Reviving the Metropolitan Lost Spaces by Rethinking the Urban Voids

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*Abstract----*Meteoric urbanization often results in heterogeneous development of different parts of a city. Any city grows with the technology's advancement and infrastructural development, leaving behind many old structures which was once an important part of the city. Urban lost spaces are spaces which was at one time a principal part of the city have now lost their existence functionally but we can still glimpse their footprint in the city fabric. These spaces might not be just vacant land or a gentrified space for city fabric but also an underused structure. Urban lost spaces rupture the urban fabric of a city. The paper will establish the reasons for the creation of these urban lost spaces and their impact on the urban social fabric and will discuss urban lost spaces in an infrastructural lost spaces category of a city with some case examples of cities concluding to develop a framework for identifying and analyzing the types of lost space to lay the groundwork for formulating strategies for reviving urban lost spaces.

Keywords--- Urban lost spaces, Urban void, infrastructural voids, tactical urban design

I. INTRODUCTION

It is estimated 50% of the world's population are living in the urban areas. By 2050, this will rise up to 70% and already many cities across the world are struggling to cope with the pressure from the rapidly increasing population. There are challenges like poverty, housing supply, pollution and poor infrastructures in the cities are currently facing which is affecting the quality of the life in these cities. With the growth of population and rapid urbanization there are 3 major issue faced by metropolitan city.
1. Population and population density
2. Per capita open space & its useability
3. Migration

Impacts of the above issues on metropolitans' cities are as follows:
1. Urban sprawl and increase in public expenditure as the city fringes continuously growing. While city infrastructures try to accommodate rapid development of the city with metro, bus rapid transit, new road networks etc.
2. Car dependency and increase in traffic volume resulting in pollution and many environmental and social hazards for the developing city with time.
3. Defunct lands and underutilized city major and potential spaces which are ignored and misused due to rapid development of the city towards new area.
4. Due to high prices land and locality it is noticed that there is a division of class among the people resulting gentrification of society.

Future city planners and designers need to develop a holistic approach for the rapid city growth and expansion especially metropolitan cities where land & its value plays a very important role in development with scope for innovative designs and approaches are more. One of the approaches suggested by renowned planners & designers were utilization of existing spaces instead of occupying new spaces, these spaces were termed as urban lost spaces or urban voids.

II. URBAN LOST SPACES AND URBAN VOIDS

A. What are urban lost spaces or urban voids?

"Urban voids are undesirable urban areas that are in need of redesigning, making no positive contribution to the surroundings. they are ill- defined, without measurable boundaries and fail to connect elements in coherent way" R. Tantrick. 1986

Urban lost spaces are spaces which was once an important part of the city has now lost its existence functionally but physically, we can still see its footprint in city fabric. Rapid urbanization often results in disparate development of different parts of a city. This often results in 'pockets' of areas which are left undeveloped or underdeveloped. These marginal spaces are often no-man's land and are thus susceptible to misuse. Over a time, these leftover spaces are appropriated, overtly or covertly, for different activities and an invisible fence is put up.

B. Formation of lost spaces

Urban lost spaces might not be just a vacant space or build form but can a space which has been limited to particular group and not been used in its full potential or can be used into a more appropriate and better ways. These urban lost spaces have been categorized into 4 parts understanding its establishment and formation.
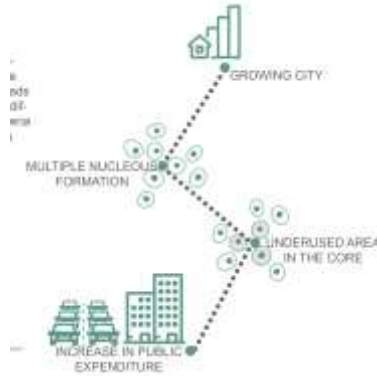
Figure 1: Understanding formation of urban lost spaces [Source: Author]

C. Types of lost spaces

1. Geographical lost spaces:

These urban lost spaces are formed due to geographical condition of the area and the development derived according to the major geographical feature of the area. These spaces also effected by the climatic change of that area, earlier the settlements were inclusive with nature abs the climate of the area but now with the growing technology and advancement in typologies these area serves people more than the nature. Flood line area, land slide area, mountain rig, seasonal nullahs and river overflow paths are often fall under these reasons for urban lost spaces.

2. Planning lost spaces:

These urban lost spaces are created due to inefficient and improper planning processes. These are created due to planning in isolation without understanding the fabric of the city.

Planning voids are the creation of planning practices that leave gaps within our urban fabric, leaving leftover spaces scattered throughout our cities (Narayanan, 2012; & Edensor, 2005). Land-use policies and zoning help create defined boundaries and lines within the landscape. They also form separation between uses, and divide the public and private realms (Trancik, 1986). examples: defunct zones, traffic islands.

Figure 2: Drain condition   **Figure 3: Delhi urban abric**

3. Infrastructural lost spaces

These urban lost spaces are created to support an existing structure, space or function. These spaces are created with specific function followed by the buffer spaces, and these spaces tend to have an unclear define space or boundaries. Their distant and inaccessible location and large, unattractive form makes them unsuitable for development. Very often introduction of a new built or infrastructure support also leads to this type of urban lost space. Eventually the marginalized poor segment of the society occupies these spaces. Urban slums, squatter garbage dumps, and at times because of illegal activities, these spaces are seen as unsafe and neglected spaces by most. Example: defense land, dock yards, space beneath flyovers etc.

4. Social lost spaces

These urban lost spaces are created due to social conflicts and public acceptance of an area. There are multiple times a certain class of people or group contains these spaces for their use only. Example: urban parks, wet lands etc.


Figure 4: Fitzroy defunct rail   Figure 5: Wetland line

III. CENTERING OVER INFRASTRUCTURAL URBAN LOST SPACES

The city grows with the technology's advancement and infrastructural development, leaving behind many old structures which was once an important part of the city, further we will discuss about the various infrastructural urban lost spaces in details and their impact over the city with the time with some, cases of Indian cities.
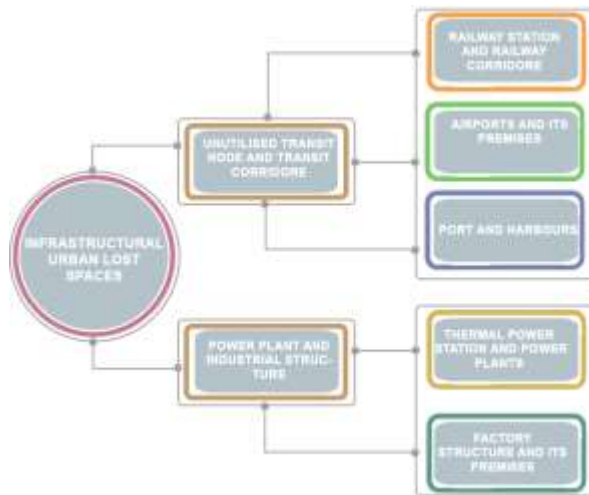
Figure 6: Infrastructure flow chart [Source: author]

Unutilized transit nodes & corridor's spaces:

A. Railway station and railway corridors:

Indian Railways owns and manages one of the largest Railway networks of the world with over 64,000 Route Kilometers. Most of the Railway stations have been built over 100 years ago, and have a limited and aging infrastructure that handles an ever-increasing number of passengers. The Railway stations are also located in the middle of the cities and offer enormous potential for re-development and commercial expansion. Eventually as the city expand load on railway station increases and other suburbs railway station developed to satisfy the need of connection and convince, meanwhile the old railway station due to its location gain an enormous potential because of the residential & commercial settlements around it and the advantage of being in the core of the city supports stations with adequate infrastructures and social values.

B. Airports and its premises:

Aviation in India, broadly divided into military and civil aviation, is the fastest-growing aviation market in the world (IATA data). The lists of airports in India includes existing and former, commercial airports, flying schools, military bases, etc. The government owned Airports Authority of India (AAI) operates 126 airports and civil enclaves out of a total of 449 airports and airstrips located throughout India. Approx. 100 airports/aerodromes handle regular commercial passenger flights. The cities of Bengaluru, Delhi, Hyderabad, Kochi and Mumbai are served by privately (or joint-venture) operated airports. India is the third largest domestic civil aviation market in

the world. Airports often have facilities to store and maintain aircraft, and a control tower. An airport consists of a landing area, which comprises an aerially accessible open space including at least one operationally active surface such as a runway for a plane to take off or a helipad, and often includes adjacent utility buildings such as control towers, hangars and terminals. Larger airports may have airport aprons, taxiway bridges, air traffic control centers, passenger facilities such as restaurants and lounges, and emergency services. Eventually with the growing capacity of the airport needs more land and the old structures are mostly unattended or used as a filler services for the city. Thus, airports and its premises are suitable for the extensive exercise for understanding Infrastructural urban lost and reviving them.

Figure 7: Railway station   **Figure 8: Airport**

C. Ports and Harbors

India has a coastline spanning 7516.6 kilometers, forming one of the biggest peninsulas in the world. The total 200 major and non-major ports are present in the state of Maharashtra (53); Gujarat (40); Tamil Nadu (15); Karnataka (10) and others (82).As the exports of the minerals was regulated by the governments major ports depletion was noted, since the new technology and options was developed old port premises was unbale to sustain its structure.


Figure 9: Mourmogao port, Goa

Power plants and industrial structures

A. Thermal power stations

A power station, also referred to as a power plant or

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powerhouse and sometimes generating station or generating plant, is an industrial facility for the generation of electric power. The power department has proposed shutting down the Badarpur Thermal Power Station, Rajghat Power House Station, Pragati Power Station, IPGCL's gas turbine and the due to their high-power production cost. The department has planned to transfer the same fuel to gas-based Bawana power plant to make it fully functional. The 1,500-MW capacity plant is currently producing less than 500 MW of electricity. The Delhi Power Procurement Group, which includes multiple power utilities in Delhi, and the State Load Dispatch Centre have recommended to the Delhi government the permanent closure of Rajghat Power House. The remaining four power stations would be initially shut down on a temporary basis but after making alternate arrangements, these plants would be closed down permanently.
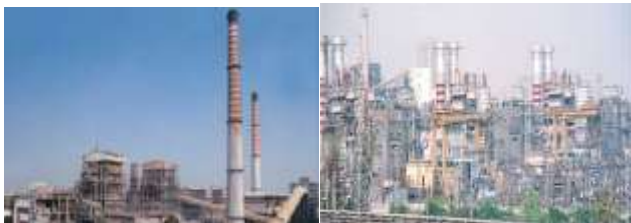
Figure 10: Bhawan power plant

B. Factories and Industrial structures

Post industrialization city undergoes many changes apart from technology and techniques people were now socially evolving and a huge impact was observed on the foot prints of factory and mills structure. Many factories and mills of India were either merge together for a large-scale production or transformed into a warehouse initially as the dependency on huge manufactures increases. But the local residences of factory worker still remain around the factory and evolving further these settlements grew with markets and work places leaving behind the urban lost space of factory prescient. Malva mills in Indore reflects the same case were the sugar mill closed due to the political reasons leaving behind a high density housings and a city level market, now it is one of the major part of developing Indore but government still unable to re-use the mill land thus, a void has been created in the area and it caters many illegal activities due to lack or porosity and visibility.

Figure 11: Malwa Mills, Indore

IV. REVIVING URBAN LOST SPACES

"Urban Voids are the undesirable urban areas that are in need of redesign making no positive contribution to the surroundings. They are ill-defined, without measurable boundaries and fail to connect elements in a coherent way." (Trancik: 1986)

Urban lost spaces rupture the urban fabric of a city. Furthermore, such space often assumes multiple and shifting functional, social, economic and political meanings. They are constantly reshaped and redefined by both humans and nature. People often reinterpret such spaces spontaneously through temporary activities. Most of the times though, the reuse is seen as creating a negative impact and hence such a space is labelled detrimentally as stigmatized space, resulting in environmental degradation and psychological discomfort of the citizens. They become an urban liability that needs to be dealt with. But the inherent qualities of such a space, which are unique to each spatial context, are frequently overlooked.

Understanding framework for reviving urban lost space:

On the basis of various studies and above research following are the parameters on which any urban lost spaces can be evaluated.

| Structure background	Social- cultural value	Economical value
Form & built use	Social context	Ownership
Physical & visual connection	Community & stake holder involved	Byelaws & regulation
Current function	Historic & emotional importance	Potential real state value
Effect on environment		Long term vision for the structure
Physical context		

Case Studies

A. Zidell Yards Master Plan

With a focus on innovation, quality of life, development opportunity and public life amenities, the Zidell Yards plan creates a 21st century district that will provide a different type of working, living, and recreational experience for Portland. Over the past decade the area surrounding Zidell Yards has seen remarkable change, with the development of high-rise condos, an aerial tram, streetcar, and a rapidly expanding medical university, OHSU. The Zidell Yards site is the largest and last undeveloped parcel in central Portland and its location within a rapidly developing district creates a multitude of opportunities for creating a connected heart along the river.

Figure12: Zidell yards [Source: sasaki.com]

Zidell Yards is about a mile from Downtown Portland, nestled within the southern edge of the Central Waterfront. The once largely industrial, "working" waterfront is now largely composed of residential and medical high rises and is well connected to the downtown and across the Tilikum Crossing by streetcar, by aerial tram to the west, and in the future by bike along the South Waterfront Greenway. Occupying thirty-three acres in the evolving, vibrant South Waterfront neighborhood, the Zidell Yards site is poised to transition from a manufacturing center on the Willamette River to an equally important component of Portland's next era. Sasaki led the charge for a comprehensive new vision for the long-term redevelopment of Zidell Yards. The Zidell Yards master plan sets a clear vision for a new district that will become the social heart, the retail hub and the creative center of the South Waterfront district.
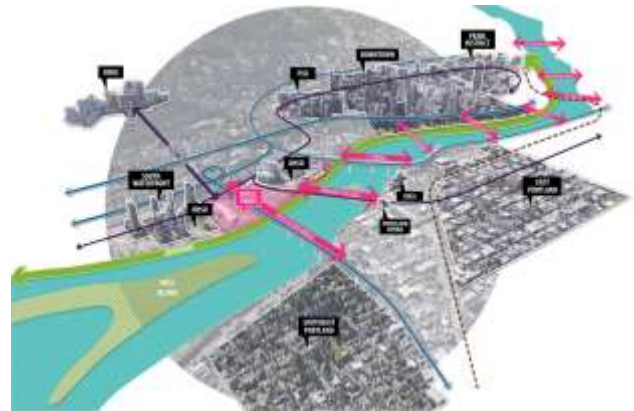
Figure13: Zidell yards structure plan [Source: sasaki.com]

The framework plan connects and integrates the various nearby districts while creating a series of public spaces accessible to all.The district framework is structure by three diverse new public spaces. the plan imagines the development of approximately five million square feet of mixed-use retail, residential and office space in the coming years, bringing with its new jobs, thousands of residents and daily visitors. Finally, its honors Portland's strong parks and open space legacy through the creation of a sequence of multiple parks, plazas and linear greenways that each offers its own unique public space activities, waterfront access and daily experience. Five important concepts underlie the Zidell Yards master plan; to create a new heart for Portland's South Waterfront district, to honor the history and legacy of the Zidell community and land, to be a regional destination that offers unprecedented access and activation of the Willamette River's edge, to focus on a high quality pedestrian realm, and to foster innovation and sustainability.

Figure13: Zidell yards proposal concept [Source: sasaki.com]

Inferences:

1. Tactical urbanism principle has been used in multiple ways to create different type of live work play experience.
2. City level connection and removing a pause or a void of the area with respect to the activity related to the context.
3. Connection of green way green way along river with heritage park spine and meadow park spine surrounded with variety of land use.

B. Houston Energy Corridor District Master Plan

Sasaki and a team of consultant partners have developed a long-range master plan that positions Houston's Energy Corridor to accelerate its evolution into a multi-dimensional, urbanistic, world-class place to work, live, and invest. Comprised of 2,000 acres situated 15 miles west of downtown Houston along I-10, the district is distinguished by its exceptional location within the metropolitan area, a large and growing population of office workers and residents, and adjacency to some of the region's great natural assets, including Buffalo Bayou and the Addicts and Barker Reservoirs. The master plan provides strategies for The Energy Corridor District—in cooperation with its private, public, and non-profit sector partners—to build upon these existing assets. Recommendations of the plan include: Vibrant Mixed-use Neighborhoods and Walkable Retails.

Figure14 : Houston district [Source: sasaki.com]

The vision for the future Langham Park is multi-use with a wide variety of landscape conditions that allow for active and passive uses. The concept addresses the edge condition, with respect to how development will meet the edges, as well as the interior function of the park. It is intended to begin a conversation about what activities and uses belong within the 80-acre site. Central to the plan is the existing (rerouted) Langham Creek and the riparian corridor adjacent to it. Integrating this feature and other existing assets in the newly designed park space is the key to transforming this important space. The proposal creates five distinct zones linked together by Langham Creek named Neighbourhood Park, Open Field and Event Space, Forested Space, Archaeological Preservation Park and Stormwater Park.

Inferences:

1. Utilization of transit-oriented development strategies with respect to other mode of transportation and circulation.
2. Interfaces of residential, retail and offices has been tackled in a way creating different type of parks and preservation activities.
3. A huge employment center creating opportunity of jobs and growth with a concept of live work play.

V. VARIOUS STRATEGIES FOR REVIVING OF INFRASTRUCTURE URBAN LOST SPACES

Objective 1: Utilizing the site location and its connections of identified urban voids with nearby administration area and residence area by creating a new business district catering the future requirements of offices as well as modern co- working needs.

Strategy 1: Creating a new vehicular connection and strengthening existing connections between the identified

urban lost space and the nearby areas.

Strategy 2: Utilizing any derelict flowing water source around the selected site as an open green system with its topographical location.

*Treating waste water and embarkment of the shore to avoid sessional floods and improving the conditions.

*Creating a green spine, maintaining the water level, vegetation and edge conditions with the locality.

*Providing provision of cycling trails and shaded pedestrian path throughout the spine maintaining the existing vegetation.

Strategy 3: Integrating the public transports stations with convention centers and office areas.

Objective 2: To create a socially cohesive and liable neighborhood for the upcoming development pressure and economic trend.

Strategy 1: Creating bus terminals and para transit routes as a multi model transit hub with its exclusive connections to nearby public areas.

Strategy 2: Creating co-housing and co-working mixed used typology followed by mild density housing with green areas, and mixed used developments community spaces.

Strategy 3: Creating a pedestrian and green network integrating with the new and old development increasing the porosity of the site.

Objective 3: Creating a cohesive space at the threshold of the residential area, institutional area and business district area serving all type of users (student, workers, residents and tourist) within the site to maintain the publicness of the not only through the spaces but with the function within.

Strategy 1: Creating a knowledge hub integration with new business district.

Strategy 2: Providing a multipurpose community space with amalgamation of all necessary function and a hub for gathering different communities in the vicinity.

Strategy 3: Creating a tourist spine with a pedestrian way connecting magnets near the site improving existing conditions of the tourist places through new connections and activities.

VI. CONCLUSION

After examine the outcomes based on the theory and analysis, it is concluded that the revitalization of an unused urban space which are often referred as urban voids or urban lost spaces, can be executed through several effort such as developing a novel functional based activities and elements that contribute to a new vibrancy in coexistence with its aspect as an urban magnet and generator in the area. Given the strategies to revitalize unused urban space proven by the new functions and activity which are should be based upon local daily activities of that lost space which can help to initiate and enhance the time frame usage of the urban areas.

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