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Integrated urban morphology approach to investigate urban design of Qambar Sindh

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K E Y W O R D S

Urban Morphology

Urban Design

Integrated Urban Morphology

Qambar Sindh

A B S T R A C T

Qambar city is the head quarter of Qambar-Shahdadkot district in Sindh province of Pakistan. The city is at latitude 27.5911425 and longitude 68.008461 or 27°35′28.1″N 68°00′30.5″E on the earth's surface. There is no published book or research paper available to describe the urban design and planning history of this city. The city has no comprehensive plan document to explain how conscious planning and urban design took place. No sequential records available about the formation and transformation of Qambar. Therefore, primary question explored in this paper i.e., how this city formed and transformed over the time with an integrated approach of urban morphology. The proposed approach is developed by integrating existing approaches of urban morphology developed internationally. The knowledge contribution of this paper is the novel approach of Integrated Urban Morphology for exploring undocumented and unplanned cities where no data available about the urban design, development, and planning history. To explain the usefulness of this approach the city of Qambar, Sindh, investigated and its brief findings are given in this paper. The value contribution of this research to industry, expected in the form of improvement in methodological approaches within the planning, development, and urban design professions. Vis-à-vis integrated urban morphology, remote urbanised settlements will be delved into with minimal professional expertise and financial, managerial resources to contribute merit towards urban planning, urban design, and urban development of uncharted urban contexts.

1. Introduction

Urban design is continuous process of designing physical elements of city for provision of social, economic, cultural infrastructure and services to people [1]. Whereas urban morphology concerned with examining physical form of settlements its creation and conversion over time [2]. Both urban design and urban morphology are interdisciplinary fields, interrelated to each other at various levels [3]. At small-scale urban design focusses on group of buildings and space between them i.e., streets, public spaces that makes neighbourhood. At large-scale, urban design scope expands to group of neighbourhoods i.e., district and group of districts that forms the city [4]. Conversely, urban morphology investigates characteristics of the city with patterns of its components [5]. Urban design emerged as profession, to bridge the gap between

architecture and urban planning; whereas urban morphology emerged as platform to integrate the thinking from geography, architecture, and sociology [6]. The goal of urban design is making urban areas aesthetically attractive and functionally sustainable by utilizing elements of built environment [7]. Whereas goal of urban morphology is analysing physical form of urban grain i.e., building pattern, plot pattern and street pattern with exploration of its ownership, control, and occupation [8]. Urban design develops connection between people and places, circulation, city form, nature and built fabric [9]. Urban morphology analyses settlements by using cartographic sources to set up process of development by comparing historic maps [10]. Special focus of urban morphology is change in city form since origin and comparison of cities [11]. Recently, subfields developed in urban design i.e., landscape urbanism [12], sustainable urbanism [13], water-sensitive urban design [14] and strategic urban design [15]. Urban morphology has its subfield micro urban morphology for understanding how physical form of city produce and reproduce different social forms and how social forms expressed in physical layout of city [16]. Urban design needs understanding of various subjects from physical geography [17] to social science [18] to appreciate place-making [19], real-estate development [20], environmental stewardship, social equity [21] and economic viability [22] for creation of spaces and places with identity and beauty. With these constituents, urban design vision created for an area of city and set up skills and resources to materialise vision into reality [23]. In urban morphology study of urban tissue or urban fabric at environmental level associated with urban design [24].

An urban tissue or urban fabric is morphology of an area or neighbourhood with its buildings, open spaces, and functions of human activities [25]. Each neighbourhood or area has distinguishable patterns of buildings, spaces activities and variation in urban tissue or urban fabric with underlying urban design principles [26]. Identification of these principles is the outcome desired from urban morphological study of unplanned settlements [27]. It changes, existing perception about chaotic and organic nature of urban fabric in settlements or area under investigation [28]. This spatial structure of urban fabric is result of urbanization process and inept actions of various people in very consistent way with regular socioeconomic resource, material, and energy flow for sustenance of urban spatial structure [29]. The especial focus of urban design is on public spaces i.e., streets, parks, public infrastructure, and way public domain is castoff and experienced on daily basis [30]. Whereas urban morphology analyses human settlements as unconscious building activity of successive generations, over long period with central question of finding logic on constraints and opportunities in city building processes [31]. Thus, urban design needs urban morphology for practical purposes to explore an unplanned city like Qambar, Sindh to describe urban growth and development history of this city. As city has no master plan or evidence of any conscious planning and design; and without any record of formation and transformation; it is justifiable to use urban morphological approach to find out, urban design of Qambar and its urban fabric that transformed over the years. The problems of context are unavailability of maps to describe the physical characteristics of city and its components. The existing urban design elements and shape geometry of built environment in Qambar is also undocumented, which needs photographic and cartographical sources to see and explain about conscious and unconscious planning and urban design of Qambar. Consequently, physical, social, economic, and spatial structure of Qambar need comprehension and clarification about public domain with an analysis of urban grains and tissues. Furthermore, each city has its own peculiar characteristics in its regional geography, geology, and climate, which influences urban form and necessitates identification. Additionally, there are various approaches in urban morphology and which approach applies to the context of Qambar is quite crucial. In this respect, morphological approach developed as a lens to understand conscious and unconscious urban design of Qambar, Sindh, Pakistan.

2. Developing a Morphological Approach for Exploring Qambar City

Every city has elements of urban form with its natural context, streets system, plots system and buildings system [32]. There are also some agents of change in process of urban formation and transformation i.e., architects, builders, developers, local politicians, and local planning authority officials [33]. However, these agents of change are not the same in each urban context and there exists other actors in urban formation and transformation [34]. In developed countries process of urban formation and transformation based on plan, its implementation and development control [35]. While in developing countries urban formation and transformation has various other formal and informal processes [36]. Therefore, it is necessary to develop an

approach of urban morphology for exploring Qambar city Sindh. This approach of urban morphology developed with understanding retrospect of city morphology in history and different classical and contemporary approaches of examining urban form.

2.1 Retrospect of City Morphology in History

In historical retrospect early planned cities of Sumerians, Chinese, Egyptians, and Indus valley civilizations has geographical, geological, and climatic influences in their urban design and development which made their urban morphology [37]. Secondly, there are classical cities of Greek and Roman origin with philosophical and mathematical influences in their city shape [38]. Thirdly, there are Islamic and Medieval cities with social, cultural, political, and aesthetic traditions that shaped these cities [39]. Renaissance cities developed with enlightenment of science as major influence on their urban morphology with an awakening of societies to adhere with scientific discoveries [40]. The cities in 19th century shaped by machine age and are the direct outcome of Industrial revolution [41]. Whereas, 20th century cities influenced with technological convergence of computer and communication technologies and urban economics which made their shape geometry [42]. Currently, informational cities concept or informational urbanism is in practice [43] where information technologies are shaping cities around the globe [44]. Therefore, each city has its fundamental elements of urban form developed through influences of various kinds, i.e., geographical, geological, climatic, philosophical, mathematical, social, cultural, political, aesthetical, scientific, industrial, economic, technological, and informational nature. These influences are quite significant to explore within urban design and morphological investigation of any city.

2.2 Approaches of Urban Morphology

The study of urban form and design involves various approaches. There is classic as well as contemporary approaches in urban morphology and urban design investigations. Various authors contributed in classic and contemporary approaches to study urban form and influenced urban morphology domain of knowledge. In the following their work and approaches are explained for extraction of morphological approach or framework to investigate urban form and design of Qambar.

2.2.1 Saverio Muratori (1910–1973)

Known as professor of architectural composition in university of Rome. He was one of the pioneers of typo-morphological investigations of urban form and highly influential on architectural design theory [45]. His idea of studying urban form was to divide city as per its main components and isolate them from their context. Then, analyse them on the basis buildings history and differentiate between exceptional and ordinary architecture and urban form [46]. The outcome of such study was, set of fundamental urban concepts i.e., urban tissue, organism, and operative history [47]. His principal adherent in study of typo-morphology was Gianfranco Caniggia who worked on recovery of historic centres of cities and interpreted his philosophy with more stress on built environment and reconstruction of events in an urban context [48].

2.2.2 Michael Robert Günter Conzen (1907–2000)

MRG Conzen's developed approach of studying urban form is 'Town Plan Analysis' [49]. He revised earlier plan-units and developed concepts, terminology, and glossary of technical terms to formulate concise morphological theory [50]. In his approach he addressed, questions like, how plan of an old established town acquired its geographical complexity, how to analyse town plan and what contributes to regional character of town [51]. Thus, he explained present structure of town by investigating its development over time [52]. He defined town plan as topographic arrangement of built-up area and its manmade features with three distinct plan elements i.e., streets and their arrangement to form street system, plot and their aggregation in street blocks and block plan of buildings [53].

The other idea he established, about study of urban form is morphological periods. By identifying each morphological period in history of town, that dispensed its distinct material character in urban landscape [54].

2.2.3 Kevin Andrew Lynch (1918–1984)

Kevin Lynch investigated city not purely from urban morphological standpoint but examined city from urban design perspective [55]. His work was about image of city that people built, in their minds and how urban planners, designers and architects respond to it [56]. He was more concerned about, look of city and problems in visual quality of urban form with possibilities for change [57]. His major contribution towards urban morphology was simplification of urban form in five elements of city

i.e., paths, edges, districts, nodes, and landmarks [58]. He argued that these five elements combined makes city legible for citizens and enhance image-ability or experience of urban environment in citizens' thoughts [59]. Therefore, planners and designers of city need to respond to it by making experience of people more vivid through designing these elements in an integrated way [60].

2.2.4 Thomas Gordon Cullen (1914–1994)

Gordon Cullen contributed towards study of urban form by creating art of relationship between all city elements that forms an urban environment [61]. His purpose was to create impact on citizens' emotions about their city and its places [62]. This art of relationship termed as townscape with three basic notions i.e., place, its content and serial vision [63]. Basically, he created this serial vision to express experiential quality of different places in city, with individualised content or fabric i.e., distinct style, character, personality, uniqueness in colours, textures, and scale [64]. His argument was to design city from the perspective of moving person in city to create series of experiences and sequence of exposures with kinds of enclosures and vacuums [65].

2.2.5 Jane Jacobs (1916–2006)

Jane Jacobs attempted to develop new principles for study of urban form in cities [66]. She argued upon investigating physical, social, and economic dimensions of city [67]. Jacob's principles reshaped the urban form as liveable place [68].

She elaborated these principles that, planners should study ordinary things in city and consider city as their laboratory to learn, practice and test their urban theories [69]. The focus of her analyses was street safety, diversity, decay, and regeneration with suggestions for housing, traffic, design, planning and administrative practices [70].

2.2.6 Aldo Rossi (1931 – 1997)

The Aldo Rossi has attempted to explicate architecture of city or urban design [71]. He argued to create urban science within the milieu of human sciences and architectural studies [72]. His contributions to study of urban form were identification of relationship between particular to general and personal to collective within public and private realms in city [73]. He proposed an analytical method mounted by theory of urban artefacts. In this method city divided into parts with identification of different building typologies as an artefact and city understood via artefacts developed over history [74]. He explained that form is autonomous from function. Architecture of city or urban structure consists of artefacts to make collective memory of citizens and urban dynamics [75].

2.2.7 Bill Hillier (1940–2019)

Bill Hillier contributed to study of urban form by connecting architecture with social problems of society and space by developing method of analysing spatial patterns in cities [76]. He addressed question of how social patterns caused by spatial pattern and spatial patterns caused by social pattern in city [77]. Thus, his theory was about social logic of space and spatial logic of society [78]. He argued that society never remains at one single form and subject to change and space is function of this change. Therefore, different spatial patterns required for different social groups [79]. His other contribution to study of urban form is configuration theory of architecture and urbanism [80]. In his classical work, 'space is the machine' he argued that architects and urban designers adopt change and create architecture of city based on scientific and scrupulous knowledge of certain space [81].

2.3 Integrated Urban Morphology Approach for Understanding Urban Design of Qambar

Based on urban morphology approaches it is quite clear that, this domain of knowledge is rich with contributions from different perspectives. Every author and proponent of urban morphology research has their own developed unique approach. And there is no attempt of integrating these approaches to explore urban design of city, it forms a big knowledge gap. Therefore, in this research an 'Integrated Urban Morphology Approach' (see Fig. 1) developed to explore the urban design of Qambar city Sindh based on lessons learned from earlier established urban morphology approaches.

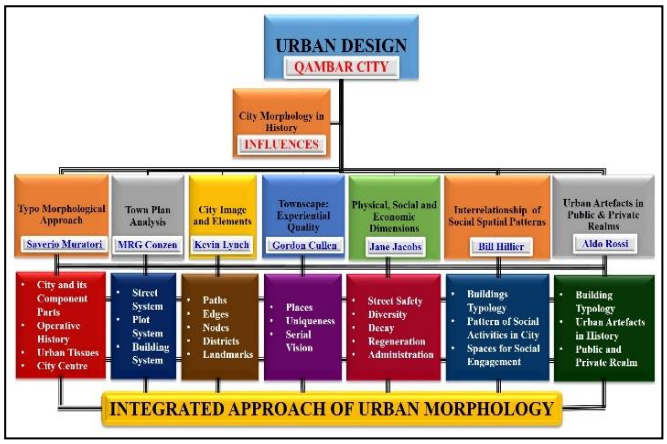

Fig. 1. Integrated urban morphology approach to investigate urban design of Qambar

2.3.1 Lessons learned from urban morphology approaches

The first learned lesson is that no city designed and developed without natural or manmade influences. Therefore, at first nature of influences shall be identified in Qambar city, which shaped the morphology of this city in its history. The other lessons learned from urban morphology approaches are as follows.

'Typo-Morphological Approach' of Saverio Muratori teaches us that, at first city and its components described with its operative history and documentation of urban tissues of city and its centre. In 'Town Plan Analysis' of MRG Conzen, identification of street system, plot system and building system of city deliberated as significant.

The approach of Kevin Lynch stressed upon documenting elements of city i.e., path, edges, nodes, districts, and landmarks that makes the image of city. The Gordon Cullen's Townscape approach focuses on experiential quality of city with identification of places in city, their uniqueness and creation of serial vision of city's urban design and morphology. Principles of Jane Jacob were to check physical, social, and economic dimensions of city and emphasised street safety, diversity, decay, regeneration, and administration of city. Bill Hillier's approach focussed on interrelationship of social and spatial patterns of city expressed by ascertaining patterns of social activities in city and spaces for social engagement. Aldo Rossi's fundamental notion was to document urban artefacts i.e., building typology in public and private realms developed in history of city and needs scrutiny.

Thus, these lessons from different approaches of studying urban form combined and applied to city of Qambar, Sindh and its results are presented in the following sections.

3. Result and Discussion

The results of investigating Qambar city and its urban design formulated as per 'Integrated Urban Morphology Approach' as discoursed above. It comprises, influences that shaped urban morphology of city, typo morphological analysis, town plan analysis, elements of city, townscape, urban artefacts, socio-spatial patterns, and physical, social, economic dimensions of Qambar.

3.1 Influences on the Urban Design of Qambar

3.1.1 Geographical, geological and climatic

Qambar is at latitude 27.5911425 and longitude 68.008461 or 27°35′28.1″ N 68°00′30.5″ E on face of earth. The city is head-quarter of district Qambar Shahdadkot in Sindh, Pakistan. Qambar is centrally located among other cities in region i.e., Shahdadkot and Miro Khan in north, Ratodero in northeast, Larkana in east and Nasirabad in south (see Fig. 2).

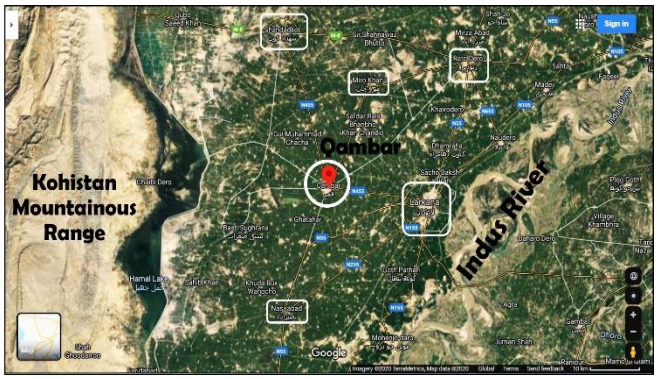

Fig. 2. Location map of Qambar within geographical region of Indus River, Sindh Pakistan

Qambar bounded by three distinct landforms locally known as 'Litaaso', 'Kaacho' and 'Kohistan'. Litaaso is eastern part of city developed due to floods in Indus River since time immemorial and as a result emerged different water bodies and alluvial soil of Qambar making this area fertile for production of agriculture-based crops. Nature of soil in 'Litaaso' is 16% clay, 64% silt and 30% sand. 'Kaacho' makes city's western bound until 'Hamal' Lake. Soil types in 'Kaacho' is 50% clay, 40% silt and 10% sand. 'Kohistan' consists of mountainous range with limestone, sandstone, and igneous rocks [82]. This is dry area and people sustain on domestic animals and birds for their livelihood. The climate in summer is very hot and in winter quite cold. The average temperature in summers is 30°C or 86°F to 45°C or 113°F and in winters 10°C or 50°F to 20°C or 68°F with annual rainfall, 5 to 10 in per year during monsoon season from July to August. The average 40% to 60% humidity remains in the air [83]. The climatic influences combined with nature of soil gives impetus to production of fruits and vegetables as well as major cash crops of Qambar i.e., wheat, barley, oats, and rice. Currently, water logging and salinity affected agriculture of Qambar. Therefore, land-use conversions takes place from agricultural to residential and commercial.

3.1.2 Historic

The urban history of Qambar divided in three eras i.e., pre-British period (before 1843 A.D.), Colonial British Period (1843–1947 A.D.) and Post British period of Independence (from 1947–2020 A.D). In pre-British period, Qambar city existed since 6th century A.D. i.e., during the era of Rai dynasty (524–632 A.D.) and flourished during Brahman dynasty (632–724 A.D.) before Arab conquest of Sindh [84]. It was agriculture based rural settlement and transhipment point with a temple developed in the middle of city by local landlords and traders [85]. After Arab conquest, no previous historical text remained to explain about the urban and rural context of Sindh. As a repercussion, there occurs conflict of opinion by different Arab, Persian and English authors about the contextual realities of urban and rural settlements in Sindh [86]. The conflict between Buddhist and Muslims in Sindh during 8th Century A.D. destroyed Qambar and its old temple, the city resurfaced during 1526–1707 A.D. in Mughal period [87]. Current city of Qambar came into existence in Kalhora period between 1701 to 1782 AD [88]. Concerning social origin and name of Qambar there is conflict between different communities living in city. Especially, minority community of Qambar claims, they are original settlers' onsite since 17th century and city founded by their ancestors during Mughal era with development of Gurdwara at its centre [89]. Vis-à-vis, name of city given as 'Kan-Bar' which later pronounced as Qambar. In Sindhi language word 'Kan' means 'Ear' and 'Bur' means 'Land on High Mound' and 'Kun-Bar' means 'Ear shaped Land on High Mound'. Consequently, this city named Qambar due to its geographical shape geometry, landform, and place of old city on 40 feet high mound at crossroads of old trade routes of cities in region [90]. The other claims on city name based on folklore and riddles of 18th century that, city founded by a person named 'Qambar' from Kalhora community or Gopang community. These claims need verification because land geography suggests that old city is on high mound and usually stay safe during floods. Therefore, city got attention from people of surrounding village settlements and population of city increased to 2000 during the era of Talpur Dynasty (1783–1843 A.D.) in Sindh [91]. During British period (1843–1947 A.D.) city flourished as 'Revenue Town' with construction of railway station to connect Qambar with Shahdadkot in north and Larkana in east. This enhanced trade and commerce of city [92].

3.1.3 Physical, socioeconomic and administrative

On 1st May 1862 administrative status of Qambar raised from 'Revenue Town' to Taluka or Sub-district of district Shikarpur in subdivision Larkana. Its revenue settlement took place on 1st August 1882. In 1886 considering needs of city, British government made 'Qambar Sanitary Committee' for cleanliness, hygiene, and urban administration. On 1st August 1901 Qambar become 'Taluka' of Larkana district and Bombay Municipal Act promulgated in city. In 1921–22 Sanitary Committee upgraded as Municipal Committee. The municipal boundaries extended to two neighbouring settlements 'Ali Khan Mastoi' in north and 'Bago Dero' in east.

The first urban survey of Qambar carried out in 1932 for physical infrastructure development and city divided in three wards i.e., Qambar, Ali Khan and Bagodero. Between, 1931 to 1961 municipality constructed two markets in Qambar i.e., 'Chandan Bazaar' for fruit and vegetables and 'Smith Market' for meat and fish. Two butcher houses constructed for Muslims and Hindus in southeast and southwest of city. For 'Octroi tax collection', nine spots established at each entry point to city. For urban management streets paved, sewerage network constructed, and electric poles installed at different intersections. Two medical dispensaries for male and female developed with provision of free medicines from municipality. An urban park developed in front of deputy commissioner office and citizen committee formed. Guest houses constructed near bus stand and horse driven cart stand.

Concerning education, municipal high school with boarding house facilities and public library was provided. This administrative system remained intact till early 60s. In 1962 local government system changed and 'Municipal Committee' divided in four 'Union Committees' for urban management. However, this governance structure broken in 1965 and city remained unmanaged till 1979. In 1979 new local government system introduced and city divided in 18 parts with decentralisation policy. However, this system remained intact till 1991 and again citizens waited for local government till 2001. Under the local government system 2001 the Municipal Committee dismissed, and Municipal Administration emerged with a new system of urban management. Qambar is now divided in 11 union councils. However, due to inadequate funds and

capacity this system is not much effective, and city is facing problems of governance [93].

3.2 Typo–Morphology of Qambar

Concerning 'Typo-Morphological' analysis of Qambar major restraint was unavailability of historical manual maps by formal institutions because it was confidential and sensitive information due to security reasons. Therefore, online available satellite imagery obtained to analyse the city (see Fig. 3).

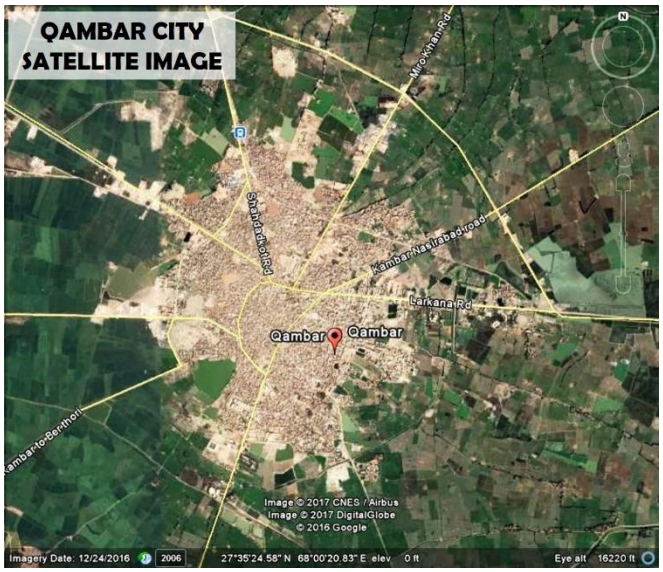

Fig. 3. Satellite image of Qambar city with built up area and its natural context of suburbs

Physical field survey of Qambar carried out on foot by walking throughout city and gathering information about history of areas, names, limits and photography of relevant buildings and public spaces. Then, this data transferred to satellite imagery and divided city in eleven urban blocks (see Fig. 4).

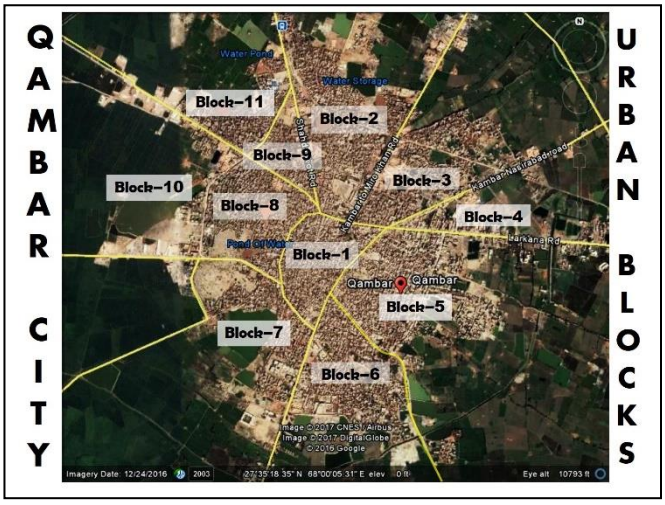

Fig. 4. Typo–Morphological analysis of Qambar: division of city in component parts as eleven urban block

The typo-morphological analysis of Qambar carried out in urban block 1 with identification of urban tissues. From urban design perspective this block is whole historical city now neighbourhood in centre of Qambar as 'Ear–Shaped Shaikh Muhallah' and entails all built up spaces as discoursed above in influences. Elements of this urban tissue consists traditional housing, markets, city centre bazar, Public Park, school, hospital, graveyard, Imam Bargah, police station and PTCL Office (see Fig. 5).

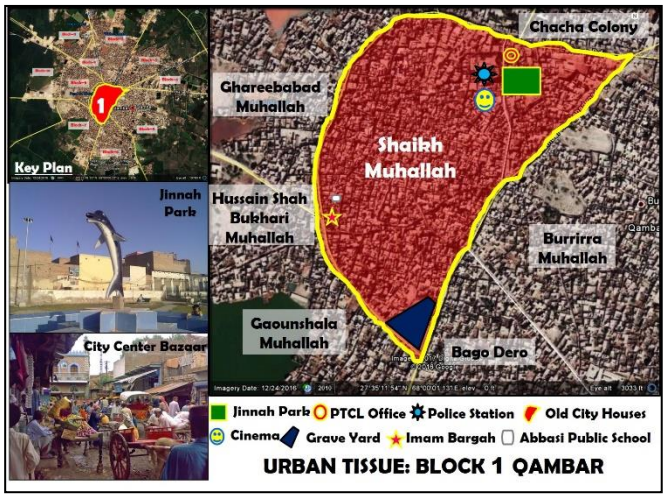

Fig. 5. Typo–Morphological analysis of Qambar: mapping urban tissues of city and its centre.

3.3 Town Plan of Qambar

'Town Plan' analysis steered in three blocks of Qambar to detect street, plots and building systems. Block 2 of Qambar consists of two neighbourhoods i.e., 'Ali Khan Muhallah' and 'Meerani Muhallah'. Both middle income settlements were earlier villages now annexed to Qambar. There is hierarchy of ten, twenty, thirty-, and forty feet wide streets and railway track (see Fig. 6).

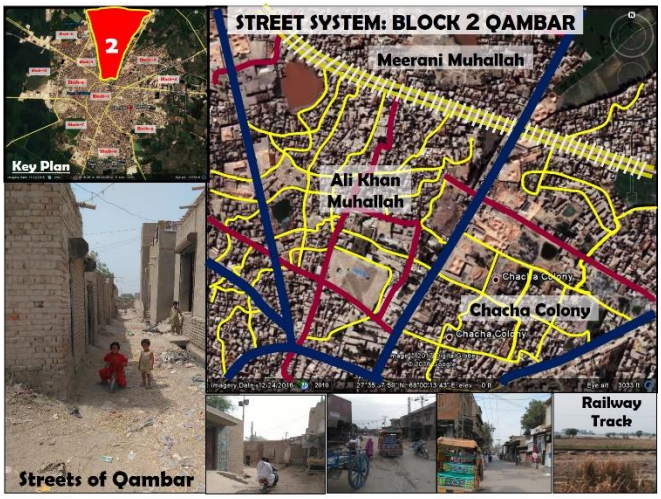

Fig. 6. Town Plan analysis of Qambar: street system and its hierarchy in urban block 2

From urban design standpoint, street system organically developed with no grid. Block 3 of Qambar consists of three neighbourhoods i.e., ‘Chacha Colony’, ‘Faisal Colony’ as newly planned settlements and ‘Mastoee Muhallah’ as an old village annexed to Qambar (see Fig. 7).

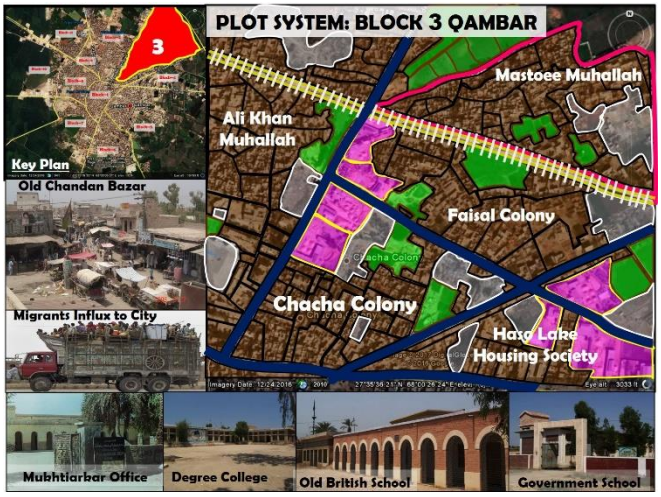

Fig. 7. Town plan analysis of Qambar: plot system and its pattern in urban block 3

From urban design perspective Chacha and Faisal colonies were earlier industrial estates with rice mills now converted to housing due to migrant influx; it is clear from large plot system with rectilinear planning grid. Whereas in Mastoi Muhallah organic shape geometry of plots visible with agricultural land in periphery. Block 4 of Qambar resides migrants in recently developed ‘Haso Lake Society’ (see Fig. 8).

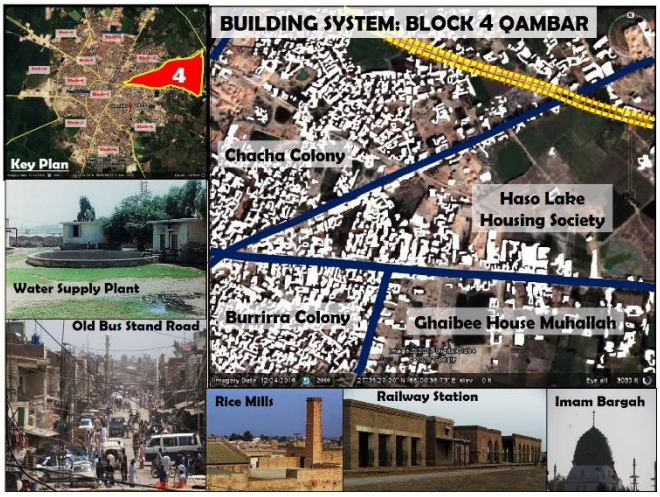

Fig. 8. Town plan analysis of Qambar: building system with varying densities in urban block 4

Earlier, it was picnic spot in suburbs of Qambar annexed to city for private development of élite housing with ordered and regulated building system.

3.4 City Image and Elements of Qambar

‘Image–ability’ analysis of Qambar conducted in two blocks to show paths, edges, districts, nodes, and landmarks. Block 5 of Qambar consists of three neighbourhoods with clearly distinct paths and edges within densely populated ‘Burrirra Colony’, sparse settlements of ‘Daudani Muhallah’ and ‘Ghaibee House Muhallah’ (see Fig. 9).

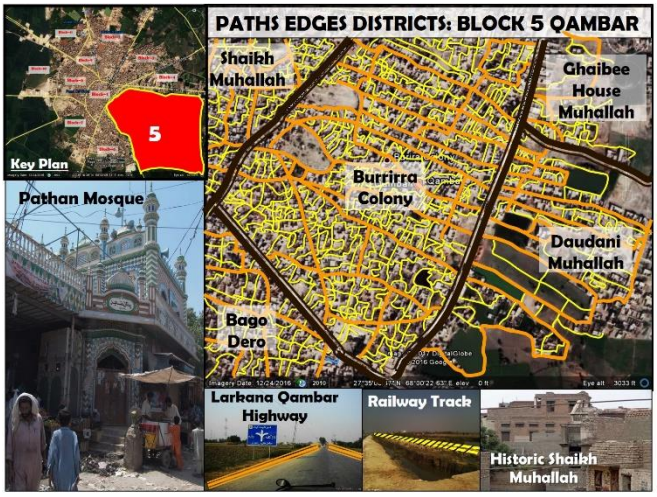

Fig. 9. Image-ability analysis of Qambar: The elements of city paths, edges, and districts in urban block 5

From urban design viewpoint paths are the outcome of space between buildings and edges are defined by primary and secondary roads. Block 6 of Qambar has three neighbourhoods of ‘Bagodero’, ‘Sonara Muhallah’ and ‘Harijan colony’ (see Fig. 10) with major activity nodes and landmarks i.e., Obelisk tower, Bagodero school, and new Civil Hospital etc.

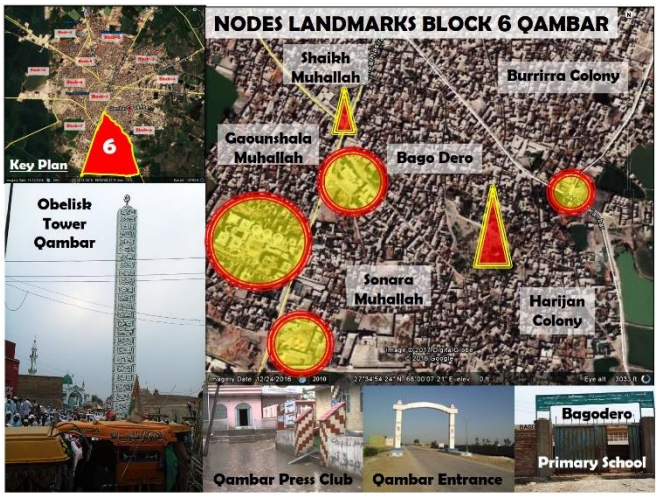

Fig. 10. Image-ability analysis of Qambar: The elements of city nodes and landmarks in urban block 6

3.5 Townscapes and Experiential Quality of Qambar

'Townscapes' analysis conducted in two blocks of Qambar to find out unique places and experiential quality of city through serial vision. Block 7 of Qambar has two neighbourhoods i.e., 'Hussain Shah Bukhari Muhallah' and 'Gaounshala Muhallah' with natural water pond, sand soil graveyard, agricultural land. Built environment has low-income dense housing, inappropriate sewerage disposal in public squares, and architecture of newly built 'DHQ' civil hospital (see Fig. 11).

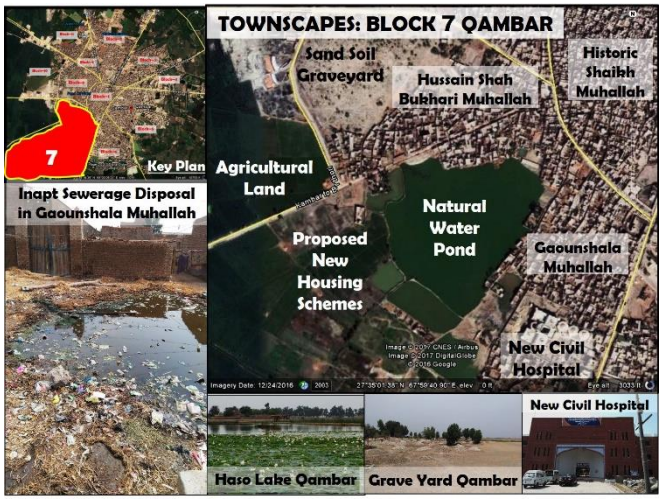

Fig. 11. Townscape's analysis of Qambar: serial vision and experiential quality of city within urban block 7

Block 8 of Qambar consists of 'Brohi Muhallah' and 'Ghareebabad Muhallah' i.e., poor people's settlements, with experience of rice mills, wastewater ponds, garbage dumps, historic graveyard, ornate mosque as socio–religious place, traditional restaurants, and 'Khat' tea stalls (see Fig. 12).

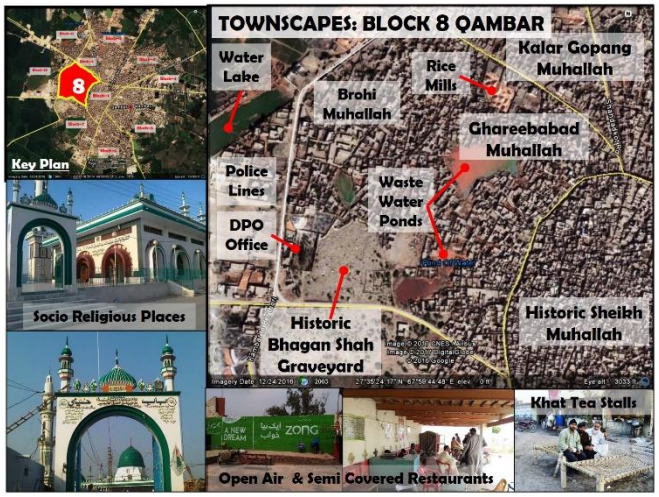

Fig. 12. Townscape's analysis of Qambar: serial vision and experiential quality of city within urban block 8

3.6 Physical, Social and Economic Dimensions of Qambar

The analysis of physical, social, and economic dimensions of Qambar investigated in two urban blocks. Block 9 of Qambar consists of two settlements i.e., 'Kalar Gopang Muhallah' and 'S.M Brohi Muhallah' (see Fig. 13).

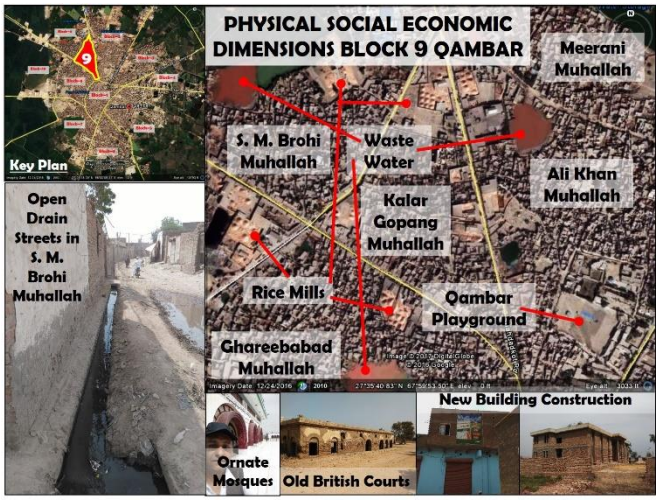

Fig. 13. Analysis of urban design principles in Qambar: physical, social, and economic dimensions of city in block 9

Issues in these low-income settlements are of open drains and wastewater flow in streets, dilapidated rice mills and absence of proper sewerage disposal system. Wastewater cesspools developed causing unhygienic and unhealthy environmental conditions. Industrial labour is transforming into construction labour because rice mills business declining due to increasing building construction activities in last ten years. The reason is China Pakistan Economic Corridor (CPEC) passing via Qambar. Therefore, rice mill owners are selling their mills and real estate market replaces them. Block 10 of Qambar has its evidence where agricultural land is informally planned to transform into housing (see Fig. 14).

Thus, unconscious urban design of city will transform into conscious urban design in future suburbs of Qambar.

3.7 Socio–Spatial Patterns and Their Interrelationships in Qambar:

The analysis of 'Socio–Spatial' patterns and their interrelationships in Qambar examined in 'S. M. Brohi Muhallah' where foci of city was found in the form of Dargah and grandeur mosque on urban landscape of Qambar (see Fig. 15).

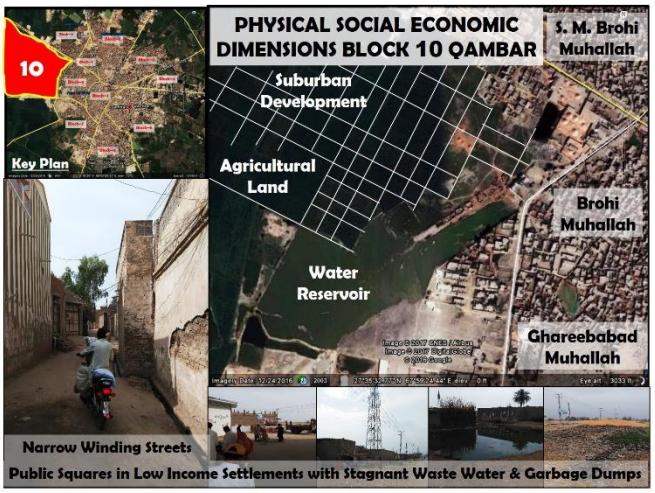

Fig. 14. Analysis of urban design principles in Qambar: physical, social and economic dimensions of city in block 10

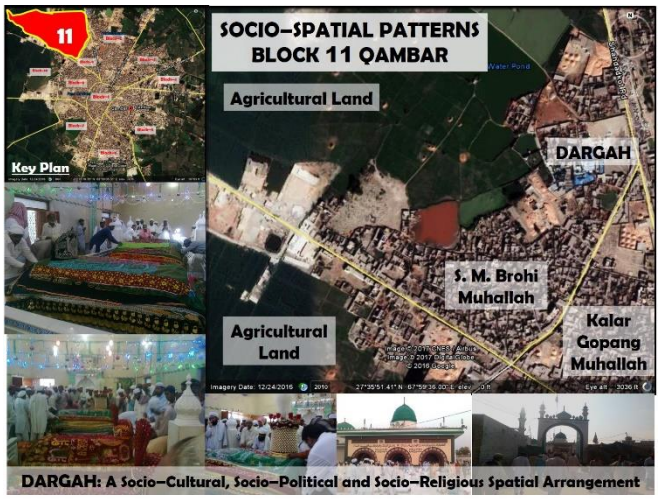

Fig. 15. Socio spatial analysis of Qambar: Dargah as an element of refuge for citizens in block 11

It is the socio–cultural, socio–political, and socio–religious place because, when people feel pessimism in their life this is the place where they find optimism. Dargah is most happening place in Qambar throughout the year for various activities, i.e. five times prayers a day, for religious education, to discuss their problems, and getting financial support and advice on cultural and political issues.

3.8 Urban Artefacts in Public and Private Realm of Qambar

The urban artefacts in public and private realm of Qambar are found throughout city as clear in the photographs (see Figure 5 to 15). Each artefact has its own long descriptive history and interpretation. For instance, mosque, old house and 'Dargah' are the artefacts of pre-British period. Railway station symbolised as British period artefact. Whereas obelisk tower emerged as awareness about religious symbolism in post British period (see Fig. 16).

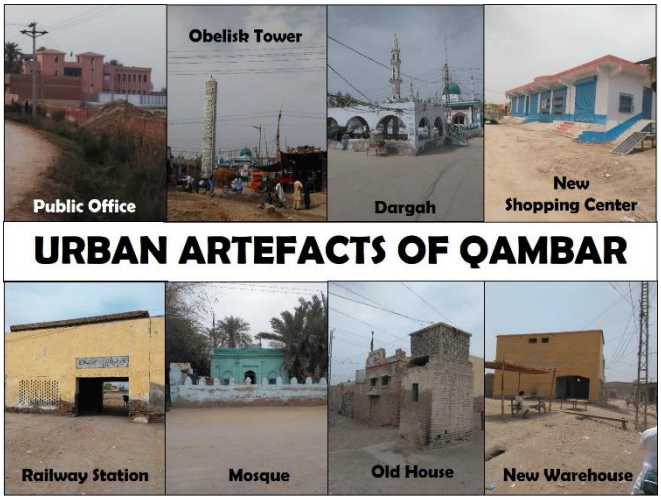

Fig. 16. Analysis of urban artefacts in public and private realm of Qambar

The boom of real estate development in last 10 years gave birth to new architecture and construction practice which effects the aesthetic sense of people (see Fig. 17).

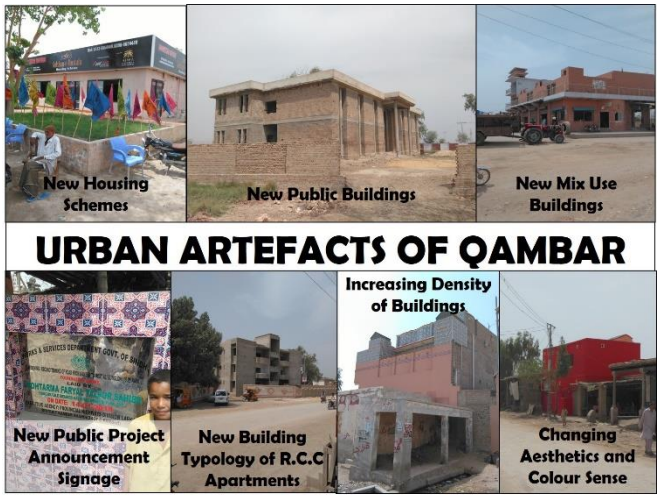

Fig. 17. Analysis of urban artefacts in formal and informal realm of Qambar

Thus, artefacts identified based on time and space, nature, and influence under which they developed.

4. Conclusion

The theoretical and practical analyses and comparisons made in this investigation through 'integrated urban morphology approach', explicitly reveals quite intricate details about Qambar. It confirms practical relevance and potential applications to explore urban design of un–documented cities throughout the developing world where formal institutions are unable to plan and develop their cities due to financial and human resource capacity constraints. As a repercussion the actors in the informal

sector extend their role in the formation and transformation of cities and private decisions of unknown people controls the urban design of city.

The value contribution of this research to industry is evident via documented outcome about Qambar in the form of its identified urban tissues, town plan, streets system, plots patterns, building system, city elements, image-ability, townscape, urban design principles, physical and socioeconomic dimensions, socio-spatial patterns, and urban artefacts. It adds value towards professional industry of urban planning, urban design, and urban development by application of this low-cost, affordable approach with minimal professional input.

Thus, this case study of Qambar confirms relevance of this work be extended to all unexplored cities of Sindh, Pakistan. The long-term impacts of this research would have on the urban development in the context of urban morphology because this domain of knowledge is new in this part of world and may be introduced in local academic institutions concerning professions of architecture, urban design, urban planning, and urban development. Whereas urban development, administration and management institutions may also be enhanced with this new knowledge area if applied in all the secondary cities of Sindh, Pakistan.

The new knowledge contribution of this research to the existing body of knowledge is four-fold. At first, this research area of urban morphology and case study of Qambar is the first major academic and professional knowledge contribution within the local setting of Sindh because this is an unexplored domain and urban context. Secondly, a unique methodology of urban morphology is adopted in this research which adds great significance to existing body of knowledge concerning methodologies of urban exploration. Thirdly, this research solved novel trending issues and problems of the context by building literature for the new subject areas of the city. Because in Qambar there is no published book or research paper available to describe the urban design and planning history of this city. Neither city has any comprehensive plan document to narrate its conscious planning and urban design nor there are sequential records available about formation and transformation of this city. And this research contributed a basic literature on such novel issues and problems of Qambar. Fourthly, this research developed a unique, result oriented, novel approach and model of integrated urban morphology to influence a meaningful contribution to existing body of knowledge concerning urban morphology approaches and investigating urban design of unmapped and uncharted cities.

Finally, the lessons learned from this work is that ‘integrated urban morphology approach’ is an effective tool for understanding urban design and planning of cities and applicable to academic and professional domains of architecture, urban design, urban planning, and environmental design for unfamiliar and unacquainted urban contexts around the globe.

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