



Accessing the Needs and Planning Provisions for Industrial Areas in India: Jaipur

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ABSTRACT: The needs of the industries are fast changing with the change in manufacturing processes. The industrial sector which was mainly labor intensive, now has a higher consumption of electricity and water and demands for a higher order infrastructure facilities. The present planning guidelines for industrial areas do not take into account this increased demand for infrastructure. The researcher tries to access the increased demand by conducting a primary survey in the industrial areas of Jaipur metropolitan region and tries to enlist the problems being faced by the industrialist operating in the industrial area. The researcher then tries to formulate planning recommendations for site zoning, Land use Planning, Infrastructure requirement and Environment for planning future industrial areas.

Keywords: Industrial, Guidelines, Industrial planning, MSME

I. INTRODUCTION

Industrial sector in India is growing at a fast pace extending from manufacturing to service sector. The manufacturing sector is mainly divided into large scale industries and MSME (Micro, Small and Medium scale enterprise). With the changing technology and mechanization of industrial activities the infrastructure and space requirements of these industries is fast changing. The industries which used to be labor intensive with the growing use of machines need higher order infrastructure facilities (Electricity, Water supply, Waste disposal, etc.). The mechanization has not only led to increase in production but has also substantially increased the waste production (Water, Gaseous waste, solid waste and toxic waste).

The MSME sector individually contributes to about 37 % to the G.D.P (Gross Domestic Product) and provides employment to over 805 lakh people. MSME are located near to major transport link and nearby town for its labor needs. Hence, the MSME sector since a long time has been taken care by the policies of state government and State bound industrial agencies like Punjab Industrial Department (PID), Karnataka Industrial Areas Development Board (KIADB), City and Industrial Development Corporation (CIDCO), Rajasthan State Industrial Development and Investment Corporation (RIICO), etc.

The pollution control board (PCB) in India categorizes the industries into three groups depending upon level of

pollution in Red, Orange and Green category. This rating is mainly depending upon the scale of production and operation of the industry, MSME sector working on low margins and low level of production the individual industries manage to get a clearance from PCB but the industrial area cumulatively produces large quantities of waste.

The Research paper tries to highlight the changing needs of MSME in terms of infrastructure requirements which in turn highlight the need for a change in planning guidelines for planning industrial areas and cater to their present/future needs. To analyze the same the researcher studied five industrial areas on outskirts of Jaipur city and carried out a primary survey to support the findings. The industrial areas namely Sitapura, Bagru, Jhotwada, Bindayaka and Vishkarma (VKAI) were selected. The areas selected are planned about 20-30 years back with the existing subdivision guideline and are currently operational.

Sitapura Industrial area

Industrial area set up by RIICO in four phases from 1996 – 2003 covering a total of about 2000 acres of land. The area is situated along National Highway 12 Tonk Road, well developed with quality infrastructural facilities like road network, underground water supply, electricity supply, etc. It houses business houses like M/s. Bosch Limited, Vaibhav Gems, Dwarka's Gems, Derewala Industries, Lodha Impex, SBL India Limited,

Ratan Textiles, Sambhav Gems Limited, Infosys and Genpact are operating in the industrial area.

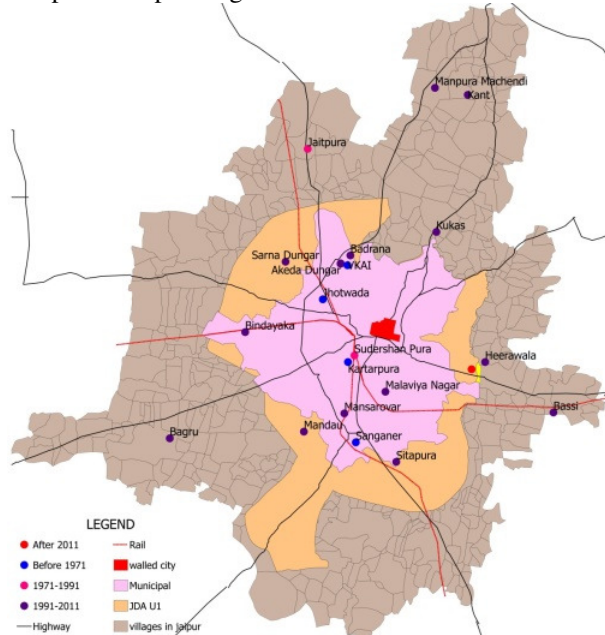


Fig. 1. Industrial areas in Jaipur.

Bagru Industrial area

Industrial area setup by RIICO in satellite town of Bagru in the 1991 master plan covering a area of about 92 Hectares. It lies on NH8 connecting Delhi and Mumbai. Bagru industrial area is has been developed in many phases. The bagru old industrial area was one of the smallest industrial areas which was developed as a pilot project to understand the suitability, but since then it has been popular among the industries for stone cutting and dressing, Chemical industries, rolling mills, warehouses, etc.

Vishvakarma Industrial Area (VKAI)

Situated in Jaipur district was set up RIICO in 1970 on 1400 acres of land. The area is well developed with quality infrastructural facilities like good road network of National Highway, State Highway and district roads(NH No.11), PHED & RIICO water supply, electricity by JVVNL, streetlights, etc. Some of the renowned industries operating in the industrial areas are: Bharat Pottery, Clay Craft, Mangla Sariya, Poddar Rubber Industries, Bairathi Rubber Industries, Agarwal Marbles, Ultra Tech, Rajasthan transformers, Bajrang Wire, Gem Electro, Rajasthan Cylinder, Roachees Watches, Tijaria Pipes, Annapoorna Cold Storage, SR Marble, Techno Hind Marble, Autopal, International Furniture, Bajrang Wire, etc.

Jhotwada Industrial Area

Situated in Jaipur district is a transferred to RIICO from the Govt. of Rajasthan. The area is well developed with quality infrastructural facilities like good road network of National Highway, State Highway and district roads), PHED water supply, electricity by JVVNL, streetlights, etc. Industries running in the industrial area are: Krishna Sariya (Rolling Mill), Maya Metal, Sharma Sariya, Kamani Ind. Anno Metal, Anand Lamps, etc. The industrial area is well connected with major cities through both rail and road transport.

Bindayaka Industrial Area

Situated in Jaipur district on the outskirts of the city on Sirsi Road, Industrial area was transferred to RIICO from the Govt. of Rajasthan. The area is well developed with quality infrastructural facilities like good road network of National Highway, State Highway and district roads), PHED water supply, electricity by (Jaipur Vidhyut Vitran Nigam Ltd.) JVVNL, streetlights, etc. RIICO has acquired and developed 102.39 Hectares of land in the area 224 plots for industries have been planned by RIICO in 1995. Industries running in the industrial area are: Krishna Sariya Rolling Mill, Maya Metal, Sharma Sariya, Kamani Ind. Anno Metal, Anand Lamps, etc.

II. OBSERVATIONS

A primary survey was done by the researcher in the industrial areas to access the current scenario of industrial activity. The industries call for a lot of ancillary activities like waste collection, Truck Parking, Tea stalls, etc. The presence of these commercially viable establishments tells us that the facilities were deficient in the proposed industrial layout. Some of the common and significant observations in terms of spatial planning requirements can be summarized as:

- Mixing of different nature of industries is seen in the industrial areas. Polluting with nonpolluting, Labor intensive with mechanized, food with construction material, etc.
- Poor industrial waste management was seen in all the industrial areas as the waste was casually thrown at a nearest convenient point.
- Non Functional Waste collection system as a result of administrative quarrel between RIICO and Municipal Corporation.
- Seasonal Water bodies adjacent to the industrial areas are encroached upon by squatters for making temporary houses or have turned into industrial waste collection pockets.
- Absence or Nonfunctional effluent treatment plants to treat water before being disposed to the drain.
- Land for Industrial waste processing unit is provided in Bagru but the unit has not been setup till date.
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In the other industrial areas the land is not earmarked for the unit.

- 3 percent of land is reserved for commercial activity but most of the commercial land is undeveloped and informal commercial (Tea Stalls) are encroaching upon the footpaths and sidewalks of the roads.
- Informal commercial activity is localized in nature i.e. seen at almost every cross junction at the approximate distance of 500-700 Mts.
- Parking Spaces for goods vehicles is provided in Bagru industrial area only. Even then the parking is done off Road or in the undeveloped Open green spaces.
- The parking facility is ancillary activity to the industrial area. Weigh Bridges, Food Joints, Dhabas, Dormitories to accommodate facilities for drivers come up as a part of informal sector.
- Vacant plots and undeveloped open green spaces are most venerable locations to be taken up for parking, Establishment of informal commercial shop or a waste collection point.
- In the industrial area, more than 50 percent of the land parcel allotted to the industry is utilized for storage and warehousing.
- The by products produced by the industries are collected by a vendor and sold to other industries at distant locations increasing the cost of transportation
- The residential areas are mainly occupied by the HIG and MIG forcing the industrial workers of EWS and LIG to squat in the surrounding areas.

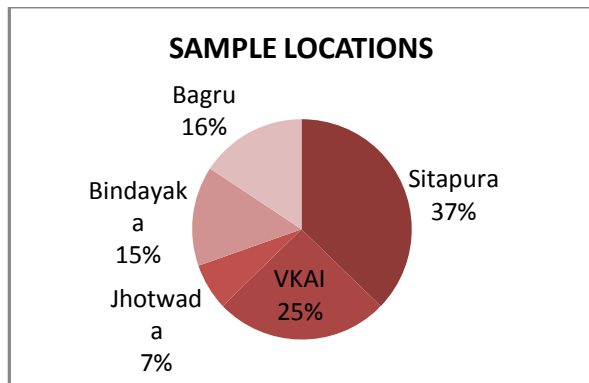


Fig. 2. Pie chart showing proportion of survey locations.

After accessing the area, the researcher conducted a primary survey comprising of about 100 randomly selected samples from the industrial area to access the provisions and needs of physical and social infrastructure to the industries. The second part of the survey focused on the needs of the industrial users (workers and owners) as to what facilities (Housing for workers; Parks and open spaces; Commercial establishments and convenient shopping; institutes like schools, colleges and training centers; Economic infrastructure like banks, ATM; Social infrastructure facilities like post office, police station, fire station, petrol pump, parking's, weigh bridges, dispensary,

hospital; and social facilities like guest house, dormitory and hotels) they think are essential, optional and obsolete for being provided in the future industrial areas. From the survey results following observations are made:

- The MSME industries do not require large plot sizes as about 55% of the industries surveyed were on a plot less than 1000 Sqm. and had just ground floor constructed for industrial activity. A very few industries extended to second and third floor mainly for the storage and staff spaces.
- Most of the industrial workers live close to the industrial areas within a range of 2-5 Km. from industrial area and prefer to commute via public transport.
- As per the opinion of industrial work force, residential accommodation for the industrial workers is essential, provided close to the industries with preference to rental accommodations.
- With the technical up gradation and mechanization of the industrial activities the labor requirement of industries is low to an average of 30 workers per industry.
- Parks and open spaces were considered to be essential requirement of industrial areas with small tea stalls and refreshment areas.
- Provision of household shopping and grocery store is not considered essential. However, provision of commercial mall and retail area for Industrial product was considered to be essential.
- Hotels were not required but provision of dormitories was considered substantially important and Guesthouse for industrial area was considered essential by 70% people.
- Facilities for truck drivers like parking areas, Petrol Pump, dormitories and weigh bridges are highly essential.
- Fire station, Police station, Post office and Bank facility were considered essential and were integral part of industrial area.
- Most of the industries were situated on a 15-18M wide road which was adequate for the industrial area although the industries on 12M wide road reported problems of parking and loading / unloading of industrial goods.
- Rajasthan being a water deficient state promotes low water consuming industries, but the industries faced problems in water supply. Electricity requirement is high and is being met by JVVNL (Jaipur Vidhyut Vitran Nigam Ltd.).
- Bus stops were located at a walk able distance to the industries but workers faced problems due to frequency of public transport.
- Presence of a nursing home or a hospital in industrial area was considered to be essential and was present in industrial areas under study.
- Different types of industries produced different types of waste like water, metal, organic waste, slurry, sewage, toxic, etc. most of the industries discharged there waste un treated as cost of treatment of waste is very high.

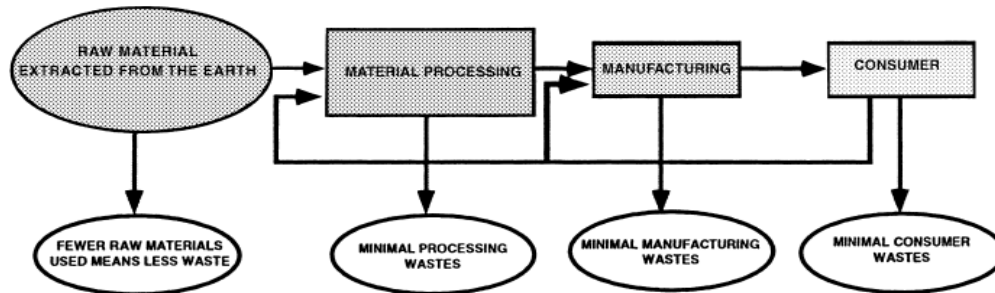
III. RECOMMENDATIONS

After studying the industrial area and conducting a primary survey in the industrial area of Jaipur, the following recommendations can be made for planning new industrial areas for MSME.

Site Zoning

- The Minimum area for planning inclusive industrial area need to be 40 Hectares as it is the ideal size for making an inclusive industrial area.
- Industries dependent on each other or of similar nature and type must be clubbed together to make an integrated industrial area.
- Polluting industries must be housed separately on the leeward side of the wind direction with respect to the city as well as the industrial area. Buffers with non-occupant land uses like green belts, road, services, etc. must be provided.
- The developer developing the industrial area should promote the industries where the waste of one industry is utilized as a raw material for the other industry. This shall help in making the industrial processes more sustainable as cost of transport shall be saved. The industrial area should be ideally located close to the highway and must have a connectivity with existing/proposed Sector road not less than 30 Mts. wide

Land Use



MORE EFFICIENT FLOW OF MATERIALS

PROCESS "RESOURCES" ARE RECYCLED AT EACH STAGE
REDUCING USE OF RAW MATERIALS AND REDUCING WASTE

Fig. 3. Flow of raw material for developing sustainable industrial areas.

Source: 2

- Space for petrol pump, police station, Weigh Bridge must be provided in the layout close to parking area.
- The expected infrastructure to be developed by the developer and made operational are, Street Lighting, Street Furniture, Drainage, Sewer system, Electrical and Water supply system, Sewage treatment plant, Common effluent treatment plant, and parking area.\
- The social infrastructure facilities like Dispensary/ small nursing home, Police post, post office, telephone exchange, petrol pump must be provided in the layout. If the facilities are not available within the 3 Km radius of the development being proposed.

Environment

- The industrial waste processing unit needs to be integral part of the layout and must be developed before the

- The industrial areas should be provided with common/shared warehousing facility which the industrialist can use making more space available for production.
- Small size commercial plots up to 10 Sq. Mts. must be provided at strategic locations at cross junctions to facilitate the commercial growth in the industrial area and discourage the informal sector as it is one of the major causes of encroachments.
- For making an integrated township almost 30% of area needs to be dedicated for residential use. Industrial workers belonging to the EWS and LIG are the worst affected in industrial areas and are usually seen squatting on the road sides or in the nearby vacant land.
- The minimum road width in the industrial area must be 12 Mts. (40 Feet). To facilitate higher sized plots the minimum road width should be 18 M (60 Feet). No collector roads less than 24 Mts. (80 Mts.)

Infrastructure

- Space for Electric substation and Overhead water tank must be centrally provided in the layout. The space for service must be a contiguous plot not less than 1000 Sq. Mt.
- Industrial area must have provision for parking space for goods vehicle with commercial facilities like restaurants and dormitories to facilitate the truck drivers.

industries are allowed to operate in the area. The facility needs to be developed by the developer and may be leased for operation.

- The industries must be bound to dispose the waste with the industrial waste processing unit. The waste can be either collected on door to door basis or sent to the processing plant. The waste collection from the industries can be on PPP model where in the services charges are paid by the industries.
- The cost of installation and operation for ETP is high. To save on the cost the industries put the untreated water to the drain, running ETP on small scale is costly, common ETP should be proposed where effluent from different industries is sent for treatment.

IV. CONCLUSION

The industrial areas have their specific requirements if they are fulfilled then only the MSME will be able to grow in the area. Currently, lots of activities are being taken care by the informal sector as the formal planning norms do not provide for it.

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