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ISSUES RELATED TO URBANIZATION

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ISSUES RELATED TO URBANIZATION

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Urbanization and economic development have a strong positive correlation which is indicated by the fact that a country with a high per capita income is also likely to have a high degree of urbanization. The economic advantages provided by urban areas are many. Generally, the industrial, commercial and service sectors tend to concentrate in and around urban areas. These areas provide a larger concentration of material, labour, infrastructure and services related inputs on the one hand and also the market in the form of consumers, on the other. But the situation is different for India.

Urbanization in India: Brief Introduction

The population of India grew 2.8 times between 1951 and 2001, from 361 million to 1027 million, while the urban population expanded 4.6 times, from 62 million to 285 million. The pace of urbanization has also been slower in India as compared to other countries of the world. As per UN estimates, the degree of urbanization in the world in 1950 was around 30 per cent which increased to 47 per cent in 2000. In India, it increased from 17.3 per cent in 1951 to 27.8 per cent in 2001. China and Indonesia which had lower levels of urbanization in 1950, have now overtaken India with the percentage of urban population being 32.1 and 40.9 respectively. In the decade of the 1990s, there were nearly 68 million new urban Indians, an increase larger than the entire Thailand. India's current urban population exceeds the whole population of the United States, the world's third largest country. By 2050, over half of India's population is expected to be urban dwellers.

Over the years there has been continuous concentration of population in class I towns. On the contrary the concentration of population in medium and small towns either fluctuated or declined. The graduation of number of urban centres from lower population size categories to class I cities has resulted top heavy structure of urban population in India indicating the tendency towards concentration in larger agglomerations. Urban agglomeration is a continuous urban spread constituting a town and its adjoining urban outgrowths (OGs) or two or more physical contiguous town together and any adjoining urban outgrowths of such towns. Examples of outgrowths are railway colonies, university campus, port area, military campus, etc. that may come up near a statutory town or city.

Therefore India's urbanization is often termed as overurbanization, pseudo urbanization. The large population size is leading to virtual collapse in the urban services and followed by basic problems in the field of housing, slum, water, infrastructure, quality of life, etc.

Basic Feature and Pattern of India's Urbanization

Basic feature of urbanization in India can be highlighted as:

- Lopsided urbanization induces growth of class I cities.
- Urbanization occurs without industrialization and strong economic base.
- Urbanization is mainly a product of demographic explosion and poverty induced rural - urban migration.
- Rapid urbanization leads to massive growth of slum followed by misery, poverty, unemployment, exploitation, inequalities, degradation in the quality of urban life.
- Urbanization occurs not due to urban pull but due to rural push.
- Poor quality of rural-urban migration leads to poor quality of urbanization.
- Distress migration initiates urban decay.

Urbanization in India is a product of demographic explosion and poverty induced rural-urban migration. Urbanization is occurring not due to urban pull but due to

rural push. Globalization, liberalization, privatization are addressing negative process for urbanization in India. Policy relates to proper urban planning where city planning will consist of operational, developmental and restorative planning. Redirection of investment is recommended to develop strong economic base for small and medium city neglected so far so that migration flows are redirected to small and medium cities.

Census Definition of Urban Area

In Census of India, 2001 two types of town were identified:

a) Statutory towns: *All places with a municipality, corporation, cantonment board or notified town area committee, etc. so declared by state law.*

b) Census towns: *Places which satisfy the following criteria:-*

i) a minimum population of 5000;

ii) atleast 75% of male working population engaged in non agricultural pursuits; and

iii) a density of population of atleast 400 persons per sq km.

Thus the issues related to urbanization in India are discussed as follows:

A. RURAL URBAN MIGRATION

Migration and urbanization are direct manifestations of the process of economic development in space, particularly in the contemporary phase of globalization.

A large part of migration and urbanization in India have been linked to stagnation and volatility of agriculture and lack of sectoral diversification within agrarian economy. The growth rates in agricultural production and income has been noted to be low, unstable and disparate across regions over the past several decades, resulting in lack of livelihood opportunities in rural areas. A low rate of infrastructural investment in public sector in the period of structural adjustment - necessary for keeping budgetary deficits low – also have affected agriculture adversely. This has led to out-migration from several backward rural areas, most of the migrants being absorbed within urban informal economy.

But the capacity of the cities and towns to assimilate the migrants by providing employment, access to land, basic amenities etc. are limited. The problem have acquired severity as migrants have shown high selectivity in choosing their destinations (understandably linked with availability of employment and other opportunities), leading to regionally unbalanced urbanization as also distortions in urban hierarchy.

Rural urban migration has often been considered the major factor for growth of slums in urban areas. United Nations has warned that rapid urbanization and migration would lead to tripling of slum population by 2050, hindering the attainment of the MDG targets.

B. SLUM DEVELOPMENT

The most important problem in all cities has been housing the sudden and large scale influx of migrants from rural areas to urban areas especially the metropolises and state capitals. Due to lack of housing, in every city almost fifty per cent population lives in slums. Slums known as bustees in India, favelas in Brazil, katchi abadis in Pakistan and focos insalubres in Cuba, all have few characteristics in common:

- Poor structural quality and durability of housing;
- Insufficient living areas (more than three people sharing a room);
- Lack of secure tenure;
- Poor access to water;
- Lack of sanitation facilities.

The Pranab Sen Committee has given a new definition for slums in India. It has defined a slum as “a compact settlement of at least 20 households with a collection of poorly built tenements, mostly of temporary nature, crowded together usually with inadequate sanitary and drinking water facilities in unhygienic conditions”.

The new definition of slum is different from the definition adopted by the 2001 Census of India. Accordingly to 2001 Census, slum areas broadly constitute of:

1. All specified areas in a town or city notified as ‘Slum’ by State/Local Government and UT Administration under any Act, including a ‘Slum Act’.

2. All areas recognized as 'Slum' by State/ Local Government and UT Administration which may have been formally notified as slum under any Act;
3. A compact area of at least 300 people or about 60-70 households of poorly built congested tenements in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.

There are various reasons for creation of slums of which the most important are as follows:

- Increased urbanization leading to pressure on the available land and infrastructure, especially for the poor.
- Natural increase in the population of urban poor and migration from rural areas and small towns to larger cities.
- Inappropriate system of urban planning which does not provide adequate space for the urban poor in `the City Master Plans.
- Sky-rocketing land prices due to increasing demand for land and constraints on supply of land.
- Absence of programmes of affordable housing for the urban poor in most States.
- Lack of availability of credit for low income housing.
- Increasing cost of construction.

Although Land, Colonization and Slums are State subjects, the Central government has come up with the following schemes:

a) Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was launched on 3rd December, 2005 with the objectives of augmenting infrastructure facilities in cities and towns along with provision of shelter and basic civic services to slum dwellers/urban poor. JNNURM aims at creating 'economically productive, efficient, equitable and responsive Cities' by a strategy of upgrading the social and economic infrastructure in cities, provision of Basic Services to Urban Poor (BSUP) and wide-ranging urban sector reforms to strengthen municipal governance in accordance with the 74th Constitutional Amendment Act, 1992.

b) Interest Subsidy Scheme for Housing the Urban Poor (ISHUP) has been conceived for providing interest subsidy on housing urban poor to make the housing affordable and within the repaying capacity of Economically Weaker Section. The scheme encourages poor sections to avail of loan facilities through Commercial Banks/ HUDCO for the purposes of construction of houses and avail 5% subsidy in interest payment for loans upto Rs. 1 lakh.

c) Rajiv Awas Yojana (RAY) has been launched in 2009, for the slum dwellers and the urban poor. This scheme would aim to provide support for shelter & basic civic and social services for slum redevelopment and for creation of new affordable housing stock to States that are willing to assign property rights to slum dwellers. The Slum Free City/State Plan is envisaged to comprise of two parts-- Part I- Strategy to redevelop existing slums and Part II – Strategy for prevention of creation of slums, delineating the development of affordable housing for the urban poor and revision to existing urban policy and programmes for the prevention of slums. This plan would form the basis for providing assistance to the States, after the scheme is approved.

d) National Slum Development Programme (NSDP), Night Shelters, Two Million Housing Scheme, Accelerated Urban Water Supply Programme (AUWSP), and Low-Cost Sanitation — provide for a wide range of services to the urban poor, including slumdwellers. They include identification of the urban poor, formation of community groups, involvement of NGOs, self-help/thrift and credit activities, training for livelihood, credit and subsidy for economic activities, housing and sanitation, environmental improvement, community assets, wage employment and convergence of services.

e) Valmiki-Ambedkar Awas Yojana (VAMBAY) was introduced in 2001-02 to provide a shelter or upgrading the existing shelter to BPL people in urban slums. Twenty per cent of the total allocation under VAMBAY is provided for sanitation and community toilets to be built for the urban poor and slum dwellers.

C. URBAN TRANSPORT

India is transiting from a developing to developed country with high pace of economic development. Urbanization too is increasing at a high pace as mega cities, cities and towns are providing better economic opportunities. Fast-growing cities have nurtured business and industry and have provided jobs and higher incomes to many migrants from rural areas. Thus, it is important that cities function efficiently – that their resources are used to maximize the cities' contribution to national income.

City efficiency largely depends upon the effectiveness of its transport systems, i.e., efficacy with which people and goods are moved throughout the city. Poor transport systems hampers economic growth and development, and the net effect may be a loss of competitiveness in both domestic as well as international markets.

Thus proper development of urban transport to meet the needs of growing population is urgently needed in a country like India. The public transport system helps in improving urban-rural linkage and improves access of the rural/semi-urban population in the periphery to city centres for the purpose of labour supply without proliferation of slums within and around cities.

The major objective of urban transport initiative is to provide efficient and affordable public transport. A National Urban Transport Policy (NUTP) was laid down in 2006, with the objective of ensuring easy, accessible, safe, affordable, quick, comfortable, reliable, and sustainable mobility for all. In order to provide better transport, proposals for bus rapid transit system (BRTS) were approved.

The quality and quantity of roads had been improved by providing better signaling system, foot over bridges for pedestrians, over bridges and flyovers to decrease travelling time, diverging heavy vehicles directly to highways without accessibility to city roads, etc.The new concept of low floor buses has been introduced in capital cities to control pollution as well as for improving the conditions of local government buses.

Metro rail projects as already present in Delhi/NCR has been further sanctioned for new cities as Chennai, Bangalore, Mumbai as (monorail) to decrease the travelling time and environmental effects of vehicular emissions.

Urban Transport Problems:

- **Traffic injuries and fatalities** pose a serious threat to the urban population. The causes can be poor conditions of roads, burgeoning fleet of motor vehicles, unsafe drinking behaviour, overcrowding of buses, autos, etc.
- **Environmental pollution** as noise, air both are contributed by vehicles. BHARAT STAGE EMISSION NORMS have been launched by government to decrease air pollution from vehicles. Switching public transport to CNG has reduced the pollution content drastically.
- **Roadway congestion** is probably the most visible, most pervasive, and most immediate transport problem plaguing India's cities on a daily basis. It affects all modes of transportation and all socioeconomic groups.
- Vast improvements are needed in India's public transport systems, but the **necessary funding is not available.** Most buses and trains in small and medium size Indian cities are old and poorly designed, inadequately maintained, dangerously overcrowded, undependable, and slow.

Steps taken by GOI to improve urban transport are as follows:

I. Launch of Sustainable Urban Transport Project

The objective of the Sustainable Urban Transport Project is to promote environmentally sustainable urban transport in India and to improve the usage of environment friendly transport modes through demonstration projects in selected cities.

The project includes the following components:

a) COMPONENT ONE provides technical assistance to the Ministry of Urban Development (MoUD) to improve the national, state and local capacity to implement the capacity building elements and the public and non-motorized transport related aspects of national urban transport policy; and

b) COMPONENT TWO supports design and implementation of demonstration projects in six participating cities (in five states), which will create models of sustainable transport solutions for other Indian cities to replicate.

The six cities, selected by Government of India (GOI) through a competitive selection process, include Pune and Pimpri-Chinchwad (in Maharashtra), Naya Raipur (in Chhattisgarh), Jalandhar (in Punjab), Indore (in Madhya Pradesh), and Mysore (in Karnataka).

The global environment facility (GEF) grant will finance technical assistance activities under the component one and component two. The recipient and participating stated cities will finance other project activities (including civil works) by utilizing Jawharlal Nehru National Urban Renewal Mission (JNNURM) grant and other sources of funds (including an International Bank for Reconstruction and Development (IBRD) loan being processed under a parallel loan project for three cities: Pune, Pimpri-Chinwad, and Naya Raipur).

II. National Urban Transport Policy

The National Urban Transport Policy (NUTP) was formulated in 2006, to integrate land use and transport planning in cities, and to bring about comprehensive improvements in urban infrastructure.

While urban transport is a State responsibility under the Constitution, there is a need to guide State-level action plans, particularly linked to land use planning, in order for transport plans to best support the key social and economic activities of its residents.

Key Objectives:

- Incorporate urban transport as an important parameter in urban planning.
- Bring about more equitable allocation of road space with people rather than vehicles as the main focus.
- Encourage greater use of public transport and non-motorized modes of transport.

Under the NUTP, each city with a population of over four million will be encouraged by the central government to start planning for a mass transit system adopting a technology that would 'best suit the city requirements in the next 30 years'. The policy also highlights the need for linking the transport plans with the geographical constraints of its location, increased priority to public transport, non-motorised transport, and improving parking facilities. The policy encourages the set up of Unified Metro Transport Authorities (UMTA)s in cities with a million-plus population.

The Jawaharlal Nehru National Urban Renewal Mission (JNNURM), which is linked to the rules and regulations under the NUTP, will invest in infrastructure projects in 63 cities in India.

III. Adoption of PPP Policy

The Government of India is actively promoting the expansion of Public Private Partnership (PPP) activities across all key infrastructure sectors including highways, ports, power and telecoms. Implementation of projects under Public Private Partnership (PPP) has the following advantages-

a. Better quality since the concessionaire (private sector) is to maintain the road for the period of concession.
b. Early completion of the project, since the concessionaire could save interest and earn early toll (in the case of BOT project) / additional annuity installments (in the case of Annuity project).
c. No costs overrun (price escalation).
d. The Client (Government/NHAI) does not have the burden of maintaining the highways.
e. Involving the private sector leads to greater efficiency.
f. The private sector has more flexible procurement and decision-making procedures and therefore, it can speed up implementation efforts.

IV. RFID Technology Based Electronic Toll Plaza

Country's first RFID Technology Based Electronic Toll collection Plaza was launched at Chandimandir, Punchkula (Haryana). This technology will help users to make payment without stopping at toll plazas and will reduce traffic congestion and commuting time. Toll Statements can be made or made available on line to the road users and they need not have to stop for receipt.

RFID, besides satisfying functional requirements, is the cheapest solution available. It is extremely simple to use and administer, requiring no actions on the part of the user (the sticker itself can be stuck on the vehicle by the user).

For updating toll data two tier database structure will be deployed, one at the Plaza level and other at the National level (Central Clearing House). The entire transaction details of all the Tag accounts will be stored in the Central Database.

Before issuance of RFID Tags, the road users need to register with the agency with the basic details like Name, Address, Vehicle type, Vehicle registration no. etc. The information will be stored in the central database along with the unique identification code of Tag.

A centralized back office operation or Central Toll Clearing House is mandatory for the operation of nation-wide ETC systems. The Central Clearing House concept is a transaction management system which will enable multiple Toll Collection Agencies to share toll transaction data and revenue reconciliation.

V. High Security Registration Plates

On the basis of the recommendations made by the Technical Standing Committee on Central Motor Vehicles Rules, the Central Government had amended rule 50 of the Central Motor Vehicles Rules, 1989, mandating introduction of new High Security Registration Plates, both in respect of new and in-use motor vehicles throughout the country.

A High Security Registration Plate (HSRP) is a highly secure number plate aimed to bring about a uniform pattern of displaying registration marks across the country.

The regular registration plates can be easily tampered with, making car thefts easy. Fancy number plates also make it difficult to track down lawbreakers on the run. HSRPs are tamper-proof and non-replaceable, which could prove to be a deterrent to car thieves. It will also aid in creating a computerised, national data of motor vehicles – which currently is not the case as the records are created and maintained manually.

VI. Rapid Transit System

A rapid transit, underground, subway, elevated railway, metro or metropolitan railway system is an electric passenger railway in an urban area with a high capacity and frequency, and grade separation from other traffic. Rapid transit systems are typically located either in underground tunnels or on elevated rails above street level. Outside urban centres, rapid transit lines may run on grade separated ground level tracks.

Service on rapid transit systems is provided on designated lines between stations using electric multiple units on rail tracks, although some systems use guided rubber tyres, magnetic levitation, or monorail. They are typically integrated with other public transport and often operated by the same public transport authorities. Rapid transit is faster and has a higher capacity than trams or light rail (but does not exclude a fully grade separated LRT), but is not as fast or as far-reaching as commuter rail.

Major rapid systems in India are:

a) Kolkata Metro

The Kolkata Metro is a mass rapid transit system serving the city of Kolkata and the districts of South 24 Parganas and North 24 Parganas in the Indian state of West Bengal. The network consists of one operational line (Line 1). It was the first such form of transportation in India, opening commercial services in 1984.

Benefits:

- Requires 1/5th energy per passenger km compared to road-based transport system.
- Causes less noise, no air pollution and eco friendly transport system.
- Occupies no road space if underground and only about 2.60 mtrs width of the road if elevated.
- More reliable, comfortable and safer than road based systems.
- Reduces journey time.

b) MONO RAIL in Mumbai

Considering the increase in population, increased travel demand and narrow road networks running through congested structures,

there is a need of a system which will occupy less space as well as reduce travel time.

With the objective, to support public rapid transit system such as suburban rail system and metro rail system and where public rapid transit system is not available or impossible to provide such system and where widening of roads is not possible due to structures on either sides, **Mono Rail** system is proposed to be implemented in **"city of dreams" MUMBAI.** Once completed it will be the world's second longest Monorail corridor.

Larsen and Toubro along with Scomi has received the contract to build and operate the monorail.

c) Delhi Metro

The Delhi Metro is a rapid transit system serving Delhi, Gurgaon, Noida and Ghaziabad in the National Capital Region of India. It has become the "life line" of Delhi as people are dependent on Delhi Metro for commuting to different places within the city. Delhi Metro Project has been recognized all over the world for its speciality in terms of a hi-tech rail and better equipped transport system. The project is under the Delhi Metro Rail Corporation, DMRC.

Planning for the metro started in 1984, when the Delhi Development Authority and the Urban Arts Commission came up with a proposal for developing a multi-modal transport system for the city. The Government of India and the Government of Delhi jointly set up the Delhi Metro Rail Corporation (DMRC) in 1995. Construction started in 1998, and the first section, on the Red Line, opened in 2002, followed by the Yellow Line in 2004, the Blue Line in 2005, its branch line in 2009, the Green and Violet Lines in 2010 and the Delhi Airport Metro Express in 2011.

Metro rail in the city has reduced the traffic to some extent and the pollution level has certainly declined. Because of this only Delhi Metro has been certified by the United Nations as the first metro rail-based system in the world to get carbon credits for contributing to the fight against climate change by help reducing pollution levels in the city by 6.3 lakh tons every year. It also has earned carbon credits of worth 47 crores annually for the next seven years.

A carbon credit is a term for any tradable certificate or permit representing the right to emit one tonne of carbon dioxide. Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentration of greenhouse gases.

Thus, the DMRC has helped in reduction in emission of harmful gases into the atmosphere and the United Nations-body administering the Clean Development Mechanism (CDM) under the Kyoto Protocol has certified carbon credits to DMRC for reducing emissions.

d) Namma Metro

Namma Metro also known as Bengaluru Metro is a rapid transit rail system for the city of Bengaluru, Karnataka, India. The agency responsible for its implementation is the Bangalore Metro Rail Corporation Ltd (BMRCL). The first stretch between Baiyyappanahalli and M.G. Road was inaugurated on October 20, 2011.

Salient Features:

All the Metro trains are Wi-Fi enabled (the first metro in India to have this feature), so passengers can use laptops, tablets as well as mobile internet. Passengers also have emergency voice communication with train staff through a speaker system. Passengers are provided with a call button to communicate anything to the driver or control centre during an emergency.

Metro stations will have Powerheart Automated external defibrillator (AED) to protect its commuters against death from sudden cardiac arrest. Powerheart AED is used for emergency treatment of victims exhibiting symptoms of sudden cardiac arrest. The installation of AEDs will be followed by a certified training for a group of staff members of BMRC. The devices are manufactured by Opto Circuits (India) Ltd.

e) Proposed Rapid Transit Systems

Urban Development Minister Mr. Kamal Nath has approved "in-principle" the proposal of implementing Regional Rapid Transit System (RRTS) in three important corridors in the NCR viz. Delhi-Gurgaon-Alwar, Delhi-Sonepat-

Panipat and Delhi-Ghaziabad-Meerut. The RRTS is a rail based mass transit system that would connect distant areas of National Capital Region (NCR) to the Capital.

The high speed connectivity between the regional centres of NCR and Delhi will make the physical distance shorter and allow these regional towns to capture the economic impulse and density generated by Delhi. This faster connectivity will reduce pressure on the National Capital's infrastructure by opening up the region, including regional housing market.

The Minister stressed that in order to achieve the objective of creation of NCR in 1985, it would be necessary to focus on the sub-urbanization process and infrastructure development outside Delhi to enable other areas of NCR to absorb the load on the capital's resources.

D. WASTE DISPOSAL

Removing garbage, cleaning drains and unclogging sewers are the main jobs of municipalities and municipal corporations in Indian cities. In most cities, the municipal service for the collection and transportation of urban solid wastes comprises three separate functions as follows:

- Sweeping, curbside and domestic waste collection from garbage bins.
- Transportation by handcarts to large or road collection points, which may be open dumps.
- Transportation by vehicles to the disposal sites.

The weaknesses of the existing system of solid waste management are: (i) the professional and managerial capacities of the municipal bodies are limited and this is more pronounced in case of smaller cities; (ii) no charges are levied for garbage collection or disposal, nor are there any incentives for reducing garbage generation or recycling waste;(iii) no separate costing is done for this function; (iv) indiscriminate use of plastic bags and goods; (v) recourse to modern technology is rare and; (vi) segregation of garbage at the source is not enforced.

Thus Indian waste management system is starved of resources to tackle the increasing demands associated with growing urbanisation. Due to budgetary constraints, inadequate equipment and poor planning, house-to-house collection is very rare in India, particularly in certain low-income areas where waste is not collected at all. It is estimated that upto 30-40 per cent of disposed solid wastes are left uncollected. The areas, which are not serviced, are left with clogged sewers and litter which create serious health problems for the resident population.

Main objective of disposal options is to ensure maximum safety to the environment which require administrative, technical, political, social and economic support. But Most urban solid waste in Indian cities and towns is landfilled and dumped but there are various treatment options also such as:

- **Recycling & Reuse**

The processes, by which materials otherwise destined for disposal are collected, reprocessed or remanufactured and are reused. The separation for recycling takes place at households, community bins, open dumps and even in final disposal yards. The recycling business is a complicated chain of operations and varies from place to place. The recycling and reuse (the use of a product more than once in its same form for the same or another purpose) sector of waste management in cities of Asian developing countries is potentially high. Its economic assessment is a difficult task since it is practiced in an informal manner.

- **Biogas**

Biogas contains approximately 60:40 mixture of methane (CH4), and carbon dioxide (CO_2) produced by the anaerobic fermentation of cellulose biomass materials - simultaneously generating an enriched sludge fertilizer - with an energy content of 22.5 MJ/m3, clean gaseous fuel for cooking, for running engines for shaft and electrical power generation with little or no pollution. Many cellulose biomass materials are available in urban solid wastes and may be utilized to produce eco-friendly renewable energy, contributing to the clean waste management. In India, biogas production is currently practiced in many places in rural areas (with cattle dung) and few places in urban areas (with sewage).

- **Sanitary landfilling**

Sanitary landfill is a fully engineered disposal option, which avoids harmful effects of uncontrolled dumping by spreading,

compacting and covering the wasteland that has been carefully engineered before use. Through proper site selection, preparation and management, operators can minimize the effects of leachates (polluted water which flows from a landfill) and gas production both in the present and in the future. This option is suitable when the land is available at an affordable price. Human and technical resources available are to operate and manage the site.

- **Composting**

Composting is a biological process of decomposition carried out under controlled conditions of ventilation, temperature, moisture and organisms in the waste themselves that convert waste into humus-like material by acting on the organic portion of the solid waste. If carried out effectively, the final product is stable, odour-free, does not attract flies and is a good soil conditioner. Composting is considered when biodegradable waste is available in considerable fraction in the waste stream and there is use or market for compost. Centralised composting plant for sector may only be undertaken if adequate skilled manpower and equipment are available, hence at household level and small level composting practices could be effective which needs the people's awareness.

- **Incineration**

Incineration is the controlled burning of waste in a purpose built facility. The process sterilizes and stabilizes the waste. For most wastes, it will reduce its volume to less than a quarter of the original. Most of the combustible material is converted into carbon dioxide and ash. An extensive sample programme conducted in India reveals that most of the waste had a calorific value of just 3350 joules/g compared with 9200 joules/g in high income countries. Incineration may be used as a disposal option, only when landfilling is not possible and the waste composition is of high combustible (i.e. self-sustaining combustible matter which saves the energy needed to maintain the combustion) paper or plastics. It requires an appropriate technology, infrastructure, and skilled manpower to operate and maintain the plant. In Indian cities, Incineration is generally limited to hospital and other biological wastes and mostly others are either landfilled or dumped.

Much research needs to be done on the disposal of various types of solid waste without causing any harm to the environment or the people.

E. WATER SUPPLY, DRAINAGE AND SANITATION

According to the 2001 Census, out of 53.69 million urban households only 36.86 million had tap water sources. A very large percentage of the urban poor have no access to safe water. The Government programme of accelerated urban water supply scheme, as on 31.3.2006, supported 612 schemes for Rs 695 crores. This is absolutely inadequate when compared to the assessment made by the Central Public Health Engineering (CPHEEO) of Rs 1,72,905 crores for 100 per cent coverage of the urban population under safe water supply and sanitation services by 2021.

No city has round the clock water supply in India. Intermittent supply results in a vacuum being created in empty water lines which often suck in pollutants through leaking joints. Many small towns have no main water supply at all and are dependent on the wells. To overcome this problem Municipal bodies must focus on increasing operational efficiencies – through reduction in pilferage, improving efficiency of staff and use of technology. Further, the municipal bodies should meter all water connenction within a time frame. Installing a hierarchy of metering system could help in identifying pilferage. Payment of water charges should be made hassle free through use of Information Technology. As far as possible all water connections should be metered, and if necessary targeted subsidy should be provided to the poorest sections.

Drainage situation is equally bad. Because of the non-existence of a drainage system, large pools of stagnant water can be seen in city even in summer months.

Further the sanitation problem is also high due to lack of toilet facilities in slums areas. Thus practice of open defecation is prevalent. Human waste is also responsible for spreading of water borne diseases like typhoid, cholera, Shigellosis, Amoebic Dysentry, Diarrhoea, etc.

The practice of open defecation in India comes from a combination of factors, the most

prominent of them being the traditional behavioural pattern and lack of awareness of the people about the associated health hazards. As per the latest Census data (2001), only 36.4 per cent of total population has latrines within/attached to their houses. However, in rural areas, only 21.9 per cent of population has latrines within/attached to their houses. Out of this, only 7.1 per cent households have latrines with water closets, which are the most sanitized toilets

Thus Minister Jairam Ramesh comes out with a mission of Niramal Bharat Abhiyan or Total Sanitation Programme which would attempt to banish open defecation within a decade.

Further a new technology "Bio-toilets" have been introduced which is suitable for any area/application in India. Bio-Digester Toilet is a decomposition mechanized toilet system by means of which the sludge(Human Waste), the fecal matter is decomposed to bits in the digester tank using a specific high graded bacteria further converting them into methane and water, discharged further to the desired surface. The Bio-digester toilet is total maintenance-free system & does not require any sewage system. The specific high graded bacteria involved in these bio-digester toilets carries on to further auto generation on their own because of their supreme quality. Bio-toilet technology is based on anaerobic biodegradation of organic waste by unique microbial consortium and works at a wide temperature range. The bacterial consortium degrades night soil at temp as low as -20 degree C and produces colourless, odourless and inflammable gas containing 50 – 70% methane.

This bacterial consortium has been made through acclimatization, enrichment and bio-augmentation of cold- active bacteria collected from Antarctica and the other low temperature areas.

Salient features of bio-toilet:

a) Suitable for sub zero temperature of Himalayan Region, Glaciers, Railway coaches, Buses, Highways, Remote areas, sea ports, Mining area, metro cities, etc.
b) Suitable for Mobile Toilet applications.
c) 0% maintenance free, continuous biological process.
d) Complete elimination of pathogens.
e) Economically viable.
f) No dependence on the limited and costly conventional energy sources.
g) Can be installed and made operational in 12 hours only.
h) Inoculums charging is only once during the entire life of Bio Toilet.
i) No need of connectivity to the sewage line, septic tank. No disposal of sludge is required.
j) Routine cleaning chemicals like phenyl, soap, kerosene etc. do not harm Bio Toilet or the inoculums.

F. ELECTRONIC WASTE

A new type of hazardous waste has come up in recent years, namely electronic waste. E-waste consists of all waste from electronic and electrical appliances which have reached their end- of- life period or are no longer fit for their original intended use and are destined for recovery, recycling or disposal. It includes computer and its accessories monitors, printers, keyboards, central processing units; typewriters, mobile phones and chargers, remotes, compact discs, headphones, batteries, LCD/Plasma TVs, air conditioners, refrigerators and other household appliances.

The composition of e-waste is diverse and falls under 'hazardous' and 'non-hazardous' categories. Broadly, it consists of ferrous and non-ferrous metals, plastics, glass, wood and plywood, printed circuit boards, concrete, ceramics, rubber and other items. Iron and steel constitute about 50% of the waste, followed by plastics (21%), non-ferrous metals (13%) and other constituents. Non-ferrous metals consist of metals like copper, aluminium and precious metals like silver, gold, platinum, palladium and so on. The presence of elements like lead, mercury, arsenic, cadmium, selenium, hexavalent chromium, and flame retardants beyond threshold quantities make e-waste hazardous in nature. It contains over 1000 different substances, many of which are toxic, and creates serious pollution upon disposal. Obsolete computers pose the most significant environmental and health hazard among the e-wastes.

There are 10 States that contribute to 70 per cent of the total e-waste generated in the

country, while 65 cities generate more than 60 per cent of the total e-waste in India. Among the 10 largest e-waste generating States, Maharashtra ranks first followed by Tamil Nadu, Andhra Pradesh, Uttar Pradesh, West Bengal, Delhi, Karnataka, Gujarat, Madhya Pradesh and Punjab. Among the top ten cities generating e-waste, Mumbai ranks first followed by Delhi, Bengaluru, Chennai, Kolkata, Ahmedabad, Hyderabad, Pune, Surat and Nagpur.

The main sources of electronic waste in India are the government, public and private (industrial) sectors, which account for almost 70 per cent of total waste generation. The contribution of individual households is relatively small at about 15 per cent; the rest being contributed by manufacturers. Though individual households are not large contributors to waste generated by computers, they consume large quantities of consumer durables and are, therefore, potential creators of waste.

E-waste Management System in India

Most of the activities right from the collection,transportation, segregation, dismantling, etc., are done by unorganized sectors manually. Being a rich source of reusable and precious material, E-waste is also a good source of revenue generation for many people in India. The big portion (rag pickers) of the Indian population earned their livelihood by collecting and selling the inorganic waste-like plastics, polythene bags, glass bottles, cardboards, paper, other ferrous metals, etc. In absence of the adequate technologies and equipment, most of the techniques used for the recycling / treatments of E-waste are very raw and dangerous. Improper recycling and disposal operations found in different cities of India often involve the open burning of plastic waste, exposure to toxic solders, dumping of acids, and widespread general dumping. As a result, pollutants are dumped into the land, air, and water, which are the cause of serious environmental problems in India. Also, the labourers and workers employed in the dismantling and recycling units are poorly literate and uneducated, lacking the basic knowledge about the serious occupational and health risks associated with the operations. Most of the time, dismantling and recycling operations are performed by the workers without proper Personnel Protection Equipment. Mostly hammers, chisels, hand drills, cutters, electric torch / burners, and sometimses electric drills are used for dismantling. These operations are carried out in very congested places in the centre of cities and slums. Mostly, the dismantling and recycling areas are without any proper lighting and ventilation. In absence of suitable techniques and infrastructure, the workers and labourers working in such areas are prone to serious occupational health hazards.

Putting the onus of re-cycling of electronic wastes (e-waste) on the producers, the Ministry of Environment and Forests (MoEF) has for the first time notified e-waste management rules. Under the new rules, producers will have to make consumers aware about the hazardous components present in the product. Also, instructions for consumers for handling the equipment after its use along with the do's and don't's. They will also have to give information booklets to prevent e-waste from being dropped in garbage bins.

However, according to the rules, bulk consumers such as enterprises and government will be responsible for recycling of the e-wastes generated by them. The bulk users have to ensure that the e-waste generated by them is channelized to authorised collection centres or is taken back by the producers.

They also have to maintain records of e-wastes generated by them and make such records available with State Pollution Control Boards or the Pollution Control Committees. The State Pollution Control Board will be required to prepare and submit to the Central Pollution Control Board (CPCB) an annual report (based on the data received by consumers) with regard to implementation of these rules, by September 30 of every year. On receiving which, the CPCB will have to prepare a consolidated annual review on management of e-waste and forward it to the government along with its recommendations by December 30 of every year.

G. URBAN POVERTY

Urban poverty is a major challenge before the urban managers and administrators of the present time. Though the anti-poverty strategy comprising of a wide range of poverty

alleviation and employment generating programmes has been implemented but results show that the situation is grim. Importantly, poverty in urban India gets exacerbated by substantial rate of population growth, high rate of migration from the rural areas and mushrooming of slum pockets. Migration alone accounts for about 40 per cent of the growth in urban population, converting the rural poverty into urban one.

Moreover, poverty has become synonymous with slums. The relationship is bilateral i.e. slums also breed poverty. This vicious circle never ends. Most of the world's poor reside in India and majority of the poor live in rural areas and about one-fourth urban population in India lives below poverty line. If we count those who are deprived of safe drinking water, adequate clothing, or shelter, the number will be considerably higher.

Further, the vulnerable groups such as Scheduled Castes, Scheduled Tribes, Minorities, Pavement dwellers, etc., are living in acute poverty. Housing conditions in large cities and towns are depicting sub human lives of slum dwellers. With the reconstruction of poverty alleviation programmes in urban India, it is expected that social and economic benefits will percolate to the population below the poverty line. However, eradication of poverty and improving the quality of life of the poor remain one of the daunting tasks.

Alleviation of urban poverty necessarily calls for identification of the urban poor to be able to chalk out an appropriate strategy. Thus with the objective of putting in place a uniform criterion to identify the BPL households in urban areas so that objectivity and transparency is ensured in delivery of benefits to the target groups, the Planning Commission constituted an Expert Group under the Chairmanship of Professor S.R. Hashim.

The Expert Group decided that poverty in Urban areas could be best captured by identifying three categories of vulnerabilities, i.e., residential vulnerability, occupational vulnerability and social vulnerability that the urban poor is subjected to. It was agreed to evolve a methodology to identify urban poor based on the various dimensions of these three areas of vulnerabilities to be qualified by a number of indicators which would also give an idea of the depth/intensity of the vulnerability.

Based on the above broad approach, the Expert Group recommends a three stage identification process (i) Automatic Exclusion ; (ii) Automatic Inclusion ; and (iii) Scoring Index.

Stage 1: Automatic Exclusion: If the number of dwelling rooms exclusively in possession of the household is 4 and above, that household will be excluded. Secondly, the household possessing any one of the assets, i.e., '4 wheeler motorized vehicle', 'AC Set' and 'computer or laptop with internet' will also be excluded. Besides the households possessing any three of the following four assets, i.e., refrigerator, telephone (landline), washing machine, two wheeler motorized vehicle will also be excluded.

Stage 2: Automatic Inclusion: households facing various kinds of deprivations and vulnerabilities viz. residential, social and occupational vulnerabilities would be automatically included in the BPL List.

a) **Under residential vulnerability,** If the household is 'houseless' or the household has a house with roof and wall made of plastic/polythene or the household having only one room or less with the material of wall being grass, thatch, bamboo, mud, un-burnt brick or wood and the material of roof being grass, thatch, bamboo, wood or mud, then that will be automatically included.

b) **Under occupational vulnerability,** the household having no income from any source; any household member (including children) engaged in a vulnerable occupation like beggar/rag picker, domestic worker (who are actually paid wages) and sweeper/sanitation worker /mali); and all earning adult members in a household are daily wagers or irregular wagers, then that household should be automatically included.

c) **Under social vulnerability,** if there is no member of the household aged 18 years and above (Child-headed household) or there is no able-bodied person aged between 18 and 60 years in the household or all earning adult members in a household are either disabled, chronically ill or aged more

than 65 years, then that household should be automatically included.

Stage 3: Scoring Index: In the third and final stage, the remaining households will be assigned scores from 1 to 12 based on various indicators of residential, social and occupational vulnerabilities. Those households with scores from 1 to 12 are to be considered eligible for inclusion in the BPL List in the increasing order of the intensity of their deprivations meaning thereby that those with higher scores are more deprived.

GOI Initiatives to Curb Urban poverty

a) Swarna Jayanti Shahari Rojgar Yojana

With a view to provide gainful employment to the urban unemployed poor through encouraging the setting up of self employment ventures and provision of wage employment – Swarn Jayanti Shahari Rojgar Yojana (SJSRY) was launched in 1997 after subsuming the earlier three schemes of UBSP, NRY and PMIUPEP. SJSRY is funded on a basis of 75:25 between the Centre and States. The scheme rests on a foundation of community empowerment towards this ends, community organizations like Neighbourhood Groups (NHG's), Neighbourhood Committees (NHC's) and Community Development Societies (CDS's) are to be set up in the target areas.

At the National level the Ministry of Housing & Urban Poverty Alleviation shall be the nodal Ministry for implementation of SJSRY. At the Central level, a Steering Committee headed by Secretary (HUPA) and having members from the States/UTs, Ministry of Finance, RBI, and other stakeholders will monitor the Scheme. This Committee will be meeting at least once in every three months. At the State level also, a State Level Monitoring Committee having members from the Banks, Micro Finance Institutions, Civil Society, and other stakeholders will be set up to effectively monitor the Scheme. This Committee will be meeting at least once in every three months. At the Urban Local Body level an Urban Poverty Alleviation & Livelihood Development Cell will coordinate and implement the scheme with a suitable monitoring system put in place.

b) Jawaharlal Nehru National Urban Renewal Mission

JNNURM aim is to encourage reforms and fast track planned development of identified cities. Focus is to be on efficiency in urban infrastructure and service delivery mechanisms, community participation, and accountability of ULBs/ Parastatal agencies towards citizens.

Objectives of the Mission

i. The objectives of the JNNURM are to ensure that the following are achieved in the urban sector;
ii. Focussed attention to integrated development of infrastructure services in cities covered under the Mission;
iii. Establishment of linkages between asset-creation and asset-management through a slew of reforms for long-term project sustainability;
iv. Ensuring adequate funds to meet the deficiencies in urban infrastructural services;
v. Planned development of identified cities including peri-urban areas, outgrowths and urban corridors leading to dispersed urbanisation;
vi. Scale-up delivery of civic amenities and provision of utilities with emphasis on universal access to the urban poor;
vii. Special focus on urban renewal programme for the old city areas to reduce congestion; and
viii. Provision of basic services to the urban poor, including security of tenure at affordable prices, improved housing, water supply and sanitation, and ensuring delivery of other existing universal services of the government for education, health and social security.

c) Rajiv Awaas Yojana

With an aim of creating a slum-free India Rajiv Awas Yojana (RAY) was launched to facilitate affordable housing for slum dwellers. The Centre would provide financial assistance to States willing to assign property rights to slum dwellers for provision of shelter and basic civic and social services for slum re-development and for creation of affordable housing stock under the RAY scheme.

The scheme is expected to cover about 250 cities, mostly with population of more than one lakh across the country by the end of 12th Plan (2017).

The Centre will bear 50 per cent of the cost of slum re-development. To encourage creation of affordable housing stock, the existing schemes of Affordable Housing in Partnership and Interest Subsidy Scheme for Housing the Urban Poor have been dovetailed into RAY.

In order to encourage private sector participation in slum re-development, Central assistance can be used by the States and cities towards viability gap funding.

Credit enablement of the urban poor and the flow of institutional finance for affordable housing is an important component of the scheme. The government has agreed to establish a mortgage risk guarantee fund to facilitate lending the urban poor for housing purposes with an initial corpus of Rs. 1000 crore.

The scheme has been designed on the basis of experience of the Jawaharlal National Urban Renewal Mission (JNNURM) sub-mission of Basic Services to the Urban Poor (BSUP) and the Integrated Housing and Urban Development Programme (HSDP). Under these schemes, government had sought to take action for inclusive urban growth by enabling re—development of slums with basic amenities and decent housing with security of tenure.

The inclusive city growth process will lead to enactment of productivity at the bottom of the pyramid and will sustain the contribution of cities to the Gross Domestic Product.

H. HAPHAZARD GROWTH OF REAL ESTATE SECTOR

The real estate sector is a critical sector of India economy. It has a huge multiplier effect on the economy and therefore, is a big driver of economic growth. It is the second-largest employment-generating sector after agriculture. Growing at a rate of about 20% per annum and this sector has been contributing about 5-6% to India's GDP. Not only does it generate a high level of direct employment, but it also stimulates the demand in over 250 ancillary industries such as cement, steel, paint, brick, building materials, consumer durables and so on.

But the most important obstacle to sustainable growth of cities is the total lack of regulation of this sector, nowadays it is laced with black money, corruption, red tapism, land mafias and corruption. It is also recognised that existing laws on land registry, transfer of property, contracts and related matters are themselves inadequate in this context, are implemented by different authorities and they cast no responsibility (or liability) on the builder/developer for observing certain core norms in the contracts with home-buyers. In recent years, considerable progress has been made in setting up empowered regulatory bodies for the financial sector for investments in corporates, companies and mutual funds.

Recently GOI has also introduced The Real Estate (Regulation And Development) Bill, 2013 - to provide a uniform regulatory environment in the real estate sector which is laced with black money, corruption, red tapism, land mafias and corruption. The core objective of this Bill are twofold i.e. to ensure sale of immovable properties in an efficient and transparent manner and to protect the interest of consumers in the real estate sector.

Major Highlights of the Bill

The provisions of this Bill are applicable only to residential projects.

- **Prior approval before launch and advertisement-** This Bill contains provisions restricting launch of projects or advertisements unless all approvals are received and all the agents are not expected to facilitate the sale of immovable property which are not registered with the Authority and to maintain books of accounts, records and documents.
- **Mandatory deposit of funds-** It makes mandatory upon the promoters to deposit 70 per cent or such lesser per cent as notified by the government to cover the construction cost of the project of funds in a separate bank account to ensure timely completion and prevent fund diversion.
- **Registration of real estate project and real estate agent -** The Bill also ensures mandatory registration of real-estate projects and real-estate agents with the Authority, except when the land proposed to be developed is less than 1000 square

metres. This provision is likely to provide another level of protection to buyers while also preventing concerns regarding money laundering by the non-organised broker community.

- **Disclosing of mandatory information -** The real estate agents/developers are now required to disclose material information such as details of the promoters, project, layout plan, plan of development works, land status, carpet area (as opposed to super area) and number of the apartments booked, status of the statutory approvals and disclosure of proforma agreements, names and addresses of the real estate agents, contractors, architect, structural engineer, etc. on the Authority's website.
- **Restriction on taking advance -** Prohibition on taking more than ten percent as advance from the buyers without a written agreement and also the developers/agents are required to refund to buyers the full amount in case of delay of projects.
- **Liability/ Penalty –** The Bill prescribes for civil and criminal liability for the contravention of various provisions of the Bill, such as, imprisonment up to three years or a penalty up to ten per cent of the estimated cost of the real estate project for projecting out misleading information in advertisement or prospectus.
- **Real estate regulatory authority –** The Bill gives the power to establish one or more Real Estate Regulatory Authority in each State/UT, or one Authority for two or more States/UT, by the Appropriate Government, specifying their functions, powers, and responsibilities to exercise oversight of real estate transactions. The Bill shall also appoint adjudicating officers to settle disputes between parties, and to impose penalty and interest.

Real Estate Regulatory Authority – Powers and Functions

- The Authority will act as a nodal agency to co-ordinate efforts regarding development of the real estate sector and render necessary advice to the appropriate Government to ensure the growth and promotion of a transparent, efficient and competitive real estate sector.
- The authority shall ensure compliance of the obligations cast upon the promoters and the allottees and to cause an inquiry to be made into compliance of its orders or directions made in exercise of its powers.
- To host and maintain a website of records of all real estate projects within its jurisdiction as database, with all details as provided in the application for registration under the Act, for projects, for which registration has either been granted or cancelled as the case may be.
- To make recommendations on protection of interest of the allottees, measures to improve the processes and procedures for clearance and sanction of building plans and development projects from the Competent Authority; and construction and maintenance of structurally safe, environmentally sustainable, and low cost buildings, apartments and properties and any other form of assistance or advocacy to promote competition and efficiency in the real estate sector.
- Regulatory Authority shall have the power to call for information, conduct Investigations, and make inquiry in the affairs of promoters where it considers expedient to do so.
- Regulatory Authority has the power to Issue directions to promoters and allottees from time to time and such directions are binding on all concerned.
- Powers of the Regulatory Authority consequent upon lapse of or cancellation of registration of the promoter to recommend to the Competent Authority to have the remaining development works, carried out from the proceeds of the enforcement of bank guarantee and recover charges incurred on the said development works due from the promoter.
- The Regulatory Authority shall have powers to regulate its own procedure and shall be guided by the principles of natural justice and shall have all the powers as are vested in a Civil Court under the Code of Civil Procedure,1908

Penalties

- Any promoter who fails to register in accordance with the provisions of the Real Estate (Regulation and Development) Bill, 2013 shall be punishable with imprisonment for a term which may extend to three years,

or a penalty which may extend to ten per cent of the estimated cost of the real estate project, or with both.

- If any promoter contravenes any other provisions of this Bill, other than that provided above, or the Rules or Regulations made , he shall be liable to a penalty which may extend to five per cent of the estimated cost of the real estate project.
- Any promoter who wilfully fails to comply with orders of the Authority shall be liable to a minimum penalty of one lakh rupees for every day during which such default continues, which may extend to five per cent of the estimated cost of the real estate project.
- Any promoter who unfully fails to comply with the orders of Appellate Tribunal shall be punishable with imprisonment for a term which may extend to one year or with a penalty which may extend to ten per cent of the estimated cost of the real estate project, or with both.

Way Forward to Tackle Issues Related to Urbanization

India needs to work on several areas to manage its urbanization. The following are perhaps the most important: Inclusive cities, urban governance, funding, planning, capacity building and low-income housing. India also needs to start a political process where the urban issues are debated with evolution of meaningful solutions. The areas are:

- **Inclusive Cities:** The poor and lower income groups must be brought into the mainstream in cities. Regulations intended to manage densities and discourage migration both limit the supply of land andrequire many households to consume more land than they would choose. This drives urban sprawl and pushes up the price of land and the cost of service delivery for all. High standards for parking, coverage limits, setbacks, elevators, road widths, reservations for health centres schools etc. (often not used) prevent the poor from choosing how much to consume of the costliest resource (urban land) to put a roof over their heads, and comply with legal requirements. Informality is now the only path to affordable housing for the bulk of the population in India's cities. But informality implies illegality and therefore vulnerability. While lower income groups pay dearly for shelter and services—they are bereft of normal property rights protection and their investments are thus far riskier than those of the well off. They must instead depend on the good will of bureaucrats and politicians—to safeguard their homes and places of business. These barriers to healthy urbanization come not only at a high human cost, but take a toll on productivity. Chronic informality discourages the very investments in education, health and housing improvements the lower classes need to improve their own lot and contribute more to the national economy.
- **Urban Governance:** Meaningful reforms have to happen that enable true devolution of power and responsibilities from the states to the local and metropolitan bodies according to the 74th Amendment. This is because by 2030, India's largest cities will be bigger than many countries today. India's urban governance of cities needs an over-haul. India's current urban governance is in sharp contrast to large cities elsewhere that have empowered mayors with long tenures and clear accountability for the city's performance. India also needs to clearly define the relative roles of its metropolitan and municipal structures for its 20 largest metropolitan areas. With cities growing beyond municipal boundaries, having fully formed metropolitan authorities with clearly defined roles will be essential for the successful management of large cities in India.
- **Financing:** Devolution has to be supported by more reforms in urban financing that will reduce cities' dependence on the Centre and the states and unleash internal revenue sources. Consistent with most international examples, there are several sources of funding that Indian cities could tap into, to a far greater extent than today: Monetizing land assets; higher collection of property taxes, user charges that reflect costs; debt and public-private partnerships (PPPs); and central/state government funding. However, internal funding alone will not be enough, even in large cities. A portion has to come from the central and state governments. Here one can use central

schemes such as JNNURM and Rajiv Awas Yojana but eventually India needs to move towards a systematic formula rather than ad-hoc grants. For large cities with deep economies, this might mean allowing them to retain 20 per cent of goods and service tax (GST) revenues. This is consistent with the 13th Central Finance Commission's assessment that GST—a consumption-based tax that creates local incentives for growth and that is therefore well suited for direct allocation to the third tier of government. For smaller cities, however, a better option would be to give guaranteed annual grants.

- **Planning:** India needs to make urban planning a central, respected function, investing in skilled people, rigorous fact base and innovative urban form. This can be done through a "cascaded" planning structure in which large cities have 40-year and 20-year plans at the metropolitan level that are binding on municipal development plans. Central to planning in any city is the optimal allocation of space, especially land use and Floor Area Ratio (FAR) planning. Both should focus on linking public transportation with zoning for affordable houses for low-income groups. These plans need to be detailed, comprehensive, and enforceable.
- **Local capacity building:** A real step-up in the capabilities and expertise of urban local bodies will be critical to devolution and improvement of service delivery. Reforms will have to address the development of professional managers for urban management functions, who are in short supply and will be required in large numbers. New innovative approaches will have to be explored to tap into the expertise available in the private and social sectors. India needs to build technical and managerial depth in its city administrations. In the Indian Civil Services, India has a benchmark for how to build a dedicated cadre for governance. It now needs to create an equivalent cadre for cities, as well as allow for lateral entry of private-sector executives.
- **Affordable housing:** Affordable housing is a particularly critical concern for low-income groups—in the absence of a viable model that caters to their needs. India can meet the challenge through a set of policies and incentives that will bridge the gap between price and affordability. This will enable a sustainable and economically viable affordable housing model for both government housing agencies and as well as private developers. India also needs to encourage rental housing as an option particularly for the poorest of the poor, who may not be able to afford a home even with these incentives.

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