Role of JNNURM in Upgrading Quality of Life of the Citizens of Bhopal

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Abstract
The paper aims at discussing the changes being brought about by the activities performed by JNNURM, in the lives of people of Bhopal which is one of mission cities. The author observes that the stress of urban development tends to disturb or adversely affect the environmental harmony. The approach of JNNURM have started from the core by providing basic services for the poor, with improving the environment of the city along with enhancing the transportation sector of Bhopal by introducing projects like BRTS, and such a consideration to all the classes of people in city leads to an overall upgradation, and the improvement in quality of life of people.

1. INTRODUCTION
Cities and towns have a vital role in India’s socio-economic transformation and change. Apart from their contribution to the country’s gross domestic product or GDP, which is currently placed at about 50 to 55 percent, and the growing role cities in global markets, cities in India are the centre point of innovations and hub of many activities. At the same time, most cities and towns are severely stressed in terms of infrastructure and service availability. In 2001, 50.3 percent of urban households did not have piped water within their premises, and 44 percent of them were devoid of any sanitation facilities. Even with a relatively high economic growth registered during the 1990s, 23.6 percent of the country’s urban population continued to live below the poverty line. According to the Census of India 2001, 14.12 percent of urban population lives in slums, with a significant proportion of it without access to even the most basic services. The inner areas of cities face widespread dereliction, decadence, and neglect, with significant negative economic consequences (Jawaharlal Nehru National Urban Renewable Mission, Toolkit, 2005).

Municipal governments and other institutions responsible for service provision are facing acute shortage of capacity and resources, notwithstanding the Constitution (seventy-fourth) Amendment Act, 1992 for municipalities. Most municipalities are starved of resources on account of their inability to effectively use their revenue raising powers, in particular, relating to property. Intergovernmental fiscal relations have changed, but at best, marginally, to make

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any noticeable impact on their finances. The existing municipal accounting systems do not permit accurate assessment of the financial position of municipalities nor is it possible to ascertain from them the levels of spending on different services and recoveries. Continuation of many laws and systems which came into being in different context such as the Urban Land (Ceiling and Regulation) Act, 1976 have caused avoidable but serious distortions in land and housing markets.

In 2001 about 286 million persons were living in urban areas of India and it was the second largest urban population in the world and this is expected to rise to around 38 percent by 2026. Considering that this state of cities is incompatible with the country’s socio-economic objectives and India’s growing role in the world economy, Government of India has decided to launch the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in December 2005 to make reforms linked urban infrastructure investment project. Under the JNNURM, approximately ₹1,000,000 million would be invested during the seven year period 2005-2012 for improvement of urban infrastructure and providing basic services for the poor in urban areas. The Government has identified 63 cities under Urban Infrastructure and Governance component of the JNNURM program. These cities cover about 40 percent of India’s urban population (Jawaharlal Nehru National Urban Renewable Mission, Toolkit, 2005).

2. THE JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION

The Jawaharlal Nehru National Urban Renewal Mission (JNNURM) program launched with a clear vision to meet the challenges of growing urbanization and to enable Indian cities to develop to a level of global standards and to encourage creation of financially sustainable inclusive cities by improvement of urban infrastructure and providing basic services for the poor in urban areas.

Long term vision conceived by the Bhopal Municipal Corporation for Bhopal City with its rich cultural heritage shall be transformed into a modern capital supplemented by better urban lifestyle, better environment and physical social and economic uplift of urban poor. The initiative under the Jawaharlal Nehru National Urban Renewal Mission will provide a platform for the city to achieve this long term vision. Long term vision of making Bhopal a modern urban city is perceived to be achieved by first creating a desired level of infrastructure which will then be used in coming years as a platform to take a quantum leap to achieve the status of a world class city. It is therefore perceived to focus towards following elements for the development of Bhopal City: physical sustainability, improved mobility, slum free Bhopal, eco-friendly and city beautiful (City Development Plan, Bhopal, 2006).

As the infrastructure gets build, it will also improve the quality of living for all those who live in these cities. The vision of urban development has so far been one-dimensional. This will be changed. Thus in this program a focus will be
placed more on space and less on people. This has an integrated framework in which spatial development of cities goes hand-in-hand with improvement in the quality of living of ordinary people living there.

2.1 Objectives

The objectives of the JNNURM are to ensure that the following are achieved in the urban sector:

- Focused attention to integrated development of infrastructure services in cities covered under the Mission;
- Establishment of linkages between asset-creation and asset-management through a slew of reforms for long-term project sustainability;
- Ensuring adequate funds to meet the deficiencies in urban infrastructural services;
- Planned development of identified cities including peri-urban areas, outgrowths and urban corridors leading to dispersed urbanization;
- Scale-up delivery of civic amenities and provision of utilities with emphasis on universal access to the urban poor;
- Special focus on urban renewal programme for the old city areas to reduce congestion; and
- 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.

2.2 Sectors

Mission has been structured with a clear focus on these two important components - urban infrastructure and basic services to the urban poor, with governance reform as an overarching third component.

- **Urban Infrastructure and Governance (UIG):** This will be administered by the Ministry of Urban Development through the Sub-Mission Directorate for Urban Infrastructure and Governance. The main thrust of the Sub-Mission is on infrastructure projects relating to:
  - Urban renewal, that is, redevelopment of inner (old) city areas including widening of narrow streets, shifting of industrial and commercial establishments from non-conforming (inner city) areas to conforming (outer city) areas to reduce congestion, replacement of old and worn out pipes by new and higher capacity ones, renewal of the sewerage, drainage, and solid waste disposal system, etc; and shifting industrial and commercial establishments to conforming areas.
  - Water supply (including desalination plants) and sanitation;
  - Sewerage and solid waste management;
Construction and improvement of drains and storm water drains;
- Urban transportation including roads, highways, expressways, MRTS, and metro projects;
- Parking lots and spaces on PPP basis;
- Development of heritage areas;
- Prevention and rehabilitation of soil erosion and landslides only in cases of special category States where such problems are common; and
- Preservation of water bodies.

**Basic Services to the Urban Poor (BSUP):** This will be administered by the Ministry of Urban Employment and Poverty Alleviation through the Sub-Mission Directorate for Basic Services to the Urban Poor. The main thrust of the Sub-Mission will be on integrated development of slums through projects for providing shelter, basic services and other related civic amenities with a view to providing utilities to the urban poor. The programme for Basic Services to the Urban Poor was launched with a view to ameliorates the conditions of the urban slum dwellers who are residing in dilapidated conditions in the 63 identified mission cities.

The basic objective of the scheme is to strive for holistic slum development with a healthy and enabling urban environment by providing adequate shelter and basic infrastructure facilities to the urban slum dwellers. The main thrust is to ensure improvement in urban governance so that urban local bodies and parastatal agencies become financially sound with enhanced credit ratings and ability to access capital markets for undertaking new programmes.

### 2.3 Quality of Life

The term quality of life is used to evaluate the general wellbeing of individuals and societies. "The best way of approaching quality of life measurement is to measure the extent to which people’s 'happiness requirements' are met - i.e. those requirements which are a necessary (although not sufficient) condition of anyone’s happiness - those ‘without which no member of the human race can be happy’ (McCall, 1975:229-248).

Standard indicators of the quality of life include not only wealth and employment but also the built environment which include housing, natural environment, physical and mental health, education, recreation and leisure time, social belonging, community life, public services and transport which further includes water and other basic services with providing mobility and connectivity.

Quality of the natural environment is directly related to peoples’ quality of life. Population growth and economic development put pressure on the sustainability of the natural environment. Pressure for expansion of the urban area into peripheral areas will have effects on the natural ecosystems of both land and sea. Issues such as environmental pollution, waste generation and management,
heritage protection and preservation of indigenous wildlife in built up areas are all important issues to be considered as urban areas grow and develop (Quality of Life Index, 2005).

3. THE JNNURM AND ITS IMPACT ON THE BHOPAL CITY

Bhopal in spite of being the state capital with possession of rich heritage and scenic beauty is facing problems of inadequate infrastructure and majority of population is living in sub-standard conditions. There is a threat to the environmental condition and scenic beauty in the City of Lakes. The JNNURM has provided the opportunity to the citizens of Bhopal to decide the future of their city, better urban lifestyle, better environment and physical social and economic uplift of urban poor. Initiatives under the Jawaharlal Nehru Urban Renewal Mission will provide a platform for the city to achieve this long term vision.

Bhopal is one of the fastest growing cities in the country. As per 2001 census, the population of Bhopal district is 1,838,000 out of which 1,435,000 lives in Bhopal city in 66 wards covering a gross area of 285 sq km including the lakes and hills. Bhopal is one of the first cities to get City Development Plan in 2006 approved by Government of India under the JNNURM and tripartite MoA was signed between Government of India, state government of Madhya Pradesh and Bhopal Municipal Corporation on 23 March 2006. Total financial outlay ₹2,153.44 crores of investment envisaged during 2005-2012.(Fig. 1)

Impacts of the JNNURM projects have been divided into three sectors namely transportation, environment and basic services for urban poor and has been discussed below:

**Fig. 1 Sectoral Share and Total Investment under JNNURM**

![Sectoral Share and Total Investment under JNNURM](source)

Source- Bhopal Municipal Corporation
3.1 Transportation

The city is distinctly divided into two parts, the old city area with most of the trading and commercial activities and the newly developed areas with mainly administrative, institutional and residential activities. Road network in the old city area, with very limited scope of road widening, mainly suffers from very high volume of traffic, heterogeneous traffic mix, and high degree of pedestrian movement and on-street parking.

Some of the problems linked to transport sector in Bhopal city for its populace is due to many poorly designed intersections and encroachments along major arterial corridors which ultimately result in congestion at times of peak traffic volume. Regional transport network has the bus terminals in the densely developed areas causing traffic congestion. Transport terminals lack basic facilities. Some of the transport corridors have a heavy flow, which can be seen as need for the mass rapid transport system. Due to above listed problems and high volume of traffic and noise, neglect of the built environment and lack of open spaces also contribute to a lower quality of life as well as a gradual weakening of the sense of neighborhood and local community.

To encounter problems in transport sector, a series of works are being carried out under the JNNURM, like increase in width of the carriageway and upgradation of existing road surface from black top to cement concrete including footpath and storm water drains, street lighting, etc; along with removal of encroachments and resettlement of the same and replanning of existing services passing along the existing section of road. Parking area development and renewal of bus stands is also being done with successfully transplanting of trees under all transport sector projects. For public transport a Pilot Corridor of Bus Rapid Transit System of 16.05 km of Priority Stretch, Survey and Site Clearance works completed. Another 1.8 km of road at Bairagadh Area has been widened and 0.5 Km of GSB work is completed. Work started from another end at Misrod shortly after no objection from the National Highways Authority of India.

Works done and undergoing under the JNNURM in transport sector in due course will result in improved quality of life of the populace of Bhopal as better connectivity within the city and improved transport infrastructure will help in reducing traffic congestion, improved accessibility and safe mobility along with safe and comfortable circulation in city by affordable public transport for all. As most of the development work is going on under the JNNURM financial assistance, available capital under Bhopal Municipal Corporation is being used for the beautification of transport corridors in city which would increase the visual beauty and decrease visual pollution.

Public transportation plays a significant role in finding smart solutions to the challenges facing today. An increased investment in public transportation leads
to improved health and a better quality of life. Public transportation reduces traffic congestion, travel time, and stress. Those who ride public transport lessen the congestion on our roadways. When people use public transport, they walk more. Walking increases fitness levels, leading to healthier citizens and less strain on the health care system, and ultimately leading to a better quality of life (Public Transportation Enhances Our Quality of Life, 2009).

The ability of older citizens to participate in the lives of their communities is vitally important. Thus, their ability to use and access transportation helps us to determine how successfully they can get needed goods and services and maintain social contacts that enhance quality of life (Planning for the Future, 2002:49-58).

3.2 Environment

The overall objective of sustainable human settlement is to improve the socio-economic and environmental quality of life of all people. This objective is well accomplished by the work being undertaken under the JNNURM for upgrading different sectors like sewage, water and solid waste management.

3.3 Sewerage

Indeed the issue of sewage is quite complicated as it infiltrates the water bodies, which people in parts of the state unknowingly consume.

Bhopal does not have a planned and full-fledged sewerage system. A large area of the city, has no sewage network, either internal or trunk, and the raw sewage or septic tank outflows are discharged into open drains which flow into the watercourses. Ultimately most of the sewage flows into the upper lake and into the nallahs, which eventually flow into the rivers. Due to the inadequacy of sanitation facilities, the city is susceptible to environmental and public health risks which degrade the quality of life of the citizens. This is because the origin, composition and quantity of sewage and wastewater have direct correlation to existing life patterns (Innovative Solutions for Europe’s Urban Environment, 2006).

Sewage management has assumed increasing importance as a result of general concern expressed about wider problems of pollution of the environment, contamination of the atmosphere, lakes, and groundwater by domestic, municipal, agricultural and industrial waste. The vision to provide safe sewage disposal for the citizen of Bhopal, a number of interventions have been made like laying of pipe line network branches as well as mains in the areas not provided with sewerage system and connections of balance work of Bhoj Wet Land Project and the connection of overflow from septic tanks has been connecting to the overall existing sewer system. These projects been carried out under sewerage sector which have a significant positive impact on health,
hygiene and eventually resulting in better quality of life. Beyond that, the improved water and sanitation situation has had a broader impact on society as a whole in terms of environmental cleanliness, personal hygiene with safe and efficient disposal system.

3.4 Water

Urban water supply agencies tend to stress the importance of water quality over water quantity, although both have serious impacts on health and the quality of life (Cairncross, 1999).

With present water sources Bhopal city manages to produce only 240 MLD of water with a meager 20 percent of losses it should theoretically give 135 LPCD supply. But with lack of efficiency in the production at source, large amount, nearly 64 percent of Non Revenue Water (NRW) and only 50 percent storage capacity available than demand has made the actual water supply of 88 LPCD. Only 67 percent of the population has access to piped water supply that too for a short period of 2- to 3 hours in the day. Hence extension of the piped distribution system is a need of the hour (Report on Impact Assessment of JNNURM Projects Bhopal, 2010).

Under the JNNURM the vision is to provide safe drinking water for all which will eventually have serious impacts on the health and will ultimately result in better quality of life. To meet water demand and close present gaps, different projects have been implemented. Narmada Water Supply Scheme is one of this under, which new sources of water have been created. Water auditing has been used to reduce the system losses and to make the entire supply of water accountable. This involves leak detection studies apart from studies on the quality and quantity of water drawl at the consumer end and explores ways and means for effective water supply systems. Narmada Water Supply Scheme and rehabilitation of existing distribution network will fulfill the goal of safe water for all and improve the service and quality of existing water distribution systems.

With the process of urbanization the settlements on waterfront grew and turned water bodies into toxic streams. River, which passes through the city, has virtually turned into nallah carrying the entire untreated domestic and industrial wastewater of Bhopal city. Also, uncontrolled storm water pollution affects the way a stream or other water body looks and smells, making it unpleasant to be near. This can impact the quality of life for everyone living in and around the city and reduce opportunities for recreation. Reducing the amount of pollutants, household chemicals, and sediments can help maintain the quality of a stream. In return, a healthier stream will improve conditions and increase the quality of life, helping in reducing the environmental deterioration along with reduction in contamination of water leading to improved groundwater quality resulting from pollution prevention. Number of works have
been carried out to ensure the above goal like increase in cross section of existing RCC drains and lining work of old drains and new construction of RCC retaining walls at nallah sections along with laying of storm water line on the both side of the some of the major roads of new Bhopal with remodeling of existing drains and controlling the flow of nallahs.

3.5 Solid Waste

To improve the Quality of life of the public and the protection and enhancement of the environment through the provision of effective management and efficient, reliable and acceptable solid waste service is critical.

In the absence of adequate facility of primary collection of wastes, the wastes ultimately land up on the streets, lakes or back side of houses. People residing in slums dispose the wastes on streets as and when generated, and there is no system of door to door collection of waste nor there is any facility of neither community bins nor are waste segregation done and only 20 percent of wastes processed. Method of disposal is not scientific as per MSW Rules 2000 for disposal.

City vision is to provide a comprehensive and sustained solid waste management system with modern and scientific answers to collection. A series of works have been carried out under the JNNURM scheme. Primary collection has increased as domestic solid waste from households and small commercial establishments has reached at least 85 percent of households in high-density areas, and 60 percent in the lower density (generally) suburban areas. Collection efficiencies shall be improved though the provision of appropriate containers (of 1m3 and 4.5 m3, depending on access and population density), using corporation sweepers and local community arrangements to convey domestic waste from household to the containers with minimum manual handling. Improved transportation of waste shall be done by appropriate vehicles, minimizing manual handling. Compactor vehicles empty the waste mechanically from the 1 m3 containers into the compactors, whereas dumper placer trucks collect the lager 4.5 m3 containers for direct transport to the landfill site. Improved final treatment and disposal of domestic solid waste by the construction and use of a sanitary landfill has been tried and found to be the least-cost option available for waste disposal. Improved management of the process through the establishment within the Corporation of a Department of Solid Waste and Industrial Pollution, in accordance with the recommendations of the Supreme Court has been helpful.

All works completed will improve surrounding areas and create a healthy environment to live which will have positive impact on health of the citizens residing in Bhopal. While health and the quality of life are directly related for people living in cities, a good quality of life depends largely on the quality of the urban environment.
3.6 Basic services to urban poor

Availability and quality of basic services can differ widely within a city, and affect different groups in a multitude of ways. Urban poor often only have poor access to water supply, sewage and solid waste disposal systems. Apart from reducing the quality of life in settlements, the absence of basic services makes communities living in informal settlements particularly vulnerable to disease.

Survey conducted by Bhopal Municipal Corporation in November 2005 reports 384 slums. Housing shortage estimated at present is about 120,000 units. Informal sector housing is witnessed mostly in the shape of jhuggi settlements involving more than 125,000 families, some of them occupying strategic locations and critical drainage basins. Lack of safety, security and healthy living environment with lack of basic infrastructure such as housing, piped water and inadequate provision of sewerage, sanitation, drainage has resulted in awful conditions for living. Most slums have reasonably good access roads on the periphery, largely asphalt. Older settlements, particularly those in and around the old city as well as those authorized, have better road coverage whereas the newer, rural, peripheral and unauthorized slums have kutcha roads.

Inadequate water supply and availability of water at points on the perimeter main lines of slums force people to carry water to the internal areas in buckets, often on steep terrain and through kutcha lanes. Less than 5 percent of the households have access to some toilet facility within these communities. While some of the slums were serviced by the Sulabh complexes, the residents displayed a reluctance to use them, particularly the women. Majority of houses in the slum are either semi-pucca or kutcha in nature.

To improve and upgrade the quality of life of the urban poor by providing them with basic services, a series of works and efforts have been carried out under the JNNURM. The objectives are to improve the housing conditions and housing environment and also to strengthen the resident community in order to encourage proper use and maintenance of the material infrastructure. An economic return on the capital invested cannot be calculated because the impacts expected from the project are mostly of a social and socio-economic nature. The main focus is on satisfying the basic needs for ‘humane housing with improved basic infrastructure’.

Development strategies of rehabilitating high-density low-rise slums and relocating scattered pockets to low-density high-rise developed sites have been adopted along with awareness campaign in slums. Around 25,000 houses have been developed for urban poor along with construction of community 10 seat 30 toilets and construction of individual toilets numbering 25,000. Ground plus two structures for EWS housing schemes have been introduced on the identified
land for relocating the slum with all required basic infrastructure like safe drinking water supply, sewer and storm water network, solid waste disposal, electrification, community centre, primary health centre, etc; along with relocation of some slums in the city. Integrated Area Development Scheme has been carried out for urban poor in phases and providing basic facilities; also enhanced the environmental cleanliness along with providing affordable community facilities with security of tenure and ownership rights. It is hoped that all these provisions will eventually upgrade the quality of life of the urban poor.

4. PROJECT INFLUENCES

Direct project benefits include expanding sewage collection, treatment, and sanitation in Bhopal to obtain a more hygienic environment. The project will also increase the city’s capacity to handle rainwater through better drainage. The project will improve drinking water quality by protecting groundwater and surface water sources. The project will also promote a sound solid waste management system in which disposal will be conducted safely and hygienically, preventing blockage of drains. But the indicators on water supply and sanitation show the extent to which a service is available, but do not necessarily reflect its effectiveness or quality. So the project should also bring out some policies evaluation of outcomes.

The project will also improve the environment and public health in the project areas while promoting sustainable urban development. Without the project, environmental quality and public health in Bhopal will remain the same or worsen with a rapidly increasing population and associated unmanaged domestic wastes.

Development of water, sanitation, and solid waste management infrastructure under this project aims to enhance the overall urban environmental quality and public health of Bhopal city and upgrade the parameters of quality of life like housing, natural environment, health, recreation and leisure time, social belonging, community life, public services and transport which includes water and other basic services which provides mobility and connectivity, and leads to upgrading quality of life of the citizen of Bhopal.

The JNNURM project partially contributes to the Millennium Development Goals (MDGs) like providing sustainable access to safe drinking water and basic sanitation, ensuring environmental sustainability and the eradication of slums and to achieve significant improvement in the lives (Millennium Development Goal, Asia Pacific MDG Study, 2007).

5. CONCLUSIONS

The objective of sustainable urban development is to improve the quality of the environment and reduce the adverse impacts on the wider environment of
cities. The projects expect the city to achieve the minimum level of basic services. The changes that were being brought about by the commenced projects ensure an equitable distribution of returns generated for the people. It makes upgradations in quality of lives of people of all classes. Therefore, the changed mindset and exposure to better facilities could lead to a better way of living which in turn could help in the improvement of quality of life and city’s scenario. Sustainable urban development is central to the priority area ‘environment and health and quality of life’ of the communities. The resulting high quality of life attracts investments and skilled labor, which in turn contributes to a vibrant and competitive economy.

REFERENCES