

Sustainable Development Strategies for an Industrial Township: A Case of BHEL, Bhopal

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Abstract: As a result of the liberalization policies and the shift in focus on industrial development, Indian cities have experienced increased influx of migrating population resulting in a steep rise in their size and population. In such a scenario it becomes imperative on the part of the government to provide for the necessary infrastructural and service related facilities in order to sustainably regulate the development of the overburdened cities. The development of new towns is not possible always due to a lack of the required amount of financial and land resources. It therefore, puts in front of us a challenging task of redesigning or redeveloping the existing urban/development centers within our cities in order to achieve sustainability in our development process. Many such centers have come up around the industrial clusters developed in major cities across the nation. In many of these cases there is a huge potential of redevelopment or more efficient development due to the fact that they have substantial amount of underutilized land resources. This paper tries to highlight the similar kind of sustainable redevelopment potential within an urban center developed around the BHEL industrial cluster in Bhopal. It focuses on the factors that led up to the existing trends of development within the identified urban center since its inception in 1970 and tries to analyze how the trend matches with the development happening around it in the rest of the city. It then, highlights some of the growth theories and concepts that could be utilized in developing it in a more sustainable manner finally, highlighting some of the strategies for sustainably redeveloping it as an efficient urban growth center.

Keywords: Sustainable development strategies for Industrial Townships, Industrial cluster & Underutilized land resources

1. INTRODUCTION

BHEL TOWN, Bhopal is a suburb of Bhopal, Madhya Pradesh. This has developed like other BHEL townships after Indian public sector engineering company. It is spread over an area of around 26 km² and provides facilities like, parks, community halls, library, shopping centers, banks, post offices etc. Besides, free health services is extended to all the employees through 350 bedded Kasturba Hospital and chain of dispensaries. Now AIIMS is also open near BHEL.

India cannot afford to build many new towns. Although every year, a large number of people join with urban masses due to the ongoing migration & urbanization trends because of

industrialization. The gigantic task of the planning new townships within the existing urban centers is now before us. New towns are communities of tomorrow with creative possibilities where by organic balance has to be achieved by avoiding dilapidated condition, congestion and unhealthy environment. The strategy for new towns should be within the framework of a national policy, in public interest.

Table 9: Growth of BHEL, Bhopal

Heavy Electricals (I) Limited, Bhopal registered	August 29, 1956
Foundation stone laid down	November 15, 1958
Merger with BHARAT HEAVY ELECTRICALS LIMITED	January 1, 1974
ISO 9001 Certification	January 1994
TQM Assessment undertaken (Top among all BHEL Units consecutively 3 years)	1998, 1999, 2000
ISO 14001 Certification	18 th July, 2000
Source: BHEL at a Glance, 2011	

The problem with BHEL Bhopal is that it has so much of waste area and vacant houses which are of no use. It also have so many old houses in such a dilapidated condition that they can come down at any moment. BHEL now comes in the core commercial area of the city so it has to be redeveloped sustainably to make it environment & market friendly. Also, the gradual growth of the urban sprawl have now surrounded these originally dispersed townships with the characteristic dense urban settlements & their associated urban issues, thus putting before us a stark contrast between the original spacious or sparsely scarce settlements & increasingly dense surrounding urban settlements. It thus reveals the urgent need of redevelopment of these industrial townships at the first place, so as to promote a more balanced urbanization in these regions as well as saving these underutilized areas from

getting succumbed to the urban issues like slum formation, land degradation etc.

2. THE INCEPTION OF BHEL BHOPAL

2.1 Location of Township

The township of Heavy Electricals India Limited, popularly known as HEL township was situated at the eastern side of Bhopal at the distance of 8 km the main city of Bhopal (figure 1). The township initially covered an area of about 10 sq. miles, including 1 sq. mile area of factory and was situated at the height of 625 meter from the sea level.

Table 10: Area wise Housing details in BHEL (1970)

S. No.	Neighborhood	No. of dwelling units	Area in [Acres]	Population
1	Govindpura	3,300	540	13,200
2.	Piplani	3,700	580	14,800
3	Berkhera	4,449	560	18,000
4	Habibganj	672	80	2,800
	Total	12,121	1,760	48,800
5	Approximate Jhuggies in Anna Nagar & other areas.	1,000	N.A.	5,000

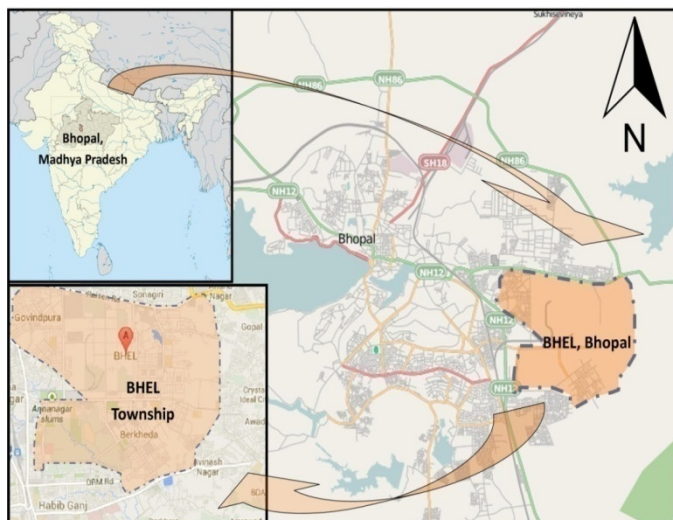


Figure 5: Location Map of BHEL, Bhopal

Planning of BHEL, Bhopal - The township was divided into four neighborhoods. Each neighborhood had 4 to 5 sectors. The planning of the township had the resemblance of a flag.

This strip was having two neighborhoods and the central part was that of factory area. Around the factory was green belt. Second strip was also divided into three parts: in the centre the proposed towns centre and on both sides were another two neighborhoods. All the existing neighborhoods were in proximity to the factory and the town centre. The last strip was earmarked for another neighborhood for future expansion

Table 11: Total Land use Characteristic of BHEL (1970)

Factory	872 [Acres]
Existing	543 [Acres]
For future expansion	230 [Acres]
Green belt around factory	100 [Acres]
Land reserved for township	6008 [Acres]

In residential planning, proper consideration to wind direction, orientation etc. had been given. The orientation was North-South and 20° right of south. Continuity of open spaces was achieved within the housing clusters. Whereas the warehouses & industrial estates were close to the Habibganj Railway Station, the Heavy Electrical factory was facing Bhopal-Raisen Road and Habibganj Railway Station was quite near.

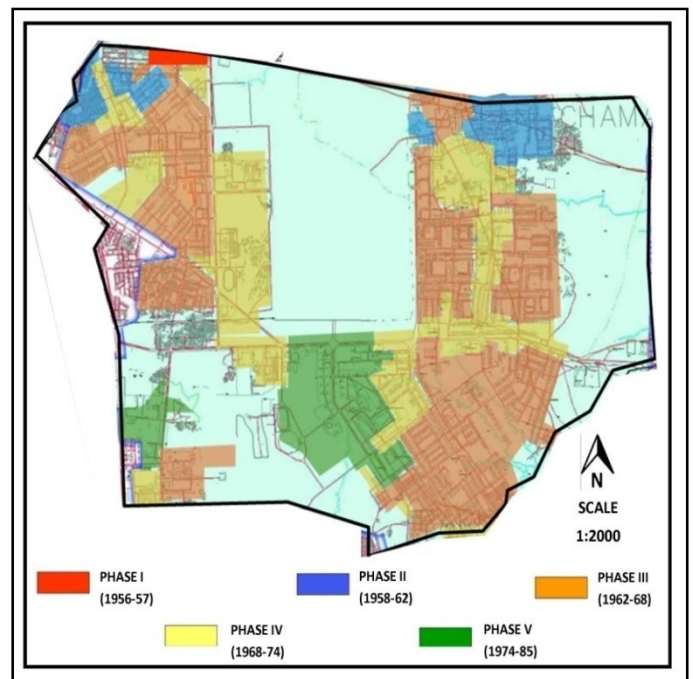


Figure 6: Chronological expansion of BHEL over the years.

Due consideration for the future expansion of the factory and the township had also been given in the initial planning. In the beginning only two shopping centers, one near Raisen Road, and the other in a Sector Piplani were developed. The

requirement of local shops was met by providing 8 to 10 convenient shops in different sectors.

Thus we see that proper planning was envisaged for developing this site of BHEL as a self-sufficient development node for the city of the Bhopal, taking into consideration all the aspects like housing, land use, commercial activities, ancillary industries as well as services and amenities.

Table 12: Percentage Distribution of Land in BHEL (1970)

Sr. No.	Land Use Category	Percentage to Total Developed Area
1.	Residential	44.00
2.	Shopping	2.00
3.	Educational	6.00
4.	Roads & streets	19.00
5.	Parks & open Spaces	26.00
6.	Other uses	3.00
	Total	100.00

3. PROBLEM IDENTIFICATION

Table 13: Contemporary area distribution of BHEL

	AREA IN HACTARES(ACRES)
A. FACTORY	
1.Land developed for Factory	219.7(543)
2.Green belt around Factory	44.1(109)
3.Land reserved for future development	89.0(220)
Total	352.9(872)
B. TOWNSHIP	
4.Land under residential plots	313.6(775)
5.Roads	138.8(343)
6.Parks, open spaces and low land	182.5(451)
7. Educational Institution Play fields, Commercial building sites, Public Building and Religious Places	84.6(209)
8.Vacant Land	883.5(2183)
	1603(3961)
TOTAL	1955.9(4833)

Table 6: Present Housing Scenario in BHEL

No. of Houses available	11,240
No. of Houses occupied till date	4740
No. of Houses demolished	760
No. of Houses vacant	6500

The BHEL Township, Bhopal was being administered & managed fine by the BHEL Officials since 1960. Basically the main problem in BHEL Bhopal is the proper use of land because so much land is underutilized, so many houses are vacant which can be used, minor encroachment issues and so many other buildings are in the dilapidated condition that they have to be redeveloped. Since it is an industrial township so it should act like a growth centre which it is not acting. The facilities & infrastructure such as water supply drainage, sanitation, transport, telecommunication, market, recreation & entertainment facilities etc are now under-utilized and a heavy burden for B.H.E.L. So Sustainable redevelopment strategies are important to give a new life to the township.

4. SUSTAINABLE REDEVELOPMENT STRATEGIES

Sustainable means to make balance between development and nature so that the development & growth can sustain for a longer period of time without harming nature & environment and without compromising the needs of future generation.

4.1 Strategies for Redevelopment - This development process of the underutilized BHEL land should try to stable both the commercial and the residential uses for increasing the land usability and land value, promote the neighborhood area development, and to develop the neighborhood's economy, which is now considered as a major growth center in the central part city & is sometimes referred to as the sub-city of Bhopal. Planning now for the possible transition from the underutilized vacant land use to mixed use will ensure that the redevelopment process will be profitable and constructive for both the BHEL as well as the Bhopal Municipal Corporation.

As shown in **figure 3**, the identified vacant areas within the BHEL township can broadly be categorized into three main zones as per the neighboring land character, namely, the first zone lying besides the MP Nagar and the Secretariat area, the second zone adjacent to the industrial as well as commercial hubs of Indrapuri, Piplani and Govindpura and lastly the third zone, the land can be given to the local administration for permitting the public and semi-public activities. Similarly, the second zone can comprise of the buffer green zone having extensive areas (BHEL and Govindpura), apart from having an area on which the commercial zone having a high FAR could be allowed to prosper and cater to the demands of the adjoining commercial. By virtue of the high FAR, it can also be made to accommodate the residential activities and can

properly serve and shape that area as a development node as envisaged in the Master Plan. Lastly the third zone, on account of the less developmental pressure for the neighboring zones and underutilized character, could be developed for the real estate purposes with urban gardens and green belts which will consider and compliment the due land value increase in that area by providing the Municipal Corporation a good source of resource mobilization by the land value capture and utilization. The remaining area adjoining the newly built AIIMS could be set up either for commercial or for residential activities. The land which is carved out from the delineation of B.H.E.L. land should not be restricted just to housing which will most probably end up at the luxury end of the market; but should be seen in broader perspective so as to generate employment, and amenities which is leading in the zone as per the development plan 2005. By development and selling only small portion of this land on a piecemeal basis, will result in haphazard development of no benefit to this city but will bypass its contribution to the city need.

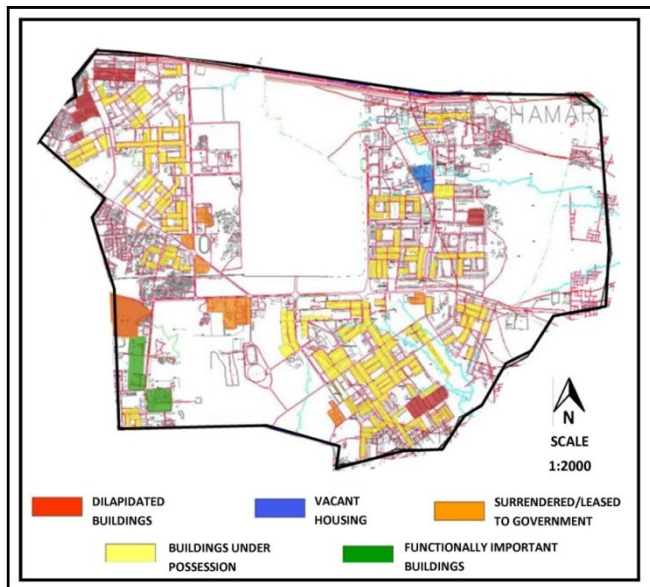


Figure 7: Currently occupancy status of BHEL

Therefore the redevelopment proposal should include the preparation of an 'Outline Development Proposal' (ODP). The additional housing stock so created which is in good habitable coordination should be used for low-income housing or for creating housing stock to facilitate reconstruction of dilapidated buildings.

Some other sustainable development strategies are given below:-

To develop BHEL as a Growth pole or Growth Node.

- In this Proposals for the establishment of supporting agencies for BHEL Bhopal will be given. After this

services for the main industry as well as for the supporting industries is proposed.

- Proposal for strengthening the linkages between different industries and other areas.
- Proposal for the new land use is given.
- Developing the area as the special economic zone
- Developing the area as the Compact city because BHEL is not an explosive type of industry so we can propose the development according to the compact city guidelines.
- Proposing Sustainable development and sustainable urban transport.
- Developing the township on the neighborhood concept.

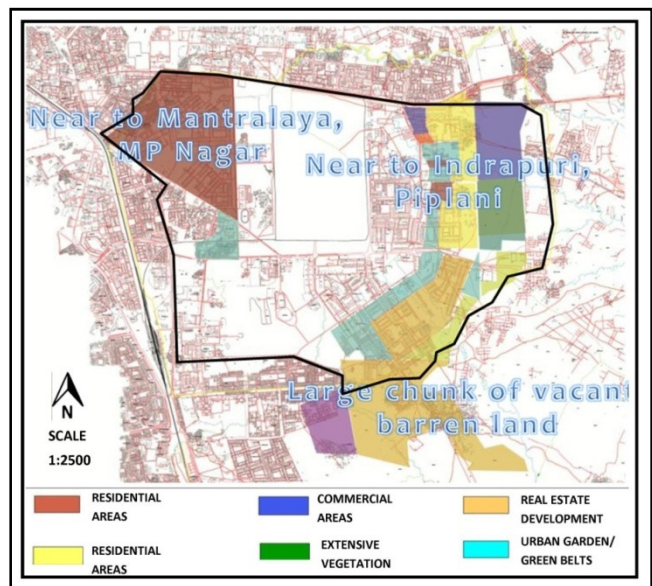


Figure 8: Proposed uses for the excess landmass of BHEL

4.2 recommendations

- Fast industrial growth can be sustain only by effective development of infrastructure and residential area support which is lacking now.
- There is need to plan for integrated development mechanism.
- A sustainable transport plan should be made.
- Buffer zone around the industrial zone.
- In this township only non polluting supportive industries should be permitted & proposed.
- As per M.P. Town Planning Act 1973 special area development authority should be used for redevelopment of BHEL.

- Sequenced legal procedure of planning permission should be through single window clearance, Headed by Collector, Commissioner BHEL Chairman or SADA Chairman.
- Strict Fine should be impose for illegal development.

4.3 connectivity

- A separate Rail terminal for BHEL
- Truck Terminal - There should be a truck terminal also to reduce the growing pressure on the internal streets. The major objectives of the proposal are:
 - To reorganize office & Godown space.
 - To reduce parking, loading/unloading instances in the core area.
 - To locate the facilities for vehicle repairs, servicing, rest places, shops etc.

4.4 land value & development -

- Increase in land value in & around BHEL Bhopal.
- Induced growth can be seen around BHEL Bhopal

4.5 immediate planning challenges -

1. Preparation of outline development plan to regulate the growth in interim period.
2. Need of authority which has planning, implementation & enforcement power & should have skilled & qualified staff.

5. CONCLUSION

As in the case of BHEL Bhopal, the identification of the current condition of existing structures and properties is very essential for administrators and developers alike for making correct decisions and executing proper planning to achieve sustainability for their future development of any urbanized area. Since this township is very old and so many structures or buildings have reached to their end so this is the time to think about redevelopment of the township and since there are so many environmental clearances needed for any project today and to think of environment friendly development there should be Sustainable Redevelopment of the township which will enhance it's the efficiency of the industrial township.

There are number of townships like BHEL Bhopal in the country having the similar situation. On one hand serviced land and housing is available in the center of the city remains underutilized due to the absence of initiatives, on the other hand cities face the problem of housing deficit & shortage of serviced land for the necessary functions. The problems of the city can thus be solved to greater extent once these underutilized resources are put to some better uses. Time has now come when Sustainable planning of new developed townships is utmost essential to keep pace with growing population and economy of the urban areas. The experience of new towns and townships planned in the past has to be gathered and should be implement with the sustainable development ideas in order to provide better, healthy and livable environment for our people in future.

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