

FINAL REPORT:

**Effects of Industrial Activities on Land Occupation in Ahmedabad - India;
case study of GIDC Industrial Estates**

Rully Damayanti

ASIA Fellow-Cohort X

Petra Christian University, Surabaya INDONESIA

rully@petra.ac.id, r3.damayanti@yahoo.com

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Rully Damayanti

ASIA Fellow Cohort-X, Petra Christian University Surabaya-INDONESIA, rully@petra.ac.id

Abstract

Industrial activity is a prime determinant in shaping city size and growth opportunities especially in developing country, like India. Since industrialization started in Ahmedabad in 1950s, the city becomes larger and larger in terms of population and size. The growth of Ahmedabad city is highly affected by three urban generators on eastern part of the city: which are the three GIDC industrial estates. The research' aim is to identify and analyze the urban shape caused by the industrial activities and business activity that occupy public areas and streets. Since industrial activities became urban generators to change the use of land, from agriculture into developed land, it has affected the physical morphology of the urban areas. The shape of its urban areas on eastern side actually has three protruding shapes, in which each shape is the location of industrial estates. As long as the urban generators exist; business activities also exist in both formal and informal. The linkages between two sectors exist not only in term of target market of the street vendor as informal sector, but in terms of protection from the factory as formal sector. Behind location choice of the street vendor, protection from the factory where the vendor built is equally important factor. The formal commercial activity is developed in order to provide facilities for the workers particularly. Street vendor and hawkers grow significantly on the surrounding areas; along the main street and nearby the worker's facility inside the industrial estates. The existence of informal sector on these areas give an idea that industrial activity not only causes the change of land occupation, but also encourages the growth of informal commercial activity.

Keywords: urban morphology, industrialization, informal sector

01 Introduction

Ahmedabad is the largest city in Gujarat state and the seventh largest city in India. It has been a fast growing city since its inception in 1411. Industrialization in Ahmedabad was highly generated by the cotton mills industry in the year of 1950s. During the year of 1960's, there were three industrial estates developed on the eastern outskirts of the city: Vatva, Odhav and Naroda; which were located outside the municipal authority. The three estates are under management of GIDC on Gujarat state level. Industrial activity of the three estates generates occupation of land in its surrounding area.

According to Balchin, Isaac and Chen (2000) on their book entitled 'Urban Economics', industrial activity is a prime determinant in shaping city size and growth opportunities especially in a developing country. Since the industrialization in Ahmedabad, the city has become larger and larger in terms of population and size. In most cities in India, the growth of city is always followed by the increasing number of informal sector activity, because more people need affordable and accessible goods/ service for living. Town planning strategy in most developing countries, like India, does not recognize the existence of informal activity (on the street/ public areas) since it will make the city less beautiful and the traffic less secure. For some reasons, the planning view of developing countries are adopted from developed country which does not recognize the temporary use of land, such as street vendor and hawker. Therefore, the existence of street vendor/ hawker always brings problem for the authority and government.

02 Research Project

Project Statement

The project will analyze the growth of the city affected by the three urban generators: which are the industrial estates; on the eastern part of the city. Since industrial activities of industrial estates

became urban generators to change the use of land, from agriculture into developed land, it has affected the physical morphology of the urban areas. The surrounding area becomes more and more developed and is occupied for residential and commercial uses. Furthermore, due to the city development triggered by the increase in population, the area between the walled-city and the three industrial areas has experienced a great change.

The project research will identify and analyze business activity that occupies public areas and streets. As long as the urban generators, namely the industrial estates, exist; business activities also exist in both formal and informal sector on surrounding areas. As written in current town planning strategy, municipal authority appointed the surrounding areas of the estates as commercial uses. The town planning scheme also appointed areas along main road as location of formal commercial activities. The commercial activity is developed in order to provide facilities (goods or service) for the workers of the estates particularly. On the other hand, street vendor and hawkers also grow in the surrounding areas; along the main street (for accessibility reason) and nearby the worker's facility inside the estate in very significant numbers. The street vendors/hawkers always search for proper location to run their business where many people live or work around that area, although it is not allowed by any law or regulation.

The existence of informal sector on these areas will give an idea that industrial activity not only causes the change of land use, such from agriculture into business activity, but also encourages the growth of informal commercial activity. They always grow in parallel ways. The nature of linkages between these two activities (the formal activity of industrial estate and the informal activity of street vendor/ hawker) is important to identify since it will give accurate reasons why the informal choose these areas for their business location. The linkages might be in terms of accessibility and affordability of goods of selling, aside from the potential market. These kinds of linkages are the mutual interaction between the two activities; one cannot run properly without the other one.

Research Objectives

The main objectives of the project are:

- To identify and analyze Ahmedabad' urban area growth particularly generated by the industrial activity of GIDC industrial estates in Ahmedabad
- To identify the use of public-space and streets for informal commercial uses (street vendor/ hawker) along main roads of the three GIDC industrial estates in Ahmedabad
- To identify the nature of linkages between the industrial activity of the estates and street vendor/ hawker activity

Research Methodology

The researcher undertook mainly qualitative approach. This project used three types of data collection: document/ literature study, land use survey, and a range of interviews; which are explained in more detail as follow:

- Document/ literature study

Document/literature study needs to be undertaken in order to give significant background of the project that industrial activity generates the growth of the city. Document study of current town planning and literature study of related project regarding Ahmedabad' city growth were used as secondary data in analyzing the city growth related to the industrial activity caused by the three case studies. The main source of this data collection was: Ahmedabad Urban Development Authority (AUDA) document, especially town planning strategy of the case studies as well as thesis and books with case study of Ahmedabad that focused on the urban generator and street vendor.

Based on these data, analytical thinking was produced in order to sharpen the idea of industrial activity as an urban generator in shaping the city. The finding of this study was identification of current formal use of land; and not the informal one, such as street vendor.

- Land use survey

In order to identify accurately the land occupation along main streets of the three industrial estates, it is important to identify the current use of land, particularly the one used by informal business activity which occupied public land or street. The identification was shown through map (will mark each location of vendor) and pictures. Survey was taken from November 2008 to May 2009 (early winter to end of summer in India). The range and type of informal activities were defined by classifying each business according to types of retailer, goods of selling and degree of permanency. The identification would bring understanding of their growth by location choice. It would also give an idea why the street vendor and hawker ran on particular area rather than others. These answers would be developed into the linkages between the two activities; industrial (as formal) and informal sector.

- **Interviews**

Interview is an important technique to gain data which affects the impact of industrial activity of industrial estate related to the use of land. The unstructured approach was particularly useful in addressing information from planner in town planning authority: AUDA - Ahmedabad Urban Development Authority, planner in municipal authority: AMC – Ahmedabad Municipal Corporation, director/secretary of industrial estates management: GIDC – Gujarat Industrial Development Corporation and president/ secretary of each industrial estates association. The semi-structured interview was designed in addressing information from business proprietors of informal commercial activity. Almost ten percent of total street vendor on these areas became interviewees of the research in various locations inside the estates. In each case study, two or three vendors were the main source for in-depth interviews.

Justification of Case Studies

Some reasons in choosing the three case studies as basic studies of Ahmedabad urban growth: more than 30 years of development of the three case studies, and the industrial estates still exist and functions as urban generators on the eastern side of Ahmedabad city. Comparing to other

industrial estate nearby, the three is the largest and the oldest; consequently, would have more effect to land occupation and growth of street vendor/ hawker.

Scope and Limitation

The scope and limitation of the project are:

- This project will be limited to three case studies, namely: Naroda, Odhav and Vatva Industrial Estates of GIDC (will be written in the report as: NIE, OIE and VIE), not other industrial estate off GIDC. The results of these studies will serve as a basis in analyzing the effect of industrial activity on land use occupation in Ahmedabad.
- The case study is located in Ahmedabad- India, which will be a little different if compared to other cities in developing countries and quite similar to other cities in India. It is common in India to have mixed used of land, and the land belongs to the government (cannot be privately owned). It is different from other cities in Asia.
- The project only focuses on land use occupation by informal sectors, particularly street vendors and hawkers; as an informal occupation of land which is mostly ignored by the town planning strategy.
- The scope of the project is urban planning and urban architecture terminology.

03 Urban History of Gujarat and Ahmedabad

Industrialization in Gujarat

Since 1576, when Gujarat area annexed it to the Mughal Empire, port of Surat (in southern Gujarat) became the main port of India during Mughal rule (Wikipedia, 2009). In 1980s, the state became a leading state of privatization of economic development in India since there were many industrial enterprises set up in the joint sector in Gujarat. In India, small-scale industries are the

major contributors to the economy of any region. The sector has matured over a period of time driven by their technical skills and capability to run units with lower overheads.

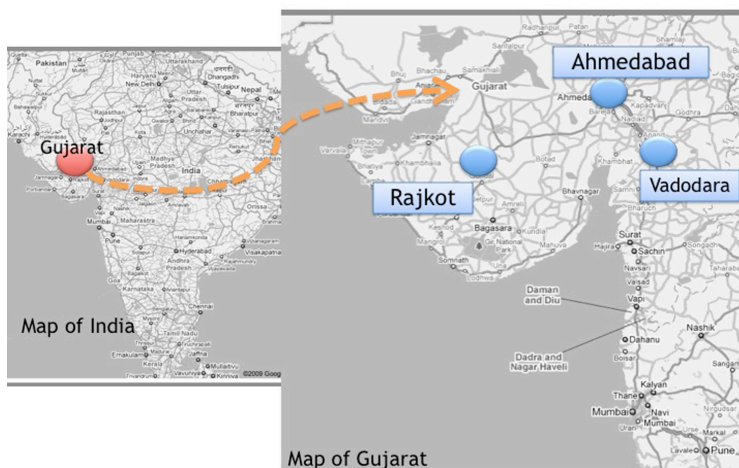


Figure 1. Location of Industrial Cluster in Gujarat in 1960s

The early industrialization of the state in 1960s, industrial activity has clustered in the major cities like Ahmedabad, Vadodara, and Rajkot (Fig 1). In Gujarat alone, there are 76 industrial clusters at 90 different locations. These clusters would be defined as a group of industries manufacturing identical and complimentary products. The government has decided to recognize a cluster with a minimum of 50 units located within the radius of 10 kms at a particular location (Ravali 2009, personal communication).

In the recent time, based on 2003 data, Gujarat has been the front-runner in the overall economic development that contributes to 21% of the country's export and 6.42% of the national GDP at constant prices (GIDC 2009). Industrial growth in Gujarat average of 8.52%, could be way ahead of others Indian states. Some industry shared more than 70% in national product, such as engineering product (power driven pump and monoblock) and chemical product (soda ash and liquid chlorine).

Industries and Mines Department of Government of Gujarat has encouraged to facilitate fast establishment of Special Economic Zones and Industrial Parks. It is not only to strengthen its industrial base but also to consolidate the achievements in the interest of overall economic development of the state. The state is now determined to lead the rest of the country by emerging as a Model Industrialized State in Asia. One of the acts is: proactive approach of the government, government to act as a facilitator, and all the physical infrastructure should compete with the best in the world. The most important part for industries development is the incentives given by the government to open an industrial area/ land on the outskirts of center city.

Urbanization in Ahmedabad

The development of Ahmedabad is strongly related to the rise of the indigenous industrial sector of cotton industry (Dijk 2006). It grew in medieval times from a major trading centre for gold, silk and cotton (Dutta 2000). The establishment of the first cotton mill in 1861 was the way in which this industry expanded over the years. In 1940s, the city was known as ‘the Manchester of East’ due to the famous textile industry (Dijk 2006) which reflected the continuity of its distinct enterprise and business leadership (Dutta 2000). In Ahmedabad, where native entrepreneurs created a textile industry that underlay the city’ growth to the sixth largest in South Asia, there were 49 mills working in 1914 compared to 85 in Bombay (Heitzman 2008).

The following statement is cited from paper by Shyam S. Dutta (2000), a historian who examined the Ahmedabad city:

“ Unlike Bombay, Calcutta, Madras and Kanpur, Ahmedabad was not a creation of the British but a city which while remaining true to itself successfully adapted to the new industrial age carrying over commercial and industrial skills and patterns of traditional social organization. In no great city of India can the continuity of past and present be seen as clearly as in Ahmedabad”

Driven by the growth of textile industry reached its peak in the 1940s, the city attracted migration from around Gujarat and India. In the post-Independence period, the city witnessed not only diversification of its industrial base but also significant development of professional and technical institutions, such as the Physical Research Laboratory, the Indian Institute of Management, and the Centre for Environmental Planning and Technology (Dutta 2000).

In the late 1970s and 1980s, the textile industry has declined, resulting in the closure of more than half units and laying off about 60,000 workers. After 1990-1991, local economy has shown a revival. This is indicated by the reduction in the number of lowest income group and also an increase in regular workers. Compared to other cities in India (Bangalore, Pune and Hyderabad), Ahmedabad has the highest proportion of self-employed. It is a clear indication of the growing strength of the informal sector of the economy. The estimated share of the informal sector in the total workforce in Ahmedabad increased from 50% in 1981 to 64% in 1991 (Dutta 2000).

Many factories were built on large estates in or around the centre city before 1980s, and became centre of noise and pollution of its less infrastructure. The city suffered from traffic congestion and large number of slums. The old textile industries were no longer competitive, and new industries were located outside the centre of the city. In the year 1980s, the government did not allow polluting industries to locate in a radius of 20 kms around the city center. (Dijk 2006). The idea was not covered by any regulation, but only by policy at state level (Ravali 2009, interview).

Population of Ahmedabad according to 2001 census was declared to be 3.5 million people. This number was only limited to the inside Ahmedabad municipal region (Wikipedia 2009). Total population of Ahmedabad agglomeration is around 4.5 million: 4,518,240 (City Population 2009). There are 886 females to every 1000 males. Ahmedabad has a literacy rate of 79.89%, which is the highest in Gujarat. There are more than 30000 rural families living in Ahmedabad and 5,41% of those are below poverty line. The city' population has increased in a major way

following economic expansion and modernization. Ahmedabad becomes a centre for commerce and also government institutions and military base (Hindu 2008).

04 Case studies

Gujarat Industrial Development Corporation (GIDC)

In order to accelerate the pace of industrialization in Gujarat, under the Gujarat Industrial Development Act of 1962, GIDC came into existence in 1962. GIDC operates all over the state of Gujarat. It operates and maintains industrial estates in various districts of Gujarat State. These estates are self-contained sanctuaries capable of sustaining a large number of industries within themselves. GIDC provides ready to occupy sheds for immediately starting an industry and also provides go-down for storage of its material. All across the state, GIDC has planned for 252 Industrial Estates of which 171 are developed and functional.

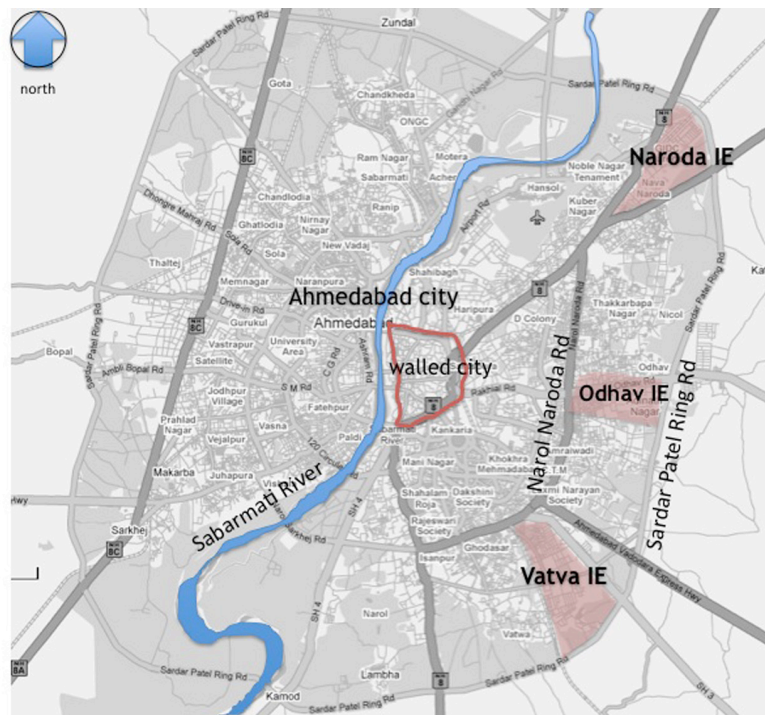


Figure 2. Location of the Case Studies

In Ahmedabad, GIDC operates three estates: Naroda, Odhav and Vatva Industrial Estates (Fig 2). The three estates were developed around year of 1968. The estates occupy areas of 120-500 hectares of land on eastern part of Ahmedabad city. Currently, the estates are connected to each other by Narol-Naroda Road and Sardar Patel Ring Road; are also connected to other cities in Gujarat. The three estates are also connected to Kharikat Canal that lay from north to south. Accessibility becomes a major concern of entrepreneur to choose this location to run their business. Hence, after more than 40 years of development, the estates are still significant for its function in urban area. In 1982, GIDC handed over the estates to the AMC management, since they were located inside the AMC boundary.

GIDC looks for availability of ready infrastructure to reduce pre-project implementation cost and time, identifies location suitable for industrial development and arranges for infrastructures facilities, like roads, drainage, power, water supply, streetlights, and also provides supportive facilities, such as housing, bank, canteen and community halls. According to GIDC Advisor mr, Shri Nayan Ravali interview with the researcher on 9 April 2009, in 1960s, in choosing new location for industrial estates, there were no significant strategies, since GIDC had to find packed of land with high accessibility from and to the city. Therefore at that time, GIDC found areas in Naroda, Odhav, and Vatva to be developed as industrial estates.

GIDC, being a Government organization, is transparent and fair in fixation of the prices of land/building. The fixed rental and buying prices are approved by all financial institutions for quick approval of loans. A GIDC estate can be notified as a "Notified Area", to function as an independent body, thereby avoiding multiple taxation problems. Notified Areas do not come under the jurisdiction of local self-governing bodies.

Characteristics of Case Studies

NIE is the oldest industrial estate in Gujarat, established in early 1968. It is located on the northeast of Ahmedabad city, occupies total area of 357 hectares. It has almost 660 factories for 689 plots, with total of 1300 workers. There are 538 housing units in the 4748-sqmeter-housing area in this estate. It also has supporting facilities such as school, post office, police office and public canteen. In March 1986, GIDC handed over the estate to the Ahmedabad Municipal Corporation (AMC). Thus, the maintenance and further development of NIE now depend on the AMC management.

Table 1. Characteristics of the Case Studies

		NARODA GIDC	ODHAV GIDC	VATVA GIDC
1	Year of establishment	1968	1968	1968
2	Total area	357 ha	127 ha	512 ha
3	Number of plots	689	491	NA
4	Numbers of sheds	426	525	NA
5	Distance from central city (approximately)	8 km	4,5 km	4,5 km
6	Number of company/ factory	660	1502	1187

(source: Naroda Industries Association 2007 Directory, Odhav Industries Association 2008 Directory, Vatva Industries Association 2008 Directory)

The industrial estate is located in the Naroda suburban in the northeast of Ahmedabad, Gujarat. Since the establishment of the estate, the town has developed rapidly. Now, the estate becomes a part of Ahmedabad city. Naroda is approximately 8 kms from Ahmedabad city, near the intersection of National Highway 59 and National Highway 8. According to 2001 census, total population in Naroda sub district was 44,554 excluding the agglomeration process (City Population 2009). Naroda GIDC industrial estates host national and multi national corporations such as Reliance Industries Ltd., Pepsi Co, Ingersoll-Rand, Dresser, and various chemical and textile industries. Most major township project are coming up along with development of Ahmedabad – Vadodara expressway with Naroda being centre for development.

Population of Odhav sub district according to 2001 census was 21,474, excluding the agglomeration of the city (City Population 2009). **OIE** of GIDC was developed in 1968. The

estate was separated by Rakhial Road heading to the east from the city. On the north-east boundary, the estate is connected to Narol Naroda Road and Sardar Patel Ring Road. It is located around 4,5 kms from the central city. Outside the estate, along the Rakhial Road, many factories and small industries were developed. These industrial activities had existed before the industrial estate was developed. The reason for the choice of location for many factories and small industries along the road is the existence of Kharikat Canal (Varghese 2009, personal communication). The canal lies from north to south and it functions as the main sewerage of many factories. In the case of NIE, final sewerage of water treatment plan (WTP) is through this canal to Sabarmati River.

The total area of Odhav sub district is 127 hectares and it is located on eastern part of Ahmedabad city. From that total area, the estate is divided into several areas for some purposes such as industrial, commercial area, housing and public purposes. OIE has 491 plots for factories and 525 numbers of sheds. There are 1502 numbers of total factories that run their business in this location.

VIE GIDC industrial estate was developed in the year 1968, which occupied 512 hectares of the land. It is located around 4,5 kms from the central city. The estate belongs to the sub district of Vatva. This industrial estate is developed only several months earlier than two other estates' (Shah 2008, personal communication). There are approximately 1200 factories in the estate. Current condition of VIE is densely surrounded by commercial and housing uses. VIE is connected with the city and other city in Gujarat through State Highway-3, and connected as ring with other IEs through Narol Naroda Road on the North. VIE is the largest and oldest industrial estate of GIDC in Gujarat, consequently has most effect to urban growth.

05 Research Findings

Categorization

Findings of the research are categorized based on the research objectives:

- characteristic and spatial pattern of street vendors/ hawkers are to identify the use of public-space and streets of informal commercial uses along main roads;
- analyses nature of linkages of IE's and street vendor/ hawkers is summarized from interview with street vendor proprietor

Physical characteristics are identified based on: types of retailer, goods of selling, and types of permanency. These three types of categorization are the parameter to picture the street vendors/ hawkers along the streets inside the three IEs, in order to understand the nature of linkages with the activity of IEs.

According to Dhananjai, 2001 (in Jamdar 2000), the informal sector can be divided into several sub-sectors, such as wageworker, casual employee, and self-employed. Of concern to this research is the street vendor or hawkers only, which are categorized as self-employed workers. The research categorized the vendor into local names and suffix 'wallas', which means 'vendor'.

The categorization of types of retailers is:

1. Pathariwalas – display their products (boxes, clothes, toys, etc) on the ground and stay permanently in a particular part of street or public spaces
2. Lariwalas – own a mobile cart on which they vend goods and go around in their respective areas to sell. Sometimes, they gather at a specific place in particular area when there are a lot of customers.
3. Gallawalas-single – perform a single permanent element of the streetscape, set up a semi-permanent shop to sell, mostly food products. This kind of vendor runs the business individually, in terms of their building or hut
4. Gallawalas-shared – similar to Gallawalas-single, but they shared space with formal shops.

The street vendors sell many types of goods; in this research, it can be categorized into: tea/ coffee/ *chai*/ drinks, sweets/ mints/ *paan*/ cigarettes, snacks/ food, vegetables/ fruits, housewares, and other categories, such as cloths, bangles, sandals, painter, bike repair, phone/ STD booth. To understand the type of building or hut where the business of street vendor has undertaken, the research was categorized into 3 types of permanency: permanent, semi-permanent, and non-permanent. These three categorizations are based on its building materials, and possibility to remove:

1. Permanent – the material of the building consists of permanent material such as brick with cement, therefore it is quite immovable
2. Semi-permanent – it is built from half-permanent material, and half non-permanent material, so the immovability is relative
3. Non-permanent – the building/ hut is made from non permanent building materials, and thus, it is very easy to move to another place

Characteristics of the Street Vendor

Data on Table 2 is based on a field survey from November 2008 to May 2009, during winter to summer season in Ahmedabad. Season is a significant reason in running business in India. The field survey counted the number of street vendors in two seasons and it is found out that there are almost 10% more hawkers in winter than summer. During summer, some street vendor proprietors choose not to run their business because of the hot weather (the highest temperature was 50 degree Celcius in summer 2009).

VIE has the most street vendors, namely 117 vendors, with highest land ratio compared to other case studies. In NIE and VIE, gallawalas-single were dominant; whereas in OIE, lariwallas is the most dominant one, followed by gallawalas, and vice versa. Gallawalas-shared in NIE and VIE has significant number, which is almost 25% of the total vendors in that area. In OIE, more than

10% of the vendor is pathariwalas. Most of the vendors (more than 65% of total vendor) in the three case studies build their vendor using non-permanent material; such as wood, multiplex, and zinc. In the three IEs (NIE 11%, OIE 7% and VIE 15%) some vendors build their building base on permanent materials, such as bricks and cement. Semi-permanent materials in NIE and VIE has a significant number of more than 5%.

Table 2. Characteristics of the Street Vendors

no	Categorization	NARODA IE	ODHAV IE	VATVA IE
1	Types of retailers			
	Pathariwalas	4	5	1
	Lariwallas	23	28	47
	Gallawalas (single)	30	7	113
	Gallawalas (shared)	19	3	16
2	Permanency			
	Permanent	9	3	27
	Semi-permanent	23	2	14
	Non-permanent	44	38	136
3	Goods for selling			
	Chai/ coffee/ drinks	24	11	33
	Food	9	6	35
	Vegetables/ fruits	3	1	11
	House wares	15	7	1
	Sweets	11	3	24
	Others	10	15	19
	Other combination of goods for selling	4	-	58

There is a wide of variety of the goods sold, but most of them are food, drinks and other goods related to house-holds. In NIE, the two highest numbers are the sale of drinks and house-wares, in OIE are others (such as mobile phone accessories, clothes, and kids-toys) and *chai* seller, while in VIE the two highest number of goods sold are food and *chai*+sweets seller. Vegetables and fruits seller are also significantly sold in the three estates. The variety of goods sold in these three estates is similar, but in VIE most sellers sell more than one item, such as *chai*+sweets+food, food+housewares, and also sweets+food. Overall, the types of good sold there are merely food and drinks.

Spatial Pattern of Street Vendor

In NIE, most of street vendor choose a location for business on the intersection of streets, especially between Highway (NH-8) and local-street of the estate. In this area, a type of the vendor is mostly lariwalas-non permanent where they can move around easily (Fig 3). There are many workers in this area because this area is a kind of main entrance of the estate (but it is actually not) since the main commercial building is located in this area and a lot of public transportation stop here to look for passengers. Typical goods sold in this area are mostly household needs, such as clothes, mobile phone accessories, hat, and kind of service repairer. Further down (south), just near the train-rail, there are many gallawalas-single and gallawalas-shared, because along this street many trucks from factories inside the areas park here. Hence, besides industrial workers, most of the costumers are truck drivers. The types of goods sold in this area are mostly food, drinks, and vegetables. Other sites where many vendors choose are on the corner near the main bus stand and near public facilities (e.g. bank, NIE association office, health clinic, and school). Further down, fewer street vendors choose the location near the workers housing because there are a lot of formal shops (one cluster) nearby and many housing-tenants on the ground floor also run small shops in their houses.

Along the National Highway 8 (NH-8), many vendors run their business with high variety of goods and also variety of retailers. Many huge factories are located in this area, therefore many workers needs food and drink from the vendor. In addition, some of the vendors' hut and shops are bigger than other vendors in other estates because more customers in this area. The number of pedestrian along NH-8 is higher than others. There are many formal shops near the train-way, which automatically invites many street vendors.

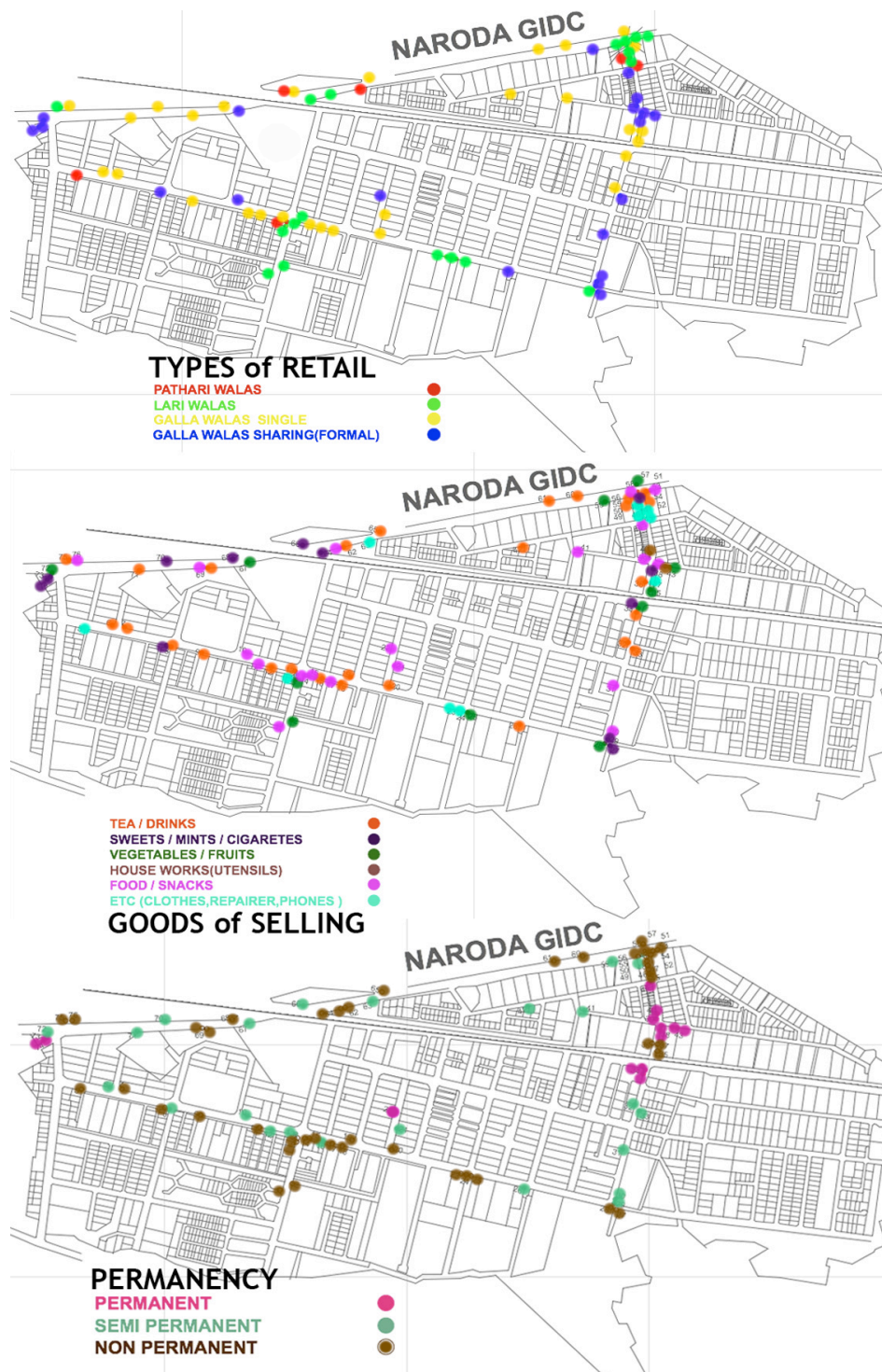


Figure 3. Location of street vendor in Naroda GIDC

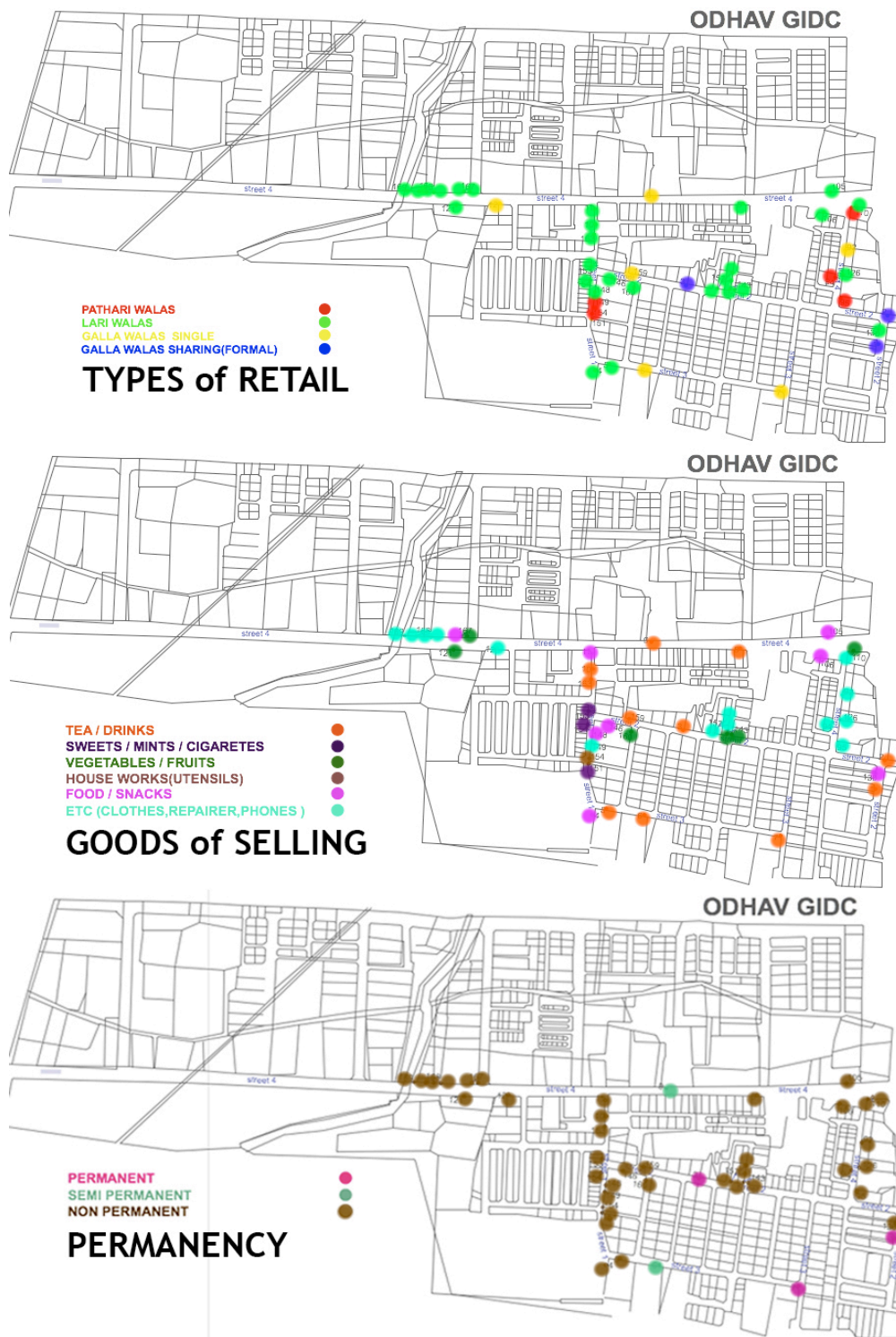


Figure 4. Location of street vendor in Odhav GIDC

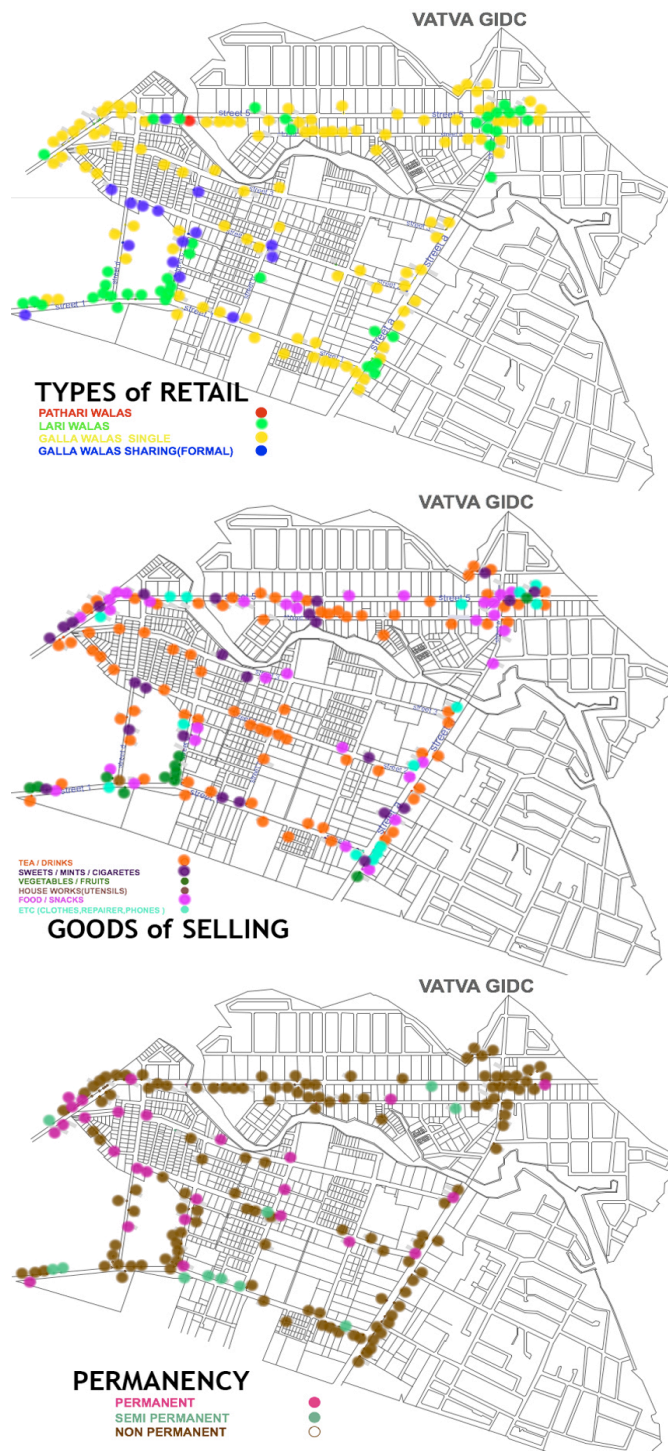


Figure 5. Location of street vendor in Vatva GIDC

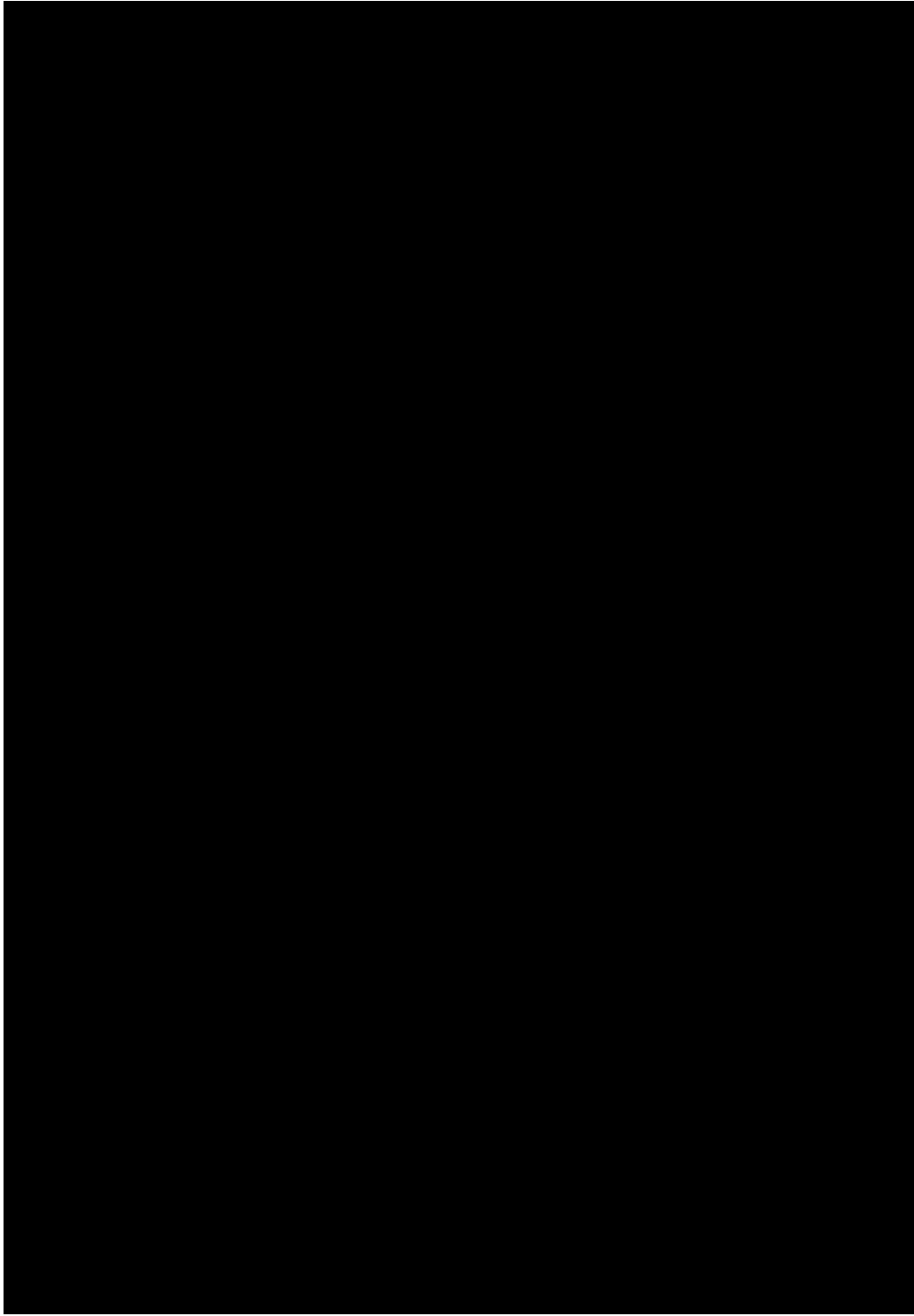


Figure 6. Photos of street vendor inside GIDC in Ahmedabad

OIE areas are divided into almost two parts by Rakhial Road (Fig 4). Hence, the typology and character of each area is significantly different. Large factories on large plot are mostly located on the northern side. During field survey, road construction is on progress, so there was almost no street vendor on the northern side. In other words, street vendor in this research only clustered on the southern side of the estate.

Unlike NIE, most street vendors in OIE spread out all around the area and they are dominated by *lariwalas*. Along Rakhial Road, many *lariwalas* sell their goods, such as clothes, vegetables, kitchen-utensils, and bike-repairer. Officially, the area along this road is used for small shops, and in some places, such near the Kharikat Canal, is the centralization of *pathariwalas* and *lariwalas* street vendors. This facility is to provide accessible shops for many illegal housing along the canal (historically, this canal was slump areas of textile factories workers from Ahmedabad city) (Shah 2008, personal communication).

Inside the estate, the street vendors who are located in these three nodes have slightly different characteristics from other vendors along the streets which are near association office, workers housing, and near side entrance heading to community village (see picture), and dominated by *lariwalas* and *pathariwalas*. Near the association office and housing, many vegetables/ fruits sellers open their stalls and their main customer is the housing residents. Therefore, they open for almost all day. Further west, on the corner heading to villages is the location of street vendors along the street. Types of goods and retailers are dominated by sweets/ mints/ cigarettes sellers. The vendor stalls in this area are larger than others, since they also have to serve not only estate workers.

Compared to other case studies, most vendors are located in **VIE** because the estate is the older than other estates and the location of this estate is closest to and highly accessible from central city of Ahmedabad. In addition, this estate is surrounded by villages (and it has no boundary). In these case studies, highway road (State Highway-3/ SH-3) is the main access to enter this

industrial area (Fig 5). Along the highway, street vendors (with high variety in types and goods) also dominated this area. The official use of this area is for commercial uses; not only for small shops but also for large shops, such as restaurant, supermarket, and offices.

From SH-3 to the industrial estate, there are many street vendors, dominated by *lariwalas* and *galawalas-single*, selling drinks and food. The area becomes more crowded after working hour since many workers and passers-by stop to shop here. Official land use of this area (along SH-3) is for commercial use with relatively deep river bank from the street. Therefore, outdoor space in the nodes creates some kind of public space to invite people to run their business and have their social life. Other locations where many street vendors run their business are near VIE association-bank, near the new entrance of toll road, and near the side entrance to villages on the western side of the estate. These three nodes are dominated by *lariwalas* and *galawalas-single* with selling of drinks, vegetables and other house-hold needs.

Nature of Linkages of Formal and Informal Sector

In this paper, terminology of formal sector refers to industrial activity inside the industrial estate (the factory) and informal sector refers to street vendors (*pathariwalas*, *lariwalas*, and *gallawalas*). To understand the linkages between formal and informal sector, interview with the vendor was conducted during the field survey. Almost ten percent of total street vendors on these areas became interviewees of the research in various locations inside the estates. In each case study, two or three vendors are the main source for in-depth interviews.

As old as the industrial estate, the vendor has also been developed in its surrounding area informally (Munshi 2009, personal communication). Historically in Ahmedabad, since the fall of textile manufacturing, informal sector, which is work from home or street vendor, significantly incline in number. Most of the vendors are located on the eastern part of the city, especially in

the old city to provide cheap goods for urban people. Some informal business proprietors choose the location near three industrial estates and further east from the central city.

The estate' management has provided affordable canteen and area for shops and market. During the survey, in the three estates, canteen has already been closed by the management, because only few workers wanted this facility (Shah 2008, Varghese 2009, personal communication). Most workers prefer food and drinks from the street vendor because of the taste and price. Street vendor sell their food/ drink with less price than canteen with relatively tastier food. Area for shops or market inside the estate (absent for VIE) was built near the housing. Main customer of the shops is the housing resident, which in current time, not only industrial estates workers lived in this housing but also other people who has no relation to the estate (case of NIE).

Most proprietors live in villages near the industrial estates, and gets raw material from other villages as well (especially for fruits and vegetables). In average, most vendors have run their business inside the estate for more than 5 years and some of them started their business from the early development of the estate, and earned around 7500 rupees per month. There is no management regulation covering this kind of business, but there is only informal protection from factories (where they are located). Hence, most vendors are not satisfied with their environment for running their business, since there is no regulation for them.

Most vendors open from 8 am to 9 pm daily, except for vendor near the main entrance of the three estates. Opening hours depend very much on the workers working hour. Some vendors' huts that are physically attached to the factory open for almost 24 hours. Vendors that operate near main entrance only open after working hours to provide food/ drink for labors and people passers-by. Street vendor that serves construction workers (especially in OIE and VIE) only open during working time, from 8 am to 4 pm.

The linkages between two sectors exist not only in term of target market of the street vendor, but also in terms of protection from the factory. Based on in-depth interview with informal sector proprietor in NIE and VIE, especially vendor that run their business for generations, worker' factory has offered a/ some plot in front of the factory to their relatives who became street vendor proprietors. In this case, the worker works as the factory' security or others in the factory, which is later called as 'protector'. This man will arrange how long the vendor will occupy the land, in which area the hut will be built (vacant land, building setback, or hard shoulder), and how much the reward will be. The arrangement is only based on trust and no paper sign is required. The factory management knows this arrangement for some cases in order to provide cheap and nearest food/ drink for their workers.

The arrangement will work for ages and generations of the vendor proprietor (case study of NIE), even the factory' workers have changed for many times. It is difficult for the vendor to open a business informally inside formal area if they do not have this agreement. In other words, the factory provides food and drinks in reasonable price for the worker via allocation of street vendor inside or outside his area as long as they have the arrangement.

Types of reward from the street vendor proprietor to the 'protector' depend very much on negotiation of both sectors. Some vendors give money regularly, while the others give less price for the food/ drinks to the protector or/ and all workers. This kind of reward is relatively open for changes, if the protector sees that there should be rearrangement of their agreement, he can ask (anytime) the vendor to obey the new rules/ arrangement. In this case, the proprietor' position of negotiation is very weak since many vendor wants this area (approaching demand), with exception if the vendor is the relatives of the protector (such case in NIE).

Urban Growth of Ahmedabad City

Industrialization in Ahmedabad which started booming in 1960s was triggered by cotton manufacturing. Many factories were developed inside the city and around the old city. Due to its pollution and traffic problem, in 1968, the government under GIDC management appointed packed areas of land on the eastern outskirts of the city. The industrial estates are: Naroda, Odhav and Vatva. After more than 40 years of development, the three industrial estates have generated the growth of its surrounding areas (Munshi 2009, personal communication). Agriculture land changed into developed land, and use of land also changes, such from agriculture into housing, housing into commercial, and public land for private or commercial use. These changes have been triggered by the industrialization process in that particular areas. According to Balchin (2000), industrialization always affects people and urban shape. Population of that city has increased since the city offered many jobs related to industries

In the early industrialization in Gujarat in 1960s, industrial activity was only clustered in several cities, for example Ahmedabad. The city became overcrowded and lack of effluent disposal sights. Furthermore, the land prices increased dramatically. These industries and mostly the new industries began looking for location sites outside the city limits, into the industrial estates which were established by the state in the rural parts of Gujarat. The state government under GIDC management developed some industrial estates in the outskirts, which are located at maximum of 10 kms outside the city. The state government also gave incentives to industries to pursue land on those areas.

According to Shivnand Smanai (in Sukhadia 1997) in case of Ahmedabad city, in the 1980s, there was a law stating that 25 kms outside the city could not be used for industries in order to protect agricultural land. Subsequently, new laws restructuring the process of acquiring land were enacted, making it easier to purchase land in what the government deemed outskirts, areas of low economic production and value. Incentives by the government were established to encourage industries to move away from central city, predominantly agricultural areas. As domino effects, land that is abandoned and not purchased by the state was slowly being polluted

by the industries. The land gradually became infertile and was eventually sold to larger industrial estates (Sukadhia 1997).

Referring to historical data and process of urbanization driven by industrialization, which is explained in the previous section, Ahmedabad' process of industrialization could be summarized into sections (time line) as follow:

- 1861: the first cotton mill was developed on the western side of the city
- 1940: since the city became famous as Manchester of East, it has attracted migration from outside Gujarat, hence the western side grew rapidly. Outside the walled city on eastern part,
- 1947: (post independence) eastern side of the city grew rapidly due to the development of some institutions and housing areas for middle income people
- 1968: development of three GIDC industrial estates (Naroda, Odhav, Vatva) on the eastern outskirts of the city (maximum of 8 km only)
- 1970-1980: textile industry has declined, many workers became unemployed
- 1980s: industrial activity developed on the outskirts of the city in radius of 20 km (government policy)
- 1986: the boundary of AMC expanded to the three industrial estates

The boundary of Ahmedabad city has been expanded due to its increasing population and services. The development of the industrial estates (NIE, OIE, VIE) on eastern side significantly gave impact to the Ahmedabad Municipal Corporation (AMC) area. The growth of Ahmedabad city in this case is AMC area, could be seen in three different stages of growth. The growth could be defined in three types of urban shape of Ahmedabad city driven by industrialization. AMC has changed its boundary three times to respond to the city development and to meet the demand of its citizens. The three stages are:

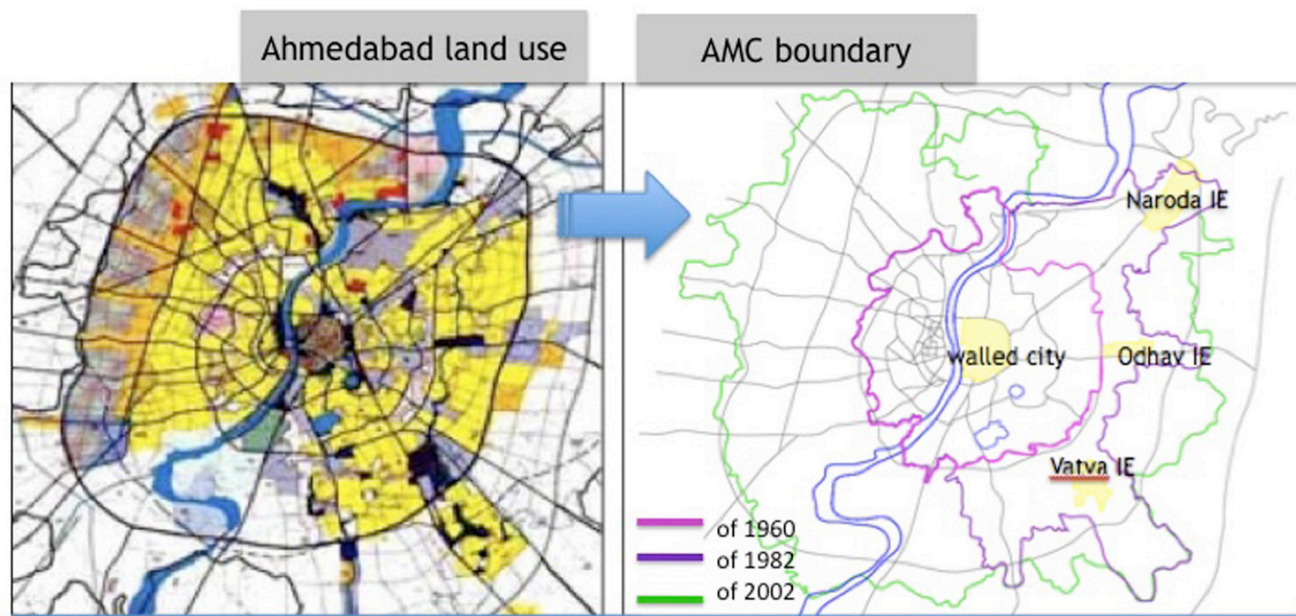


Figure 7. Urban Form of Ahmedabad City since 1960 (source: AUDA 2009 - edited)

1. In the year of 1960s, the economy of the city became stronger and cotton manufacturing activity became more and more developed around the walled city. The western side of the river was developed due to service development, city boundary was expanded to western side and outside walled city in the eastern part. This shape could be defined as the first changing of city' boundary generated by industrialization. Physical development of eastern and western side of the city is relatively balanced in shape; it is also driven by the development of bridges which connects both sides. Odhav, Naroda, and Vatva industrial estate are located outside the AMC boundary, since it is connected to dirty activity and inappropriate land use inside the city.
2. In 1982, the boundary of AMC was expanded only to the eastern side. The urban shape has protruding figurine of the three GIDC industrial estates, Naroda, Odhav, and Vatva, which are located on the eastern part of the city. The western boundary still remained the same. Naroda, Odhav and Vatva became part of AMC area due to the development of area in between the city and the industrial estates. The new urban shape at that time could

be understood as a result of the change of land occupation development in between city centre and the industrial estates, from agriculture to developed land. It is also triggered by the development of ring roads and state/ national highway around the city. Surrounding areas of the three estates became developed (radius of 1-2 kms from the estate) and they changed from agriculture into developed land, housing land occupation into commercial occupation. Some *talukas* (villages) that are located around the estates merged with the estate as one big area. From 1968 to 1986, the three estates mostly generated the growth of the surrounding areas, the three became urban generator of Ahmedabad city growth particularly on eastern part. After 1986, not only the industrial activity generated the areas, but also other service development, such as school, market, and some institutions.

3. In 2002, AMC expanded its area, both to eastern and western side of the city. There is no more protruding figurine of the three industrial estates. The three protruding shape has merged each other, hence become one solid shape with western boundary. The only boundary that remain the same is on the northern side, since it is connected to boundary of capital city; Gandhinagar. Issue of urban agglomeration became major concern of AMC to expand its area. It is mostly driven by the development of many ring roads and state/ national highway. Surrounding area of the estates has been appointed as commercial areas and light industrial areas.

06 Conclusions

Above analysis has been considered based on research of AMC map and some interviews. It can be seen that the developed areas on eastern side mostly are generated by the three estates. After studying the AMC land use, it can be concluded that the closer a city is to the three estates, the more developed is a city and vice versa. The shape of its urban areas on eastern side actually has three protruding shapes, in which each shape is the location of Naroda, Odhav and Vatva industrial estates. Areas between these protruding shape previously were vacant land and

agricultural land. As predicted by AMC, these areas developed and grown in response to urban generator of the industrial estates, as long as the industrial activity operate.

The linkages between two sectors exist not only in term of target market of the street vendor, but in terms of protection from the factory. Behind location choice of the vendor, protection from the factory where the vendor built is equally important factor. Both factor should work equally since both sector (formal and informal) need each other; the formal need affordable and accessible food/ drinks while informal sector always search for business location. In Ahmedabad, since the fall of textile industry, informal sector activity is very significant in numbers and give economic beneficiary to the city growth overall. Non-government organization in Ahmedabad (such Self Employed Women Association- SEWA) exist to help the informal sector to improve their services and help to speak to the government so they can have equal right to run business with formal one (Parikh 2008, personal communication).

Therefore, the project highlighted the idea that the growth of city particularly in developing country should respect the existence of the informal sector. The existence should be a part of government' or municipal authority' strategy, by providing space and regulation for them. In India, for example Delhi, have a regulation for the vendor to have business license to run their business in a particular area. Thus, the city authority can control the growth as well as minimize the congestion caused by street vendors.

The objectives of the research finally could be reached on its findings. Some limitation is important to highlight: seasons during field survey and language boundary of the researcher. In the future, it needs to do field survey during all seasons, so the average numbers and character would be identified. The development of street vendor or hawker is very much influenced by seasons. This research pictured the case studies from winter to mid-summer in Ahmedabad, with absent of monsoon season. During un-pleasant season, most vendors choose to run business in their villages or doing agricultural work. Language boundary also give limitation of the findings,

since most vendor speak in Gujarati. Researcher only communicate in English and little in basic Hindi. The research could be followed by further study of comparison with other cities in developing countries, in order to find out ideal approach of regulating informal sector as hidden urban economics.

References

- Balchin, P. I., David; Chen, Jean, *Urban Economics; a global perspective*, New York, Palgrave, 2000
- City population, www.citypopulation.de/India-Gujarat.html, 2009
- Dijk, Meine Pieter, *The Theory and Practice of Urban Management* (e-book), UK, Edward Elgar Publishing Ltd, 2006
- Dutta, Shyam, *Partnership in urban development: a review of Ahmedabad's experience*, <http://eau.sagepub.com/cgi/content/abstract/12/1/13>, Environment and Urbanization, 2000 =
- GIDC, Gujarat Industrial Policy 2003, www.gidc.gov.in, 2009
- Haan, H, *Urban Informal Sector Information: needs and methods*, Geneva, International Labour Office, 1989
- Heitzman, James, *The City in South Asia- Asia's Great Cities* (e-book), NY, Routledge, 2008
- Hindu, The, *Ahmedabad yet to become mega city*, www.hinduonnet.com/thehindu/2001/04/07/stories/0207000q.htm, 2008
- Jamdar, Avni, (theses) *Generators of Urban Space of Ahmedabad*, School of Planning, Ahmedabad, CEPT University, 2000
- Munshi, Neela (senior town planner AUDA), personal communication, Ahmedabad, 22 January 2009
- Parikh, Meeta (Research Coordinator SEWA), personal communication, Ahmedabad, 11 December 2008
- Ravali, Shri Nayan (GIDC Advisor), personal communication, Gandhinagar, 9 April 2009
- Shah, K.H (executive secretary Vatva Industries Association), personal communication, Ahmedabad, 19 December 2008
- Shah, Samir (executive secretary Odhav Industries Association), personal communication, Ahmedabad, 8 January 2008
- Sukadhia, Robin, *Industrialization and Economic Liberalization in Gujarat: the consequences for rural communities surrounding Ahmedabad*, www.astralaudio.com/india/Gujarat_India_Industrialization.doc, 1997
- Varghese, Thelma (executive secretary Naroda Industries Association), personal communication, Ahmedabad, 5 January 2009
- Wikipedia, *Demographics and Culture of Ahmedabad*, <http://en.wikipedia.org/wiki/Ahmedabad#Demographics>, 2009