities, such as safe drinking water, toilets, and electricity, are much lower for households living in small towns. That is, deprivation faced by households with regard to secure employment as well as access to amenities is the highest for those living in small towns.

Our analysis has also brought out interesting variations in the problems across space in the country. Analysing problems relating to employment, we find that in States that exhibit urban Pattern 1, problems relating to unemployment and casualisation of labour are quite severe; in urban Pattern 2, problems relating to self-employment are acute; in urban Pattern 3, levels of regular employment are quite high but female unemployment is also quite high. Similarly, with regard to literacy, particularly female literacy, problems are more acute in States that exhibit urban Pattern 2 and gender differentials in general are the highest in Pattern 2 and the least in Pattern 3. Access to toilets and availability of modern and hygienic methods of disposal of night soil are more problematic in Pattern 2, while access to safe drinking water is a more severe concern in Pattern 1. Juvenile sex ratio, across all size classes of towns, is the lowest in the northern and northwestern parts of the country.

Our computation of composite indices of food security for different size classes of towns across the various States and Union Territories indicates that the Punjab and Haryana are the only two States where all size classes of towns —big, medium, and small— have relatively high levels of food security. A large number of States like Madhya Pradesh, Bihar, Orissa,

West Bengal, Andhra Pradesh, Tamil Nadu, and Kerala are problem States where all the three size classes of towns have relatively low levels of food security. The Punjab and Himachal Pradesh are the only States where all the three size classes of towns have a high value of food access index as well as basic amenities index. Madhya Pradesh, Bihar, West Bengal, Tamil Nadu, and Andhra Pradesh have a low value of food access index as well as basic amenities index across all the three size classes of towns. While the overall relative position of a State is given by the composite index of food security, the state level analysis has also clearly brought out the strengths and weaknesses of states: Tamilnadu that has a relatively low level of overall food security across all 3 size classes of towns, fares well with regard to literacy rates of population and the juvenile sex ratio. In Haryana and the Punjab that fare well in terms of overall food security, lack of regular employment is a serious concern particularly in the medium and small towns. Our analysis draws a balance sheet of positive and negative aspects of food security across different size classes of towns in various States. Given that our study has clearly brought out the wide variations in the nature of the problems across different size classes of towns as well as across different urban patterns and across different States, we cannot but emphasise the need for a decentralised approach to policy action.

Appendix A9.1

Distribution of Towns and Urban Population in Different Size Classes of Towns 1991

S.No.	State/Union Territory	Number of towns by size class					Distribution of urban population by size class			
		1	2	3	4	All	1	2	3	4
1	Andaman & Nicobar	0	0	1	0	1	0.00	0.00	100.00	0.00
2	Andhra Pradesh	1	11	66	186	264	17.10	23.86	34.19	24.85
3	Arunachal Pradesh	0	0	0	10	10	0.00	0.00	0.00	100.00
4	Assam	0	1	7	85	93	0.00	23.49	25.31	51.21
5	Bihar	0	9	45	217	271	0.00	31.48	31.76	36.76
6	Chandigarh	0	1	0	4	5	0.00	88.67	0.00	11.33
7	Dadra & Nagar Haveli	0	0	0	1	1	0.00	0.00	0.00	100.00
8	Daman & Diu	0	0	0	2	2	0.00	0.00	0.00	100.00
9	Delhi	1	1	6	24	32	85.07	3.56	6.58	4.79
10	Goa	0	0	3	28	31	0.00	0.00	42.06	57.94
11	Gujarat	3	3	46	212	264	38.76	9.60	27.07	24.57
12	Haryana	0	2	20	72	94	0.00	20.56	51.34	28.09
13	Himachal Pradesh	0	0	1	57	58	0.00	0.00	22.75	77.25
14	Karnataka	1	7	37	261	306	23.74	19.77	22.79	33.70
15	Kerala	0	5	22	170	197	0.00	28.49	19.15	52.36
16	Lakshadweep	0	0	0	4	4	0.00	0.00	0.00	100.00
17	Madhya Pradesh	2	6	42	415	465	14.16	18.88	27.25	39.71
18	Maharashtra	4	18	41	273	336	46.27	23.54	12.25	17.94
19	Manipur	0	0	1	30	31	0.00	0.00	39.26	60.74
20	Meghalaya	0	0	1	11	12	0.00	0.00	39.91	60.09
21	Mizoram	0	0	1	21	22	0.00	0.00	48.83	51.17
22	Nagaland	0	0	2	7	9	0.00	0.00	52.16	47.84
23	Orissa	0	4	14	106	124	0.00	29.72	26.80	43.48
24	Pondicherry	0	1	2	8	11	0.00	39.28	42.35	18.37
25	Punjab	1	3	24	92	120	17.40	24.56	32.11	25.93
26	Rajasthan	1	6	27	188	222	14.49	25.24	23.45	36.82
27	Sikkim	0	0	0	8	8	0.00	0.00	0.00	100.00
28	Tamil Nadu	1	7	66	395	469	20.14	16.59	30.71	32.57
29	Tripura	0	0	1	17	18	0.00	0.00	37.31	62.69
30	Uttar Pradesh	2	17	69	665	753	12.67	29.07	22.51	35.75
31	West Bengal	1	10	68	303	382	23.52	18.27	35.43	22.79
	India	18	112	613	3872	4615	23.00	21.57	25.43	29.99

Note: Size Class 1 refers to metropolitan cities; 2 refers to big towns; 3 refers to medium towns; 4 refers to small towns; Census of 1991 was not conducted in Jammu and Kashmir.

Source: Census of India 1991 (a)

Appendix A9.2

Distribution of Towns and Urban Population in Different Size Classes of Towns 2001

S.No.	State/Union Territory	Number of towns by size class					Distribution of urban population by size class			
		1	2	3	4	All	1	2	3	4
1	Andaman & Nicobar	0	0	1	2	3	0.00	0.00	86.07	13.93
2	Andhra Pradesh	1	18	79	112	210	17.40	32.81	36.33	13.47
3	Arunachal Pradesh	0	0	0	17	17	0.00	0.00	0.00	100.00
4	Assam	0	1	12	112	125	0.00	24.67	28.10	47.23
5	Bihar	1	6	30	93	130	16.08	20.21	34.53	29.18
6	Chandigarh	0	1	0	0	1	0.00	100.00	0.00	0.00
7	Chattisgarh	0	5	9	83	97	0.00	48.71	18.67	32.62
8	Dadra & Nagar Haveli	0	0	0	2	2	0.00	0.00	0.00	100.00
9	Daman & Diu	0	0	0	2	2	0.00	0.00	0.00	100.00
10	Delhi	1	1	17	43	62	76.58	2.30	13.89	7.23
11	Goa	0	0	3	41	44	0.00	0.00	35.61	64.39
12	Gujarat	3	3	53	173	232	42.31	11.23	26.87	19.59
13	Haryana	1	5	21	79	106	17.49	20.43	37.98	24.09
14	Himachal Pradesh	0	0	1	56	57	0.00	0.00	23.90	76.10
15	Jammu & Kashmir	0	2	4	69	75	0.00	57.50	10.74	31.76
16	Jharkhand	0	3	21	128	152	0.00	30.54	32.67	36.80
17	Karnataka	1	13	44	212	270	24.43	27.74	22.52	25.31
18	Kerala	0	5	26	128	159	0.00	33.08	25.31	41.61
19	Lakshadweep	0	0	0	3	3	0.00	0.00	0.00	100.00
20	Madhya Pradesh	2	7	39	346	394	19.14	19.69	25.16	36.01
21	Maharashtra	7	21	56	294	378	51.30	22.73	11.27	14.70
22	Manipur	0	1	0	32	33	0.00	38.56	0.00	61.44
23	Meghalaya	0	0	2	14	16	0.00	0.00	42.26	57.74
24	Mizoram	0	1	0	21	22	0.00	52.08	0.00	47.92
25	Nagaland	0	0	2	7	9	0.00	0.00	52.71	47.29
26	Orissa	0	5	18	115	138	0.00	35.32	26.92	37.76
27	Pondicherry	0	2	1	3	6	0.00	74.51	12.64	12.85
28	Punjab	1	4	28	124	157	17.21	27.11	30.30	25.37
29	Rajasthan	1	9	35	178	223	17.67	29.66	23.09	29.58
30	Sikkim	0	0	0	9	9	0.00	0.00	0.00	100.00
31	Tamil Nadu	1	12	70	749	832	15.48	19.93	21.65	42.95
32	Tripura	0	0	1	22	23	0.00	0.00	34.86	65.14
33	Uttar Pradesh	5	19	85	594	703	23.89	24.15	22.23	29.74
34	Uttaranchal	0	1	6	79	86	0.00	21.01	30.15	48.85
35	West Bengal	2	19	66	288	375	25.00	27.33	30.62	17.05
	India	27	164	730	4230	5151	26.09	24.04	23.65	26.22

Note: The Census of 2001 counted 5161 towns in the country. But the census could not be conducted in a total number of 10 towns in Gujarat. Therefore we provide details for 5151 towns only. Size Class 1 refers to metropolitan cities; 2 refers to big towns; 3 refers to medium towns; 4 refers to small towns.

Source: Census of India 2001 (a)

Appendix A9.3

Important Sources of Drinking Water in Different Size Classes of Towns, 1991

S.No.	State/ Union Territory	Towns Classified by the source of drinking water (figures in percentages)											
		Tap			Tube Well			Well			Tank		
		Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns
1	Andaman & Nicobar	—	100.00	—	—	0.00	—	—	0.00	—	—	0.00	—
2	Andhra Pradesh	90.91	83.33	57.53	18.18	21.21	22.58	9.09	4.55	22.58	0.00	4.55	6.99
3	Arunachal Pradesh	—	—	100.00	—	—	0.00	—	—	0.00	—	—	0.00
4	Assam	100.00	71.43	54.12	100.00	71.43	57.65	0.00	28.57	41.18	0.00	0.00	3.53
5	Bihar	88.89	93.33	67.28	77.78	48.89	52.53	22.22	26.67	46.08	11.11	8.89	12.44
6	Chandigarh	100.00	—	100.00	0.00	—	0.00	0.00	—	0.00	0.00	—	0.00
7	Dadra & Nagar Haveli	—	—	100.00	—	—	0.00	—	—	100.0	—	—	0.00
8	Daman & Diu	—	—	100.00	—	—	0.00	—	—	100.0	—	—	0.00
9	Delhi	100.00	100.00	91.67	100.00	83.33	83.33	0.00	0.00	12.50	0.00	0.00	0.00
10	Goa	—	100.00	100.00	—	0.00	0.00	—	100.00	100.0	—	0.00	0.00
11	Gujarat	100.00	97.83	90.09	0.00	60.87	53.30	0.00	8.70	29.72	66.67	4.35	0.00
12	Haryana	100.00	95.00	97.22	50.00	85.00	90.28	0.00	5.00	8.33	50.00	10.00	4.17
13	Himachal Pradesh	—	100.00	98.25	—	0.00	8.77	—	0.00	17.54	—	0.00	5.26
14	Karnataka	100.00	100.00	91.19	14.29	21.62	14.94	14.29	0.00	0.38	0.00	2.70	0.38
15	Kerala	100.00	90.91	75.88	80.00	63.64	60.00	20.00	50.00	53.53	0.00	0.00	4.71
16	Lakshadweep	—	—	100.00	—	—	0.00	—	—	100.0	—	—	0.00
17	Madhya Pradesh	100.00	95.24	90.60	100.00	66.67	71.57	0.00	16.67	24.34	0.00	0.00	0.24
18	Maharashtra	100.00	97.56	92.31	5.56	12.20	4.40	5.56	7.32	16.48	0.00	0.00	0.73
19	Manipur	—	100.00	73.33	—	0.00	6.67	—	0.00	0.00	—	100.00	90.00
20	Meghalaya	—	100.00	90.91	—	0.00	9.09	—	0.00	9.09	—	0.00	0.00
21	Mizoram	—	100.00	38.10	—	0.00	14.29	—	0.00	0.00	—	0	42.86
22	Nagaland	—	100.00	100.00	—	0.00	0.00	—	0.00	14.29	—	0.00	0.00
23	Orissa	100.00	100.00	74.53	50.00	71.43	54.72	25.00	0.00	16.04	0.00	0.00	2.83
24	Pondicherry	0.00	50.00	0.00	100.00	100.00	100.0	0.00	0.00	62.50	0.00	0.00	0.00
25	Punjab	66.67	83.33	52.17	100.00	100.00	98.91	0.00	0.00	7.61	0.00	0.00	0.00
26	Rajasthan	33.33	33.33	30.32	83.33	88.89	69.15	50.00	40.74	46.28	33.33	11.11	12.77
27	Sikkim	—	—	100.00	—	—	0.00	—	—	0.00	—	—	0.00
28	Tamil Nadu	85.71	98.48	94.68	0.00	6.06	12.15	42.86	6.06	26.33	0.00	0.00	0.25
29	Tripura	—	100.00	41.18	—	0.00	23.53	—	100.00	35.29	—	0.00	0.00
30	Uttar Pradesh	88.24	69.57	60.45	94.12	94.20	83.46	5.88	2.90	21.80	0.00	4.35	3.91
31	West Bengal	100.00	100.00	49.17	90.00	95.59	88.45	0.00	0.00	20.79	0.00	0.00	0.99
	Urban India	90.18	88.91	73.68	53.57	55.46	52.32	12.50	10.44	25.00	5.36	3.10	3.98

Source: Census of India 1991 (a)

Appendix A9.4

Some Salient Aspects of Sanitary Facilities in Different Size Classes of Towns 1991

S.No.	State/ Union Territory	Number of towns that report availability of sewer system			Number of towns that report head load method of disposal of night soil			Percentage of water flush toilets in		
		Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns	Big towns	Medium towns	Small towns
1	Andaman & Nicobar	—	1	—	—	0	—	—	40.00	—
2	Andhra Pradesh	8	7	20	0	2	5	62.49	62.15	59.09
3	Arunachal Pradesh	—	—	3	—	—	0	—	—	42.81
4	Assam	0	0	0	0	2	20	91.66	11.50	43.51
5	Bihar	4	2	9	2	24	110	81.88	58.04	50.06
6	Chandigarh	1	—	3	0	—	2	0.00	—	52.27
7	Dadra & Nagar Haveli	—	—	0	—	—	0	—	—	16.99
8	Daman & Diu	—	—	1	—	—	0	—	—	99.41
9	Delhi	1	1	0	0	2	16	59.25	12.02	0.00
10	Goa	—	2	0	—	0	0	0.00	100.00	54.10
11	Gujarat	1	29	52	0	1	0	90.92	95.64	93.99
12	Haryana	2	20	22	0	1	11	73.16	37.53	35.60
13	Himachal Pradesh	—	1	12	—	0	8	—	89.46	72.66
14	Karnataka	7	17	34	0	3	1	93.42	82.04	65.44
15	Kerala	1	2	3	0	0	1	85.16	52.73	30.42
16	Lakshadweep	—	—	0	—	—	0	0.00	0.00	44.52
17	Madhya Pradesh	3	7	17	1	2	76	73.90	49.17	51.32
18	Maharashtra	6	5	18	0	0	9	79.46	66.49	60.50
19	Manipur	—	0	0	—	0	1	—	0.00	25.16
20	Meghalaya	—	1	11	—	0	0	—	82.21	67.27
21	Mizoram	—	0	0	—	1	0	—	6.20	53.76
22	Nagaland	—	0	0	—	0	0	—	79.04	59.32
23	Orissa	2	1	7	0	0	4	68.29	64.69	68.80
24	Punjab	3	24	52	0	4	19	56.21	44.65	46.92
25	Pondicherry	0	1	2	0	0	0	0.00	41.82	82.89
26	Rajasthan	4	4	44	2	10	62	55.89	53.48	49.25
27	Sikkim	—	—	8	—	—	0	—	—	0.00
28	Tamil Nadu	3	5	11	0	0	6	54.34	53.10	71.65
29	Tripura	—	0	0	—	0	0	—	93.91	71.11
30	Uttar Pradesh	11	16	43	0	2	53	34.97	46.94	34.95
31	West Bengal	7	12	9	1	17	91	73.11	53.48	44.76
	Urban India	64	157	381	6	71	495	74.67	58.36	52.00

Source: Census of India 1991 (a)

CHAPTER 10

Conclusions And Policy Implications

This study has dealt with the problem of food security in different size classes of towns—metropolitan cities, big towns, medium towns, and small towns—across the various States and Union Territories in the country. We have discussed two basic dimensions of food security, namely, access to food and absorption of food. The study has been carried out with the perspective that the pattern of urbanisation experienced by India is closely linked to the overall process of development, and therefore aspects of food insecurity in urban areas cannot be viewed in isolation from, or without regard to, aspects of food insecurity in rural areas. Given this understanding, three broad urban patterns were identified across the country. Urban Pattern 1 includes States that are relatively more advanced: the 4 southern States—Tamil Nadu, Kerala, Andhra Pradesh, Karnataka— along with Maharashtra, Gujarat, the Punjab, Haryana, and West Bengal. Pattern 2 comprises States located in the central part of India—Orissa, Bihar, Madhya Pradesh, Uttar Pradesh, Rajasthan—and includes Himachal Pradesh, and Jammu & Kashmir, these being relatively less developed. Pattern 3 is made up of the northeastern States and Sikkim. These urban patterns were used as a backdrop against which food insecurity in different size classes of towns was studied.

The discussion on metropolitan cities brings out the wide variation in the extent and nature of the problem. Issues with regard to employment, poverty, literacy, juvenile sex ratio, and basic amenities have been taken up at the level of individual metros as well as across urban patterns. We find that for the metropolitan cities that are located in States that exhibit what we refer to as Pattern 1, urban sprawl or the rapid growth of satellite towns around the core city is a major problem. In sharp contrast, rapid growth of core cities is the problem for the cities that lie in the States that exhibit Pattern 2. The sprawl of cities will pose major problems not only in terms of provision of civic amenities but also in terms of creation of employment opportunities. Similarly, casualisation of the labour force and open unemployment are major problems in Pattern 1 metro cities while these are not such grave problems in Pattern 2 metro cities, where the concern is more with regard to levels of literacy, especially female literacy. The gender gap in literacy is much higher in Pattern 2 cities compared to Pattern 1 cities. Provision of basic amenities—toilets and pucca housing, in particular—is also more of a problem in Pattern 2 cities as against Pattern 1 cities. Attempting to capture the two basic dimensions of food security in metropolitan cities by a composite index, we find that there are some metros that may be termed as problem metros where food access as well as food absorption have been low in the early 1990s. Nagpur, Bhopal, Chennai, Surat, Ahmedabad, Indore, Lucknow, and Delhi fall in this category. There are also some cities that fared well with regard to both dimensions of food security like Pune, Greater Mumbai, Kolkata, Kalyan, Vadodara, Bangalore, and Jaipur. Moreover, there are also some cities—for instance, Hyderabad and Ludhiana—that fare well in terms of basic amenities but not so in terms of food access. Pune has the best position and Nagpur the worst with regard to overall food security across all metropolitan cities. Even though the city of Pune

has the highest rank in terms of overall food security, one can identify some areas where the city fares poorly. For example, access to toilets and housing remains a severe problem for the households in Pune. The problem of unemployment, especially among males, is also a major problem in Pune. Similarly, Nagpur that has the worst possible position with regard to overall food security has its strengths too—levels of literacy and juvenile sex ratio are relatively high here.

While urban problems are in general much less severe in metropolitan cities compared to other urban areas, we do find that the magnitude of the problem in metros need not be lower compared to other size classes of towns. Similarly, while the intensity of any problem, in per capita terms, may not be high in the metros, in terms of overall magnitude of the problem it may be very severe.

Our analysis of the problem of food security across different size classes of towns indicates that there are wide variations in the nature and extent of the problem of food security: there are variations across different size classes of towns in the country; variations across different regions and States in the country; and variations within different types of towns. It has been possible to identify problems that are more severe in small towns (for example, casualisation of labour and access to basic amenities), problems that are more acute in big towns (open unemployment), problems that are more severe in a particular region (access to sanitary facilities and high gender differentials in Pattern 2), and those that are more severe in a particular State (for instance, basic sanitation facilities in Rajasthan).

Apart from determining the wide variations in the nature of the food security problem, the study has established the fact that the issues are more acute in the case of small towns in the country. The level of casual labour is relatively much higher and the level of regular employment relatively much lower in small towns, indicating that access to food is much more of a problem in small towns compared to other size classes of towns. Literacy rates for males as well as females are also much lower in small towns. Access to basic amenities, such as safe drinking water, toilets, and electricity are also much lower for households living in small towns. That is, deprivation faced by households with regard to secure employment as well as access to amenities is the highest for those living in small towns.

Computation of composite indices of food security for different size classes of towns across the various States and Union Territories indicates that the Punjab and Haryana are the only two States where all size classes of towns have relatively high indices of food security. Considering the food access index and basic amenities index we find that there are only two States—the Punjab and Himachal Pradesh—where all the three size classes of towns have a high value of composite index. At the other end of the spectrum are a large number of States that may be termed as 'problem States': Madhya Pradesh, Bihar, Orissa, West Bengal, Andhra Pradesh, Tamil Nadu and Kerala belong to this category, where all the three size classes of towns have relatively low values of composite index of food security.

Our findings give rise to several policy issues:

POLICIES TO TACKLE THE PROBLEMS OF SMALL TOWNS: First and foremost, given that the problems of food security are very acute in the small towns of the country, it is necessary to deal with them on a priority basis. Programmes that aim at improving the living conditions of the urban population, especially the urban poor, should cover the small towns. Programmes that aim at improving the basic amenities as well as those that aim at improving economic access to food will have to accord priority to small towns. In general, government funding for urban development programmes have a tendency to concentrate on large cities and there is a need to change this approach.

Policies to tackle the problems of metropolitan cities: While the problems of small towns are severe, it is not that problems of metropolitan cities or big towns are unimportant. The larger urban centres are better off in relative terms but even here the concerns remain massive in terms of overall magnitude. Considering basic amenities, we find that on an average every metropolitan city has more than 50,000 households that do not have access to safe drinking water, while the corresponding number in the case of small towns is about 800 households. Regarding toilets, the problem of metros is even more glaring: on an average, in each metro, about 1,18,000 households do not have access to toilets while the corresponding number in small towns is about 1,500 households per town. With regard to solid waste management too, the municipal corporations, especially in large cities like Mumbai, Delhi, and Chennai, have to grapple with the enormous task of managing huge quantities of solid wastes. About 5000 tonnes of solid waste gets generated in Mumbai everyday. Apart from the fact that the sheer magnitude of the problem is very high in metropolitan cities, they also have their own specific difficulties. The issue of 'sprawl'—the growth and expansion of peripheral areas around the core city—is one such problem faced by metropolitan cities and big towns.

Decentralised policy approach: There is a great deal of variation in the nature of the problem of food security even within a particular class of towns, say, the metropolitan cities or the small towns. Small towns, which generally have the most severe problems, are also the ones where variations in these problems are the highest. Analysing the problems of metropolitan cities, we find that the problems of Pattern 1 cities are different from that of Pattern 2 cities. Casualisation and open unemployment are severe problems in Pattern 1, while low levels of literacy, especially female literacy, and access to toilets are more acute problems in Pattern 2. Even within a metropolitan city, the problems may vary from one zone to another—one part of the city may be experiencing a spurt in slums and may be dotted with a number of small slums, while another part may have few, large slums that have been in existence over many years. Ideally, the city administration will have to adopt different policies to deal with the problem of slums across the city. Given the wide variations in the problems, it is necessary to create a system where the issues can be approached in a decentralised way.

Comprehensive plan approach: There is a need for comprehensive planning to tackle the issue of food security for at least two reasons. First, the problem of food security is a multi-dimensional one. Food security of a population is related to the availability of food, the ability of the population to access food, and the ability of the population to absorb food. Therefore, all aspects of the problem need to be looked at. Second, the problem of food security in urban areas cannot be seen in isolation from that in rural areas. Urban deprivation is closely linked to rural deprivation and therefore any policy that deals with the problem of urban food security has to address the issue in its totality. It is necessary to adopt area planning rather than planning for the urban areas in an isolated manner. In other words, while programmes for poverty alleviation in urban areas are important, they should not be implemented in isolation either from rural development programmes or in isolation from overall economic planning for the urban areas themselves.

State policies with regard to the urban sector in our country in general have neither accommodated the variations in the urban problems nor have they taken into account the specificities of the problems. Urban policies are not very comprehensive in dealing with all the dimensions of the problem. Even the 74th Amendment with regard to urban local bodies, that was passed in the early 1990s, views urban problems in an isolated manner, independent of the rural situation. While the 73rd Amendment pertaining to the rural areas and the 74th Amendment pertaining to the urban areas were moved together, there is no

mechanism in them to view the problems of rural and urban areas in an inter-related or integrated fashion. Not only are the urban local bodies seen in isolation from their rural hinterland, they also have very little power and financial resources. The major functions of the urban local bodies relate to provision of basic amenities and infrastructure and they do very little for employment generation. The reliance purely, or predominantly, on infrastructural planning and the neglect of economic aspects like the nature of the economy of the urban poor would necessarily limit the efficacy of these programmes. There has to be a change in this approach and a more comprehensive policy approach dealing with all dimensions of the problem of food security needs to be initiated.

RECOMMENDATIONS

Recommendations

The findings of the Atlas show that it is possible to make urban India 'food secure', if the right programmes and policies are followed. Most of our recommendations are action-oriented programmes of immediate relevance. Some existing programmes, such as PDS, require to be modified to suit the changing needs. The programmes are of four types: food-based programmes, employment-generation programmes, programmes to provide basic amenities, and programmes to prevent distress migration.

India is a huge and politically complex country. It has been undergoing a process of fiscal and administrative decentralisation with the aim of deepening democracy and bringing government closer to the people. The 74th Amendment of the Constitution allocates responsibilities to the elected corporations and municipal councils that have one-third representation for women. The decentralisation process has been held up as the answer to many political and administrative problems, including corruption. However, in reality, decentralisation of fiscal powers and processes has not kept pace with political and legal changes, and structures have not changed sufficiently at local levels. Hence, capacity building of the elected members of municipal councils and corporations is needed to improve their management skills. We recommend a few useful bodies that can help the process.

A Food Security Committee may be formed in each Nagarpalika or Municipal corporation. This Committee could comprise 4 elected representatives—2 women and 2 men—along with an administrative expert who can serve as the member-secretary. It could also look into aspects relating to drinking water and environmental hygiene. It can effectively address the urgent needs of rainwater harvesting, waste treatment and recycling, and bio-environmental management of mosquitoes.

Local authorities should be enabled to organise nutrition consortiums, which will be groups of multi-stakeholders organising finances as well as trained personnel for work at the local level. Government, NGOs, women's groups and consumer groups, business, industry, international aid agencies, and all those interested in promoting nutritional goals can be part of such consortiums.

Food-Based Programmes

Food-based programmes directly provide calories and nutrition. Indirectly, they facilitate income transfers. If staple food is available at subsidised rates or as a fixed part of the earnings, the poor can use the cash saved on other foods and other needs, thus enhancing the overall entitlement.

Universal public distribution system

The system of public distribution of food in India needs to revert back to the Universal Public Distribution System. This will help to ensure provision of nutritional support to a large part of the population. This has been one of the major recommendations of the Committee on Long-Term Grain Policy.

To enable low-income consumers to eat well, we must urgently make foodgrains available at realistic prices. The affordability of the population depends

upon relative changes in incomes and foodgrain prices. If open market prices grow slower than incomes, consumption from PDS would be low, as it has happened in recent years. If open market prices grow faster than incomes, then the demand for PDS foodgrains would increase. It is advisable to have universal distribution since transitory situations make some people enter the PDS market and others to withdraw. A universal system can adapt itself to the changing needs of people. The entry of the non-poor will be automatically restricted, as PDS grain varieties are not fine varieties of rice. Universal PDS would cater to the poor better when foodgrain prices are depressed in the Indian as well as in the world markets. The position can be reviewed if the situation changes in future.

The management of PDS should be passed on to self-help groups of consumers. This will act as a check on corruption. Conceptually, there is no difference between a private trader licensed to sell PDS items and a self-help group taking up PDS distribution. The self-help groups may also organise the required savings among themselves to provide credit for the needy to purchase PDS foodgrains. Such a situation will improve PDS off-take. Then the repayments become flexible and benefits reach all.

Food-and-cloth-for-work programme (Nagar Palika Rozgar Yojana)

The Government of India may consider initiating a Nagarpalika Rozgar Yojana, a scheme similar to the Gramin Rozgar Yojana that has been initiated in the rural areas of the country. An initial allocation of 5 million tonnes of foodgrains can be made for organising food-for-work programmes in the towns. It may be structured on the employment guarantee mode. Where there is a glut of cloth in the hands of resource-poor weaving families, the cloth could be purchased and used in a food-cum-cloth-for-work programme. The employment may be provided on public works and urban cleaning and greening programmes, as elaborated later.

Food-for-health programmes for leprosy, tuberculosis, and HIV/AIDS patients

People suffering from certain diseases need long-drawn, repeated treatment before they are completely cured. Such patients, particularly the poor, need to visit doctors at regular intervals. Many poor people neglect the treatment since it is expensive to travel to these medical centres, generally situated in speciality hospitals. The poor also have to forego their wages on the days they visit the hospitals. Neglect or erratic treatment often leads to complications. There is a possibility of the disease recurring and becoming fatal. There is also a danger of the patient developing drug resistance. Since speciality hospitals for the treatment of diseases like leprosy, tuberculosis, AIDS, cancer, etc., are available only in towns and cities, the poor flock here from the nearby villages.

It is suggested that some suitable compensation for loss of wages and travel expenses for attending designated treatment clinics should be introduced. These patients are often the sole earning members of the family and cannot therefore afford to lose even a day's wages. It is also recommended that incentives in the form of free articles of food and/or nominal cash be given to such poor patients, in order to encourage regularity of treatment, under a food-for-health programme.

Food-for-nutrition (life-cycle approach to nutrition)

A whole life-cycle approach to nutrition security will help to ensure that the nutritional needs of everyone in the community and at every stage in an individual's life are satisfied. We should immediately provide a horizontal dimension to the numerous vertically structured nutrition intervention programmes currently in operation by adopting a whole life-cycle approach to nutrition security. The different steps in such a life-cycle approach are the following.

(i). Pregnant mothers

Overcoming maternal and foetal under- and mal-nutrition is an urgent task, since nearly 30 per cent of the children born in India are characterised by low birth weight (LBW), with the consequent risk of impaired brain development. LBW is a proxy indicator of the low status of women in society, particularly of their health and nutrition status during their entire life cycle.

(ii). Nursing mothers

Appropriate schemes will be necessary to enable mothers to breast-feed their babies for at least six months, as recommended by the World Health Organisation (WHO). Policies at work places, including the provision of appropriate support services should be conducive to achieving this goal.

(iii). Infants (0-2 years)

Special efforts will have to be made to reach this age group through their mothers, since they are the most un-reached at present. Eighty percent of brain development is completed before the age of 2. The first four months in a child's life is particularly critical, since the child is totally dependent on its mother for food and survival.

(iv) Pre-school Children (2-6 years)

The on-going integrated child development service, if implemented properly, will help to cater to the nutritional and health care needs of this age group.

(v). Youth (6 to 20 years)

A nutrition-based noon meal programme in all schools (public and private, and rural and urban) will help to improve the nutritional status of this group. However, a significant percentage of children belonging to this age group are not able to go to school due to economic reasons. Such school 'push-outs' or child workers need special attention.

vi) Adults (20 to 60 years)

Apart from the sale of subsidised grain, the major approach has been food-for-work programmes for this group. In designing nutrition compact for them, persons working in the organised and unorganised sectors will have to be dealt with separately. Also, the intervention programmes will have to be different for men and women, taking into account the multiple burdens on a woman's daily life.

(vii). Old and infirm persons

This group will have to be provided with appropriate nutritional support, as part of the ethical obligations of society.

Employment-Generation Programmes

Due to increase in unplanned urbanisation and industrialisation, the environment has deteriorated significantly. Pollution from a wide variety of emissions, such as from automobiles and industrial activities, has reached critical levels in many urban and industrial areas, causing respiratory, ocular, and other health problems. Hence, all the programmes that help environmental hygiene should be given priority.

Treatment and recycling of solid and liquid waste

Treatment and recycling of solid and liquid wastes should be carried out in every town. Waste recycling could be a remunerative enterprise and self-help groups can be trained to take up such environment-enhancing enterprises. Bio-environmental management of mosquitoes may also be taken up. Segregation of garbage at the household level for recycling, as plastics, paper, metals, organic matter, and so on, helps recycling on one hand and reduces the drudgery of ragpickers. The ragpickers can be provided with self-employment in the collection and sale of segregated solid waste.

Wastewater recycling and reuse is becoming the order of the day for all types of industries everywhere.

There are many advantages in recycling and reusing wastewater. One of the major advantages is reduction in interference with the environment by reducing or eliminating effluent discharges. Recycled water can be treated to almost any standard and made suitable for any end use. There will also be a reduction in fresh water intake and the costs associated with it. Recycled water is like creation of a new, in-house source of good quality water largely unaffected by external factors. In areas where fresh water costs are presently high or likely to be hiked, recycled water will provide on-going savings. Recycling and reuse is an approach towards ISO 14000.

Urban green belts and urban agriculture

Today, urban areas in India are faced with excessive population along with the pressures of unplanned economic development, industrialisation, and vehicular emissions. This has led to considerable rise in urban pollution, affecting air, water, and land. Increasing population has led to a decrease in open spaces and green belts in the cities. These green belts serve as lungs for cities and towns. They serve as carbon sinks for pollutants, check the flow of dust, and bring down noise pollution level. Plants provide innumerable environmental benefits and, considering the steady increase in air pollution, it has become imperative to increase the green belts in and around cities.

Horticulture in urban areas needs to be promoted and encouraged. Promotion of horticulture will help not only in the creation of employment opportunities but will also have a direct bearing on the availability of fruits and vegetables in urban areas. Urban agriculture and urban green belts offer opportunities for jobs and income as well as for improving the urban environment and quality of life. Schools and colleges in urban areas can promote urban agriculture and green belt development with the help of agricultural universities and institutions. This will help to establish symbiotic links between rural and peri-urban farmers and urban consumers.

Programmes to Provide Basic Amenities

Provision of safe drinking water

Clean drinking water is necessary to ensure the efficient biological absorption and digestion of food. In this connection steps should be taken to prevent pollution of municipal water supply. Steps also should be taken to protect groundwater contamination as well as overexploitation of groundwater in coastal areas. Water becomes unfit for consumption due to pollutants in the former case and due to ingression of salt water in the latter case. Rainwater harvesting that helps in water recharge and reduces water waste should be promoted. 'Rain Centres' like the ones established in Chennai could be organised in every town and city to serve as a single window information centre on all aspects of rainwater harvesting, storage, and use. In addition, the consumption of boiled water should be encouraged and facilitated.

Slum improvement

Slums in the mega cities such as Delhi and Bombay get some amenities such as drinking water, electricity, drainage, and garbage disposal. Such facilities are mostly lacking in the cities and towns in many States. There is an urgent need to allocate more funds for slum improvement, so that the poor can lead a healthy life. All the basic facilities should be made available in all the human settlements including slums.

Programmes to Prevent Distress Migration

Checking the inflow of Environmental refugees

Environmental refugees are those who are displaced due to the destruction of their natural environment such as forests, watersheds, prime crop land, and so on. Environmental refugees have significant economic, socio-cultural, and political consequences. As Norman Myers (1993) puts it eloquently: "People flee their homes in search of food and jobs… as the

victims move, they carry their famine with them…They *may* impose intolerable burdens in terms of food requirements on the territory they enter. At the same time, they flood the labour market, creating a slump in wages, and endangering the economic security of the local population. …. We… have a perfect recipe for widespread human suffering, social disorder and political instability."

Stopping the inflow of environmental refugees by implementing the programmes suggested in Chapter 6 of the *Food Insecurity Atlas of Rural India* is of utmost importance. The recommendations were in the areas of creating new opportunities of employment through eco-foods and biological software, micro-enterprises and micro-credit, agricultural exports, and so on. Attacking the root cause of the problem is very essential.

Thus, we need a package of immediate as well as short and medium term measures to ensure urban food security and to enhance urban quality of life. Regulation, education, and social mobilisation through elected local bodies will all be crucial to promote opportunities for a healthy and productive life for every child, woman, and man in our towns and cities.

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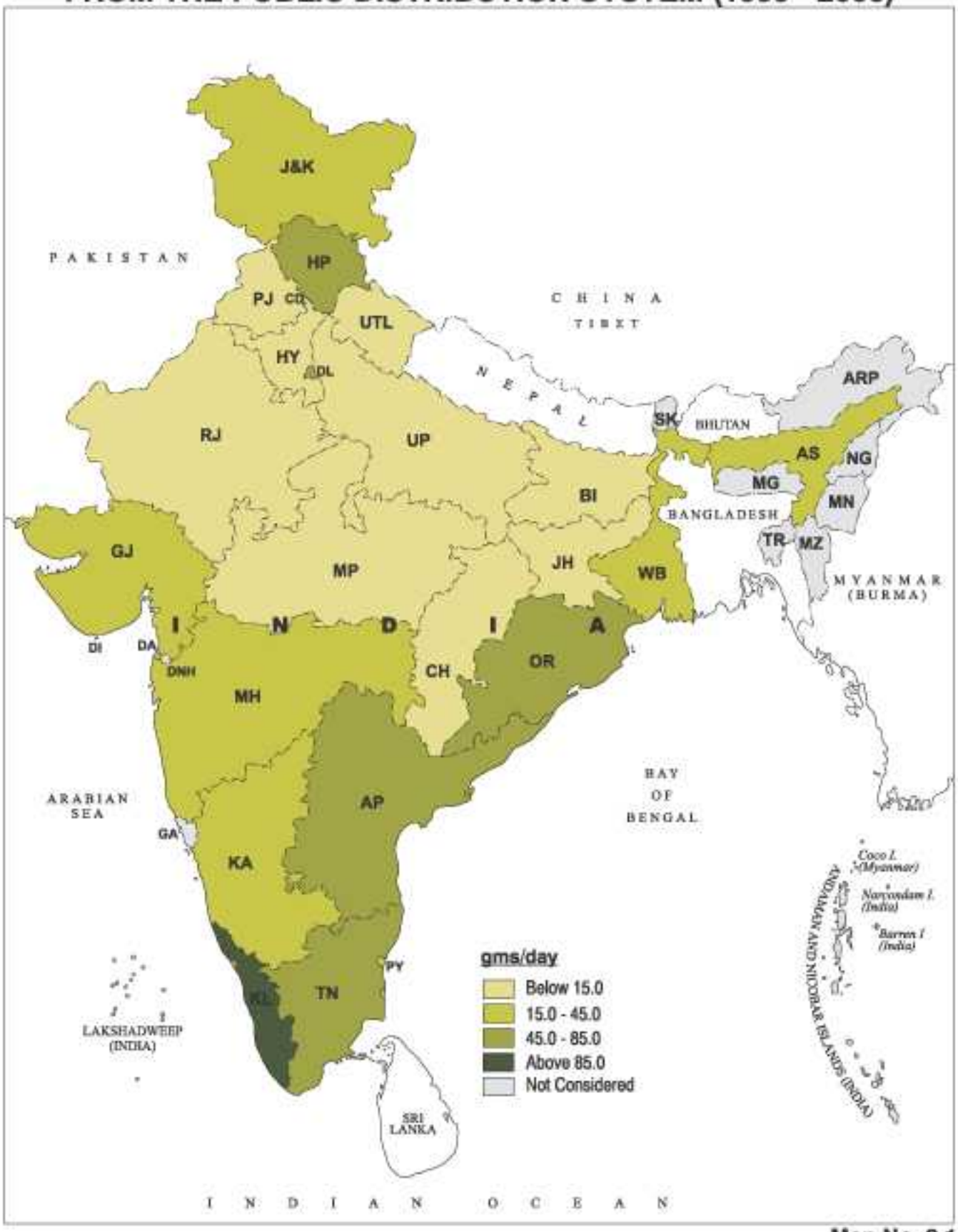
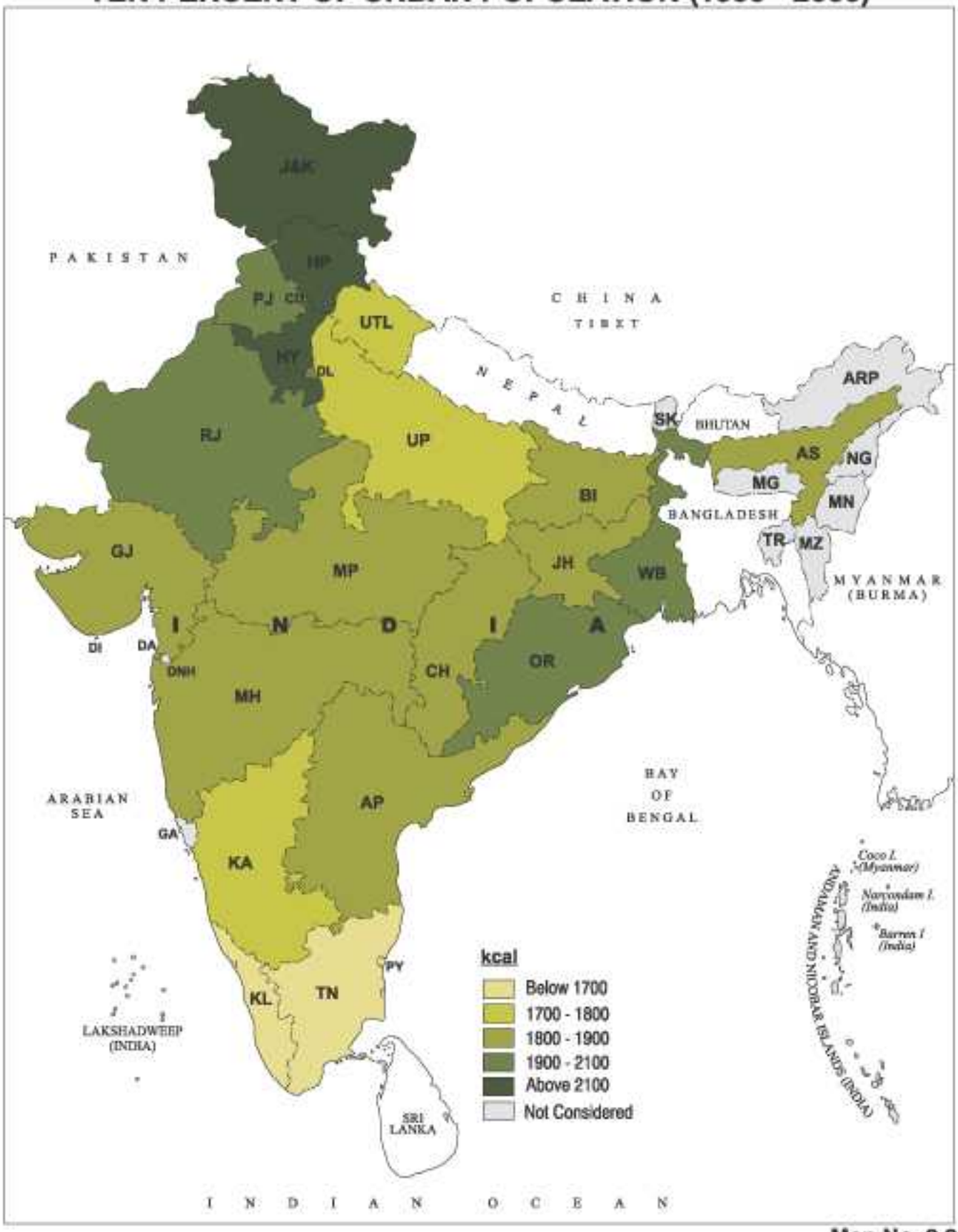
PER CAPITA URBAN CONSUMPTION OF FOOD GRAINS FROM THE PUBLIC DISTRIBUTION SYSTEM (1999 - 2000)



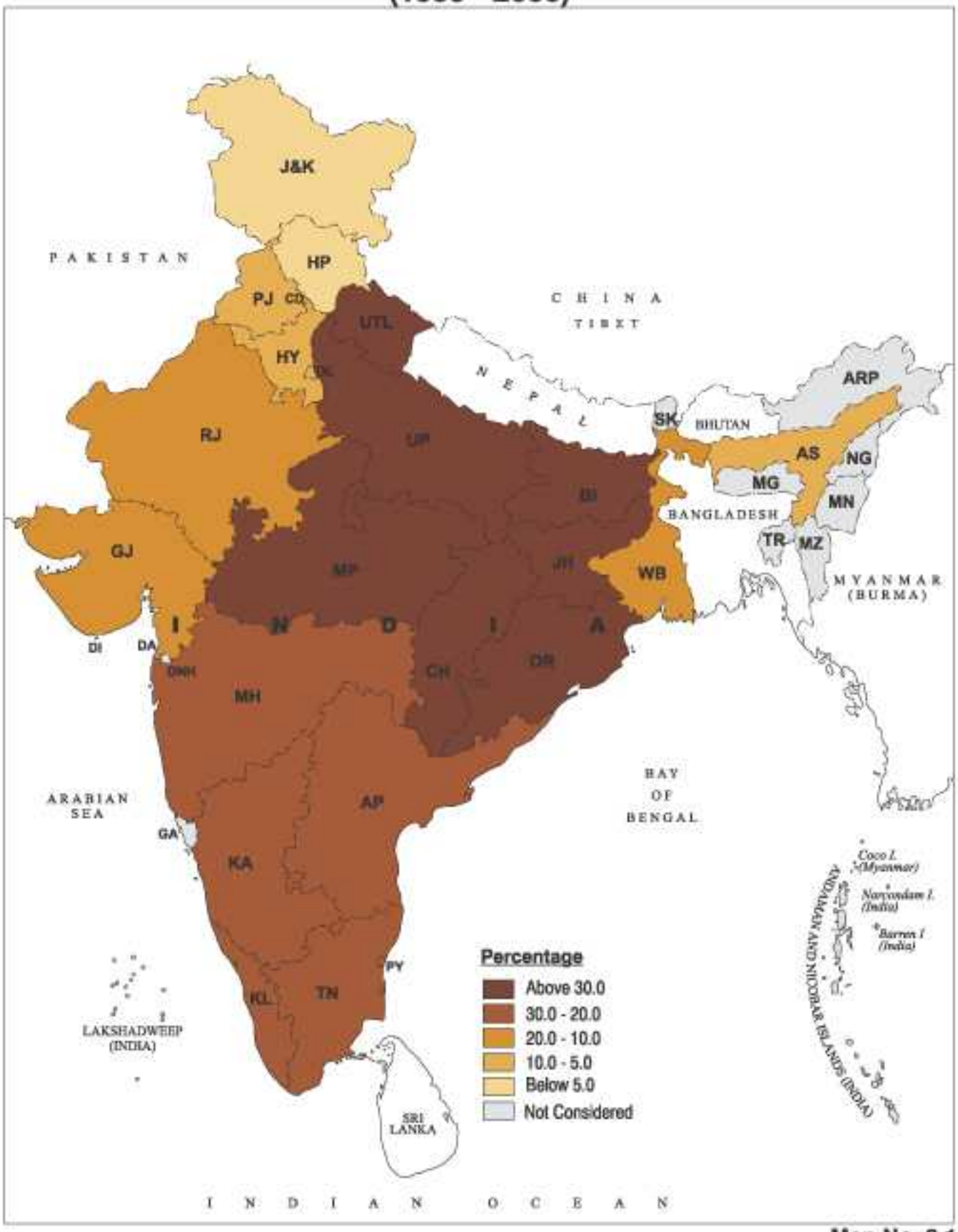
Map No. 2.1

PER CONSUMER UNIT CALORIE INTAKE BY LOWEST TEN PERCENT OF URBAN POPULATION (1999 - 2000)



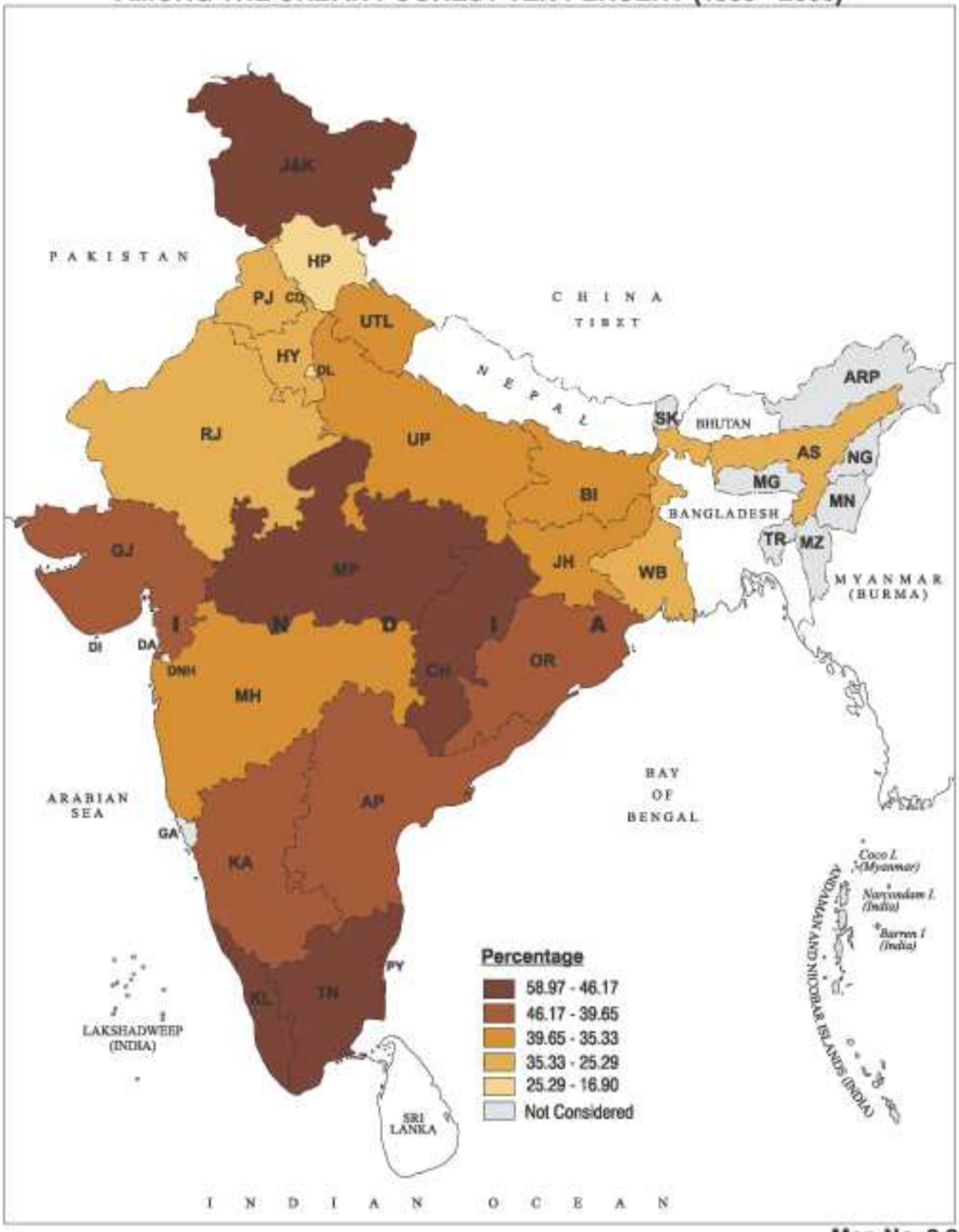
Map No. 2.2

PERCENTAGE OF URBAN POPULATION BELOW POVERTY LINE (1999 - 2000)



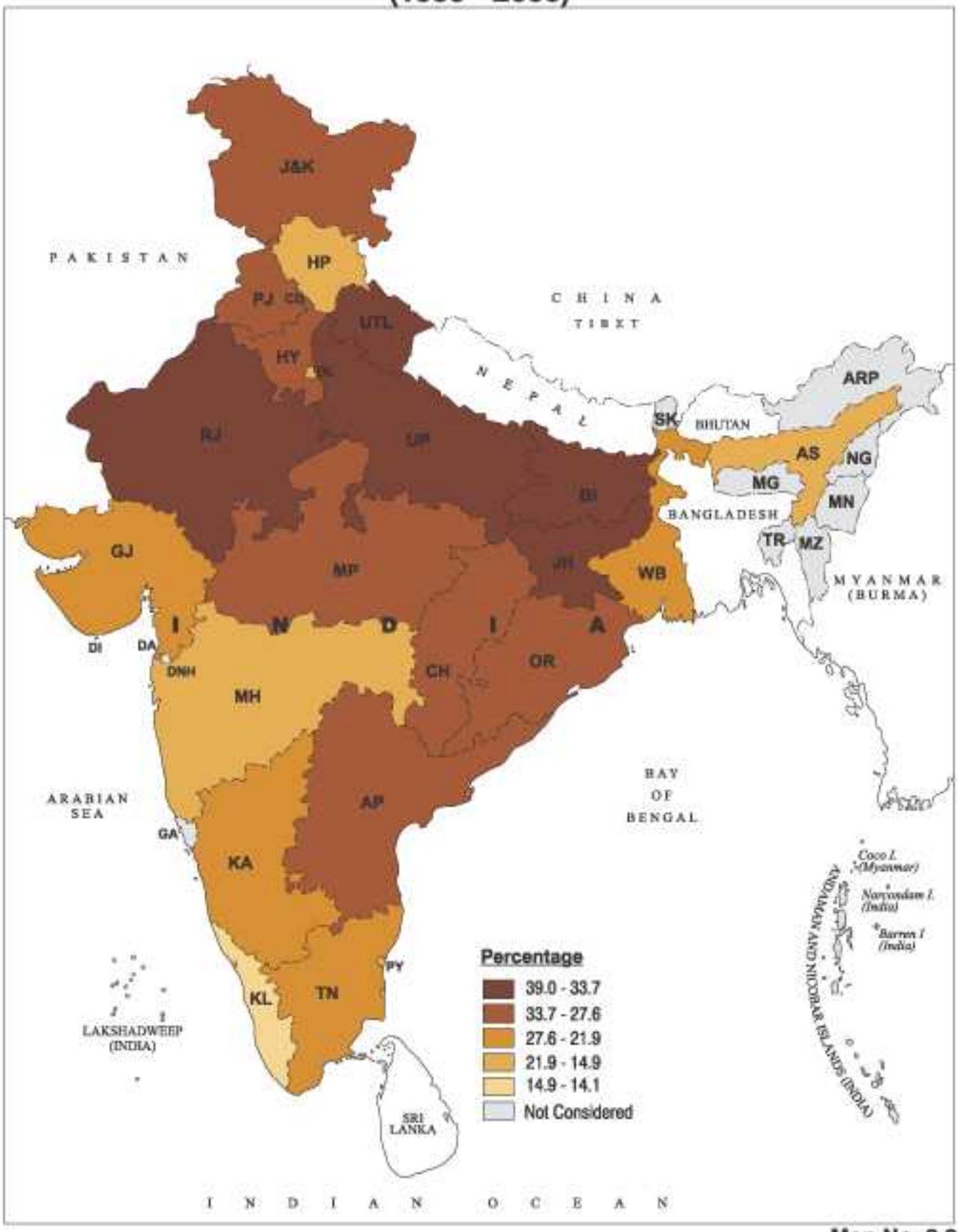
Map No. 3.1

PERCENTAGE OF POPULATION BELONGING TO THE LABOUR HOUSEHOLDS AMONG THE URBAN POOREST TEN PERCENT (1999 - 2000)



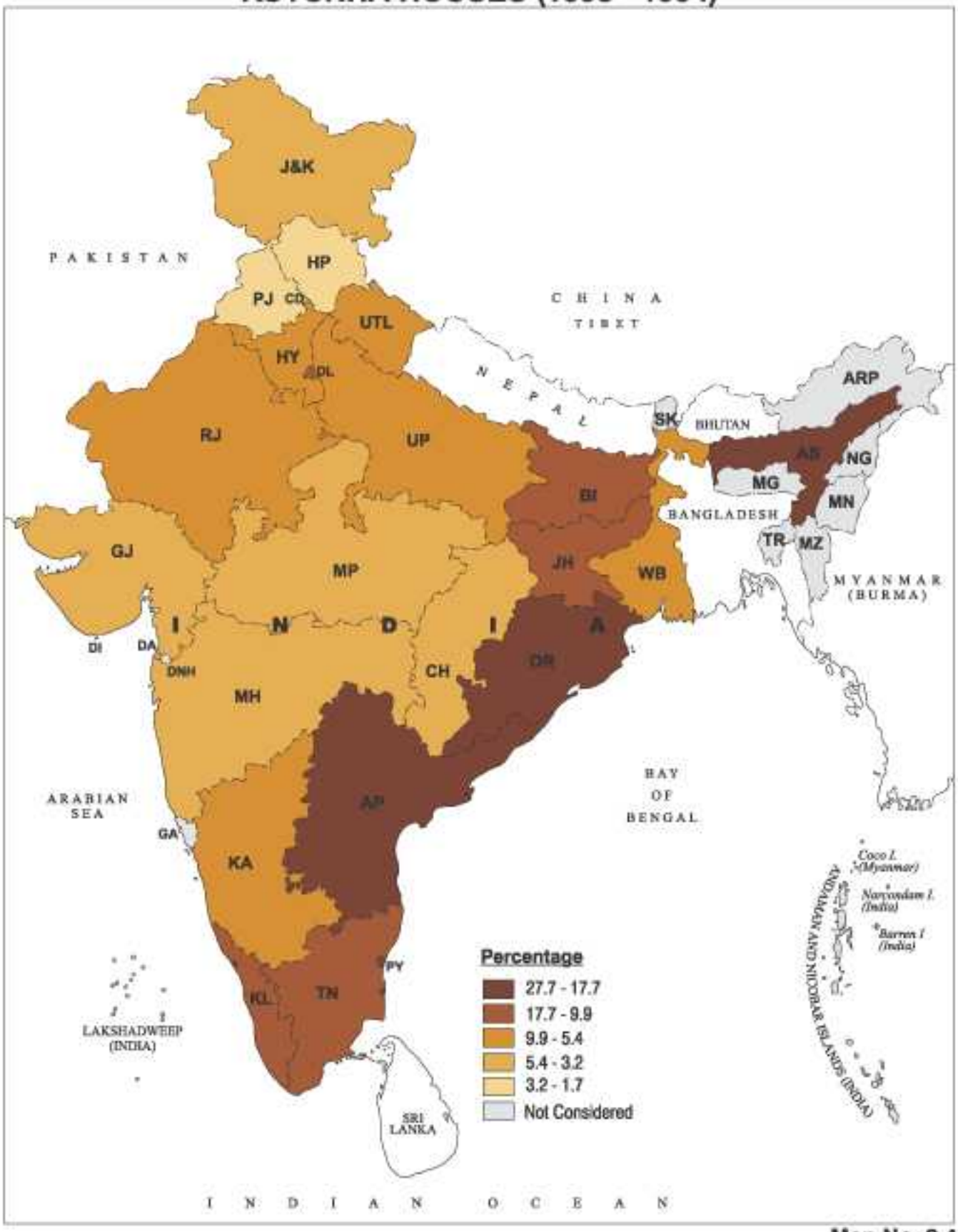
Map No. 3.2

PERCENTAGE OF ILLITERATES TO TOTAL URBAN POPULATION (1999 - 2000)



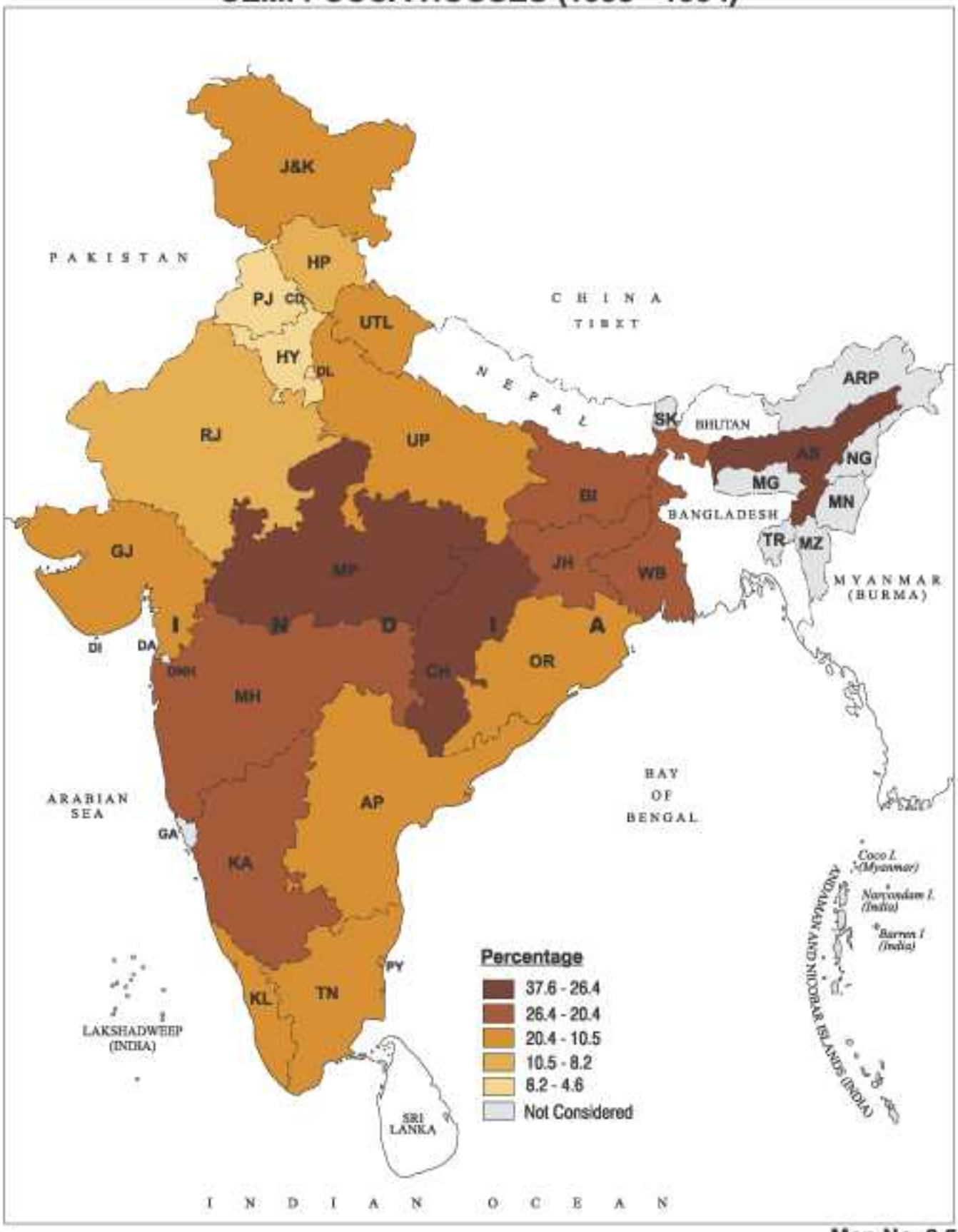
Map No. 3.3

PERCENTAGE OF URBAN HOUSEHOLDS LIVING IN KUTCHHA HOUSES (1993 - 1994)



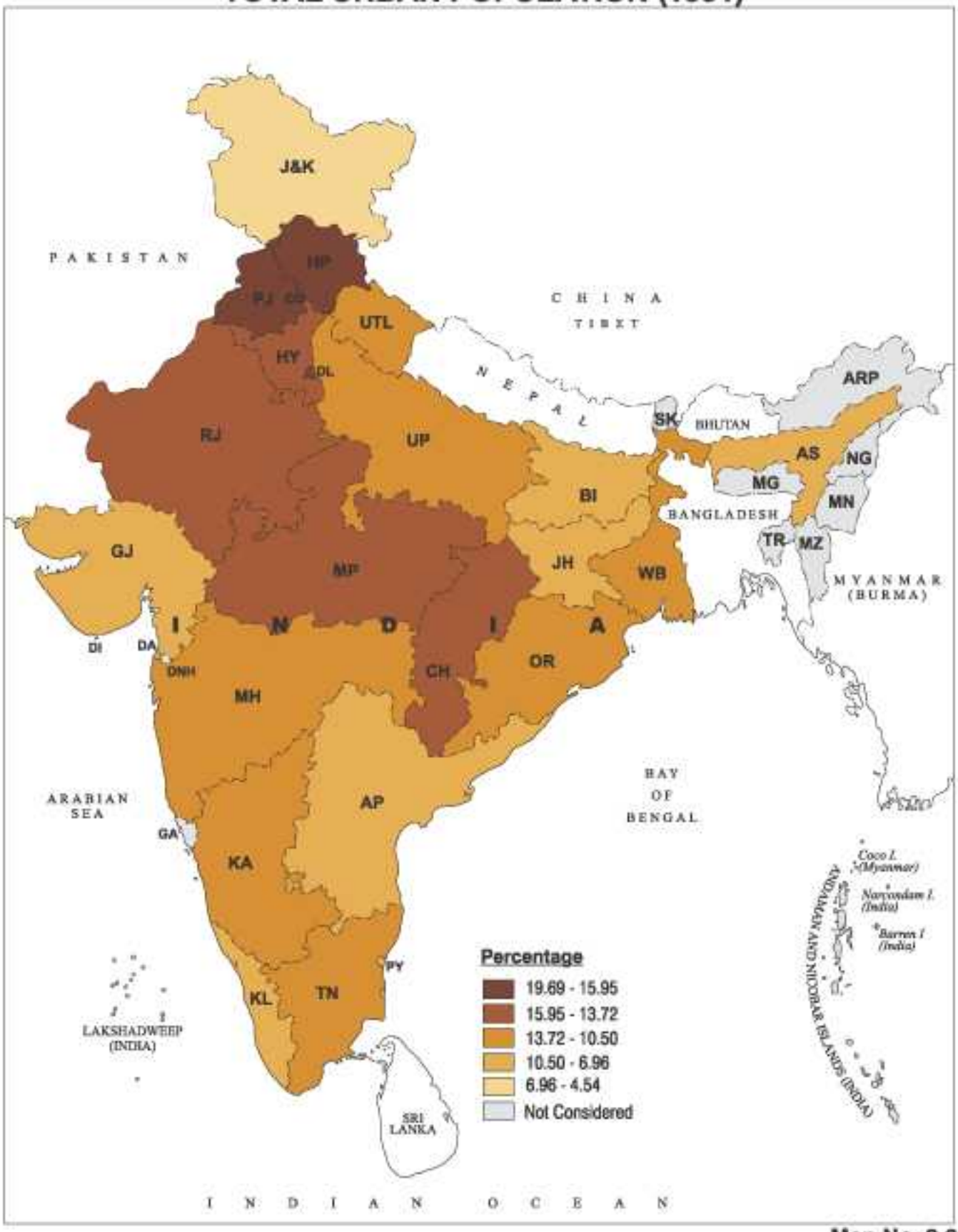
Map No. 3.4

PERCENTAGE OF URBAN HOUSEHOLDS LIVING IN SEMI PUCCA HOUSES (1993 - 1994)



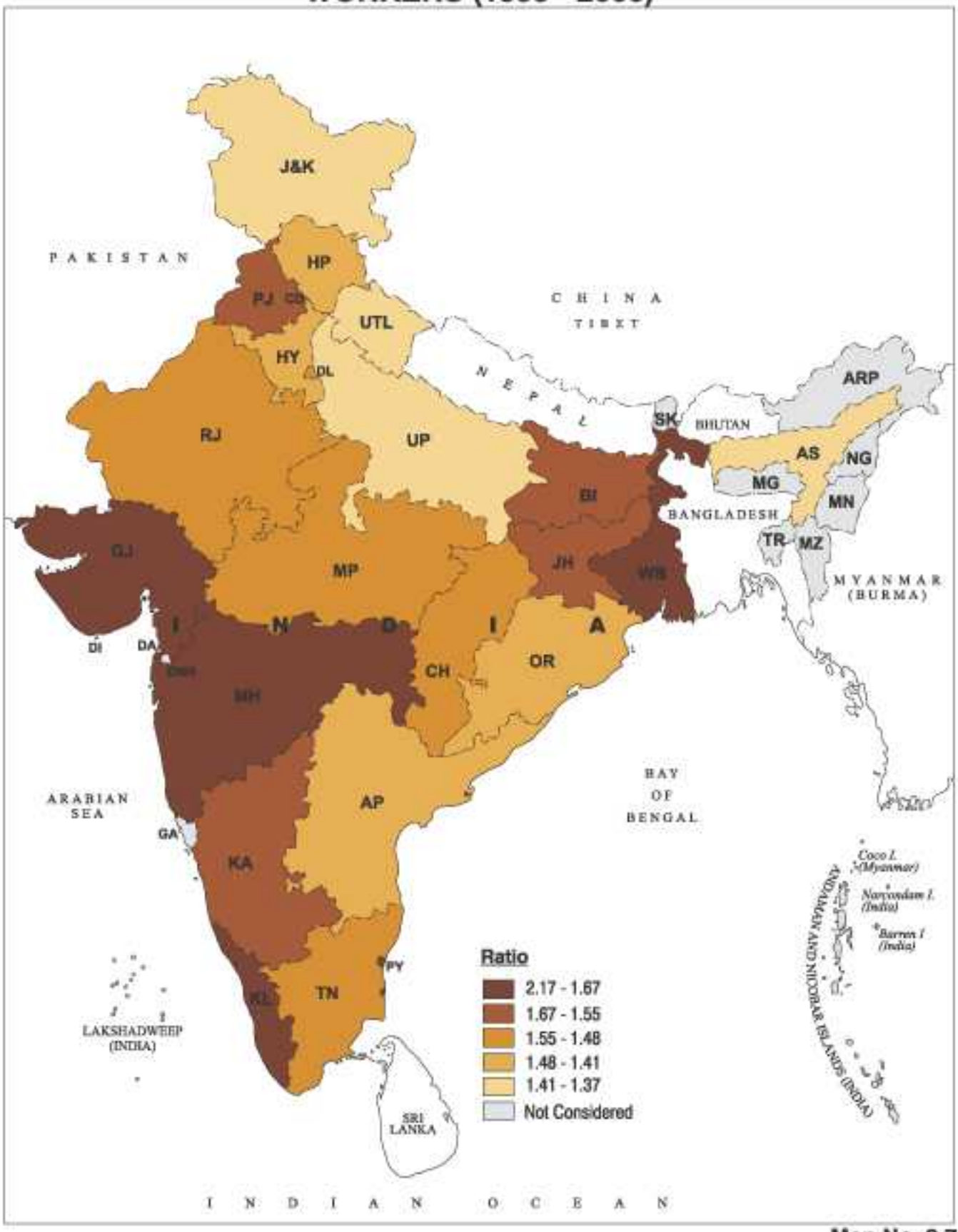
Map No. 3.5

PERCENTAGE OF SCHEDULED CASTE POPULATION TO TOTAL URBAN POPULATION (1991)



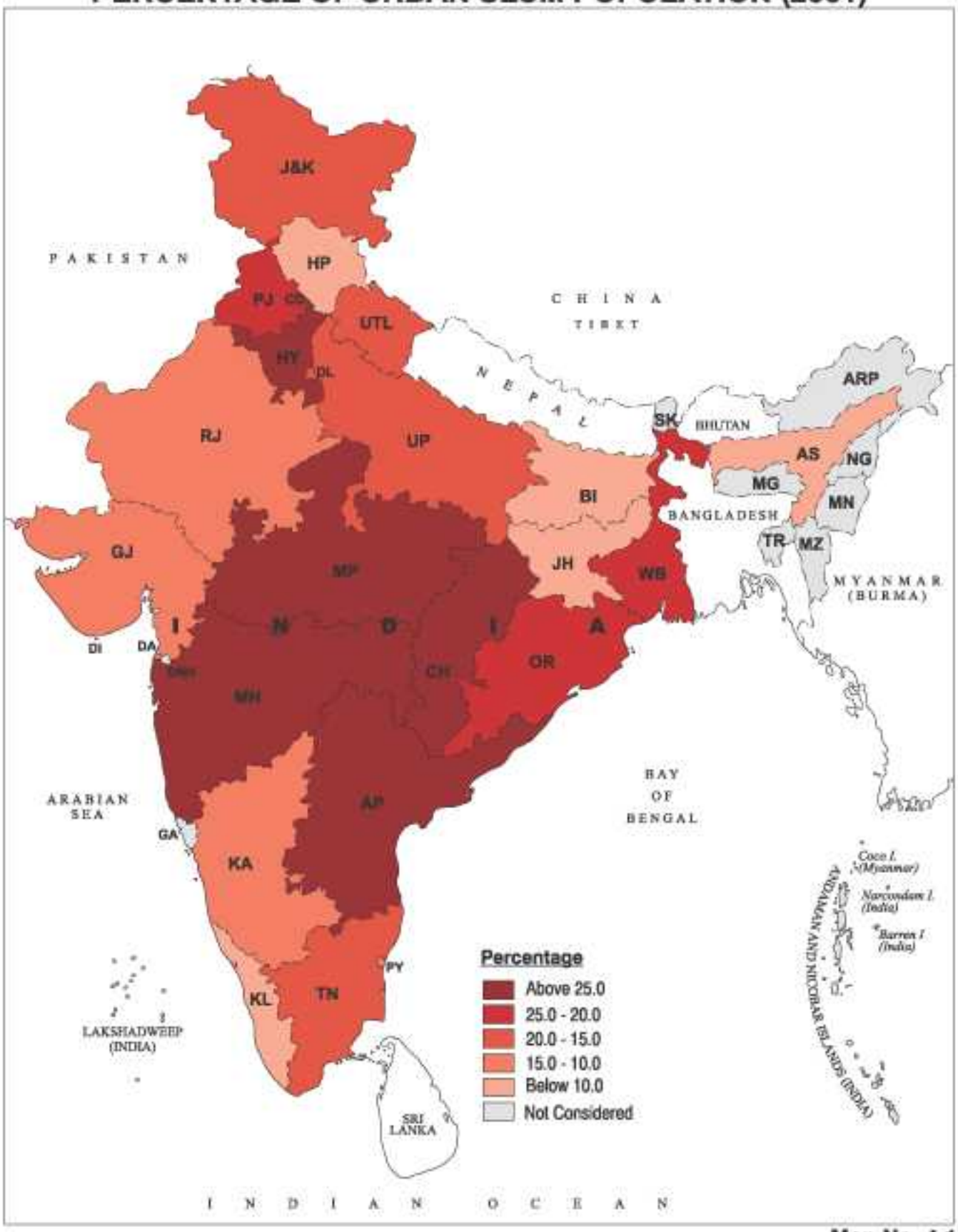
Map No. 3.6

RATIO OF MALE WAGE TO FEMALE WAGE FOR URBAN CASUAL WORKERS (1999 - 2000)



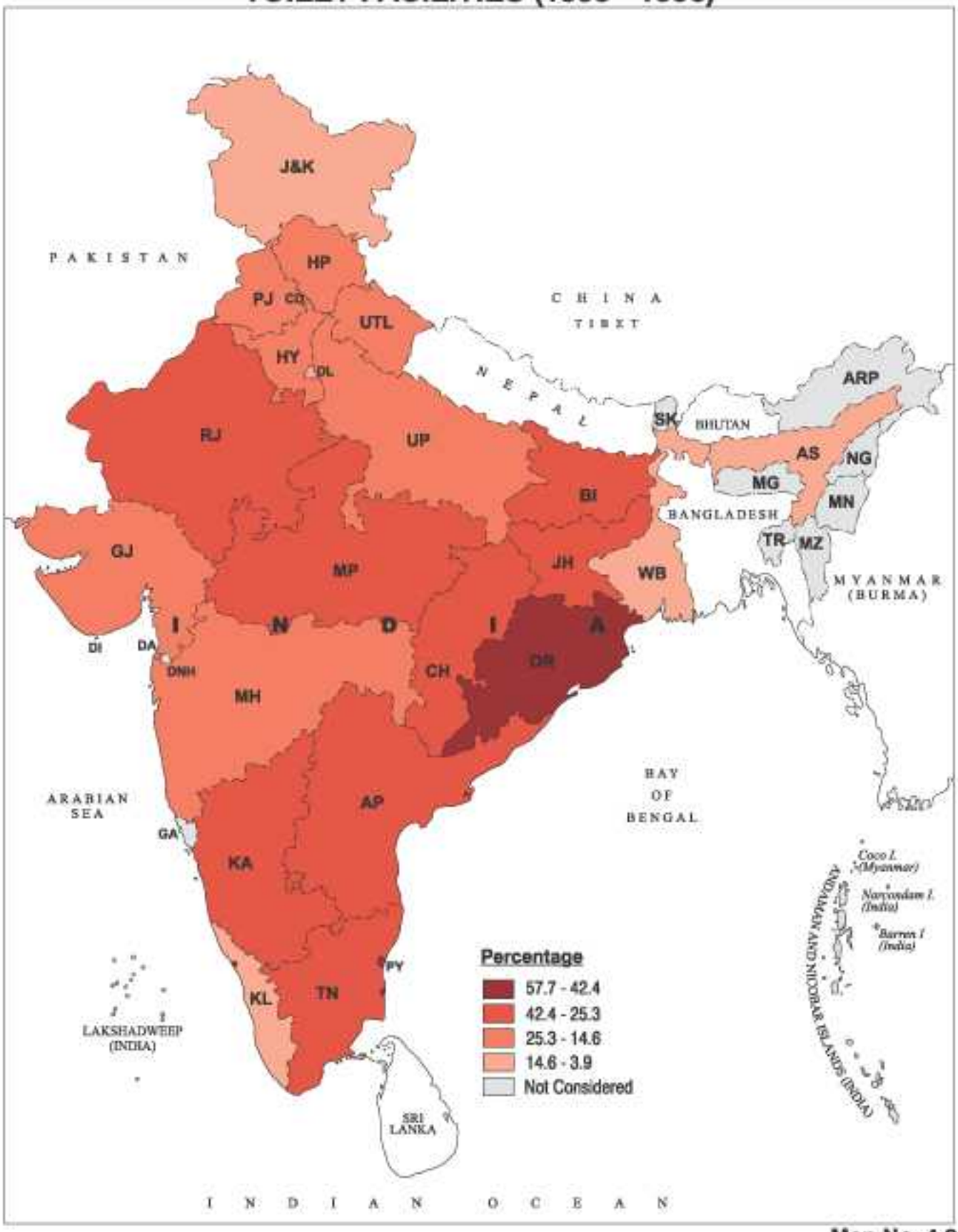
Map No. 3.7

PERCENTAGE OF URBAN SLUM POPULATION (2001)



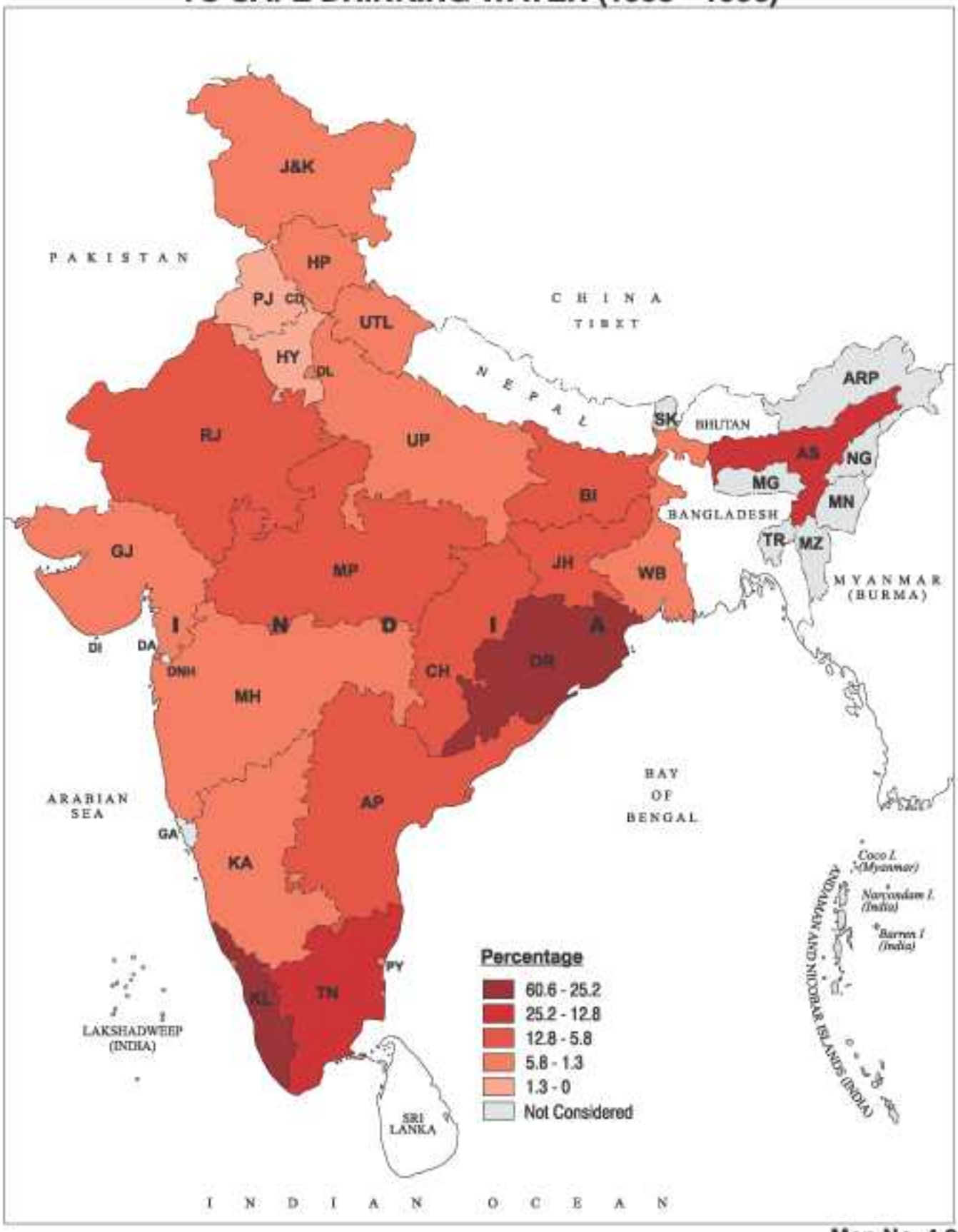
Map No. 4.1

PERCENTAGE OF URBAN HOUSEHOLDS WITHOUT ACCESS TO TOILET FACILITIES (1995 - 1996)



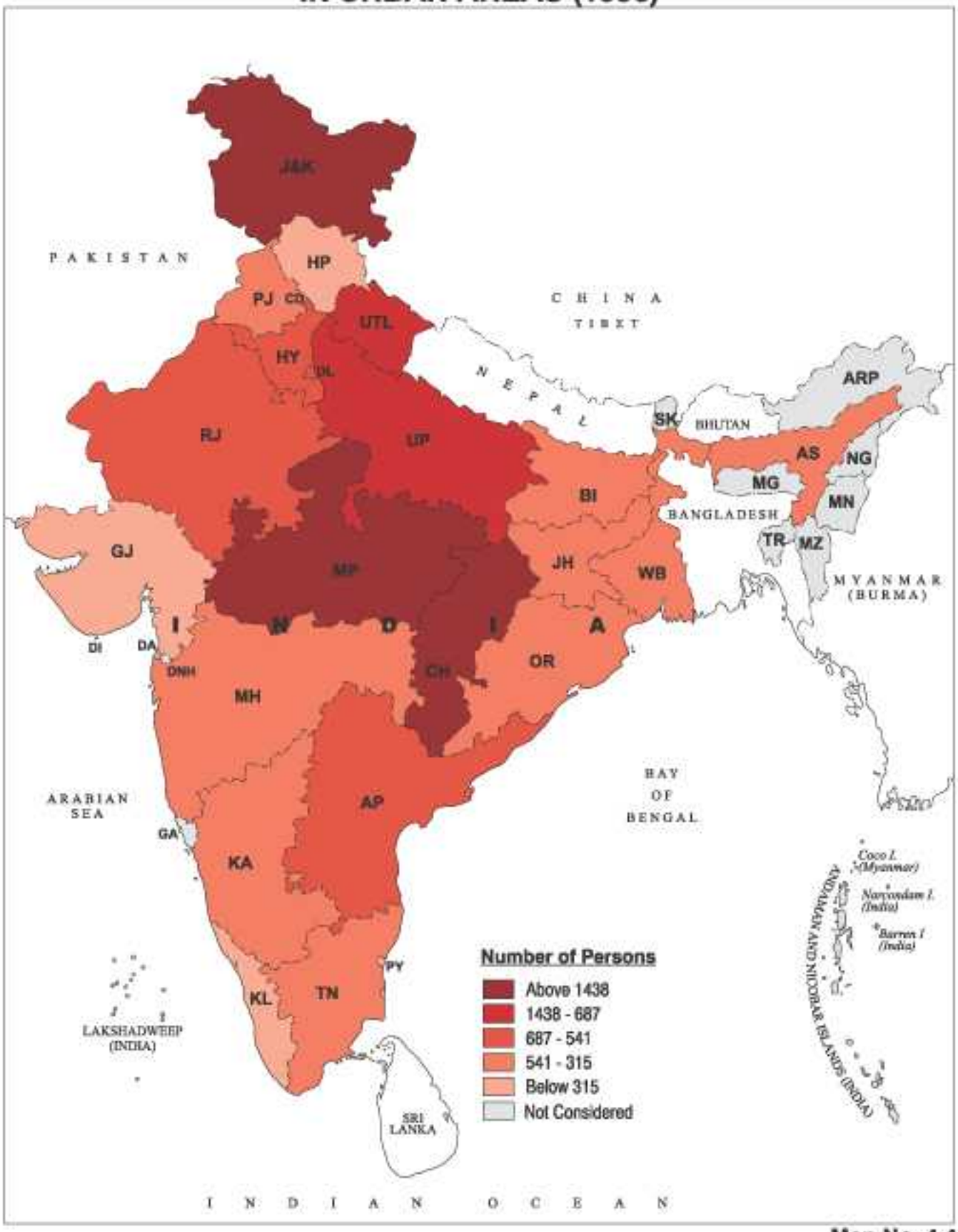
Map No. 4.2

PERCENTAGE OF URBAN POPULATION NOT HAVING ACCESS TO SAFE DRINKING WATER (1995 - 1996)



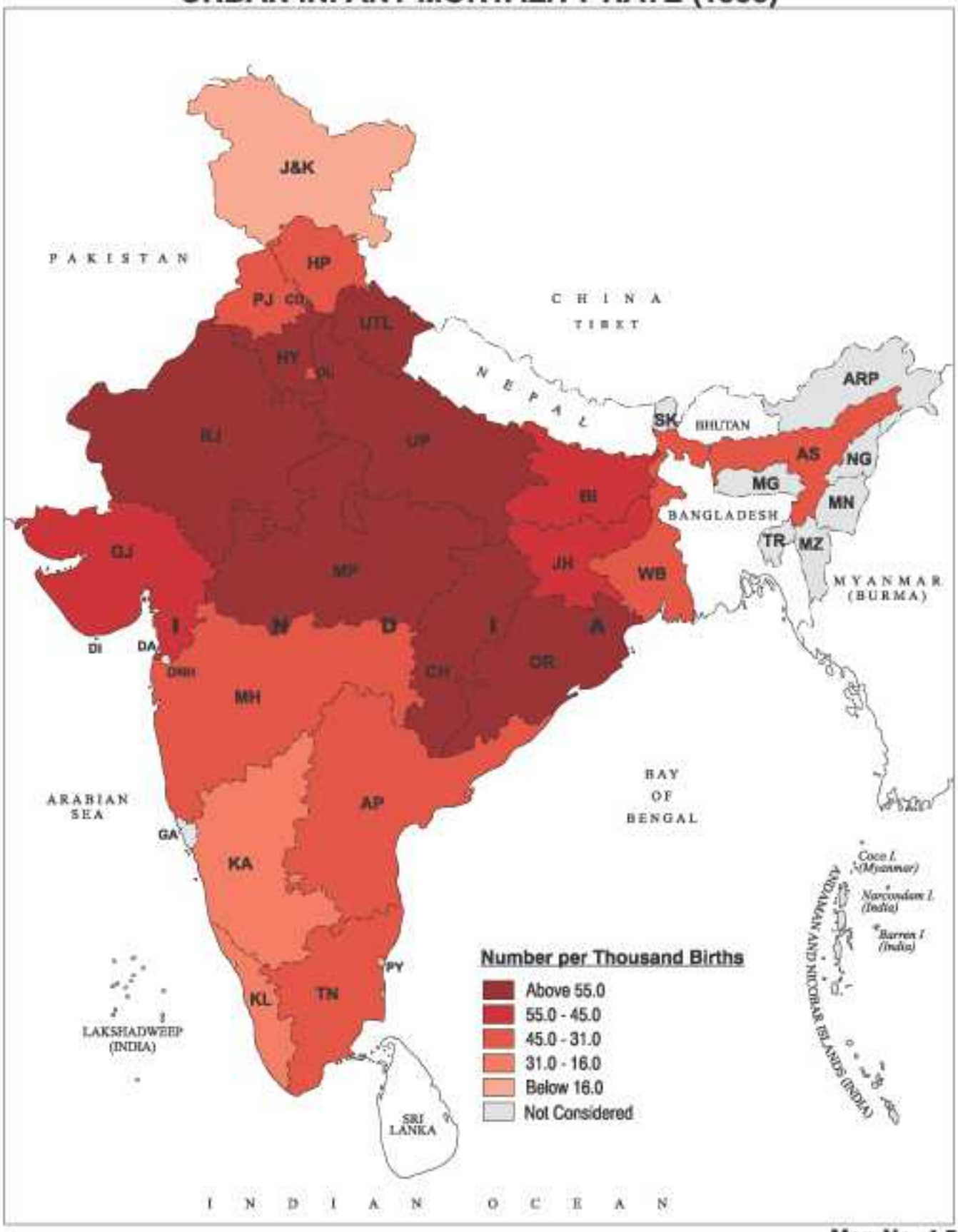
Map No. 4.3

NUMBER OF PERSONS PER HOSPITAL AND DISPENSARY BED IN URBAN AREAS (1996)



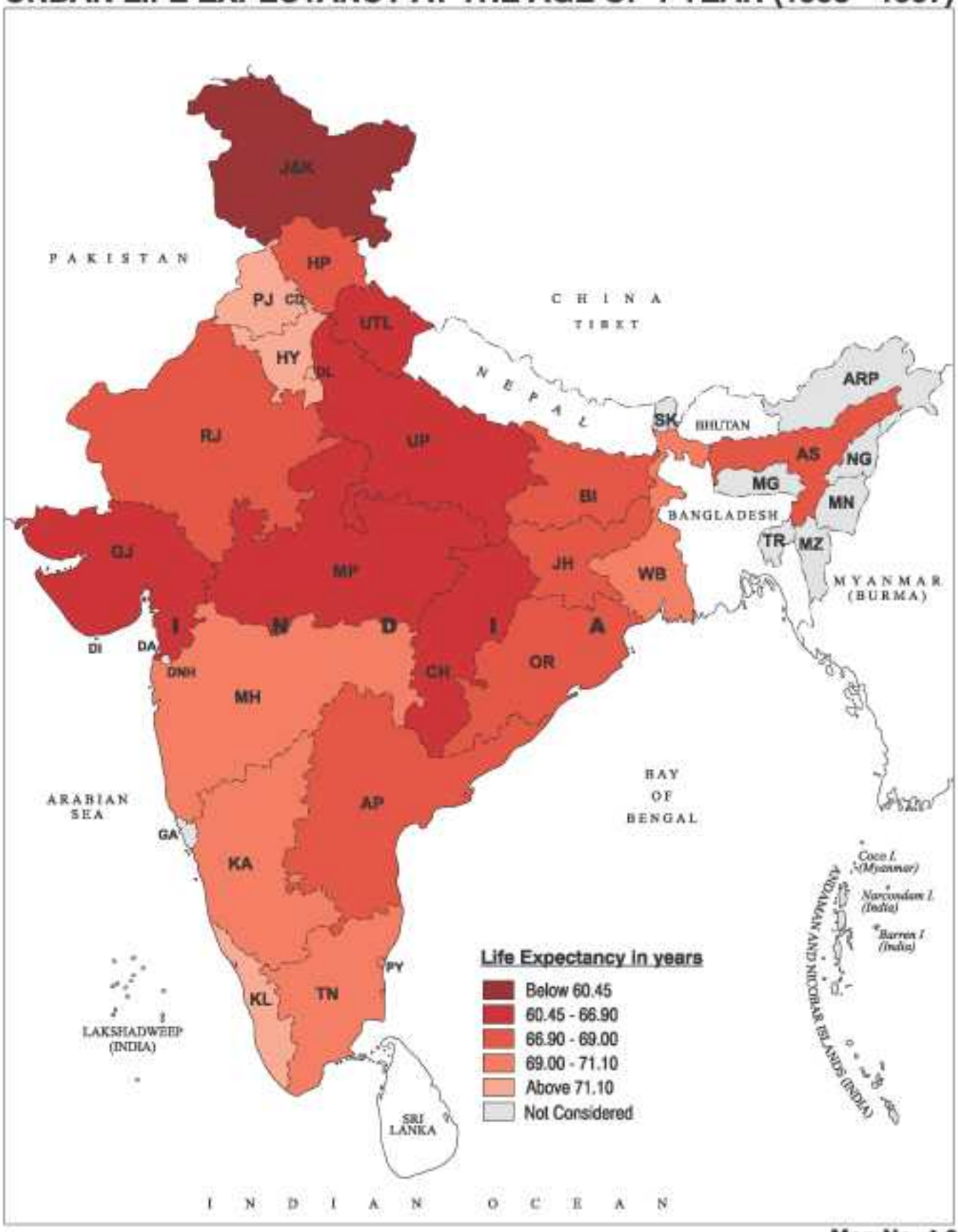
Map No. 4.4

URBAN INFANT MORTALITY RATE (1999)



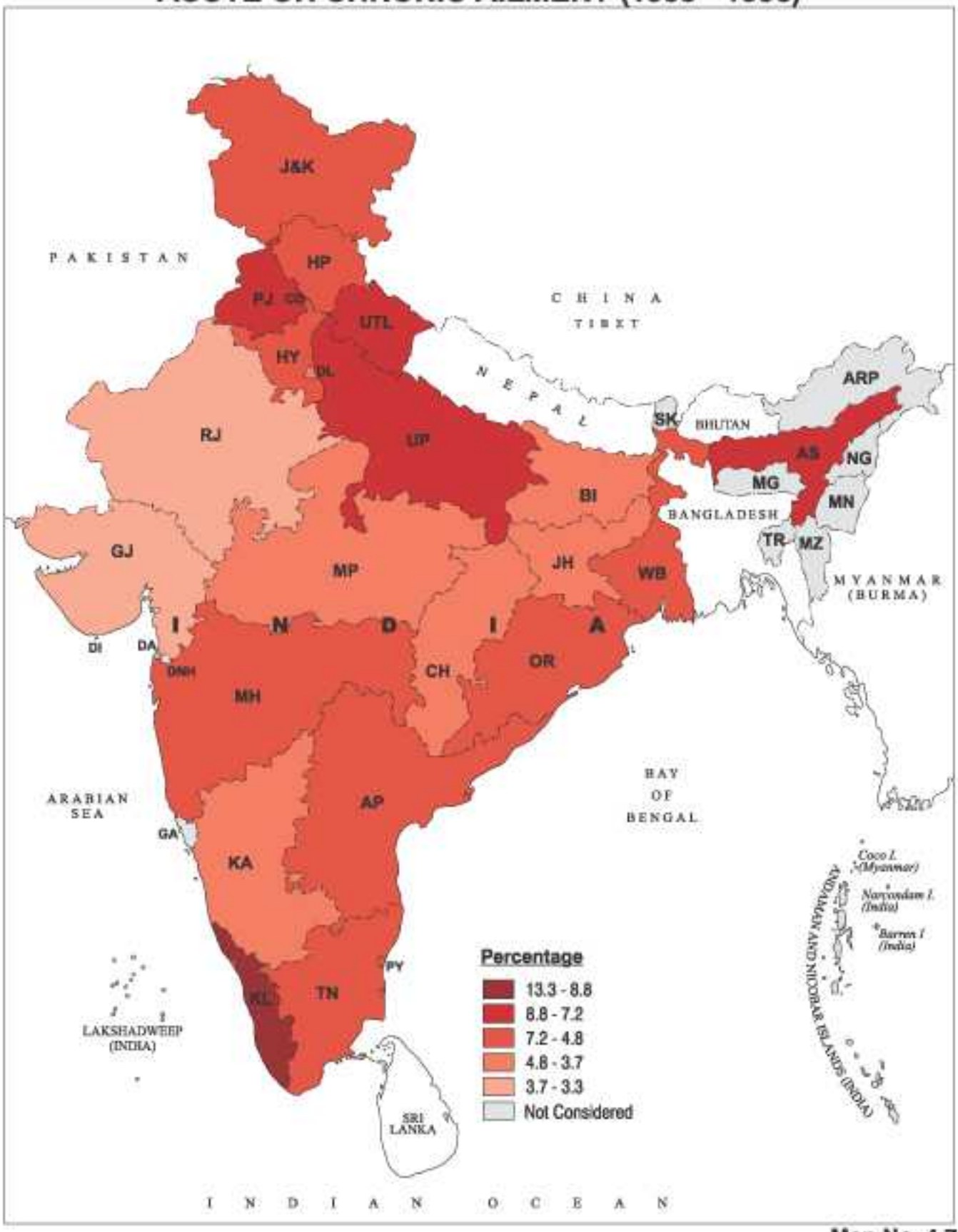
Map No. 4.5

URBAN LIFE EXPECTANCY AT THE AGE OF 1 YEAR (1993 - 1997)



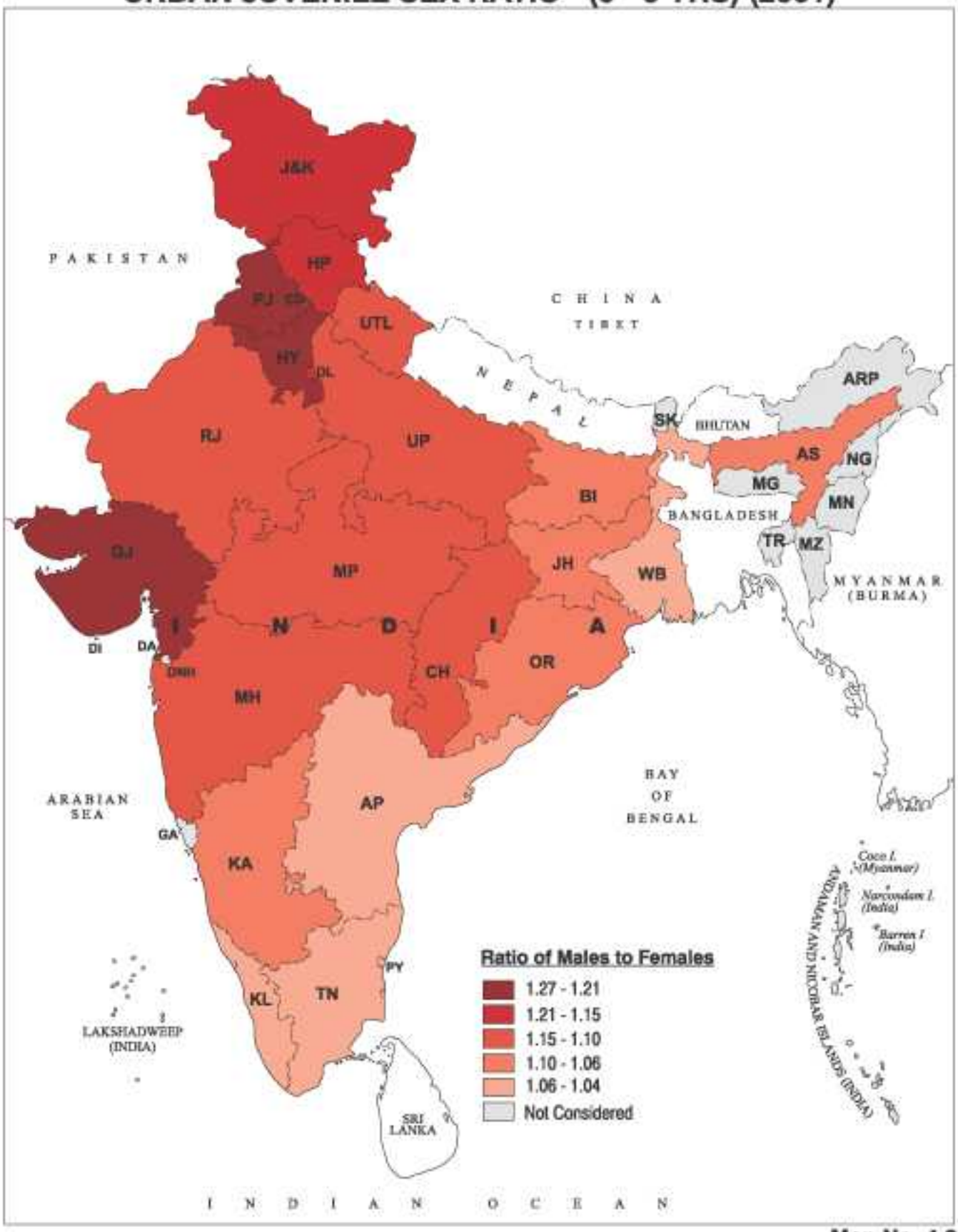
Map No. 4.6

PERCENTAGE OF URBAN POPULATION SUFFERING FROM ACUTE OR CHRONIC AILMENT (1995 - 1996)



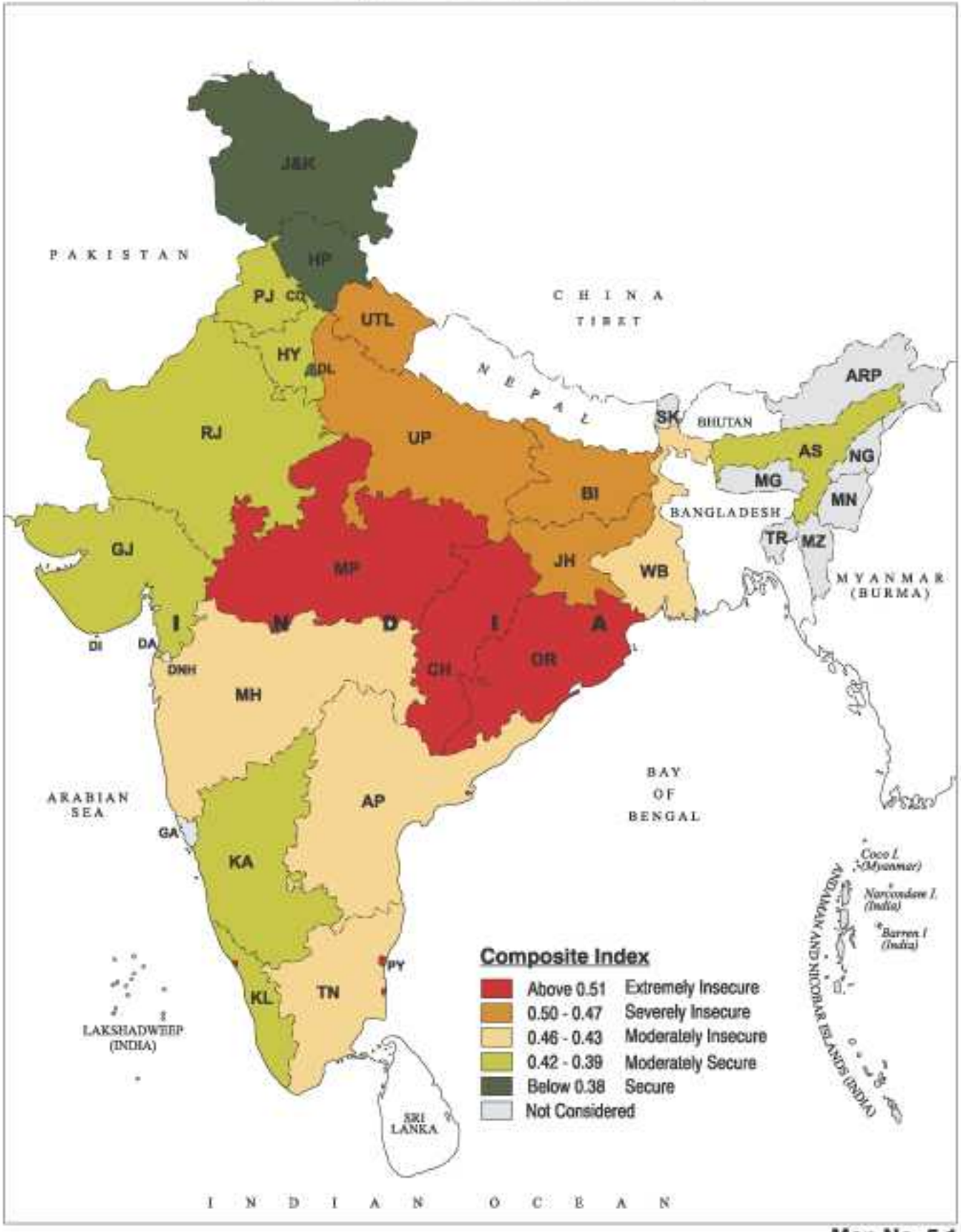
Map No. 4.7

URBAN JUVENILE SEX RATIO - (0 - 6 YRS) (2001)



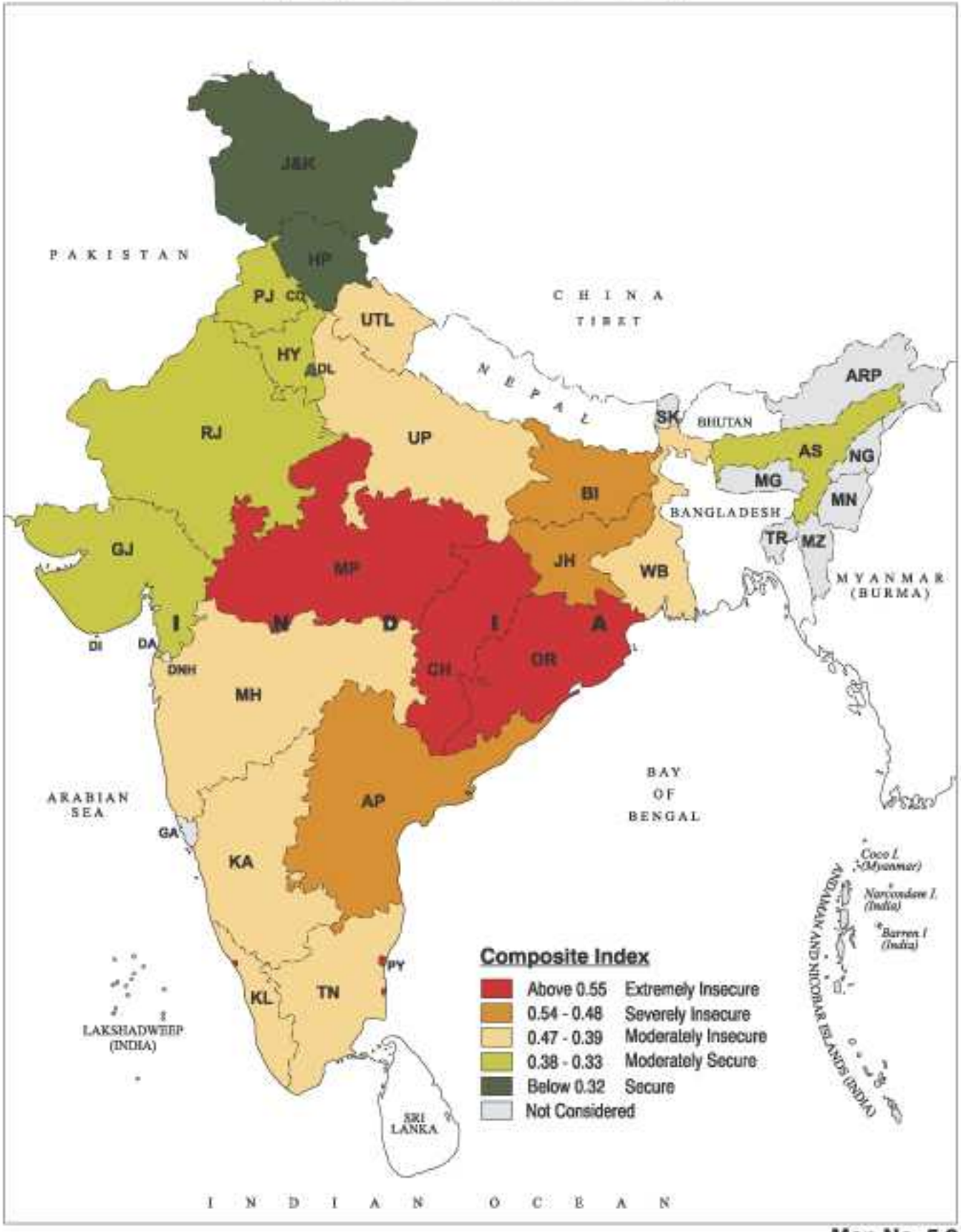
Map No. 4.8

FOOD INSECURITY MAP OF URBAN INDIA
(Unweighted Composite Index)



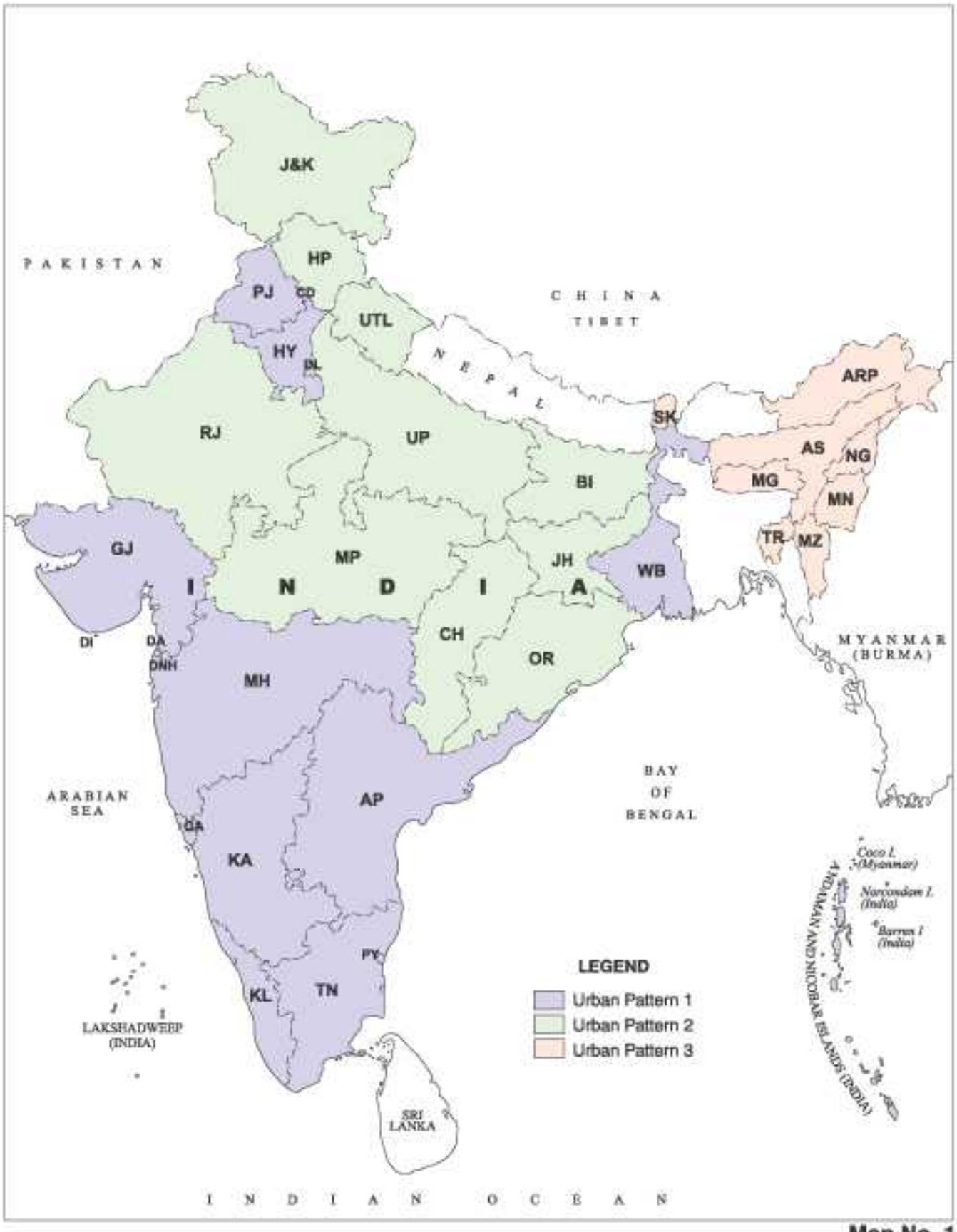
Map No. 5.1

FOOD INSECURITY MAP OF URBAN INDIA
(Weighted Composite Index)



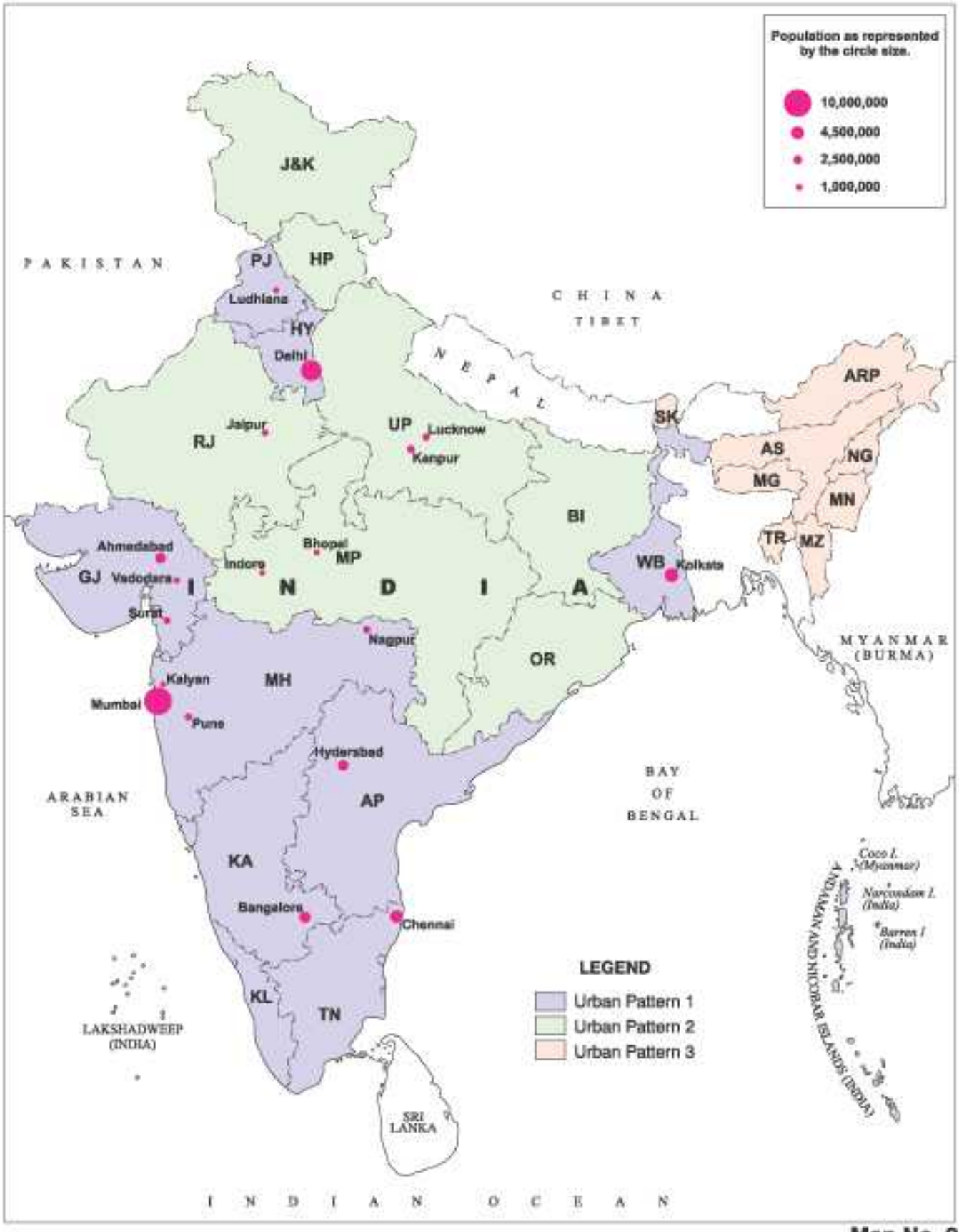
Map No. 5.2

URBAN PATTERNS OF INDIA



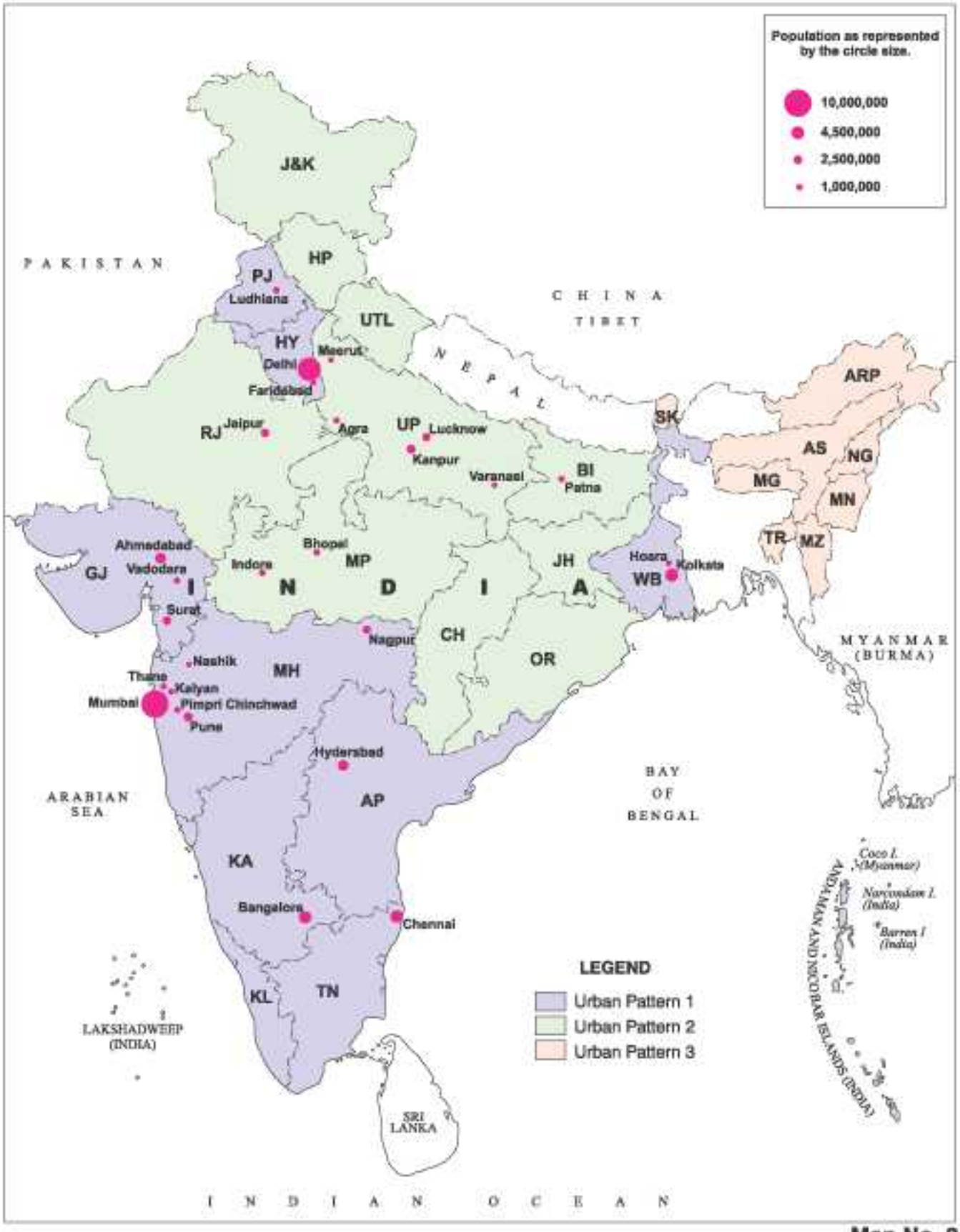
Map No. 1

Metropolitan Cities of 1991



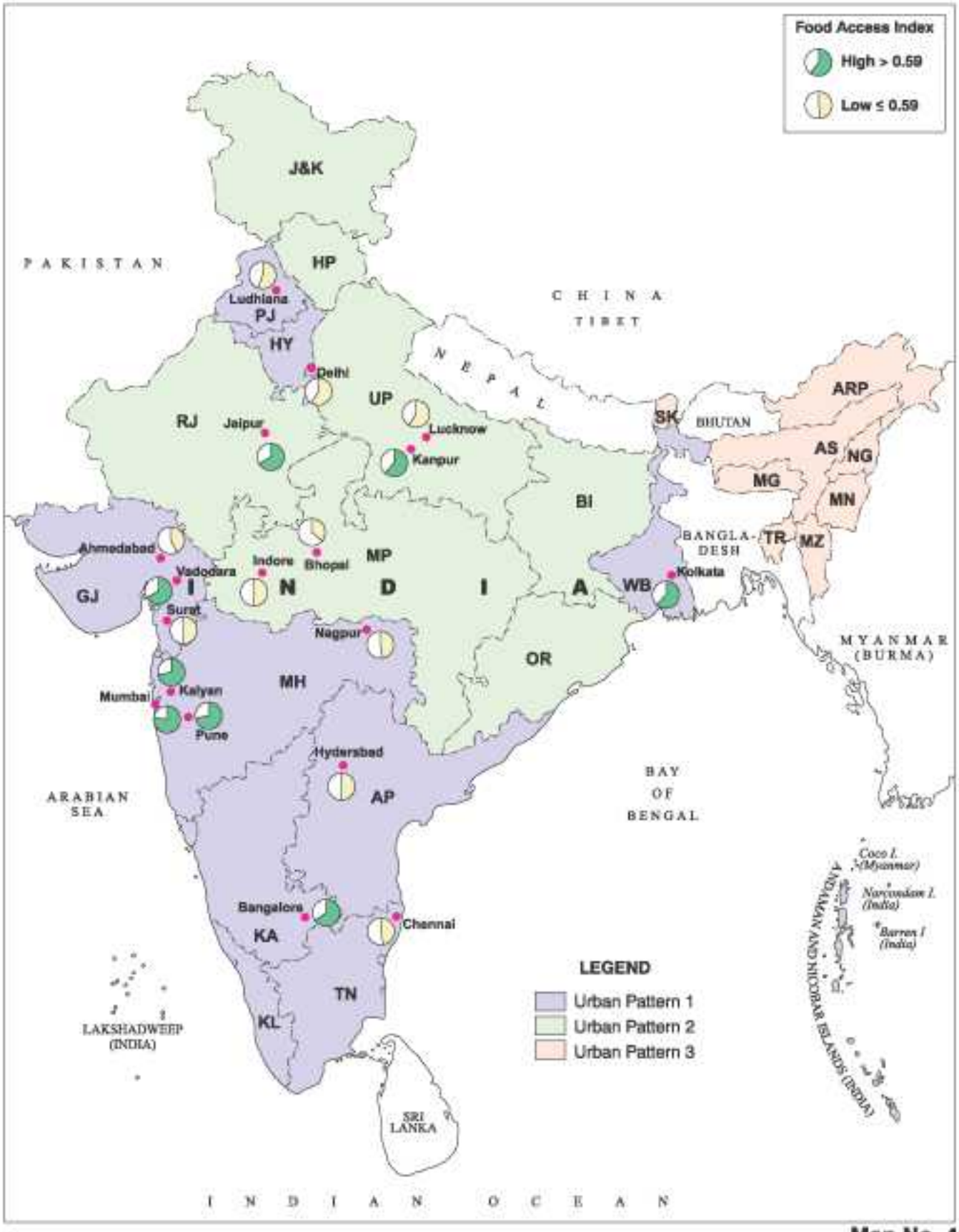
Map No. 2

Metropolitan Cities of 2001



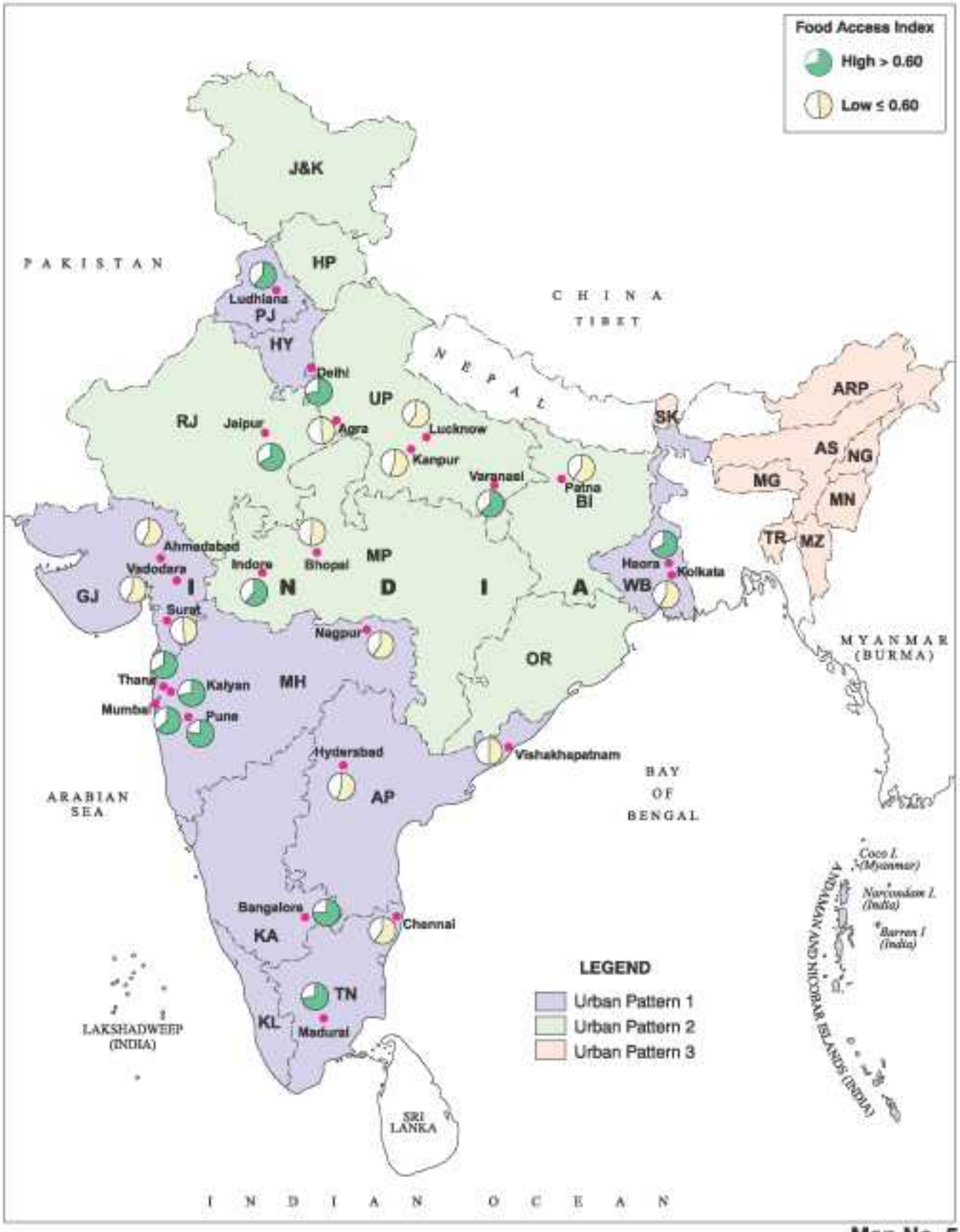
Map No. 3

Food Access Index in Metropolitan cities, Early Nineties



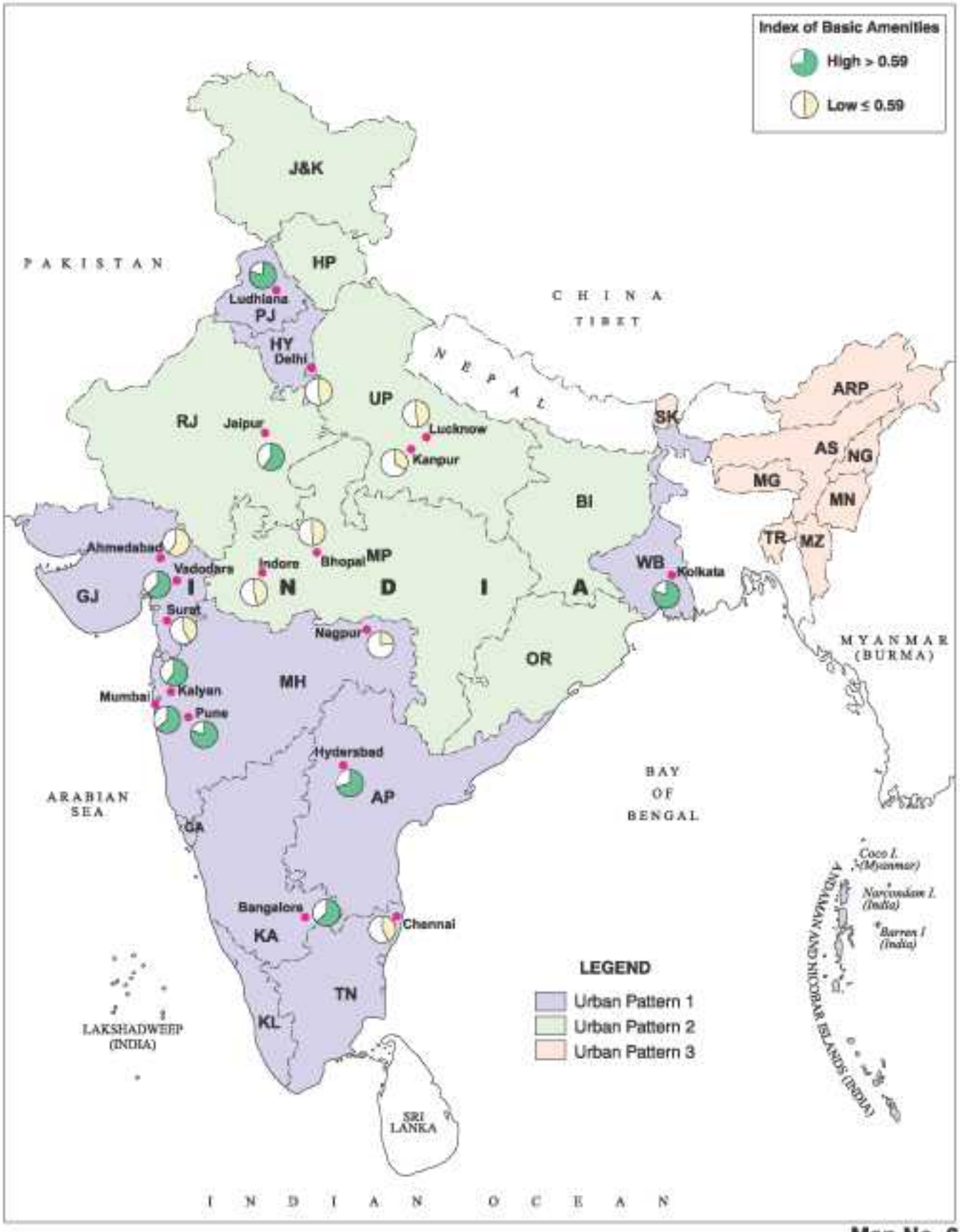
Map No. 4

Food Access Index in Metropolitan cities, Late Nineties



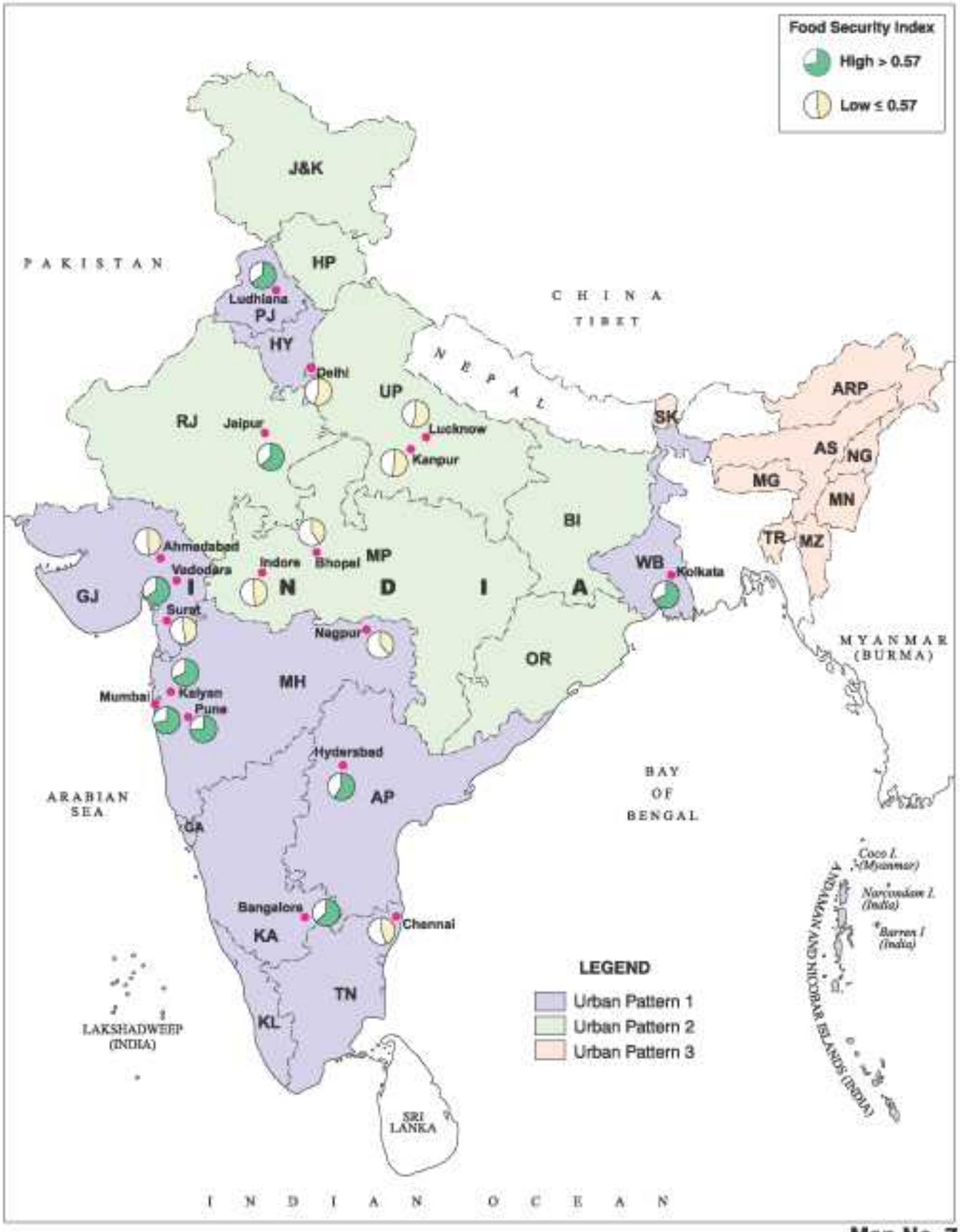
Map No. 5

Index of Basic Amenities in Metropolitan Cities, 1991



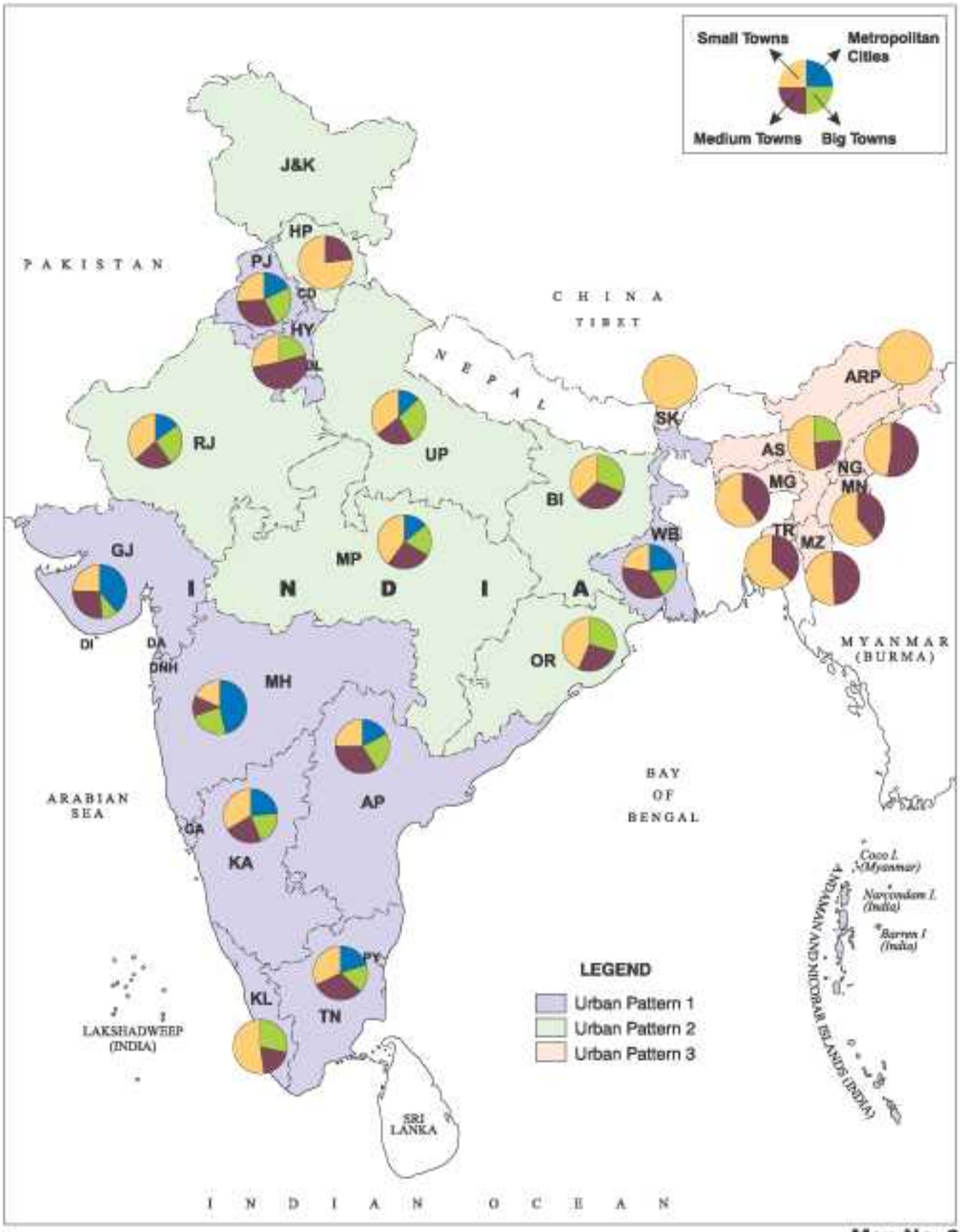
Map No. 6

Food Security Index in Metropolitan cities, Early Nineties



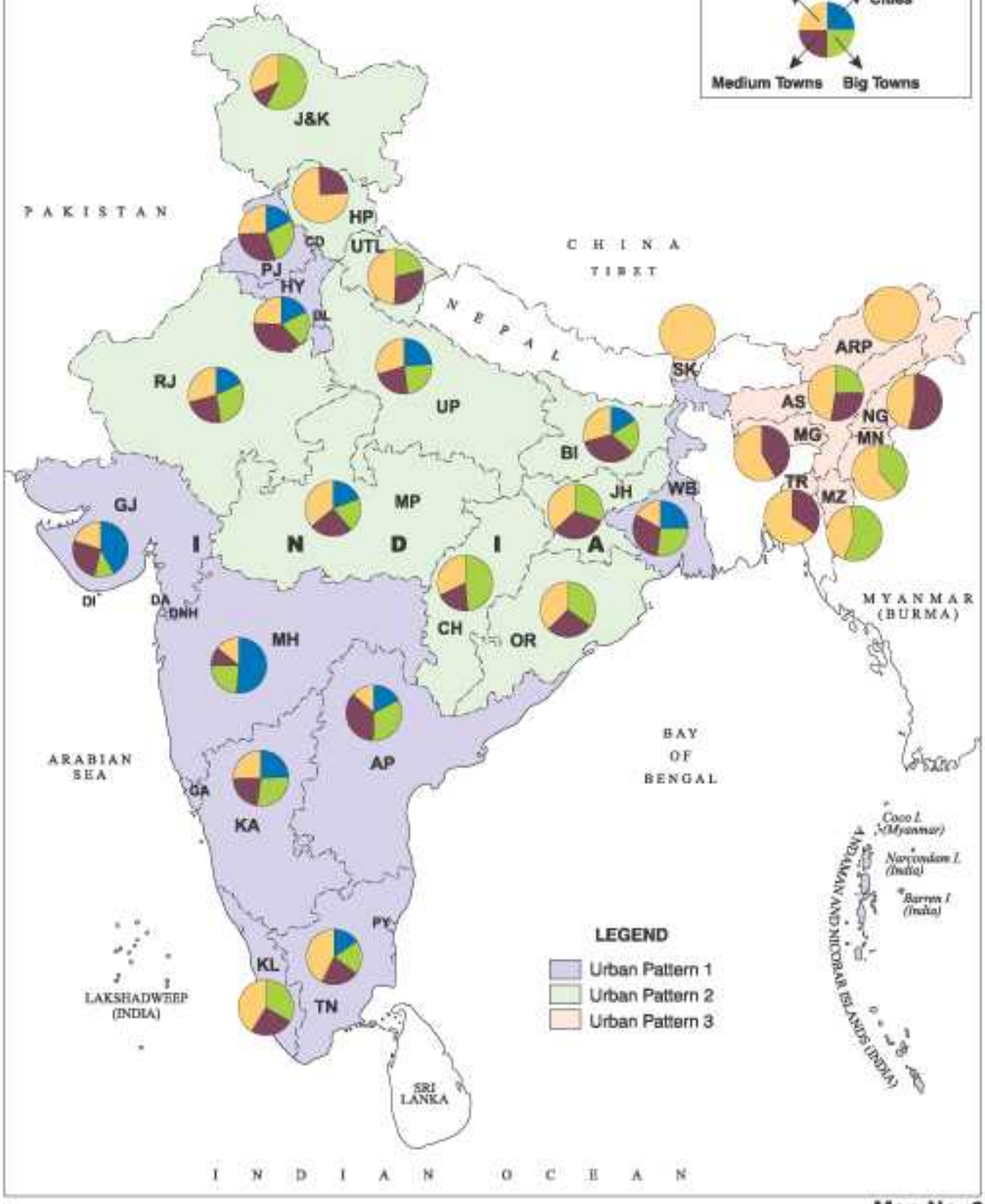
Map No. 7

Percentage of Population in Different Size Classes of Towns, 1991



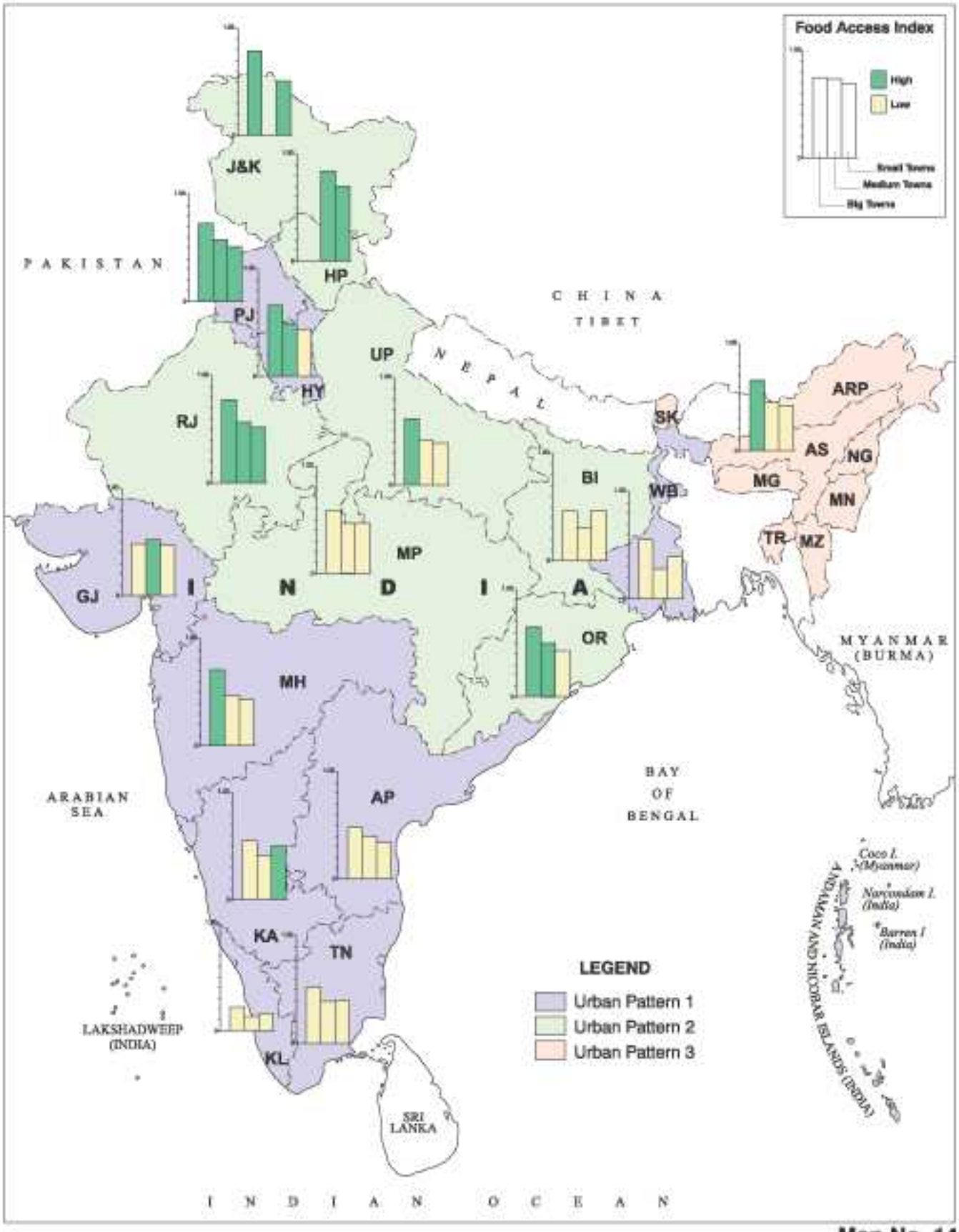
Map No. 8

Percentage of Population in Different Size Classes of Towns, 2001



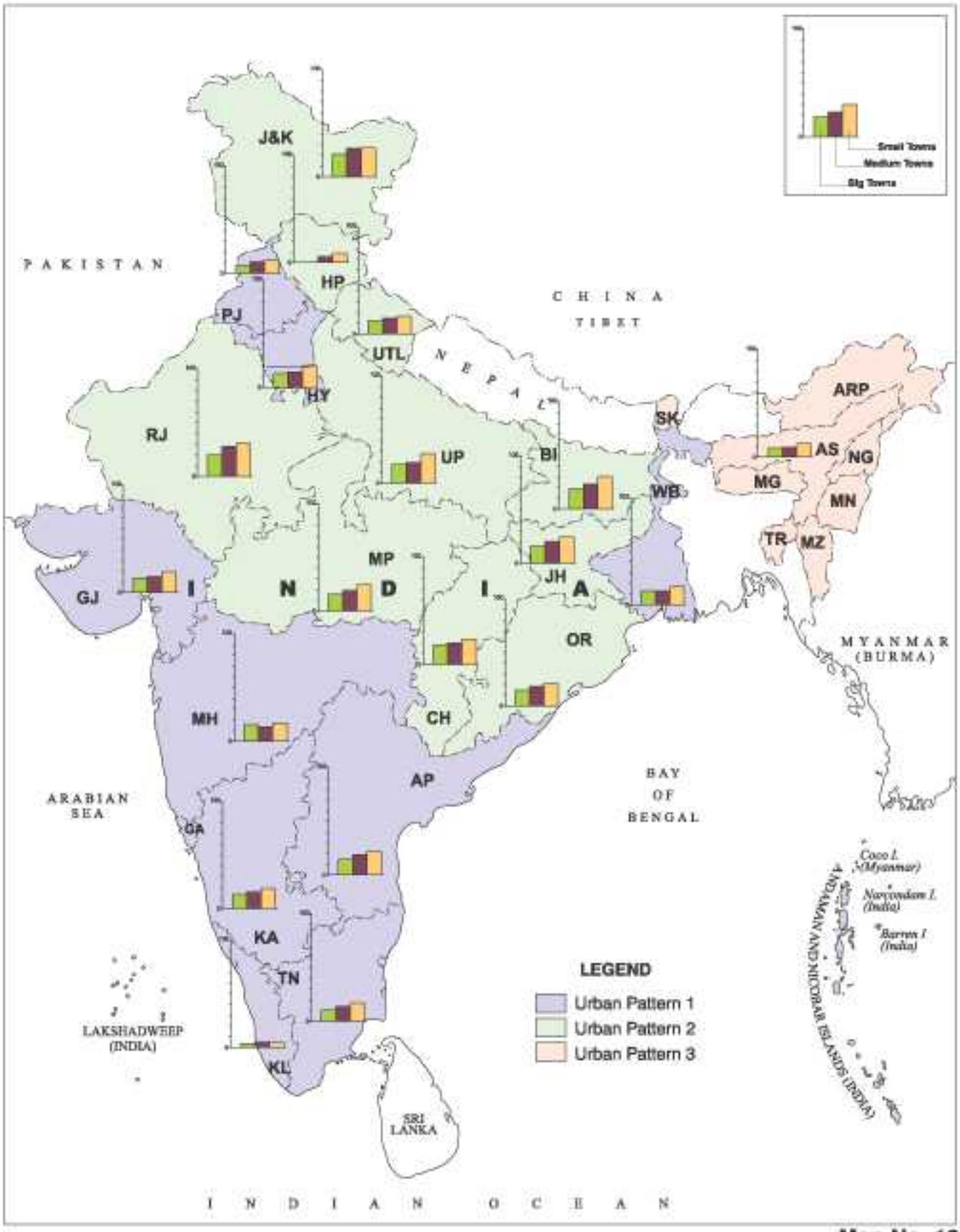
Map No. 9

Food Access Index Across Different Size Classes of Towns, 1993-94



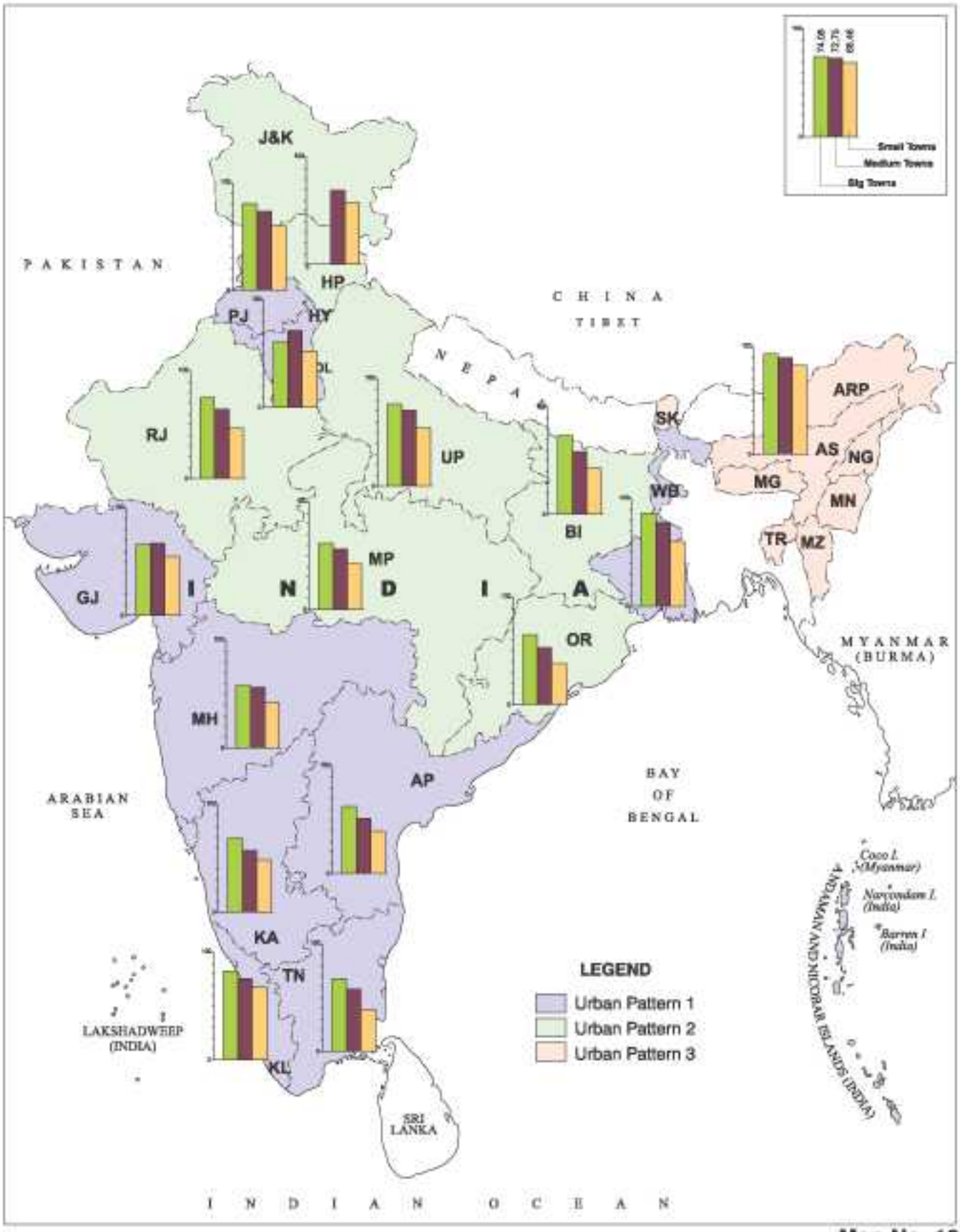
Map No. 14

Gender Gap in Literacy Rates Across Different Size Classes of Towns, 2001



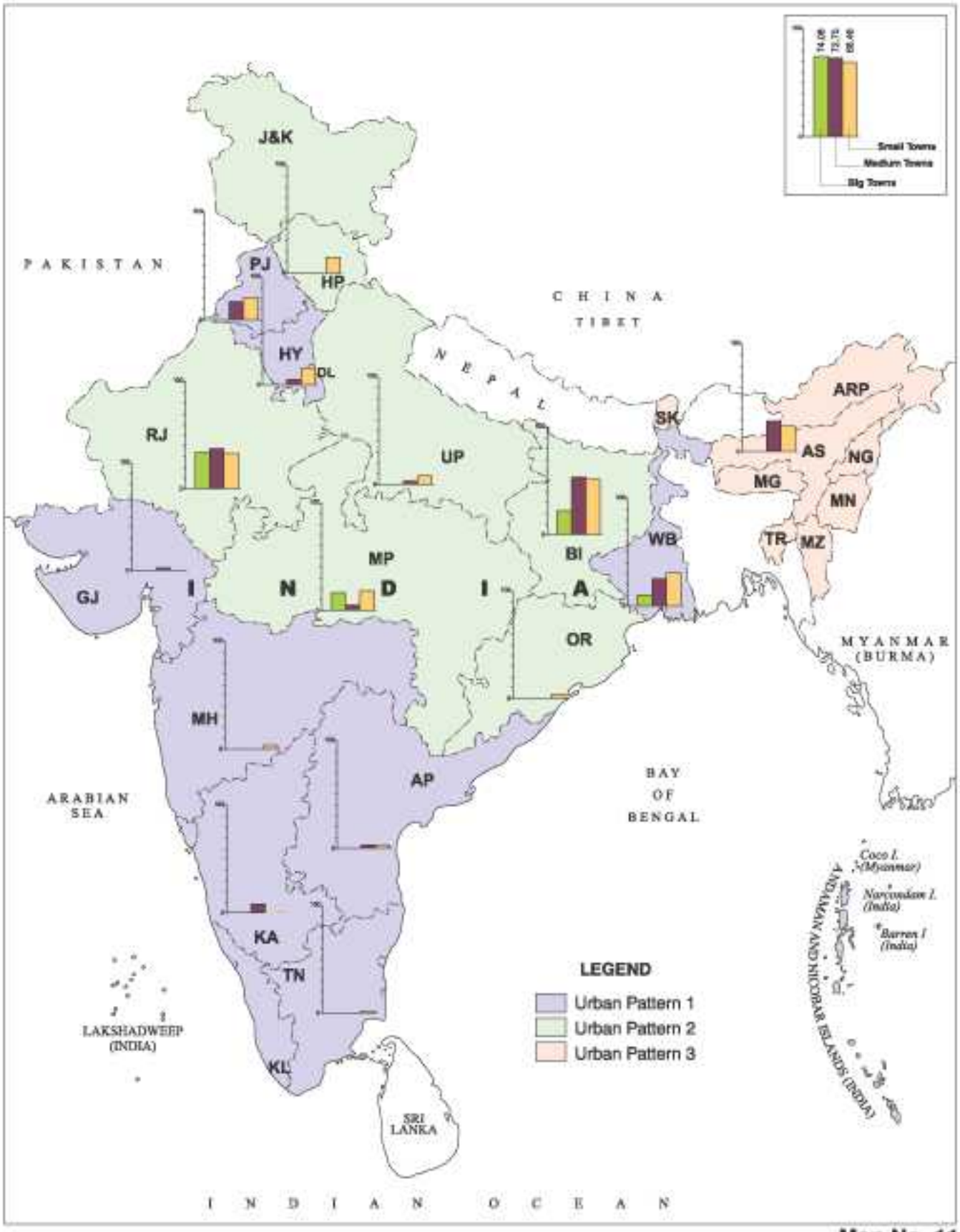
Map No. 13

Percentage of Households with access to Toilet across Different Size Classes of Towns, 1991



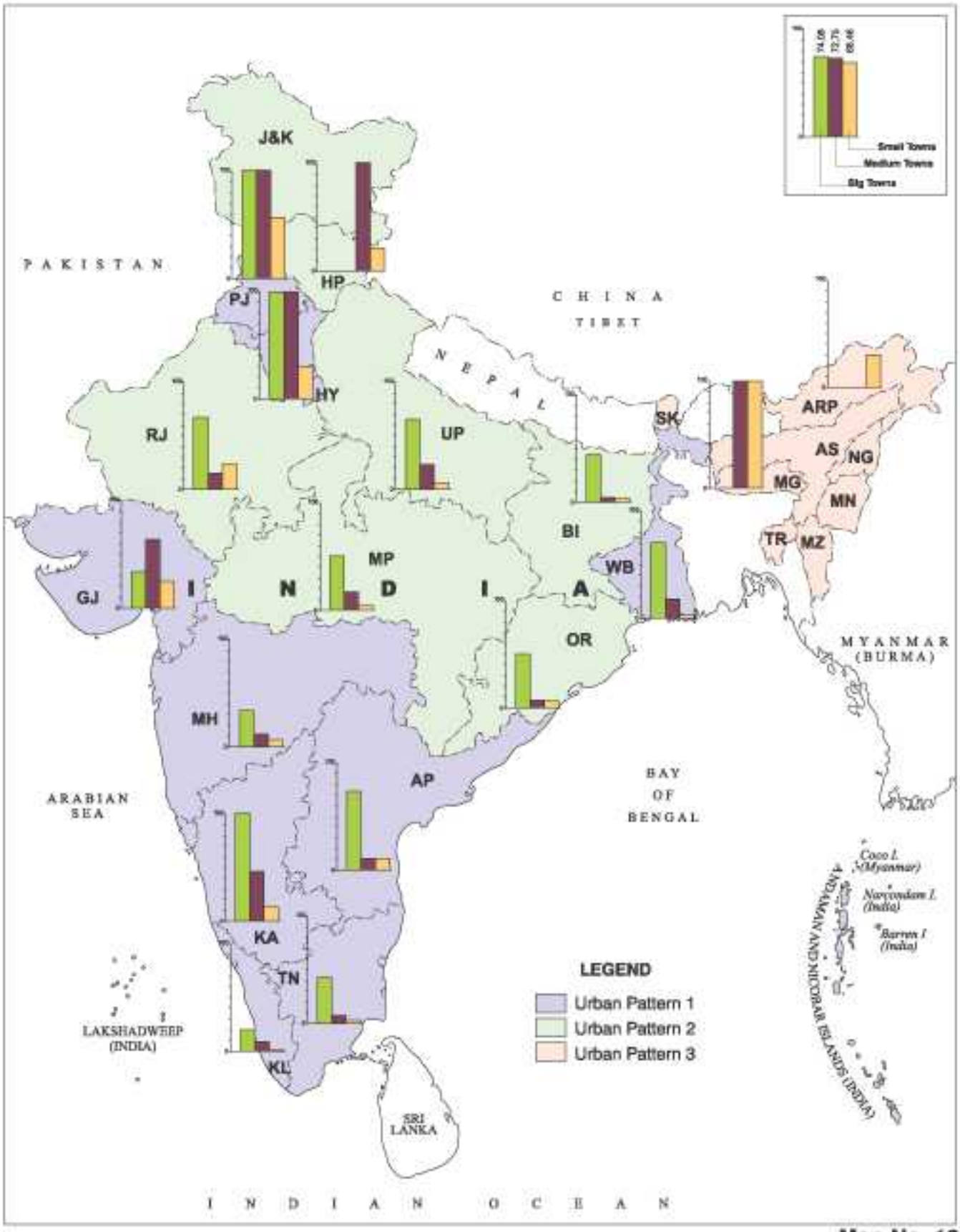
Map No. 10

Percentage of Towns that report Head Load as a Method of Disposal of Night Soil across Different Size Classes of Towns, 1991



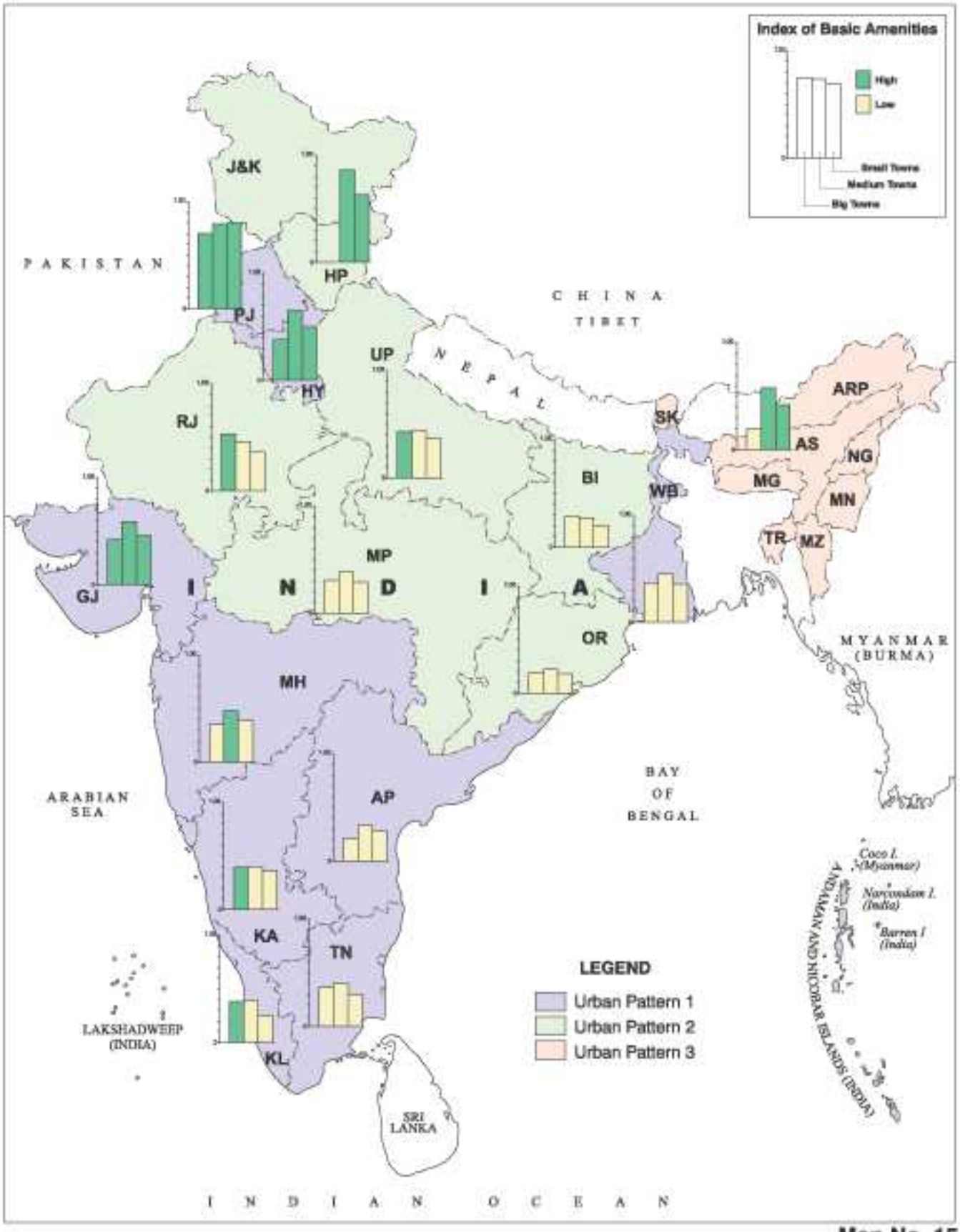
Map No. 11

Percentage of Towns that Report Availability of Sewer System, 1991



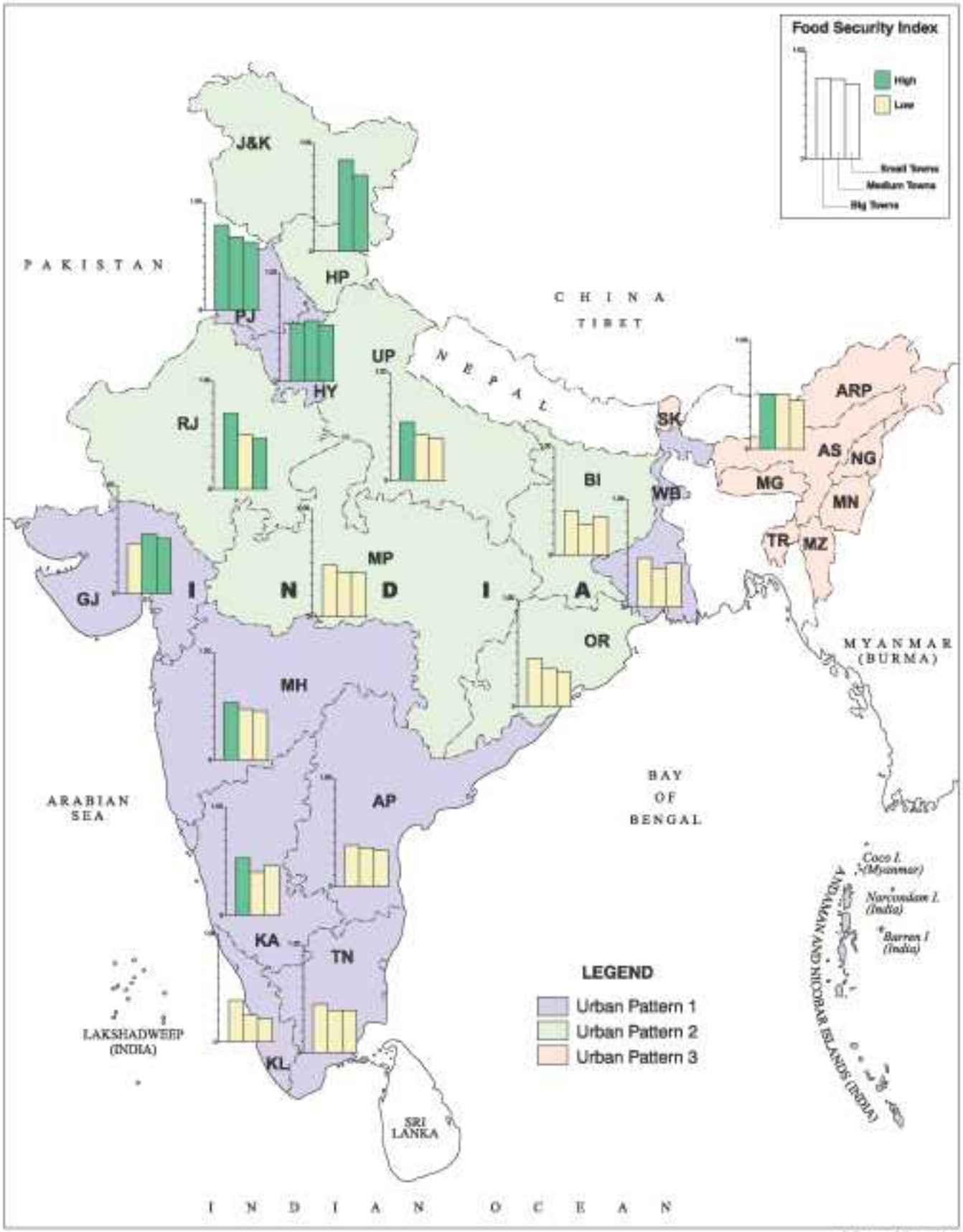
Map No. 12

Index of Basic Amenities across Different Size Classes of Towns, 1991



Map No. 15

Food Security Index Across Different Size Classes of Towns, Early Nineties



Map No. 16