

INFRASTRUCTURAL URBAN VOIDS AS AN INSTRUMENT FOR HOMOGENOUS URBAN FABRIC CASE OF KHARGHAR

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ABSTRACT

In historic time social factors around the spatial existing framework generated development of the city. What we see today is contradictory as economic factors govern the growth of the city. Speed of transformation is noticeably high, while the growth of the city majors in a quantity of physical infrastructural development rather than the quality of public life. Ironically, when we look at a newly planned city like Navi Mumbai infrastructural needs sometimes are becoming the reason for the creation of urban voids in the city fabric. This paper is going to focus on Infrastructural linear voids which are cutting the morphology of the city. Urban Infrastructural voids in Kharghar are identified and typologies are formulated by observational study. This paper investigates if we can utilize these Infrastructural urban voids holistically to formulate a network of public spaces to bind the city holistically.

KEYWORDS

Urban void, revitalize, Infrastructure, Indian city.

1. INTRODUCTION

Beauty is not unique for everyone, it changes according to perception and context. When we talk about cities, what we can term as beautiful? Does beauty be only about what one sees? Or what one experience is also equally relevant and considerable? The beauty of the city lies in the public realm created. If citizens are enjoying the urban fabric and can connect with it by formulating memories, then city feels beautiful in an actual sense. As very well said by Jan Gehl, "First, we shape the cities, and then they shape us." [1] Planners plan cities with projected scenario considering particular aim in mind, but it is not possible to project everything for next twenty-five years as socioeconomic and political changes cannot be predicted accurately. This is the reason why planning in cities does not work as intended. The city is multifaceted organization which is formed incrementally by many people for varied functions with related speed. Definite and detailed plan cannot work out, it needs to be flexible for people and future changes to accommodate accordingly. Circulation, Land use and focal points are fundamentals for the city although public realm for people needs to be the central theme. For the space to become place, the environment needs to be organized and sharply identified. Then people will connect to it by making memories then it will become a true place, remarkable and unmistakable. [2] If cities are planned to keep this phenomenon in mind and allowing flexibility, then there would be scope left for people to alter the urban form if necessary. Incremental development can be promoted through various strategies to keep wider scope for development of the city. The city can adopt beautifully in real sense if correct combination of planned and incremental is achieved.

"The city in its totality is understood as geographic plexus, an economic organization, an industrial process, a theatre of social action, and an aesthetic symbol of collective unity." [3] The

city is a complex fabric woven with multiple layers, and the sequence of the layer makes a difference in the image of the city. When functionalist cities are planned with major importance given to land use, then layer of public realm gets second priority in designing of cities.

Industrial revolution changed means of transportation drastically that automatically changed city planning. Sir Patrick Geddes and Ebenezer Howard introduced land use planning while Le Corbusier's Radiant City model introduced new transport pattern in city planning. Modern city planning revolved around zoning and strong transportation and infrastructural network. This planning gives priority to physical and infrastructural planning, keeping the sociocultural aspect unattended. Physical organisation of a city, its industries, its markets and its transportation are secondary parameters while social life is primary for any city. In last century we have given importance to the physical planning more than public life. Social nucleus should be the focus while educational and social needs, libraries, theatres, places of interactions and its interrelation needs to be the base while defining the neighbourhood. This will result in integrated city fabric accommodative for all. [4] If citizens are enjoying the urban fabric and can connect with it by formulating memories, then city feels beautiful in an actual sense. Walkability, connectivity, active public nodes, response to human scale, safety and security, and many such tangible and intangible factors help residents to experience city fabric holistically to formulate attachment to it.

Historical cities of India have the powerful character which engages residents in rich sociocultural intense fabric because of the flexibility in the pattern. These cities grew organically according to the needs of people, and piecemeal growth allowed cities to be open and incremental for the development of a social nucleus rich in diversity and spatial character. Traditional form of the city was developed around the core area making up of administrative and public buildings. Compactness of fabric automatically encouraged walkability, and it also promoted the public realm of the city. Our traditional Indian cities showcased various layers like walkability, connectivity, active public nodes, response to human scale, safety and security, and many such tangible and intangible factors. This ensured that the city is experienced homogeneously and holistically by city dwellers, which made it beautiful in its way. But congestion, restricted growth, unavailability of modern infrastructure and services created issues in old Indian cities because of which new planning techniques are introduced in India which would cater to urban growth and expansion systematically. Social factors around the spatial existing framework generated development of the city in historic time. What we see today is contradictory as economic factors govern the growth of the city. Speed of transformation is noticeably high, while the growth of the city majors in a quantity of physical infrastructural development rather than the quality of public life. New planning technique majorly focused on Land use planning and infrastructural development for organised cities. Modern Indian cities are now planned with new techniques to serve city dweller's changing lifestyles.

Ironically, when we look at a newly planned city like Navi Mumbai infrastructural needs sometimes are becoming the reason for the creation of urban voids. For example, areas between highway and service road, areas below the flyover, and areas below foot over bridges are becoming dead or underutilized due to unidimensional role in planning which hampers the experience of the city dweller. If we could compare instantaneous development and piecemeal or incremental development, then we can observe that instantaneous growth lead to urban voids while incremental developmental lead to shared spaces. That is why old Indian cities have more shared spaces than newer development which make them richer in experience. [5] If we can plan strategy to rejuvenate these urban voids for place making in the city which would act as a network of public spaces which binds the city then we would have wholeness in the city.

In this paper we aim to discuss urban void in context of Indian cities. Various researchers have evolved typologies of Urban voids based on parameters like scale, reason of formulation and its impact. This research paper will be divided in three parts. First part will talk about theories related to urban void, its background and entire umbrella of its meaning. In second part Indian typologies of urban voids will be discussed. Later in third part Infrastructural urban voids will be focused by taking case example of Kharghar node. The aim here is to understand urban voids created because of transportation network by taking example of Kharghar node of Navi Mumbai and its implications on the city. Transportation network is component around which entire city is formulated in modern planning. It is responsible for modern urban form of the city and that is why it is essential to analyse it critically.

We will understand infrastructural voids of Kharghar node through analyzing Urban fabric and its contextual impact on the surrounding through photographic documentation. Discussion about how these voids are formulated, whether these voids are permanent or temporal, and how it is disturbing urban fabric of the city would be the next step. We argue that these linear infrastructural voids are forming a network around the city and acting as dead edge which is a hindrance in Public realm. The paper concludes that this network of urban voids can become a network of urban infill which can bind the city by generating active public spaces. Based on contextual understanding, we are also suggesting ways through which public realm can be created for citizens through rejuvenation of these voids. This research is limited to understanding infrastructural urban voids of Kharghar although detailed analysis for formulation of revitalization plan will be next step for this research paper.

2. LITERATURE REVIEW

The term urban void is not very specific, it's definition is varied according to their origin, their spatial character, their transformation, their impact, and their history. Literature review on this helped to understand vast umbrella under which this topic is discussed. We could differentiate voids in two categories i.e. Functional voids and Planning voids based on literature review.

First category talks about voids which are formulated because of issues arise with the function of area. Urban Voids are formulated because of under-used land parcels or dysfunctional land parcels becoming derelict over time as discovered by many authors and interpreted as loose spaces, vacant spaces, in determined spaces, transitional spaces, neglected space, hard space, in-between spaces and cracks in the city. Geographer Ray Northam used term vacant urban land while explaining remnant parcels formed because of geographical barriers. [6] Roger Trancik coins the term Lost space for "spaces that are in need of redesign, anti-spaces, making no positive contribution to the surrounds or users." [7] Lynch defined these spaces as waste spaces which are neglected, unused or dead. [8] Cracks in the city is term coined by Loukaitou-Sideris meaning in-between spaces, residual, underutilised and often deteriorating. [9] Michael Greenberg and other scholars defined term Temporarily obsolete, abandoned, derelict sites (TOADs) for negatively used sites. 'A building or lot that has been vacant for two years or more' is definition proposed by Johnson for Urban Void. [10]

Second typology of Urban voids talks about voids which are formulated as result of modern planning system. 'Planned wasteland' or 'new urban desert' are terms coined for excessively planned large, landscaped, and open areas near new development used by few people. [11] 'Space left over after planning' talks about unnecessary spaces that are formed after site planning in Housing development. [12] Planning of cities which happens with the basis of grid of infrastructure and land use tend to produce voids because of future predictions gone wrong or unclear future plan or uncertain ownership. [13]

Studies focus on urban voids formulated because of shrinking cities with population decline, decentralization and residential shift although conventional planning system is also the generator of urban void. [14] Planning system which responds to functionalist approach focus on infrastructural development and land use zoning because of which public realm is neglected. Social interactions and gatherings are crucial to life in the city and that is why it is important to focus on creating a public realm which is lost in process of planning. Aim of this research paper is to understand how city fabric is hampered because of planning urban voids and how proper revitalization can help in homogenous and inclusive city fabric.

3. BACKGROUND

Urban voids in can be categorised on various parameters while in this study consideration is majorly on reason because of which these are getting created. Urban voids can be categorised majorly in two typologies for Indian Context based on their formation, i.e. Planning Voids and Functional Voids. Functional voids are generally found in historical areas of the city while planning voids are found in planned areas of any city.

3.1. Functional Voids

Functional Voids are left over spaces or buildings which are dysfunctional or misused. Old historic buildings, derelict factories or spaces, underutilised or abandoned spaces are examples of this category. Generally, these voids can be found in historic or old areas of city and these voids are generated with time and technological, socio-political or cultural changes. In Planned cities these voids can be seen if any built or unbuilt space is left abandoned because of legal disputes or such issues. Large amount of research in carried out in this by analysing historical areas of city.

3.2. Planning Voids

As discussed earlier New Planning method is focused on functional aspect and urban voids are generated because of lack of holistic approach in Planning. Land use zoning which results in segregation of infrastructure and public space is creating dead pockets in the city. Technique which was formulated, to resolve issues and generate planned cities for masses is giving rise to mechanical cities without life. It is very crucial to understand these voids which divide the city fabric and utilise them for active public realm. Categorisation of planning voids on basis of formation is given below.

3.2.1. Geographical Voids

Geographical voids can be entirely new category but according to research done these voids are formulated because Natural features like river, Nalas or contoured land are not planned appropriately. These areas are kept reserved for conservation of nature, but as these areas are not treated as part of urban fabric and left unattended or not incorporated because of which these form dividing edges in the city fabric. As a result, these areas slowly get degraded or misused and disturb the continuity of a city. These are linear voids of the city running throughout the city with natural feature can be used to create avenues and vistas which can make city beautiful along with conservation of valleys.

3.2.2. Residual Voids

Fragmented city plans result in unconventional and odd size land parcels which are left out with no meaning in the city. City planning in India is based on land use plan and plotting is carried out

with typical sizes and shapes. As a result, residual spaces get formulated in between the building or around edges, which becomes misused over time. These plots are very small and does not serve much purpose at a city level although if those areas are incorporated in city fabric as informal pockets for public use then voids would turn as infill for city.

3.2.3. Large Scale Plots

Planning of the city is done for projected population and density after twenty-five years in Indian context. Sometimes chunks of lands are kept for future development, although these land invites negative activities because of its dysfunctionality and location in already developed area. These are not permanent voids although these areas are dysfunctional and neglected for 20 years or more sometimes. If we could utilise these areas for public till they are needed for their actual purpose, then these may act as temporary stimulus for public realm.

3.2.4. Infrastructural voids

Infrastructure is a focus area while planning cities to facilitate services and amenities to residents. In Planned Indian cities, infrastructure provided is according to projected population because of which infrastructure remain underutilised till projected population is not achieved. Sometimes it may take 25 or more years to achieve this projected population. Multi modal transportation network running across a city which is built to connect the city together sometimes becomes dead edge which is cutting the fabric because of superficial planning.

Newly Developed Indian cities are planned on modern town planning principles which focuses on infrastructural need of the city more than a sociocultural need of people. Public realm is not created in the city and homogenous character cannot be experienced because of dead edges or urban voids. Elevated infrastructure is dividing communities although if comprehensive and transparent policy plan is proposed then these may act as a resource which enrich our daily experience. [15] There are many elevated infrastructural projects in Indian cities which are acting as urban voids and disturbs the homogeneity of the area. This research will concentrate on one part of Navi Mumbai i.e. Kharghar node to analyse infrastructural urban voids which are generally along transport network and can act as temporary or permanent magnet for active public realm.

4. CASE STUDY ANALYSIS – KHARGHAR

Planning of Navi Mumbai started with the idea of the Twin city of Mumbai. Charles Correa and his team planned a conceptual plan for Navi Mumbai with new growth centres along with service infrastructure, public transport, and housing for everyone. Charles Correa wrote in 'Planning for Bombay' that "We would be trying to use this new growth itself to restructure the city, taking the opportunity to - in Buckminster Fuller's ineffable phrase 'rearranging the scenery'". [16] They thought Navi Mumbai can act as solution for issues of Mumbai. The team conceptualized Navi Mumbai with a clear transportation network which would be the backbone of the development and would also reduce the burden of Mumbai by reducing infrastructural and housing load. Over time entire plan did not work as imagined as government offices and business did not shift as proposed, though Navi Mumbai became a planned city with clear infrastructural facilities. Infrastructural voids are responsible for creating majority of urban voids in planned cities as city is planned around it. The network of multimodal transportation designed for years to come is becoming hindrance in holistic urban fabric.



Figure 1. Map of Kharghar (Network of Infrastructural Voids)

Legend			
Skywalk		Area between highway and service road	
Flyover		Metro line	

Educational node of Navi Mumbai, i.e. Kharghar is taken for understanding formation of urban infrastructural voids and its relevance in city fabric. Kharghar is connected to other nodes of Navi Mumbai by Local railway and Highway while Metro is also proposed for better connectivity. Multimodal transport system is proposed for faster and safer movement of people. Safety and security of pedestrian users is considered by facilitating walkability by foot over bridge, skywalk and underpass near Railway station. (Fig 1) These transportation links are proposed with unidimensional aspect and public life is not incorporated while constructing them. Streets are not just for moving people or goods, rather they are also part of social network of the city. Social gathering and interactions happening on these connecting links make city lively and enriched. This parameter is neglected while planning infrastructural network for Kharghar because of which lines of infrastructure are becoming cutting edges at various points. Incremental changes are not considered while planning the node and that is crucial for making city people friendly. This research is limited to categorise infrastructural urban voids which are formulated by transportation links although other infrastructural network and their implications are not considered in this paper.

5. INFRASTRUCTURAL URBAN VOIDS – KHARGHAR

Urban voids created because of the transportation network in Kharghar are studied through observation and photographic documentation. The network of multimodal transportation is spread throughout the area. If we study morphology of the developed part of Kharghar then we could see linear pockets which are inaccessible to public and creating negative impact on the city. Holistic planning which addresses infrastructural needs along with social needs of the people is solution for homogenous urban fabric.

5.1. Skywalk

Skywalk is constructed to facilitate grade separated pedestrian facility connecting the commercial and academic areas to the railway station and 120 m long cable-stayed bridge crossing the national highway. [17] 1780 m long skywalk was designed to cater to 15000 people per day, while pedestrian footfall is only 5000 today. [18] This skywalk opened for public in 2012 to facilitate walkability for pedestrians, but today very few people use this facility for a short period of time in a day. Safety and security is questionable because of less pedestrian footfall and enclosed character of the skywalk which hinders in visual connectivity which can be achieved from street. (Fig 2 & 3) Even NIUA has proposed rejuvenation of this skywalk in 2015, considering land and money invested in particular infrastructure. This linear span of 1.7 km approximately is acting as urban void in Kharghar city. (Figure 1) Skywalk is not provide active public realm because of which areas around it are also disconnected from it. Walkability of the city does not entirely dependent on physical form rather it is more dependent on many intangible parameters which are related to sociocultural aspects.



Figure 2. Skywalk from Inside



Figure 3. Skywalk from Outside

5.2. Area below skywalk

Area under skywalk is marked by CIDCO (planning authority) to avoid encroachment in the area, but even then people have started using it illegally at some places. (Fig 4 & 5) As this area is not incorporated in urban fabric visually or functionally, it is acting as a dead edge, which is a hindrance in visual as well as functional homogeneity. This is acting as linear urban void dividing city fabric. Illegal encroachments and garbage disposal are main causes which can degrade area further more in the future.



Figure 4. Encroachment below Skywalk

Figure 5. Garbage disposal below Skywalk.

5.3. Area between Service Road and Highway

Service road is designed parallel to Sion Panvel highway to facilitate vehicular traffic inside the node. Buffer areas in between these two roads are unorganised and unattended because of which illegal encroachments started happening recently. (Fig. 6 & 7) This buffer is acting as urban void as it is functionally or visually affecting negatively in an urban fabric of the city. This buffer can act as positive space which can act as green area or park or such activities which doesn't attract many people though it can benefit indirectly to the city. The incremental aspect needs to be considered while planning for such spaces.



Figure 6. Encroachment in buffer space

Figure 7. Unattended buffer space

5.4. Area for Future Expansion

Kharghar is planned with wide road network and areas are kept vacant for future expansion at various points. These areas which are along major roads are inviting hockers and informal activities at some places. These areas are directly attached to road even then unused by residents of the city positively because of unorganised character (Fig 8). Even squatters are getting formulated at some points (fig. 9). These areas may be required in future for developmental purpose but they are acting as urban void for years till the development is needed. Temporary activities can be good solution in this area.



Figure 8. Unorganised future expansion area



Figure 9. Future expansion area

5.5. Area below Flyover

Sion Panvel highway is a major access link to enter in Kharghar node. Flyover is constructed at this entrance to avoid congestion and to facilitate smooth vehicular traffic. This flyover is acting as a hindrance in pedestrian movement across the street. It is acting as urban void by obstructing visual and functional flow of the area. (Fig. 10) This urban void is derelict space which can benefit the city positively if incorporated through holistic design.



Figure 10. Area under flyover



Figure 11. Unattended area below Metro line

5.6. Area below Metro Line

Construction of Metro line is going on in Kharghar from last decade to facilitate increasing population efficiently. Areas which are under metro line are dysfunctional and inaccessible to people for years acting as temporary urban void. (Fig 11) Metro line is passing through centre of the Kharghar, which makes it even more crucial. We need to understand whether areas below Metro line are also planned along with Metro line, to have holistic urban fabric. In case of Kharghar skywalk, area below it is kept unattended for years by authority, a strategy should be formulated to avoid this for holistic development in a city. It is very crucial to understand these linear infrastructural voids can play an important part in continuity of urban fabric instead of becoming cutting or dead edges.

6. FINDINGS AND DISCUSSIONS

Infrastructural urban voids discussed above are acting as dead edges, cutting the flow of the city. We could easily spot these linear infrastructural voids running across Kharghar, forming a network of spaces. (Table 1) Large amount of shaded areas are available for people to use in the city in form of these linkages although they are not used because of visual, physical and functional barriers. Linear spaces kept for future expansions can serve purpose today if utilised accordingly for temporary activities which can generate public realm in the city. Temporary vacant areas are running across a central area of Kharghar, although efforts are not taken to utilise these for creating public spaces. This network of voids is affecting public realm in the city. The humanistic dimension in planning started in 1961 by Jane Jacobs when she emphasized on public realm getting hampered because of new infrastructural development like a highway. Willi am H. Whyte and Jane Jacobs began to point out social life and public realm on streets which are responsible to make city lively. These urbanists pointed out crucial role of public places in liveliness of the city. Indian cities need to consider aspect and try to formulate policy for holistic development which would foster public realm along with infrastructural growth in the city.

Kharghar is planned area with infrastructural facilities and various public areas. Whereas after analysing these infrastructural voids, we could see that public realm is missing throughout the city. (Table 1) A city is designed with all infrastructure, but the major link which can bind the city seems to be missing. Skywalk is built to facilitate walkability, though it cannot do so. Metro line, highway, services roads, flyovers are facilitating movement but failing to create public realm.

Table 1- Urban Infrastructural Voids Analysis

Sr. No.	Infrastructural Void	Physical Characteristic	Current Status	Reason
1	Skywalk	Enclosed , long , visually disconnected	Underutilised & misused	Monotonous and without activity & Safety & security
2	Area under skywalk	Shaded, Disconnected or inaccessible	Unplanned and misused	Visual barrier, dead edge and inaccessible
3	Area Between Service road and highway	Open, Disconnected, Contoured land profile, Incidental plantation	Residual & unorganised	Not noticeable, dead edge inaccessible
4	Future road expansion	Open, shaded with trees, Temporary	Unutilised unorganised & encroached	Not noticeable, dead edge, unnoticed, hidden
5	Area under metro line	Shaded & inaccessible Temporary	Unutilised & unorganised	Visual barrier, inaccessible or hidden
6	Area Under Flyover	Shaded, Visually Disconnected	Unplanned & underutilised	Visual barrier, cutting edge

Functionally, Kharghar is planned with necessary infrastructure, but a holistic image of a city is not created because of edges formed by urban voids in the city. Public open spaces are superficially planned without considering flexibility and specialization. Functional planning approach tends to overspecialize public spaces. In developing countries like India, this is more prominent as historical cities showcase heritage of flexible, multipurpose and incremental areas. [19] Urban void can become opportunity if flexible and incremental revitalization plan is proposed to incorporate public realm. Holistic image of the city can be formulated with this strategy. Urban voids can act as connecting element which retains and builds a local pattern of

open space. Speculation about network of urban voids can act as medium for paradigm shift in flexible and incremental urban spaces. Individual void may keep changing although network of these spaces is constant and can act as opportunity for creating dynamic city which responds to changing needs of people. [20] The network of Urban voids can be converted into a network of urban infill to stimulate public realm in the city by creation of active edges. Linear Infrastructural voids can act as urban infill areas to create beauty in the city by generating an active public realm. It is very important to understand all parameters like social, cultural, historical, environmental and aesthetical while revitalising these voids.

7. HOMOGENOUS URBAN FABRIC THROUGH REVITALISATION

Planned developments in India need to be analysed through the lens of sociocultural background to find missing public realm which was the focus of historic cities. It is crucial to analyse layer of planned physical environment i.e. infrastructural network which governs the city form. Infrastructural network binds the city, although same can divide the city if not designed holistically. Kharghar node showcase this phenomenon of infrastructure dividing the city, although only transportation links are analysed in this research. Detailed studies can be carried out to understand other infrastructural layers which contribute in physical environment of the city. Strategic policies can be planned to bring back public realm and liveliness in the city through revitalisation of existing urban voids. This research talks about suggestive stepwise process for transport related infrastructure after drawing conclusions from Kharghar case study. Other layers of infrastructure and reasons behind formulation of urban voids and discontinuous fabric will be the next step to understand planned cities in a better way. Contextual changes will be needed to apply this to another area or city.

7.1. Suggestive Stepwise Process for Revitalising Transport Related Infrastructural Voids

Transport linkages connect the city although analysis show that these linkages are becoming reasons for discontinuity of urban fabric which divides the city and affect public realm. If this network of linkages is revitalised holistically, then homogenous urban fabric which is rich in sociocultural background may be achieved.

7.1.1. Analysis of Transport Infrastructure of the City

Transportation modes, connectivity, linkages, and major junctions need to be studied through the lens of the public realm. This analysis would help to find out urban voids which are not contributing in the city and as a result becoming dead edges. Detailed morphological analysis (for urban form), functional analysis (for utilisation perspective), visual analysis (for aesthetical perspective), and activity analysis (for understanding public realm) would give clear idea about implications of transportation related urban voids. This detailed analysis would be the guiding factor while preparing revitalisation plan for a network of urban voids for holistic urban fabric. Network of transportation can be used as missing link to create cohesive and holistic city form rich in public life.

7.1.2. Morphological Analysis

Morphological study would point out voids which are segregating areas physically. Transportation linkages can be seen as lines which divide the city in figure ground map, although co relation of this study with functional aspect would give better understanding about dead linear edges or patches.

7.1.3. Functional Analysis

Utilisation of existing transportation links need to be analysed here to check if some patches are misused or underused or derelict. Results from this study needs to be correlated with other analysis to have a holistic view point. Temporary and permanent urban voids can be categorised to have clear vision while proposing the plan. Two typologies of urban voids will have different strategies to facilitate future growth without creating any hindrance. Temporary voids can be utilised for innovative purposes like urban farming, art festivals or exhibitions, laboratories for students, rental shopping or informal markets. The facilities which may be needed for such use can be created with minimum physical structure to allow incremental changes needed for future growth.

7.1.4. Visual Analysis

Photographic survey of functionally inactive and physical voids resulted from previous two layers will give a better picture about these urban voids. Understanding visual connectivity which is directly related to safety of the area also needs to be studied along with aesthetical perspective. Abandoned, misused, derelict or underused transportation links may affect surrounding areas also visually. Thorough analysis will give guidelines for proposal. If visual connectivity or visual ambience is an issue resulted through analysis, then appropriate measures can be taken to remove visual barriers and connect the areas. At some places the buffer is needed, such areas can be used for systematic plantations which can add beauty to the area along with reducing pollution.

7.1.5. Activity Analysis

This analysis considers how people are using these areas. This is the determining factor for proposal of revitalisation. Various parameters like variety of activities, social interactions, cultural implications, safety and security, accessibility, and issues of people while using these areas will help in deciding action plan for these urban voids. Generating various activities can motivate people to utilise these dead edges positively. Social interactions and safety of the area will be automatically improved if time is also taken into consideration. Weekly or time bound informal markets, periodic exhibitions, eateries and seating can motivate people to utilise these rejuvenated urban voids.

7.1.6. Holistic Revitalisation Plan

Detailed analysis will help in determining strategies which can be applied for revitalisation of a network of urban voids for homogeneous urban fabric. The design proposal will try to formulate a plan which would address social, cultural, historical, environmental and aesthetical needs of the area. Flexibility and incrementalism will be the governing factor in creation of revitalisation. Network of Urban voids generated because of transportation linkages can become a network of public spaces which bind the city and enrich the sociocultural aspect of the city by generating public interactions. Revitalisation of urban voids can benefit the city in various ways as discussed above, but contextual study and thorough analysis will decide the action plan.

8. CONCLUSION

Navi Mumbai is designed with strong multimodal transportation network and variety of public open spaces, and even then we cannot experience life in the city. Framework is not cohesive as well as segregation of public space and infrastructure is creating a chaos in the city. In old cities, Street reflected character of it whereas roads now days fail to generate public life. Historic towns

of India were compact, spaces were developed for people and not for cars. We need to understand that skywalk is not enough to activate walkability in the city. What is needed for pedestrian is totally different. We are designing multimodal transport system to facilitate fast movement of people, as speed is important. Sadly, experiential aspect of movement is getting neglected because of speed which is targeted. Transport corridors are efficiently designed for fast vehicular traffic although we need to analyse, whether same rules are applicable when we design for movement of people? We design Skywalk to segregate pedestrian traffic from vehicular traffic to facilitate obstruction free movement, but is it enough to stimulate walkability in a city? After analysing urban voids of Kharghar in brief, we could very well see that segregation is becoming a major hindrance in holistic urban form of the city. A city is a complex structure of various layers all layers are necessary but the more important thing is their connection with each other. City is going to change slowly with time, flexible planning which motivates incremental development can solve these temporary voids which are formulated because of planning for future.

Urban voids can be used as breathing spaces which lowers the density or can be used for generating activities which densify the area. It is not necessary to reutilise every urban void as innovative, flexible and temporary solutions can give temporary relief to create appropriate environment. [21] At the end paper concludes that innovative contextual strategies in Kharghar are needed for making city more lively and beautiful. Suggestive framework for homogenous fabric is suggested which can be detailed out and contextualised specifically for each city. Revitalisation of urban voids is necessary to generate holistic and experientially rich city, although innovative technique should be planned for the same. Environmental, social, aesthetical, cultural, & economical value should be evaluated while rejuvenating these voids. Specific and detailed research on innovative ways through which network of urban voids can be converted to network of urban infill areas which bind the city by activating public realm is next step in this research.

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