

Planning Misprision in Land Utilization and Zoning in Karachi City

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ABSTRACT

Every large city has a complex structure of various types of land use. The most important task of urban planners is to develop a land utilization plan for the proper growth of the city, ensure its proper implementation, and remove lags and flaws from the urban plan through changes according to current requirements. The city master plan and land use are protected through the zoning and building laws of the government. The nexus of political elites and private land developers changes the zoning and building laws of land utilization in cities. This has created a failure of planning in land utilization and zoning. As a result, illegal land use emerges in every part of the city. Such problems are common in cities of less developed countries where zoning laws are improper, and rules of building laws and land utilization are by and large not implemented because of corruption and malpractice. Karachi is one example of such planning failure and violation of zoning and building laws where public utility lands are converted into commercial and residential land uses. Such illegal practices are given legal cover and regularized by the government. As a result, the city has lost its plan and beauty. The haphazard and unplanned growth of land use has transformed the megacity into one of the most chaotic cities in the world.

KEYWORDS: Zoning, Land Regulation, Land utilization, building bylaws, encroachment

1. INTRODUCTION

Urban planning is essential for proper land utilization and the sustainable development of cities. Zoning is a planning tool to control and regulate the physical development of land, specify land use, and control building structure. Zoning rules and regulations specify the areas of residential, commercial, industrial, recreational, open spaces, etc. Zoning regulations are made in the form of laws and ordinances by local or national government authorities to regulate the land use of cities and ensure proper city planning. Zoning is the way to separate land use in cities but also demarcate high-, medium-, and low-density areas for development and future growth according to the master plan of cities. Zoning laws prevent the mixing of incompatible land uses like schools and cinemas. Zoning laws are developed according to the requirements of neighborhoods. For example, a small commercial area may be allowed in a residential block. Similarly, land for a school, a small hospital, or a small park is required for a community to be located near a residential neighborhood. Zoning laws fix the purpose of land utilization and cannot

be changed without legislation, which may be challenged in court. Therefore, the quality of the neighborhood is protected, and the conversion of land use is not possible without a legal order from the court.

The history of zoning in urban planning dates back just a century. Before introducing zoning practice in urban planning, separation of land uses existed, like in the Australian city of Adelaide, whose city center is surrounded by a park that was designed in 1836 to separate the city center from its suburbs. Low-density residential areas (single-story houses) surround the park, providing a pleasant walk between work in the city within and family homes outside. Ebenezer Howard, founder of the garden city movement, cited Adelaide as an example of how green open space could be used to prevent cities from expanding beyond their boundaries and coalescing. His design for an ideal city, published in 1902 in his book *Garden Cities of Tomorrow*, envisaged separate concentric rings of residential, commercial, parks, and industrial areas, all surrounded by open space and farmland. All retail business was carried out in a single glass-roofed building. Through this concept of an ideal Garden City, urban planners developed thoughts about the master plan and guidelines for city land developers and citizens regarding where and which type of land use was developed, and which size of building was built. As a result, the first zoning ordinance was enforced in 1916 in New York City. The application of single-use zoning led to distinctive forms in the United States, Canada, Australia, and New Zealand, in which a very dense urban core containing skyscrapers was surrounded by low-density residential suburbs characterized by gardens (Howard, 1946). Zoning is now adopted in many countries around the world, like Germany, France, England, America, Japan, India, Pakistan, etc. (Ahmed, 2020)

The main advantage of zoning is to separate incompatible land uses like residential, commercial, utilities, industrial, recreation, parks, etc. for promoting public safety and to ensure compatible land use development. Zoning laws regulate the height and density of buildings on the allocated sites. For example, industrial firms generate all types of externalities such as noise, air, and water pollution. Retail businesses create externalities like traffic congestion and noise. High-density housing leads to traffic and parking problems. The local government spends money in cities for infrastructure development and public services. It develops low-income housing schemes to provide affordable housing for low-income people. These developments need finance, which is earned through property taxes collected from high-value housing areas. A fiscal burden is generated when the tax collection is less than the cost of local public services. Due to fiscal pressure for increasing tax collection, low-density residential areas are converted into high-density housing like apartments and commercial high-

rise buildings. This has created other problems, like traffic congestion and noise pollution. Similarly, open spaces are also converted into commercial land to earn more taxes. Therefore, the presence of zoning laws and their execution is the only way to protect the master plan of city development. Zoning regulations clearly define how land should be designated for various socio-economic activities in the city. The purpose is to avoid any conflict between the interested buyers and sellers, who must be aware of the purpose of land designed for that use. Zoning reserves land that will be used for social and welfare services in the future. These amenity lands, reserved for future requirements, have remained endangered by encroachment. Agriculture lands, range land, and forests around the city are protected through zoning (Burke, 2002).

Urban planners consider Zoning is an important tool for the government to manage the proper implementation of the city master plan and restrict improper and illegal land utilization. However, zoning laws are criticized by urban planners because sometimes these restrictions adversely affect the economic and physical development of cities. Ban on changes in land use restrict redevelopment according to the new demand of market forces. Zoning may create a supply-and-demand crisis for residential and commercial lots in a city. For example, with the growth of cities, the requirement for residential and commercial land use also increases. Therefore, the market pressure is to change one or two-story large and medium-sized old residences into high-rise residential and commercial apartments. The zoning laws restrict this change and create undervalued land utilization and shortages of houses and shops. Zoning restricts corrections and changes necessary in the city master plan due to mistakes made by urban planners and the requirements of local communities. The problems created by zoning are usually resolved by the government through amendments to zoning and building laws and by regularizing new land use through legislation.

1.1. Zoning and Building Laws

Zoning is practiced through building laws and land use regulations that allocate land utilization such as open space, residential, commercial industrial in plan. The densities at which those activities can be performed (from low-density housing such as single family homes to high-density such as high-rise apartment buildings), the height of buildings, the space of structures, the location of a building on the lot, the proportions of the types of space on a lot, and whether or not parking is provided etc are regulated through zoning and building laws. Zoning and building laws vary from country to country. In Japan zoning districts are classified into twelve zones. Each zone determines building's shape height and use. For example, zone 1 is Low rise residential where low height residential buildings, small

shops, offices and elementary and high schools are permitted. The commercial zone is designated for banks, cinemas, shopping centres and departmental stores. The industrial zones are allocated for factories.

In the Philippines, zoning and land use planning are governed by the Department of Human Settlement and Urban Development. The present zoning scheme is comprised of 26 zones based on land use, building regulations, and usage. These zones include residential, commercial, industrial, forest-grazing-military land, mining zones, agriculture zones, municipal water zones (freshwater bodies), parks and recreation, green belts and parks that work as buffer zones, cemeteries, cemetery, eco-tourism zones, and special zones that include military installations, prisons, rehabilitation centers, etc. The residential zone is divided into five zones based on density, usage, and height, ranging from 3 stories (10 meters) to 18 stories (54 meters). The commercial zone is divided into three zones. Commercial Zone 1 is permitted for neighborhood businesses established in 3-story buildings. The commercial zones 2 and 3 are parts of the Central Business District (CBD). The commercial zone 2 includes 6-story buildings for commercial uses, while the commercial zone 3 permits high-rise 60-story buildings, mostly shopping malls and business offices. The industrial zone is divided into four industrial zones: the agro-industrial zone, the light manufacturing and non-polluting production activity zone, the medium manufacturing and polluting production activity zone, and the high-intensity manufacturing and highly polluting production activity zone.

In the United Kingdom, zoning is not used to control land use. Development and planning control are parts of local government land use and building regulations. A property owner must apply in case of a change in land use or building structure, and the local authority must grant permission according to the local or regional land use plans (Panda, 2019).

In the United States, the first zoning regulations were introduced in New York City in 1916, when urban planners discussed how to regulate land use mess, industrial pollution, and unnecessary construction of skyscrapers through legislation and new urban land use plans like Garden City. The strict zoning laws were criticized mainly on two bases: i) because of the restrictions and the categorization of housing areas as single-family zones, two-family housing zones, and multiple-family housing zones, problems of shortage of houses and price inflation had emerged. Similarly, zoning restrictions had created racial housing segregation and economic class segregation. The black population is generally poor and cannot afford single-family housing. Zoning is still a controversial subject in the United States, and policies of land use regularization and planning vary from city to city; some are controlled by municipal governments, and others follow state land use regulations.

In Pakistan, zoning has neither been legislated nor implemented properly. In the urban plans of cities, land use and building control laws and regulations are usually discussed but never implemented properly. Urban land management and building control laws are usually executed through provincial legislative laws or ordinances, which are implemented through provincial government and city development authorities, which usually work under the influence of political governments. Therefore, improper land use control and building control are serious problems in the cities of Pakistan. The concerned government institutions are blamed for corruption, malpractice, and illegal land allotments to private builders and political mafias. As a result, the major cities are facing problems of water shortages, garbage disposal, traffic congestion, public transport, inflated housing, and encroachments. Because of their ineffective and corrupt performance, the Supreme Court and High Courts of Pakistan intervened to safeguard the public interest and gave orders to demolish illegal housing and high-rise apartments, which created protests and agitation among the public against the government and the highest judiciary.

The purpose of this study to examine the importance of zoning and building bylaws to regulate the implementation of governments rules and regulation in land utilization and Master plan of Karachi which is largest city of Pakistan. The city where more than 20 million people live has a haphazard growth of slums and squatter settlements. Conversion of land use legally and illegally have been creating serious problems for the dwellers of the city like traffic congestion, rising housing density, conversion of amenities plots, playgrounds and parks into commercial and residential encroachments. The study examines the causes of the violation of land utilization rules and regulations of Sindh Building Control Authority (SBCA) and their impacts on locality.

2. MATERIAL AND METHODS

The study is based upon three main hypotheses:

- i. violation of building bylaws and land utilization affects quality of housing areas
- ii. performance of Sindh Building Control Authority is unsatisfactory
- iii. corruption and malpractices of government institutions and political ruling mafias are responsible elements of land grabbing and violation of SBCA rules and land utilization regulations.

There are two main sources of data on which the study is based upon. The land utilization data of planned housing schemes like Taimuria (North Nazimabad) and Gulshan-e-Iqbal have been obtained from the planning department of Karachi Development Authority. The present land utilization

data of such housing schemes have been collected through land use survey which identify the violations of building and land utilization rules of SBCA. A random sample survey of the dwellers of the selected housing area (Taimuria (North Nazimabad) and Gulshan-e-Iqbal are conducted through a questionnaire survey to acquire opinions of residents about the causes of the violation of SBCA rules and their consequences on the quality of the housing. The snowball and stratified random sampling techniques are used, which cover a total of 600 respondents (100 respondents in each selected block of the two housing schemes). The answers of yes and no of the respondents are counted as 1 for yes and 0 for no, used for mathematical computation.

1. The statistical techniques of product moment correlation and multiple correlation are used to examine the hypotheses. Product moment correlation and multiple correlation are mathematically expressed as follows:

$$\text{(Product moment Correlation)} \quad r_{xy} = \frac{n \sum xy - \sum x \sum y}{\sqrt{(n \sum x^2 - (\sum x)^2)(n \sum y^2 - (\sum y)^2)}}$$

$$\text{(Multiple Correlation)} \quad R_{1.23} = \sqrt{\frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}}$$

2. The statistical technique of null and alternative hypothesis testing is applied to test the above-mentioned hypotheses. A T-test is applied to test null and alternative hypotheses at a 95% confidence level.

$$t_{xy} = \frac{r_{xy} \sqrt{n-2}}{1 - r_{xy}^2}$$

iii. Land use conversion ratio is computed to analyze the violation of SBCA laws and impacts on the quality of housing. It is a ratio between the total area of converted land use and total area of housing scheme. The residential densities of each block are computed by using data of total floor area of houses and the land area. The temporal values of residential densities are used to determine the violation and quality of housing.

3. RESULT AND DISCUSSION

Karachi was planned and developed by the British after its occupation in 1843. In 1923, the first development plan was approved, and the city up until 1946 was a well-planned and well-managed city with a low-density population, well-planned housing, markets, transport, etc. In 1947, when the British left the Indian subcontinent, Karachi became the first capital of the new country, Pakistan. Nearly 0.5 million people came to Karachi from Indian provinces between 1947 and 1951. This huge influx of population dismantled infrastructure and planning. The population of the city jumped

from 0.43 million in 1947 to 1.06 million in 1951, and Karachi ranked as the largest city in Pakistan. The country had neither financial nor urban planning expertise to manage the problems of this crowded and haphazard city. In 1954, the Karachi Improvement Trust was established, which was converted a few years later into the Karachi Development Authority. In 1959, Greek town planner Doxiadis was invited to develop a plan for the resettlement of the immigrant population who lived in thatched and encroached settlements. The plan was not implemented properly due to the shifting of capital from Karachi to the new planned capital city of Islamabad, and the priorities and finances had been shifted. Karachi Development Authority launched 43 planned housing schemes from 1958 to 2000 in different parts of Karachi, ranging from 80 sq. yards (small plots) to 1000 sq. yards (large plots). These housing schemes could not resolve the problem of housing in the city because of delays in infrastructure development and a lack of amenities. For example, large housing schemes like Hawksbay Scheme 42, Shah Latif Town Scheme, and Taiser Town Scheme 43 are still uninhabited after 20 to 30 years. Several master plans were prepared, like those for 1964, 1974, 2000, 2010, etc., for the future growth and development of Karachi. Unfortunately, neither were approved by the government nor implemented. The World Bank, Asian Development Bank, and other international organizations provided financial aid and consultancy, but lack of sincerity, bureaucratic delay, political conflict, and corruption made the planning problems of the city more complicated and beyond control (KDA,1990). The urban planning failure in Karachi is mainly due to three main factors:

3.1. Problems of political control

The political and administrative governance of a country depends on the devolution of power to the grassroots level. Elected local bodies at the district and city levels are crucial elements of developing democratic institutions and solutions to the problems of people at the village and city levels. Unfortunately, the political elites have always been reluctant to hold local body elections and devolution of power at district, village, and city levels. Local bodies elected governments were established during military dictator's rule. The dictators had their own political objectives, mainly to suppress national political parties, gain political support and the favor of the public, and create new local political representatives and supporters of military rulers. However, public development works in districts, villages, and cities were extensively executed, and people had a sense of political participation through their local representative, who solved their problems at the local level. During democratically elected governments, the process of establishing local bodies of government was stopped, and local body departments were operated through

administrative officers under the direct control of provincial governments. In 2010, under the 18th Amendment to the Federal Constitution, devolution of power at the local body level was promised, and the Supreme Court was ordered to establish powerful elected local bodies in all areas of Pakistan. However, it has not yet been implemented in all provinces. The devolution plan and concept of city district government in the provincial capital cities were introduced during military rule in 2000 and were quite successful up to 2008. The City District Government was operated by an elected person called Nazim, who had the power to control all public works departments. During this system of local bodies, the city of Karachi was divided into 18 towns and 208 union councils. Progress and development work in the city were remarkable. The physical infrastructure of the city was redesigned and rebuilt. Several public schools, colleges, playgrounds, and parks were built. Solid waste was well disposed of at landfill sites. The city looked clean and green. Air-conditioned public buses were introduced, and a six-corridor bus rapid transport system (BRT) was approved. In 2010, the elected provincial governments dismantled local bodies and restored district administrative systems under the control of the provincial government through legislation. Since then, the city has started to deteriorate rapidly and has turned into the dirtiest city.

3.2. The problem of administrative control

It is the essence of planning and management that megacities must be governed by a single administrative authority, which should be an elected, powerful mayor. Despite establishing its megacity status, Karachi is divided into seven districts, and in local bodies, departments are run by unelected administrators. The main flaw in the planning and failure of urban land use management and building control is its multi-administrative land control authorities. The land of Karachi is controlled by ten different authorities, pertaining to the federal government like the Railway, Karachi Port Trust, Pakistan Steel Mill, Port Qasim Authority, etc., the provincial government like the Karachi Development Authority, Malir Development Authority, Lyari Development Authority, Karachi Metropolitan Corporation (KMC), Sindh Kachi Abadi (squatter settlements) Authority, and the Sindh Land Revenue Department. The city has six cantonments, governed by a military-civil administration. In fact, the local government administrations hold 60 percent of the land in the city, and the elected mayor and councils had limited fiscal and administrative powers in the period of 2018–2021. The provincial government had shifted administrative control of major departments of the city mayor to the Ministry of Local Bodies.

3.3. Problem of Population Counting

Counting the correct population of the city is another conflicting issue. The issue has raised many questions. For example, legally, the Federal Bureau of Statistics is responsible for conducting population censuses, while the Provincial Government has legal authority to readjust or delimit the boundaries of urban areas. It is alleged that the Sindh government excluded many areas of Karachi, like Baharia Town and DHA City, from the city limit, and the population was not counted as urban. Similarly, it is also alleged that during the population census, people residing in Karachi but having a permanent address on their National Identity Card outside the city were not counted in the population of the city but in their respective permanent residential areas of Pakistan. It is estimated that about 40 percent of the population residing in the city originally belonged to rural Sindh and other provinces of Pakistan. It is estimated that about 1 million illegal residents who are Bengalis, Burmese, and Afghanis were not counted in the Population Census of Karachi. This is a serious concern of the urban planners and a dilemma about how the megacity would be planned without counting the correct population of Karachi. The urban planners generally believe that the population of Karachi city is not less than 30 million, while the Federal Census Organization has estimated about 20 million.

3.4. Problems of Building Control and Land Use Management

Due to a lack of a single administrative controlling authority, malpractices, and corruption, the problem of land use control and the implementation of building laws is the main reason for planning failure in Karachi. The city is governed by two laws, one for cantonments and the other for the rest of the city. Cantonments were developed by British armed forces outside the city and are now located within the city. They are governed by Cantonment Board authorities like the Clifton Cantonment Board, etc. The city government has no role in their land use planning, infrastructure development, or building control regulations. This "state within a state" policy is one of the reasons for the failure of the implementation of uniform land use management and building control policies. The Supreme Court of Pakistan had clearly stated in a 2021 court order that cantonment lands be used only for military purposes. However, commercial and residential utilization of cantonment lands has been illegally practiced extensively during the last 30 years. The Supreme Court has not yet succeeded in implementing its order on the illegal utilization of cantonment lands.

Land use control, management, and implementation of building laws are primarily the responsibilities of the Sindh Building Control Authority

(SBCA), which has responsibilities to ensure the implementation of land utilization and building laws framed by the Provincial Sindh Government. The SBCA has the legal power to approve any change in land use status according to the prescribed Karachi Building and Town Planning Regulations of 2002. The SBCA has authority to demolish any buildings, stop construction, and confiscate land if they violate the land utilization approved plans of government and private land developers and builders. It is the failure of district administration and SBCA that illegal housing and squatter settlements, locally called *Katchi Abadis*, have been growing day by day. It is estimated that in Karachi, there are 538 registered squatter settlements and about 300 squatter settlements where about 40 percent of the population lives in inappropriate and congested housing conditions. Many of them are in the main areas of the city, creating serious problems in land use management, building control, regularization, removal, and resettlement.

3.5. Karachi Building and Town Planning Regulations

Land utilization and building control regulations are implemented in Karachi City by the Sindh Building Control Authority under the Sindh Government Karachi Building and Town Planning Regulations of 2002. These regulatory land management laws about building regulations are not applied to the six cantonments of the city. This is a dichotomy and flaws in planning that always create mess and urban planning chaos. The salient features of the Karachi Building and Town Planning Regulations 2002 are as follows:

3.5.1. Division and Amalgamation of Land

- i) Residential plots not less than 400 sq. yards (336.13 sq. meters) and flat plots are not allowed for any subdivision.
- ii) The division of commercial plots is only to be considered to the extent that the sub-divided plot should not be less than 400 sq. yds. (336.13 sq. m.) with a minimum frontage of 60 feet (18.27 m).
- iii) Division of Industrial Plots: a sub-divided plot should not be less than 1000 sq. yds (840.3 sq. m) or 25% of its original allotted size, whichever is greater.
- iv) The amalgamation of two or more residential plots shall be allowed up to the area of the amalgamated plot maximum of 1200 sq. yds (1008 sq. m). The above limits do not apply to any plot other than residential.

3.5.2. Change in land use

- i) Change of land use of amenity: No amenity plot reserved for the specific purpose shall be converted or utilized for any other purpose.

ii) Change of land use of residential plots: No residential plot may be converted into any other use except with the approval of the Master Plan (MP) and Environment Control Department (ECD) after the recommendations of the concerned authority.

iii) Industrial plots cannot be converted into residential and commercial uses except for petrol pumps and CNG stations with the approval of MP&ECD on payment of charges.

iv) A residential plot within a residential neighborhood can be allowed to be used for education by the MP&ECD after inviting public objection from the immediate neighborhood in consultation with the Transport Department.

v) Conversion of residential plots into commercial areas shall be allowed only according to a uniform commercialization policy formulated and revised from time to time by the Master Plan and Environmental Control Department with the approval of the government and notified in the Sindh Government Gazette because of a comprehensive study of various urban areas under pressure for commercialization. Individual plots outside the policy will not be considered for commercialization.

vii) Religious Buildings. A maximum of 5% of commercial activity for generating income or funds for the maintenance of mosques shall be allowed on a plot reserved for religious buildings. No religious building shall be built within 700 feet (213 meters) of any cinema house, theatre, or similar entertainment facility. Religious buildings shall only be permitted on plots reserved for this purpose or on plots with specific approval from the concerned authority and concerned district administration for changes in land use, if any, which shall be carried out in accordance with the procedures laid down in these Regulations. A reasonable residential area may be allowed for the Khateeb. Not exceeding 1000 sq. ft. (836 sq. m).

3.6. Zoning laws and building regulations

3.6.1. Land use allocation

1. Allocations for various land uses for new residential schemes shall be as follows:

Residential areas for residential uses are allowed up to a maximum of 55% of the total area of land. b. Commercial areas for commercial uses shall be allowed up to a maximum of 5% of the total area of land. Amenity area for other residential uses will be as follows: i) Roads and streets, right of way, make up a minimum of 22% of the total area of the land. ii) Parks cover a minimum of 5% of the total area of the land. iii) Playgrounds must cover a minimum of 5% of the total area of the land. iv) Public uses, including religious uses such as mosques, Imam-Bargaas, etc., make up a minimum

of 5% of the total area of the land. v) Educational uses a minimum of 3% of the total area of the land.

2. Allocations of land for new industrial towns and estates for large and medium-sized industries should be as follows:

a. Industrial area, as defined, shall be allowed up to a maximum of 70% of the total area of land.

Commercial areas, as defined, are allowed up to a maximum of 1% of the total area of land. The amenity area for other residential uses shall be as follows: i) Roads and streets, right of way, make up a minimum of 20% of the total area of the land. ii) Parks and Playgrounds: a minimum of 3% of the total area of the land. iii) Public uses, including educational and religious uses, make up a minimum of 6% of the total area of the land.

On industrial plots of 5 acres and more, 8% of the total plot area in the rear shall be allowed for residential, local commercial, amenity, road, etc. within the premises for labor and staff, for which a separate approach shall have to be provided. The minimum distance between the factory and residential units shall be at least 40 feet (12.18 m). In any industrial area, no road shall be less than 50 ft. (15.22m) in width for areas allocated for large and medium industries and no less than 40 ft. (12.18m) for areas allocated for small industries.

3.6.2. Residential Density

“Residential density” means the average number of persons residing on or occupying 1 acre. of residential area. For the purposes of this clause, a residential area means an area devoted to residential uses. The following residential density requirements should apply to the indicated types of housing developments: a) on 80 sq. yds. (66.89 sq. m.). plots: not more than 500 persons per acre (0.404 hectare) of residential area; b) on plots greater than 81 sq. yds. (67.7 sq. m.) to 120 sq. yds. (100 sq. m.). plots: not more than 400 Four hundred persons per acre (0.404 hectare) of residential area; c) on plots greater than 121 sq. yds. (101.17 sq. m.) to 240 sq. yds. (200.67 sq. m.) plots: not more than 300. Three hundred persons per acre (0.404 hectare) of residential area; d) on plots greater than 241 sq. yds. (201.5 sq. m.) to 400 sq. yds. (334.45 sq. m.) plots: not more than (200) two hundred persons per acre (0.404 hectare) of residential area; e) on plots greater than 401 sq. yds. (335.28 sq. m.) to 600 sq. yds. (501.67 sq. m.) plots: not more than 150 persons per acre (0.404 hectare) of residential area; 20-3.2.2. Flats for low-income groups: not more than (650) six hundred fifty persons per acre (0.404 hectare) of residential area The height of all houses or bungalows must not exceed 35 feet (10.66 meters) or three stories, whichever is less (except for category H plots of

4000 square yards and above, where a height of 72 feet or six stories, whichever is less, may prevail).(SBCA,2018).

3.7. Urban planning failure and land utilization conflicts

Despite the drafting of several urban development plans for Karachi, the megacity is sprawling haphazardly without any proper planning control or single-command government. The city of 30 million, which has a lion share of total national revenue and export business, cannot be administered under provincial administration. A powerful city government under the single authority of an elected mayor may be one solution. To examine the causes of this planning failure, a pilot study was conducted, and the results are as follows:

1. In spite of the fact that Karachi is the largest city in Pakistan, In the 2017 Population Census, the provincial government of Sindh changed the status of Karachi to that of a single metropolitan city, and the city was divided into six district municipal corporations, while Lahore city, Islamabad city, Peshawar city, and Quetta city had the status of metropolitan cities.

2. Despite the development of various master plans for Karachi City, in fact, the city has been expanding without any plan. The city limit and urban-rural land divisions are vague and politically motivated. Several small housing schemes, like the two large housing schemes in Baharia Town and DHA City, are developed by powerful builder mafias in mala-fide deals with the provincial Sindh Government on the agriculture lands of rural Karachi without planning water supply and physical infrastructure. Thousands of acres of rural land belonging to local poor peasants had been grabbed. Many lawsuits in the Sindh High Court and the Supreme Court have been filed against the illegal and forced occupation of land, but the builders are very influential, and cases are in trash. Up until 2010, Karachi Building Control Authority (KBCA) was the institution of the City District Government, which was responsible for the implementation of Karachi Town planning and building control regulations. After the dismantling of the Karachi City District Government, the KBCA was merged into the provincial authority of the Sindh Building Control Authority (SBCA). The SBCA is notorious for rampant corruption. The judicial courts have charged several top-ranking officers with illegal regularization, illegal approval of building plans, and change of land use. The results of the field survey about such irregularities are as follows:

3.7.1. Residential land use

Several types of violations of residential land use and building laws are identified in the field survey.

i. In all residential areas, buildings are not constructed according to the approved layout, covered area, and construction plans. About 1 to 10 meters of land, including streets/ roads, even the service roads, are grabbed by house owners in their houses as a part of open boundary space or lawns. As a result, streets become narrower; the 8-meter street has turned into a 5-meter street, creating congestion and difficulties for vehicles passing through these streets and roads.

ii. During the last two decades, construction of multi-story residential plots ranging from 60 square yards to 1000 square yards in the planned housing areas and regularized squatter settlements (Katchi Abadis) have rampantly increased. Even though these constructions are illegal, the KBCA and SBCA have granted sub-lease and approvals, and many of them and others still stand despite the fruitful actions of demolishing illegally constructed floors. Many middle-class well-planned housing schemes and societies, like Garden East and West, P. ECHS, KCHS, Nazimabad, North Nazimabad, Gulshane-Iqbal, Gulistane-Jauhar, and Kahkashan (Clifton), have lost their original housing plans and have turned into congested, polluted, and poorly managed infrastructure residential areas. In the high-land-value low-class residential areas located near the city center or CBD, like the old city areas of Ranchore Line, Ramswami Jacob Line, Khudad Colony, Shikarpur Colony, Chakiwara, Layari, Lines Area, Liaqatabad, and Gulbahar, illegal floors up to 6-story had been constructed on 60- to 120-square-yard plots. The collapse of buildings and the loss of life commonly occur in these areas.

iii. The policy of division of large residential plots is also misused by residents with the malpractice of SBCA. In Gulshan-e-Iqbal, North Nazimabad, and Clifton, a 1000-square-foot plot is divided into four portions of 250 square yards each. Such bifurcation of the original-size plot badly affects the original plan of residential blocks. The conversion of a large old cement factory area into a housing scheme has also taken place. The old Javedan cement factory and adjacent limestone mining areas have been converted into a big housing scheme in Naya Nazimabad by a powerful builder and financial donors from political parties. In the old city areas within CBD or near it, many 3-story buildings in the old residential areas of Burns Quarter and Saddar Quarter exist that were constructed during the British period in Karachi. The SBCA has declared these buildings dangerous for housing and dispatched notices to residents to vacate, while some buildings have been notified as cultural heritage by the provincial Cultural Department. However, due to the very slow process, litigation, and political factors, residents still live in these dangerous buildings declared illegal for housing.

3.7.2. Commercial land use

The most challenging and serious issue of land use and management irregularities in Karachi city is the rapid commercialization of land and land use conversion during the last 20 years. In each approved planned residential scheme, land for shops and markets is allocated. Usually, lands along the main thoroughfares are allocated for four- to five-story flats, of which the ground floor is used for commercial purposes. In the Town Planning Act 2002 of Karachi, the city government had authority to make any policy of commercialization to change residential and industrial land use of any area into commercial land use or multi-story buildings (up to 10 stories). Therefore In 2000, six main thoroughfares were given approval for commercial land use: Shahra-e Faisal, Shahra-Pakistan, Sher Shah Suri Road, Tariq Road, Rashid Minhas Road, and University Road. Later, in 2004–2008, 42 more roads were also commercialized in the city. As a result, mushroom growth of 7 to 10 storied commercial and residential apartments was built on 240 sq. yards to 1000 sq. yards of residential bungalows, and 1000 to 3000 sq. yards of industrial polts were converted into commercial malls and 10 to 15 storied residential apartments like Lucky Shopping Mall, Dolmen Shopping Mall, etc. This change in land use has created a serious problem of increasing housing density and infrastructure problems like water supply, sewerage, etc. Traffic congestion, parking, and traffic jams on the main thoroughfares are serious issues of traffic management. In every residential area of Karachi, small residential plots of 80 to 200 square yards located on front roads are illegally converted into shops and markets with the corrupt involvement and negligence of the SBCA and local police. During the period of 2000 to 2015, many CNG stations were established on residential plots, creating a serious threat of gas discharge and explosion.

3.7.3. Education Land use

After 1980, the policy of privatization was introduced by the federal government. Since then, in the education sector, a mushrooming growth of private schools has been taking place. These private schools exist in all low-, middle-, and high-income residential areas on residential houses ranging from 80 square yards to 1000 square yards without the approval of land use conversion of residential land use into educational land use. Private universities like different campuses of Iqra University have been established in residential apartments built on lands of graveyards and old beds of the Malir River near DHA. Commercial educational institutions like Bahria University and Air University have been established on the main thoroughfares of cantonment lands. In the Town Planning and Building Control Regulation, a provision for the conversion of residential plots into educational land is allowed, but with no objection from the local residence

and traffic department. The SBCA has failed to perform its responsibility to control this widespread violation. As a result, traffic congestion, noise pollution, and the quality of residential areas suffer badly. Traffic personnel also face serious problems with traffic management due to the overcapacity of private vehicles and wrong parking. Such problems are worse in Gulshane-Iqbal, North Nazimabad, PECHS, Clifton, Nazimabad, cantonment areas, etc.

3.7.4. Industrial land use

Karachi is the largest industrial center in Pakistan. The Karachi Port Trust industrial zone, Sindh Industrial Trading Estate (SITE), Korangi Industrial Area, Landhi Industrial Area, Bin Qasim Port Industrial Area, Karachi Export Processing Zone, F.B. Industrial Area, North Karachi Industrial Area, and Superhighway Industrial Area are the main areas where about 8000 small and medium-sized manufacturing units and warehouses exist. SBCA has failed to control the structure of the industrial units, like ventilation, emergency services, etc. Conversion of small residential houses into small manufacturing units is a serious threat to residents and a land use violation. As a result, fire incidence and deaths of workers due to suffocation and a lack of proper facilities are common in such areas. Many small chemical manufacturing units are in operation in the narrow lanes and congested, low-income residential areas where, in cases of fire incidence, electric short-circuit rescue works are not possible.

3.7.5. Playgrounds and parks

In each sector or block of planned housing schemes, one playground and one park essentially exist. Unfortunately, during the last 15 years, portions of playgrounds and parks have been grabbed by builder mafias with the support of political parties and SBCA. The term China cutting is used for this corrupt practice (picture) In the town planning laws, no change of land use is applicable in any case on parks and playgrounds and is considered encroachment, which must be removed by SBCA.

3.7.6. Amenity Plots

In the planning of each sector or block of residential schemes, generally, one large plot is allocated as an amenity plot, also called an ST plot. The purpose is that the vacant plot would be utilized for public welfare works like public health uses like welfare medical centers, community welfare uses like public libraries, industrial homes, gymnasiums, etc. Such amenity plots cannot be utilized for any other purposes. The problem of land grabbing and land use change on amenity plots is the most serious issue in Karachi city. Many mosques and missionaries (Madrassa) in the city exist on amenity plots, and because of religious sensitivity, SBCA is reluctant to

demolish this illegal land use. The Supreme Court in February 2022 ordered to demolish Madina mosque, Tariq Road, built on a park and amenity plot, but it was not demolished by SBCA because of public resistance. Similarly, many amenity plots are used as commercial medical centers, hospitals, marriage lawns, private schools, commercial community centers, etc. The High Court and Supreme Court have passed orders against such irregularities, but SBCA has failed to implement them.

3.7.7. Green Belts

In the urban housing plans along the main thoroughfares, green belts of varying sizes ranging from 2 meters to 30 meters exist, but most of them have been either encroached as car parking spaces in markets like the green belts of Nazimabad or utilized by the government for constructing rapid bus transport like in North Nazimabad.

3.7.8. Coastal Land

Karachi is located along the coast of the Arabian Sea. The coastal land is a long 40-mile (65 km) strip starting from Mubarak village to Gharo Creak. Two nuclear plants are located under The sandy beach is the protected nesting ground of turtles, where no construction is allowed. The tidal lagoons are habitats for mangrove forests. The presence of cantonment lands creates hurdles for coastal development and beach recreation policies. Many concrete commercial tourist houses of multinational companies and local political leaders have been built on sandy beaches and lands of fishing villages. Land grabbers are also active in Hawks Bay coastal lands, constructing large industrial warehouses and container terminals.

3.7.9. Encroached land use

Encroachment is an important and most common issue in the megacities of less developed countries. Vacant lands declared like graveyards, playgrounds, parks, amenity plots, railway lands, highway lands, and undeclared vacant lands like beds and banks of rivers, hill torrents, rain channels, hilly ranges, and hillocks have been encroached upon by land grabbers for developing private housing and commercial schemes and for the construction of low-income squatter housing. During the period of 2006 to 2013, many multiple high-rise apartments, like Saima Apartments and others in Gulshane-Iqbal, were built along the bank of the Layari River when lands were left vacant after the construction of the Lyari Expressway. The railway land in Nazimabad and Gulistan Jauhar had been encroached upon by builders and political mafias for the construction of apartments. Hilly ranges and hillocks in Manghopir, Mianwali colony, Ajmair Nagri Pahar Ganj, Taiser, Landhi, Malir, etc. have been encroached upon for low-

income squatter housing and illegal housing societies. Half of the land in the graveyard of North Karachi has been encroached upon for squatter housing. The failure and malpractice of the Sindh Building Control Authority and the ruthless and sluggish attitudes of Sindh and local governments have converted the megacity into an unmanageable, lawless, problematic, and dirtiest city in the world, where the hue and cry of the residents have remained unnoticed and unresolved.

3.8. Conversion of agricultural land

During the last two decades, the most serious violation of the zoning and land utilization rules of SBCA was the conversion of agricultural lands into housing societies. Such housing societies are illegal and located on the outskirts of the city. Land grabbers, private land developers, the Provincial Government of Sindh, and institutions of the armed forces are involved in this illegal practice of converting agricultural lands into urban housing. DHA City, Fazia Housing Society, Airport Security Housing Society, and Bahria Town are a few examples of such societies. The land grabbers, owners of housing societies, and builder mafias have sold plots and houses to the public. During 2010–2014, the land mafias used an amnesty scheme announced in 1987 by the government for poor villagers who had no legal documents and were not able to pay money. This scheme is called the '*Goth Abadkar scheme*. Many fake villages were established by political land mafias, and plots were sold to the public. In 2021, all such housing schemes and fake villages were ordered to be demolished by the Supreme Court, but due to the strong resistance of residents, the order of the court has not been implemented (Akhtar, 2013).

3.9. Changes in Land Use Density and Impacts

It comes from the land utilization survey of two large planned residential schemes named North Nazimabad (Taimuria) and Gulshan-e-Iqbal, developed by the Karachi Development Authority in 1960. The SBCA has failed to control violations of land utilization and building regulations. As a result, massive changes in land use have taken place in these housing schemes. Many large residential houses have been converted into apartments and regularized illegally. For example, in Block C of North Nazimabad, the number of houses in the given plan has been changed from 280 to 1670. Similarly, in Gulshan-e-Iqbal Block, the number of houses has increased from 300 to 1145. As a result, residential density has increased from 40 to 200 in Block C, North Nazimabad, and from 30.6 to 181.6 in Block 4, Gulshane-Iqbal. In the case of commercial establishments, the numbers have increased from 25 to 780 in North Nazimabad Block C and 20 to 360 in Gulshan-e-Iqbal Block 4 (Tables 1 and 2).

Table1: Land Use Change in the Housing Schemes of North Nazimabad and Gulshan-e Iqbal (Selected Blocks)

Locality	No. of Houses in Plan	Present no of Houses	No. of Commercial establishments	Present No of Commercial establishments	No of Schools In plan	Present No of Schools
North Nazimabad Block C	280	1670	25	780	2	24
North Nazimabad Block E	250	1789	20	867	2	22
North Nazimabad Block J	280	1765	20	400	2	18
North Nazimabad Block N	350	1890	25	620	2	16
Gulshan-e Iqbal Block 4	300	1145	20	360	2	21
Gulshan-e Iqbal Block	320	1290	20	290	2	20
Gulshan-e Iqbal Block 6	290	1280	25	240	2	18

Table2: Residential Density Change in the Housing Schemes of North Nazimabad and Gulshan-e Iqbal (Selected Blocks)

Locality	No of Houses in Plan	Area of Houses in Plan sq. meter	Residential Density In Plan	Present no of Houses	Present Area of Houses	Present Residential Density
North Nazimabad Block C	280	11200	40.0	1670	334000	200.00
North Nazimabad Block E	250	10560	42.2	1789	358000	200.12
North Nazimabad Block J	280	12345	44.1	1765	382000	216.4
North Nazimabad Block N	350	13420	38.3	1890	455000	240.7
Gulshan-e Iqbal Block 4	250	7659	30.6	1089	197800	181.6
Gulshan-e Iqbal Block	220	6790	30.8	987	179000	181.3

The most serious violation of land use change is the conversion of houses into private commercial schools. For example, only two government schools were planned in North Nazimabad Block C, which is now 24. All 24

schools are private schools and have been established in houses. Similarly, in Gulshan-e-Iqbal Block 4, two government schools were established according to the original plan, but now 21 private schools have been established in the residential area. These are violations of zoning rules and land utilization regulations, which have created serious problems of traffic congestion, noise pollution, and privacy for residents of residential areas. Establishing private schools and institutes is a very lucrative business, and big, powerful business mafias invest in school business. Some have linkages with power-ruling elites, and others use bribes to stop any action of the SBCA and education department against them. The quality of housing and performance of SBCA are assessed with the help of data collected from the field surveys mentioned above in the methodology.

Table 3: Degradation factors of housing quality in Taimuria (North Nazimabad) and Gulshan-e Iqbal (Selected Blocks)

Locality	No.of respondents	Presence of Private schools	Presence of Commercial Land use	Encroachments on roads and amenity plots	Conversion of Single houses into multi-storied houses
Taimuria Block C	100	21	19	22	38
Taimuria Block E	100	20	21	17	42
Taimuria Block J	100	18	21	18	43
Total	300	59 (19.6%)	61 (20.3%)	57 (19%)	123 (41%)
Gulshan-e Iqbal Block 4	100	46	18	18	18
Gulshan-e Iqbal Block 5	100	42	17	15	26
Gulshan-e Iqbal Block 6	100	45	16	16	23
Total	300	133(44.3%)	51 (17%)	49 (16.3 %)	67 (22.3%)

Table 4: Responsible factors of housing quality degradation in Taimuria (North Nazimabad) and Gulshan-e Iqbal (Selected Blocks)

Locality	No. of respondents	SBCA	Political ruling govt.	Residents of locality	Local administration & local police
North Nazimabad Block C	100	37	23	10	30
North Nazimabad Block E	100	32	28	11	29
North Nazimabad Block J	100	36	32	09	23
Total	300	105(35%)	83 (27.6%)	30(10.0%)	82 (27.3%)

Gulshan-e Iqbal Block 4	100	39	21	12	28
Gulshan-e Iqbal Block 5	100	37	24	13	26
Gulshan-e Iqbal Block 6	100	35	23	10	32
Total	300	111(37%)	68 (22.6%)	35 (11.6)	86 (28.6%)

Source: Sample surveys

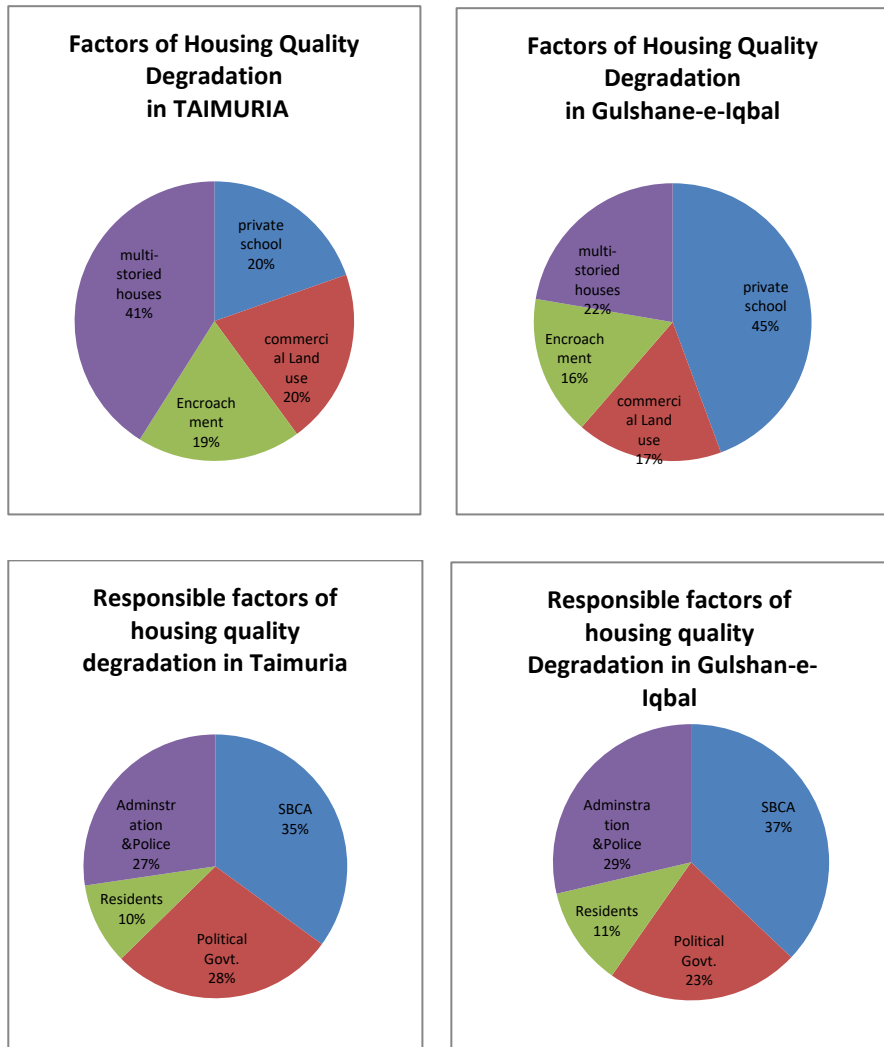


Fig :1

The results of the questionnaire surveys show that 41 percent of the respondents in Taimuria consider the conversion of single-story houses into multiple-story houses; 20 percent blame the establishment of private schools in residences; 20 percent blame commercial land use; and 19

percent consider encroachments to be causes of the housing quality degradation in Taimuria (North Nazimabad). In the Gulshan-e-Iqbal housing area, 45 percent of respondents blame the establishment of private schools in residences; 22 percent of the respondents consider the conversion of single-story houses into multiple-story; 17 percent of respondents blame commercial land use, while 16 percent consider encroachments to be causes of the housing quality degradation in the Gulshan-e-Iqbal housing area.

It is evident from the results of the surveys that 35 percent of the respondents in Taimuria consider SBCA to be the responsible factor in the degradation of housing quality; 28 percent of respondents considered political government; 27 percent blamed local administration and police; and 10 percent blamed residents for housing quality degradation. In the Gulshan-e-Iqbal housing area, 37 percent of respondents consider SBCA to be a responsible factor in housing quality degradation; 23 percent consider political government; 29 percent blame local administration and police; and 11 percent blame residents for housing quality degradation (tables 3 and 4). The following hypotheses are tested:

Hypothesis 1

Null Hypothesis:

violation of building bylaws and land utilization affects quality of housing areas.

Alternative Hypothesis:

violation of building bylaws and land utilization do not affect quality of housing areas.

Hypothesis 2.

Null Hypothesis:

Performance of SBCA is unsatisfactory.

Alternative Hypothesis:

Performance of SBCA is satisfactory

Hypothesis 3.

Null Hypothesis:

Corruption and malpractices of political ruling parties are responsible factors of land grabbing and violation of building bylaws.

Alternative Hypothesis:

Corruption and malpractices of political ruling parties are not responsible factors of land grabbing and violation of building bylaws.

In the first step of testing hypothesis statistical techniques of product moment correlation and multiple correlation are applied on the data collected through questionnaire surveys. The result of the correlation coefficients of hypotheses show strong relationship (i) violation of building bylaws and land utilization affects quality of housing areas ($R = 0.92$); (ii) performance of SBCA is unsatisfactory ($R = 0.98$); (iii) Corruption and malpractices of political ruling parties are responsible factors of land grabbing and violation of building bylaws ($R = 0.97$, $R_{1.23} = 0.87$). The coefficient values of product moment correlation are used in the statistical technique of t-test at a 95% confidence level in testing null and alternative hypothesis, mentioned above. The results of the three hypotheses confirm null hypotheses.

4. CONCLUSION

Zoning is a key element of urban planning. Proper implementation of land utilization in cities is carried out through zoning laws and building regulations. Governments are responsible for the execution of such land use regulations and zoning laws. In many countries, zoning laws and land use regulations exist, and governments monitor violations and control land use irregularities. As compared to developed countries, the implementation of zoning laws and land use regulations is a challenging task, particularly in the megacities of less developed countries, where land and property are considered the most lucrative businesses, it is easy to invest undocumented black money, and under tax amnesty schemes, such black money is changed into white money. Pakistan has no exception; land grabbers, builders, political elites, government institutions and government officials are involved in this illicit business in all major cities of Pakistan. The failure to plan and execute zoning laws and land use regulations is most serious in Karachi, which is the largest city and economic hub of Pakistan. The influx of immigrants, complex ethno-demographic and political conflicts, rampant corruption, and lack of one governing authority in the city have complicated the issues of urban planning. In fact, the city is governed without any proper policy or management. The Supreme Court and High Court have declared that the Sindh Building Control Authority (SBCA) and cantonment boards are the main institutions responsible for such illicit land business, irregularities, failure of planning and execution of zoning laws, and land use regulations.

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