The scale of urbanisation in India is unprecedented. India is urbanising faster than the whole world. This calls for a paradigm shift in city development, adoption of business models for competitive cities of the future. The futuristic green-field cities should be able to provide economic development along with ensuring environmental protection. Urban growth is spread unequally around the world, and the same is true of its largest cities. Most of the megacities in the developed world are growing slowly, if at all. Tokyo remains the largest with 35 million inhabitants, but the fastest growth will be in the developing world (particularly in Asia and Africa), placing huge pressure on infrastructure in those locations. By 2020, Mumbai, Delhi, Mexico City, São Paulo, Dhaka, Jakarta and Lagos will each have populations of over 20 million. For many emerging cities, soaring populations are extremely difficult to manage.

The megacity is a relatively new form of urban development. In 1950, there were only two cities with populations of over 10 million—New York and Tokyo. By 1975, two more cities, Shanghai and Mexico, joined the club. But by 2004, the number of megacities had rocketed to 22¹ and, by 2007, these cities accounted for nine per cent of the world’s urban population.

These megacities create a new urban dynamics. Commuters travel large distances from densely populated suburbs. Economic activity frequently becomes deconcentrated, dissipating from the centre to the periphery. Often fragmented systems of metropolitan governance have not caught up with this trend, with the result that it is difficult to evolve an efficient, holistic approach to infrastructure challenges at a metro-regional level. In India, too, the ancient megacities today are emerging into mega-

¹. According to UN definition of ‘megacity’
regions like National Capital Region (NCR) and Mumbai Metropolitan Region Development Authority (MMRDA), spanning administrative boundaries. This calls for anticipated planning for transportation, infrastructure, environment, equitable access to resources and facilitate energy savings.

It is, therefore, imperative that each city needs to have a unique preposition for the coming 20 years, and planning must be undertaken accordingly. Sustainable urban development is the urban planning and development that provides for needs of the present—environmentally, economically, and socially—without diminishing the capacity for future generations to achieve their quality of life needs.

Today we have statutory Master Plans for only about one-third of the total number of 5,161 cities and towns. It is a fact that even after 63 years of Independence, State Governments are struggling to prepare Master Plans for all the urban centres. Time has come to prepare not only the Master Plan for all the cities and towns but also unveil a holistic blueprint for ‘intelligent urbanisation,’ which can help cities around the country in integrated city planning and management for promoting better quality of life for citizens and overall economic development. Intelligent urbanisation offers solutions for public safety and security, transportation, green buildings, non-fuel based energy, health care and education so as to promote sustainable and intelligent urban development practices.

Urban planning and development are State subjects. In other words, the Master Plans of towns and cities are prepared under the provisions of the State Town & Country Planning Acts/Development Authority Acts. One of the prerequisites for taking up a Master Plan exercise is availability of accurate and updated large-scale base map. Realising the importance and utility of remote sensing techniques to quicken the process of base map preparation, the Ministry of Urban Development (MoUD), Government of India, had initiated a Central Sector Scheme on pilot basis on urban mapping through aerial photography for 53 towns across the country and the same were shared with State Governments. Since the Tenth Five-Year Plan, the Ministry has launched another scheme, i.e., the National Urban Information System (NUIS), which deals with the preparation of large-scale urban maps for 158 cities.
Since the process of formulating Master Plans is a time consuming and cumbersome one and the perception that they are rigid and static having little regard to investment planning, the MoUD prepared Urban Development Plan Formulation and Implementation (UDPFI) Guidelines, 1996 which were circulated to all State Governments. It proposed a model urban and regional planning law along with simplified development promotion regulations. We have now initiated a consultation exercise with States to bring about a fundamental change in the way Master Plans are prepared, laying emphasis on integration of land use planning and transport planning and to see how such plans can be prepared in a more user friendly manner. It is hoped that this would result in a more dynamic and proactive method of getting Master Plans prepared for a large number of cities and towns, and at the same time integrating them well with city development plans (CDPs).

We are now living in the digital era wherein information and communication technology has made enormous strides and shrunk the globe especially in terms of technology transfer and global exchange of ideas and innovations. Our urban centres are fast emerging as centres of both domestic and international investments in the era of economic reforms and globalisation. This is creating opportunities for urban development experts to further refine the process of planned development and management through better forecasting modeling.

One of the important solutions available for inclusive and sustainable development is Remote Sensing Technology and GIS (Geographic Information System). In fact, till recent past urban planning faced numerous hurdles/challenges with maps not being topographically accurate, not drawn to scale and relying on antiquated systems of mapping, etc. The evolution of GIS as an enterprise-wide system has led to proactive identification of potential problems of urban development, enabling agencies to respond to those problems more efficiently, and rapidly sharing results with stakeholders. With GIS becoming the common language and the platform to communicate with stakeholders on geospatial issues, decisions can be implemented effectively in shortest possible time.

Cities hold tremendous potential as engines of economic and social development, creating jobs and generating wealth through economies of
scale. They need to be sustained and augmented through the high urban productivity for country’s economic growth. National economic growth and poverty reduction efforts will be increasingly determined by the productivity of these cities and towns. For Indian cities to become growth oriented and productive, it is essential to achieve a world class urban system. This in turn depends on attaining efficiency and equity in the delivery and financing of urban infrastructure.

We have to actively and consistently move in the direction of integrated development approaches for our cities in which all aspects relating to city life have to get well coordinated. With more interest taken by the professional organisations, development institutions and the society at large, it is hoped that we can convert our cities and towns into dynamic centres of growth ensuring acceptable service levels and constantly improving civic facilities. One recalls ADB’s [Asian Development Bank] apt reminder in its report “Managing Asian Cities” that cities are the key drivers of Asia’s economic growth. The focus now must be on how to take advantage of the opportunities Asia’s cities offer while addressing the threats to their sustainable development. Anticipating and planning for future urban growth holds the key to successful development and management of cities.

Cities, if they are to become more competitive and capable of providing necessary infrastructure and services in a decentralised environment, will need to become much smarter and more efficient. This will not evolve on its own. It will require substantial investment in strategic planning, institutional development and capacity building, and management and financial systems. The importance of human resource development in all areas of urban governance and across the various levels of management and staff cannot be overemphasised. It will involve city governments partnering with community groups and leveraging capital and resources with the private and international sectors to deliver the services that increasingly urban communities have come to expect. It will also involve paying greater attention to environmental and social development issues.

Information technology has become the major utility in cities; city administrators and urban planners need to effectively take into

consideration the critical contribution that information and communication technology can provide to urban solutions. It may be stated that while technology contributes to about 2 per cent of the world’s carbon emissions, it can be a substantial part of the solution as well. It is estimated that technology can reduce carbon emissions by 15 per cent by 2020; environmental savings of 1 tonne of CO₂ per capita translates into US $946 billion in financial savings. Additionally, cities can improve their energy efficiency by 30 per cent within 20 years.

In a world where all things are becoming closely connected, network has become a utility, enabling the creation of holistic, intelligent and environmentally sustainable cities.

The focus on network as a key to environmental sustainability is in line with the self-transformation initiative to create ecologically-sustainable organisations and businesses. There is a need for continuing to partner with all stakeholders for emerging ecologically sustainable products and services.

What could be the roadmap for the country’s intelligent urbanisation? It is certainly undesirable that we get alienated from our surroundings; many of us are forced to drive to places that are close enough to walk, simply because it is safer to be in a car. Cities can be places where people have an integral connection with their surroundings because they have been designed to ensure this through the creative use of urban spaces, which emphasises integrated public transport, cycle and pedestrian paths and green areas. This kind of ‘intelligent urbanism’, can include dedicated bus lanes, concentrated housing with convenient access to shopping and public transport, etc. The sight of people riding bikes to work, for errands and even for pleasure, should become the feature of intra-city commutation.

Reforms in the urban sector are necessary to ensure sustainable development, efficient infrastructure services and strong local governance. The reforms would enable Urban Local Bodies (ULBs) to secure effective linkages between asset creation and asset management, ensure planned development of cities and adequate investment of funds to fulfil deficiencies in the delivery of urban services to the urban poor and the city at large. The Jawaharlal Nehru National Urban Renewal Mission
JNNURM has synthesised urban reform initiatives of the past and designed a comprehensive urban reform agenda, which forms a part of the tripartite Memorandum of Agreement (MoA) between Ministry of Urban Development (MoUD), the State government and the ULB. The states and the cities have committed to a specific timeline for implementing the reforms within the Mission period of seven years. Since the launch of the Mission in December 2005, 62 cities (except Jamshedpur) have signed the MoA (Memorandum of Agreement).

The JNNURM has incentivised strengthening of local governance through implementation of the 74th Constitutional Amendment Act. As many as 10 states have transferred functions mandated under the 74th CAA to the ULBs; 19 states have constituted District Planning Committees (DPCs) and 4 states have constituted Metropolitan Planning Committees (MPCs). In the state of Jharkhand, municipal elections have been held after a gap of 22 years. Legislation has been enacted in the states of Sikkim, Arunachal Pradesh and Mizoram for the establishment of ULBs. Few other key achievements are repeal of Urban Land Ceiling and Regulation Act (ULCRA) in all the states except West Bengal and Jharkhand; enactment of Public Disclosure Law (PDL) in 14 states enabling greater transparency and accountability in ULBs, rationalisation of stamp duty up to 5 per cent in 9 states, and enactment of Community Participation Law (CPL) in 6 states. In context of the reform at the ULB level, 12 cities have implemented e-governance reforms, 26 cities have fully migrated to accrual based double-entry accounting systems, 45 cities now have a provision for Internal Earmarking of Funds for Services to Urban Poor. Another 11 cities have achieved 85 per cent coverage of property tax, 6 cities have achieved 100 per cent cost recovery in water supply; and 5 cities have achieved 100 per cent cost recovery in solid waste.

The Mission has also catalysed a number of landmark initiatives in states and cities across the country. A few key ones are:

- The state government of Punjab has constituted the Punjab Municipal Infrastructure Development Fund for raising resources for ULBs by tapping capital market. Public transportation function has been transferred to the city governments in Punjab.

3. For details of the programme, see http://jnnurm.nic.in/
• The city of Faridabad has taken Community Participation to the next level by involving the community in monitoring project progress from tendering to the execution stage.

• Surat is the first city to set up a dedicated Urban Transport Fund followed by Pimpri-Chinchwad.

• Urban Metropolitan Transport Authorities have been established in the mission cities of Hyderabad, Jaipur, Chennai, Bangalore and Mumbai. Dedicated pedestrian path and cycle track are being created along all the Bus Rapid Transit System (BRTS) corridors.

• Over 15,000 buses have been sanctioned for 61 cities for improvement of city bus service for the first time.

The nature of urban development with its multiple stakeholders and complexity of issues mean that no single blueprint for ‘good practice’ can be identified. Good practice is relative to the cultural, administrative, economic, and environmental contexts. A general definition of best practice developed by the UN that adequately covers its key attributes is planning and/or operational practices that have proven successful in particular circumstances. Best practices are used to demonstrate what works and what does not and to accumulate and apply knowledge about how and why they work in different situations and contexts.4

Not all good or best practices will, by themselves, necessarily contribute to sustainability. A good practice measure aimed at increasing economic growth, for example, may come with significant environmental and social costs. In suggesting good practice for sustainable urban development, there is a need to consider the economic, environmental, and social dimensions. The wide variations between urban areas in these dimensions mean that it is often not possible to simply transfer, without adaptation or modification, approaches from one urban area to another. Some good practices may not be transferable at all and we are often not aware of the impacts some practices may have over time.

A case in point is highlighted by the 2009 World Development Report: Successful Urbanisation Requires Connecting Ever-Wider Areas. Inevitably, density brings crowding. New York shows the enormous benefits of an

efficient metro system in reducing congestion while encouraging density. The key is an integrated system of mass transport. Dense city centres and skyscrapers are feasible only when thousands of office workers can be transported efficiently to downtown offices.5

So clearly, action is necessary at both macro- and micro-levels and that the speed and scale of urbanisation demands new approaches. The priorities for improving city management are:

- To improve coordination systems, both multi-stakeholder, and cross-border—including better strategic planning for city regions, integrated with jurisdictional and cross-sectoral management systems, as well as far greater community and private sector involvement.
- To improve financial structuring, including local capital markets, private sector participation, and also upgrade the financial viability of the city-region authorities and the mechanisms for financing infrastructure and services.
- To enhance the capacity to manage the above activities across administrative and jurisdictional boundaries and to improve management and service delivery within the region.6

It is important to remember that almost every sustainable and urban planning decision has implications for emergency and disaster planning, from mitigation to response and reconstruction. This includes issues such as infrastructure planning, location of health care, police and fire facilities, the protection of power facilities, land use, and general functioning, including distribution of food, water and other resources. While planning, it is necessary to give more attention to these areas, their role and relationship to each other, and their practical application.

Urban systems are continually undergoing change by external and internal forces. Urban management and communities must monitor change, assess risks, and be open to the opportunities that change the present. National frameworks need to be complemented by capacity building and institutional strengthening of city governments and

authorities so that they are able to exploit fully the policy space available to them. It will also involve the development of a culture of city building in city leaders, institutions, and communities based on citywide vision and concerns, proactive local government, and local initiative through participation and partnerships between different community groups.

A new, urban governance needs to be developed where, as far as possible, cities actively guide urban development and the provision of infrastructure and services, rather than simply respond to problems and shortfalls. This will require a focus on strategic planning, financial viability, and delivery of sustainable outcomes. Innovative urban governance strategies and new infrastructure renewal financing models are amongst the main areas which need to be addressed on priority. Importantly, the foundations for an inclusive urbanisation have to be instituted early in the development process.
Introduction

India is proud, very proud of its high rate of economic growth. However, few, very few people are talking of a more comprehensive index, the Human Development Index (HDI). HDI has three components: (i) per capita incomes on a purchasing power parity (PPP) basis, (ii) life expectancy at age one, and (iii) literacy rates combined with years of schooling. India's HDI is one of the lowest in the world and is actually shrinking from 124 a few years ago to 134 today. That can happen only when social development has reversed; education and health care have been neglected and have shrunk. We postulate that compulsive and unimaginative urbanisation and neglect of rural areas are among the reasons for this lapse. We propose a solution to rectify both defects.

At the beginning of the 20th Century, virtually every country in the world was 90 per cent rural. Agriculture was the main economy and the rich were those who owned land. A 100 years later, virtually every country in the developed world was 90 per cent urban; even more than industry, it was the services that dominated the economy. The rich were those who owned businesses not land.

Wikipedia has quoted a report of the Central Intelligence Agency (CIA),1 USA, to the effect that India is one of the least urbanised countries in the world with a ranking of 191 out of 227 countries. However, it is expected that urban explosion will eventually spread throughout the world. The United Nations Development Programme (UNDP) predicts that India will be 56 per cent urbanised by the year 2050.2 In that case, the urban population of India is likely to increase by nearly half a billion. By year

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1. CIA Fact Book (updated bi-weekly).