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URBAN INDIA: UNDERSTANDING THE MAXIMUM CITY

URBAN AGE

URBAN AGE INDIA

It is appropriate in 2007, the year in which more than half the world's population is living in cities for the first time in the history of mankind, that the Urban Age project should turn its attention to India and its cities. Today an increasing number of India's population of over 1.1 billion is fuelling urban centres across the subcontinent, with over 300 million city dwellers making up one tenth of the world's urban population. India's status as a developing nation with a growing urban economy, coupled with the sheer magnitude of people and social potential, provides an ideal platform for the analysis and discussion on the future shape of urban society.

The Urban Age's principal aim is to shape the thinking and practice of city leaders and sustainable urban development. Initiated by the London School of Economics and Political Science and Deutsche Bank's Alfred Herrhausen Society, Urban Age is structured around international and multidisciplinary events and research supporting the creation of a new urban agenda for global cities. Having studied and visited New York, Shanghai, London, Mexico City, Johannesburg and Berlin we now focus on the major Indian cities of Delhi, Kolkata and Bangalore with a special focus on Mumbai.

This conference newspaper, the eighth edition since 2005, follows the sequence of this enquiry. The first section contains essays on the dynamics of urban India and reflections by Urban Age experts on globalisation, governance and climate change on cities. A central data section presents new research produced on Indian cities, offering a comparative overview with the six other Urban Age cities. The final section offers a focus on Mumbai, with essays and statistical information on one of the world's largest, most intense and complex conurbations, in Suketu Mehta's words, 'the Maximum City'.

Ricky Burdett
Director, Urban Age
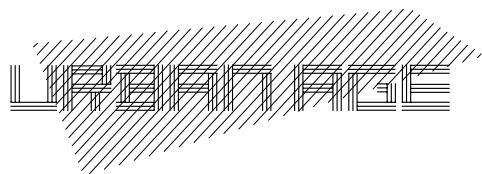
Urban Age is a worldwide investigation into the the future of cities.

Organised by the Cities Programme at the London School of Economics and Political Science and the Alfred Herrhausen Society, the International Forum of Deutsche Bank.

THE **LONDON SCHOOL** OF **ECONOMICS** AND **POLITICAL SCIENCE** ■

Alfred Herrhausen Society
The International Forum of Deutsche Bank

URBANISATION AND INDIA

URBAN AGE CITY DATA

FOCUS ON MUMBAI

INDIA'S URBAN SHIFT

As the Urban Age project focuses on Urban India, **Deyan Sudjic** explores the links between the physical structure of four Indian cities – Mumbai, Delhi, Kolkata and Bangalore – and the social, economic and political forces that are driving urban change.

If the Urban Age is an investigation that marks the transformation of the world from a predominantly rural to a predominantly urban one, it's a transition that has not yet fully occurred in India. In time it will happen in India too. India today still has a rural majority, even as the world as a whole has shifted in the other direction. But, like China, India has a profound interest in maintaining its rural hinterland. Both countries are vast, and their populations account for a third of humanity. They have both, in their own ways, started to emerge from underdevelopment and have been forced to question with more or less enthusiasm some of the fundamentals of the political creeds on which their societies are based. Indian democracy and its legal system are always spoken of as the country's two key advantages in its increasingly overt competition with China. But these can be seen as handicaps as well as advantages.

China does not want to see its cities overwhelmed, and forbids free internal movement. India's constitution guarantees it, even if the Gandhian ideology on which Indian independence was founded displayed a profound antipathy towards the idea of the city. India was to be rooted instead in the self-sufficiency of village life. It was an antipathy which easily merged with the English horror at the industrial city. The attitudes that India's Oxbridge-educated elite picked up, at first hand in some cases from Ruskin and Morris, about cities could be represented as alien creations that left incomers reduced to squalor.

Many of India's big cities indeed have colonial roots: Calcutta, or Kolkata as it is now called, also has European foundations. Nationalist unrest drove the British to move their Imperial capital out of Calcutta and Bengal to a new site on the edges of the ancient city of Delhi in a simultaneous search for a more peaceful setting and a symbolic claim to rooting itself in Indian tradition. And it was post-colonial partition that saw the tragic population exchanges that crowded Delhi and Mumbai with refugees from Pakistan.

India now has a hierarchy of cities spread across the country, with Mumbai, Delhi, and Bangalore the most dynamic, and experiencing the most rapid growth, while Kolkata struggles to find a wider role. But even in Mumbai, the heart of India's financial sector, 65 per cent of employment is in the informal sector, as opposed to 83 per cent in the country as a whole.

Through the long years of India's command and control economy, its cities appeared as frozen in time as the elderly

Although only ten per cent of Mumbai's surface is covered by roads, construction of new high–rise towers and flyovers is creating a rapid transformation of the city's historical grain.

Ambassador cars built with production lines shipped from Britain. Liberalisation has ushered in an Indian middle class, attracting back the non-resident Indians, the educated diaspora, who have made their money in Silicon Valley and the Gulf, creating a potential economic superpower. Establishing fast food outlets and shopping malls – with attempts to introduce supermarkets resisted in some states by violent protests – India has begun to explore liberal market approaches to city infrastructure. And with these first results now visible, it is questioning their effectiveness.

The new India is impatient with the things that don't work in its cities: the traffic jams, the shortcomings of infrastructure, the bureaucracy. It wants to see big changes and has invested in huge projects like Delhi's new metro system.

Like China, India is finding new ways of doing things that involve profound political shifts. Even Kolkata, with its long and proud tradition as the centre of Indian Marxism and literary intellectuals, has begun to experiment with market forces. But while China is able to ignore or suppress dissent, when Bengal's farmers protested against the Special Economic Zones declared to support the industrialists wanting factories to build a 1-lakh (US$2,500) people's car, the state government had to change its mind.

Bangalore and Delhi have also struggled with attempts at liberalising their approaches to planning work effectively.

Alone among Indian cities, Kolkata has made real steps towards a genuine locally centred civic government, rather than remaining entirely in the hands of a state with a vast rural hinterland. But India's administrative complexities and its overlapping

systems of state, city and federal power, mean for example that Mumbai's city government found it impossible to introduce the plan of vaccinations for all newcomers. It planned to set up reception centres at their point of entry: the railway stations in the city. But it could not do it. The city was simply unable to conclude a legally binding agreement with India's nationally-owned railway administration about the level of rent to be paid for the use of railway land. It's a nicety that is hard to conceive of in the context of China's ruthless subjugation of all other interests to state power. When it comes to something like vaccination in stations, what the party wants, the party ensures that it gets.

For all its recurring episodes of inter-communal violence, Mumbai is a city with the ethnic, and religious diversity of a true world city. Its roots go back to the successive waves of European colonisation of India. The Portuguese handed over the cluster of islands and fishing villages that constituted Bombay to the British crown in the eighteenth century. The 20,000 inhabitants of that time have swollen to an estimated 18 million in the region today, as a port became successively a mill town, a railway hub, a financial centre, and a world centre for the cinema industry. Its architectural expression ranges from the hallucinogenic translation of high-Victorian gothic from England to the subcontinent of the Chhatrapati terminal, designed by F. W. Stevens, with the swagger of St Pancras, to the Gate of India, to in more recent times, the lyrical restraint of Charles Correa's careful synthesis of modernism with India's climate and social conditions. But these are the sharp focus landmarks in the daunting world of Mumbai's

slums and hostels geared towards single male migrants and the huge red-light areas that cater for them.

In Bangalore, rapid success has brought with it the problems of affluence. Endless commutes in India's Silicon Valley are encouraging its big IT employers to think about mixing housing with industry to achieve a more decentralised city that could help them run their businesses more efficiently. But the experience of privatised new towns here, as in Delhi, has not been encouraging. Privatised house building, based on a mirage of Southern California that is so attractive to India's affluent classes, has too often stopped at the apartment complex gate, and offered no pavement, and no transport links that can allow surrounding settlements the access that they need to provide service jobs.

In Mumbai, a city in which water and power are erratic, in which the suburban railway network is so overcrowded that commuters who fall off the trains are killed every day, the private sector has been asked to create alternative forms of settlements that can provide solutions. All this is occurring in a highly centralised political context where, even though the councillors of Mumbai's Municipal Corporation are locally elected, the state still holds ultimate control.

Other liberal attempts to deal with Mumbai's chronic overcrowding, its constrained site and continuing attraction to rural migrants have also been questioned, including the issue of the city's 300,000 street vendors, of whom just a few thousand are licensed.

Yet of the 12 million residents of Greater Mumbai, almost 6.5 million live in slums. Mumbai's slums are of two kinds: the authorised, for which the municipal authority has a responsibility to provide basic services, and the unauthorised, which are subject to demolition, and for which there is no duty for the city to provide power or water. There are impossible densities, 80,000 people per km² in Dharavi, the largest of the slums. Authorised slums are outnumbered by the 60 per cent that are illegal. Some of the illegals rely on unauthorised standpipes, and a few have no water at all.

Mumbai is the city that inspired Sukhetu Mehta's *Maximum City*. It is a city unlike any other. One that offers more lessons to the world, even as it vigorously looks for ways to put India's newfound economic power to work to find its own solutions to the challenges threatening to overwhelm it.

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THE FUTURE OF INDIAN CITIES

In reviewing demographic trends and economic patterns in India, **Amitabh Kundu** argues that recent levels of exponential urban growth may be set to change as the country's major cities experience profound levels of social and economic change.

Since the mid-1980s there has been a discernible shift in urban development in India and other developing countries towards a more liberal system of governance. This shift has come at a time when most of the cities in these countries were reportedly experiencing a 'phenomenal demographic growth' and consequent crisis in the provision of adequate urban infrastructure. The incapacity of the state and local governments to make adequate investments to alleviate this crisis has led to a process of government restructuring and reduction of public expenditure in many Indian cities.

The need to free the market from the state's regulative framework to facilitate private investment in infrastructure and the empowerment of local government are central components of an emerging urban strategy in India. This has led to the development of capital markets for resource mobilisation and efforts to ensure the cost of the provision of urban infrastructure, through elimination or reduction of government subsidies. Simplification of the legislative system and flexibility to bring about appropriate land use changes and

> Many of the illiterate rural migrants lacking the minimum level of literacy, communication skills or market smartness would not be able to put their foothold in the urban job market.

location of economic activities have likewise been advocated as a part of the remedial package for Indian cities and city regions.

The proponents of this neo-liberal strategy argue that it will accelerate rural-to-urban migration, boost the pace of urbanisation, promote regional balance and ensure sustainable development in the country. Critics of the strategy, on the other hand, have argued that globalisation could jeopardise sustainable development both in rural and urban areas and accelerate the exodus from rural areas. There is little research evidence that supports either of these perspectives.

There is a point of convergence between the two that envisages that rapid urbanisation and acceleration of growth will be concentrated mainly in large cities of the Indian subcontinent. The trend is backed by statistics which confirm 'exceptional urban growth' in these centres

during the 1950s and 1970s , but this 'hyper-urbanisation' theory has influenced the assumptions behind many official population projections which that have tended to overestimate urban growth and err on the high side.

The recent projections by the Population Division of the United Nations are somewhat low, with the projected figure of 3.0 per cent for 1991–2001 which was indeed higher than the actual numbers recorded by the Population Census for the same period. It is important to remember that the growth rate of the urban population in India during the 1970s was 3.9 per cent, dropping down to 3.1 per cent in the 1980s, one of the lowest in this century. This dropped even further to 2.7 per cent during the 1990s. If these trends continue, the level of urbanisation will drop below 40 per cent by 2050, less

than what has been projected by most national and international organiszations. The methodology many of these studies assume is that the urban rural growth differential will increase or remain stable until a 50 per cent level of urbanisation is reached. In reality this growth rate has started coming down well before reaching the 50 per cent threshold in India as well as in several other less-developed countries.

Given these recent trends, which indicate a slowing down of urban growth, the notion of 'unprecedented urbanisation' in India over the next three decades must be questioned, along with the proposed policies that recommend the opening up of land and capital markets to resolve the problems of urban infrastructure.

The analysis of current development dynamics and their impacts on urban systems suggest that the process of urbanisation is unlikely to increase sharply over the next few decades. This is partly due to a decline in the natural growth of the population and partly to slower rates of rural-to-urban migration. The decline in demographic growth in small and medium towns is

A footpath in Versova, a suburb of Mumbai, is converted into an open school and is run by one of the city's 2,900 NGOs to supplement the educational curriculum of government run schools.

likely to be more marked than in larger cities like Delhi, Mumbai, Chenai, Kolkata and Bangalore.

Given the effects of globalisation and more general macro-economic trends, it is likely that the bulk of industrial and infrastructural development will concentrate in and around a few large cities, not small towns and backward regions. Large municipal corporations, particularly those located in states with a strong economic base, enjoy a higher capacity of resource mobilisation which will stimulate economic and demographic growth in these regions – not in smaller towns and rural areas.

It is also relevant to note that the fastest growing industries in India have low employment potential within the 'formal' labour market. Even the sustained 7–8 per cent growth per annum of recent years is unlikely to generate very large numbers of employment in the private corporate sector. In addition, many of the public sector units are rationalising their workforce with a substantial reduction in numbers of formal employees. Significant employment growth in the large cities is thus likely to take place through a process of subcontracting, using casual and self-employed workers who are not covered by any social security system. In addition, recent trends show that the sharp increase in urban casual workers that has contributed substantially to the migration patterns in recent decades is showing a significant decline. Another significant factor that accounts for the slowing down of in-migration in urban areas.

The sluggish growth in manufacturing employment in urban areas can also be attributed to the location of large units outside the municipal limits. This is due in part to the impact of the environment lobby in big cities that has campaigned against the dangers of pollution in urban areas. Industrial dispersal in non-urban areas is likely to continue due the availability of land and access to unorganised labour markets, as well as less awareness of the environmental agenda and less stringent implementation of environmental regulations in peripheral areas. As a result, the poor will continue to be pushed to out to these 'degenerated peripheries' and commute to the city for jobs in the industries driven out of the central areas. The middle and professional classes, however, are likely to stay in the inner city. This segmented structure of demographic growth could divert prospective migrants to the urban peripheries, swollen by increasing numbers of evicted urban slum dwellers.

Empirical evidence suggests that the profile of the emerging informal sector will be different from the recent past, experiencing a degree of formalisation resulting from regular forms of employment. Employers and entrepreneurs seeking to take advantage of increasingly global markets have come to recognise that they would loose their competitive edge unless they standardise their products to meet the specifications of the customers and respect delivery schedules. As a result, they are seeking to establish a degree of 'formalisation within the informal sector'. Most of the rapidly growing businesses in Indian cities engaged in small-scale manufacturing, trade, commerce and finance that have direct or indirect global linkages are beginning to employ workers on a more regular basis. Furthermore, professionals working in global businesses, who work long hours, are increasingly searching for higher levels of certainty in their living arrangements in order to meet the demanding job requirements. As a result, domestic help and other supporting household services are likely to follow a similar process of regularisation.

This process of 'formal informalisation' has several other implications. Many of the rural migrants, lacking in basic levels of literacy, communication skills or market awareness will find it increasingly difficult to get a foothold in the more demanding urban job market. Consequently, urban India faces a paradox. Despite unprecedented growth in employment, it will continue to experience high levels of unemployment in the future, especially at the heart of its cities.

The decline in real wages of casual urban workers in the five-year period 1999–2004, among both men and women, further questions the benefits of this growth on the informal workforce. There has also been a decline in real wages of regular workers in the formal employment sector who seem to be missing out on the benefits of globalisation. Only a fraction of the total labour force in India, made up of educated professional classes, has been able to maintain their real wages.

Local governments in many of the Indian cities are currently facing two serious problems in attracting foreign and national businesses and investment. The first is the land scarcity in inner city areas, especially in prime urban locations. The second is lack of capital. Many cities employ ingenious planning and fiscal methods to attract companies, in an attempt to solve this double problem. The Floor Space Index (FSI), which regulates the level of high- density development allowed in the central areas for commercial offices and high-income residential units, is designed to promote vertical growth in high land-value areas. The aim is to provide much needed space for businesses and, at the same time, generate resources to pay for improvements in infrastructure by selling the extra FSI – or, in other words, allowing much higher levels of development to pay for public infrastructure. In addition, increased FSI is being required by more and more companies since the sanctioning of loans by the international agencies are becoming contingent on the acceptance of higher FSI in city centre areas. The impact of these regulations on the levels of density and the skyline of Indian cities is becoming very apparent.

Attempts are thus being made in a selection of India's 'select global centres of the future' to provide land in preferred sites to the market. This is being implemented by simplifying the legal and administrative procedures for changing land use and by pushing out 'low-value' activities from these sites. Low-income and slum areas

POPULATION GROWTH IN FOUR INDIAN CITIES[1]

Millions

¹ administrative area
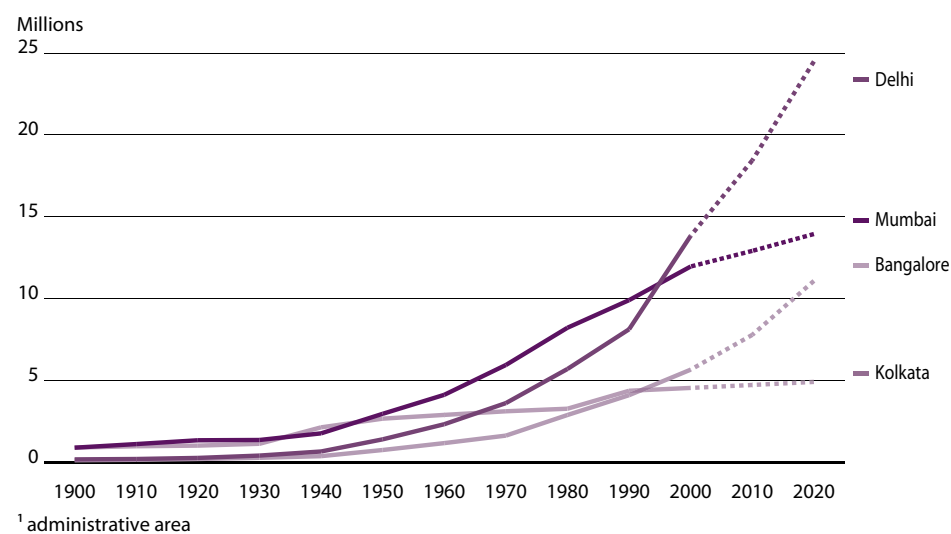
POPULATION GROWTH IN INDIA

Millions
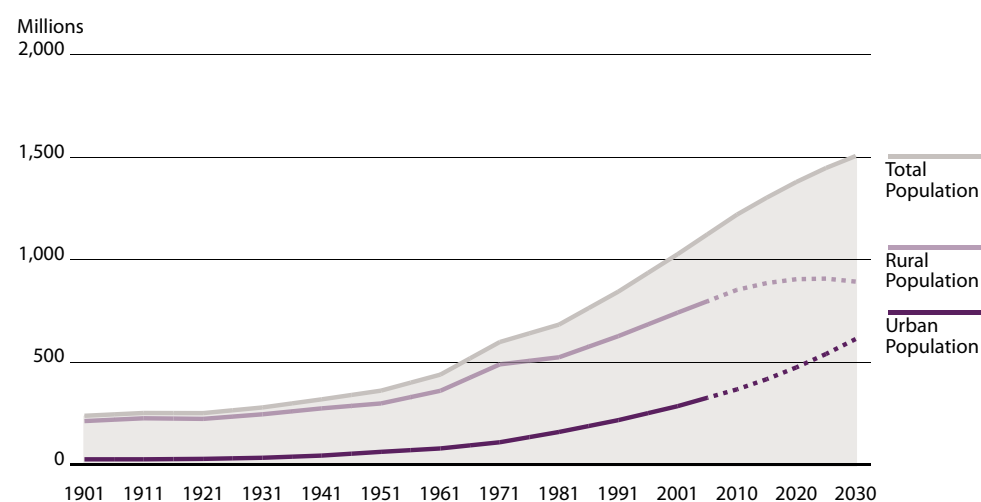
are the obvious candidates for relocation to the city peripheries, often through the eviction of slum dwellers, hawkers, and pavement dwellers

Importantly, the 74th Constitutional Amendment Act makes it possible to provide differentiated levels of amenities in large cities, based on willingness of the users to pay for their services. The middle and professional classes' preference for low-density development, in safe and clean settings, ensures that higher quality infrastructure and services are provided in 'their' areas, with limited levels of new construction and no illegal encroachment from new slum development. Low levels of infrastructure and service, lack of basic amenities, poor living conditions and deteriorating law and order are likely to continue in low-income areas, acting as a strong disincentivess for further in-migration of the poor.

Form the above it is clear that the shift from centralised planning to free-market development may, in fact, reduce rather than fuel urban growth in India, even in the larger cities which are successfully attracting new infrastructure and investment. This process, however, is likely to institutionalise disparity and strengthen the process of segmenting cities into rich and poor areas.

Given the socio-political reality in India, it is difficult for the private sector to bring about the changes in the management of the urban land market, land use planning, and infrastructure and investment patterns without the state becoming a partner. Proposed changes in the system of governance and urban planning, recommended by international agencies, envisage the state's role as an active facilitator. Indian states have indeed responded quite favourably to these recommendations by ushering in the necessary changes, although the democratic structure and bureaucratic inertia have made the process somewhat slow. The message, however, comes loud and clear, from the Tenth Plan document and from the Jawaharlal Nehru National Urban Renewal Mission, that such changes are possible and forthcoming.

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DEMOCRACY IN URBAN INDIA

As India steps up its plans to restructure its highly centralised urban governance system, **K. C. Sivaramakrishnan** explains the ambitious plans to bring about a degree of devolution and democratic engagement in the country's cities and towns.

On busy Pedar Road in Mumbai, an officer helps pedestrians crossing the street. Despite a relatively low rate of car ownership (29 per 1,000 people) compared to Mexico City (383 per 1,000) and London (341 per 1,000), traffic congestion compromises mobility in a city in which 55% of all trips are made on foot.

An apt saying attributed to Tip O'Neil, former Chairman of the United States' Congress, is 'All Politics is Local'. Many countries aspire to the title of being a good democracy. A true test will have to bear out if democracy is alive and kicking, not just at the national or local level, but across the country. If this yardstick is applied, India has some distance to go. The much-touted 74th Constitutional Amendment and Democratic decentralisation have had an uneven course. The exercise to amend the Constitution to provide a constitutional status and mandate for local bodies was initiated by the late Prime Minister, Rajiv Gandhi, but the initial focus was on the Panchayats. Later, it was felt that the enlarged structure of representation should be provided for urban local bodies as well, but Rajiv Gandhi's amendment bills did not pass muster in Parliament. The succeeding government of V. P. Singh attempted a composite legislation for both rural and urban local bodies, but that government did not last long enough. Eventually it was left to the Narasimha Rao government and the two committees of the Parliament to rework the Amendments, which became law as the 73rd

and the 74th Amendments in 1993.

The salient features of the 74th Amendment are briefly summarised. Urban settlements are classified as Corporations, Municipalities or Nagar Panchayats (a hybrid designed for settlements in transition from rural to urban). All these three categories, broadly labeled as Nagarpalikas, are to be constituted with representatives elected from territorial constituencies called wards. One-third of the seats as well as the chairperson's positions are to be reserved for women.

Elections are mandatory and are to be conducted by constitutionally created State Election Commissions. Each municipal ward or a group of them should also have ward committees. Additionally, District Planning Committees and Metropolitan Planning Committees are envisaged for dealing with issues common to municipalities and rural areas in a district as well as multiple municipal agglomerations.

The structure envisaged by the 74th Amendment is elaborate. For a total of 101 City Corporations and 1,430 Municipalities and 2,091 Nagarpalikas in the country, elections have now been held two to three times across the country. The number of

elected representatives for all the urban local bodies is about 70,000. Of the 3,640 chairpersons of these bodies at least one-third are women. The All India Council of Mayors is also presently headed by a woman. These are all visible signs of a significant arithmetical change in the representative structure of the Nagarpalikas. The question is whether they amount to a functioning or effective democracy. Available evidence indicates several deficits.

The first may be described as the 'decentralisation deficit'. In the Indian Constitution, the powers of the state are described in three lists: the Union List pertaining to the Government of India, the State List and the Concurrent list. Local government is an item falling within the State List. If the domain of a state government is regarded as complete in respect of the items in the State List, then the domain of the local bodies can only be subsidiary or delegated from the State List. Though the 74th Amendment identifies as many as 18 functions in the 12th Schedule of the Constitution as pertaining to Nagarpalikas, by and large the state governments regard that the assignments of

these functions are not mandatory but discretionary. Debates about this view have taken place within as well as outside the courts. The factual position is that the functional domain of the Nagarpalikas is largely decided by state governments and therefore highly uneven across the country. Even a service like water supply, considered as a basic municipal function, is performed by state governments or parastatal agencies in several states such as Uttar Pradesh, Tamil Nadu, Karnataka and Kerala.

To cite another example, urban planning (including town planning) is mentioned as the very first item in the 12th Schedule to the Constitution. Yet this function is rarely performed by a city corporation or a municipality. Invariably, a development authority set up as parastatal body performs this function, and in recent years town planning has become a highly contentious matter occupying significant time of the High Courts and the Supreme Court.

Even where some functions are devolved, government control is pervasive. The state government reserve's administrative deficit is a result of the financial deficit. The sum total of municipal revenues and expenditure

An informal market serves as community locus for residents in the Mankhurd suburb's resettlement housing.

are less than five per cent of the government's as a whole.

The role of the municipal chairpersons or the mayor is also unclear. While the Municipal or City Council has a tenure of five years under the Constitution, the term of the mayor or the chairpersons varies from one state to another. In most of the states, the mayors and the chairpersons are elected by and from amongst the elected councillors. In Tamil Nadu, Uttar Pradesh and Madhya Pradesh they are elected directly by voters, though this does not entitle them to any significant power. In fact, most municipal laws vest the executive powers in an appointed official.

A major casualty of this situation is accountability. Although the structure envisaged by the 74th Amendment is elaborate, the provisions with regards to decentralisation within a city are vague. At the municipal ward level, the Constitution provides for a committee of one or more wards but the composition of such a committee is left to be decided by the state government except in Kerala, where members of a ward committee are elected by various groups. The allocation of responsibilities between the city and the ward levels are also not specified. Ward committees, where they exist, have not emerged as effective platforms for local participation. Similarly, in large cities the Constitution envisages an intermediate level for groups of wards. Here again, the arrangements are left to the state governments.

In a few states such zonal formations or committees do exist but they are comprised almost exclusively of Municipal Councillors. Since the ward committees do not have adequate participation and the zonal committees virtually exclude representatives from the public, lack of proximity between the elected representatives and the people has become yet another deficit.

In a globalised world where the limits of national sovereignty are strained daily, demands of local autonomy raise doubts and fears about state or national integrity. Yet it has long been understood that even the most powerful of the national or state governments is not powerful enough to deal with its cities. Similarly even the largest city,

with all its resources, cannot superimpose itself as a substitute for the state. Power sharing between the centre and the state has been a difficult process in India. The 74th Amendment has introduced a new dimension of power sharing between the states and the local governments.

Finally, one should also take note of the readiness of the people to participate in matters of city management or development. Many Indian cities are blessed with numerous community-level and non-government organisations, although there is a significant hiatus between them and the elected representatives. Structures can indeed facilitate or restrict participatory processes. And that is an issue crucial in addressing the deficits in a democracy.

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Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

In December 2005, the Indian government launched the seven-year, US$ 11 billion Jawaharlal Nehru National Urban Renewal Mission (JNNURM) to guide urban development across the country. The aim is to improve basic services in over 60 cities including those with a population of over 1 million, all state capitals and selected cities of religious, historical and tourist importance. The Mission represents a fundamental change in attitude of the Indian government which had previously focused primarily on rural development. JNNURM reflects the realisation that cities are the engine of India's growth and attempts to reinvigorate the 74th Constitutional Amendment's aspiration to devolve power and redistribute wealth at the state and city level. The Urban Renewal Mission focuses on three areas: integrated infrastructure, basic services to the urban poor, and wide-ranging urban sector reforms, offering cities access to national funds if they comply with the general agenda put forward by the National Ministry of Urban Development.

Cities applying for JNNURM funding are required to commit to the implementation of a series of measures that include property tax reform, decentralisation, proper city budgeting, preparation of a City Development Plan (CDP) through multi-stakeholder consultations, and detailed project reports. It requires the implementation of Metropolitan Planning Commissions to oversee the development of integrated metropolitan regional plans. JNNURM also operates as a toolkit for municipal governments, helping cities to implement projects at a local level.

JNNURM has been largely welcomed by different constituencies in India as a new commitment to cities, but is seen to suffer from an intrinsic process of decentralisation that requires support from the national government. In addition, there is growing concern that a basic lack of skills within the public sector will lead to commercial consultants with little local knowledge having a disproportionate influence on the drafting of City Development Plans, cutting out local stakeholders from the consultation process. While the Urban Renewal Mission is seen as a critical political initiative that attempts to find solutions to the urban questions raised in a rapidly urbanizing country, accommodating the needs of the urban poor and managing private interests and speculation are its major challenges.

Images of religious symbols painted on the compound wall of a residential building in Mumbai helps ensure that the street it demarks remains litter-free.

URBAN TRANSPORT IN INDIAN CITIES

By reviewing the dynamics of urban transport in Indian cities today, **Geetam Tiwari** concludes that the failure of the public transport agenda in India reflects the failure of the democratic process to recognise the needs of the majority of transport consumers.

Urban travel in Indian cities predominantly happens through walking, cycling and public transport, including intermediate public transport (IPT). Despite high growth rates of motorised two wheelers and cars in the last two decades (15 per cent and 10 per cent per annum respectively), car ownership remains at 3–13 per cent of the households and two wheelers at 40–50 per cent. The latter is same as the bicycle ownership in cities of different sizes.[1] The variation in modal shares among these three seems to have a relationship between city size and per capita income. Small and medium size cities have a lower income than the mega cities. Therefore the dependence on cycle rickshaws and bicycles is higher in smaller cities. In some medium-size cities (populations of 1 million to 3 million), private buses have been introduced. Public-sector-run state transport corporations have been responsible for running inter-city routes. Other than the four megacities (Delhi, Mumbai, Kolkata and Chennai) Bangalore and Pune are the exceptions in which municipal corporations have been running significant number of buses. Other cities have skeletal bus services

provided by the city municipality. Intermediate public transport (IPT) modes like tempos, cars and cycle rickshaws assume importance as they are necessary to meet travel demands in medium size cities in India like Lucknow, Hubli, Varanasi, Kanpur and Vijayawada. These vehicles have minimal regulations in terms of road worthiness certifications issued by the transport authorities. Their operations have been left to the private operator. Often they have been found to cause serious emission and safety violations. However, there is no policy or project that can improve the operation of para-transit modes. Often the fare policy stipulated by the government is not honoured by the operators, and the road infrastructure also does not include facilities for these modes. As a result, the operators have to violate legal policies to survive.

Of India's 285 million urban residents, nearly 100 million people live in urban slums. Travel patterns of people living in informal housing or slums are very different from residents in formal housing. Generally, cycling and walking account for 50 to 75 per cent of the commuter trips for those

in the informal sector. The formal sector is dependent on buses, cars and two wheelers. This implies that despite high risks and a hostile infrastructure, low-cost modes exist because their users do not have any choice. They are the captive users of these modes. Public transport is the predominant mode of motorised travel in mega cities. Buses carry 20 to 65 per cent of the total amount of passengers excluding those who walk.[2] The minimum cost of public transport use accounts for 20 to 30 per cent of the family income for nearly 50 per cent of the city population living in unauthorised settlements.

Since transport is a state subject in the Indian constitution, central government did not have a policy or investment plan for urban transport infrastructure until 2006. City governments attempted to solve transport crises as isolated road improvement projects. Despite investments in road infrastructure and plans for land use and transport development, all cities continue to face the problem of congestion, traffic accidents and air and noise pollution. All these problems are on the increase. Investments in road-widening schemes and grade-separated

junctions which primarily benefit personal vehicle users (cars and two wheelers) only, have dominated government expenditure. For example in Delhi, the total funds allocated for the transport sector in 2002–2003 have doubled in 2006–2007. However, 80 per cent of the funds have been allocated for road-widening schemes benefiting primarily the car and motorcycle users. In 2006–2007, 60 per cent of the funds have been earmarked for public transport, which primarily includes a metro system.[3] Cars are owned by less than 15 per cent of the households in Delhi. Therefore, an investment in car-friendly infrastructure is not meant for a majority of the commuters.

In the name of promoting public transport, demand for rail-based systems (metro, LRT and monorail) has been pursued by several cities. This is despite the fact that the rail-based systems are capital intensive; capacity is underutilised and the system requires capital and operating subsidies. The existing metro systems in Kolkata, Chennai and Delhi carry less than 20 per cent of the available capacity. All three systems are running with operating losses.[4] Despite this the government in Delhi has decided to expand the metro system. Similarly the state governments of Maharashtra, Karnataka and Andhra Pradesh have decided to invest in metro systems.[5] These systems will cater for a small proportion of the total amount of journeys (less than five per cent). Yet they are being pursued by the city authorities and promoted as investment projects in which the private

A peak of rush hour commuters at Churchgate, a terminus for one of Mumbai's main suburban train lines contributing to the nearly 6.5 million people feeding in and out of the city daily.

A handcart loaded with goods is pulled by four residents in Girgaon and typifies an important mode of transport through the crowded and narrow business and market districts of Mumbai.

sector can participate. The Mumbai metro rail project has been approved as the first MRTS project being implemented as a public private partnership (PPP) project.

Traffic and transport improvement proposals prepared by consultants before the JNNURM (Jawaharlal Nehru National Urban Renewal Mission), include proposals for road widening, grade-separated junctions and metro systems. While the road-widening and junction-improvement schemes were implemented in only a few cities, public transport remained in the reports only because the finances required for metro projects are beyond the capacity of state or city governments.

Different Indian cities are either implementing or looking at new public transport systems, be it a metro, high-capacity buses or a sky bus. The argument given for introducing new technologies is that they will serve the high-density demands expected on a few corridors in the city. In the last fifteen years, comprehensive traffic and transport plans have been made for at least twenty cities. Travel forecasts for the next 34 years have been used to justify the proposals for light rail or metro systems. Indian cities have high-density developments in the form of urban slums. Even a subsidised metro system is too expensive for slum dwellers. Cities have grown as multi-nucleated centres with mixed land-use patterns. Often formal and informal housing coexist, which in turn results in short journey lengths. This is one of the reasons why the demand for metro systems in Indian cities is low. Metro systems are capital-intensive systems (Rs.2,000-3,000 million/km, or US$51–76 million/km). It is not suitable to meet the mobility requirements of the majority of city residents. For the same price a 30–50 km bus network can be developed, including the use of modern buses. This would benefit 30 to 50 times more people than a metro system. The cost of a single

metro trip is at least Rs.45 (US$1.14) compared to Rs.15 (US$0.38) for a bus trip. Since car and personal two wheelers provide a flexible door-to-door service, it is not easy to attract these users to a metro, even if they can afford the cost. Tickets have to be subsidised at least 10 to 15 times more heavily than a bus ticket for the same journey. All rail-based systems depend on buses, three wheelers and rickshaws as feeder modes to increase their catchment area. Only long-distance travellers (with journeys of at least 15 km) are likely to use a feeder mode. Therefore, in order to realise the social benefits of metro systems the city structure has to change completely.

A draft national urban transport policy was introduced in 2004 and adopted in 2006. At the same time the national government introduced the Jawaharlal Nehru Urban Renewal Mission to upgrade the crumbling infrastructure of urban areas. Under JNNURM, the government of India has identified 63 cities for which it will provid assistance in upgrading its road infrastructure.[6] Detailed guidelines have been provided to ensure that public transport gets priority in these cities. For getting approval for transport projects, the guidelines recommend that the transport infrastructure improvement schemes are in compliance with the NUTP (National Urban Transport Policy). Since NUTP's focus is public transport, pedestrians and bicycles, cities are modifying the earlier road expansion projects to Bus Rapid Transit (BRT) and bicycle-inclusive plans. BRT and bicycle-inclusive plans have been approved by the central government for five cities and another five cities are at different stages of preparation. It seems that pedestrian and bicycle facilities are not the focus of these projects. In six-lane arterial roads, two lanes are reserved for public transport buses, although there is a reluctance to provide quality facility for pedestrians and cyclists.

This is reflected in the priority for space allocation for various modes in a restricted right of way. In order to accommodate two lanes for cars and an exclusive lane for buses, pedestrians and cyclists have been given less than desirable space. This is despite the fact that nearly 50 per cent trips are made on foot, by bicycle, or by intermediate public transport systems. The main motivation for preparing BRT projects have been to become eligible for the grant aid offered by the central government at the earliest. It is yet to be seen whether public transport, NMV and pedestrian-friendly infrastructure is created when these projects are implemented.

Implementation of BRTs has commenced in Delhi, however, at times it seems that accommodating the demands of the major stakeholders like the 'Transport Industry' in the Delhi Metro Rail Corporation (DMRC), the public works department, Light Rail Transit and monorail industries in the planning and investment agenda is the primary focus. Providing an efficient and safe transport to the majority, and using public money in the most efficient way is not the driving force for implementing BRTs in Delhi. The company which has been instituted to implement the project, the Delhi Integrated Multimodal Transport System (DIMTS), is also preparing plans for light rail transit and monorail. BRTs road designs have been modified to 'improve' car flow so that after the construction of the BRTs lanes, car users do not suffer, even if it means reducing safety and convenience to pedestrians and bicyclists.

In view of the recently implemented measures and current investment priorities we should expect an increase in the use of private vehicles (both motorised two wheelers and cars) by high- and middle-income households in all Indian cities and use of bicycles and walking by low-income urban residents despite the hostile environment. At present over 20,000 people

a year are the victim of fatal traffic crashes and another 400,000 are seriously injured in urban areas. This number is likely to double in the next decade, creating a major public health crisis. With the increase in the use of two wheelers and cars, congestion and environment pollution will continue to deteriorate.

It is clear that the public-transport agenda has failed in Indian cities. With the fascination for capital-intensive rail-based projects, investments in pedestrian, bicycle and road-based public transport infrastructure continues to be neglected. Today public transport users are largely the people who are using these modes not out of choice, but because of financial constraints. With a rise in income the ownership of private vehicles is increasing, people prefer to use private vehicles which can provide them door-to-door connectivity.

The failure of the public transport agenda also reflects the failure of our democratic process because the present mechanism of planning and decision-making does not allow inclusion of the demands of the majority of the city residents who are pedestrians, bicyclists and public transport users. On the one hand, the policy makers are concerned about the growing levels of congestion and pollution. At the same time transport policies continue to encourage the use of private vehicles.

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Notes

1 Registrar General of India, 'Census of India 2001', published by Government of India.

2 'Traffic and Transport Policies and Strategies in Urban Areas in India', final report prepared for the Ministry of Urban Affairs and Employment, Government of India, 1998.

3 Ministry of Transport and Power, Government of National Capital Territory of Delhi, Delhi, 2006.

4 G. Tiwari and M. Advani, 'Demand for Metro Systems in Indian Cities', TRIPP working paper, November 2006, IIT Delhi.

5 E. Sreedharan, 'Mobility in major cities', *Good Governance of India*, Volume 1, No. 4.

6 'National Urban Transport Policy', Ministry of Urban Development, Government of India, 2006.

THE ECONOMICS OF CLIMATE CHANGE

Addressing the challenges of Climate Change for cities, **Nicholas Stern** identifies goals for global efforts to limit the ultimate levels of greenhouse gases by focusing policy on carbon pricing, innovation and low-energy technologies and the removal of barriers to achieve energy efficiency.

The annual flow of carbon dioxide and other greenhouse gases that warm the Earth's atmosphere has increased ever since coal, then oil and gas too, began to fuel the industrial revolution that has brought great opportunities and better lives to so many. Atmospheric greenhouse gas levels have already reached the equivalent of around 430ppm (parts per million) of carbon dioxide (CO_2 equivalent, CO_2e), compared with 280ppm before the industrial revolution. Human activities are pushing the accumulated stock of gases higher, by 2–3 ppm every year.

Our work suggests that it is possible to use hard-headed economic analysis to identify goals for global efforts to limit the ultimate level of greenhouse gases in the atmosphere – the evidence points to a range of 450–550ppm CO_2e. This is achievable, economically feasible, and will significantly reduce the risk of extreme temperature changes. To reach the upper end of the change, the world will have to reduce the annual flow of emissions by at least 25 per cent from today's levels by 2050, cutting emissions until they eventually fall to a level at least 80 per cent lower than now. It would be much safer to go for the middle of the range, which would require a cut in the annual flow of around 50 per cent by 2050, the target agreed at the G8 summit in Heiligendamm in June this year.

Three elements of policy are required for an effective global response. The first is carbon pricing, through tax, trading or regulation, so that people factor the full costs of their actions into their decisions. We must harness the power of markets. Price signals – whether generated by taxes, regulation, or emissions-trading schemes like those pioneered in the USA – can drive a myriad of innovations in technology. Using markets recruits every entrepreneur to help tackle the global challenge.

The second policy element is to support innovation and deployment of low-carbon technologies. The world needs to overhaul how it produces its energy. Yet the power sector in OECD countries spent only all of 0.33 per cent on research and development, compared with 2.65 per cent for the manufacturing sector as a whole. The United States showed the way when oil displaced coal and then with electrification. It can do so again, with bio-fuels, carbon capture and storage, and other vital technologies.

The third element is the removal of barriers to energy efficiency and measures to inform, educate and persuade. As people's understanding of the issue develops, they

The flooded streets in Parel, Mumbai do not deter residents from queuing in knee-deep water to catch a Bollywood film, a popular form of recreation and indoor entertainment.

The risks will be most pronounced for developing countries, but it is the rich countries that must take the load. Our children's future depends on what we as a world decide now.

will increasingly demand strong action by public authorities. Public discussion is itself a crucial ingredient of policy.

Businesses around the world have told us that they need a 'long, loud, and legal' framework with clear policy signals, credible over the medium to long term, if they are to play their part. With such a framework, the transition to a low-carbon economy would produce enormous business opportunities, creating demand for new products and financial services worth hundreds of billions a year.

In contrast, 'business as usual' is not an option. Unabated climate change risks raising average global temperatures by over 5°C – equivalent to the difference between now and the last Ice Age. This would take humankind into uncharted territory. Economic activity would be increasingly affected as higher temperatures, heavier storms, longer droughts, more frequent floods and rising sea levels exert an ever-heavier toll. India, along with many Asian countries, would be hit very hard by the retreat of snows and glaciers from the Himalayas. This, as PM Manmohan Singh has said would severely damage 'the water tower' for the region, causing uncontrollable

torrents and flooding in the rainy season and dry rivers at other times. The monsoon would probably be badly diverted, with Africa hit particularly hard. Throughout the world there would be serious damage from floods, droughts, storms and sea level rise. At temperature increases of this magnitude, much of the area around the equator would be uninhabitable and there would be a massive movement of population with the ensuing conflict that would result.

Man-made climate change cannot be controlled like the thermostat in your home. Ignoring the problem will undermine our quality of life, change economic growth, undermine the fight against poverty and eventually transform both the physical and human geography of the world.

Climate change is a global problem, and demands a global response. North America and Europe have produced around 70 per cent of the world's CO_2 emissions from energy production since 1850. But fast-growing and highly populated developing nations, like China and India, will account for most of the increases this century. China's total emissions are likely to overtake US levels by 2010, although they will still be using far less energy per person. If their

growing energy requirements are to be met without damaging the planet, they will have to draw on the expertise and technologies that the businesses of the developed world have to offer. It is crucial that any global deal encourages the growth ambitions of the poorer countries of the world, including India. The problem of climate change is inequitable: the rich countries have responsibility for most of the concentration now with us and poor countries are hit earliest and hardest. The global response must take this carefully into account.

As part of an equitable response, rich countries must promote a flow of carbon finance to developing countries and demonstrate and share technologies. They must also deliver on aid promises of the last decade, since development in the context of climate change will be much more difficult and costly.

Despite the size of the challenge ahead, there are reasons to be optimistic. If we act now, and work internationally, we can reduce the risks drastically at modest cost. But if we delay even 10 or 20 years, the costs will be much higher, and the risks much greater. The risks will be most pronounced for developing countries, but it is the rich countries that must take the load. Our children's future depends on what we as a world decide now. With strong and urgent action, governments, businesses and individuals, working together we can safeguard growth and prosperity.

Sir Nicholas Stern is the IG Patel Professor of Economics at The London School of Economics and Political Science. Professor Stern is heading the new India Observatory within the LSE's Asia Research Centre and is best known for his insights on the economics of climate change.

CITIES AND CITY REGIONS IN TODAY'S GLOBAL AGE

Having developed the 'global city' model in the 1980s, **Saskia Sassen** explores how the outcomes of new structural conditions get wired into urban space and explains how cities today capture the territorial moment of the global economy.

As recently as the 1970s, many of our great cities were in physical decay and losing people, firms, key roles in the national economy, and share of national wealth. As we move into the twenty-first century, a rapidly growing number of cities have re-emerged as strategic places for a wide range of activities and dynamics. Critical, and partly underlying all the other dimensions, is the new economic role of cities in an increasingly globalised world, and the associated architectural and technical revolutions.

Much is known about the wealth and power of today's global firms and global financial exchanges. Their ascendance in a globalising world is no longer surprising. And the new information and communication technologies are typically seen as the handmaiden of economic globalisation – both tool and infrastructure.

Less clear is why cities should matter more today in a globalised world than they did in the Keynesian world of the mid-1900s. In this essay I sketch a general answer. Not being an expert on Mumbai, or on the rapid and complex globalisation of Indian cities and regions, all I can do is hope that specialised researchers can fill in the blanks. Nevertheless, if I were investigating Mumbai, I would want to see where I would arrive with the analytics of global urban circuits that I propose.

In the earlier period, cities were above all centres for administration, small-scale manufacturing, and commerce. Cities were mostly the space for rather routinised endeavours. The strategic spaces where the major innovations were happening were government, that is the making of social contracts, such as the welfare state, and

mass-manufacturing, which included the massive construction of suburban regions.

The most common and easiest answers as to why cities have become strategic sites in a global corporate economy are first the ongoing need for face-to-face communications and second the need for creative classes and inputs. There is truth in both notions. But in my reading these are surface conditions – the consequences of a deeper structural transformation. It is in the latter transformation in which the answer can be found. The next few sections develop this.

The outcomes of new structural conditions get wired into urban space. In fact, urban space itself is one of the factors producing the outcome of this process. This partly explains why architecture, urban design and urban planning have each played such critical roles. Beginning in the 1980s, we have seen the selective rebuilding of cities as platforms for a rapidly growing range of globalised activities and flows, from economic to cultural and political.

When I first developed the global city model in the 1980s, my starting point were the global networks of affiliates of firms, global financial exchanges, global trade routes, and global commodity chains. The emergent scholarship on globalisation examining these global operations emphasised geographic dispersal, decentralisation, deterritorialisation. This was indeed all happening. But I was interested in the territorial moment of all these increasingly electronic and globally dispersed operations. At that time, using the methodology of starting with global operations and tracking the sites where they hit the ground, led me recognise that the cities that stood out were

New York, London and Tokyo. Applying this methodology today results in a vastly expanded global geography of sites. There is more of everything – export processing zones; offshore banking centres; massive warehouses that are one stop on global trade routes; and many more global cities.

In my research practice I use five analytic steps to capture this territorial moment of the global economy. In turn this allows the researcher to analyse in great detail how a particular city is articulated with the global economy. These analytic steps also carry the researcher deep inside the city. They do so not through some general descriptive approach, but in very specific, and selective, ways. Figuratively speaking, the researcher rides the variety of global circuits as they hit the ground in the city and get wired into urban space.

Riding these circuits allows the researcher to arrive at parts of the city that look like they have nothing to do with the global economy. In the case of New York and most other major global cities in the advanced capitalist core, this includes a new type of informal economy that brings flexibility, customisation, and speed to tasks that are otherwise part of routinised and slow sectors. No one can imagine that Manhattan's Wall Street and the corporate midtown center, or the world-class Broadway theater district and Metropolitan Opera are actually articulated with local informal economies. They are. In what follows I briefly present the analytics I propose to engage with global urban circuits.

There is no such entity as 'the' global economy. Rather, there is a vast multiplication of global circuits that crisscross the world, some specialised some not. Different circuits contain different groups of countries and cities. The task then becomes to establish what global/regional circuits a city is located on, and what other cities partake in each of these circuits. This analytical operation makes the global economy concrete, enabling research on global cities.

Thus, if I were to track the global circuits of gold as a financial instrument, London, New York, Chicago and Zurich would dominate. But if I track the direct trading in the metal, Johannesburg, Mumbai, Dubai, and Sydney all appear on the map. This also brings out the important fact that it is not just a question of competition among cities, but in good part a division of specialised functions with global scope. Increasingly, these urban economies are part of a networked global platform.

Not only global economic forces feed this proliferation of circuits. Global migration, cultural work, civil society struggles around global issues (human rights, the environment, social justice), these and others also feed the formation and development of global circuits. Detailed research from the perspective of a given city makes the diversity and specificity of its location on these circuits legible. The research also makes the city's linkages with other cities through specific circuits legible.

My argument is that these emergent inter-city geographies begin to function as an infrastructure for globalisation. And they increasingly urbanise global networks.

Cities can generate different kinds of 'knowledge,' both formal and informal. Suck knowledge extends beyond the sum of recognised knowledge-producing actors in the economy (e.g. professionals and consulting firms). It is a type of immaterial capital that we can call 'urban knowledge capital.' Part of the explanation is that cities are fuzzy-logic systems. Hence they enable scale-jumping, or the switch from the mere sum of what is there to a third type of capability.

Particular urban, metro and regional spaces are becoming massive concentrations of new technical capabilities. Also, a growing number of buildings constitute sites for the multiplication of interactive technologies and distributed computing. And particular global communication infrastructures connect specific sets of buildings worldwide, producing a highly specialised interactive geography. Global firms are willing to pay a high premium in order to be located in it.

For instance, the global business network of AT&T now connects about 485,000 buildings worldwide. This is a specific geography that actually fragments the cities where these buildings are located. You need to be in a 'member' building to access the network. The most highly valued areas of global cities, particularly financial centres, now contain communication infrastructures that can be separated from the rest of the city. This allows continuous upgrading without having to spread development to the rest of the city. Contained in strategic areas are particular technical capabilities, such as frame relays, which most of the city does not. Multiplying this case for thousands of multinational firms begins to give us an idea of the new inter-city connectivity that is largely invisible to the average resident.

If we consider these globally networked spaces of centrality as platforms for global operations of firms and markets, we might ask what components of these platforms are contained within a given city-region. Finally, it is noteworthy that these platforms cut across national boundaries. They are an amalgamation of specific sub-national geographic spaces but also transnational electronic spaces.

Of increasing importance in the globalised economy is the deep economic history of a place and the specialised economic strengths it can generate. This goes against the common view that

Joanna Hoffman

The townships of post-apartheid Johannesburg struggle with glaring disparities in close physical proximity.

The Jin Mao tower in the PuDong financial district of Shanghai was until recently the tallest tower in the world, with its top floor at 366 meters, or 1,201 feet, proving an apt symbol of the city's aspiration and speed.

Today there is a new type of informal economy that is part of advanced capitalism. This in turn explains the particularly strong growth and dynamism of informal economies in global cities.

globalisation homogenises economies. How much this specificity matters will vary, partly depending on that region's economy. But it matters more than is commonly assumed, and it matters in ways that are not generally recognised. Globalisation homogenises standards and management models. But it needs specialised economic capabilities.

Establishing how a city/region becomes a knowledge economy, requires highly detailed research. So let me use a case I have researched, the city of Chicago, to illustrate this. Chicago is usually seen as a latecomer to the knowledge economy – having started almost fifteen years later than in New York and London. The typical answer is that Chicago had to overcome its heavy agro-industrial past: its economic history is seen as a disadvantage compared to long-standing trading and financial centres such as New York and London.

But I found that Chicago's past was not a disadvantage. It was one key source of its competitive advantage. This is most visible in the fact of its preeminence in the futures market built on pork bellies. The complexity, scale and international character of Chicago's historical agro-industrial economy required

highly specialised financial, accounting and legal expertise. But these were, and still are, quite different from the expertise required to handle the sectors New York specialised in service exports, finance, and trade.

It was Chicago's past as a massive agro-industrial complex that gave it some of its core and distinctive knowledge economy components. The city's economic history has made it the leading global futures financial centre and global provider of specialised services (accounting, legal, insurance, etc.) for handling heavy industry, heavy transport, agricultural.

Chicago, São Paulo, Shanghai, Tokyo, and Seoul are among the leading producers of these types of specialised corporate services. That is not in spite of their economic past as major centres of heavy industry, but because of it.

The state-of-the-art corporate built environment in global cities increasingly functions as infrastructure – it is necessary but indeterminate. This indeterminacy means that it is not enough to emphasise 'visual homogeneity' in the built environment, as is usually done. We need to understand how and for what it gets used. An office

building today no longer simply signals 'office work' as it did up until the 1970s and even later. The specificity of the leading urban knowledge economies means that the particular contents they generate may vary enormously.

A homogenised visual order today may actually house an enormous variety of knowledge economies. Its homogeneity arises from the fact that it is state-of-the-art. In turn, this means that homogeneity is a signaling system: 'I am equipped for any type of information economy'. But what all cities share is the need for state-of-the-art built environments for work, home and consumption. The most common notion is that globalisation homogenises cities and their built environments, no matter how good the architecture.

Today there is a new type of informal economy that is part of advanced capitalism. This in turn explains the particularly strong growth and dynamism of informal economies in global cities. It contributes to explain a mostly overlooked development: the proliferation of an informal economy of creative professional work in these cities, i.e. artists, architects, designers, software developers. The growth of this new informal economy is also happening in cities of the global south. In those cases, however, the new is often submerged under the older informal economy.

The new types of informalisation of work are the low cost equivalent of formal

deregulation. The latter has occurred in finance, telecommunications and most other economic sectors in the name of flexibility and innovation. The difference is that while formal deregulation was costly, and tax revenue as well as private capital went into paying for it, informalisation is low-cost. It is largely enacted on the backs of more vulnerable workers and their households.

Professor Saskia Sassen is the Lynd Professor of Sociology at Columbia University after a decade at the University of Chicago and London School of Economics. Professor Sassen has written extensively on topics such as globalisation and urbanisation.

A 'RULE OF LAW' FOR CITIES

By illustrating the complexities and contradictions of power structures in city governance, **Gerald Frug** exposes the limitations of formal and informal legal systems, arguing that the future stability of cities ultimately rests with the power of local democracy.

The core value I associate with the rule of law is the need to restrain the exercise of arbitrary power – the need to protect the weak against the strong. Many people most easily recognise the importance of this task when they think about the arbitrariness that derives from the power wielded by governments, not only by authoritarian governments but by democracies too. But government is not the only problem. There are also dangers posed by the private sector. To protect against the power of employers and financial institutions, we rely on the government to prohibit employment discrimination, regulate financial markets, and penalise fraud, to mention only a few examples. To protect against the arbitrary power wielded by other private individuals, we seek government action to restrain violence and intimidation.

Protection from these sources of arbitrary power is always incomplete and imperfect. But more worrisome than this incompleteness is the fact that the combination of these two roles – the need to restrain governmental power and the need to restrain private power – contradict each other. We rely on the government to regulate the market and to punish anti-social activity, and, at the same time, we seek to limit governmental power. We seek both to empower government and to disempower it. We seek both to empower private discretion and to regulate it. This contradictory structure is a fundamental building block of the formal legal system, and the formal system makes a major contribution to the protection against arbitrary power when it establishes rules that seek to resolve the difficulties and ambiguities produced by this contradictory structure.

Speaking recently of an informal neighbourhood in Cairo, a *New York Times* reporter wrote that the residents see government as 'an utterly unreliable source of help for the average citizen'. This is not surprising, because the informal economy and informal housing result from the government's withdrawal from portions of the economy and the housing sector, leaving them unregulated, untaxed and unprotected. The informal housing in Mumbai and other Indian cities is built without legal permission and is not in compliance with legal standards. The informal economy includes people engaged in unregulated activities such as building the housing, selling food and other commodities, and providing services such as transportation by vans or rickshaws. One form of arbitrary power threatening these informal activities is exercised by the government: large-scale mass evictions that drive people from their homes, and, equally importantly, deprive them of their economic livelihood. But the government's intervention is intermittent. Sometimes the government adopts the opposite policy, seeking instead to improve services to the informal sector rather than eliminating it. The informal sector is filled with people who pay money for housing, depend for their livelihood on a particular location for their stall, and rely on access to transportation and infrastructure. Yet if trouble arises, the formal legal system is not there to help them.

One response to this current structure is to extend the formal legal system to everything that now is located in the informal system. This would mean bringing all housing and economic transactions within legal requirements – regulating them, bringing them up to code, subjecting them to taxation, giving them the rights of property owners. In many parts of the world, this simply cannot be done. The government does not have the resources or capacity to create a totally formal world. Indeed, it is because of its inability to provide housing that informal housing has become so widespread; likewise the challenge to create an economic system that provides enough jobs contributes to the growth of the informal economy. This is a familiar point to people living in developing cities around the rule, from Mumbai to Mexico City. But even in the United Kingdom and the United States, bringing every element into the formal system – every illegal immigrant working as a maid, every business transaction made off the books, every building not strictly in compliance with the regulatory codes – is unachievable.

We have to come up with another option. The one I would like to suggest is local democracy. This would require the decentralisation to the neighbourhood level to two kinds of authority: the ability to make rules that limit the current forms of abuse and the ability to resolve the disputes that arise under the new rules. These are familiar rule of law tasks. Instead of assigning them to lawyers, judges or other professionals, however, I see the establishment of basic rules as an example of neighbourhood self-government. The analogy is to the legislature. I see the application of the rules as an example of empowering ordinary people to make decisions about disputes in their own community. The analogy is to the jury. Both institutional forms can be vehicles for involving ordinary citizens in the experience of protecting people from the exercise of arbitrary power.

I am not proposing a form of community empowerment disconnected from the legal system. I am proposing a new kind of institution that would fit within and that would strengthen the legal system. Like the rest of the legal system, any neighbourhood process needs to be subject to institutional checks and balances. No rule of law regime enables a group of people to exercise unchecked power. The issue here – very similar to the one that confronts the formal legal system – is how to give the decision makers enough authority so that they can be empowered, while, at the same time, limiting the dangers of abuse that they themselves impose. This is the problem involved when the legal system subjects city decision-making to state or national oversight, subjects jury judgments to judicial and appellate review, and subjects legislative judgments to declarations of their unconstitutionality. Moreover, the role of outsiders is not just to limit power in the name of checking abuse. It is also to reinforce neighbourhood power by providing assistance in cases that the neighbourhood can't handle. Sometimes neighbourhood residents may be too vulnerable to retribution by powerful actors in the community to be able to make a decision. Still, the decision makers would be ordinary people, not lawyers or judges or experts.

To understand this system better, consider the places where the government and developers are concentrating their efforts to further the economic growth of

The flat eastern edge of Mexico City's dispersed urban landscape is populated by informal settlements such as Nezahualcóyotl. Ciudad Neza, as it is commonly referred, has a population of over 1.1 million in low-income housing.

Armin Linke

New York City's Central Park is surrounded by high-rise towers and Manhattan's dense urban grid. The 3.41 km2 (843 acre) park was created in the mid-nineteenth century to provide a place of refuge for the city's rapidly expanding population.

cities. I mean places like Canary Wharf in London, the Santa Fe neighbourhood in Mexico City, and the Mill area in Mumbai. These are not places, like the sites for the informal sector, designed to be marginal. They are to be the heart of the city economy, and, as a result, they are the places where the formal legal system is most in evidence. The way that the current legal system structures these developments is not the same everywhere, so to discuss the process requires engaging in generalisation, indeed, over-generalisation in the form of three legally-constituted negotiations: one between the city and the developer, another between the two of them and the surrounding neighbourhood, and the third involving efforts by all interested parties to get approvals from other regulatory government bodies, often at the state or national level. These three negotiations create an enormously complex process. Legal rules affect every part of it. Yet, it seems to me, the most important issue that these developments raise is not addressed by the legal system at all.

The focus of the negotiation between the developer and the government is the devising of a formula that allows the developer to make enough money to be willing to sign the deal and enables the government to accomplish enough of its objectives to be willing to go along. The government's focus might be on the accommodation of affordable housing, the size of the buildings, the need for improvements to the infrastructure, or other similar matters; the developer is likely to be focused principally on the bottom line. The deal with the neighbourhood is different. The neighbours have to be persuaded not to try to block the project, so enough has to be offered to them to buy their compliance (even if, ultimately, they will be forced to move out of the neighbourhood). The regulatory authorities will have still other objectives – very often environmental concerns, but they can involve almost any aspect of regulatory power. These additional

regulatory requirements are often used strategically by opponents of the development to attack a deal they are against on other grounds. If these three negotiations are concluded successfully, the deal is blessed as consistent with governing law.

The overarching question left out of this process is whether the current economic development strategy embraced by these projects will improve the lives of the majority of people affected by them. This is not a question to be negotiated with developers. It is also not likely to be addressed by the detailed technical objections lodged with regulatory agencies. And it is not a question appropriately answered by the neighbourhood where the development is located. The current assumption in planning circles about popular involvement is that the relevant 'community' to evaluate development decisions is the neighbourhood, and not the larger population. After all, a development is likely to have a very significant impact on people living nearby. But that is also reason why the neighbourhood might be the wrong focus group. The way neighbourhoods evaluate their future is likely to be different than a city-wide evaluation. Change has to take place somewhere, and if every neighbourhood parochially resists it, it will be prevented from happening.

Perhaps, however, the overall question of economic policy is handled by the public sector in the negotiations. After all, the public sector itself, and not just the neighbourhood, is always one of the negotiating parties. Often, however, it is not the city that represents the public. Instead, it is a public authority, public corporation, or 'quango' that has been carefully organised to be less responsive to democratic decision making than the city itself. Even when the city is involved, the desire for attracting investment can overwhelm executive officials. They often feel that the city is so threatened by competition with other cities, so desperate to get the deal done, that an examination and debate about the conception of the city's

future that the deal is fostering would seem a distraction.

Another basic problem with the current negotiation structure is that the focus is on land use. But much more is at stake in development decisions than how land is to be used. Even more important is the idea of the city that the proposed development will foster – the kind of population the city is trying to attract, retain, and exclude by adopting this particular definition of economic growth – which is most often the image of being a global city. This means attracting finance, high-tech, and international investment, and therefore providing the office buildings, high-end shopping, and secluded housing complexes that these target audiences are thought to demand. Those who are pursuing this agenda rarely have to defend it before representatives of the city as a whole. They rarely have to articulate how this strategy will improve the lives of most city residents.

That's why I think that we need to open up economic development policy – like the organisation of informal neighbourhoods – to a democratically organised institution represented by people city-wide, rather than a neighbourhood-focused group. In some cities, this can be done by giving greater authority over development to the city's legislative body – its city council or assembly. If the local legislature is not now adequate, another organisation will have to be established. The role of the democratic process should not be to offer advice and criticism to experts. The participants should be empowered to establish the city's strategy for economic growth, with the experts

advising the decision makers rather being the decision makers. The goal is to include the very people left out in the reigning economic development strategy in the decision making about what that strategy should be. These are the people who most need to be protected by the rule of law. As was the case for the neighbourhood process for the informal sector, I see the new institution as an integral part of the existing legal structure, not independent of it. It adds new voices to the legal structure. It, too, needs to be subject to a system of checks and balances. To give unrestrained decision-making power to any particular group would enable arbitrary power, rather than limit it. The goal of the new institution is to empower the people currently left out of the process to be able to make decisions now inadequately addressed.

This is not just a necessity for the developing world. Although London and New York City are justly proud of the immigrants who have become a major part of their population, their views are rarely represented in the debates about the city's future. To address this omission, I propose a more democratic form of the rule of law.

Professor Gerald Frug is the Louis D. Brandeis Professor of Law at Harvard Law School in Cambridge, Massachusetts. Professor Frug's specialty is local government law and he has published dozens of articles on the topic and is the author of several books.

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URBAN AGE CITY DATA

The world is experiencing intense urbanisation by the hand of extensive yet uneven processes of growth and expansion. More than half of humanity now lives in cities, and 80 per cent of the Earth's land surface has come to reflect the influence of city-based human activity. Dominating the urban world is a selective group of dynamic and highly specialized cities, as well as massively urbanised industrial regions.

Like Shanghai, Johannesburg and Mexico City, all the Indian cities featured in this document – Mumbai, Kolkata, Delhi and Bangalore – have been following a continuous trajectory of population growth from the start of the twentieth century. In contrast, the cities in the richest, early urbanising countries have seen population growth slow and reverse, although New York and London are now in a new cycle of – relatively slow – growth. Berlin alone amongst the Urban Age cities has experienced a slight decline in the last decades.

In the 1990s, India's population grew by a dramatic 23%, but this fast growth was outpaced in the main cities. In Delhi the number of residents jumped by 70%, although this was partly due to a boundary change, and Bangalore grew by 38%. Mumbai's population grew by 21%, falling back slightly on its relative position. In contrast Kolkata's population was almost flat, at least by Indian standards, at 4% growth. Projections suggest population growth

nationwide will continue but at a reduced rate of 14% to 2010, with growth in Bangalore pulling ahead of that in Delhi and other cities.

Mumbai and Kolkata have much longer histories as large cities, than the other Indian cases. Both reached a million population by 1910 and have developed at a similar time as New York, London and Berlin. In contrast, Delhi and Bangalore became large cities much more recently. Delhi reached a million residents by 1950, Bangalore during the 1950s. Mumbai reached ten million by 1990 and Delhi did so by 2000. Kolkata is due to do so by 2020, and it is likely that Bangalore will do so over the next decades.

While there is at least one major agglomeration of several million inhabitants in every world region, a new generation of megacities is rapidly emerging across Asia, Latin America and parts of Africa. The shift to cities is both the product and a catalyst of economic growth. The challenge ahead is to mobilise the wealth of resources that cities generate to make urbanisation more environmentally sustainable globally, and local urban environments more liveable and inclusive for their rising numbers of residents.

URBANISATION BY SELECTED COUNTRIES
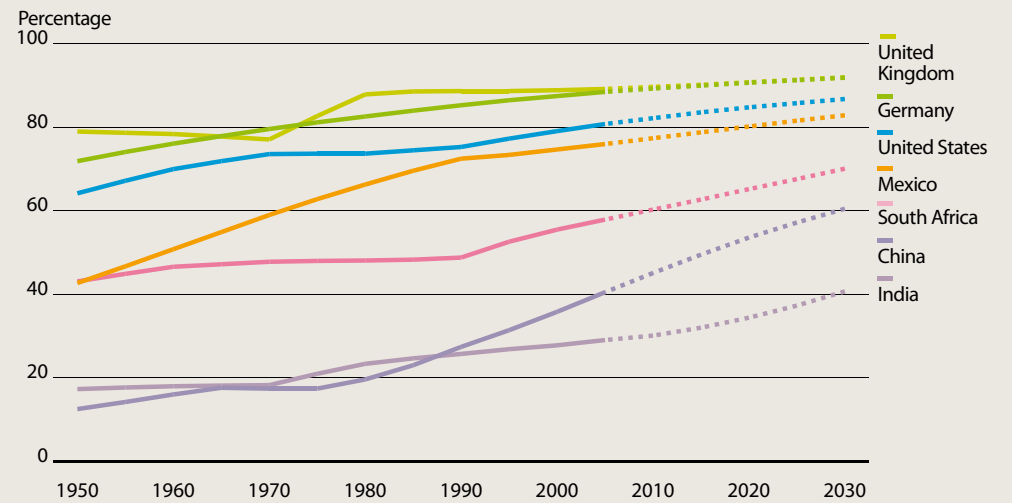
POPULATION GROWTH IN THE URBAN AGE CITIES
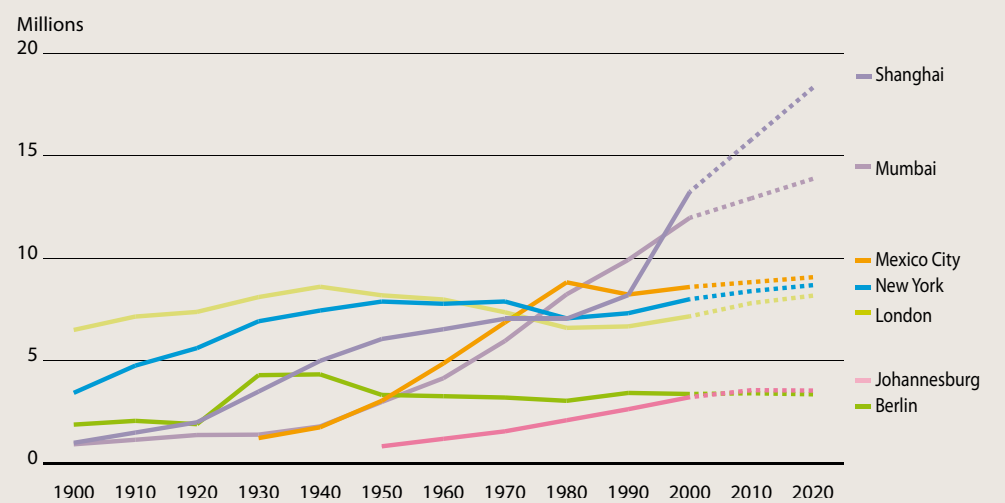
CITIES OVER 1 MILLION PEOPLE

FOUR INDIAN CITIES

Overview offering a comparison between the national, state, metropolitan and city levels of four Indian cities. Starting from the national level of India, each layer zooms in four times further to explore the context of urbanisation in each particular area.

MUMBAI

INDIA

area [km²]	population[1] [millions]	density [pers/km²]	rel. GDP[2] [% higher level]	number of states	no. of elected officials[5]
3,287,590	1,131.04	344	8.9%	29	545/250

STATE OF MAHARASHTRA

area [km²]	population[1] [millions]	density [pers/km²]	rel. GDP[3] [% higher level]	number of districts	no. of elected officials[5]
307,713	105.51	343	13%	35	289/78

MUMBAI METROPOLITAN REGION

area [km²]	population [millions]	density [pers/km²]	rel. GDP[4] [% higher level]	number of districts	no. of elected officials
4,355	17.76	4,080	39%	n/a	n/a

GREATER MUMBAI

area [km²]	population [millions]	density [pers/km²]	rel. GDP[4] [% higher level]	number of wards	no. of elected officials
438	11.98	27,348	26%	24	227
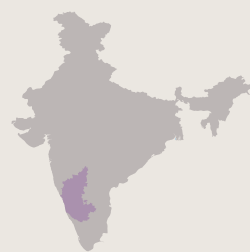
DELHI

INDIA

area [km²]	population[1] [millions]	density [pers/km²]	rel. GDP[2] [% higher level]	number of states	no. of elected officials[5]
3,287,590	1,131.04	344	8.9%	29	545/250

NATIONAL CAPITAL REGION

area [km²]	population [millions]	density [pers/km²]	rel. GDP [% higher level]	number of districts	no. of elected officials
30,242	37.10	1,227	n/a	n/a	n/a

DELHI

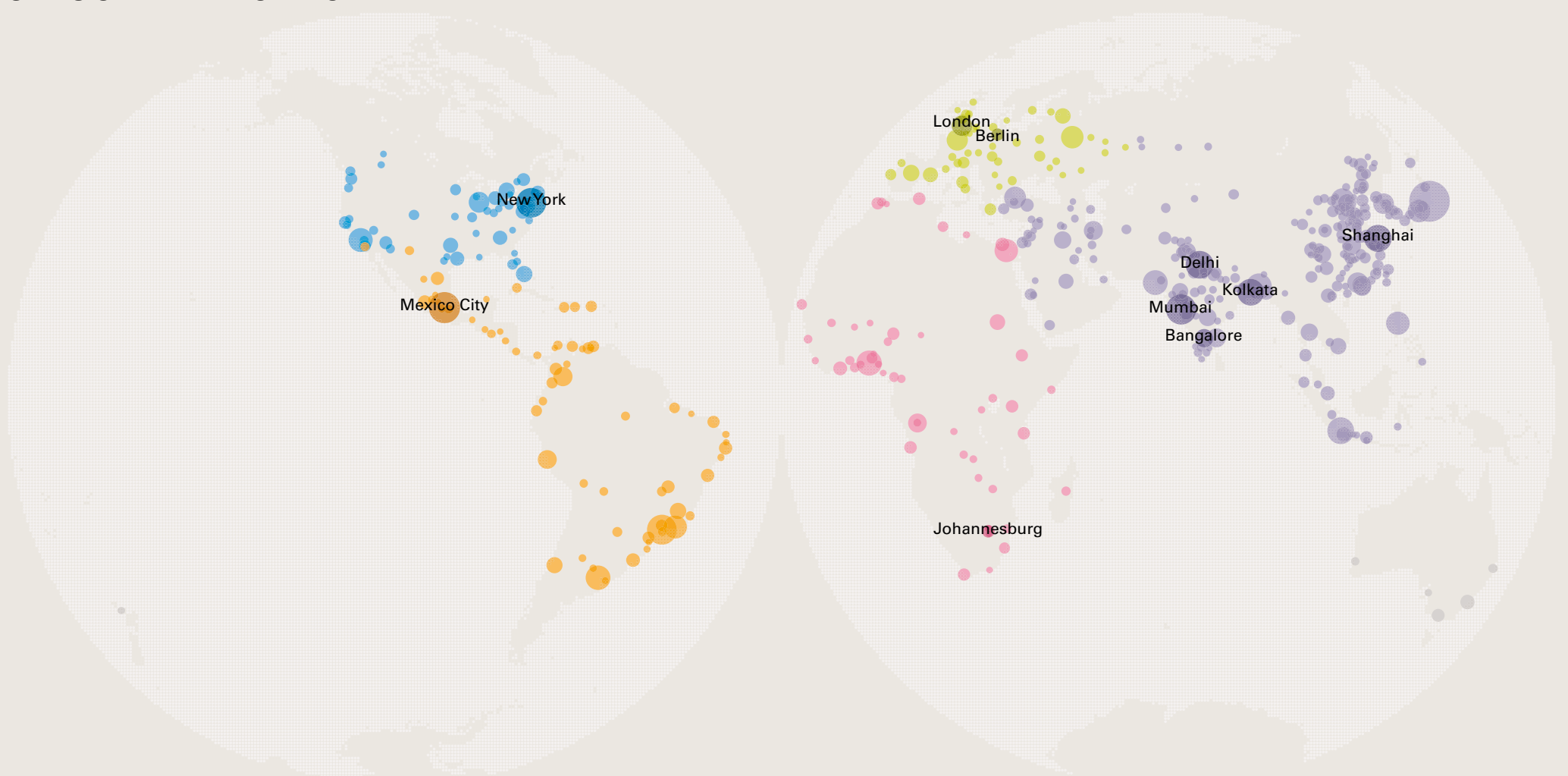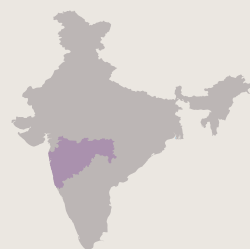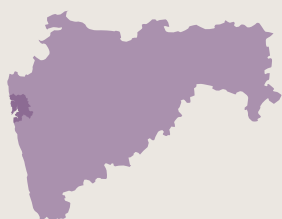| area [km²]	population [millions]	density [pers/km²]	rel. GDP[3] [% higher level]	number of districts	no. of elected officials[5]
1,483	13.85	9,340	4%	9	70/272

BANGALORE

INDIA

area [km²]	population[1] [millions]	density [pers/km²]	rel. GDP[2] [% higher level]	number of states	no. of elected officials[5]
3,287,590	1,131.04	344	8.9%	29	545/250

STATE OF KARNATAKA

area [km²]	population[1] [millions]	density [pers/km²]	rel. GDP[3] [% higher level]	number of districts	no. of elected officials[5]
191,791	56.78	296	5.6%	29	224/75

BANGALORE METROPOLITAN AREA

area [km²]	population [millions]	density [pers/km²]	rel. GDP [% higher level]	number of districts	no. of elected officials
8,002	8.40	1,050	n/a	n/a	n/a

BANGALORE

area [km²]	population [millions]	density [pers/km²]	rel. GDP[4] [% higher level]	number of wards	no. of elected officials
226	4.30	19,040	29%	100	232

KOLKATA

INDIA

area [km²]	population[1] [millions]	density [pers/km²]	rel. GDP[1] [% higher level]	number of states	no. of elected officials[5]
3,287,590	1,131.04	344	8.9%	29	545/250

STATE OF WEST BENGAL

area [km²]	population[1] [millions]	density [pers/km²]	rel. GDP[3] [% higher level]	number of districts	no. of elected officials
88,752	86.84	978	7.6%	19	294

KOLKATA METROPOLITAN AREA

area [km²]	population [millions]	density [pers/km²]	rel. GDP[4] [% higher level]	number of districts	no. of elected officials
1,845	14.72	7,978	48%	5	n/a

KOLKATA

area [km²]	population [millions]	density [pers/km²]	rel. GDP[4] [% higher level]	number of wards	no. of elected officials
187	4.57	24,454	12,5%	141	141

[1] 2007 figure based on census 2001
[2] GDP as % of global GDP
[3] GDP as % of India's GDP
[4] GDP as % of the state level GDP
[5] bi-cameral system: upper/ lower house

Chitrodeep Chaudhuri

CITIES AND REGIONS

Metropolitan region
Administrative city
Built-up area
City boundary
Borough boundaries

Defining the urban extent are multi-dimensional processes of territorial contiguity and functional interdependence. These are seldom in coterminous with administrative boundaries and governmental subdivisions, which in their turn define the extent of public policies and the reach of interventions on specific urban places. Given the policy emphasis of the Urban Age project, we report data and outcomes at the latter administrative level. Nevertheless our analysis is sensitive to the relation between such patterns and the dynamics shaping them at wider scales.

Incomplete urban annexation provides an example. Cities are not always able to incorporate newly developed land into the administrative boundaries drawn around the original cores. Hence their local governments may lack control on suburban and peri-urban growth, generating problems of metropolitan governance. Also, the varying relation between political boundaries and urbanised areas results in different cities appearing to assume more dissimilar urbanisation patterns than they actually do. Boundary-sensitive differences may appear when comparing patterns of land consumption; ratios between built and green areas; local shares of national populations, etc.

Shanghai and on the other end Bangalore and Kolkata constitute the poles where this issue is most evident within the sample of six international and four Indian cities examined. The Shanghai Municipality covers an area of 6,341 km², which makes it eight times as large as New York City. Included within its boundaries is green and agricultural land, and the Shanghai Municipal Government province exercises the functions of both a city and a province or state. Similar patterns appear at the level of some sub-municipal districts,

and Shanghai has no governmental unit focused specifically on its urbanised areas. In contrast, the municipal corporations of Bangalore and Kolkata cover 225 km² and 187 km² respectively. Each is similar in size to just one of New York City's five boroughs. Even the area of Greater Mumbai with 438 km² is just about half the territorial size of Berlin. Clearly, these boundaries do not include the urbanised area in its entirety. They exclude adjoining residential and business areas that are undoubtedly part of the city as an economic and social unit.

Examples of improving metropolitan relations in the sample include the reinstated governmental framework for Greater London; more cooperative relations between Mexico's Federal District and the bordering State of Mexico; and the initiative of city-regional coordination between Johannesburg and the other metropolitan areas of Gauteng Province.

POPULATION GROWTH OF URBAN AGGLOMERATIONS[1]

	1950	2007	2020
Mumbai	2,857,000	18,963,000	23,931,000
Delhi	1,369,369	16,671,894	23,705,710
Kolkata	4,513,496	14,827,582	18,799,710
Bangalore	745,999	6,963,832	9,531,009
New York	12,338,471	19,040,493	20,369,956
Shanghai	6,066,000	14,986,000	18,464,000
London	8,361,000	8,567,000	8,618,000
Mexico City	2,883,000	19,957,000	22,185,000
Johanneburg	900,000	3,420,000	3,741,000
Berlin	3,351,757	3,405,954	3,435,579

[1] according to the UN Population Division
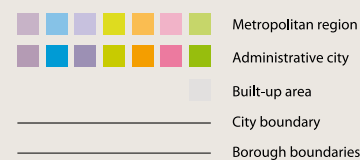
MUMBAI METROPOLITAN REGION
17,768,993 people

MUMBAI: 24 WARDS
11,978,450 people

MUMBAI

The capital of the State of Maharashtra, Mumbai is a city of 12 million. Known as Greater Mumbai, it covers an area of 438 km² with an extremely high population density (27,348 people per km²). Furthermore, the Mumbai Metropolitan Region of 18 million residents is the world's fifth most populous metropolitan region. Mumbai is India's entertainment and financial capital, yet also the city with the largest slums. It contributes 40 per cent of national income tax and 60 per cent of customs duty. In purchasing power parity (PPP), Mumbai is estimated to have a US$143 billion economy. Per capita income is US$12,070. Traffic congestion, loss of wetlands, and flooding as well as the critical housing issues and slums are key challenges facing Mumbai. Some projections state that Mumbai could overtake Tokyo as the world's largest city by 2050.

DELHI NATIONAL CAPITAL REGION
37,100,000 people

DELHI: 9 DISTRICTS
13,850,507 people

DELHI

Delhi has a population of 14 million. It is the second largest metropolis in India and it is of the highest political importance – the national capital is located in New Delhi. Delhi spreads over an area of 1,483 km² with a relatively low density of 9,340 people per km². Its estimated product of US$158 billion (PPP) amounts to 4 per cent of the Indian economy. Delhi's per capita income of around US$11,500 is also more than double the national average. Dominating the economy are booming activities in the tertiary sector such as IT and related services. Delhi faces the challenges of rapid population growth and largely unplanned urbanisation. Its problems include stretched-out infrastructure, unaffordable housing and growing slums, traffic congestion and significant ecological degradation.

KOLKATA METROPOLITAN REGION
14,720,000 people

KOLKATA: 141 WARDS
4,572,876 people

KOLKATA

Kolkata is India's fourth largest city and the capital of the State of West Bengal. It has a population of 4.6 million within a tightly drawn area of 187 km². Density reaches 24,454 people per km². Long acknowledged as the cultural capital of India, Kolkata is also the business, commercial and financial hub of eastern India. The metropolitan product equals US$94 billion. Its diverse industrial profile ranges from electronics to jute. Income per capita is US$8,520. IT and related services lead the current economic boom, growing at 70 per cent annually, or double the national average. A coastal metropolis, Kolkata suffers from the loss of city wetlands, which causes frequent flooding. Other major concerns include traffic congestion, inadequate infrastructure, and pollution.

BANGALORE METROPOLITAN REGION
8,400,000 people

BANGALORE: 100 WARDS
4,303,033 people

BANGALORE

Bangalore, the capital of the State of Karnataka, is the third largest city in India. With an estimated population of 6 million and an area of 226 km², the population density of Bangalore is 19,125 people per km². The heavy-industry core in Southern India, Bangalore's sectors include aerospace, telecommunications, machine tools, heavy equipment, and defence. Recent economic growth is owed largely to IT. Accounting for 35 per cent of software exports in 2004, Bangalore earned the nickname of 'the Silicon Valley of India'. Its product is US$94 billion, with a per capita income of US$11,646. Rapid urbanisation has also led to more pollution, with waste disposal, sewerage and sanitation problems, loss of tree coverage and high traffic congestion constituting the city's main problems.

NEW YORK METROPOLITAN REGION
21,200,000 people
NEW YORK CITY: 5 BOROUGHS
7,956,113 people

SHANGHAI MUNICIPALITY
16,610,000 people
SHANGHAI: 18 DISTRICTS
16,610,000 people

SOUTH EAST OF ENGLAND
19,030,000 people
LONDON: 33 BOROUGHS
7,538,440 people

NEW YORK CITY

For the first time in its history, New York City's population passed the 8 million mark in the year 2000 after a decade of strong growth. Since then, the city has continued to add residents, and this trend is expected to continue over the next ten years. Regional growth outside the city has also continued apace. With a Gross City Product of approximately US$56,103 per capita, New York is one of the world's richest cities. This juggernaut urban economy generates up to 4 per cent of the entire US GDP. Even with the enormous wealth generated by the city, there is a persistent level of poverty in New York. New York City covers approximately 830 km². with a density of about 9,600 people per km².
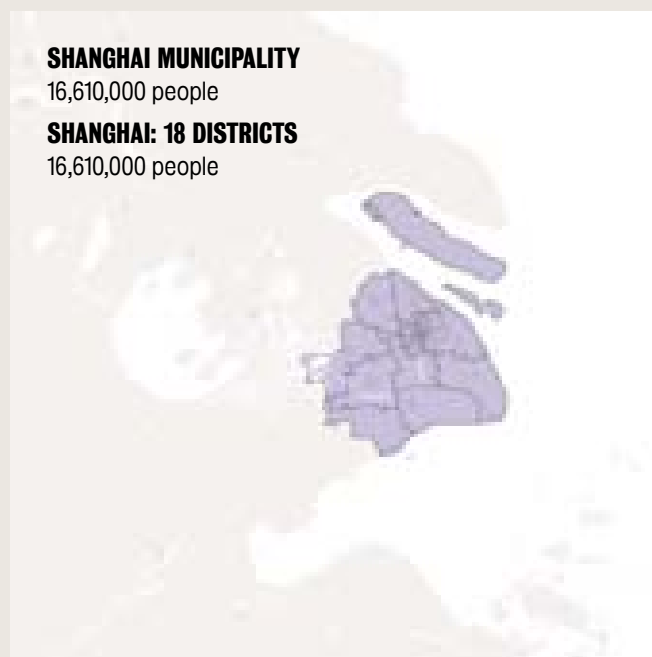
SHANGHAI

Within China's current legal framework, Shanghai operates as a city-state: it extends over 6,300 km² and has more than 18 million inhabitants. Its traditional city boundaries demarcate an area of 289 km², in which 6.5 million people live at very high residential densities. Shanghai's overall territory is urbanising increasingly and reaches an average density of 2,631 people per km², arranged in a seemingly chaotic patchwork of agricultural, residential and industrial land uses. Since 1992, the Shanghai economy has shown rapid growth, and it is expected to continue, expanding by more than 10 per cent annually for at least another decade. The urban economy is also modernising: approximately half of the city's labour force now works in the service sector.

LONDON

After a decade and a half of significant population growth, Greater London currently has about 7.5 million residents; projections indicate that this figure will reach 8 million within the next decade. Greater London covers approximately 1,600 km² of land area at a gross residential density of about 4,800 people per km². However, almost half of this surface is comprised of open and recreational space. In recent times London, a service-led urban economy with a global orientation, has experienced significant economic growth. Currently its Gross City Product is estimated at US$49,000 per capita accounting for almost 20 per cent of the UK's national economy with just 12 per cent of the population. Yet a core of poverty lingers in inner London, particularly in its eastern and southern areas.

MEXICO CITY METROPOLITAN REGION
18,900,000 people
MEXICO CITY: 16 DELEGACIONES
8,720,916 people

GAUTENG PROVINCE
8,860,000 people
JOHANNEBURG: 11 REGIONS
3,225,608 people

BERLIN METROPOLITAN REGION
4,390,000 people
BERLIN: 12 BEZIRKE
3,395,189 people

MEXICO CITY

The current population of the Federal District is 8.6 million. Both the population and urbanised area of Mexico City's Metropolitan Area, home to more than 18 million inhabitants, have expanded dramatically since the mid-twentieth century. Both continue to grow in complex patterns – whereas the urban core has regained some population, suburban sprawl continues apace, fuelled by low-cost mortgages and a lax regulatory framework. The Federal District covers about 1,484 km². In the urbanised northern portion, open and recreational space is scarce. The gross residential density of the Federal District is about 5,900 people per km². Mexico City is of paramount importance for the Mexican national economy. Its Gross City Product of US$212,697 million contributes 22 per cent of Mexico's GDP.
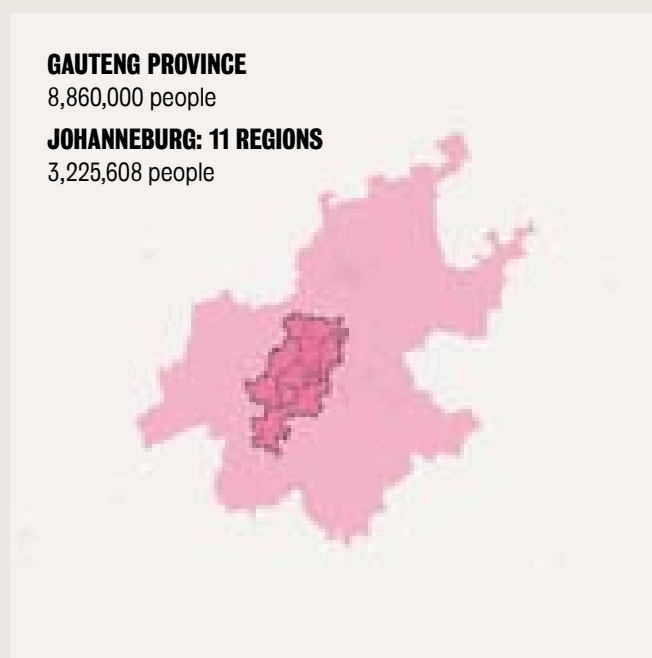
JOHANNESBURG

The current population in the City of Johannesburg is about 3.2 million. It is estimated that the city grew 4 per cent per year on average in the late 1990s and some projections present a growth scenario in which metropolitan Johannesburg will reach almost 15 million people by 2015. In 2003, its share of South Africa's total economic output was about 17 per cent. Johannesburg is a service-oriented economy: 74 per cent of people are employed by services, businesses or the real-estate sector. With Johannesburg's new boundaries, the city now stretches over 1,600 km², reaching a gross residential density of 1,900 people per km². This is a low urban density by international standards, yet the highest of all urban areas in South Africa.

BERLIN

Today the population of Berlin stands at approximately 3.4 million. During the last century, Berlin's growth, relative to other large European cities like London, has been fairly slow. Berlin appears anomalous in a world of cities that are rapidly expanding, although many other larger cities in the advanced economies show the same patterns. At US$33,170 per capita, Berlin's Gross City Product is substantial. Yet this, the largest city in Germany, has only a 3.5 per cent share of the country's GDP and a limited centrality within the German economy. In Berlin, open space has not been an afterthought to city planning; open and recreational space accounts for 45 per cent of the city's 891 km² surface. The gross residential density of Berlin is about 3,800 people per km².

GOVERNANCE STRUCTURES

MUMBAI

INDIAN CENTRAL GOVERNMENT

| URBAN DEVELOPMENT | HOUSING | INWARD INVESTMENT | HEALTH | ENVIRONMENT | TRANSPORT |

STATE ASSEMBLY - - - **MAHARASHTRA STATE GOVERNMENT**
CHIEF MINISTER[1]

[1] elected by state assembly

| TRANSPORT | URBAN DEVELOPMENT | HOUSING | EDUCATION | HEALTH | ENVIRONMENT | POLICE |
| State Road Development Corporation (MSRDC), Road Transport BEST | Mumbai Metropolitan Region Development Authority (MMRDA) | Housing, CIDCO, MHADA, Slums SRA | Higher and Technical Education | Public Health, Medical Education and Drugs | Environment, Revenue and Forests, State Pollution Control Board | Police Department |

GREATER MUMBAI MUNICIPAL CORPORATION
Municipal Commissioner — **MAYOR OF MUMBAI[1]**

[1] mayor elected by councillors of the Municipal Corporation

| TRANSPORT | ENVIRONMENT | UTILITIES | EDUCATION | EMERGENCY | HEALTH |
| Bus Transport, Street Lightening, Road Repairs | Parks | Drainage and Sewage | Key Agencies | Disaster Management | Maintenance of Parks |

Mumbai's government involves interventions at national, state (Maharashtra) and local levels. The national government has a number of powerful departments that provide services and resources for the city. There is a powerful level of state government, headed by a Chief Minister, which operates many services within the city, including roads, housing, education, health, environmental services and policing. The city government is headed by an elected Mayor with limited power. The real executive power lies in the hands of the Municipal Commissioner who is a civil servant appointed directly by the Maharashtra state government. The state government is about to constitute a Metropolitan Planning Committee for the metropolitan area as required by the JNNRUM. There is significant overlap between responsibilities at state and city levels. Overall, the city government is relatively less powerful than the state as required by the JNNRUM.

DELHI

INDIAN CENTRAL GOVERNMENT

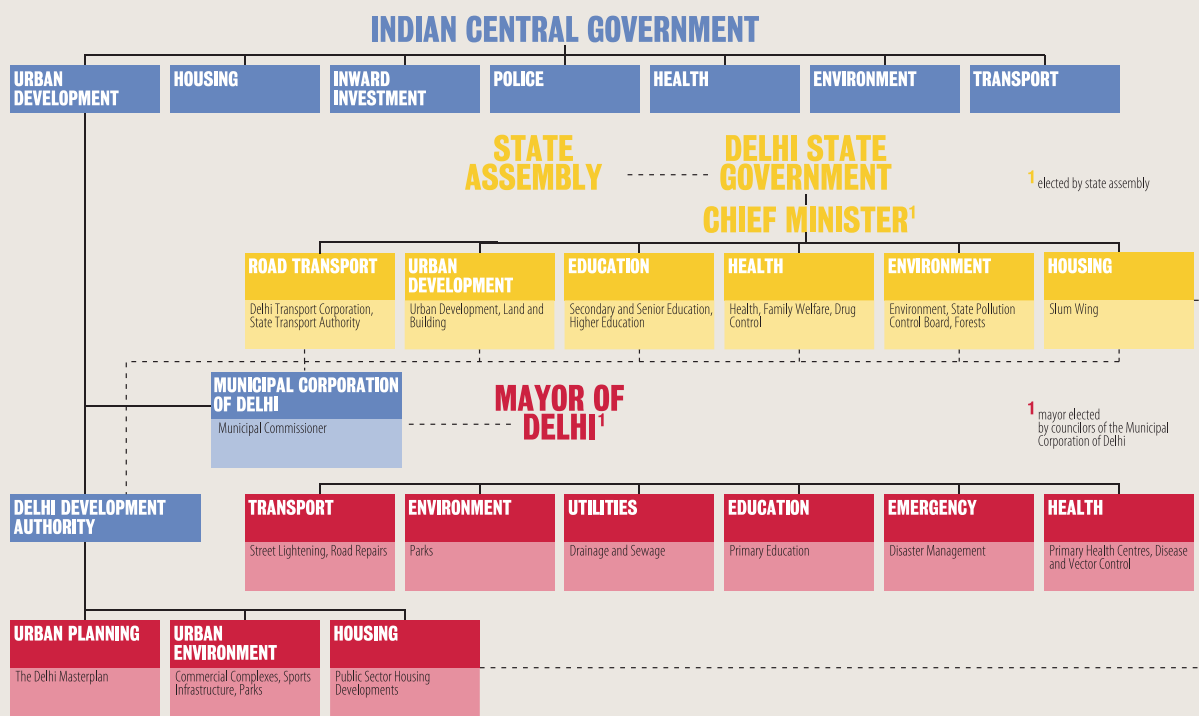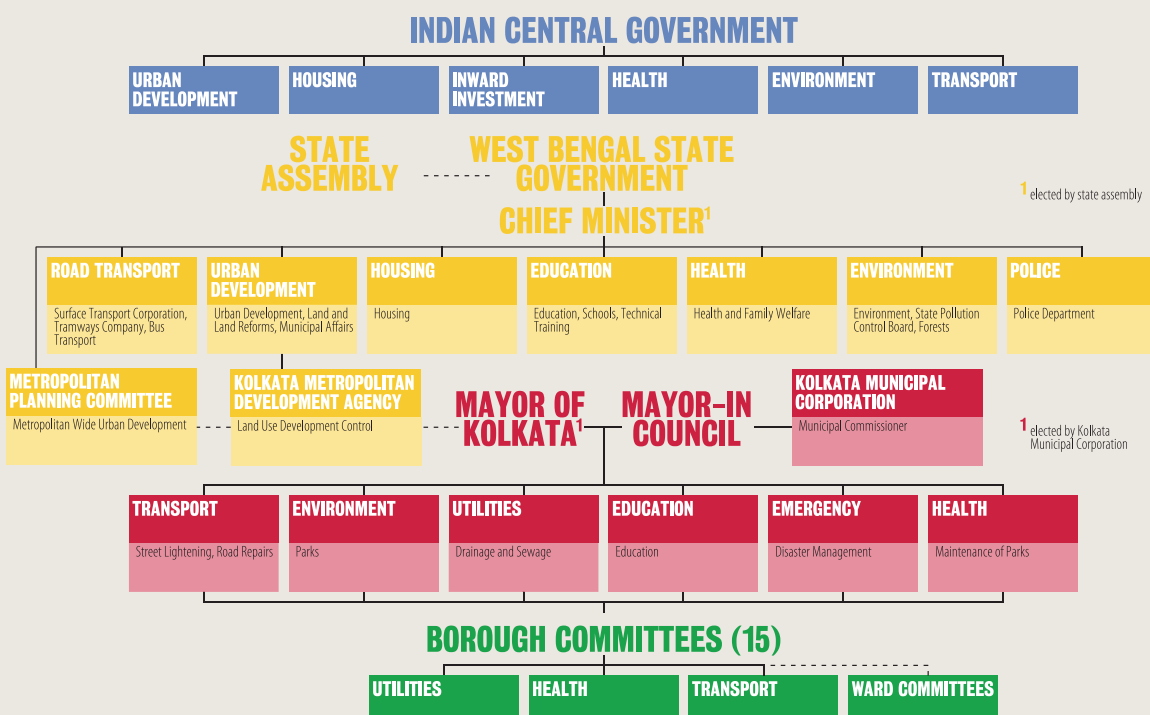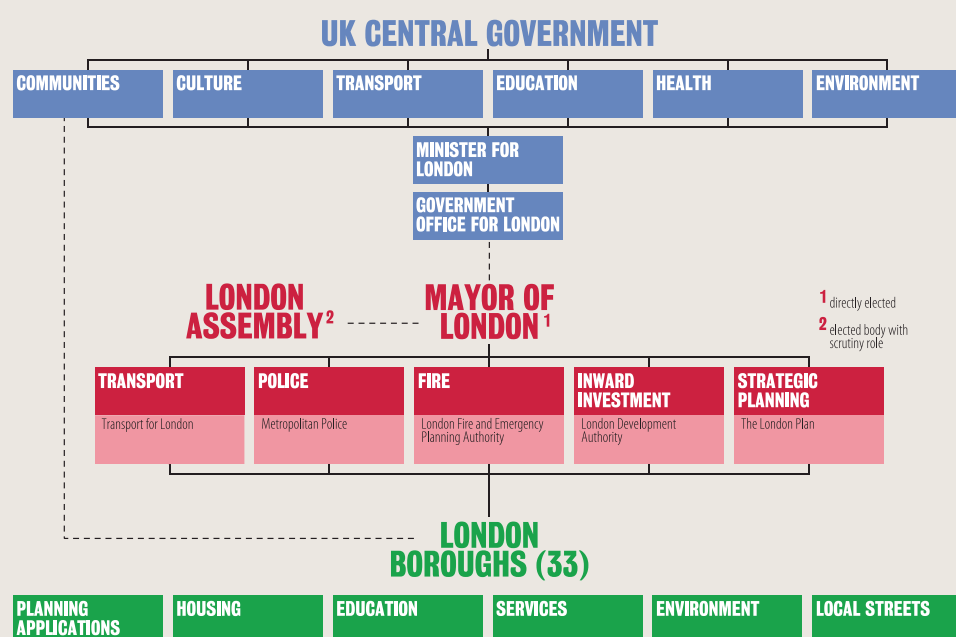| URBAN DEVELOPMENT | HOUSING | INWARD INVESTMENT | POLICE | HEALTH | ENVIRONMENT | TRANSPORT |

STATE ASSEMBLY - - - **DELHI STATE GOVERNMENT**
CHIEF MINISTER[1]

[1] elected by state assembly

| ROAD TRANSPORT | URBAN DEVELOPMENT | EDUCATION | HEALTH | ENVIRONMENT | HOUSING |
| Delhi Transport Corporation, State Transport Authority | Urban Development, Land and Building | Secondary and Senior Education, Higher Education | Health, Family Welfare, Drug Control | Environment, State Pollution Control Board, Forests | Slum Wing |

MUNICIPAL CORPORATION OF DELHI
Municipal Commissioner — **MAYOR OF DELHI[1]**

[1] mayor elected by councillors of the Municipal Corporation of Delhi

DELHI DEVELOPMENT AUTHORITY

| TRANSPORT | ENVIRONMENT | UTILITIES | EDUCATION | EMERGENCY | HEALTH |
| Street Lightening, Road Repairs | Parks | Drainage and Sewage | Primary Education | Disaster Management | Primary Health Centres, Disease and Vector Control |

| URBAN PLANNING | URBAN ENVIRONMENT | HOUSING |
| The Delhi Masterplan | Commercial Complexes, Sports Infrastructure, Parks | Public Sector Housing Developments |

As a city–state and the national capital of India, Delhi has its own state government and is one of the largest municipalities in the country. The state government appoints the Chief Minister who is elected by the State Assembly. In contrast with most urban areas of the country, the state government of Delhi controls neither the municipality nor the development authority. It is these two institutions, run by centrally appointed civil servants, which provide infrastructure and housing, and possess statutory plan-making powers. The elected councillors of the municipality (the Municipal Corporation of Delhi) have only deliberative responsibilities and appoint the Mayor of Delhi. This governance structure is a legacy of Delhi's historical status as 'union territory', administered directly by the national government until 1993.
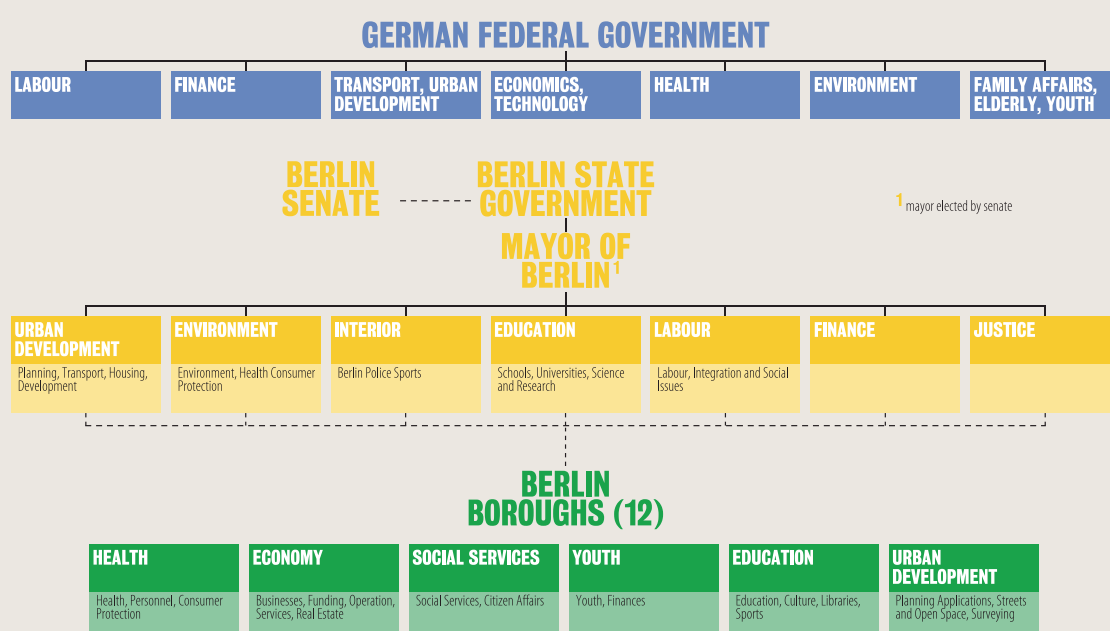
KOLKATA

INDIAN CENTRAL GOVERNMENT

| URBAN DEVELOPMENT | HOUSING | INWARD INVESTMENT | HEALTH | ENVIRONMENT | TRANSPORT |

STATE ASSEMBLY - - - **WEST BENGAL STATE GOVERNMENT**
CHIEF MINISTER[1]

[1] elected by state assembly

| ROAD TRANSPORT | URBAN DEVELOPMENT | HOUSING | EDUCATION | HEALTH | ENVIRONMENT | POLICE |
| Surface Transport Corporation, Tramways Company, Bus Transport | Urban Development, Land and Land Reforms, Municipal Affairs | Housing | Education, Schools, Technical Training | Health and Family Welfare | Environment, State Pollution Control Board, Forests | Police Department |

METROPOLITAN PLANNING COMMITTEE
Metropolitan Wide Urban Development

KOLKATA METROPOLITAN DEVELOPMENT AGENCY
Land Use Development Control - - - **MAYOR OF KOLKATA[1]** **MAYOR-IN COUNCIL**

KOLKATA MUNICIPAL CORPORATION
Municipal Commissioner

[1] elected by Kolkata Municipal Corporation

| TRANSPORT | ENVIRONMENT | UTILITIES | EDUCATION | EMERGENCY | HEALTH |
| Street Lightening, Road Repairs | Parks | Drainage and Sewage | Education | Disaster Management | Maintenance of Parks |

BOROUGH COMMITTEES (15)

| UTILITIES | HEALTH | TRANSPORT | WARD COMMITTEES |

Kolkata's government is an amalgam of functions at the national, state (West Bengal) and local level, but with a difference. Unlike other major cities in India, Kolkata operates a Mayor-in-Council (MIC) governance system. The Mayor-in-Council is a 'cabinet' of directly elected members (representing individual city wards) working alongside the Mayor, who acts as the Chief Executive of the city. The Mayor is elected by the Kolkata Municipal Corporation. The city is therefore run on a two-tier management structure: at a mayoral and borough level with responsibilities for street lighting, road repairs, drainage and sewerage, education and disaster management, while the state government of West Bengal, through its Chief Minister, provides higher-level services and complements city functions. Kolkata is also the only large city in India that has created a Metropolitan Planning Committee as required by the JNNRUM.

LONDON chart

UK CENTRAL GOVERNMENT

COMMUNITIES	CULTURE	TRANSPORT	EDUCATION	HEALTH	ENVIRONMENT

MINISTER FOR LONDON

GOVERNMENT OFFICE FOR LONDON

LONDON ASSEMBLY[2] **MAYOR OF LONDON**[1]

[1] directly elected
[2] elected body with scrutiny role

TRANSPORT	POLICE	FIRE	INWARD INVESTMENT	STRATEGIC PLANNING
Transport for London	Metropolitan Police	London Fire and Emergency Planning Authority	London Development Authority	The London Plan

LONDON BOROUGHS (33)

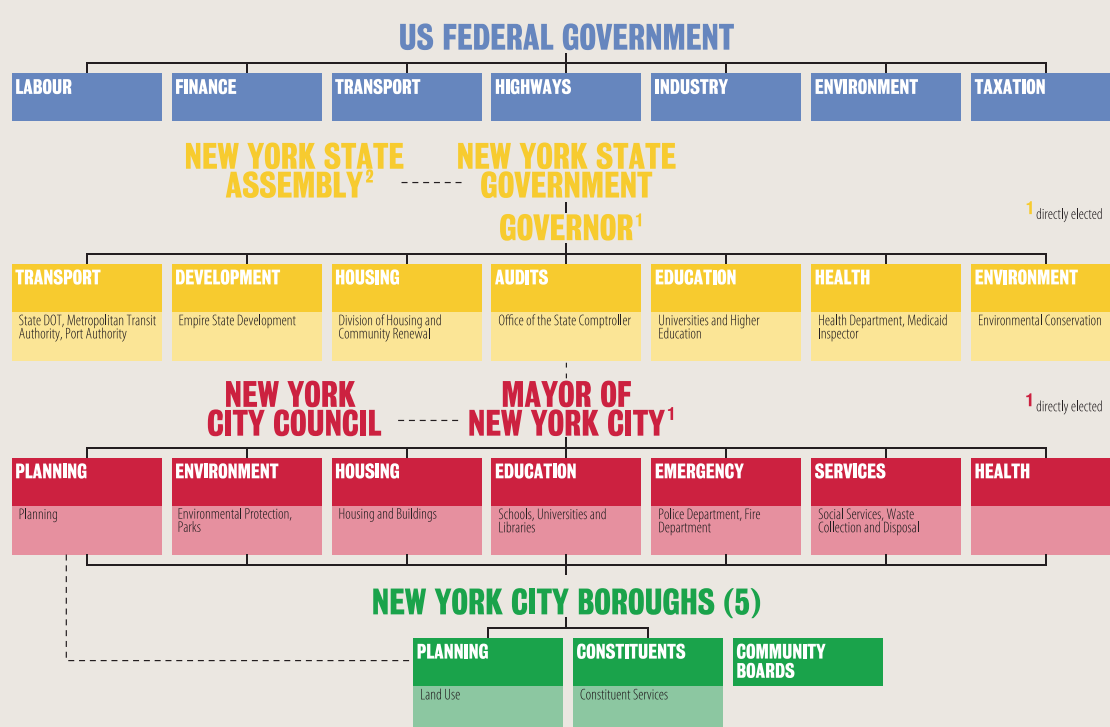| PLANNING APPLICATIONS	HOUSING	EDUCATION	SERVICES	ENVIRONMENT	LOCAL STREETS

LONDON

London's government operates within a relatively centralised, unitary state. Several central departments have responsibilities within the city, including health provision, the regulation of commuter railways and as final arbiter for major planning decisions. Central government also has a number of regulatory powers over the Mayor and the city's boroughs. The Mayor of London is the elected executive for a number of major city-wide services, notably public transport and spatial planning. The Mayor is overseen by an elected, non-legislative, assembly. There are also 32 elected borough councils whose responsibilities include schools, social care, the environment, local transport and local planning. The City of London, the UK capital's financial and business hub, has the powers of a borough but also several additional responsibilities. The government of London has been reformed on several occasions since the late-nineteenth century, most recently in 2000. In 2001 Londoners were able, for the first time in their history, to vote for 'their' Mayor Ken Livingstone who will run for a third term in May 2008.

BERLIN chart

GERMAN FEDERAL GOVERNMENT

LABOUR	FINANCE	TRANSPORT, URBAN DEVELOPMENT	ECONOMICS, TECHNOLOGY	HEALTH	ENVIRONMENT	FAMILY AFFAIRS, ELDERLY, YOUTH

BERLIN SENATE **BERLIN STATE GOVERNMENT**

MAYOR OF BERLIN[1]

[1] mayor elected by senate

URBAN DEVELOPMENT	ENVIRONMENT	INTERIOR	EDUCATION	LABOUR	FINANCE	JUSTICE
Planning, Transport, Housing, Development	Environment, Health Consumer Protection	Berlin Police Sports	Schools, Universities, Science and Research	Labour, Integration and Social Issues		

BERLIN BOROUGHS (12)

HEALTH	ECONOMY	SOCIAL SERVICES	YOUTH	EDUCATION	URBAN DEVELOPMENT
Health, Personnel, Consumer Protection	Businesses, Funding, Operation, Services, Real Estate	Social Services, Citizen Affairs	Youth, Finances	Education, Culture, Libraries, Sports	Planning Applications, Streets and Open Space, Surveying

BERLIN

Berlin's city government is an element within Germany's highly devolved federal system. The country's constitution ensures different spheres of government are free to operate independently. Federal government has few responsibilities at the city level, though it does provide resources for Berlin to provide infrastructure and services. The city is one of three in Germany that are simultaneously a Land (State) and a municipality. The Berlin senate is, therefore, an immensely powerful institution of government, with responsibilities for education, health services, transport, environmental provision and planning. There is a coordinating mechanism for transport across the wider, regional, Berlin-Brandenburg area. There is a second level of government, in which twelve elected boroughs have responsibilities for environmental and local planning services.

NEW YORK chart

US FEDERAL GOVERNMENT

LABOUR	FINANCE	TRANSPORT	HIGHWAYS	INDUSTRY	ENVIRONMENT	TAXATION

NEW YORK STATE ASSEMBLY[2] **NEW YORK STATE GOVERNMENT**

GOVERNOR[1]

[1] directly elected

TRANSPORT	DEVELOPMENT	HOUSING	AUDITS	EDUCATION	HEALTH	ENVIRONMENT
State DOT, Metropolitan Transit Authority, Port Authority	Empire State Development	Division of Housing and Community Renewal	Office of the State Comptroller	Universities and Higher Education	Health Department, Medicaid Inspector	Environmental Conservation

NEW YORK CITY COUNCIL **MAYOR OF NEW YORK CITY**[1]

[1] directly elected

PLANNING	ENVIRONMENT	HOUSING	EDUCATION	EMERGENCY	SERVICES	HEALTH
Planning	Environmental Protection, Parks	Housing and Buildings	Schools, Universities and Libraries	Police Department, Fire Department	Social Services, Waste Collection and Disposal	

NEW YORK CITY BOROUGHS (5)

PLANNING	CONSTITUENTS	COMMUNITY BOARDS
Land Use	Constituent Services	

NEW YORK

New York City's government operates within a legislative framework determined at state level (the federal state of New York). Federal government in the United States has no direct powers to direct or legislate for the actions of individual cities, though federal agencies operate in all parts of the country. However, the state level of government is important both as a legislator but also because of its powers of budgetary oversight. The state also runs the major transport systems, is co-owner of the city's airports and some elements of economic development. Within its powers, the city is powerful by international standards, with the Mayor of New York one of the most important politicians in the United States. Local legislation is the responsibility of the City Council. New York City government is responsible for public education, public hospitals, social care, the environment, local transport and planning. There are five boroughs, headed by an elected 'borough president', which have rights to be consulted, though they provide no services. There are also 59 community boards which provide advocacy for neighbourhoods.

These six charts are illustrative indications of how government structures are organised in Mumbai, Delhi, Kolkata, London, Berlin and New York. They are intentionally designed to give a crude impression of how the basic patterns of responsibilities are organised within each of these cities, identifying some of the key functions carried out at central, state and local government level. While they offer a useful comparative overview they are not intended to give an accurate account of the detailed systems of accountability which can only be explained comprehensively on a case-by-case basis.
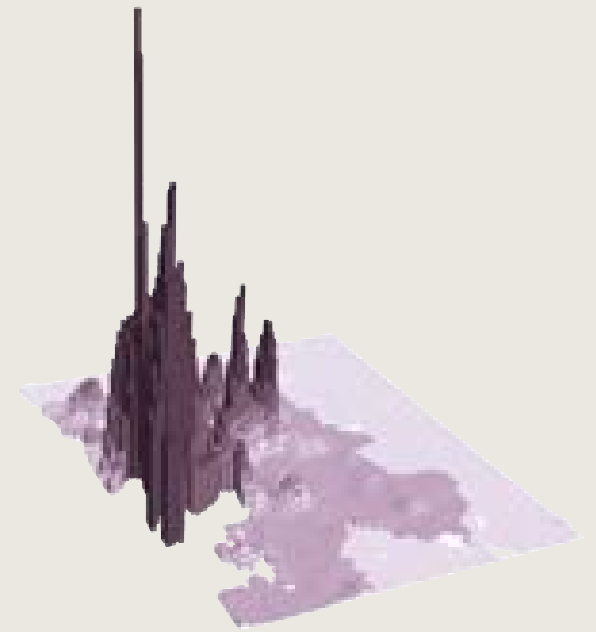
DENSITY

Variegated density distributions (illustrated here in numbers of people living in a km^2) are present in all Urban Age cities – from the relatively dispersed and flat density diagram of London to the mountainous peaks of high density in Mumbai (one of the densest cities in the world). Bangalore and Kolkata are similarly dense to Mumbai while only some very concentrated parts of central Shanghai and New York come close. Delhi occupies a much larger area, resulting in a lower average but equally high peaks. The ability of Indian cities to accommodate such high numbers of people in relatively confined areas – albeit many are living in substandard conditions – provides a significant point of comparison in the current debate on urban sustainability and the impact of a city's footprint on energy consumption and climate change.

Mumbai constitutes a category on its own. The territorial constraints of this island city have created unusually high urban densities. Within the city limits, the average density surpasses the mark of 27,000 people per km^2 – a figure that rises to well above 50,000 people per km^2 (if one only takes the built-up area into account), a level higher than even the highest density peaks in New York City's borough of Manhattan. Furthermore, it is not rare for the densest neighbourhoods of Mumbai, such as Dharavi, to accommodate as many as 100,000 residents per km^2.

Delhi still invokes interest worldwide, not only as a masterpiece of urbanism in the early-twentieth century, but also as a conscious attempt to plan for the functions of a capital city. Accounting for Delhi's lower population density is a legacy of parks and other open spaces, as well as non-residential buildings and built forms that cannot be converted to residential uses. Nevertheless, Delhi's average density of 9,340 people per km^2 is still very high by international standards.

Mexico City has areas of relatively high density, although it does not reach Manhattan-like peaks at its urban core, it rather maintains a homogenous high-density level throughout the entire urbanised area. The two European cities, London and Berlin, show the flattest density curves but nevertheless achieve a higher overall density than Johannesburg. Characterising the thriving South African metropolis is the low-density monotony of urban sprawl, with large voids in the central areas recently abandoned by residents due to crime and violence.
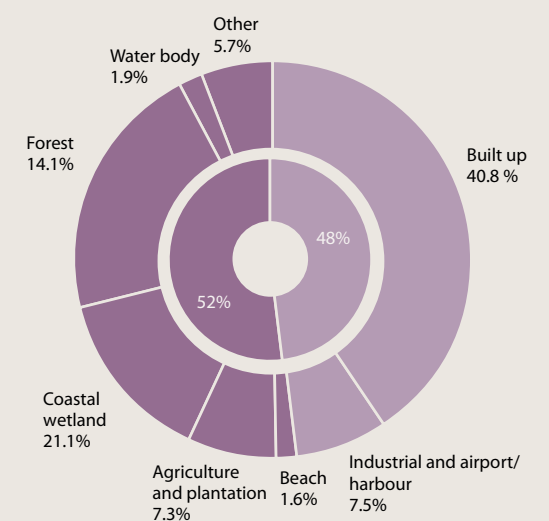

MUMBAI

Population density per km^2

	0 – 4,000
	4,000 – 8,000
	8,000 – 12,000
	12,000 – 20,000
	20,000 and over
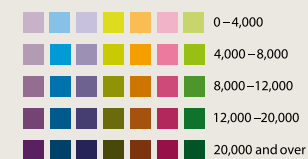
AVERAGE DENSITIES OF CITY AND REGION – PERS/KM^2

City	Metropolitan Region	Administrative City	Inner City (10 km radius)	Peak Density
Mumbai	4,080	27,348	34,269	101,066
Delhi	1,227	9,340	19,636	96,460
Kolkata	7,978	24,454	20,483	78,355
Bangalore	1,050	19,040	18,225	75,169
New York	783	9,551	15,361	53,000
Shanghai	2,619	2,619	24,673	96,200
London	679	4,795	7,805	17,200
Mexico City	3,796	5,877	12,541	48,300
Johannesburg	521	1,962	2,270	38,500
Berlin	818	3,810	7,124	21,700

LAND USE IN MUMBAI

Other 5.7%
Water body 1.9%
Forest 14.1%
Built up 40.8 %
Coastal wetland 21.1%
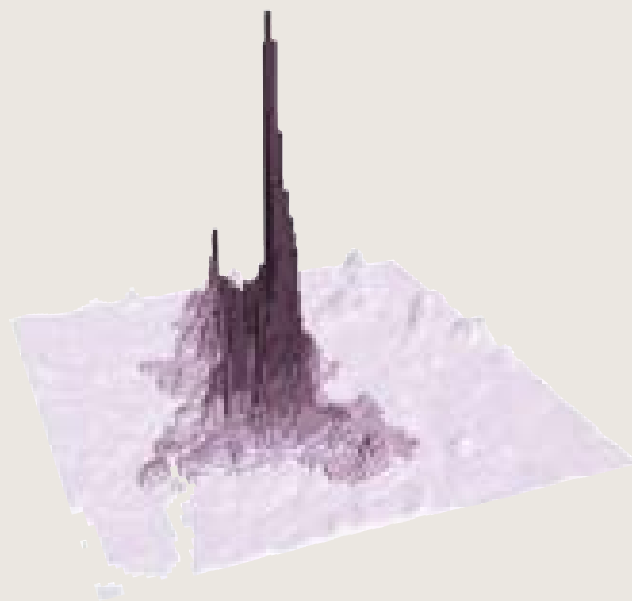Agriculture and plantation 7.3%
Beach 1.6%
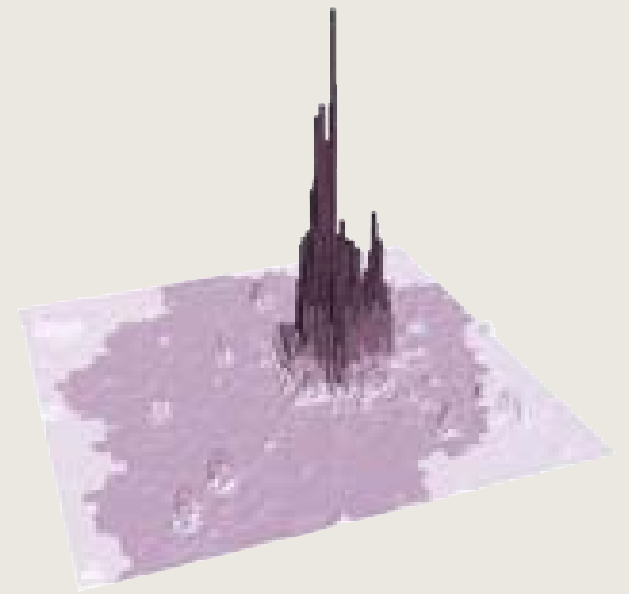Industrial and airport/harbour 7.5%
48%
52%

Home to 12 million inhabitants in an area half the size of Berlin, less than half of Greater Mumbai is covered by built-up land and infrastructure, with large areas occupied by a national park and open areas, coastal wetlands, mangroves, agricultural land and beaches.
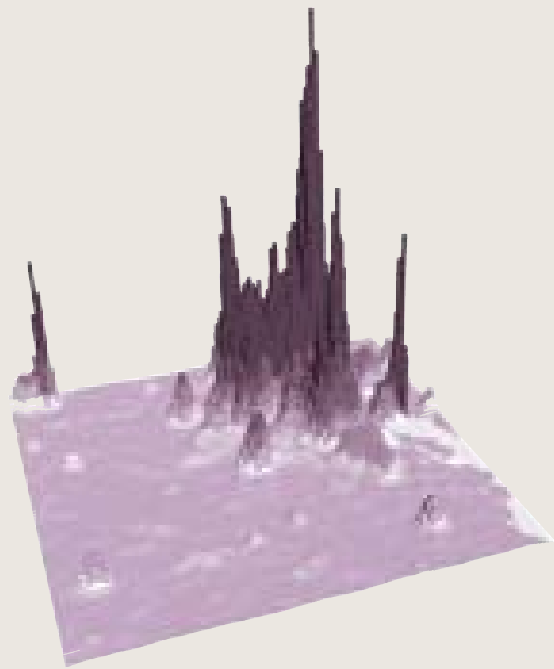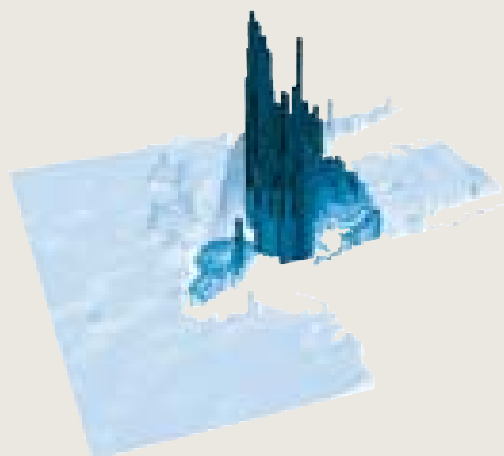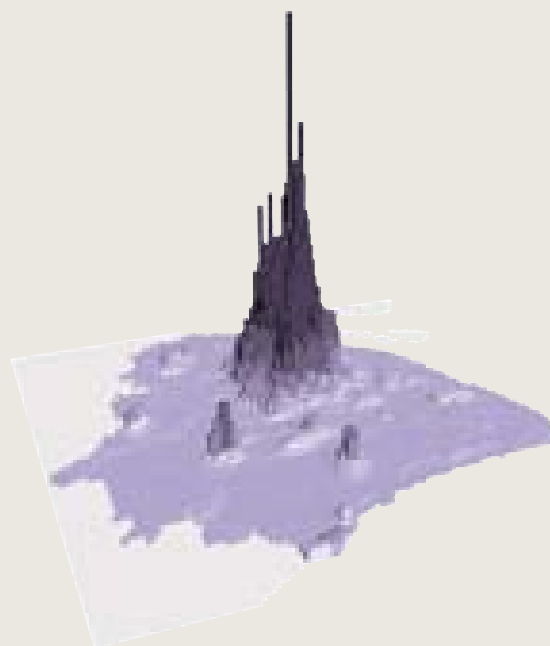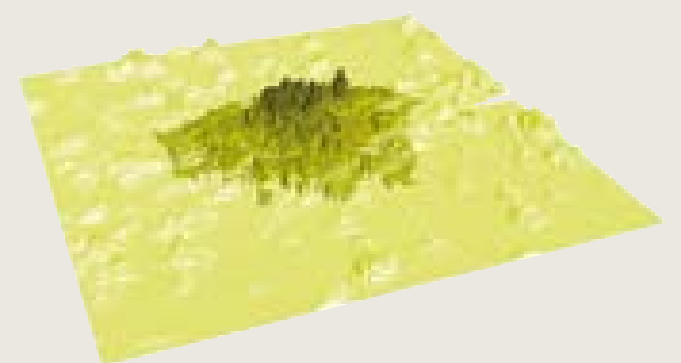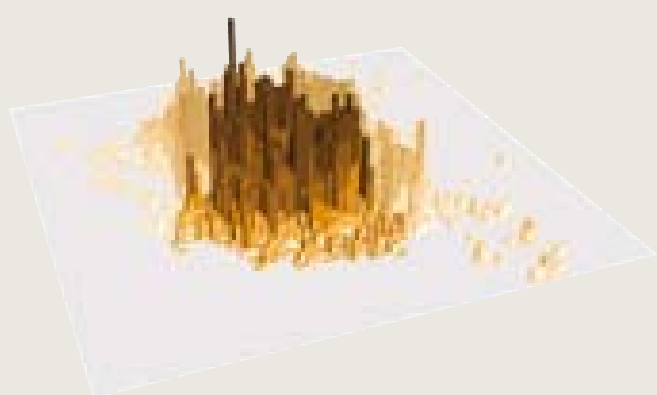
DELHI

KOLKATA

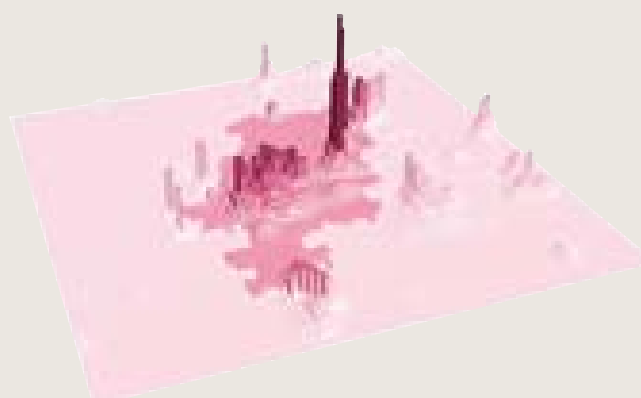BANGALORE

NEW YORK CITY

SHANGHAI

LONDON

MEXICO CITY

JOHANNESBURG

BERLIN

URBAN MORPHOLOGY

Cities all over the world need to respond to the demographic and economic pressures that are causing rapid urban growth. The design of city streets, buildings and spaces – their spatial DNA – plays an important role in securing the liveability and flexibility of urban environments that are undergoing intense processes of change. One of the central objectives of the Urban Age project is to produce research that helps to better understand the varying capacity of different street grids and block layouts to accommodate change in a resilient way.

The 'figure-ground' images presented here are useful tools to visualise the micro-scale of urban neighbourhoods and understand how buildings and their surroundings succeed or fail in making a continuous and integrated urban whole. They provide a street-level portrayal of the built forms and arrangements of volumes that shape everyday social life in the city. The ten 'figure-ground' maps each cover 1 km², representing buildings in black and open spaces in white.

The spatial structure of the Indian cities reveals an intense and compact arrangement of buildings and structures, containing and compressing the open 'white' spaces that constitute the public realm of the city. The central area of Buleshwar Market in Mumbai shows how dense urban blocks are arranged efficiently along main streets and side alleyways.

The juxtaposition of Paharganj in Old Delhi, the formal circular layout of Connaught Place and other twentieth-century free-standing building blocks makes evident the different spatial logics and scale of this multi-faceted city. The Jayanagar and Bhanashankari districts of Bangalore, surrounding a central park, demonstrate the regularity and fine grain of a well-planned city, while Salt Lake City district in Kolkata, a 1960s redevelopment of former wetlands, reveals a clarity in space and urban structure with housing units arranged along a regular grid.

Characterising New York City's East Village is a dense, continuous street grid that has adapted to different economic cycles over the last decades. A similar design approach to the arrangement of blocks is used in Mexico City's north-eastern neighbourhoods, which have evolved from popular settlements. Yet one finds a dramatically contrasting barren landscape of relative sparseness in the Hongkou district of Shanghai. In the even more dispersed residential neighbourhoods of Johannesburg, high-security fences and walls usually envelop individual lots. Hence, the urban fabric lacks the continuity found in the crescents and communal gardens of the Notting Hill area of West London, or the tightly packed perimeter housing blocks of central Berlin.

MUMBAI

With an average population density of 27,348 pers/km² the urban texture of Greater Mumbai is defined by finely knit, low rise structures housing the city's nearly 12 million residents. (1:12,000)

DELHI

KOLKATA

BANGALORE

NEW YORK CITY

SHANGHAI

LONDON

MEXICO CITY

JOHANNESBURG

BERLIN

TRANSPORT INFRASTRUCTURE

The transport systems of the ten Urban Age cities reflect the specific geographical, historical and political conditions that have shaped their development. Infrastructure development for mass transit, whether metro, trains or buses as well as for private vehicles has had an enormous impact on the patterns of urban growth with long-lasting effects on land use, densities and the residential distribution of different social groups. Urban rail outranks all other forms of travel in terms of its capacity to move vast numbers of passengers throughout a metropolitan region, and its footprint requires relatively small amounts of urban land.

New York, London and Berlin all have an extensive system of urban rail. These cities were able to invest in mass transit earlier on, developing their networks over a century. Berlin's U- and S-Bahn system extends over 475 km. London's Underground system measures 408 km in length, and New York's Subway a total of 390 km. An extensive network of regional rail links these cities and their job markets to their metropolitan regions. Decision-making processes, governance arrangements and administrative boundaries have restricted the development of New York's Subway to the west, preventing the network to reach areas adjacent to the city's core.

The extensive London Underground spreads across large areas to the north of the River Thames, due to the limitations of early-twentieth-century technology to surpass the geological constraints present south of the River Thames.
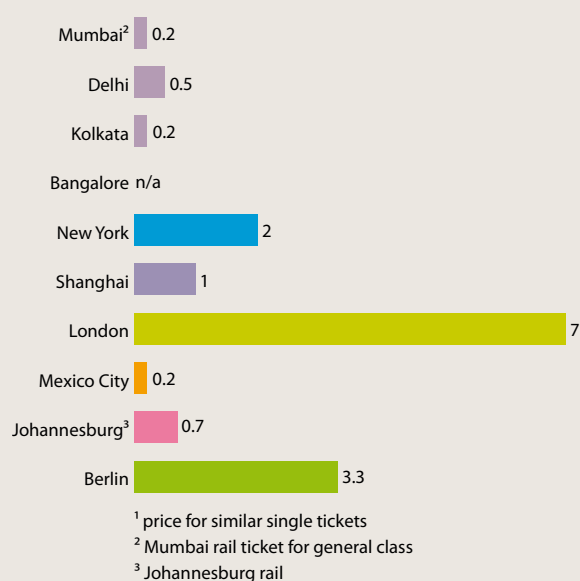
Cities in less economically developed regions have suffered from under-investment, where transport infrastructure has not been able to keep pace with rapid urbanisation. Mexico City was the first twentieth-century megacity to have started building its underground in the late 1960s. Today it operates an efficient yet insufficient 200 km-long network, and a large number of commuters use cars or microbuses to get to work. Some cities are making important infrastructure investments now. Shanghai's first underground metro line opened only a decade ago. The total length of the current system is 148 km. Another 10 lines are under construction, and the system will expand significantly within a decade. In India, Kolkata opened the first part of its 16.5 km underground line in the early 1980s. While Delhi introduced its system only a few years ago, it currently operates three lines on a 56 km network. Mumbai and Bangalore do not currently have a metro system. However, with 300 km, Mumbai's suburban rail system is the most extensive on the subcontinent. Transporting more than 6 million passengers each day, it is also one of the busiest rail systems worldwide.
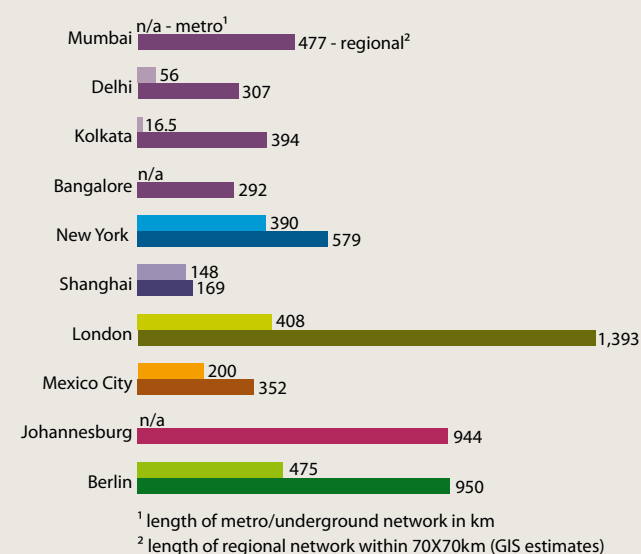

MUMBAI

▪▪▪▪▪▪	Administrative city
▪	Built-up area
──	Intercity rail
──	Regional rail
‐ ‐ ‐ ‐	Underground/Metro
··········	Planned extensions
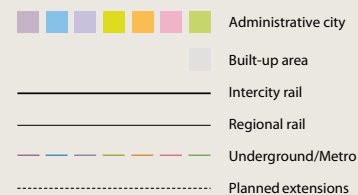
METRO TICKET PRICE IN US$[1]

- Mumbai[2] 0.2
- Delhi 0.5
- Kolkata 0.2
- Bangalore n/a
- New York 2
- Shanghai 1
- London 7
- Mexico City 0.2
- Johannesburg[3] 0.7
- Berlin 3.3

[1] price for similar single tickets
[2] Mumbai rail ticket for general class
[3] Johannesburg rail

METRO AND REGIONAL RAIL SYSTEM LENGTH

- Mumbai n/a - metro[1] 477 - regional[2]
- Delhi 56 307
- Kolkata 16.5 394
- Bangalore n/a 292
- New York 390 579
- Shanghai 148 169
- London 408 1,393
- Mexico City 200 352
- Johannesburg n/a 944
- Berlin 475 950

[1] length of metro/underground network in km
[2] length of regional network within 70X70km (GIS estimates)

London has by far the most expensive metro tickets amongst the ten cities. It is one of the few underground systems where revenues cover operating costs. Tickets in the Indian cities and Mexico City are 10 to 30 times cheaper than in London and reflect the importance of metro systems as an inclusive mode of transport.

Besides metro systems, regional rail is a significant component of rail transport in the ten cities. The estimated GIS figures for the length of regional rail networks in each city emphasise the extensive amount of rail infrastructure in London and significant levels in Berlin, New York and Mumbai.

DELHI

KOLKATA

BANGALORE

NEW YORK CITY

SHANGHAI

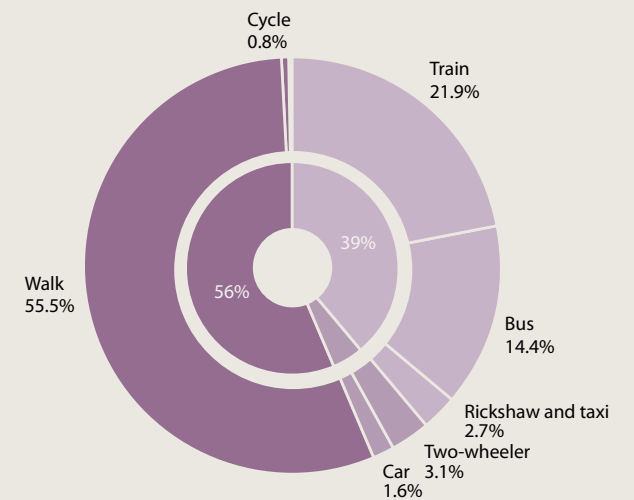**LONDON**

MEXICO CITY

JOHANNESBURG

BERLIN

MOVING IN THE CITY

Looking at different ways in which people travel (modal splits) helps us understand how people move in cities. The more compact Indian cities reveal a more sustainable dimension than the other cities as a result of the very high numbers of people who take public transport or walk to work – a direct consequence of the proximity of residential buildings (often slums) and offices in these high-density, mixed-use urban environments where distances to work average less than 2 km. In Mumbai walking makes up a massive 55 per cent of all forms of travel, with cars barely making the 5 per cent mark (in Los Angles over 80 per cent of the workforce drives to work).

Average commuting times in Indian cities are low: 28 minutes in Mumbai and 33 minutes in Bangalore, which is less than in New York and London, with both around 40 minutes. In Mexico City and Johannesburg they extend to well over an hour on average, with unacceptably lengthy extremes from the poorer peripheral districts. By far the highest proportion of all motorised journeys in Indian cities takes place by public transport, reaching over 80 per cent in Kolkata. While this number comes close to the highly efficient statistics of Tokyo, where nearly 80 per cent of a 35-million urban region use public transport to get to work, even the most efficient western cities like New York, London and Berlin only manage to reach 50 per cent, 30 per cent and 27 per cent respectively.
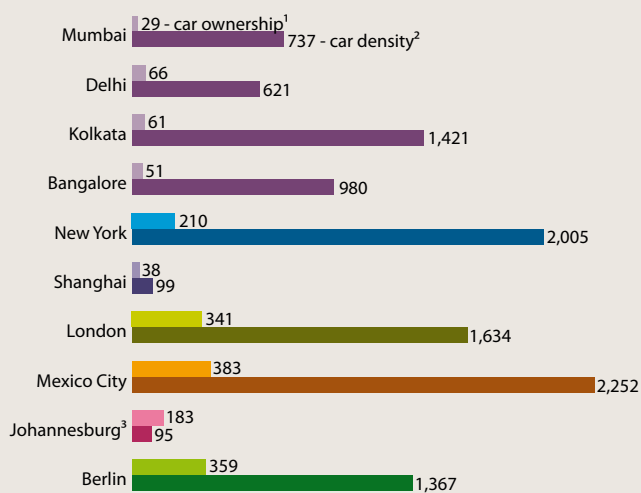
Around 40 per cent of midtown residents in New York's Manhattan walk to work and over 90 per cent of affluent business workers use public transport to go to London's financial hub. Transport patterns are more complex in the other three rapidly expanding cities of Shanghai, Mexico City and Johannesburg. Although Mexico City counts on a reliable metro system, only 14 per cent of the city's population use it, while minibus services account for more than half of all trips. In Johannesburg, the majority of new affluent developments rely on the private car, with a fleet of unregulated 12,500 privately run collective taxis taking 20 per cent of low-end commuters to work, often in dangerous and unreliable conditions. The share of public transport in Shanghai is rapidly growing, with 23 per cent of daily journeys to work using some form of public transport – rail, metro or bus. While cycling is still prevalent in Shanghai, a city with 9 million bicycles, bans on cycling are being imposed on major city streets 'to avoid congestion'.
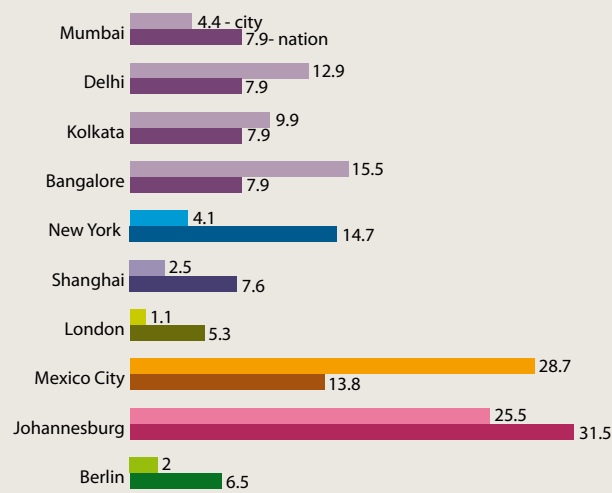
Cycle 0.8%
Train 21.9%
Walk 55.5%
39%
56%
Bus 14.4%
Rickshaw and taxi 2.7%
Two-wheeler 3.1%
Car 1.6%

MUMBAI

- Walking and cycling
- Public transport
- Private motorized transport

CAR OWNERSHIP AND CAR DENSITY

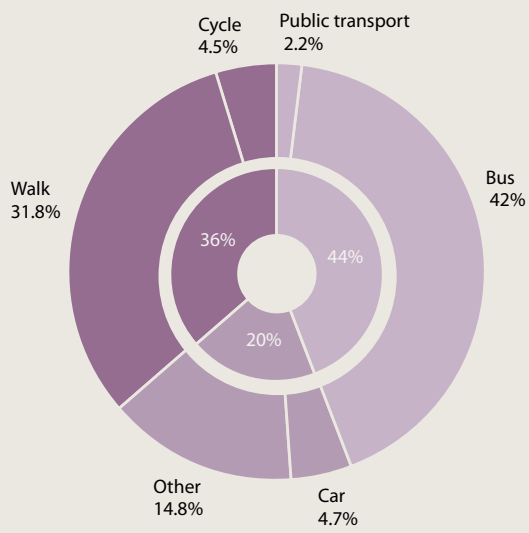| City	car ownership[1]	car density[2]
Mumbai	29	737
Delhi	66	621
Kolkata	61	1,421
Bangalore	51	980
New York	210	2,005
Shanghai	38	99
London	341	1,634
Mexico City	383	2,252
Johannesburg[3]	183	95
Berlin	359	1,367

[1] car ownership in number of cars per 1,000 residents
[2] car density in cars per km²
[3] Gauteng Province

Mumbai has the lowest level of car ownership with 29 cars per 1,000 residents, a stark contrast to Mexico City's 383. Kolkata and Bangalore have the highest numbers of cars per km² among the Indian cities. With 1,421 cars per km², Kolkata's car density is even higher than that of Berlin.
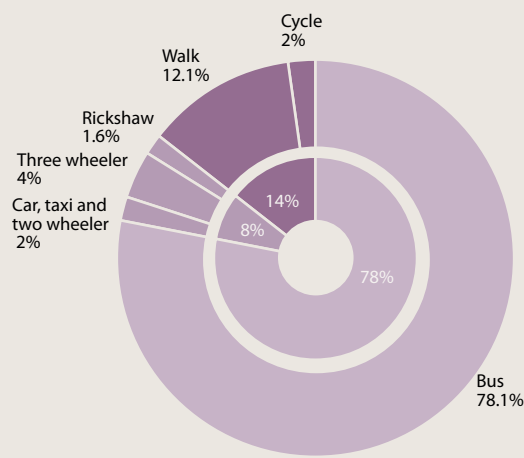
ROAD FATALITIES

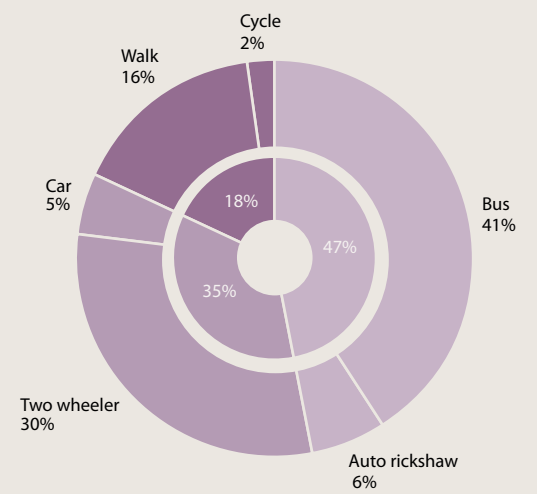| City	city	nation
Mumbai	4.4	7.9
Delhi	12.9	7.9
Kolkata	9.9	7.9
Bangalore	15.5	7.9
New York	4.1	14.7
Shanghai	2.5	7.6
London	1.1	5.3
Mexico City	28.7	13.8
Johannesburg	25.5	31.5
Berlin	2	6.5

Road death rates per 100,000 residents are extremely high for Mexico City and Johannesburg with 29 and 26 respectively. They are lowest in London with 1 and Berlin with 2. Compared to the national average, road fatalities are lower in New York, Shanghai, London, Johannesburg, Berlin and Mumbai.
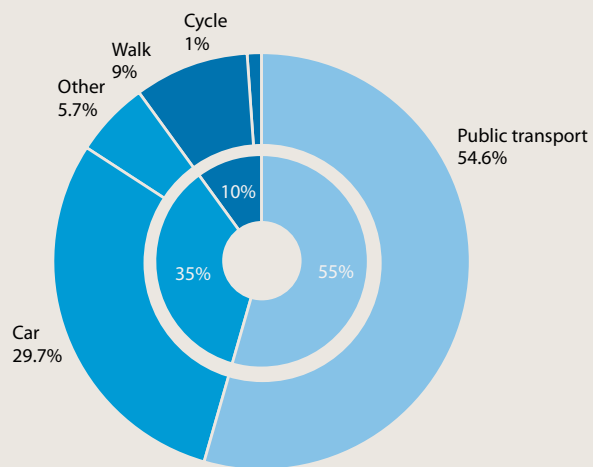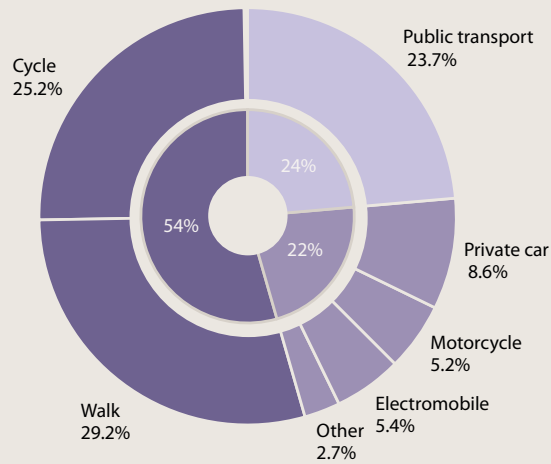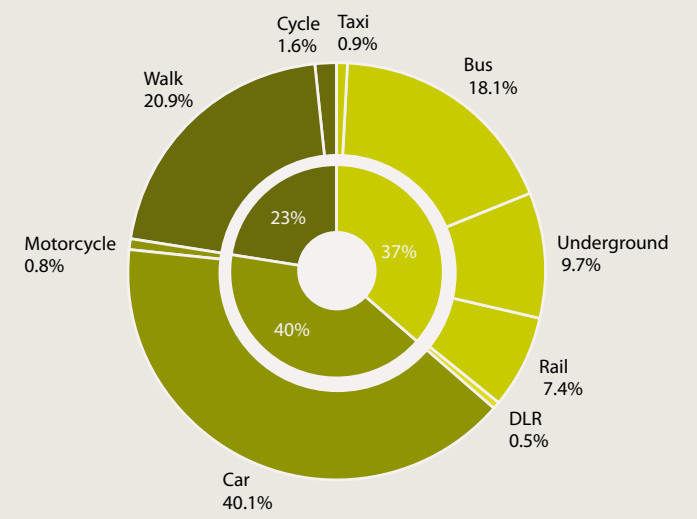
DELHI

Cycle 4.5%
Public transport 2.2%
Walk 31.8%
Bus 42%
36%
44%
20%
Other 14.8%
Car 4.7%

KOLKATA

Cycle 2%
Walk 12.1%
Rickshaw 1.6%
Three wheeler 4%
Car, taxi and two wheeler 2%
14%
8%
78%
Bus 78.1%

BANGALORE

Cycle 2%
Walk 16%
Car 5%
18%
47%
35%
Bus 41%
Two wheeler 30%
Auto rickshaw 6%

NEW YORK CITY

Cycle 1%
Walk 9%
Other 5.7%
Public transport 54.6%
10%
35%
55%
Car 29.7%

SHANGHAI

Cycle 25.2%
Public transport 23.7%
24%
54%
22%
Private car 8.6%
Motorcycle 5.2%
Electromobile 5.4%
Walk 29.2%
Other 2.7%

LONDON

Cycle 1.6%
Taxi 0.9%
Walk 20.9%
Bus 18.1%
Motorcycle 0.8%
23%
37%
40%
Underground 9.7%
Rail 7.4%
DLR 0.5%
Car 40.1%

MEXICO CITY

Other 1%
Private vehicles 17%
Trolleybus 1%
Urban buses 7%
Suburban buses 4%
18%
82%
Collective taxi 54%
Metro 14%
Taxi 2%

excluding walk

JOHANNESBURG

Cycle 0.6%
Walk 32.3%
Mini bus/taxi 23.8%
33%
34%
33%
Bus 4.6%
Train 5%
Other 1.2%
Car as passenger 12.9%
Car as driver 19.6%

BERLIN

Cycle 10%
Public transport 27%
Walk 25%
35%
27%
37%
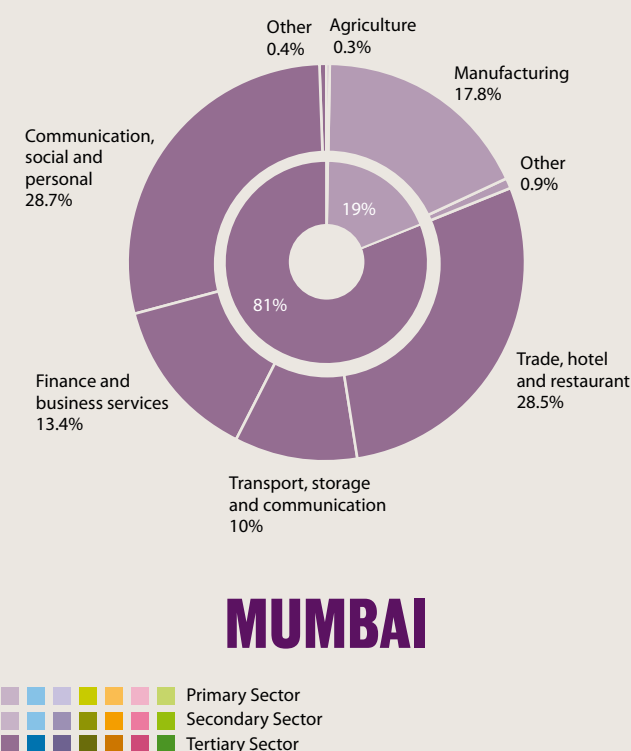Private car 37%

THE ECONOMY OF CITIES

Cities worldwide have become knowledge-based and service-oriented economies. Clearly evidencing this transformation is the distribution of employment by economic sector. In all of the Urban Age cities, the service sector employs more than half of the urban labour force. The transition appears the most far reaching in New York and London. Less than ten per cent of the urban labour force of both cities is engaged in industrial activities. Yet, cities are far from becoming mono-cultural 'office economies'. In fact, it is only in London that the financial and business services constitute the main employment category. Even in New York, it is 'other services' making up almost half of the employment base. This broad category includes a diverse range of urban activities such as personal, social, health, educational and entertainment services.
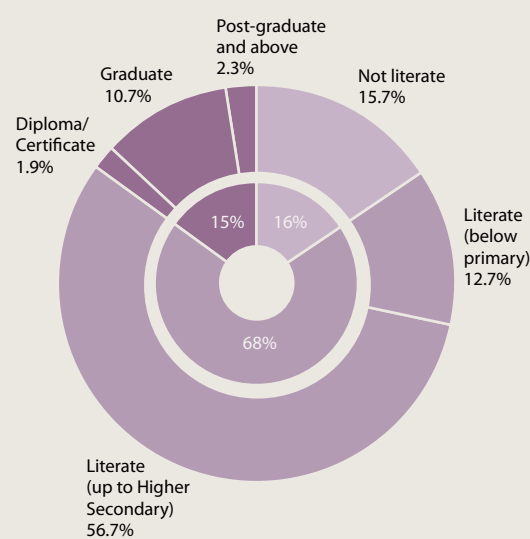
The reduced employment share of urban manufacturing does not diminish the importance of the sector. Manufacturing firms and urban production complexes still support the leading sectors of a city's economy, often through linkages that are far from apparent. Moreover, at the regional scale manufacturing remains a source of dynamism in and out of itself. Shanghai is a case in point. At the apex of one of the fastest growing metropolitan economies in the world that stretches along the Yangtze River Delta, Shanghai retains an important industrial base.

Various industries employ up to a third of the city's labour force, making manufacturing one of the pillars of this rapidly expanding economic node of global relevance.

The majority of people in Indian cities work in the services sector, even though the nature of 'services' is significantly different between Indian cities and other economies. While Mumbai, for example, has a high rate of 81 per cent in the general services sector, this includes communications, social and personal services as opposed to the business and financial services in other Urban Age cities. Of the Indian cities, Bangalore retains a significant amount of manufacturing with over 43 per cent and even Mumbai still employs 18 per cent of its population in the secondary sector, displaying a similar labour market distribution to Shanghai. The restructuring reflects a national trend whereby Indian cities are jumping to a predominantly service-based urban economy from a largely rural-based economy, side-stepping the protracted process of industrialisation that has affected so many cities of the western world.

Other 0.4%
Agriculture 0.3%
Manufacturing 17.8%
Other 0.9%
Communication, social and personal 28.7%
Trade, hotel and restaurant 28.5%
Finance and business services 13.4%
Transport, storage and communication 10%
19%
81%

MUMBAI

Primary Sector
Secondary Sector
Tertiary Sector

EDUCATION IN MUMBAI

Post-graduate and above 2.3%
Graduate 10.7%
Not literate 15.7%
Diploma/Certificate 1.9%
Literate (below primary) 12.7%
15% 16%
68%
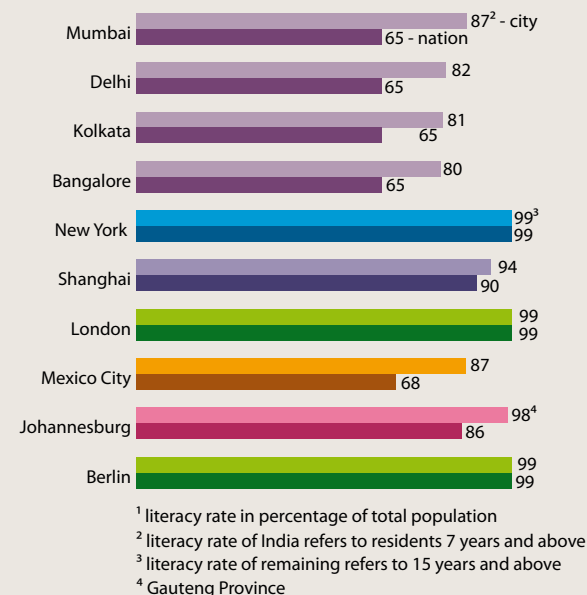Literate (up to Higher Secondary) 56.7%

Mumbai's education levels emphasise the importance for an inclusive labour market that offers opportunities for the city's vast majority only educated up to the secondary level. About 14 per cent hold some kind of college or university degree while almost 30 per cent have finished with school below primary levels or are even illiterate.

EMPLOYMENT IN MUMBAI[1]

self employed
Men 40.3[2] - 2004/05
35.2 - 1993/94
Women 29.2[3]
27.6

regular wage/salaried
Men 51.7
65.4
Women 68.9
69.2

casual labour
Men 8
2.1
Women 1.9
3.2

[1] aged above 15
[2] in percentage of total male employment
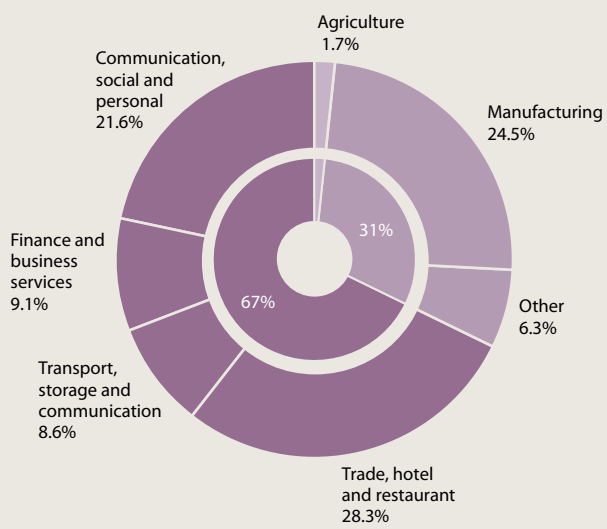[3] in percentage of total female employment

For men and women above the age of 14, Mumbai has a higher proportion of regular wage labour compared to urban India, with 70 per cent of women earning regular salaries compared to only 36 per cent in other urban areas. There has been a strong decrease for men in regular labour in Mumbai with a four-fold increase in casual labour, while female employment has remained more constant.
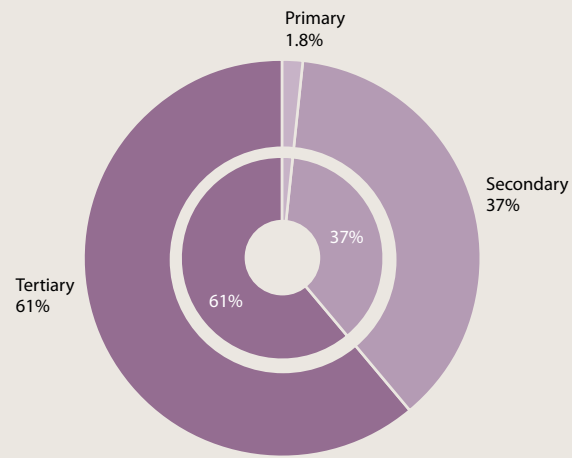
ADULT LITERACY[1]

Mumbai 87[2] - city
65 - nation
Delhi 82
65
Kolkata 81
65
Bangalore 80
65
New York 99[3]
99
Shanghai 94
90
London 99
99
Mexico City 87
68
Johannesburg 98[4]
86
Berlin 99
99

[1] literacy rate in percentage of total population
[2] literacy rate of India refers to residents 7 years and above
[3] literacy rate of remaining refers to 15 years and above
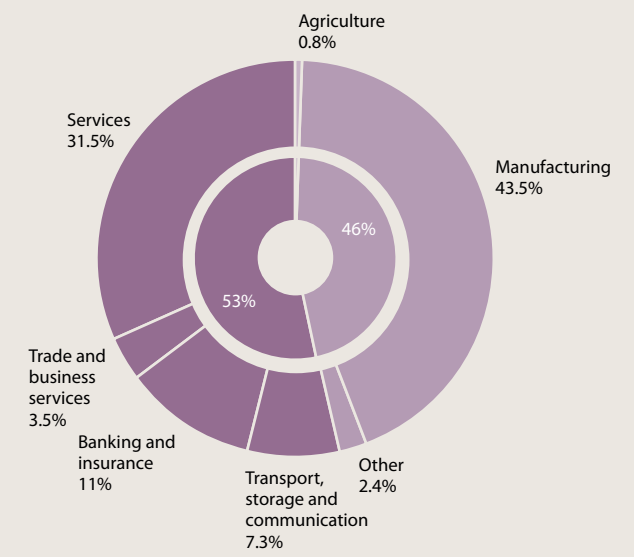[4] Gauteng Province

For all cities in developing world countries, the adult literacy rates are significantly higher compared to their national context. Large cities often offer better educational opportunities than other areas, and there may be an 'educated migrant' effect parallel to the healthy migrant one.
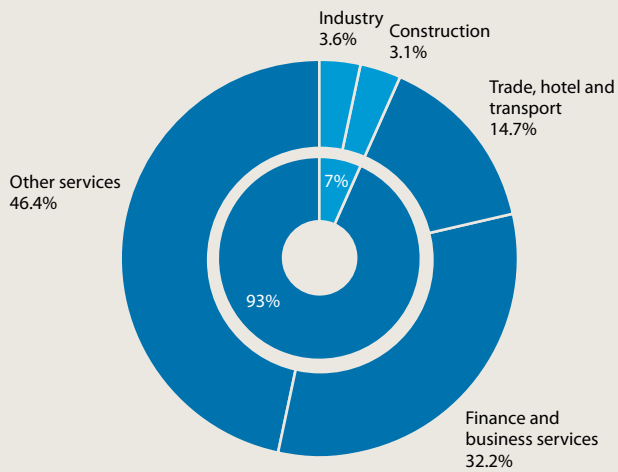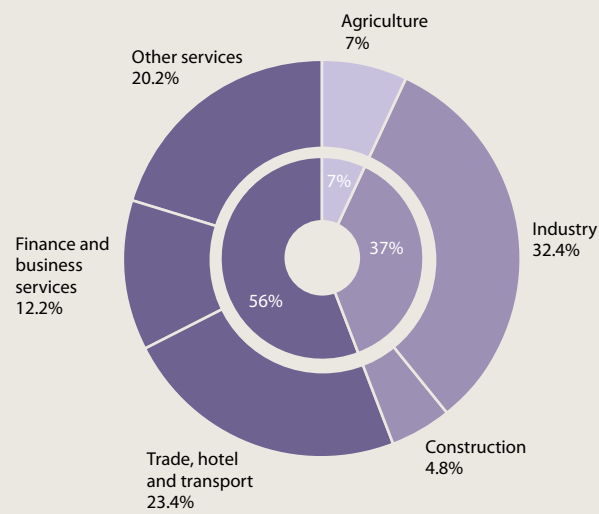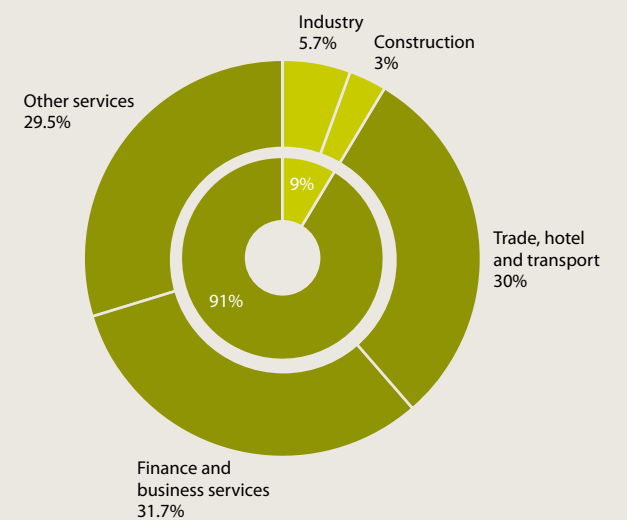
DELHI

Agriculture
1.7%

Communication,
social and
personal
21.6%

Manufacturing
24.5%

Finance and
business
services
9.1%

Other
6.3%

Transport,
storage and
communication
8.6%

Trade, hotel
and restaurant
28.3%

31%

67%

KOLKATA

Primary
1.8%

Secondary
37%

Tertiary
61%

37%

61%

BANGALORE

Agriculture
0.8%

Services
31.5%

Manufacturing
43.5%

Trade and
business
services
3.5%

Banking and
insurance
11%

Transport,
storage and
communication
7.3%

Other
2.4%

46%

53%

NEW YORK CITY

Industry
3.6%

Construction
3.1%

Trade, hotel and
transport
14.7%

Other services
46.4%

Finance and
business services
32.2%

7%

93%

SHANGHAI

Agriculture
7%

Other services
20.2%

Industry
32.4%

Finance and
business
services
12.2%

Construction
4.8%

Trade, hotel
and transport
23.4%

7%

37%

56%

LONDON

Industry
5.7%

Construction
3%

Other services
29.5%

Trade, hotel
and transport
30%

Finance and
business services
31.7%

9%

91%

MEXICO CITY

Agriculture
0.6%

Industry
13.5%

Other services
32.1%

Construction
5.8%

Finance and
business services
12.1%

Trade, hotel
and transport
35.9%

19%

80%

JOHANNESBURG

Agriculture
1.3%

Industry
13.4%

Other
37.1%

Construction
5.9%

Trade, hotel
and transport
24.2%

Finance and
business services
18.1%

19%

79%

BERLIN

Agriculture
0.4%

Industry
9.9%

Other
39.6%

Construction
5.2%

Trade, hotel
and transport
23.3%

Finance and
business services
21.6%

15%

85%
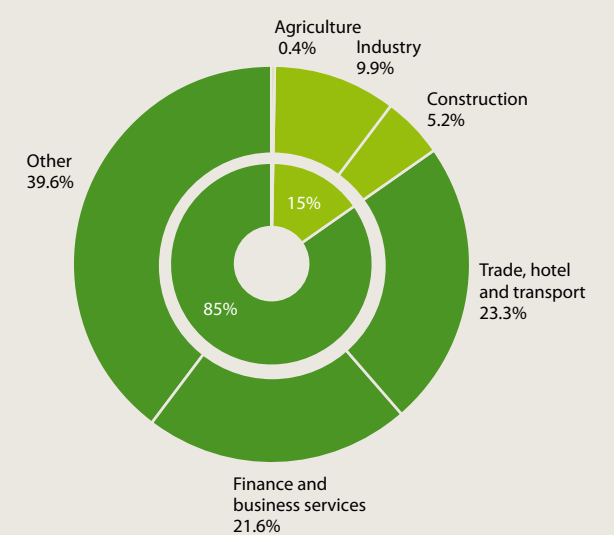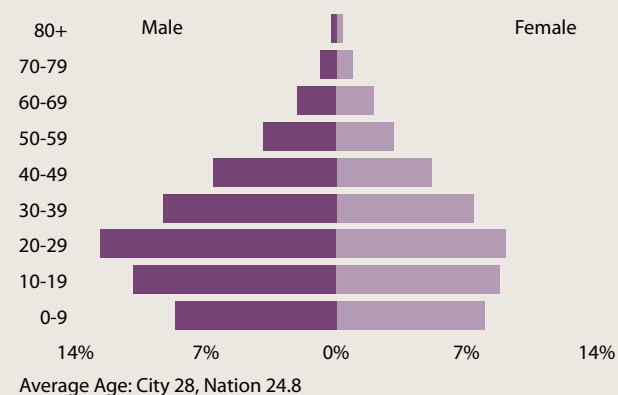
LIVING IN THE CITY

Although multi-dimensional, subjective and often difficult to measure, quality of life is a central aspect of a city's attractiveness. It indicates how well the city serves its residents. Life expectancy constitutes a useful initial indicator for this aspect of urban performance. The 'age pyramids' illustrated here further reveal a considerable variety among the Urban Age cities. In Mumbai, Kolkata, and Bangalore, the largest age group are of those in their 20s, reflecting a natural increase element in rapid population growth in the cities in the 1970s, but also the migration of young men to cities. Kolkata has the most mature age pyramid. It is the only Indian city with at least 7 per cent of the population in their 40s, and shows particularly low proportions of under 10s, partly because of a relatively small group in their 20s who are part of the potential parent group, but also perhaps because of a general reduction in fertility in the city. All the Indian cities have more male residents than female. The starkest differences are for the 20-29 age group, reflecting gender imbalance in migration, but in all the cities there are also more boys than girls aged 0-9, suggesting some parental influence over gender or a higher mortality rate for girls. Of the six other cities, the age distribution of Mexico City and Johannesburg comes closest to those of the Indian cities. For this group, average age ranges between 25 for Delhi and 32 for Kolkata. New York, London, Shanghai and Berlin generally have older populations ranging between 36 for New York and 42 for Berlin.
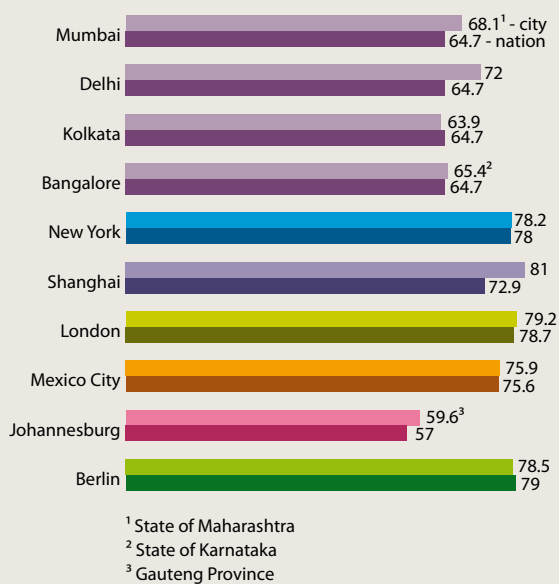
Cities that experienced the fastest growth and reached significant size 50 or more years ago are likely to have been through a period of relative or even absolute economic decline, which may have impacted on life chances. Whatever the economic activity that lead to this growth and the rationale for the city's role in it, it is likely to have become obsolete over time. The city's population and skills base may be linked to declining and poorly rewarded employment sectors, associated with lower life expectancy, such as heavy industry or manufacturing in richer countries. In addition, post-industrial decline may have led to out-migration, selectivity removing the economically able and healthy. This 'healthy migrant' thesis explains why in some 'old', post-industrial cities life expectancy may be worse than for the nation as a whole.

The healthy migrant thesis can also contribute to explaining why cities such as London, which faced population falls but then experienced a recent turnaround, partly through international migration, overall health conditions and life expectancy are better than national averages or what would be expected from residents' incomes.
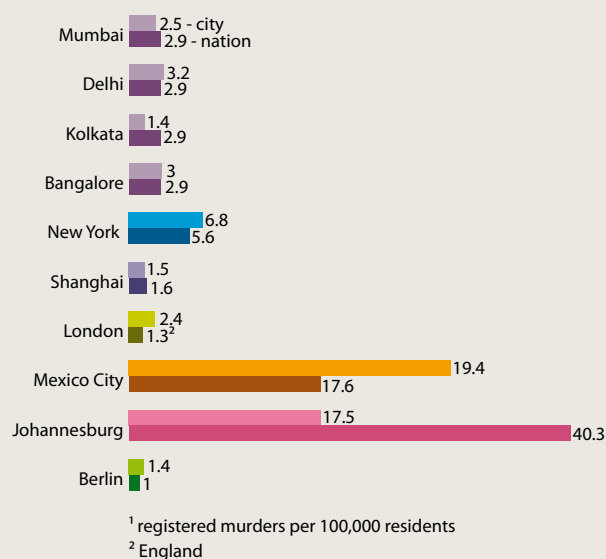

Average Age: City 28, Nation 24.8

MUMBAI

LIFE EXPECTANCY

Mumbai	68.1[1] - city / 64.7 - nation
Delhi	72 / 64.7
Kolkata	63.9 / 64.7
Bangalore	65.4[2] / 64.7
New York	78.2 / 78
Shanghai	81 / 72.9
London	79.2 / 78.7
Mexico City	75.9 / 75.6
Johannesburg	59.6[3] / 57
Berlin	78.5 / 79

[1] State of Maharashtra
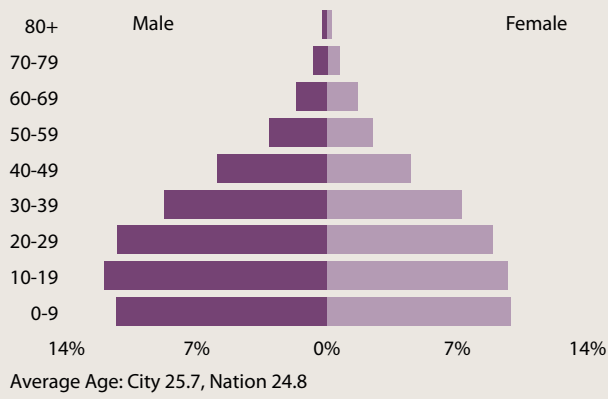[2] State of Karnataka
[3] Gauteng Province

A basic measure of city performance for residents – relative to other cities and to rural areas – is whether life expectancy in the city is higher or lower than in other areas. The picture here is mixed. Residents of London, Shanghai, Delhi and Bangalore can expect to live longer than residents in respectively the UK, China and India generally. However, those in Berlin and Kolkata do worse.
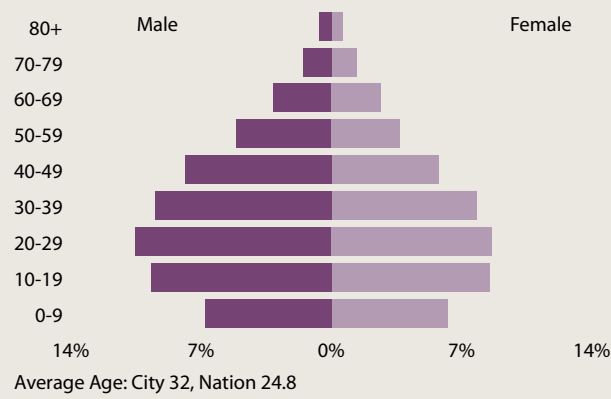
MURDER RATES IN THE CITY AND COUNTRY[1]

Mumbai	2.5 - city / 2.9 - nation
Delhi	3.2 / 2.9
Kolkata	1.4 / 2.9
Bangalore	3 / 2.9
New York	6.8 / 5.6
Shanghai	1.5 / 1.6
London	2.4 / 1.3[2]
Mexico City	19.4 / 17.6
Johannesburg	17.5 / 40.3
Berlin	1.4 / 1

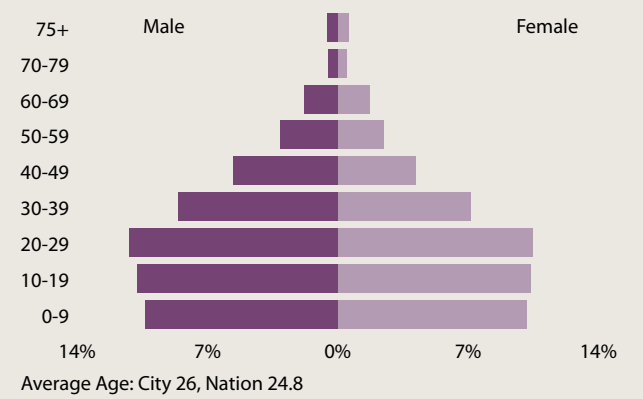[1] registered murders per 100,000 residents
[2] England

Murder rates in each of the ten cities generally follow the national pattern. Mexico City and Johannesburg have by far the highest rates with 19 and 17 murders per 100,000 residents respectively. The Indian cities have relatively low rates similar to London and Shanghai.
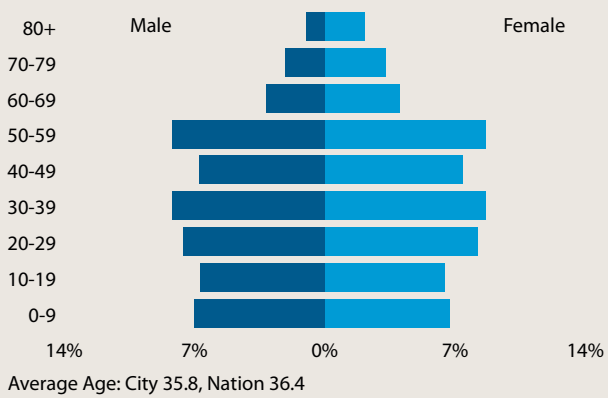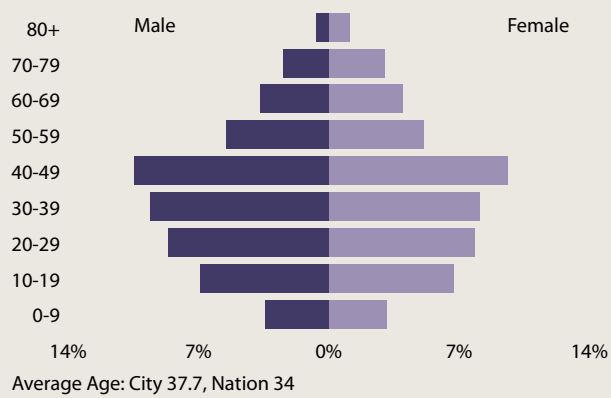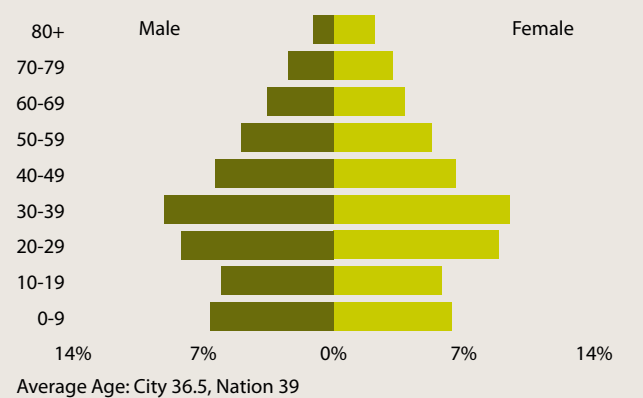
DELHI

Average Age: City 25.7, Nation 24.8

KOLKATA

Average Age: City 32, Nation 24.8

BANGALORE

Average Age: City 26, Nation 24.8

NEW YORK CITY

Average Age: City 35.8, Nation 36.4

SHANGHAI

Average Age: City 37.7, Nation 34

LONDON

Average Age: City 36.5, Nation 39

MEXICO CITY

Average Age: City 29, Nation 29

JOHANNESBURG

Average Age: City 29.1, Nation 26.7

BERLIN

Average Age: City 42.2, Nation 41.6
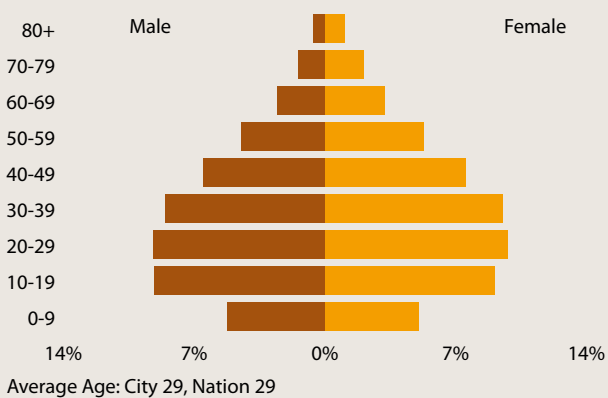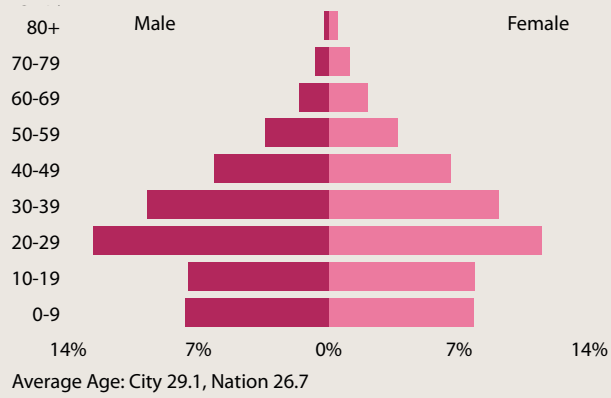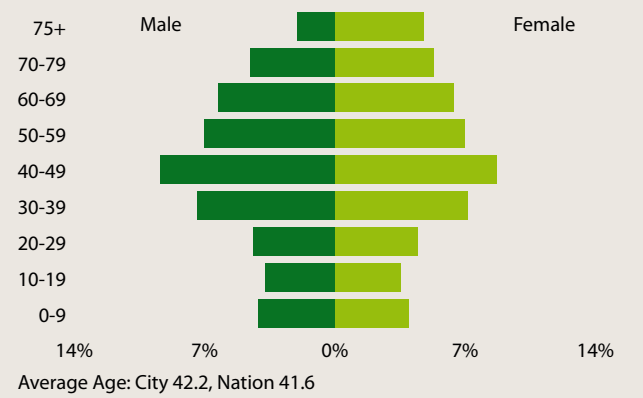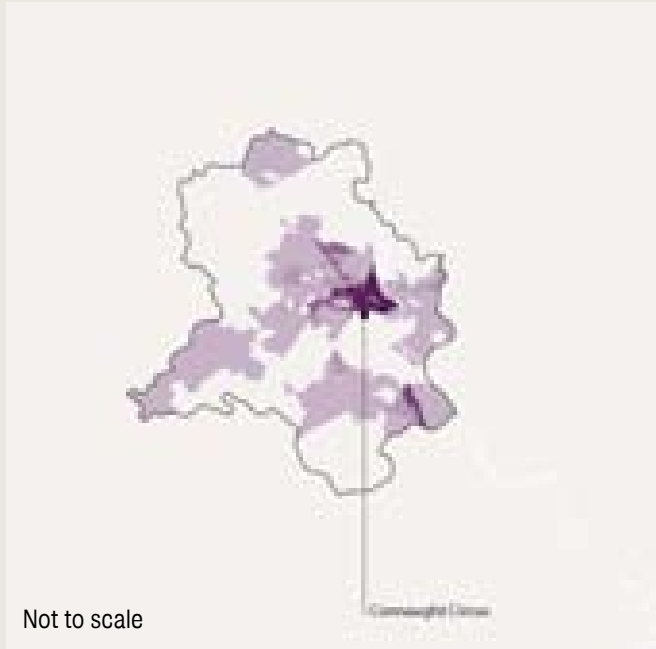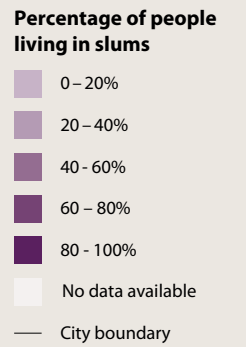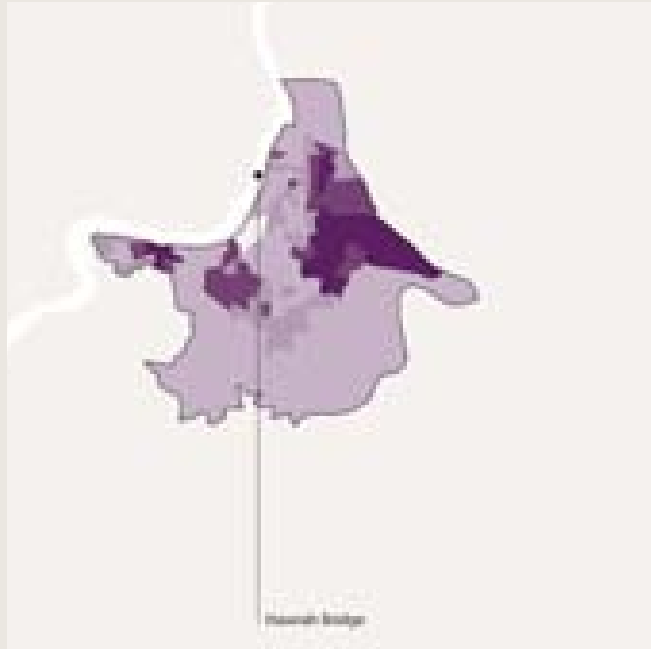
HOUSING INDIA'S URBAN POOR

Poor housing and deficient infrastructure stand among the most pressing challenges for cities worldwide. These conditions constitute a priority for action in the contemporary urban age. India's slums exemplify the predicaments of improving the urban quality of life in heavily populated areas with rapid growth. Although the problems of precarious urbanisation are not limited to the country, the extent of slums in India makes its cities unparalleled sites to reflect on strategies to better accommodate the growing number of urban residents and their multiple needs.
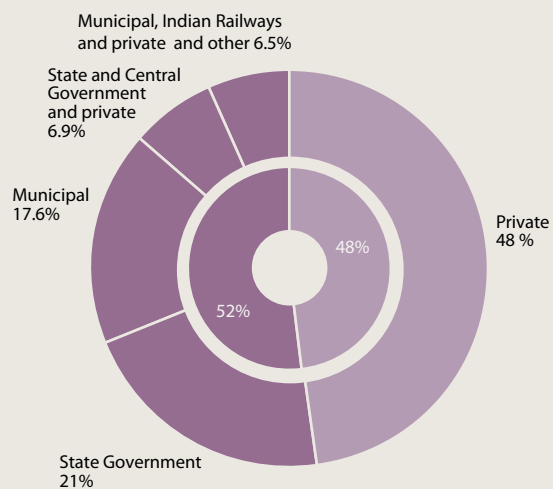
Percentage of people living in slums

- 0 – 20%
- 20 – 40%
- 40 - 60%
- 60 – 80%
- 80 - 100%
- No data available
- — City boundary

Not to scale

DELHI

KOLKATA

BANGALORE

MUMBAI

MUMBAI'S SLUM LAND OWNERSHIP

Municipal, Indian Railways and private and other 6.5%

State and Central Government and private 6.9%

Municipal 17.6%

Private 48 %

48%

52%

State Government 21%

This aerial view of Dharavi (1:11,500) captures the fine grain density of the area's 2.36 km² (583 acres) and location in the heart of Mumbai, surrounded by multiple transport routes and middle income suburbs.

UNCOVERING THE MYTH OF URBAN DEVELOPMENT IN MUMBAI

The current forms of migration in Mumbai, according to **S. Parasuraman**, are not only a sign of dynamism - they also reflect the problems associated with increasing inequalities, declining rural economies and inadequate employment generation that affect many parts of rural and urban India.

Mumbai has evolved from being a fishing hamlet to a colonial node, subsequently to being the cradle of textile civilisation, and in contemporary times is has become the hub of India's commerce and finance. The most widely held popular perception about Mumbai is that of a city of opportunity for people from across South Asia, and now even beyond. These opportunities have of course been distributed unevenly, with Mumbai's rich and poor co-existing, and not always peacefully, with fundamentally differing entitlements to basic services – water and sanitation, health care and nutrition. In some of its large slums – the suppliers of cheap labour – children from poorer homes die because these slums exhibit malnutrition, morbidity and mortality levels closer to those current in the states of Bihar or Orissa. About 60 per cent of Mumbai's population lives in such slum areas, occupying a mere 8 per cent of land, and their lives are characterised by degraded housing, poor hygiene, congestion, inadequate civic services and yet expanding peripheries of its slumming suburbs – with Dharavi as its epicentre.

Population change in a megapolis like Mumbai occurs both due to natural increase and migration. While migration has in the past played a significant role in changing the demographic profile of Mumbai, the contribution of migration to population growth has declined consistently. This decline has happened in tandem with an unprecedented natural increase in the population.

Migration from northern Indian states increased substantially between 1961 and 2001 and is higher than migration to the city from within the state, and continues to remain male dominated. Much of this migrant population is being absorbed by Mumbai's peripheral urban agglomerations like Navi Mumbai, Thane, Kalyan and Mira-Bhayander, thus, contrary to what is generally perceived, not congesting the main city districts. There is a significant dispersal of population from Greater Mumbai to these nearby cities. This is also evident from the population growth differential between Greater Mumbai and other units of the Greater Mumbai Urban Agglomeration – showing that the rate of migration is much faster in these Urben Agglomerations than in Greater Mumbai itself.[1] Secondly, it is the migrants from within the state settling down, coupled with the birth rate within the city that contributes to its population growth.

Migration from the southern states of India has declined between 1961 and 2001.[2] This change took place over a period of time and was fuelled by a number of natural evolutionary factors, such as changing employment patterns from manufacturing to commercial and service sectors, especially IT, banking, media and communications. People from the south also found other destinations such as Bangalore and Hyderabad. This trend gives important clues on how policy interventions can be induced to decelerate migration into already unwieldy cities like Mumbai.

It is worthwhile to understand the initial development of suburban areas of Mumbai from a historical perspective. Upon the circular issued to the Bombay Chamber of Commerce and the Municipal Corporation in 1908, inviting suggestions for addressing the problem of acute shortage of housing for the poor, Arthur Crawford, the then Municipal Commissioner, emphasised the importance of comprehensive urban planning in his 'The Development of New Bombay: A pamphlet'. This was the beginning of the city's urban sprawl. In the 1960s the distribution of the population presented an interesting scenario with the island and suburbs having a more or less equal share. The suburbs have grown at a much faster rate over the past three decades contributing to increased density. Effective planned development of suburbs has not taken off as envisaged due to the lack of supporting infrastructure and a sound policy environment for development of residential and commercial nodes.

The availability of physical space for people living in the city can be understood as a key factor in the quality of life of the city's residents. The population density defined as number of persons living within an area of 1 km^2 presents the most striking feature about Mumbai. In 2001, the average population density for Mumbai city was 27,000 people per km^2. Ward C is one of the most densely populated areas with a density of 114,001 people per km^2.

Mumbai's economy has witnessed a significant transition in the pattern of employment during the last four decades. Today a majority of the employment is in the tertiary sector, which accounts for almost 81 per cent of the total employment. The growth of the financial sector fostered the growth of other sectors such as telecommunications, construction and real estate. Employment in the informal sector

POPULATION GROWTH IN MUMBAI
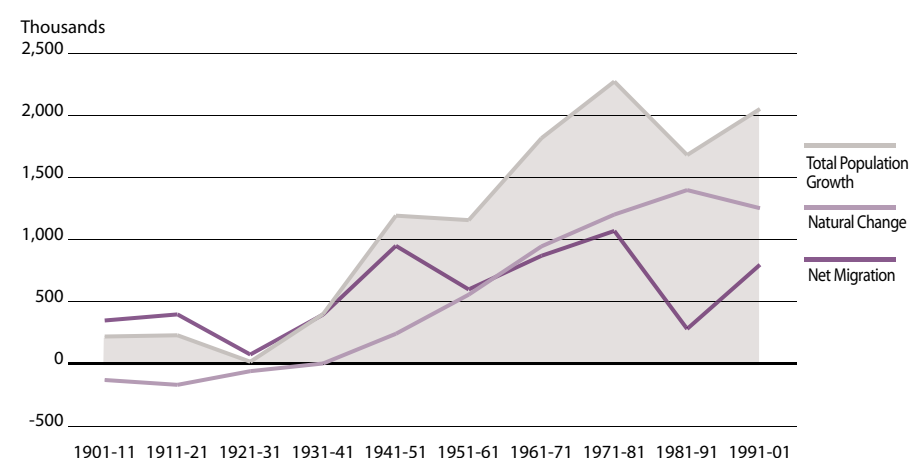
	1961	2001
Total Population (in thousands)	4,152	11,978
Migrants percentage	64.24	43.29
Within state migrants percentage	26.75	16.19
Others States within country migrants percentage	34.09	26.48
International Migrants percentage	3.37	0.62

MUMBAI FACT SHEET

- 27,348 person/km^2 = average population density of Greater Mumbai
- 17.76 million people live in the Mumbai Metropolitan Region
- 81% of jobs in the service sector
- 55% trips are made by walking
- 344,817 registered cars
- Greater Mumbai area = 438 km^2
- 300 km long suburban rail system
- 2% of all trips made in private cars
- 6.5 million people travel on Mumbai's rail system each day
- 11% of Mumbai's surface covered by roads
- 2,893 NGOs
- 43% open green space in Greater Mumbai
- 56% of households lack toilets
- 48% of slums built on private land
- 10 million people in the Mumbai Metropolitan Region live in slums
- 61% of population growth due to natural increase
- 19 persons killed each day in transport related accidents
- 420% increase in auto rickshaws over the last 15 years

Left: The 2.4 km J.J. flyover cuts a labyrinthine path through the city's historic buildings and 24-hour buzz of activity.

Chirodeep Chaudhuri

(wage labourers, hawkers) has grown at a faster rate than that in the formal sector, resulting in its share of total employment increasing over time. The growth of formal-sector employment in the services sector has not been adequate to fill the gap and thus former mill and other manufacturing workers were absorbed by the informal sector.

A large majority of the male migrants (49.1 per cent) coming to Mumbai are employed in 'production related' jobs. In terms of inter-industry distribution, a majority of them work in industries requiring semi-skilled and unskilled workers with minimal educational qualifications. In contrast, the non-migrants have dominated white-collared professional, technical, executive and managerial jobs, including clerical and sales jobs in various service-based industries that outnumber jobs taken by migrants.[3] The current rapid growth of the Indian economy is fuelled by these various movements of labour. But, the current forms of migration are not only a sign of dynamism – they also reflect and come with increasing inequalities, agrarian crises and inadequate employment generation in many parts of rural and urban India.

Large construction activities and other major public works in Greater Mumbai depend upon labour drawn from villages within and outside Maharashtra. While the migrants are indispensable to the city's economy as they fulfil the demand for low-paid and unskilled jobs, their residential patterns are being altered fundamentally. In the recent past the residential pattern of Mumbai showed slums co-existing with better-off residential complexes locating the poor close to their workspaces. The accelerated slum clearance programme may be creating opportunity for the poor to 'own' their houses, but a side effect is that it severely compromises their ability to access viable livelihoods as they are forced to relocate to the far peripheral areas of the suburbs.

The notion of lack of space within the city is a contested one when as areas of prime land are locked up in dead mills in the heart of the city. In addition, there are huge stretches of dock land on the eastern waterfront that are lying redundant. Finally there are the salt pan lands that cannot be used because of obsolete land ceiling legislations applicable in the city. Migration and the resulting slums are inevitable as the cities will always be magnets attracting people for better economic opportunities. What is important is a multi-pronged approach to slow down migration and to also manage and troubleshoot it properly through strategies such as alternate urban centres, the creation of sustainable rural business hubs and the provision of affordable housing within the city.

Given the ever-expanding volume of traffic between the city and suburbs it is important to develop efficient and sustainable transport networks that facilitate faster movements at lower social, environmental and economic costs. The option of the metrorail coupled with monorail and underground parking lots is seen as the best option. It is however of great significance that out of 135 metro corporations in the world, only 4 are making operational profits. These include the metrorail transports in Singapore, Taiwan, Hong Kong and Delhi. The Delhi Metro Rail Corporation (DMRC), is said to also be falling into the trap of loss-making corporations, with losses amounting to 76.33 crore (US$19.3 million) annually, as reported by a leading daily newspaper. Some transport experts are suggesting that the total project costs of the metro, presently estimated at 19,525 crore (US$4.9 billion), may have been gravely under-projected and will in actuality be three times higher.[4] Considering Mumbai's topography, land constraints and the massive disruption and displacement and relocation of people and other infrastructure involved, the costs in Mumbai are likely to be astronomical. However decision makers seem unimpressed by the availability of safe, indigenous and relatively low cost, high load bearing, sustainable, and scalable commercially ready technologies like Skybus or Rapid Bus Transit Systems.

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Footnotes

1 K. Gupta and P. Yesudian, 'Is Mumbai Losing Its Attraction for Migrants?', The Indian Journal of Social Work, Volume 67, Issue 3, July 2006.

2 B. Viju, 'Migration to city from south falling', 5 August 2007, Times News Network.

3 Occupational distribution of workers age 15 years and above in Mumbai by Migration status and sex: 1983, 1987–88, 1993 and 1999-2000. 'NSS 55th Round, 1999-2000', in D. P. Singh, 'Migration in Mumbai: A review of 50 years', Demography India, 2007.

4 J. Jaya. 'Mumbai needs Skybus, not Metro', One India One People, October issue, 2006.

Residents take water from a community tap in a slum in Dahisar, a northern suburb of Mumbai.

Rajesh Vora

A MATTER OF PEOPLE

As a putative 'world class city' which turns a blind eye to its priorities and where size really does matter, **Darryl D'Monte** argues that whatever direction Mumbai takes will have a bearing on the future of cities in developing countries.

Mumbai means different areas for different people and many citizens are only dimly aware that it ranks as a megacity with more than 10 million inhabitants. This is party because Greater Mumbai, the city proper, occupies 438 km² yet is often confused with the Mumbai Metropolitan Region, which is almost ten times bigger (4,355 km²) and includes the outlying townships of Kalyan and Thane, which are 1 million-plus cities in their own right.

There is confusion, too, over the population and, as a corollary, the extent of migration. Many experts conjure up images of a city bursting at the seams, yet more than two decades ago, an authoritative study for the Planning Commission, led by Rakesh Mohan, showed that India's urban growth is in fact not rapid when compared to the international developing country standards of Africa and Latin America. Soon after, the National Commission on Urbanisation, headed by Charles Correa, reiterated this and noted that unlike many other South and South-East Asian countries, India's urban growth was evenly spread throughout the country. In the highly urbanised state of Maharashtra, the cities of Pune, Nashik and Nagpur are growing far faster than Mumbai. This is partly because India, unlike many of its neighbours, does not have a primate city.

Political parties and some NGOs have raised the spectre of hordes of migrants pouring into Mumbai but the truth has been different. People do not stream into Mumbai because of its bright lights; they come for jobs, not homes, and they live in far worse conditions once they get here. According to the International Institute of Population Studies, only 480 people – not families, as is commonly mistaken – come into the city every day. According to the last census in 2001, Greater Mumbai had a population of

Children in the neighbourhood of Khar, a suburb of Mumbai, play on the sloping roof of a pedestrian subway entrance along the busy Western Express Highway.

just under 12 million; thus it has presumably a population of somewhere close to 15 or 16 million now. Migration as a proportion of the total population is also declining. In the 1970s, the proportion of migrants was close to 70 per cent with a natural increase of 30 per cent. The proportions have now reversed. This is no surprise, considering that formal employment in the city is declining, with the closure of mills, chemical factories and even some multinational industries.

While the rate of growth may not be dramatic, size does matter. The outlying areas of the metropolitan region are expanding faster than the core, especially the 100 km² of the island city. According to the Washington-based Population Institute, the metropolitan region in 2020 will be the world's most populous at 28.5 million, with Tokyo trailing at 27.3 million.

Whatever direction Mumbai takes will have a bearing on the future of cities in developing countries. This is partly due to its sheer size, but also its diversity, its specific problems (housing and transport being two of the most pressing) and, not least, the democratic framework in which it functions. There is a sharp contrast with China in general and Shanghai in particular, with which it is frequently compared, with regards to the last issue.

Yet to project Mumbai as a 'world-class city' turns a blind eye to its priorities, mainly the overwhelming poverty of its citizens. One must remember that India, despite its nearly two-digit GDP growth, is home to the largest number of poor people in the world. And there is no city in the country with as large a proportion of its residents living in slums, officially put at 54 per cent or nearly
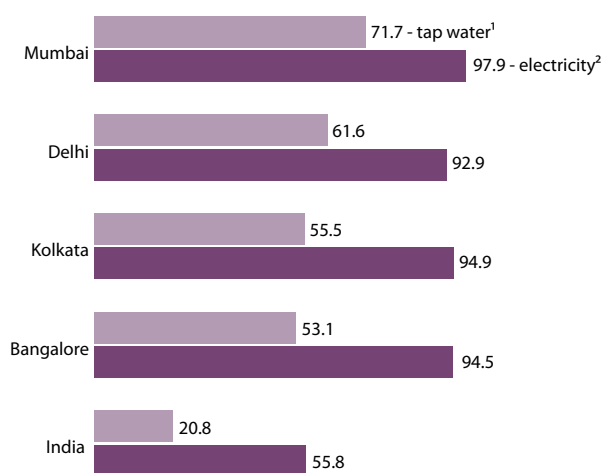
6.5 million people in Greater Mumbai.

A second problem is the astronomical price of real estate, especially for commercial space, in the two central business districts of Nariman Point and the Bandra-Kurla Complex (BKC). Recent reports about Nariman Point losing out to its competitors in the north and the impending real-estate boom on mill land in midtown Mumbai must be understood in conjunction with the fact that in upmarket areas, a single-bedroom flat is virtually impossible to find. Indeed, Mumbai has the unique distinction of possessing less than one acre of open space for every thousand people, while the norm is (4 acres) (or 0.016 km²).

Dharavi, said to be Asia's largest slum, lies cheek-by-jowl with the Bandra-Kurla complex and has attracted nearly 80 real estate giants in the redevelopment bid for the Rs.9,250 crore (US$234.65 million) 0.4 km², new high-rise township. This negates the rationale of resettlement, because it ignores Dharavi as a work-cum-living space. As one of the most intensive recycling centres in the county, residents in Dharavi use their homes to sort and sew in addition to hundreds of other occupations. With the redevelopment scheme currently proposed, they will likely be unable to afford the monthly maintenance charges in the new high-rise redevelopment and will instead sell out to move to another slum colony. In effect, Dharavi's squatted-upon land will be privatised and gentrified.

All this has a bearing on the governance of Mumbai. There have been calls to establish Mumbai as a separate city-state – a la Singapore – seceded from the rest of Maharashtra, not to mention India. Although appropriating a larger share of the income and corporate taxes paid in the city, this would be dangerous because it militates against the very essence of the democratic process. This apart, the collection of direct taxes is disproportionately high because head-offices of companies with nation-wide operations are based in the city (although the amount of personal tax evaded may form a large proportion of the revenue). The object should be to bring about a more cohesive integration of Mumbai into Maharashtra – so that, for instance, some Rs 15,000 crores (US$378.8 million) are not spent on road projects in the city but diverted to irrigation and other schemes in Vidarbha and other depressed regions where farmers have been committing suicide in recent years.
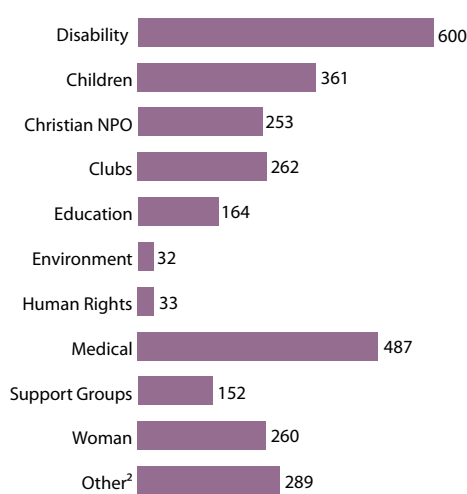
The call for a CEO for Mumbai should also be treated with caution. Mumbai is not a corporate entity which lends itself to better corporate governance but a highly variegated and diverse city. As any Municipal Commissioner will testify, there are pulls and pressures at every move from political parties which are represented in the corporation. The city could certainly be run better and there is no reason why a hands-on mayor cannot be elected to do the job, as is the case in New York and London. Doing so might also address the allegation that the constituency of the state government is in rural areas with ministers treating Mumbai

HOUSEHOLDS WITH TAP WATER AND ELECTRICITY

Location	tap water[1]	electricity[2]
Mumbai	71.7	97.9
Delhi	61.6	92.9
Kolkata	55.5	94.9
Bangalore	53.1	94.5
India	20.8	55.8

[1] percentage of households with tap water within premises
[2] percentage of households with electricity as source for lighting

NGO's IN MUMBAI[1]

Category	Number
Disability	600
Children	361
Christian NPO	253
Clubs	262
Education	164
Environment	32
Human Rights	33
Medical	487
Support Groups	152
Woman	260
Other[2]	289

[1] number of institutions by category
[2] includes animal welfare, art and culture, finance, hawkers, media, senior citizen, sports, slums

as a cash cow; for although Maharashtra, like the rest of India, is still a predominantly rural society, it should be administered in a more comprehensive, rather than exclusionary, way.

Executives of US companies with a market cap of over US$1 trillion recently held a closed-door meeting in New York with their Indian counterparts. The agenda was to make Mumbai a major financial centre, yet the dilemma in projecting Mumbai as a world-class city excludes people from this process. In the demonisation of slum dwellers, sought to be disenfranchised by politicians and community leaders, decision-makers posit a 'them' versus 'us' dichotomy. However, if the homeless are a majority, they surely deserve to be accorded a priority in planning.

Public transport is an illustrative case-in-point. In this mega city, more people use public transport than anywhere else in the world. Only 4.7 per cent of commuters use private motorised transport, 7 per cent use taxis and auto rickshaws and an overwhelming majority, 39 per cent, use public transport. World Bank studies show that on top of that as many as 56.3 per cent walk or cycle to work; an appropriately high number given that more than half the population lives in slums and close to 70 per cent of all Mumbaikars occupy just one room. This compares to a total of 81 per cent of public transport users in Tokyo.

The Centre for Science and Environment in New Delhi has shown that a car requires 23 m² to park, including the space needed for entry and exit. Since Delhi has as many car users (920,723 registered) as the rest of the three metro system users put together, it estimates that the physical space occupied by cars equals that of the capital's slum dwellers. Since Mumbai's squatters occupy only 9 per cent of the city's area, it would be interesting to know what proportion is occupied by cars. More importantly, one wonders which is a bigger nuisance? And who are vilified in the public discourse?

Mumbai can opt for inclusive growth. It can also go the way of several other megacities by creating high-rise enclaves for the rich and powerful, surrounded by a mass of poor and powerless citizens. One hopes the Urban Age India conference raises some of these fundamental issues.
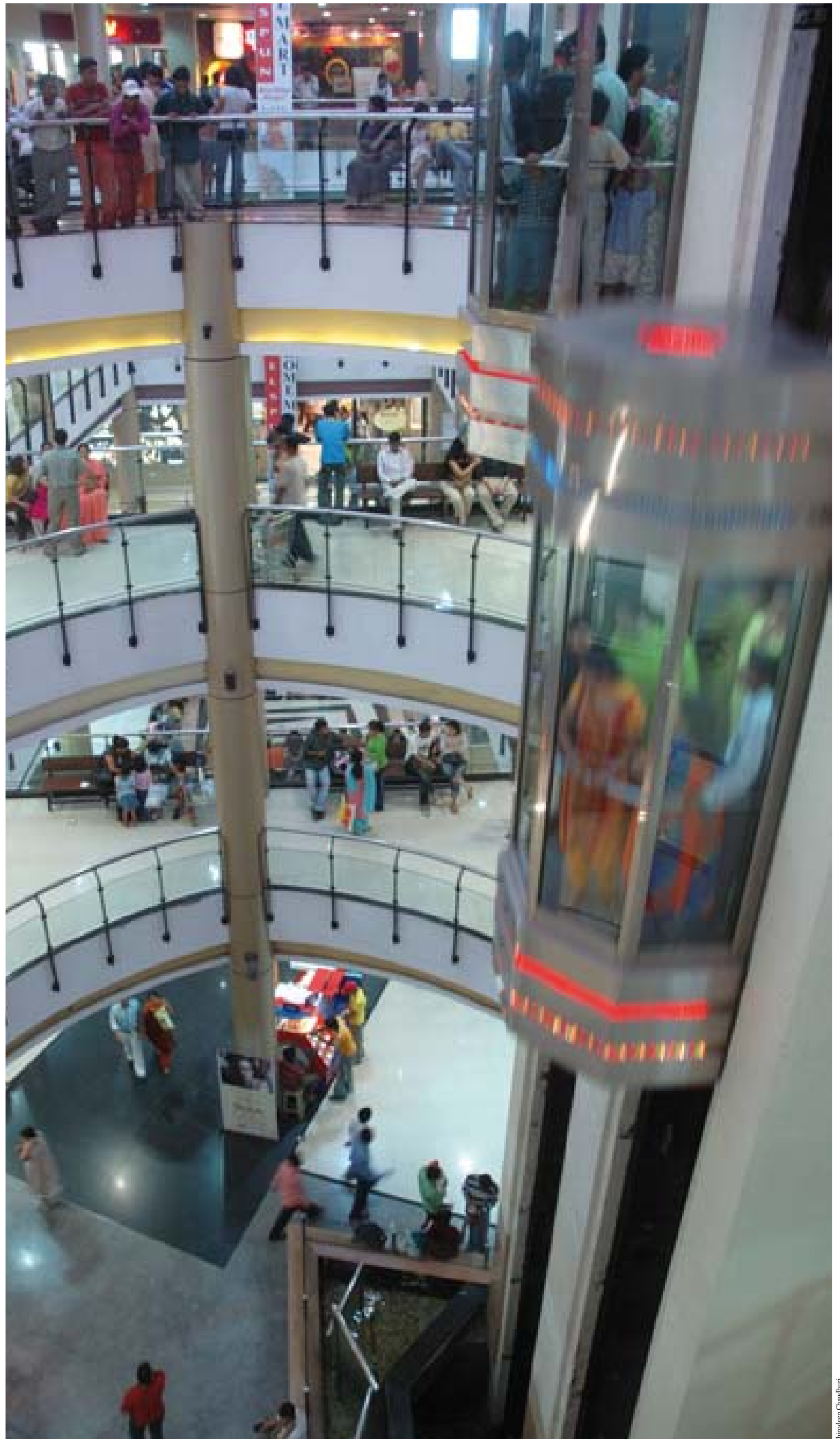
Darryl D'Monte, former Resident Editor of The Times of India, is the Chairman of the Forum of Environmental Journalists of India (FEJI) and writes a column on the environment and development.

Chirodeep Chaudhuri

Big, bright shopping malls such as the R-Mall in Mulund cater to the affluence and increased mobility of Mumbai's emerging middle class.

MAXIMUM CITY

In the eyes of the writer **Suketu Mehta**, Mumbai is both an assault on the individual's senses and an island-state of hope in a very old country. Here he sets out his personal account of why Mumbai is 'a bird of gold'.

On 27 July 2005, Mumbai experienced the highest recorded rainfall in its history – 939.8 mm of rain in one day. The flood showed the worst and the best of the city. Hundreds of people drowned. But unlike the situation after Katrina hit New Orleans, there was no widespread breakdown of civic order; even though the police were absent, the crime rate did not go up. That was because Mumbaikers were busy helping each other. Slum-dwellers went to the moyotway and took stranded motorists into their homes and made room for one more person in shacks, where the average occupancy is seven adults to a room. Volunteers waded through waist-deep water to bring food to the 150,000 people stranded in train stations. Human chains were formed to get people out of the floods. Most of the government machinery was absent, but nobody expected otherwise. Mumbaikers helped each other, because they had lost faith in the government helping them. On a planet of city dwellers, this is how most human beings are going to live and cope in the twenty-first century.

At 15 million people within its municipal limits, Mumbai is the biggest, fastest, richest city in India, a city simultaneously experiencing a boom and a civic emergency; an island-state of hope in a very old country. Because of the reach of Bollywood movies, Mumbai is also a mass dream for the peoples of India. If you take a walk around Mumbai you'll see that everything – sex, death, trade, religion – are lived out on the pavement. It is a maximum city, maximum in its exigencies, maximum in its heart.

Why do people still live in Mumbai? Every day is an assault on the individual's senses, from the time you get up, to the transport you take to go to work, to the offices you work in, to the forms of entertainment you are subjected to. The exhaust is so thick the air boils like a soup. There are too many people touching you, in the trains, in the lifts, when you go home to sleep. You live in a seaside city, but the only time most people get anywhere near the sea is for an hour on Sunday evening on a filthy beach. It doesn't stop when you're asleep either, for the night brings the mosquitoes out of the malarial swamps, the thugs of the underworld to your door, and the booming loudspeakers of the parties of the rich and the festivals of the poor. Why would you want to leave your brick house in the village with its two mango trees and its view of small hills in the East to come here?

So that someday your eldest son can buy two rooms in Mira Road, at the northern edges of the city. And the younger one can move beyond that, to New Jersey.

Your discomfort is an investment. Like ant colonies, people here will easily sacrifice their temporary pleasures for the greater progress of the family. One brother will work and support all the others, and he will gain a deep satisfaction from the fact that his nephew is taking an interest in computers and will probably go on to America. Mumbai functions on such invisible networks of assistance. In a Mumbai slum, there is no individual, there is only the organism. There are circles of fealty and duty within the organism, but the smallest circle is the family. There is no circle around the self.

India frustrates description because everything you can say about it is true and false simultaneously. Yes, it could soon have the world's largest middle class. But it now has the world's largest underclass. And so with Mumbai. Everything is expanding exponentially: the call centres, the global reach of its film industry, its status as the financial gateway to India; as well as the slums, the numbers of absolutely destitute, the degradation of its infrastructure. The city's planners have their eyes set firmly on Shanghai, as a model for Mumbai. The government approved a McKinsey-drafted document titled 'Vision Mumbai', which aims to turn Mumbai into 'a world-class city by 2013'. As the architect Charles Correa noted of the plan, 'There's very little vision. They're more like hallucinations.'

Of the millions traveling on Mumbai's 300 km long suburban rail system each day, close to 3,000 deaths per annum result from people crossing the rail line tracks or falling off the train.

BUSINESS PLAN FOR THE MUMBAI METROPOLITAN REGION

With 'world class' status on the minds of many urban leaders, 'city visions' are increasingly utilised as a necessary instrument to guide optimistic intentions. Viewed as both a measuring stick and a beacon of bold moves, it is hoped they will create some degree of order and prioritized action in the midst of speed, complexity and chaos.

In Mumbai, a Task Force appointed by the Chief Minister following the Bombay First-McKinsey report, Mumbai Vision: Transforming Mumbai into a world class city, set out to establish 'a vibrant economy and globally comparable quality of life for its citizens'. The Mumbai Metropolitan Region Development Authority – acting at the behest of the Government of Maharashtra – initiated this effort by appointing a private consultant to prepare the Business Plan for the Mumbai Metropolitan Region.

Mumbai's Business Plan aims to ensure a 'competitive, liveable, bankable, well-governed' metropolitan region, reducing slums from an incredible 50-60 percent to 10-20 percent, while at the same time growing annual GDP to 8-10 percent.

This ambition is coupled with an aspiration to reduce air pollution and increase educational attainment as well as travel speeds. Given the immense challenges and the inherent conflicts between the scores of quantifiable goals and personalities, the vision argues for strong governance reforms and lower tax rates to stimulate the market and increase the necessary resources to fund, among many other investments, the tripling of its freeways and expressways.

The foundation for the Business Plan includes the usual benchmarks for housing, the environment, healthcare and various modes of transport among other priorities. While defining these elements creates the mechanisms with which goals can be achieved, given what we know of the causes and consequences of global warming, countries, states and their cities – irrespective of their economic starting point – will have to redefine the concept of 'resource mobilisation' if they are to create a truly sustainable future.

Mumbai needs to dramatically upgrade essential civic services: roads, sewers, transport, health, security. But, as one planner said to me, 'The nicer we make the city, the more the number of people that will come to live there'. The greatest numbers of migrants to Mumbai now come from the impoverished North Indian states of Uttar Pradesh and Bihar. Mumbai's problems cannot be solved until Bihar's problems are. You have to keep them down on the farm. And that means that agriculture has to become viable again for the small farmer. Abolishing trade-distorting subsidies in the United States and the EU would go a long way towards making, say, Indian cotton competitive with American cotton. Mumbai is at the mercy of national and international factors beyond its control.

Then there are the steps that Indian governments could take. There is no reason Mumbai should be the capital of Maharashtra state. Shifting the state government to Navi Mumbai across the harbour, as was originally intended, would free up large amounts of space in the congested office district of Nariman Point. Beyond that, there has to be legislation establishing a strong executive authority for the city, with real decision-making power. The office of the mayor is currently no more than a figurehead; the city is run at the whim of the Chief Minister, and the state's interests are not necessarily those of the city. There are smart and brave architects and planners who are attempting to work with the state government. But they are trying to reason with people who come from the villages, who do not have a metropolitan sensibility. Mumbai needs a mayor with vision and political power to push through the enormous infrastructural projects that the city so badly needs. The city, which contributes 37 per cent of all the taxes paid in India, gets only a small fraction of it back from the central government in the form of subsidies.

Land should be opened up in the south-eastern part of the island, much of which is occupied by a naval and commercial port. There is no reason Mumbai needs a naval home base, which could be relocated further down the coast. Efficient utilisation of the eastern docklands could also alleviate the pressure; the city needs schools, parks, auditoria, public spaces. Instead, it gets luxury housing and shopping malls. The example of the mill areas, in the centre of the city, where 2.43 km^2 that were desperately needed for public use have instead been given over to developers, is a bad augury for the city.

We all – wherever we live – have a stake in helping the people of megacities like Mumbai. The desperation of slum-dwellers in cities like Mumbai directly affects the economic fortunes of people in New York or Los Angeles. It's as important for London to understand Mumbai as it is for Mumbai to understand London, if for no other reason than that the next generation of Londoners is being born in Mumbai.

So why do people still live in Mumbai? 'Mumbai is a bird of gold', a Muslim man in the Jogeshwari slum, whose brother was shot dead by the police in the riots, and who lives in a shack without running water or a toilet, told me. A Golden Songbird; try to catch it if you can. It flies quick and sly, and you'll have to work hard to catch it, but once it's in your hand, a fabulous fortune will open up for you. This is one reason why anyone would still want to come here, leaving the pleasant trees and open spaces of the village, braving the crime and the bad air and water. It is a place where your caste doesn't matter, where a woman can dine alone at a restaurant without being harassed, and where you can marry the person of your choice. For the young person in an Indian village, the call of Mumbai isn't just about money. It's also about freedom.

Suketu Mehta is an Associate Professor in the Department of Journalism at New York University and the author of "Maximum City: Bombay Lost and Found", which was a finalist for the 2005 Pulitzer Prize.

Sunday morning in the community rooted chawls of Dadar, Mumbai.

Chitrodeep Chaudhuri

MUMBAI: THE COMPACT MEGA CITY

The relationship between compact urban form and public transport efficiency is unique to Indian cities, and as **Philipp Rode** argues, could form the basis of a sustainable transport strategy that will support future urban growth.

The Bandra–Worli sea link forms part of the Western Express Highway.

In Greater Mumbai, the equivalent of more than twice the population of Denmark shares 450 km² of land. The key driver of Mumbai's compactness is its physical geography. There are only a few places where the composition of land and water demands the creation of a city. The natural harbour of New York, the bay of Tokyo and Rio de Janeiro are prominent examples. So is the opening of Thane creek, the largest natural harbour on India's west coast. Protected by a 650 km² island extending into the Arabic sea, the bay is now almost entirely urbanised by present-day Mumbai.

About a third of Greater Mumbai's population lives on the southern 'finger' of the island ,with more than two-thirds of the jobs located there. Attempts to shift jobs to more accessible areas of the region have initially failed; Navi Mumbai on the other side of Thane creek remains a ghost city and its vast amount of housing and office buildings are only slowly beginning to be occupied. This is largely seen as a result of real estate speculation and greater interest in developing South Mumbai, where the chronic shortage of office space promised far higher returns.

Implementing transport infrastructure and organising mobility while sustaining a strategic vision for development of the city is one of the most critical pressure points of urban governance in Mumbai. The exceptional densities of the city result in similarly unusual transport patterns. By far the largest group of commuters in Greater Mumbai –

about 55 per cent – walk to work. Most of them are able to reach their workplace within 15 minutes or less, making the most significant contribution to the city's extremely low average commuting times of 25 minutes, a sharp contrast to the London average of 42 minutes. The distribution amongst other modes of transport is less surprising. Twenty-two per cent use trains and 14 per cent use buses as their main means of travel. Two wheelers account for 3 per cent, motor rickshaws and private cars each for 2 per cent of the commutes.

Access to the city is not a mere question of modal choice. In Mumbai, it dictates location, proximity and daily routines more than in most other cities, particularly for the urban poor. The enormous value attached to city access is expressed by the compromising living conditions. Personal living space of less than 3 m² is accepted as long as it keeps the promise of employment despite residential densities – in some cases of just two-storey slum houses – higher than the vertical urbanisation of Hong Kong or Manhattan.

City access further relies on a high degree of urban mix. The fine-grain topography of urban environments cater best for the enormous need for constant exchange, not least due to physical proximity allowing for inexpensive and flexible non-motorised travel. In India 'the poor need to live close to the rich.' However, higher housing standards, whether in terms of living space or amenities, are traded for ease of access. Ironically, centrally located

informal dwellers are often re-located to allow for new transport infrastructure, further increasing the overall demand for mobility. Each family will be offered a 20 m² apartment at no cost. However, the new housing units built at the fringes of the city do not reflect any of the cultural and professional requirements of those being resettled. And the long and expensive trips to the centres of urban activity have deprived them from city access.

Mumbai has inherited the most extensive urban rail system on the Indian subcontinent. About 300 km of suburban rail served by 95 stations make use of the city's linear geography, moving 6.4 million people daily. However, the railway's success has become its greatest enemy. Passengers suffer a degree of overcrowding unknown on any other rail system of similar size. Each minute, trains arriving at Chhatrapati Shivaji Terminus and Churchgate Station inject 2,000 people into the city's historic core during rush hour. Nine-car trains designed to hold 1,700 passengers travel with up to 5,000 commuters, with an average of 13 people per day killed in rail related accidents.
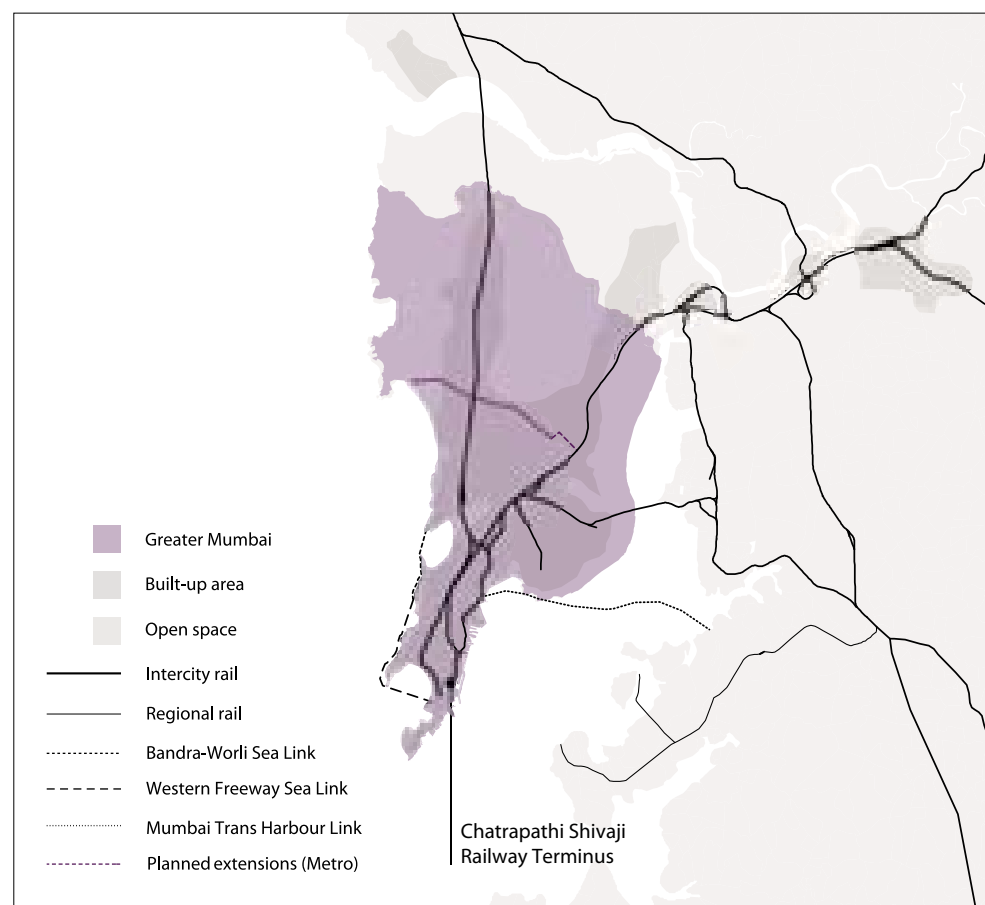
Regardless of Mumbai's density and compactness, the city experiences a massive increase in motorised vehicles, generally following the same pattern of most cities in developing economies. Between 1991 and 2005, the number of motorised vehicles more than doubled from 0.6 to 1.3 million. With a total of 6 million cars, motorisation in India is still relatively low and almost exclusively an urban phenomenon. And while no city in India is prepared to accommodate this growth, Mumbai's dense urban environment proves particularly vulnerable to the flood of vehicles. The city's streets cover only about 11 per cent of its surface, compared to 21 per cent in Delhi and 22 per cent in New York City. And while the number of vehicles multiplied 37 times over the last 50 years, the length of the Mumbai's road network only doubled.

Congestion is severe and due to the high stress levels of driving, the lack of parking and the overall affluence of the owners of those cars, about 70 per cent of private cars on the street are driven by chauffeurs.

The most significant road expansion programme is a controversial multi-million dollar off-shore ring-road, the Sea Link. The first segment, the 5.6-km Bandra-Worli Sea Link, is currently under construction. This US$350 million project boasts an eight-lane bridge, promoted as a new landmark for Mumbai. Built exclusively for fast moving vehicles, it is limited to four wheelers and above, thus catering to the city's 2 per cent of the population with private cars. In one hour it will serve just about the same amount of people as two trains arriving at and leaving from Churchgate Station. Although not designed to accommodate mass transport, recent political pressure may require two dedicated lanes for buses.

The latest plans for the city assumes that the total population within the metropolitan region will increase to 34 million by 2031. Within 25 years, an additional 12 million people will need to navigate the city's territory. Strategic planning for the location of homes, jobs, retail and other activities will end up as the single most significant transport strategy. Of similar importance will be the recognition of the fine grain, mix-use urban legacy that has made Mumbai such a unique mega city. Mumbai has the one-time opportunity to merge a strategy that improves the standard of living while maintaining its valuable compact urban form.

Philipp Rode is the Executive Director of the Urban Age Programme and is an Associate with the Cities Programme at The London School of Economics and Political Science. Mr. Rode is involved in interdisciplinary projects on urban governance, transport, city planning and urban design.

Legend:
- Greater Mumbai
- Built-up area
- Open space
- Intercity rail
- Regional rail
- Bandra-Worli Sea Link
- Western Freeway Sea Link
- Mumbai Trans Harbour Link
- Planned extensions (Metro)

Chatrapathi Shivaji Railway Terminus

REMAKING MUMBAI

By exploring the urban potential of some of Mumbai's most sensitive sites, such as the Mill Lands and its Eastern Waterfront, **Rahul Mehrotra** challenges the design professions and civic leaders not to squander the opportunity of 'remaking' Mumbai for the better.

The Phoenix Mills in Lower Parel have been transformed into an shopping and entertainment complex, complete with a bowling alley and fast-food restaurants chains.

Over the last three decades in Mumbai, planning has been largely concerned with rearguard actions versus the avant-garde approaches that traditionally led planning. Thus today most infrastructure follows city growth rather than facilitating and opening up new growth centres within and outside the city's core. In contemporary Mumbai, planning happens systematically 'posterior', as a recuperative and securing action.[1]

Perhaps globalisation and the urgency of integrating with a broader economic system are challenging the priorities of the governing authorities responsible for making the city?

The case of the mill lands vividly illustrates the city's runaway physical growth. In the development of the area's 2.37 km², located in the crowded central district of Parel, the economic gain of a select few has driven the conversion of this rare asset into private commercial development. Yet, despite being a vitally important and heavily publicised planning decision, no planning agency in Mumbai prepared a masterplan or strategy to integrate these lands for the benefit of the city; and concerned citizens, environmentalists and planners just reacted too late to salvage whatever could be retrieved through Public Interest Litigation (PIL) within a set of legislative moves to divide this prime land.

In sum, the mill lands demonstrate the state of the profession of urban planning and the culture of architecture in the city. Here, professionals and institutions are seemingly unequipped to grapple with emergent issues in the city. Thus, the profession is chiefly engaged in recuperative action, intervening post-facto to clean up the mess! It is therefore no coincidence that in Mumbai there is an increased celebration of projects involving 'cleaning up' – whether that is the restoration of historic buildings, precincts or districts, waterfronts and pavements, or the relocation of slums to make way for infrastructure. While critical to the functioning of the city, these projects are an indication of the limited role of the architectural and engineering professions as well as all the other agencies involved in making the city.

By default, the private sector is determining the emergent form of Mumbai. This is the result of a fundamental shift in the planning process whereby the government has privatised city development. And although the government has devolved itself of the responsibility of delivering urban amenities within a strategic framework, it has not defined its new role. Will it still be the custodian of the public realm or will it establish the checks and balances required for the unleashing of private enterprise for urban development? Today, there is an incredible disjuncture in the city between existing and allocated land use and the positioning of new infrastructure – a condition where land use, transportation planning and urban form have no relationships with each other in the emergent landscape.[2] How then do growth, planning and vision for the city accommodate the future?

In order to evolve an approach relevant to this emerging scenario, there needs to be greater engagement with city issues by the citizens and professionals in the city. To allow this to happen, planning or decision-making about urban form should be addressed at two levels – the macro (or city) level and the micro or area/neighbourhood level. In this model, akin to the state and concurrent lists at the national policy level, the macro level would concern itself with infrastructure, roads and connections between parts of the city as well as broad policies for the metropolitan area.

At the micro level, issues of urban form – floor space index (FSI) and transfer of development right (TDR) designations, aesthetics as well as health and hygiene – would enable city authorities to take responsibility for orchestrating growth in the region with the local level organisations (i.e. ward offices or citizens' groups) focused on the tactics for urban governance. This decentralised system would be far more

New construction marked by cranes and protective blue tarp defines the urban landscape of Greater Mumbai.

as their connection depends on how the eastern water's edge is recycled for use. In the regional growth scenarios and projections of the Golden Triangle (connecting Mumbai, Nashik and Pune), the eastern waterfront could connect the old centre with the regional triangle's emergent industries, special economic as well as agricultural export zones. This land also offers the potential to connect the peripheral areas of the city with the Metropolitan region as a whole.

The eastern waterfront's approximately 7.3 km^2 (1,800 acres) are grappling with great transformation as the economy of Mumbai moves into the post-industrial phase. While this area is roughly 3 times larger than the area of the mill lands, interestingly only 6 per cent of this land is under reservation by the BMC for public use with a meagre 0.85 per cent of open space. Thus the area's stretch of 14.5 km of virtually inaccessible waterfront offers the potential for public access while re-orienting the perception of the region with regard to the city's geography and physical form. Similarly, the potential for connectivity using water transport could offer the much-needed transformation of mobility within the region.

Currently only 50 per cent of the land, 3.4 km^2 (836 acres), is used for port activities. Large, seemingly underused infrastructure, roads and warehouses (often beautifully robust buildings with great reuse potential) create a sense of desolation that is offset by teeming populations, labour pools and a virtual sea of energy and resources creating new forms of employment in the area. Equally daunting is determining the process most appropriate to trigger the conversion of this incredible resource of land, people and infrastructure to improve the city while safeguarding the interest of present users? Indeed, the ecology of the region, defined by the mangroves and flamingos that settle here during half the

year, couple with the heritage buildings and treasures such as the Sewri Fort and other fragments to comprise the rich fabric of Mumbai's Eastern Waterfront.[3]

The eastern waterfront is a crucial zone that could transform Mumbai and compensate for the city's many physical deficiencies. The challenge is how to rearrange the landscape to synergize these different components.

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This essay is adapted from a longer analysis of the planning situation in Mumbai entitled 'Post Planning in Mumbai'. The essay appeared in the book Mills for Sale: the way ahead, published by MARG publications, Mumbai, December 2006.

Footnotes

1 W. S W Lim, Asian Ethical Urbanism – A Radical Post-modern Perspective, Introduction by Leon Van Schaik, Singapore, 2005, pp. 31–32.

2 Developed in studies carried out through the UDRI Mumbai Studio by Pankaj Joshi and participants in the Fellowship Program.

3 Extracted from *A Study of the Eastern Waterfront of Mumbai, A Situation Analysis carried out between August 2000 and December 2001* published by the Urban Design Research Institute, Mumbai, 2005. This document contains a detailed mapping of the eastern waterfront and the potential for its recycling.

efficient in managing as well as responding to crisis situations – like smaller pixels on a screen, we will get higher resolution in our cities on the ground.

Cities grow and evolve by opening up new land for growth or recycling land within their domains. In both these processes, people affected must necessarily participate in the process if the decisions are to be sustainable. The misappropriation of the mill lands demonstrates that without this engagement, land becomes an abstract entity reduced to blobs of colour on a land use plan – open to

change and manipulation. Cities by nature are contested territories. Who commands what and how in a Democracy is determined by who participates or is excluded from the process. It is crucial that a city has an articulated strategy for its growth and builds a consensus reflecting the aspiration of its citizens. In the mill lands, the state government and planning agencies sadly did not engage its citizens in the process of adapting this asset for future growth.

In this context, the eastern waterfront is of great relevance to the city and the region,

The dense mangroves at the Versova Creek are an important part of the city's fragile coastline and act as a buffer during high tide to help filter effluents discharged in the creek.

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