

“Social Infrastructure Management in Vidisha City, Madhya Pradesh”

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Abstract - The study focuses and analyses the present condition of social infrastructure in Vidisha City to identify issues and potentials of the system. The objectives were addresses through baseline analysis based on primary and secondary data analysis. The study deals with Socio infrastructure facilities of the city with focus on Education, open and recreational spaces, distribution services, safety with communication facilities but the health infrastructure is not included in the study. The city has potential to act as counter magnet to Bhopal, City. Though the city has acute shortage in various aspects of socio infra but the city has potential to become future educational hub with. So the study discusses strategies to develop quality Open Spaces with due consideration of eco-friendly management practice and provide better Social Infrastructure. Increasing the number of schools and other institutions of learning and skill development; formation of medical hubs with facilities from primary health care to super-specialty hospitals. Mostly urban development compromises the sustainability and environmental aspects by the stakeholders and thus impacts the qualitative and quantitative resource utilization. Hence the paper suggests the proposals, strategies and recommendations to provide robust infrastructure, equitable and balanced development of Vidisha City.

Key Words: social infrastructure, robust

1. INTRODUCTION

India as a developing country, faces issues related to infrastructure. Resolving infrastructure in large urban areas is very complex and it has manifold activities. Infrastructure aspect is key driver for economic development of the country. The paper focuses on the Social Infrastructure of Vidisha City, MP which paves the path to quality of life in any urban centre depends upon the availability of education, health, socio cultural, recreational, sports, distribution and police safety services. It includes maintenance and construction of above facilities.

The 6th five year plan of planning commission Government has stated the aim for IDSMT which focuses on improving infrastructural facilities and helping in the creation of durable public assets in small and medium towns having potential to emerge as regional centres of economic growth and employment, thereby reducing migration to cities and towns for jobs. (India, 1994). Presently schemes like AMRUT are major government initiative for infrastructure

development. Considering the above research was worked on social infrastructure planning and management for the holistic development of small and medium town with focus on Vidisha City, MP.

1.1 Aim

To assess the existing Social infrastructure to find major issues and make necessary proposal for robust and holistic infrastructure development.

1.2 Objective

Major objectives of the research are

1. To analyse baseline status of Social Infrastructure in the city with focus on education, recreational spaces and distribution service.
2. To identify the challenges and potentials related to social infrastructure in the case town.
3. To propose recommendations for development of social infrastructure.

1.2 Research Questions

- Is development happening in the Vidisha City, MP?
- What are the existing infrastructure gap?
- How existing gap can be reduced with focus on future requirements?

1.3 Methodology

The study initiates with formulation of aim and objectives of the study. The objectives are met through literature study based on secondary data analysis followed by primary data collection through survey formats, interviews and recognizance survey. Data collected is analysed by comparison with applicable standards and guidelines, which gives existing infrastructure gaps are identified. Based on the above analysis issues and potentials and critical area of interventions were identified. Finally research is concluded with recommendations and strategies for the social infrastructure development of the city.

1.4 Study Area

Vidisha city is the administrative headquarter of the district. The city is situated on the fertile land of river Betwa. City is located between 23°31'33.74" N Latitude and 77°48'39.31" E Longitudes with an elevation of 423 m. The Vidisha planning area covers an area of 167.3 sqkm (16730.6HA) with population of 1,85,896 as per census of India, 2011. The population density is 1081 population per sqkm subdivided into 46 villages. Municipal boundary covers 21.09 sqkm area and population of 1,55,95. The City is divided into 36 wards, 4 no of outgrowths with population density of 11.47 PPH and 37,744 households.

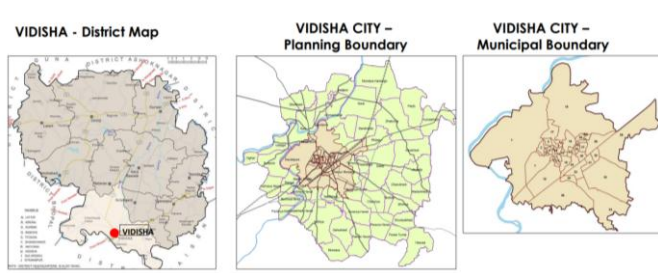


Fig -1 Location of Vidisha City, MP
Source: Master Plan Vidisha, 2011

Vidisha (Class 1 city), situated close to (57km) Bhopal (Million+ City), holds potential to grow as a counter-magnet with proper development of facilities and infrastructure. The Spatial Growth of the city has spread towards all directions specifically towards the east and southeast in the last 20 years as depicted in the diagram. There has been observed linear settlement pattern growth along the major roads joining the city. As the national and state highway passes through the city, growth has been observed parallel to these highways.

2. SOCIAL INFRASTRUCTURE

The social infrastructure constitutes a range of services that are essential for good quality living. Planning for social infrastructure is done based on population, for equitable distribution, the master plan and URDPFI guidelines 2015 proposes provision of these facilities at City level, Zonal level, District, Community, Neighbourhood and Housing level. (India, 1994). The study considers an area of 16730.6 Ha, population of 1,85,896 as per census of India, 2011. As mentioned 36 wards, 46 villages and 4 outgrowths.

3. ANALYSIS INFRASTRUCTURE

3.1 Education

Vidisha has an average literacy rate of 86.88%, higher than the state and national. In the 2011 census, the city reported 92% male literates and 86% female literates. Vidisha has a

large student population and is a popular educational centre in central India. The spatial distribution of education facilities is equitable and accessible to all residents with dominance of private schools with huge deficiency of pre-primary schools in the city. Amongst Higher education colleges and universities, there is a Grant-in-Aid Autonomous College named Samrat Ashok Technological Institute and Atal Bihari Vajpayee Government Medical College etc thus sufficient and due to surplus serves as educational hub. The figure shows education infrastructure gap assessment and baseline analysis, 2021.

As per MP state education portal, 2020 80% schools have playground facilities, washroom and kitchen facilities, 47% schools does not have drinking water facilities and ramps, which needs to be upgraded. There is lack of library and digital facilities and quality of built structure in govt. schools.

SCHOOLS												
Gap Analysis for Population 1,87,199 (2021)												
S.No	Category	URDPFI GUIDELINES			Demand		Existing		Gap Analysis			
		Students strength per unit (A)	Population served per unit (B)	Area per unit (Ha) (C)	Required No. (D)	Student strength (AxD)	Require Area (Ha) (CxD)	Existing Nos. (E)	Avg. Student str. per unit (F)	Provided (E/F)	No.	Status
1	Anganwadi	5,000	0.02-0.03	38	1	156	-	156	-	156	+118	Surplus
2	Pre-Primary	2,500	0.08	75	4	20	-	20	-	20	-55	Deficient
2	Primary (I-V)	500	5,000	0.4	38	19,000	15	41	400	16,400 (33 Nos.)	+3	Surplus
3	Sr. Secondary School (VI-XII)	1,000	7,500	1.8	25	25,000	48	53	800	42,000 (42 Nos.)	+28	Surplus
4	Integrated School without Hostel facility	1,500	1,00,000	3.5	2	3,000	7	1	-	-	-1	Deficient
5	Integrated School with Hostel facility	1,500	1,00,000	3.9	2	3,000	8	1	-	-	-1	Deficient
6	School for physically challenged	400	45,000	0.7	4	1,600	3	1	-	-	-3	Deficient

HIGHER EDUCATION										
Gap Analysis for Population 1,87,199 (2021)										
S.No	Category	URDPFI GUIDELINES			Demand		Existing		Gap Analysis	
		Students strength per unit	Population served per unit	Area per unit (Ha)	Required No.	Require Area (Ha)	Existing Nos.	No.	Status	
1	College	1000-1500	1.25 Lakh	5	2	10	5	5	+3	N.R.
2	University Campus	-	-	10-40	-	-	-	-	-	-
3	Technical Education Centre (A)	ITI - 400	10 lakh	4	N.R.	-	1	1	+1	N.R.
4	Technical Education Centre (B)	-	10 lakh	4	N.R.	-	1	1	+1	N.R.
5	Engineering College	1,500	10 lakh	6	N.R.	-	1	1	+1	N.R.
6	Medical College	-	10 lakh	15	N.R.	-	1	1	+1	N.R.
7	Other Professional College	250-1500	10 lakh	3-6	N.R.	-	4	4	+4	N.R.
8	Nursing and Paramedical Institute	-	10 lakh	-	N.R.	-	-	-	-	-
9	Vocational Institute	-	-	-	N.R.	-	-	-	-	-

Fig -2 Education Infrastructure gap assessment
Source: Census, 2011, open Govt. data platform

But threshold of the facilities should not depend only on number but also on the characteristics of the population.

3.2 Socio Cultural Facilities

There is a deficiency of socio-cultural facilities as per Norms. Public facilities like Libraries, Banquet Halls, Auditoriums, Community centres are deficient. The city presently doesn't have any government community halls. The maximum no. of facilities is in the city centre.

SOCIO CULTURAL SAFETY SECURITY & MISCELLANEOUS FACILITIES									
Gap Analysis for Population 1,87,199									
S.No	Category	URDPFI GUIDELINES		Demand		Existing		Gap Analysis	
		Population served per unit	Area per unit (Ha.)	Required No.	Require Area (Ha.)	Existing Nos.	Existing Area (Ha.)	No.	Status
SOCIO CULTURAL									
1	Community Room	5,000	0.08	38	3	12	1	-24	Deficient
2	Community Hall, Mangal Karyalaya	15,000	0.2	13	3	8	0.8	-2	Deficient
3	Music, Dance and Drama Centre	1 Lakh	0.1	2	0.2	0	-	-2	Deficient
4	Meditation and Spiritual Centre	1 Lakh	0.5	2	1	3	1.2	+1	N.R
5	Recreational Club	1 Lakh	1	2	2	0	-	-2	Deficient
6	Old age home	5 Lakh	0.1	-	-	0	-	-	N.R
SAFETY AND SECURITY									
7	Police Post	40000	0.14	4	0.44	2	0.4	-2	Deficient
8	Police Station	90000	1.5	2	3	2	2	0	N.R
9	Fire station	2 lakh	1	1	1	1	0.8	0	N.R
MISCELLANEOUS									
9	District Jail	10 lakh	10	-	-	1	2	+1	N.R
11	Orphanage	10 lakh	0.1	-	-	-	-	-	N.R
12	Night shelter	10 lakh	0.1	-	-	-	-	-	N.R
13	Auditorium	10 lakh	15	-	-	-	-	-	N.R
14	Cremation Ground	5 lakh	2.5	-	-	1	-	-	N.R

Fig -3 Social Cultural Security Facilities

Source: Census, 2011, open Govt. data platform

Safety and Security facilities are enough to cater to the present population. District museum present in the city lacks in terms of infrastructure and maintenance, therefore it needs to be upgraded. (Ms.Vijaya Saxena, 2021)

The provision of socio cultural and other PSP shall correspond to work lifestyle and urban demography.

3.3 Open Space

The open spaces can include the following three categories, namely Recreational space, Organized green and Other common open spaces (such as vacant lands/ open spaces including flood plains, forested cover etc. in plain areas.

The physical condition of parks in the city lacks boundary walls, fenced areas, facilities of public conveniences, tube well/ piped water supply, dustbins etc. Poor maintained play areas discourage physical activity and are less equipped with child friendly play equipment, snack/ ice cream parlours/ kiosks etc. Low aesthetics components have been built in parks and landscaped - manicured with water bodies/fountains are not maintained and are in dilapidated condition at Community Park. There are approximately 2 playgrounds, 3 neighbourhood parks and 15 housing area parks in the city till 2021. The figure shows open spaces infrastructure gap assessment and baseline analysis, 2021.

OPEN SPACES									
Gap Analysis for Population 1,87,199									
S.No	Category	URDPFI GUIDELINES		Demand		Existing		Gap Analysis	
		Population served per unit	Area per unit (Ha.)	Required No.	Require Area (Ha.)	Existing Nos.	Existing Area (Ha.)	No.	Status
1	HOUSING AREA PARK	5,000	0.50	31	15.5	15	-	-16	Deficient
2	NEIGHBOURHOOD PARK	15000	1.00	11	11.0	3	-	-7	Deficient
3	COMMUNITY PARK	1 Lakh	5	2	10.0	2	-	-8	Deficient
4	DISTRICT PARK	5Lakh	25.0	-	25.0	-	-	-	Deficient

Fig -4 Open Space Infrastructure gap assessment

Source: Census of India, 2011 & Open Govt. data platform

For open spaces shall be provided at rate of approx. 1.6 ha per 1000 persons. Also city does not have per person area

of 10-12 sqm open spaces as recommended by URDPFI guidelines, 2015.

3.6 Health Infrastructure

Healthcare facilities available in Vidisha are at various levels: District Level, Community Hospital, and Primary Health. Currently detailed analysis of this aspect is not covered in this paper.

3.4 Distribution Services

It mainly includes Petrol/diesel, filling service centre, compressed and natural gas filling centre, LPG and milk distribution services area. The core of the city has concentrated distribution facilities while it is scattered towards outgrowth of the city. The high-risk hazards of fire accidents as its major gas services are provided in the high residential density area. As per census 2011 population of 1, 87,199 the present existing gap is lack of 2 for LPG godowns, 1 CNG filling station, and 13 petrol pumps.

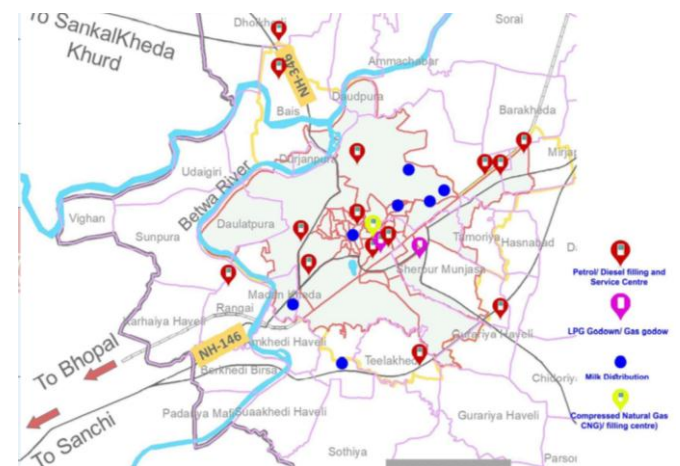


Fig -5 Communication Facilities gap assessment

Source: Census of India, 2011 & Open Govt. data platform

3.5 Communication facilities

Communication services of Vidisha city includes mainly Telephone and Communication, Postal and ATM services. Excessive number of paratransit and auto rickshaws encroachment leads to congestion and inconvenience to the employee and local inhabitants. The Stray animals create problems and challenges to vehicular traffic and road users not only at Madhav Ganj chowk but also in the entire major areas in Vidisha city, thus leading to a challenge for smooth functioning of Communication Services. On street parking In front of ATM and Banks leads to major challenges and a threat to the city in terms of safety and security.

COMMUNICATION FACILITIES							
Gap Analysis for Population 1,87,199							
S.No	Category	URDPFI GUIDELINES		Demand		Gap Analysis	
		Population served per unit	Area per unit (Sq.M)	Required No.	Required Area	Existing Nos.	Existing Area
1	Telephone and Communication	4 lakh	4Ha.		4Ha.		
2	Post Office	15000	85.0	12	935 sq.m	2	-10 Deficit
3	Bank and ATM	15000	75.0	12	825 sq.m	14	+2 Surplus
4	Head Post Office	2.5Lakh	750 sq.m		750 sq.m		+1 Surplus

Fig -6 Communication Facilities gap assessment
Source: Census of India, 2011 & Open Govt. data platform



Fig -7 Proposed Open Spaces Strategies

5.2 Open Spaces Strategies

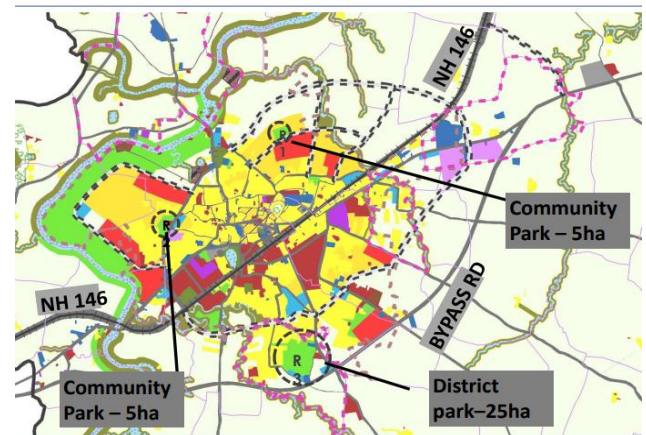


Fig -8 Proposed Open Spaces Strategies

4. ISSUES AND POTENTIALS

The detailed gap assessment shows that city is deficient in many social infrastructure facilities especially for primary education, open/recreational spaces, condition of built structure and concentration of socio cultural facilities in the core of the city, acutely deficient in distribution services and digital techniques. Though the city has insufficient infrastructure services the city has potential to develop as counter magnet to capital City Bhopal, can strengthen its existing image of educational hub. There is active public participation and various schemes and policies active in the city and district which can help to overcome present infrastructure gap to an extinct.

5. PROPOSALS AND RECOMMENDATIONS

Infrastructure should be decided by local authority taking into account walkable distances preferably at 300 m to 800 m. As per URDPFI amenities for additional population of 25% shall be provided as a cushion. Higher order facilities are essential to cater lower order settlement. (Govt. of India, 2015)

Population Projection

All the proposals are formulated for the year 2041 and on the basis trend based population projections the population is estimated as 3, 17,567. Core has been infilled with the maximum capacity 71,279 P/Sq.Km then followed by intermediate as 34,325 P/Sq.Km in considering infrastructure to constrain it to core and increase its performance. Addressing the gap in area and numbers according to the population requirement.

5.1 Education and Health

Vidisha has potential to become a knowledge hub in Madhya Pradesh as it has a surplus of higher education facilities. Funding from government schemes can be used efficiently to upgrade the government schools. Health infrastructure strategies are not discussed here.

To cater city, neighborhood and household level facilities. Place making - open spaces inclusive for all Community park, Neighborhood park and District park will serve existing core city population, housing well connected to internal ring road and urban spine space for the city making it ecologically and environmentally more sustainable by various thematic parks within it.

The vacant recreational areas within the already existing built up areas can be used for fulfilling the existing requirement of open space. Stringent monitoring against encroachment of open spaces may help maintain the green spaces within the city. Stringent monitoring against encroachment of open spaces may help maintain the green spaces within the city. Integration of Public Realm and dedicated bicycle lanes into the existing open spaces.

5.3 Other PSP Facilities

Safety security and communication facilities along with various socio-cultural facilities. Within the city it will help to cater the not only existing population but also the proposed population of Vidisha city. Served with internal radial ring roads with ROW 36m wide. To redevelop the District Museum as an important landmark of the city. To provide an adequate number of safety and security facilities so as to cover the entire planning area. To introduce smart solutions for coordination & management of Fire & Policing services.

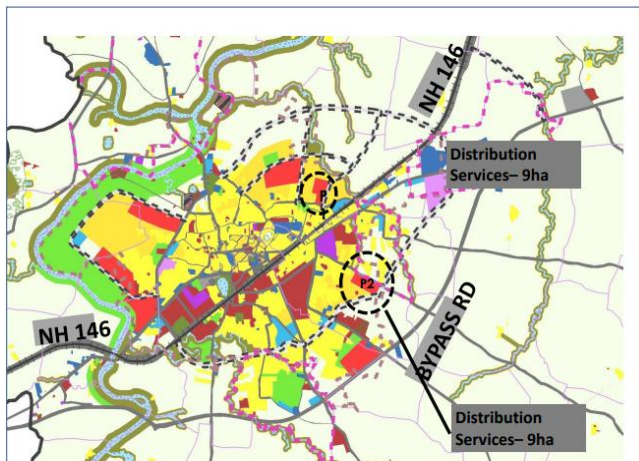


Fig -9 Proposed PSP Facilities

Fig shows summarized proposals for all infrastructure facilities for open spaces, distribution services, communication facilities, socio cultural facilities and provision for safety and security. For the year 2041 and population 3,17,567 (trend based population projection).

Social Infrastructure			
Projections (2041) for Population (3,17,567)			
OPEN SPACES			
District Park	1	25	25
Community Park	2	10	10
Total Recreational Space			35 Ha
DISTRIBUTION SERVICES			
CNG filling centre	2		0.3
LPG Godown/ Gas godown	4	0.05	0.3
			1 Ha
COMMUNICATION FACILITIES			
Telephone and Communication	1	4	4
Head Post Office	1	0.75	0.75
			5 Ha
SOCIO CULTURAL			
Drama Centre	3	0.1	0.3
Meditation and Spiritual Centre	1	0.5	0.5
Recreational Club	3	1	3
			4Ha
SAFETY AND SECURITY			
Police Station	2	1.5	3
Fire Station	1	1	1
			4 Ha
Total PSP AREA			69 Ha
20 % OF CIRCULATION			14 Ha
10% OPEN AREAS			7 Ha
NET PSP AREA			90Ha

Fig -10 Proposed Social Infrastructure Facilities

7. CONCLUSION

Existing infrastructure gap results in inadequacy of infrastructure and effects urban development in long run.it impacts both development representatives and residents thus affecting future development. Government schemes and policies like AMRUT can be the solutions to reduce problems due to inadequate planning and infrastructure gaps. (Kalpana N. Kawathekar, 2015). The social amenities shall consider the regional bearings thus Vidisha city which is a medium size town shall cater to small towns and villages and

so on. The location of the city can be utilized to develop the city into a center for assimilation of district's production and economic activity and integrate it with the wider region in the eastern part. Need of the hour is contiguous development for optimized resource utilization. More settlements may come up across the 186 km corridor connecting Bhopal to Sagar via Vidisha. Thus role of the government legislature and the local community participation and especially women is most important for future social development. The focus is to provide facilities which has multiple purpose use, can achieve utilization threshold and self-sufficient with equitable distribution. Vidisha City although being a small & medium town can become a centre of development and is no more an exception and cab be achieved with the planning and administration.

REFERENCES

- [1] <https://www.google.com/search?q=URDPFI+Guidelines&oq=URDPFI+Guidelines&aqs=chrome..69i57j69i60l2.4406j0j7&sourceid=chrome&ie=UTF-8>
- [2] <http://mptownplan.gov.in/LU-panel/Vidisha/Vidisha%20Master%20Plan-2011.pdf>
- [3] <http://www.gjstx-e.cn/gallery/38-june2021.pdf>
- [4] http://aiggpa.mp.gov.in/uploads/project/Preeti_Project.pdf
- [5] <https://www.ijsr.net/archive/v5i7/ART2016520.pdf>
- [6] <https://censusindia.gov.in/census.website/data/handbooks>