

Urban Environmental Challenges and Management in India (A study on Visakhapatnam smart city)

SUMA S.

Faculty of MBA, Aditya P.G.Centre Kakinada
PhD Scholar A.U.

BALARAM P. S.

Associate Professor, Aditya P G. & Degree College
Kakinada, E. G. Dt, Andhra Pradesh, India

KARUNA K.

Assistant Professor, Aditya P.G College
Kakinada. E.G.Dt, Andhra Pradesh, India

SUBHAKUMAR CH.¹

PDF –ICSSR, Department of Economics
Andhra University, Vizag, Andhra Pradesh, India

Abstract:

Millennium Development Goals established a target to significantly improve the lives of at least 100 million slum dwellers by the year 2020. Industrialization and urbanization are the two major sources of environmental pollution in our towns and cities. India's ongoing population explosion along with rapid urbanization and industrialization has placed significant pressure on its infrastructure and natural resources. In the Vizag city urban slums Due to unhealthy environmental conditions and worst Geographical settings of the Vizag city urban slums are noted in Navya Andhra Pradesh in India. Now India has recently committed to the development and construction of 100 Smart Cities to meet the demands of its rapidly growing and urbanizing population. Indian government selected 1st round as a Visakhapatnam smart city in India. In this context we discussed in

¹ Corresponding author: subhakumarch.sch@cac.auvsp.edu.in

this research paper some environmental challenges and management issues for smart city concept.

Key words: construction, Geographical, industrialization, round Smart city

I. INTRODUCTION:

In India, ²one of every three urban people lives in slums. Land value are extradianarily high and living conditions accordingly are worse in the million plus cities Slums have grown simultaneously with the growth of towns and cities partially in large industrial cities prohibeteration of slums has been taking place whenever the urban resources are stretched by intense population pressure. Industries in all major towns and cities have attracted a sizable number of people from rural areas who were reeling under the pressure of poverty there by leading to proliferation of slums at a faster rate. Such people who came to the cities in search of livelihood settled themselves in vacant places, due to lack of any basic civic amenities and these areas have soon grown into slums where people live under unhygienic and insanitary conditions in India slums population has been growing at an alarming rate.

³The growth of population was more than 80% during 1971-81 and 37.11% during 1991-2001. Due to formation of GVMC and merger of surrounding villages, several well established urban components of the city are located within the GVMC. The details of population of the Municipal Corporation Visakhapatnam and now functioning as the Greater Visakhapatnam Municipal Corporation are given About one

² Dr.Ch. Subha Kumar & Prof. T.Koteswara Rao, Sky Booming Urban Slums in Metro Cities of India(Special Reference to Characteristics of Vizag Slums), *IOSR Journal of Economics and Finance (IOSR-JEF) e-ISSN: 2321-5933, p-ISSN: 2321-5925. Volume 6, Issue 4. Ver. III (Jul. - Aug. 2015), PP 77-83* www.iosrjournals.org.

³ Visakhapatnam city Development plan.

third of population of Greater Visakhapatnam Municipal Corporation's reside in slums, squatters and other poor settlements. Their contribution to city's economy has also been growing over the period. In the absence of developed land and clear policy to address their problems, the poor suffer from many inadequacies in terms of access to basic services and socio-economic needs. The distribution of slums is scattered all over the city but main concentration is observed in older parts of the city and also nearer to industrial establishments. Most of the slum dwellings are "Kachcha" with no proper sanitary facilities of water supply and showing haphazard growth of huts along the roads and on unauthorized lands and also government lands. It is necessary, therefore, to articulate policies and programmes to mainstream the slum communities with the city, both in terms of infrastructure provision and social and economic development. Visakhapatnam the slums have been more or less a result of the rapid industrialization it experienced over the last four decades heavy influx of laborers from rural to the port city has meant a growth in slum population at a rate higher than 6% per annum. During October, 1985 and April, 1986 the urban community development project of municipal corporation of Visakhapatnam has conducted a survey of slums in the city on the state of physical amenities in the slums and socio-economic conditions of slum-dwellers. Most of the Visakhapatnam slum dwellers live under sub-standard environmental conditions.

⁴India has recently committed to the development and construction of 100 Smart Cities to meet the demands of its rapidly growing and urbanizing population. This effort will include construction of new municipalities and renovation of existing cities as the rural population shifts into urban areas. This white paper is a direct outgrowth of U.S.-India Business

⁴ A Nation of Smart Cities An Industry Discussion White Paper, US- INDIA business council, 1615 H Street, NW Washington, DC 20062.

Council (USIBC) Chairman and MasterCard Global CEO Ajay Banga's mission to meet with the new Modi Administration in June. His discussion with Minister of Urban Development Venkaiah Naidu included topics such as India's growing need for jobs, housing, commercial floor space and other pressing challenges. An outcome from that meeting was a specific issue paper that would discuss Smart Cities in a robust manner and feature expertise from USIBC member companies the publication of the Concept Note on Smart Cities by the Indian Government in September 2014 provided clarity about the policy-makers' thinking underpinning public statements and commitments in the recent election about the swift creation of 100 Smart Cities in India. The concepts set out in the paper cover a broad span of public administration, economic, social and sustainability issues. In this sense it was far from unusual: the established body of knowledge on smart cities as a concept is broad and relatively shallow, and the set of projects and initiatives pursued by organizations active in this space that have been bestowed with the 'smart city' tag is heterogeneous. Projects to reduce the emissions of greenhouse gases caused by lighting systems in commercial property share the space with others concerned with the use of the internet to empower citizens and to reform democracy; and there are a host of others projects and ideas in between.

There are, however, a number of core principles that can be identified in all the body of smart city work. The aim of this paper is to set out MasterCard's understanding of those core principles and to present the capabilities that MasterCard possesses to help cities implement smart city projects in line with them.

II. OBJECTIVES OF THE STUDY

We select the pinpointed objectives for this research paper mainly focusing on the environmental pollution effect on the living conditions of the slum.

1. Geographical setting of the Vizag city.
2. Environmental conditions of the selective study area.
3. Trace of the Infrastructural facilities in urban slums.
4. Assess the remedial Management techniques by GVMC
5. Smart city concepts and suggestions for better results.

III. METHODOLOGY:

We collect the data total 25 urban slums within the city with purposive sampling technique. And we collect the data from Greater Visakha Muncipal Corporation, and Visakha Urban Development and some other district statistical hand books also. Depend upon the secondary data from internet. Various reputed journals.

IV. PROFILE THE STUDY AREA

⁵Visakhapatnam, popularly known as Vizag, is a fast developing port city. With a population of 15, 00,000 in 2001 and a land area of 530 square kilometres, Visakhapatnam is the country's largest city in terms of land and Andhra Pradesh is second largest urban agglomeration in population. On account of rapid industrialisation, there has been significant migration into the city. The city was originally a small fishing village but due to its natural harbour it developed into a major port. It has experienced rapid industrialisation with the growth of major industries, including steel, petroleum refining and fertiliser. With the formation of "Greater Visakhapatnam" in 2005 the city's development is set for a quantum leap. The Municipal Corporation of Visakhapatnam, prior to its constitution as Greater Visakhapatnam Municipal Corporation in 2005 has a jurisdiction of 111 square kilometres with a population of 9. 69 lakhs as per the 2001 census while the Visakhapatnam Urban Agglomeration covered approximately

⁵ Visakhapatnam - District statistical hand book.

5.3 square kilometres with a population of 13.62 lakhs. The government of Andhra Pradesh has reconstituted the Municipal Corporation of Visakhapatnam in the year 2005 by extending the jurisdiction and by merging the adjoining municipality and panchayat. The reconstituted Greater Visakhapatnam Municipal Corporation has an area of 515 square kilometres with a population of 14.5 million. Thus the GVMC is representative of the urban agglomeration in terms of area as well as population. The Visakhapatnam Urban Development Authority has a jurisdiction of 1701 square kilometres and covers a population of 22.02 lakhs.

V. RELEVANT REVIEW OF THE STUDY:

⁶Making a city “smart” is emerging as a strategy to mitigate the problems generated by the urban population growth and rapid urbanization. Yet little academic research has sparingly discussed the phenomenon. To close the gap in the literature about smart cities and in response to the increasing use of the concept, this paper proposes a framework to understand the concept of smart cities. Based on the exploration of a wide and extensive array of literature from various disciplinary areas we identify eight critical factors of smart city initiatives: management and organization, technology, governance, policy context, people and communities, economy, built infrastructure, and natural environment. These factors form the basis of an integrative framework that can be used to examine how local governments are envisioning smart city initiatives. The framework suggests directions and agendas for smart city research and outlines practical implications for government professionals.

⁶ Hafedh Chourabi, Taewoo Nametal, Understanding Smart Cities: An Integrative Framework, 2012 45th Hawaii International Conference on System Sciences.

“Smart ⁷Cities have been characterized and defined by a number of factors including sustainability, economic development and a high quality of life. These factors can be achieved through infrastructure (physical capital), human capital, social capital and/or Information and Communication Technologies (ICT) infrastructure” – European Commission
“The Smart City is a process, or series of steps, by which cities become more “livable” and resilient and, hence, is able to respond quicker to new challenges. Thus, a Smart City should enable every citizen to engage with all the services on offer, public as well as private, in a way best suited to his or her needs” – Department of Business Innovation & Skills, UK.

⁸This report was commissioned to provide background information and advice on Smart Cities in the European Union (EU) and to explain how existing mechanisms perform. In exploring this, a working definition of a Smart City is established and the cities fitting this definition across the Member States are mapped. An analysis of the objectives and Europe 2020 targets of Smart City initiatives finds that despite their early stage of development, Smart City objectives should be more explicit, well defined and clearly aligned to city development, innovation plans and Europe 2020 in order to be successful.

⁷ . 100 Smart cities in India Facilitating implementation, For Private circulation amongst delegates of “100 Smart Cities: Need for Innovation and Integrated Approach” workshop on 10th February, 2015, February 2015 www.deloitte.com/in.

⁸ . Directorate general for internal policies policy department a: economic and scientific policy, mapping smart cities in the eu, catriona manville, rand Europe.

VI. URBAN SLUMS ARE BACK-PULLING CHALLENGING ISSUE FOR SMART CITY IN THE VISAKHAPATNAM CITY.

6.1 Demographic Particulars:

Growth Rate of Slum Population in Urban India and Andhra Pradesh 1951-2011.

Table 1- Growth of Population in GVMC –Greater Visakha Municipal Corporation

Year	Total population	Percentage of the growth	Slum population	Percentage of slum population growth	Percentage of slum population to total population
1951	1,08,042		27,000	-	24.99
1961	2,11,190	95.47	51,357	90.21	24.32
1971	3,55,045	68.12	86,567	68.55	24.38
1981	5,65,513	53.27	1,52,000	75.18	26.88
1991	7,39,947	30.84	2,21,347	45.62	29.91
2001	13,45,938	81.89	3,42,658	54.81	25.46
2011	1,703,320	26.55	5,58,000	62.84	32.76

Source: Greater Municipal Corporation Visakhapatnam (GVMC).

Above table -1 show that the city population has increased from 1,08,042 to 17,03, 320 during the past six decades at an increase rate of about 16 times, while the slum population has increased from 27,000 to 5,58,000 at an increase rate of 21 times over the period. The growth of slum population over the period is relatively higher than the total city population in all the periods (except in the period 1951-61). However, the city population growth as well as slum population growth has shown decline in the period 1981-91, when compared to the growth rate of 1971-81. Another important aspect, the percentage of slum population to total population, has shown increase from 24.38 per cent to 32.76 per cent over the period. It is evident from the above analysis that the growth of slum population is very rapid over the period.

Growth of Slums and Slum Population

Greater Visakhapatnam Municipal Corporation is characterized by a very significant presence of the urban poor, with a growing poverty profile. Slum settlements have multiplied over decades and the living conditions of the poor have not improved. Environmental decline, vehicular pollution, inadequate basic services and infrastructure in the poor settlements hit the poor hardest. Slums are scattered across the city and surrounding areas, with high population densities and the number of people inhabiting them estimated to be around 342658. It is estimated that more than half of these slums are on GVMC and Govt lands, and the rest on lands belonging to various public entities. Poverty has a visible gender dimension too. The incidence of poverty among women is higher and female-headed households constitute the poorest of poor. The poor, not only habitat in slums of GVMC area but are spread in squatter and informal settlements in small groups deprived of basic services. This makes them more vulnerable to vagaries of nature and threat of eviction. At present there are 472 slums and the slum population is over 6 lakhs. A major problem is the incorporation of 32 villages around Visakhapatnam in the GVMC. Almost all these villages are inhabited by poor and the infrastructure is very low. These areas should be taken as 'poor areas' and special programmes need to be initiated to develop them on par with the city.

Table 2 Growth pattern of the slum population in the Visakhapatnam city. Both Notified and Non-Notified Slums.

	Notified	Non-Notified
India	50.6	49.4
Andhra Pradesh	75.5	24.5
Visakhapatnam	60.72	39.27

(Report: Depending upon NSS report and also GVMC Slums Status).

Table-2 shows that the 60.72% of these slum colonies are notified by the local authorities, majority are yet to be notified.

The NSSO date projects that most of the slum household have come up in the notified colonies. In this study we covered 200 slums in a total of 742 urban slums across all City of Visakhapatnam level; the average slum size was estimated at 263 households.

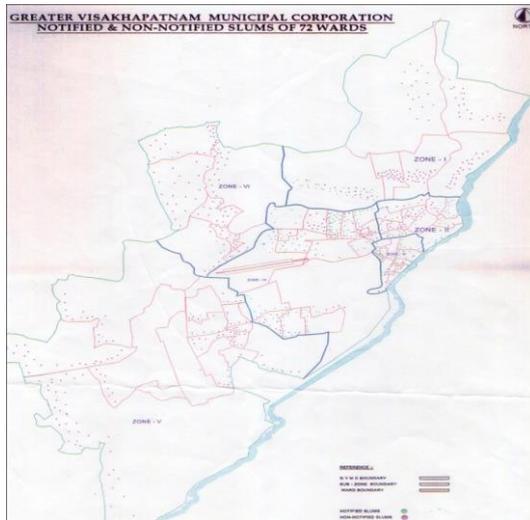


Figure 1 Total slums distribution of Visakhapatnam city 2011 census source: GVMC UCD.

Basic services. This makes them more vulnerable to vagaries of nature and threat of eviction. At present there are 742 slums and the slum population is over 6 lakhs. A major problem is the incorporation of 32 villages around Visakhapatnam in the GVMC. Almost all these villages are inhabited by poor and the infrastructure is very low. These areas should be taken as 'poor areas' and special programmes need to be initiated to develop them on par with the city.

Housing

The Visakhapatnam is one of the fastest growing cities with population of over 1.4 million. Visakhapatnam Municipal Corporation is committed to bring enormous changes in the

socio-economic policies in extending its services to the citizen of city.

Most of the Visakhapatnam urban poor live in overcrowded and unsanitary slums and squatter settlements and often do not have accesses to basic infrastructure and services. They are forced to live in illegal and informal settlements because they cannot enter formal land and housing markets. The reasons for the formation of slums and squatter settlements are numerous and have been discussed extensively in the development literature. It suffices to say here that, because of the way formal markets are regulated and structured; the poor are unable to afford the choices offered to them in these markers. In contrast, the informal and illegal housing markets of slums and squatter settlements are specifically geared to meet their shelter needs.

Need for housing the poor:

In slum areas the houses are very small and look congested. Many people are living under one roof due to in adequate space. They are not able to construct pucca individual houses due to poverty. Therefore, it is identified and planned to construct a pucca Housing colony to the people who are living in slum areas with nominal contribution from beneficiaries and with contribution of other Government sectors.

Environmental Attributes

The environmental quality varies from region to region within the city area depending upon the assimilative capacity of a region, population density and the quantity of pollutants causing social damage, the level of valuation and appreciation of the surrounding environment by people in a region etc. All these factors together accord different values regarding the environmental quality to different region within the city. Environmental policy coupled with regional and zonal planning which is presently underway by the APPCB takes into account

the long term as well as short term orientation. Major environmental variables characteristic of the city which are responsible for the degradation of the quality of the environment in the city area are considered for describing the environmental scenario of Visakhapatnam - the point and non-point sources of pollution of air, noise, water, land, soil, regimes as well as coastal and marine sectors have been taken into consideration.

The point sources are mostly concentrated in a limited area along the northern flank and in the Steel plant-Parawada area located on the south western flank of the Yarada Hill range. The major industries are concentrated in pockets. The map of the city gives a fair idea of the industrial and residential areas. The other industrial areas are of minor consequence.

Environmental Conditions and Health Status

The environmental conditions in slums are very poor and lack basic civic amenities like proper roads, drainage, protected water supply, street lights and adequate number of community toilets. Earlier studies have recorded that the common diseases prevalent in slums in Greater Visakhapatnam Municipal Corporation are gastro-enteritis, dysentery, liver enlargement, malnutrition, ringworm, scabies and other skin diseases. To overcome these hazards health infrastructure was developed and 15 urban primary health centres were established. Most of the slum communities and the poor access the services from these centres. However, in the newly incorporated villages, health facilities are totally inadequate – and at many places do not exist.

VII. GVMC- FUNCTIONS

In Visakhapatnam a number of institutions are involved in the governance of the city. Some of them were established through Acts of legislature and others are part of state's governance

framework. The institutions established by law are given in table below.

Table 3 Table Showing the Institutions established by Law

Agency	Legislation
Greater Visakhapatnam Municipal Corporation	Visakhapatnam Municipal Corporation Act 1979
Visakhapatnam Urban Development Authority (VUDA)	Andhra Pradesh Urban (Dev.) Act 1975
Andhra Pradesh Pollution Control Board	Water (protection and control of pollution) Act, 1974

The GVMC is governed by two important legislations viz., Visakhapatnam Municipal Corporation Act 1979 and the latter Act extends to all the 14 municipal corporations in the state. The Acts specify the governance framework, the spatial jurisdiction and the functional domain of the GVMC. The VUDA is an important planning and development agency. But the corporation and urban development authority have to work in harmony for better development outcomes.

The functional domain of GVMC is specified in the two legislations referred. The Municipal Acts list the functions under two categories, namely, “Obligatory Functions” and “Discretionary Functions”. The obligatory functions include water supply, street cleaning, drainage improvements, lighting, reclamation of unhealthy localities, prevention of infectious diseases etc. The discretionary functions include child welfare, urban forestry, library, education, housing for the poor, etc. The functional domain was expanded in 1994 as per the 12th Schedule of the 74th Constitution Amendment Act. In Andhra Pradesh, the Municipalities and Corporation Acts provide for a majority of the functions listed in the 12th Schedule of the constitution. They include:

- Urban Planning including Town Planning
- Regulation of land use and construction of buildings
- Roads and bridges

- Water supply for domestic, industrial and commercial purposes
- Public health, sanitation, conservancy and solid waste management
- Slum improvement and up gradation
- Provision of urban amenities and facilities such as parks, gardens, play grounds
- Burials and burial ground; cremations, cremation grounds and electric crematoriums
- Cattle ponds; prevention of cruelty to animals
- Vital statistics including registration of births and death
- Public amenities including street lighting, parking lots, bus stops and public conveniences.
- Regulation of slaughter houses and tanneries

In 2004 the Government after a review of functions of urban local bodies, transferred five more functions to the urban local bodies through government orders. They are:

- Planning for economic and social development
- Urban forestry, protection of the environment and promotion of ecological aspects
- Urban Poverty alleviation
- Safeguarding the interest of weaker sections including the handicapped and mentally retarded
- Promotion of cultural and aesthetic aspects.

The Government decided that the remaining function i.e. Fire Services should remain with the state government and will be transferred after a review later. Though the five functions were transferred, they have no statutory basis. There are several issues in the transfer of functions of state agencies to the local bodies. Transfer of functions need follow up legislation, institutional capacity of the local bodies, financial resources, etc., which come in the way of transfer of these functions to the urban local bodies. It is also expected that the transfer of functions will be followed by transfer of officials as well as resources. However, transfer has not happened in the state thereby leaving the transferred functions only on paper.

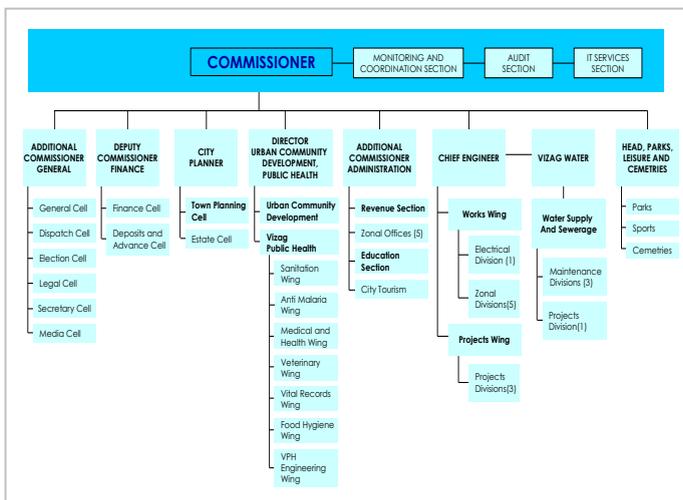


Figure 2 GVMC - organisation structure

VIII. GVMC - ORGANISATION STRUCTURE

The functioning of Greater Visakhapatnam Municipal Corporation is controlled by the two main wings. The first wing consists of the General Body and the committees like Standing Committee, Ward committees. These are mainly responsible for formulating the policies and other administrative matters, which are referred to the administrative wing according to the

provisions of the Act. The organisation chart is given at the figure 2 The second wing is the administrative wing, which is headed by the Municipal Commissioner. The Commissioner is a civil servant belonging to the Indian Administrative Service of the Government of India. He controls the working of various departments and implements the policies formulated by elected representatives.

One of the significant features of the GVMC is that all the critical functions viz., storm water drains, water supply, sewerage, solid waste management, municipal roads and street lights are under the corporation itself. Only water supply sources are managed by the Irrigation department. As such there are no serious problems of planning, provision and O&M of these services. The corporation has been outsourcing some of its functions either partly or fully to improve efficiency. Table 3.2 gives the details of outsourcing of activities.

Table 4.Role of the Private Sector in Urban Infrastructure Provision

Infrastructure Category	Role of the private sector (specify)
Water Supply	50% of the activities and O&M are out sourced
Sewerage	O&M is outsourced
Drainage	Nil
Storm water drainage	Nil
Solid waste disposal	50% of cleaning and disposal under PPP/Out sourced
Municipal roads (including flyovers)	Nil
Street lighting	O&M is outsourced

IX. FINDINGS OF THE STUDY:

Garbage and sewage facilities:

- Low sewerage network coverage in the whole GVMC area including core area.
- Lack of effective communication strategy
- Lack of efficient energy conservation measures.

- Inadequate sewerage treatment facilities resulting in discharge of untreated sewage into water bodies. Very low recycling and reuse of wastewater
- Inadequate drainage system, with no proper design of drainage.
- Excessive concentration of flood due to breaching of tanks.
- Disappearance of flood absorbing tanks.
- Dumping of debris and garbage into the open Nallahs.
- Illegal encroachment of natural water courses
- Patta lands in the natural watercourses.
- Springing up of housing colonies in the foreshores of the tanks.
- Sanctioning of layouts without reference in the ground levels.
- Indiscriminate laying of service lines all along and across natural courses.
- Collection of building materials on the road sides resulting in excessive silting of drains.
- Diversion of natural water courses to accommodate habitations.
- Increased run off due to increase in impervious areas.
- Low Coverage
- Low Capacity
- Lack of integrated drainage plan
- Encroachments resulting in flooding and inundation
- Effective public participation in segregation of recyclable waste and storage of waste at source.
- Effectiveness of awareness building or direct community involvement
- User Charges
- Waste Minimisation, Recycling
- Integrated Waste Treatment
- Regional Sanitary Landfill Facility
- Scientific Closure of the abandoned dump sites

- Institutional strengthening and human resources development

Roads and Transports:

- Streamlining the heavy cargo transport.
- Institutional accountability
- Declining Share of Public Transport resulting in traffic menace and environmental degradation.
- Integration of land use plan and transportation planning.
- Inadequate Road Infrastructure – narrow carriageways, junctions, signage, traffic management, etc.
- Safety
- Lack of awareness and non-compliance of the commuters to traffic regulations.

Infrastructure Key Challenges

- In spite of several initiatives towards poverty alleviation there are several critical issues and challenges that need to be addressed. They Include: Lack of Dependable Data: Lack of dependable data on various aspects of poverty including number of slums, slum population, access to services like water and sanitation, livelihood, etc.
- Land Tenure: Land tenure continues to be a daunting issue in addressing the problems of the poor. People living in non-notified slums are most vulnerable, as they are not officially recognised. They are most vulnerable with no regular incomes, access to basic services absence of tenure rights, etc Infrastructure Deficiency: Deterioration of infrastructure created by investments under various slum improvement programs due to inadequate maintenance, finance and direction in the post-project phase resulting in poor quality of service availability to the linked to the citywide networks. With funds constraints, service provision for the poor becomes

a sporadic activity rather than a regular service delivery system of local government.

- **Informal Settlement:** Programs are targeted mostly for notified and developed Slums. Lack of awareness of non-notified slums and de-notification policy for developed slums.

Weak Municipal Resource Base: Poor resource base for creating and constantly maintaining infrastructure is a critical issue. As they depend on adhoc grants, the service provision for the poor becomes a sporadic activity rather than a regular service delivery system of local government institutions.

- **Lack of co-ordination and convergence:** Lack of co-ordination among various programs and institutions to address the problems in an integrated and meaningful way.

Vulnerability: Programs for the poor need also to focus on vulnerable groups among them, like women and children, disabled and destitute, aged and children, etc.

- Problem of the poor living in the villages incorporated into the GVMC recently. They lack basic infrastructure, livelihoods, proper housing etc.
- The major challenge is the formation of slums on hillocks and hill slopes where provision of basic services like water, sanitation is very difficult.
- There are several slums located on the central government lands like railways, defence establishments etc. the protracted correspondence is a major problem in extending basic services to the poor in these areas.
- The two communities – fishermen and relli – require special attention for development due to their cultural and other practices. Special programmes need to be articulated keeping their needs.

X. CONCLUSIONS

1. Urban transport and mobility, water distribution, waste management, etc, must develop a comprehensive, supportive policy framework for new urbanization that establishes key, guiding principles and identifies the enablers – like technology, financing and talent attraction – that will be crucial to the implementation of new, live-able and sustainable urban spaces. The various concepts of city developments up till now.
2. Current problems of developing good infrastructure, solid waste disposal, flood management, storm water and sewerage system etc.resulting in urban decay, traffic gridlock and thereby a deteriorating quality of life for many of its citizens. The wave of urbanization that is sweeping across India represents one of the country's greatest opportunities as well as one of its most serious challenges.
3. Smart Cities need to be able to integrate themselves into national, regional and international infrastructures. Although the implementation aspects depend strongly on the authorities of these infrastructures, Indian wide recommendations and directives will definitely contribute to accelerate the deployment of Smart Cities.
4. Application of Smart Solutions will enable cities to use technology, information and data to improve infrastructure and services. Comprehensive development in this way will improve quality of life, create employment and enhance incomes for all, especially the poor and the disadvantaged, leading to inclusive Cities.
5. Health, inclusion and assisted living will play an essential role, since the demand for related services is rising, because ageing is changing disease composition. Requirements address a number of technologies, beyond

the ones related to mobile and fixed networks. An integrated perspective on healthcare solutions for the near- to long-term can be foreseen, bridging a direct gap in between the health area and the technological development of communications (radio and network components).

6. So far Indian cities were along with community organisations and social entrepreneurs, have tended to favour the bottom up technologies approach to smart cities. This is reflected in the rapidly increasing number of such projects being established across the country.
7. The CDP process of Vizag has undergone extensive consultative process considered in prioritizing these critical sectors, presented below.
 - Water Supply
 - Sewerage
 - Solid Waste Management
 - Traffic and Transportation
 - Storm Water Drainage
 - Urban Poverty

Year wise investments will be instrumental in framing the action plan/ implementation plan. The sector specific reforms and investments are an integral part of the year wise strategies. Visakhapatnam city selected to 100 out of 20 first round selected to smart city by Indian government so according smart city concept getting funds for development.



Smart city solutions For Indian cities: Above Figure shows the planning and management, infrastructure and humans.