

# **INVESTIGATING THE GROWTH AND DEVELOPMENT OF A KARACHI SUBURBAN SETTLEMENT-A CASE STUDY OF SOHRAB GOTH KARACHI**

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## **ABSTRACT**

Although rapid urbanisation is sometimes viewed as a driving force for economic growth and cities as engines for economic development, it is a major issue for many cities. The desire for living space as a result of rapid urbanization is putting pressure on suburban land use, construction, transportation, and consumption patterns, which leads to suburban sprawl. This qualitative research aimed to investigate the possible causes of Karachi's outward growth and development and its impact on environmental and social patterns in the study area. This aim will be achieved by 1) understanding the current growth and development of the study area, and 2) investigating the factors that contribute to the development and the impact of development on the study area and its neighbourhood. Questionnaire surveys and face-to-face interviews were taken for data collection in Sohrab Goth, which was once a suburban area of the city. Analysis indicated that many urban issues have arisen as a result of urbanisation in Karachi, which contradicts the idea of sustainability and causes suburban sprawl. Concluding, any type of suburban growth should be supervised and regulated, otherwise, the consequence might be chaotic and unsustainable growth. Furthermore, it may cause environmental issues such as air pollution, heat islands, urban climate, and so on. Unfortunately, planners and designers have largely ignored this type of physical modification that needs to be considered for the sustainable future of the city.

**KEYWORDS:** Sohrab Goth, Suburban Sprawl, Karachi, Rapid Urbanization, Unsustainable Growth

## **1. INTRODUCTION**

Cities' towns and suburban regions are just like living organisms that change and expand throughout time. It is a nonstop and adaptable process in which physical and constructed settings and places grow in scale and change in characteristics (Aliyu, & Amadu, 2017). The expansion and development of a city happens on a daily basis, and everyone is influenced by it in some manner. Karachi is one of Pakistan's largest metropolises and is recognised for being the motherland of migrant workers and the poor. Karachi is rapidly developing and growing, and it is suffering from a number of issues, such as overpopulation and insufficient amenities (Hasan, 2015). Karachi is divided into numerous towns, each with its own

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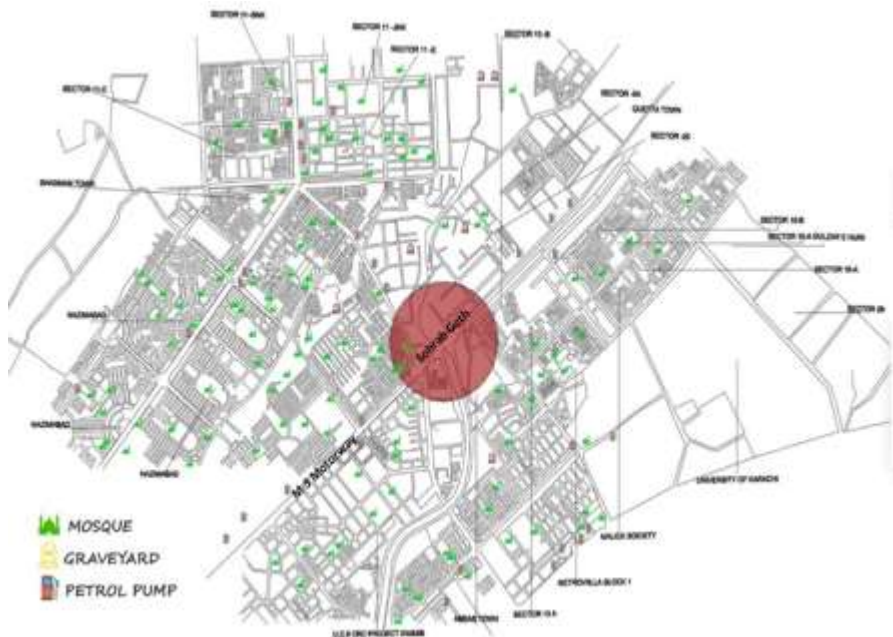
set of localities. One of these is Sohrab Goth, which is a neighborhood of Karachi's Gadap Town (Figure 1). The M-9 Motorway is the main route into Karachi from the rest of Pakistan. Sohrab Goth is located on both sides of the Karachi-Hyderabad Superhighway. It is accessible after a 16-kilometer journey from the Karachi Toll Plaza (Ploeger, et al. 2019). The area's regularity authorities are the Karachi Development Authority (KDA) and the Sindh Building Control Authorities (SBCA). It was settled in the 1970s, when it began to offer accommodation for migratory communities, though most of the land is presently leased. Immigrants have even resided illegally on both sides of the Lyari River, which passes through Sohrab Goth (Darabu, & Sajjad, 2021).

This area is in the best possible setting, and it is easily accessible to everyone. The Superhighway connects several of Sohrab Goth's minor routes, allowing for rapid access. As a result, many economic activities and businesses have been developed in this region and its vicinities over the years, and its population has grown rapidly (Ahmed, et al. 2022). It has been revealed by Hassan (1997) that there were only two main immigrant populations in 1970, but that in 2017, many ethnic groups live together (Borthakur, 2017). If considering the development along the Super Highway, the development authorities are in charge of it. The majority of the development work is still in progress, as evidenced by the caterpillar tractors parked nearby and the signs announcing future development plans and projects. Many housing projects, mandis, or wholesale enterprises, rental developments, recreational parks, and restaurants are now being developed along the Super Highway.

When travellers land on the Super Highway near Sohrab Goth Chowrangi, they are greeted by carelessly parked vehicles, rickshaws, and intercity public bus stations with parked buses. Parallel to this, stacked wood next to wooden shops, food vendors, the hotel with encroaching walkways, and heaps of trash and choked water and sewage lines, often portray a bad picture of not just Sohrab Goth, but also of Karachi. In addition, during Eid ul Adha, this site also hosts the largest Asian cattle market. In summary, the existing state of Sohrab Goth in front of the Super Highway is unappealing, and it is a necessity to pay extra attention to adequately developing this land.

This area serves as both a residential and a commercial hub for Gadap Town, is the backbone of the economic survival of the many ethnic communities that have moved to Karachi. Due to its proximity to the city of Karachi, it largely benefited from the spillover from this city. Unfortunately, its economy has been negatively impacted by illegal activities such as drug production and unlicensed arms bazaars, and Karachi residents have stopped shopping there (Mallick, 2018).

Furthermore, the government has not paid any funds set aside for its growth and planning. In addition, the conversion of the Super Highway to the M-9 Motorway has led to an increase in suburban sprawl and land degradation since more area is needed for road extensions and construction activities.



**Fig. 1.** Map Showing Study Area Pakistan

According to Smart Growth Online (2010), there are two different kinds of growth: (1) sustainable growth and (2) unsustainable growth. Sustainable growth, which is frequently used in combination with the term "smart growth," entails principles such as offering a variety of accommodation opportunities and options, designing walkable neighbourhoods, fostering distinctive and attractive communities with a strong sense of place, mixing land uses, preserving open space, farmland, and significant environmental areas, offering a diverse range of transit options, utilising compact building design, and strengthening and guiding development. Tegtmeier (2011) said that unsustainable growth refers to a city's outward expansion, in which the ratio of yearly land expansion is substantially more than the percentage of annual population increase. This is also known as "urban sprawl," because it contributes to the development of suburbs, strip malls, and the demand for new infrastructure. This sprawling has the potential to degrade our natural assets, including farms and important habitats and the same has happened in Sohrab Goth. To maintain our society with the expected population increase, there has to be a stronger effort toward more sustainable growth patterns. To accomplish so, it is necessary to

understand how a city grows and expands. Therefore, this research aims to examine the expansion, transformation, and negative influence of unsustainable growth on the environment of Sohrab Goths and its residents, and for this purpose, urbanization and urban growth, sustainability, and urban sprawl and its origin have been studied along with the data collected through surveys, interviews, and questionnaires. This study is limited to analyse the impact of unsustainable growth on environment of the study area.

## 2. LITERATURE STUDY

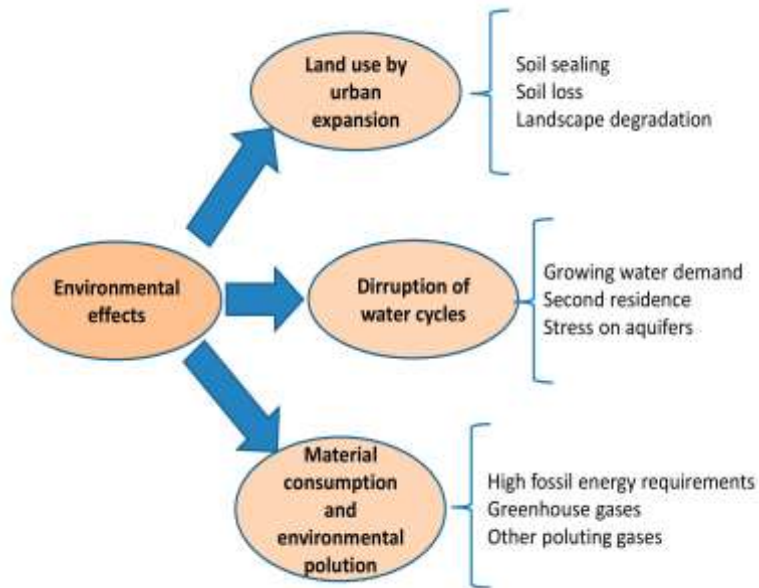
### 2.1 Sustainability, urban growth and Sprawl

In order to create more sustainable urban futures in Sohrab Goth and other cities around the world, it is important to identify exactly what is so "unsustainable" about the current urban environment, most notably urban sprawl. This is because sustainability is a "core element" of any city's growth strategy (Arbury, 2005). Sustainability is defined by the World Commission on Environment and Development (WCED) as "fulfilling the demands of the current generations without harming the ability of the next generation to fulfil their demands" (Zubairu, 2012). The Brundtland Report (WCED, 1987), which made reference to this idea of sustainable development, emphasised the need to support societies' steady progress for both the now and the future (Sikdar, 2003). This idea emphasises the ongoing growth of social, economic, and environmental perspectives, which are seen as essential elements in the building of a sustainable society (Robin and Poon, 2009). Figure 02 shows the components of sustainable urban development.



**Fig. 2.** Some components of sustainable urbanization (Drakakis-Smith & Dixon,1997)

According to Arbury (2005), there are significant possible issues for anyone trying to apply sustainability all across the world's regions because the idea seems to be fundamentally at odds with urbanism. This results in the "urban sprawl" problem. Developing more sustainable forms of living and production requires addressing urban sprawl and its economic, social, and environmental consequences (Bueno-Suárez & Coq-Huelva, 2020). Urban sprawl was characterised as "uncoordinated growth" by Batty et al. (2003). This is shorthand for unplanned, gradual urban growth that is frequently considered unsustainable. Urban sprawl is defined as "unplanned, unregulated, and disorganised mono-use growth that does not offer a fully functioning mix of activities and/or is not functionally related to neighbouring land use patterns and which diversely appears as low-density, ribbon or strip development, widely dispersed development, leapfrog development, or disconnected development" by Shao et al. in their working definition published in the planning literature in 2021. For cities and metropolitan areas overall, sprawl leads to an almost limitless number of issues, including traffic congestion, the loss of farmland, increasing air pollution, and skyrocketing infrastructure expenditures, among others (Grigorescu et al., 2021).



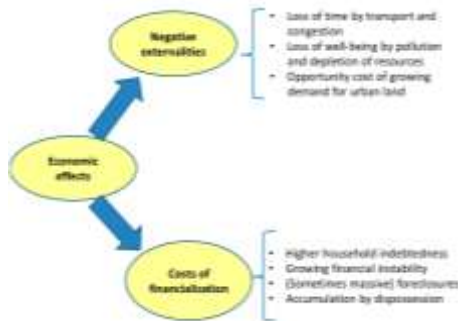
**Fig. 3.** Main environmental costs of urban sprawl. Bueno-Suárez, C., & Coq-Huelva, D. (2020).

Environmentally considered (Fig. 3), there are two primary issues with urban sprawl: the rate at which it is destroying the landscape and the air pollution that such a high degree of dependency on automobiles is producing (Ewing, 2008). When regions with significant natural and

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landscape values are impacted, the effect of urban sprawl on soil loss is particularly significant. First, it is important to emphasise how exceptional landscapes enhance the worth of the homes that are situated in privileged areas nearby. As a result, in the absence of regulations, certain locations with significant historical significance get swiftly occupied. Urban sprawl may therefore be viewed as the result of production and consumption patterns with significant hidden costs that are neither assessed nor allocated nor compensated (Bueno-Suárez & Coq-Huelva, 2020).

Modifications to Water Cycles Water consumption and management are significantly impacted by urban growth in general. Water resources in urbanised regions are frequently insufficient to supply the increased demand for water. As a result, groundwater is being used more frequently. In this regard, aquifers in these settings are similarly impacted by urban sprawl (Bueno-Suárez & Coq-Huelva, 2020).



**Fig. 4** Main economical costs of urban sprawl.  
Source: Bueno-Suárez, C., & Coq-Huelva, D. (2020).



**Fig. 5** Main social costs of urban sprawl.  
Source: Bueno-Suárez, C., & Coq-Huelva, D. (2020).

Additionally, greater social segmentation and the development of monoculture communities are linked to urban sprawl (Fig. 5). Urban sprawl and migrant movements, which seek to socially and geographically escape from poverty, are closely related in this regard. Additionally, marginalised social groups may want to reside in places that are far away, secluded, and poorly connected (Galster, 2001). In this context, government planners and decision-makers attempt, in certain situations, to avoid placing infrastructure and equipment in suburban regions that can result in settings that are dominated by poverty (Bloom, 2005).

As a result, there is an understanding in the scholarly literature that urban expansion is indisputably linked to serious environmental, social, and

economic issues (Fig. 3). It brings up the issue of the countryside losing its environmental character as it gets paved over. Additionally, it demonstrates how various social and economic groups divide and isolate themselves from one another. In order to create sustainable communities, strategies for tackling these issues in a systematic and communal manner are now being investigated. In this approach, sustainability is based on the idea that decisions must be taken for the long term, for future generations, and that doing so requires managing current growth thoughtfully—in short, smart growth (Batty, 2003).

This literature gives an understanding of how to sustain what is not sustainable with a review of urban sprawl and its impacts, which will help to study the planning of Sohrab Goth while focusing on the analysis of the environmental impact of unsustainable growth in the study area.

## **2.2. Historical overview of urban Growth in Sohrab Goth**

Sohrab Goth is originally known as the city's entrance and is situated on Karachi's main trade and business corridor. Hassan (1987) discussed that this region dates back to the 1950s and used for agricultural purposes in 1971, 800 Akakhel families relocated from Koochi Bazar, Peshawar, to Karachi for jobs. They initially pitched tents near Ibrahim Hyderi, but by early 1972, they had shifted their temporary shelters right close to Sohrab Goth, a remote town located on the Super Highway.

These temporary tents were progressively substituted by using mud walls and chatai for roofing material, which finally developed to concrete blocks and corrugated sheet for the roofing, and the construction of this piece of land took around 16 years. In 1978, a group of settled individuals set up the "Barra Market," which serves people from all around Karachi. Water for the community was purchased from the Water Pump on Shahrah-I-Pakistan in the early years, and it was transported to the Basti by donkey carts. Simultaneously, the eldest Koochi, Haji Hasan, had requested to supply water from the appropriate authorities, and just a year after, in a vote, Ghaza Khan, a Koochi from the area, was selected to be part of a council, and his efforts were rewarded in 1980 when the central water supply pipeline system was built. By polling the money, the community created local connections to the various residences. Zeb Khan's initial school, with six classrooms and seven instructors, opened in 1976, and about 150 Akakhel children attended until 1980. Most of those educational and health-care institutions were sponsored via private sector investments or community campaigns. Farsi-speaking Afghan refugees arrived in the Akakhel settlement area in 1981. They started living in catcha huts and getting their water from the water pump. Pathans from Dir, Bajaur, Mardan, and Swat came to the area at the same time as transporters.

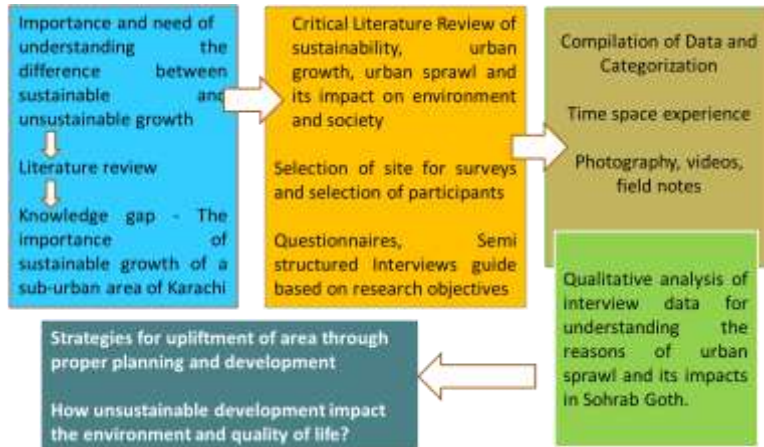
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However, Pathan's settlements served as a nexus for drug and unlawful arms trafficking. Therefore, government ordered anti-encroachment operation in 1985. This operation effected 2000 households, 1200 of whom were Akakhel. Afterwards, Akakhel tribes were relocated to three migrant camps near the Super Highway's toll plaza. The government eventually gave the Akakhel 60-yard plots near their settlements, for which they had to pay Rs. 9000, and no commercial sites were granted, so they had no way of making money. Soon after the operation, Pashtun and Afghan gangs began opposing the planned relocation and police action by attacking Muhajir residents in the adjacent colonies of Qasba and Aligarh. According to the Afghanistan Research and Evaluation Unit (2005) after a successful anti-illegal settlement operation in Sohrab Goth, CEO Ministry Muhammad Khan Junejo had planned to develop an attractive parkland on the property to symbolize the victory of "right" over "faulty." However, it could not have been done since the Pathans were back in 90s to take the entire land over, and the government and the army withdrew because they had already done a terrible wrong to the Koochis and other residents of Sohrab Goth (Wikipedia, 2020).

### **3. MATERIALS AND METHODS**

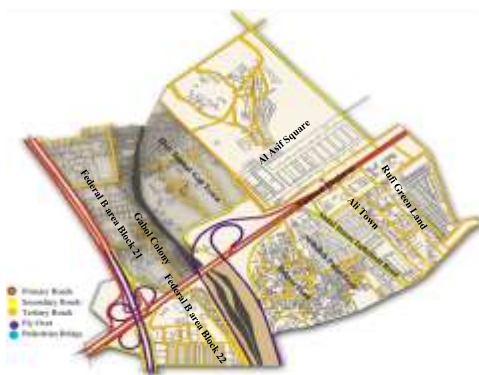
The research aims to examine the expansion, transformation and negative influence of unsustainable growth on the environment of Sohrab Goths and its residents. The chosen region of Sohrab Goth for study, covering approximately one kilometer, begins in Sohrab Goth Chowrangi and ends at Al Asif Square. In addition, to penetrate in the area, a distance of 1 km was chosen inside the region on both sides of the national highway, excluding Blocks 21 and 22 from the Federal B area (Fig. 7). It was challenging to select the entire region and create results using quantitative methods, thus a qualitative analytical method was deemed the most appropriate for observing and recognizing developments in this study. To communicate with the residents of Sohrab Goth and focal individuals, a questionnaire survey was utilized to record the participants' life style and demographics, the past and present development and the key actors who played the role in the this evolution, market and economic activities, infrastructure and public spaces, land utilization and construction activities.





**Fig. 6.** Framework of Research Methodology

A sample of 50 residents, 10 shop keepers, 2 school instructors, 2 physicians on the payroll, and 5 visitors from the neighboring Goths has been used. In addition, interviews were done with the Key persons. One of the major representatives, Hajji Jannat Gul, was interviewed in person. Architect Arif Hassan, an urban planner, was also interviewed for historical data. The data was then analyzed in terms of specific aspects: early development, evolution in relation to the surrounding areas, environmental effects of human actions, and local issues relevant to the study objective, with the hope of serving as a valuable baseline for future research or as a base for more qualitative research.



**Fig. 7.** Selected chunk of study area



**Fig. 8.** Land-use development pattern

## 4. RESULTS AND DISCUSSION

### 4.1 Features of Sohrab Goth's Urban Development

The characteristics of Sohrab Goth have evolved over time. The region is home to several communities with various business types. The development took a mixed-use strategy, combining business and residential space in one location (Fig. 8). Construction styles encompassed of i) Temporary structures made with cloth, straw, and wood and bamboo sticks (Fig. 9) ii) temporary structures constructed with mud bricks and tin roofing sheets (Fig. 10) and iii) permanent structures built with block masonry (Fig. 11). Figure 11 shows the percentages and distribution of all construction types in the study area.



**Fig. 9.** Temporary



**Fig. 10.** Semi permanent



**Fig. 11.** Permanent



**Fig. 12.** Distribution of construction types with percentages



**Fig. 13.** Map of Hajji Jannat Gul Town

### 4.2. Space Pattern and Use

In Sohrab Goth, the majority of housing projects were developed without adequate design, which led to the emergence of "Katchi Abadi" throughout the area and resulting sprawl growth. Residential areas are

categorised according to economic growth and development. The various areas and their growth trends are described in more detail below.

### **4.3. Hajji Jannat Gul Town**

Haji Jannat Gul Haji is the owner of this parcel of land called Hajji Jannat Gul Town along the Lyari River in Karachi, Pakistan (Fig. 13). He claims to be in charge of all types of development in the area and rules this territory. Haji Jannat Gul says, "I am already trying to develop his property in a well-designed manner, with all the utilities." In addition, this community even has permanent dwellings because to the paved road next to the Super Highway. 166 authorized plots with a total of 80 acres with Katchi Abadi all along the river make up the main characteristics of the region. There are 50 small dwellings with planned sites of 60 to 80 square yards and an occupancy of 10 to 12 people each house, along with 116 large homes with a site size of 150 square yards and an accommodation of 8 persons each. There are three different social classes: the upper class, which enjoys a higher standard of living and makes between 60,000 and 100,000 per month; the middle class, which makes between 40,000 and 60,000 per month; and the lower class, which is primarily housed in makeshift shelters along the Lyari River. The survey found that upper-class homes are well maintained (Fig. 14) and have carpeted areas, lower-class dwellings are not well maintained and have (Fig. 14 & 15) no furniture. Since men work as shopkeepers and industrial employees and women sew and sell home-cooked food, both genders in the lower classes are equally involved in running their homes. The two major ethnic groups in this residential area appear to be Pakhtuns and Afghans, with Akakhel (Afghanis) community ownership. The majority of people in this area stick to their own cultural characteristics, as seen by a man wearing a kameez shalwar and a woman wearing traditional embroidered garments and a shuttlecock burka. Among them, pulav is a favourite food. In terms of education, 68 percent of kids in this area attend school, while 32 percent do not.



**Fig. 14.** High class homes

**Fig. 15.** Middle class homes

**Fig. 16.** Poor people homes

### **4.4. Gabol Colony**

The whole Gabol Colony is 24 acres in size, with 1000 plots overall that are split into three sizes: 80 square metres, 100 square metres, and 120 square

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metres (Fig. 17-20). The vast majority of people are Balochis. Most male workers are daily wage earners, however some are low-level government workers. This community differs culturally from Jannat Gul Town in that women are not allowed to work outside the home.



**Fig. 17 Colony map of Gabol fronting Lyari River, Block 21 area F.B.at its back**



**Fig. 18 Middle class homes**



**Fig. 19 lower middle class houses**

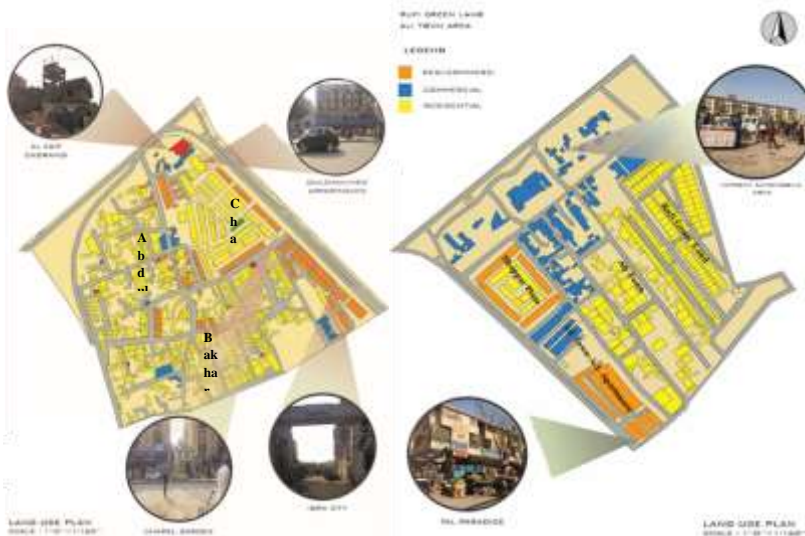


**Fig. 20 Shelters of poor**

#### **4.5. Abdullah Palari Goth and Bakhar Goth**

In front of Hajji Jannat Gul Town, Abdullah Palari Goth, and Bakhar Goth, the opposing sides of the Highway (Fig. 21) were built in 1972. A total of 101.6 acres, or 53.9 acres of domestic land, 25.7 hectares of commercial property, and 21.9 hectares of residential combined with commercial land, are owned by all Goths. While it was being built, Akakhel was inhabited by the Balochi community of Bakhar Goth; however, in 1986, soon after the Sohrab Goth massacre, the Balochi sold their homes to Pathans. Before Sindhi bought the property and gave it the name Abdullah Pallari Goth, Abdullah Pallari Goth's landlords were Gabol and Balochi (Palari). Most Urdu-speaking populations, including Pathans, Sindhis, and Balochis, have resided in both Goths since 1995. While there is a significant Muslim population in the area, Bakhar Goth also has a small number of Hindu families. People residing in this area have good relationships with one another. For example, residents of flat buildings have a positive relationship that contributes to building a supportive community, but

there is no interaction between people living in houses behind the block, and they also do not communicate with the communities surrounding Bakhar Goth. There is a mixed-use neighbourhood featuring a residential and commercial sector in Bakar Goth. Three cotton factories can be found there as well.



**Fig. 21.** Bakhar and Abdullah Palari Goth

**Fig. 22.** Ali town and Rufi Green Land

There are inadequate water and sewage infrastructure for both Goths. The request for the granting of a land lease submitted in 1980 by the official bodies of both Goths was granted by the government. Abdullah Pallari Goth was not leased because of a number of issues, although Bakhar Goth was, and it continues to be in the same situation now.

#### **4.6. Neighbourhood of Abdullah Palari Goth and Bakhar Goth**

Areas surrounding Abdullah and Bakar Goth included Rufi Green Land, Ali Town, Gulshan View Flats, Chapel Garden, Iqra City Phase II, Shopper Plaza and Front Part, A-One Complex, and Al-Asif Square-Sohrab Goth. Rufi Green land construction started in the 1980s. On a total of 24 acres, Sector 13-A, KDA Project 33, has a residential and commercial complex including homes, restaurants, flats, and a sizable market. A 9-acre land issue involving unlawful ownership has been used to build a mall and then bulldozed on the order of the court. In this area, the majority of people speak Urdu. 90% of the buildings in Ali Town are ground plus one storey

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buildings, while 10% are ground plus two story buildings. There are two ethnic groups present speaking Hazara and Urdu respectively. Commercial activity takes place on the ground floor of the Gulshan View Apartments (Ground + 4) and upper floors are being used residential purposes. In 1991, Chapel Builders constructed the ground-plus-four-story Chapel Garden, and in 1998, the ownership was given to the home owners. It functions as both a residential and a commercial building. A four-story structure called Shopper Plaza houses both residential and business functions. The two largest ethnic groups in this plaza are Afghans and Pathans. The majority of A-One Complex's land is occupied by Pathan people. Business activities are on the ground level and residential on upper three floors. Al Asif Square (Figure 22) well-known Sohrab Goth structure with a ground plus four-story design, having a typical bazar, and several shopping areas for everyday things, clothing, footwear, food, poultry, fruits, grocery shops, clinics, hospitals, and bakeries (Fig. 23). The area is 112946 square yards in size and has 1300 flats. Afghans and Pathans are residing the apartments. At the back of the buildings is a wholesale market where consumers may buy anything from garments to basic necessities. Overall ethnicity of the study area is given in Fig. 24 with the detail of residential area in Table 1.



**Fig. 23.** Al-Asif Square



**Fig. 24.** Ethnicity in the study area

**Table 1: Residential area's details**

AREAS	SIZE OF PLOTS	NO OF HOUSES	YEAR OF CONSTRUCTION
Rufi Green Land	120 Sq. yard 200 Sq. yard	110 Residences 64 Residences	---
Ali Town	400 Sq. yard	---	---
Alfa Tower	120 Sq. yard 160 Sq. yard	72 Flats 54 Flats	Completed in 2018
Iqra City Phase-2	60 Sq. yard 100 Sq. yard 140 Sq. yard	298 Flats 71 Shops	1996

Chapel Garden	60 Sq. yard 100 Sq. yard 140 Sq. yard	780 Flats 55 Shops	1996
Gulshan View Apartments	80 Sq. yard 100 Sq. yard	300 Flats 33 Shops	2005
A-1 Apartments	60 Sq. yard 100 Sq. yard 140 Sq. yard	700 Flats 86 Shops	1984
Shopper Plaza	60 Sq. yard 80 Sq. yard	450 Flats 90 Shops	1984
Abdullah Palari Goth	60 to 120 Sq. yard	—	Before 1947, development began.
Bakhar Goth	60 to 120 Sq. yard	—	Before 1947, development began.

Source: Author.

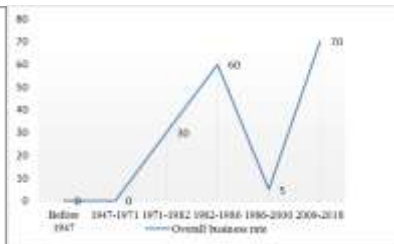
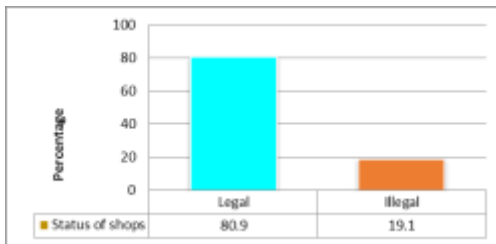


Fig. 25. Commercial status in the study area

Fig. 26. Business rate in the study area

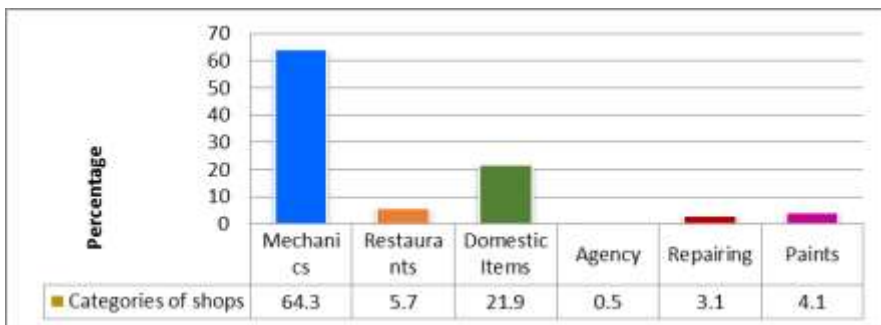


Fig. 27. Sohrab Goth's Shop Categories

Fig. 26 demonstrates that the market rate increased between 1971 and 1986, but the economic rate decreased to almost zero after the 1986 massacre, and after a few years when the situation got normal, new

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businesses were established and income progressively increased, and that the current rate of the economy has more than doubled since 1986 and is high compared to the past. However, there are 81 percent of legal shops, while the rest are illegally occupied (Fig. 25). The categories of the shops can be found in Fig. 27.

#### **4.7. Availability of service in the study area**

Public amenities including educational institutions, places of worship, healthcare facilities, and madaris have not been properly provided in the Sohrab Goth. six small Masjids and the Rottrey government Hospital System (Fig. 30) have been established, Khursheed, Maternity Center, and Al Shifa Dental Cline have been constructed here but have not been matched by rapid population growth. These major facilities include Iqra Madina Tul Atlaf School (Fig. 28), Madrassa, and four government-owned educational institutions (Fig. 29). Although public facilities are distributed without taking the growth strategy into account, for example, in order to serve the whole community, their location does not correspond to the planning standards of each zone. As a result, few localities have health care facilities and educational institutions while others do not. Government schools' instructional programmes and infrastructure have declined in quality. In a similar vein, residents must drive a large distance to hospitals due to the still-inadequate health services available. As a result, they deal with additional issues including air pollution, smoking, and fatigue. Other services offered in Sohrab Goth are either insufficient or inappropriate.



**Fig. 28.** 120 sq.yd of Iqra Madina Tul Atlaf School situated in Jannat-Gul-town with 250 pupils



**Fig. 29,** Gabol Colony School

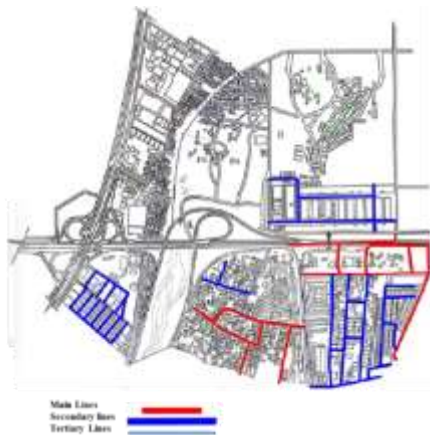


**Fig. 30.** Rottrey govt. hospital network - Hospital in Jannat Gul Town

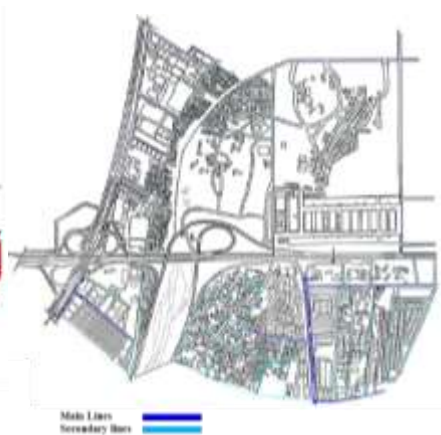
Additionally, the study area lacks sufficient leisure amenities and public parks. There is only one park in the study area, and it is not big enough to meet the inhabitants' needs and is not well maintained. Sohrab Goth is suffering significant difficulties in terms of utility services. Figure 31 shows



how poorly planned the sewage system, water supply (Figure 32), drainage, and electricity and gas supplies are. After 1986, electrical metres were installed. Additionally, some areas have open drains, which contribute to the environment's unhealthiness (Fig. 33). The Lyari River, which also acts as a filthy dumping location for Sohrab Goth's solid waste, was directly contaminated by a one-foot-diameter sewage pipe (Fig. 34 and Fig. 35). The Lyari River was nearly flowing at ground level (Fig. 36). Due to the construction of temporary shelters on the river's bank and garbage dumping, the river's width is getting narrower every day. The Lyari River now runs over its banks and floods the homes of individuals who live there, turning it into a swamp that is exceedingly dangerous to people. The region's solid waste management system is also woefully insufficient. Due to encroachment, green spaces are now being used as trash dumping sites, which produces more pollution. Cattle and other animals continue to graze on these garbage piles. Along with the dead remains of these animals being dumped into these areas, Since these dangerous contaminants are then directly discharged into the River Lyari, it not only puts human health at risk but also pollutes the land and the air. Additionally, hawkers and trucks and buses parking on sidewalks have blocked several routes. In addition, air pollution from automobile exhaust and industrial greenhouse gases has seriously harmed the ecosystem in the region. The exposed electrical and other forms of cable, as well as the wall chalking, which causes visual pollution, are some of the most obvious features of the entire area.



**Fig. 31.** Sohrab Goth's sewerage plan



**Fig. 32.** Sohrab Goth's water supply lines plan

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**Fig. 33.**  
Open sewer  
drain

**Fig. 34.** Sewage  
water in Lyari  
River

**Fig. 35.** The River Lyari becomes  
a solid waste disposal yard



**Fig. 36.** The water of the Lyari  
River was nearly at ground level

**Fig. 37.** The pattern of  
the flood line in during  
monsoon

## 5. DISCUSSION

Sohrab Goth's cultural, social, and environmental circumstances have transformed between the 1970s to the present. The Bara Market's existence has been able to significantly contribute to the expansion of Sohrab Goth's economy, however because of unlawful activity, the Barra Market has had financial difficulties. Small marketplaces, on the other hand, are probably going to start growing in this region, which, if supported and managed correctly, would improve the region's economy once again. Politically driven adhocism ignores Sohrab Goth's growth process. As a result, changes take place in a fragmented, haphazard, and slowly under the direction of Haji Jannat Gul, a non-politician, and many other political actors, usually falling short of the goals set forth in the master plan. The constructed flyover and the Lyari expressway, for instance, are not mentioned anywhere. A method or strategy to involve locals in the decision-making process of programming, design, and development is also lacking. As a result, without public involvement, the local government is forced to carry the entire heavy financial burden of

construction and management, which ultimately produces no benefits and prevents residents from owning such development efforts.

Therefore, the key factors contributing to the decline of this area are the attitude and behaviour of the locals as well as the chosen policy of the government. The Karachi Development Authority has approved privately developed housing schemes like Al Asif Square, Rufi Green Land, and Ali Town Apartments, which have ultimately led to the development of some pretty nice houses in the area, despite the fact that these apartment complexes primarily serve medium- and upper-class residents. Previously, the method of controlling development was overlooked and weakened.

The region has also been impacted by the M-9 Motorway's transformation from the Super Highway. This will benefit the area's placement on the main road, raise the value of real estate, clean up any illegal violations along both sides of the road facing M-9, and transform this area into an aesthetically pleasing entrance to Karachi. On the other side, there wouldn't be much direct access to the M-9 Motorway from this location, increasing not only the vulnerability of management and expansion but also the possibility of criminal activity. Therefore, it is important not to block any connected routes in this region with the Motorway or the other suburbs in order to preserve its design and keep it from turning into a slum area or a Katchi Abadi.

## **6. CONCLUSION**

Cities serve as economic hubs where people live and work primarily to sell and exchange things. The dynamics that contribute to agglomeration economies, in which businesses grow if they are close to their customers and to one another, are often characterised as those that produce such clusters. Urban sprawl is typically linked with cultures and cities that have relatively high population growth, with redistribution towards the suburbs having a particularly large impact (Batty et. al., 2003). Beginning as a small rural settlement, Sohrab Goth expanded into a neighborhood. The region symbolises unchecked expansion on both sides of the surrounding road network, which was not initially planned in Karachi's Master Plan. A horrific situation of poor quality of life is presented by the mushroom expansion of Katchi Abadi in the towns of Abdullah Palari, Bakhar, and Hajji Jannat Gul, all along the Lyari River, as a result of insufficient area planning. Since few roads are enlarged, most roads are congested, and minor roads are inadequately paved and maintained as rough as natural trails, it appears that there is no space for road and street expansion. Garbage is thrown on empty lots before being dumped in the Lyari River, which is already overflowing with untreated wastewater from the area because sewage lines are directly connected to it, and wastewater is

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purposefully dumped into it because there is no effective programme in place to manage solid waste. Solid waste management is evolving into one of the most significant and challenging issues for developing nations. In order to handle Sohrab Goth's most pressing issue, it is vital to convince the Karachi Development Authority to take pre-emptive action. Traffic congestion and delays were caused by vehicles parked on the Super Highway in front of Al Asif Square and by construction work. Intercity buses that stop on the major highway to carry people are one of the main causes of congestion. Building a suitable bus terminal in the area would solve this problem and allow intercity traffic to move through at an acceptable speed. Encroachments on the street and road must be removed, and suitable parking lots must be built. This activity will be carried out by the Karachi Municipal Corporation (KMC) in collaboration with the Karachi Development Authority. Large-scale modifications would be made to the infrastructure and other utilities, such as the supply of freshwater, power, gas, and solid waste disposal. Local communities may be provided with programmes and activities like the Orangi Pilot Project. A planned wastewater treatment strategy is required to address the reported environmental degradation brought on by the Lyari River and the mixed commercial, residential, and industrial zones spread across Sohrab Goth. The development of parks and other green spaces, together with the use of cleaned Lyari River water for this purpose, might aid in the management of the region's environmental pollution. Since the soil in this area is so fertile, a proposal for urban forestry could be proposed along the river to provide green space for the locals and prevent development from encroaching on the river's land. However, this activity needs to be carried out collaboratively and in line with the strategic growth goal. In order to make Sohrab Goth a suitable place for future generations and an effective way to show the real picture of Karachi's entry gate, decision-makers, government officials, the media, academics, and, most importantly, the people, must work together.

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### **REFERENCES**

Arbury, J. (2005). From urban sprawl to compact city: an analysis of urban growth management in Auckland.

- Aliyu, A. A., & Amadu, L. (2017). Urbanization, cities, and health: the challenges to Nigeria—a review. *Annals of African medicine*, 16(4), 149.
- Ahmed, D. (2019). Status of Ambient Air in Three Areas and Its Effects on Residents of Karachi. *FUUAST Journal of Biology*, 9(2), 233-243.
- Ali, I. (2010). Karachi Becoming a Taliban Safe Haven?. *CTC Sentinel*, 3(1), 15.
- Bueno-Suárez, C., & Coq-Huelva, D. (2020). Sustaining what is unsustainable: A review of urban sprawl and urban socio-environmental policies in North America and Western Europe. *Sustainability*, 12(11), 4445.
- Bloom, N. D. (2005). Places of Their Own: African American Suburbanization in the Twentieth Century. By Andrew Wiese.(Chicago: University of Chicago Press, 2004. xii, 411 pp. \$37.50, ISBN 0-226-89641-2.).
- Batty, M., Besussi, E., & Chin, N. (2003). Traffic, urban growth and suburban sprawl.
- Borthakur, A. (2017). Afghan refugees: The impact on Pakistan. *Asian Affairs*, 48(3), 488-509.
- Borthakur, A. (2017). Afghan refugees: The impact on Pakistan. *Asian Affairs*, 48(3), 488-509.
- Bauer, B. (2005). AFGHANS IN KARACHI:-Migration, Settlement and Social Networks.
- Drakakis-Smith, D., & Dixon, C. (1997). Sustainable urbanization in Vietnam. *Geoforum*, 28(1), 21-38.
- Darabu, F., & Sajjad, S. (2021). The Perspective of the Residents of Sohrab Goth about the Afghan Refugees in their Community. *Pakistan Journal of International Affairs*, 4(4).
- Ewing, R. H. (2008). Characteristics, causes, and effects of sprawl: A literature review. *Urban ecology*, 519-535.
- Galster, G., Hanson, R., Ratcliffe, M. R., Wolman, H., Coleman, S., & Freihage, J. (2001). Wrestling sprawl to the ground: defining and measuring an elusive concept. *Housing policy debate*, 12(4), 681-717.
- Grigorescu, I., Kucsicsa, G., Popovici, E. A., Mitrică, B., Mocanu, I., & Dumitrașcu, M. (2021). Modelling land use/cover change to assess future urban sprawl in Romania. *Geocarto International*, 36(7), 721-739.

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- Hussain, N., & Shelley, L. (2016). Karachi: organized crime in a key megacity. *Connections*, 15(3), 5-16.
- Hasan, A. (2015). Land contestation in Karachi and the impact on housing and urban development. *Environment and urbanization*, 27(1), 217-230.
- Hassan. A, (1987). The Sohrab Goth Massacre. Retrieved from <http://arifhasan.org/articles/the-sohrab-goth-massacre>
- Mallick, A. (2018). Urban space and (the limits of) middle class hegemony in Pakistan. *Urban Geography*, 39(7), 1113-1120.
- Ploeger, D., Seago, C., & Sykes, L. (2019). Perspectives 2019. *Body, Space & Technology*, 18(1).
- Shahzad, A. (2013). Ethnic Politics of MQM from 1980s till Election 2002. *Pakistan Perspectives*, 18(1), 127.
- Sikdar, S. K. (2003). Sustainable development and sustainability metrics. *AIChE journal*, 49(8), 1928-1932.
- Robin, C. Y., & Poon, C. S. (2009). Cultural shift towards sustainability in the construction industry of Hong Kong. *Journal of environmental management*, 90(11), 3616-3628.
- Shao, Z., Sumari, N. S., Portnov, A., Ujoh, F., Musakwa, W., & Mandela, P. J. (2021). Urban sprawl and its impact on sustainable urban development: a combination of remote sensing and social media data. *Geo-spatial Information Science*, 24(2), 241-255.
- Smart Growth Online. (2010). About Smart Growth. Retrieved October 2010, from Smart Growth Network: [www.smartgrowth.org](http://www.smartgrowth.org)
- Tegtmeier, K. (2011). Factors the Cause Growth and Development in the City of Lincoln, NE
- Wikipedia. (2020). Sohrab Goth. Retrieved 26 4, 2021, from [https://en.wikipedia.org/wiki/Sohrab\\_Goth](https://en.wikipedia.org/wiki/Sohrab_Goth)
- Zakaria, R. (2016). *The upstairs wife: An intimate history of Pakistan*. Beacon Press.
- Zubairu, S. (2012). The importance of evaluation and sustainability in the built environment. In *Proceedings: 4th West Africa Built Environment Research (WABER) Conference* (pp. 9-13).