

People’s Perception of Physical Development in the Local Areas of Bhopal



Ar. Richa Ankush Pathe, Anupama Sharma

Abstract: Gradual increase in the proportion of people living in urban areas is urbanization. Urbanization reflects economic development on one hand and on the other hand affects urban environment adversely. Globally, the more urbanized countries have higher levels of income and prosperity. Indian States also exhibit the same trend. At the same time, urbanization is also perceived to be correlated with pollution, congestion and inferior quality of life [UDPFI Guidelines 2014.]. Since 1996, many changes have taken place in the field of urban development especially in view of emerging needs and requirements of urban settlements due to rapid population growth and other reasons like globalization and liberalization. The towns and cities have been more dynamic in nature and are subject to unprecedented changes in terms of requirements of infrastructure and other basic services and amenities [UDPFI Guidelines 2014.]. Need to assess existing level of physical development in local areas of a city to find out the extra need of physical amenities to meet the present requirement was felt. Selected city of Bhopal to assess physical development in its local areas is a city with the population of more than one million, but less than four million. Also the geography, demography and economics of the city make it an ideal city for the study. The paper intends to assess level of physical development in the local areas of Bhopal with people’s perception, with identified physical amenities.

Keywords: local areas, physical amenities, physical development

I. INTRODUCTION

India’s urbanization is full of contradictions; having large percentage of country’s population living and working in urban areas reflects development in past few decades followed by issues in social, economic, physical and environmental domains. In India with fast growing population, the issue of increasing urban population and providing basic amenities like water supply, sanitation, sewage, waste disposal and transport remains a huge challenge in urban areas. [Planning Commission of India. 2007]. To meet this challenge of achieving a balance between demand and supply of physical services, in accordance of growing population in urban local areas, many government schemes, programmes, funds and grants are formulated, implemented and funded at Union,

Centre and State level to meet the extra need of physical development in the local areas of a city, apart from the annual funds and grants given to Urban local bodies (ULB’s) for physical development in local areas. To know the existing status need to assess local area physical amenities was felt. The study aims to assess the physical development in local areas with identified physical amenities through people’s perception and not the government records. Primary survey was performed to collect data of physical amenities to assess physical development in the local areas of Bhopal with people’s perception.

II. UNDERSTANDING THROUGH KEY DEFINITIONS

A. Physical Development

Carrying out of building, engineering, mining or other operations in, on, over or under land or the making of any material or substantial change in the use of any building or land is explained as physical development [Keeble, 1969]. Physical development entails the carrying out of any operation on or any modification to land by mankind in an attempt to create a liveable and comfortable environment. The ultimate objective of physical development is to sustain the improvement in the wellbeing of individuals and bestow benefits on all [Keeble, 1969]. At the community level, physical development covers land that has been put to some form of use ranging from a building to an outdoor open space as against land which has not been touched and is covered with ‘bush’ [Mather, 1989]. Physical development manifests itself in the form of human activities or land uses in towns and cities [Amoateng, Cobbinah and Owusu-Adade, 2013].

Defining terminologies in context of the study in Table-1

Table-1

	Definitions
City	City is defined as area covered within the Municipal Boundaries for the research purpose.
Local Area	Local area is the ward area for our research project, it is the area covered in local area plan or ward plan. [UDPFI Guidelines 2014]

Revised Manuscript Received on October 30, 2019.

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Local Area Development	Development of Local areas (wards) is termed as local area development [UDPFI Guidelines 2014].Municipal Corporation is responsible for the development works and maintenance in local areas (wards). [UDPFI Guidelines 2014]
Physical Development	At the community level, physical development covers land that has been put to some form of use ranging from a building to an outdoor open space as against land which has not been touched and is covered with 'bush' (Mather, 1989). From the above, physical development can be defined as: Creation of community assets based on the locally felt needs within local area (ward) for development is referred to as physical Development for the research project. Development works like water facility, disposal of waste, lighting facility, public health facility, education facility, sanitation, recreational and public facilities, etc. are covered under it.

III. RELATIONSHIP BETWEEN LOCAL AREA DEVELOPMENT AND URBAN LOCAL BODIES

Urban Local Bodies (Municipal Corporation/Municipalities - ULB'S) is responsible for development and maintenance of physical amenities and services in local areas (wards) of a city. [URDPFI Guidelines] [Source:MoUD. 2015.("smart city: mission statement and guidelines.")). An Urban Local Body or a municipality is the tier of government having the responsibility of development of cities and towns.The [74th Constitutional Amendment Act \(CAA\)](#) 1992, resulted in major devolution of funds, functions and functionaries to this layer of government giving functional autonomy to local governments. The 74th constitutional amendment gave constitutional status to Urban Local Governments; States enabled legislation to transfer responsibilities of services to this government tier [The Constitution 74." 1992.].It's functions, expenditures, revenues and grants (from State and Central Finance Commission for physical development) were a part of study. Also various schemes and programmes for physical development were studied.

IV. LIST OF SOME PROGRAMMES, SCHEMES AND GRANTS FOR PHYSICAL DEVELOPMENT

Minimum basic Service, N.S.D.P., K.E.I.P., Special fund for Development (KMDA), Urban Poor Housing, Shelter to shelter less, Special Development Programme, Sarba Shiksha Mission, Rajiv Abas Yojana, Installation of Water Meters, 11th Finance Commission, M.P. LAD Scheme, B.E.U.P.,Municipal Building Scheme, C.U.D.P.-III (Health), RashtriyaSwasthyaBima Yojana, Urban Primary Health Care Services, SJSRY, Development of Municipal Area, Short/Medium Term Loan, Projects for Riverfront Development, Schemes under G.A.P. , N.S.A.P., Modernization of abattoir at Tangra, Modernization of Goat Abattoir at Rabindra Sarani, Modernization of Goat & Sheep Abattoir at DC Dey Road, Tolly's Nallah Project, State Finance Commission, Miscellaneous Agencies, Wage Employment Scheme, Redevelopment of Municipal Market, J.N.N.U.R.M.. Stores Purchase, VAMBAY Works, Corpus Fund, Operation & Maintenance of East Kolkata Asset, Multi Sectoral Plan for Development of Minorities, IT Park

Construction. Disaster Risk Reduction Programme, 12th Finance Commission, 13th Finance Commission / Finance Commission, K.E.I.I.P., Development of Refugee Colony. [Municipal Corporation Budgets, 1992.]Dearness Allowance Grants, Grants for increased cost of pay, Grants out of the proceeds of M. V. Tax, Other Grants, Special Grant for C.E.S.C./WBSEDCL, Grant for services in Bustees /Slums A/C., Grants for services of Water Supply, Sewerage & Drainage, Grants out of the proceeds of Entertainment Tax, Grants for Development, Relief on Pension, Fixed Grant, Pulse polio programme Grant, Riverfront Beautification Grant. [Municipal Corporation Budgets, 1992.]

V. INITIATIVES AT NATIONAL LEVEL

The Ministry of Urban Development, *Government of India* formulates policies, supporting and monitoring programmes and coordinating the various activities of Central Ministries, State Governments and other nodal authorities they relate to urban development issues in the country. Some of its important Programmes /Schemes are:

A. Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

The major revolution came in the 7th to 11th Five-Year Plans, as India's economic liberalization promoted more private participation in city planning. Still, the focus throughout these plans was on providing basic social and physical infrastructure services and utilities to the cities. JNNURM focused on the process of urban reform; developing the urban cores and also introduced the concept of public participation in urban development.

B. Urban Infrastructure Development Scheme for Small & Medium Towns (UIDSSMT)

This scheme of Integrated Development of Small and Medium Towns (IDSMT) accelerated Urban Water Supply Programme (AUWSP). The objectives of this scheme is improvement in infrastructure facilities and create durable public assets and quality oriented services in cities & towns, encourage public-private-partnership in infrastructure development and promoting planned integrated development of towns and cities. The components of the Scheme include all projects of urban infrastructure development like water supply, roads, parking space, drainage, solid waste management, sewerage, urban renewal, water bodies preservation and prevention of soil erosion. [Source: JNNURM (UIDSSMT)]

C. ADB Funded North Eastern Region Urban Development Programme

The North Eastern Region Urban Development Programme (NERUDP) Phase-I is implemented by the Ministry of Urban Development (MoUD) with assistance in finance from Asian Development Bank (ADB). It includes capital cities of 5 North Eastern States viz. Agartala (Tripura), Aizawl (Mizoram), Gangtok (Sikkim), and Kohima (Nagaland). The priority urban services of project are:(i) Water Supply, (ii) Sewerage and Sanitation, and (iii) Solid Waste Management. [Source: Ministry of Housing and Urban Affairs, Government of India (NERUDP, 2019)]

D. Smart City Mission

Lately, government of India has introduced the Smart City Mission in the 12th Five Year Plan, to work on issues related to rapid urbanization. The aim of mission is to achieve sustainable environment for its urban cities. The fact that there is no universally accepted definition for concept of Smart City and it varies from place to place. The objective of the mission is to promote economic growth and improve the quality of life, thus providing a framework for the smart city development in India. [Source: MoUD. 2015. (“Smart City: Mission Statement and Guidelines.”)]

E. Performance Challenge Fund for Local Government Units

The Performance Challenge Fund for Local Government Units (PC Fund) is an incentive fund to LGUs in the form of counterpart funding to high-impact capital investment projects in the Annual Investment Program (AIP) and funded out of the 20% Local Development Fund consistent with national goals and priorities.

VI. INTERNATIONAL INITIATIVES

Justice and equity are the essential preconditions for the development of resilient urban concepts. For this purpose, two indices are developed based on the UN-Habitat City Prosperity Index, with focus on integrating the nexus relevant- indices the Infrastructure development Index and the environmental Sustainability Index with weighted equity index.

The World and Regional Prosperity Index (WCPI, RCPI5) and the Nexus City Index (NXI) enable decision makers to easily compare at global and local city level.[Schlör, Holger, Sandra Venghaus, and Jürgen Friedrich Hake. 2018].At international level countries like USA, Africa, etc. are adopting Infrastructure Indexing method with their indices for easy comparison of countries at international platform. 92 constituents were considered and weighted for Index by U.S. to prepare Index U.S. Infrastructure Development Index. [“Indxx Launches US Infrastructure Development Index.” 2018].Africa Infrastructure Development Index (AIDI) is produced by the African Development Bank. The AIDI serves a number of key objectives. This effort is to enhance evidence-based policy making in Africa – especially with specific reference to infrastructure. The Index provides countries with the framework to assess their position and related changes with respect to the requisite infrastructure investments. [Africa Infrastructure Development Index (AIDI)2018]

VII. JUSTIFICATION FOR SELECTING BHOPAL AS A CASE

The State Capital Bhopal is growing at a rapid pace and is likely to promote increasing urbanization within its boundaries and areas around it. Need to strengthen the regional and sub-regional infrastructure to support increased urbanization in manufacturing and supporting services. Increasing migration not only from within the State but also from neighboring seven states is one of the major reasons for the rapid pace of growth in Bhopal , calls for more pragmatic policies to take f low of the population in a balanced way. Over the last decade, in urban India the income of an average household has increased by about a third between 1993 and

2010as a result of rapid economic growth. In this period, economic growth not only lifted millions of households out of poverty, but also gave rise to an emerging middle class, which is growing at a fast pace [Meyer & Birdsall 2012]. Various studies have projected that in the next decade middle class would be the dominant section of the Indian population. The scope of this is limited to explore the physical amenities provided to the middle-income group (MIG) for its living. The city development plan of Bhopal prepared in 2005 state that as per official definition by the government of India for income groups, the city of Bhopal is predominantly inhabited by MIG and LIG households. Bhopal has nearly 26.7% households belonging to MIG and 34.7% belonging to LIG, aggregating targeted households for the study to 61.4% in the local areas (wards) of Bhopal.[Bhopal Municipal Corporation 2006]. Table-1 Summarizes Growth Rate in Bhopal from 1941-2011

Table-1

Year	Population in lakhs	Period	Decadal Growth Rate (%)
1941	.75		
1951	1.02	1941-1951	36.00
1961	2.23	1951-1961	118.62
1971	3.85	1961-1971	72.65
1981	6.71	1971-1981	74.29
1991	10.62	1981-1991	58.27
2001	18.83	2001-2011	29.15

Source: Census of India of respective years

VIII. DATA OF IDENTIFIED INDICATORS AND SUB-INDICATORS

A comprehensive list of identified indicators and sub-indicators of physical development finalized from literature review was prepared. The list had 8 indicators and its 25 sub- indicators of physical development. These identified indicators were undertaken for quantitative analysis. Data was of identified indicators and sub-indicators (physical amenities) were collected from primary survey for all 85 wards or local areas of the Bhopal city for the study.

IX. PROPOSED METHODOLOGY

This index is prepared to assess physical development in local areas of Bhopal with people’s perception, using the primary data giving the present status of these indicators and sub-indicators in reality of its availability and number in the local areas of Bhopal. This data was collected from primary survey of residents of these local areas, who owned their houses for minimum of past 5 years and are graduate and live in MIG housing or belong to MIG class. These surveyed respondents gave their opinion of the availability and unavailability of these amenities in these local areas.

X. ALGORITHM

Assessment of physical development as per people’s perception, by evaluating identified physical amenities through primary survey.

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It involves four steps:

1. Evaluate indicators and sub-indicators through primary survey
2. Indicator Standardization
3. Tool
4. Local Area Scores.

XI. EVALUATE INDICATORS AND SUB-INDICATORS

Data of all identified physical amenities, 8 indicators and its 25 sub-indicators, is collected from the primary survey and is collected for each Local Area (ward) independently. 2550 people were surveyed in Bhopal from all 85 wards i.e. 30 each for knowing the status of physical amenities in local areas of Bhopal through survey. Respondents answered either yes or no for its availability and unavailability for each local area they lived in. This data was tabulated for each local area to know the status of physical development in it.

XII. INDICATOR STANDARIZATION

All 8 indicators and its 25 sub-indicators of the study are measured using the same unit i.e. in numbers. If amenity was present it is given the value 1 and if it was absent it is given the value 0.

All the indicators of study with high values signify availability; the standardised value of these indicators is calculated as follows:

$$\text{Standardised Value} = \frac{\text{Indicator Value} - \text{Min (Indicator Value)}}{\text{Max (Indicator Value)} - \text{Min (Indicator value)}}$$

XIII. TOOL

Then Principal Component Analysis (PCA) technique on standardized value of indicators and sub-indicators was applied to it to develop an Index for local areas of Bhopal to assess the status of physical development in local areas of Bhopal with people's perception. In our study we named it Survey Amenity-PCA- Y/N scores. Principal Component Analysis (PCA) is widely used because it's simple, it's fast and it works.

XIV. LOCAL AREA SCORES

Score of each local area or ward represents the status of physical development in it. Lesser value shows lower status of physical development. Score is calculated using the primary data giving the present status of these indicators and sub-indicators of its availability and number in the local areas (wards) of Bhopal. These ward wise amenities, indicators and sub-indicators, were then compiled in the tabular format. The data was then made unit less and then standardized value for each indicator and its sub-indicators was calculated. For standardised value the formula used was:

$$\text{Standardised Value} = \frac{\text{Indicator Value} - \text{Min (Indicator Value)}}{\text{Max (Indicator Value)} - \text{Min (Indicator value)}}$$

Then scores for all local areas (85-wards) of Bhopal with its existing amenities, (identified indicators and its sub-indicators) from primary data was developed after application of Principal Component Analysis (PCA) Tool.

XV. FLOW CHART

Figure-1 is a Flow Chart showing methodology .

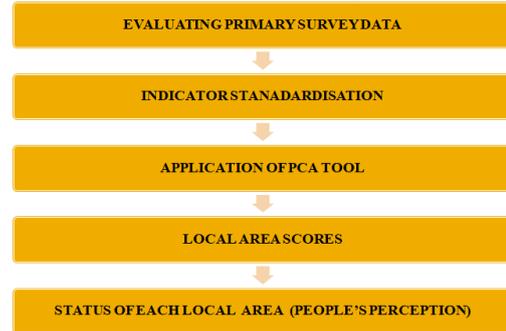


Figure-1

XVI. RESULT

Result of the study was named as Survey Amenity-PCA-Y/N Scores. Result gives the status of physical development in local areas (wards) of Bhopal. Table - 2 summarize the results and is named as Survey Amenity-PCA- Y/N Scores for all wards (1-85)

Table – 2 Survey Amenity-PCA- Y/N Scores

Survey Amenity -PCA- Y/N-Score									
1	2.090886	18	1.653223	35	1.902831	52	2.000744	69	1.752888
2	2.048942	19	1.973596	36	1.487294	53	1.864443	70	1.857143
3	2.348693	20	1.705891	37	1.136657	54	2.121423	71	3.971774
4	3.563552	21	1.883578	38	2.022729	55	2.07468	72	1.881637
5	2.027221	22	2.259582	39	1.680892	56	2.206489	73	4.838291
6	2.691186	23	1.576073	40	2.137239	57	2.345006	74	1.440042
7	2.543552	24	1.791086	41	0.979733	58	4.27948	75	1.789684
8	4.937716	25	2.221007	42	1.453327	59	1.967018	76	2.519963
9	1.89448	26	2.432498	43	1.77036	60	2.324581	77	1.931996
10	2.022825	27	1.500766	44	1.061869	61	1.482487	78	2.042994
11	1.4	28	1.594973	45	2.724591	62	1.920458	79	2.098132
12	1.857143	29	1.911508	46	1.894163	63	1.60998	80	2.686082
13	1.96678	30	1.868129	47	1.928805	64	1.978567	81	1.973238
14	3.47853	31	1.962954	48	1.799863	65	1.888932	82	1.773778
15	1.484893	32	2.33052	49	1.963579	66	1.811431	83	2.199097
16	1.574486	33	7.879411	50	3.659568	67	1.770397	84	1.294294
17	1.285279	34	2.387828	51	3.485564	68	2.370599	85	2.963469

XVII. ANALYSIS

Analysis of the resultant scores gave the status of physical development in each local area (ward) with identified physical amenities (indicators and sub-indicators) as per people's perception and not as per the government records of its availability. Lesser the score lower the status of physical development in the local area (ward). Lower scores indicate the need of physical development on priority. The difference in the scores of physical development as per secondary data and primary survey data reveals either the records are not updated or the physical amenity is present in the local areas but is not maintained or is in dilapidated condition, so that it can be used or considered available as per user's context.

Figure- 2 reflects the status of physical development in each local area (ward) of Bhopal with identified physical amenities as per people's perception.

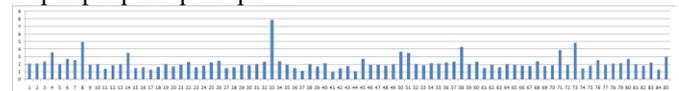


Figure-2

Figure- 3 reflects the status of physical development in each local area (ward) of Bhopal with identified physical amenities as per secondary data from government organisation and people's perception of physical amenities available in their local areas through primary survey data.

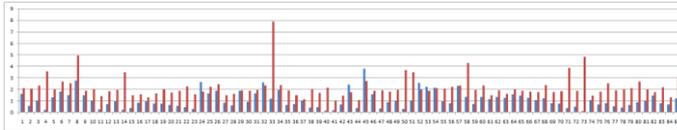


Figure-3

XVIII. CONCLUSION

The results of the study enable to assess the status of physical development in local areas (wards) of Bhopal as per people's perception. Lesser score reflects lower physical development in the local area (ward) and higher score reflects better status of physical amenities in those local areas (wards). The study results are completely based on the data available of the identified indicators and its sub-indicators from the primary survey data. This study considered only people's perception, for these identified indicators and its sub-indicators in reality, for its availability. The study needs to incorporate people's perception, their priorities along with secondary data from government source of these physical amenities together at the same time to assess the local area requirements and fulfill them. The physical development can be best achieved with public participation from inception of any scheme or programme, as it is for them and hence their participation would enhance the overall development.

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