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Marginalized Communities and Climate Change- A Case of Gazdhar Bandh, Mumbai

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Marginalized Communities and Climate Change- A Case of Gazdhar Bandh, Mumbai

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Abstract: Slums in Mumbai can be seen from various perspectives Each perspective has its positive side and perhaps huge possibilities in cross learning for it to enable the urban inclusion in planning, policy and practice. The larger question is how new methodologies of research and formats of representation of informal settlements supports their recognition in urban design, planning, political and policy making processes How could these processes in turn contribute to the sustenance of informal and formal aspects of the urban form.

The formation of Gazdhar Bandh a large pocket of self-built sustain model of slums resulted from various parameters largely it owes its origin to the generic problem of state body (for not being able to provide affordable housing at the city level along with the absence of policy not being able create housing stock for the urban poor. These two issues are coupled with large scale land speculation in the open market and market driven real estate resulting in unaffordable housing in Mumbai

Quality of life is an idea that is often being discussed in various studies as a response to many issues and complexities that have recently emerged within our cities in the process of transformation It is also connected with the question of vulnerability and resilience The city of Mumbai, is vulnerable to projected climate change related disaster within given social, economic and environmental stressed conditions coupled with population growth and informal housing.

1 Introduction

Resilience and Urban Planning is a dynamic set of cause and corrective measure to deal with disturbances that are inflicted on human settlements either in form of natural disaster or in the form of human created disaster. The natural disasters are discussed within the realm of climate change as global phenomena while human created disaster is within the realm of disturbances of ecosystem in habitation process.

The key objectives of studying and documenting such condition within the cities is necessary to address, as the issues that are related to the understanding of the inflicted stresses/ conditions are based peculiar habitation process. It has impact on the eco-system of the city, the settlements within the city water-basin or to its urban fabric. It also requires the assessment of the resilience capabilities of the city, its settlements and its geographical & intervened edge conditions and finally the capability to generate and appraise interventions that yield

greater resilience for the city, its manmade conditions and its geographical and intervened edge conditions

India has committed to long-term adaptation to climate change with centralized plans, policies, and institutions. The diverse geographical conditions however, lead to the understanding that decentralized strategies integrated with local level planning can effectively build resilience as recently witnessed in varied urban contexts of India. A series of natural disasters like cyclones, tsunamis and floods in megacities and urban centers in India have prompted responses towards better disaster preparedness and also created awareness among city residents to issues concerning environment like the importance of solid waste management, housing for the poor, access to basic amenities like water and sanitation. Community responses have been documented in cities like Mumbai, Kolkata and Indore (Chatterjee, 2010; Mahadevia, 2001; Stephens et al, 1996). Natural disaster risk management and adaptation plans are typically local in character. The importance of local institutions and communities in disaster risk mitigation and long-term climate change responses is also established (Satterthwaite, 2007, Agarwal, 2008, Kelly and Adger, 2000, Chatterjee, 2010).

With the understanding that decentralized strategies, practical design integrated with city level planning can effectively address the concerns of coping with disasters, build the much-needed resilience, prerequisite to cope with the long-term challenges of climate change, this study argues for the inclusion of informal settlements like slums in the current planning narrative and provides an operational framework to integrate planning and design at the community level to build long term resilience. As Chakrabarty (2016) argues the use of the term slums beneficial as some networks of neighborhood organizations like the National

Slum Dwellers Federation in India prefer to identify themselves as slums as it assures certain benefits especially if residents can lobby to get their settlement classified as a notified slum. Following Chakravarty the term slum as used in this study refers to settlements characterized by at least some of the following features: a lack of formal recognition on the part of local government of the settlement and its residents; the absence of secure tenure for residents; inadequacies in provision for infrastructure and services; overcrowded and sub-standard construction of dwellings; and location on land (government land, eco-sensitive systems (land) of city, encroachment to residual land) less than suitable for occupation (ibid:554). Slums in Mumbai are abysmally underserved in terms of accessibility to water, sanitation, solid waste management, and health services. Despite the economic contribution to the city, urban policies and local authorities remain indifferent to the basic needs of residents in slums thereby increasing their vulnerabilities to impending disasters manifold.

Such apathy also poses as a challenge to achieving globally accepted goal of inclusive urbanization as envisaged in Sustainable Development Goals / SDGs. Indifference from the state apparatus has also pushed slum residents to varied tactical methods to access basic services, access to drinking water (Bjorkman, Pipe politics, 2015) upgrade housing, build their own toilets and housing already established in literature (Calderia, 2016; Patel et al, 2015).

It is perhaps no wonder therefore that slum settlement chosen as case study here, Gazdar Bandh is not included in development plan of Mumbai 2034. Based on an empirical study using participatory tools of survey and mapping in the slum community located in an estuary condition at *Ghazdar bandh*, in the residential/ TP Scheme precinct of western suburbs in megacity Mumbai, this study argues for the significance

of design strategies in consultation with local communities living in informal settlements that are vulnerable to environmental risks like floods and mudslides. These risks typically arise from inadequate living conditions in informal settlements like inadequate drainage, sanitation, solid waste management, and water and consequent harmful practices like disposal of waste into nearby estuaries, streams and drains resulting in clogging and recurrent floods. Extensive fieldwork comprising semi-structured interviews with 40 respondents (including slum residents, municipal officials, local politicians, representatives of civil society organizations/CSOs) were conducted in Gazdar Bandh slum. A detailed qualitative study followed to understand the varied aspects of living conditions like housing typologies, livelihood patterns, drainage, sanitation, solid waste management, water, vulnerability to disasters like recurrent floods as a consequence of living in informal settlements. The attendant responses in terms of investing in housing structures, makeshift structures, looking for alternative habitats, livelihood options and everyday practices like waste disposal, usage of toilets, access to water for drinking, cleaning and cooking were examined. Section 2 discusses the meaning of informality in the urban context of India, its varied spatial and social manifestations. Section 3 situates the present study by taking the case of slums in Mumbai as examples of informal living and working conditions that developed and proliferated as a result of flawed urban planning and policies. Section 4 presents the case of Gazdar Bandh located in the western suburbs of Mumbai. At another level the study examined varied urban policies (initiated at the Centre, state and local government levels). Significant among them was Local Area Plan that was once part of the Draft Development Plan of Mumbai 2014 but later scrapped. It has been again reintroduced under the centrally supported Smart Cities Mission in 25 designated smart cities in India discussed

in Section 5. Section 5 presents the concluding comments and presents an operational framework which draws from the principles of participatory planning and community level design strategies and practical solutions developed in consultation with stakeholders that could develop as a replicable model to build the much needed resilience in the face of the impending risk of flood that has plagued Mumbai for over a decade. The framework can also inform LAP currently reintroduced under the Smart Cities Mission of India.

2 Resilience and informality in the urban context of India

Informality – in the form of informal activities and informal use of available material presence – is an essential feature of urbanism in India and the global South in general. Informality in the urban context can be understood from multiple frames as spatial categorization (slum), socio-economic groups (informalized labor), forms of organization (rule-based/relation-based) and knowledge and practices. The urban experience is brought about with the coming together of formal and informal spaces, and activities as witnessed in street economies across urban India. In other Asian cities like the overcrowded streets in the Mongkok district of Hong Kong provides a counter narrative to the criticism of overcrowded streets and markets: they serve as hangouts for the locals, symbolize the chaos and unplanned spatiality of the Asiatic exoticism that appeals to foreign tourists. Every corner of the inner-city area of Mongkok is filled with traffic, shoppers, passer-by, strollers, locals and visitors from other places. Temporal changes brought about by changes in the street from varied uses – pen air bazaar, vehicles, unpredictable mixing of new and old, shops, roadside eateries add to

the vibrancy and vitality of street life and help in place making (Lau, 2011). It must be mentioned in this context that the domain of informality also includes the territorial practices of the state apparatus. Noted urban theorist Ananya Roy (2009) argued how the state applying rules of exception and deregulation has informalized planning practices citing examples of Indian cities like Calcutta, Bangalore and Gurgaon.

Informal settlements that serve both as work and residential spaces in cities across India are abysmally underserved in terms of accessibility to water, sanitation, solid waste management, and health services. Despite the economic contribution to the city, urban policies and local authorities remain indifferent to the basic needs of residents in these settlements thereby increasing their vulnerabilities to impending disasters.

Informal settlements are often not included in the development plan of cities. Urban Planning has increasingly been less concerned about provision of basic infrastructure and services to vulnerable communities living and working in informal conditions. Land use, zoning, building byelaws, and development restrictions are the major concerns of the current urban planning narrative. It is further observed that privatization of developed land, service provisions and road building is increasingly becoming a part of the planning process too. While “within the new planning paradigm” the government acquires land for public purpose, it immediately dispenses it for Special Economic Zones (SEZs), multimodal freight or highway corridor projects with major real estate component. In cities too, the preparation of master plans, Detailed Project Reports by private consultancies has become the new norm. These increasingly promote the new paradigm of globalized smart cities or service cities for global cities that have no bearing with traditionally evolved urban pattern and the social values that urban form contains.

Thus resulting in indiscriminate allotment of prime public land for commercial use and residential plots for premium apartments, with disguise of affordable housing. This pro-participation of private players in land development, known as the Gurgaon (financial and technical hub City in southwest of New Delhi) Model in Indian town planning paradigm is increasingly finding favor with the local planning authorities. The census of 2011 stated that approximately 65 million people live in slums and was expected to grow to 104 million by 2017. The socio-economic implications of large slum population on civic services, housing and health care, social exclusion remain unaddressed in policy discourse or remain exclusive to few cities. This implies that urban planners will face escalating social, ecological and legal challenges as informal settlements continue to encroach upon existing reservation lands, fragile ecologies and disputed geographies. The next section highlights the discourse on slums in Mumbai in an attempt to delineate how current urban planning narrative out rightly excludes crucial questions of informality that are inherently networked with formal systems.

3 History of slums in Mumbai

Slums in Mumbai can be seen from various perspectives. The migrant would see slum as an entry level housing to establish his/her household in the city. The Urban Planner in academics would see slums as outcome of faulty planning process or policy structure, policy and land management system. The economist would see the slum as an irregular organization of informal economic network that forms the backbone of the city of Mumbai. The policy maker would see the slum as Informal urbanisation with self-constructed



Figure 1 Gazdhar Bandh Slums

settlements that are commonly represented as problems responsible for the degradation of local ecosystems. The Sociologist would see it as social and spatial protocol, born of necessity that enables its inhabitants to sustain their marginalized livelihood with scarce natural and material resources. The Urban Designer would see slums as marginalization of informal representation in formal urban planning processes and spatial understanding of cities.

Each perspective has its positive side and perhaps huge possibilities in cross learning for it to enable the urban inclusion in planning, policy and practice. The larger question is how new methodologies of research and formats of representation of informal settlements support their recognition in urban design, planning, political and policy-making processes. How could these processes in turn contribute to the

sustenance of informal and formal aspects of the urban form? (The urban form from urban design point of view means the understanding of relationship of buildings to buildings, buildings to built & un-built open spaces, buildings to people, history, social and cultural aspects)

Historically, slums have grown in Mumbai as response to growth of population (mainly due to migration due to economic opportunities) far beyond the capacity of existing/supply of housing stock and affordability. This migration has sparked a steady rise in the illegal occupation of land and the chaotic construction of new slum housing, manipulating reserved land or land within fragile eco-systems or margins such as along railways or estuaries. Many of these homes are made of steel sections, infill bricks and metal corrugated sheets. None of the slums or dwellers would have legal foothold in terms of the land or

units or the city's sanction. Electricity lines and water supplies are ingeniously diverted from the main lines (Bjorkman, Pipe politics, 2015)

Slums in turn emerge as an important resource with its symbiotic relationship developed over time for essential services and human capital. The oldest slums house families that provide cheap manual labour for various types of activities- workers for construction sites, auto rickshaw drivers, service providers for repairs and recycle, production house for domestic consumables and domestic helpers and sometime dwell on anti-social activities.

Migrants are normally drawn to the city by the huge disparity between urban and rural income levels. Usually the residents of these densely populated enclaves live close to their place of work. The formal residential area often provides employment for the slum dwellers (ex. household help, drivers).

Mumbai knows another reason for the formation of slums. As the city grew, it took over land that was traditionally used for other purposes. The *Koli* fishermen & Gaothans (the urban villages and original inhabitant of the city) were displaced during the development of the harbor and port. Those driven out of the fishing villages improvised living space that was often far shabbier than before. This process continues even now.

On the other hand, some villages were engulfed by the city growing around them. *Dharavi*, originally a village with a small tanning industry, has become a slum in the similar process of transformation. Many of the older slums in Byculla and Khar were initially separate villages, with their own traditional industries.

The growth of slums as informal settlements runs parallel to the increasing informalization of work and economic restructuring in cities

like Mumbai. For instance, Pacoine (2006) discusses that a process of informalization across all industries that gathered pace in the 1980s and 1990s as industries in search of cost savings contracted out stages of the production process to temporary labourers in a factory or to outside agents and home workers. This was facilitated by the emergence of new forms of casual and contract labour and the growth of labour-intensive small-scale informal workshops often in slum and squatter settlements operating beyond the writ of the legal protections and regulations of the formal sector of the urban economy. A speculative boom in property and real estate markets in the 1990s that undermined manufacturing units located in old industrial areas such as the Mill Lands on Bombay Island, and led to the regeneration of these areas as new commercial and residential enclaves, (as evident in the gentrification of the Phoenix Mills, Raghuvanshi Mills in Parel).

Similarly the formation of Gazdhar Bandh, a large pocket of self-built-sustain model of slums resulted from various parameters enumerated above. Gazdar Bandh, a densely populated slum community located in the Western suburbs of Mumbai is one such case Largely it owes its origin to the generic problem of state body (MHADA) for not being able to provide affordable housing at the city level along with the absence of policy not being able create housing stock for the urban poor. These two issues are coupled with large scale land speculation in the open market and market driven real estate resulting in unaffordable housing in Mumbai.

Walking through the narrow lanes and streets of this thickly populated slum community in Mumbai's bustling commercial district, one may not become aware of its informal conditions. The dense social life, ongoing economic activities and thickly populated residential and working spaces are actually the outcome of unique connections between people and places in

the past three or more decades. This thriving everyday urbanism renders place based visual identity to this urban space yet remains informal and excluded from the Master Plan.

However, there is another specific condition that has necessitated the formation of this large slum pocket in the heart of the western suburbs in Mumbai. The first condition as being the unchecked land that is designated as “No Development Zone”. Second the land is situated in an estuary condition characterized with sensitive ecology. Such conditions are never negotiated within the development plans either as subject of land or subject of the ecosystem. Such dubious responses have allowed unchecked encroachment and lately resulted in the formation of the large slum pocket as a spatial illegality.

Unlike Gazdhar Bandh, many of the slums are either designated within the development plan as an open space or reservation or state body ownership or collectors’ land. It is interesting to note that such slum pockets are increasingly becoming hotbeds for speculative practices around land, development and expensive real estate.

To address slum housing issues, the municipal authority (MCGM) and state planning body (MMRDA) have introduced a number of schemes and flagship programs like the Slum Improvement Board (SIB), Slum Resettlement Scheme (SRS) and instituted the Slum Rehabilitation Authority (SRA). The formation of SRA (under section 33/10), which is a large body, using policy as base to eradicate encroachment, has actually further facilitated the delivery of high end market driven house on the pretext

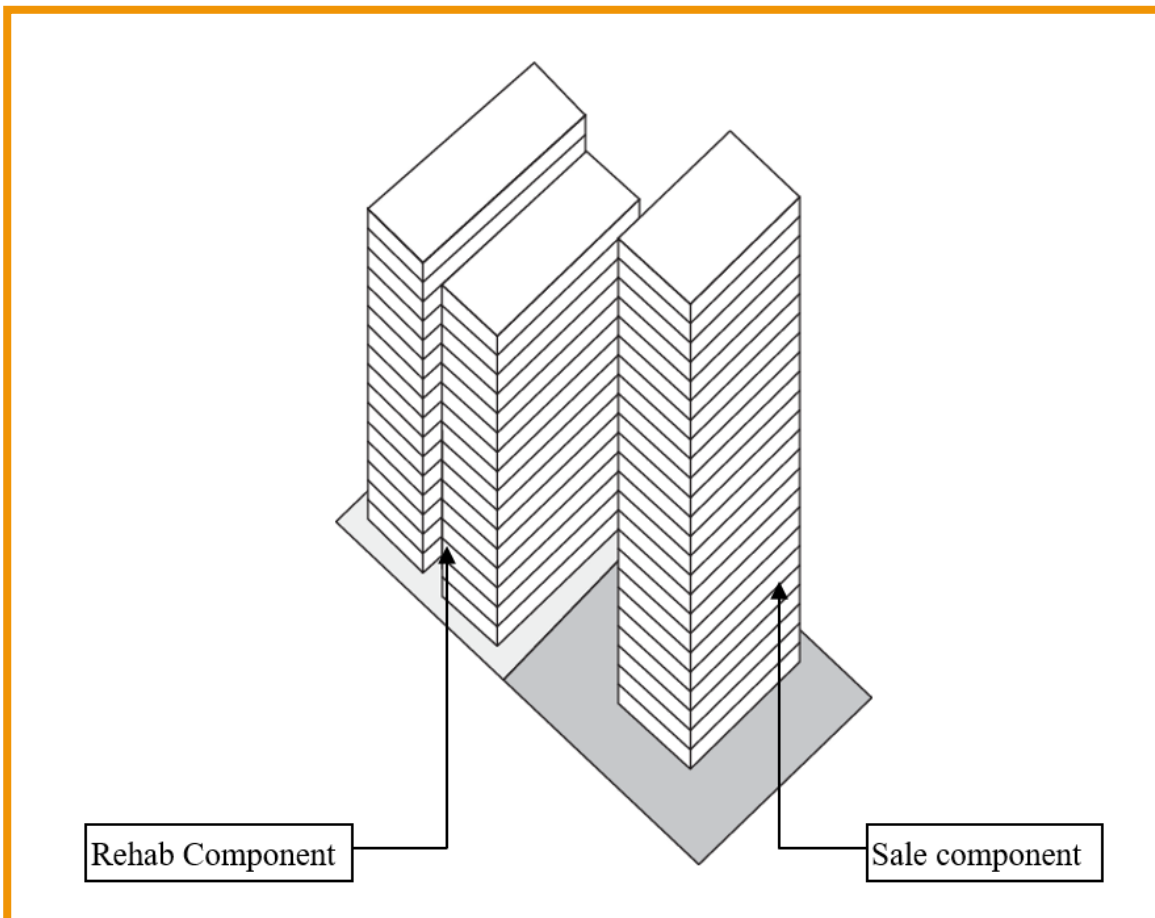


Figure 2 Existing model for slum redevelopment

of free housing for slum dwellers which is a miniscule component of the whole scheme.

4 Slum redevelopment

The most prominent type of redevelopment that dictates the real estate market in Mumbai today is the redevelopment of these slum pockets. Typically, slum pockets emerged on reserved land, open spaces and margins within the suburbs. The state government of Maharashtra replaced the Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act, 1971 with the SRA (Slum Rehabilitation Authority) in 1995 with a special committee constituting planning, architecture and social services. Redevelopment of slum pockets has been most pronounced in Nehru Nagar, Khotwadi, KharDanda, BehramBaug,

Ghazdar Bandh and Golibar areas of Mumbai. Incidentally, most of these pockets are located near prominent areas and are well networked within the suburbs. The Urban Development Notification under Maharashtra Regional Town Planning Act/MRTP Act 1966, section 154, has stated that slums with a density of more than 650 tenements per hectare are allowed to have an FSI of 4 as stipulated in the SRA Act, 1995, while those with lower densities shall have a FSI of 3. The high-density slum pockets are more prominent in the redevelopment narrative because of higher sale incentives and profits.

SLUM REDEVELOPMENT DIAGRAM (The encroached land is developed by rehabilitation of slum dwellers free housing either in situ or by relocation process with bare minimum open spaces. The housing for open market sale is given generous open spaces and occupation of prime portion of land.

Disciplinary	Equilibrist	Evolutionary
Aims	Equilibrist	Adaptive
	Existing normality	New normality
	Preserve	Transform
	Stability	Flexibility
Focus	Endogenous	Exogenous
	Short term	Medium-to-long term
	Reactive	Proactive
	Atomized	Abstract
Planning Approaches	Techno-rational	Socio-cultural
	Vertical integration	Horizontal integration
	Building focus	Societal focus
	Homogeneity	Heterogeneity
	Deductive	Inductive
	Optimization	Redundancy

Table 1 Equilibrist and Evolutionary Resilience School of Thought



Figure 3 Gazdhar Bandh community

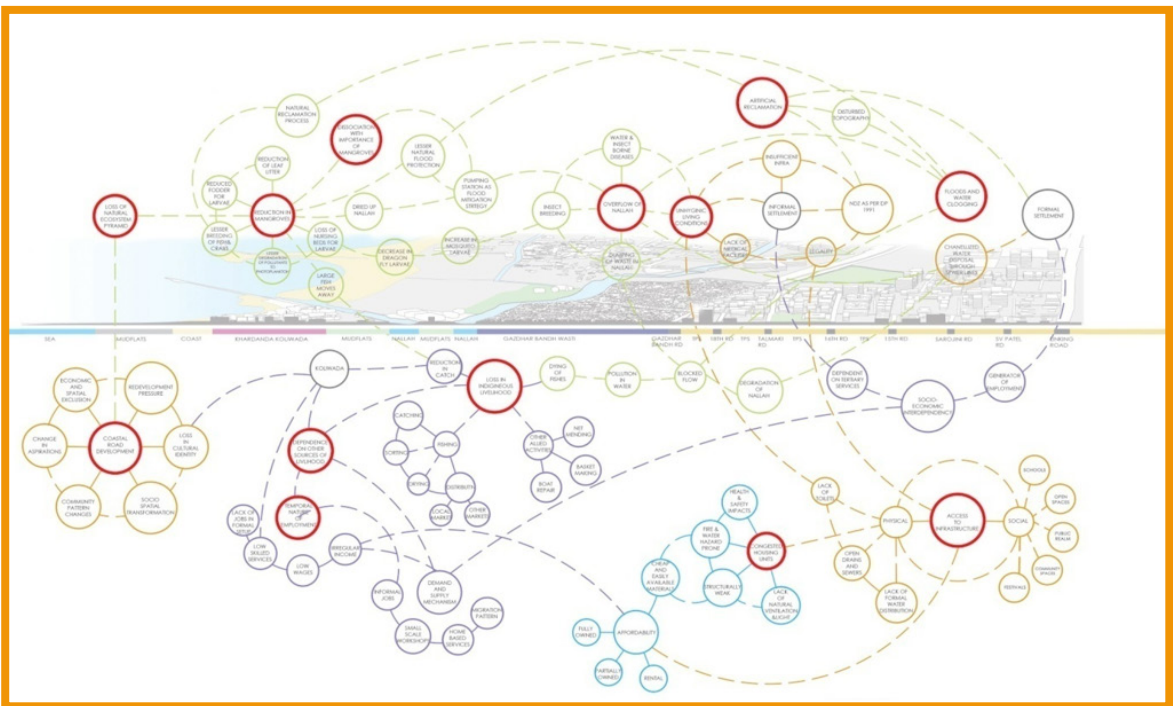


Figure 4 The relationship matrix of various determinants of form of the slum

5 Resilience Argument

Various schools of thought of resilience have been prevailing in the academic as well as research discourse currently. The newly emerging school of thought is being called evolutionary in which, there is more stress on how systems can become more adaptive rather than reactionary. Table no. 1 represents the distinction between two approaches of thinking (O’Hare, 2014). In case of Gazdhar Bandh being informal settlement needs to be analyzed from the perspective of evolutionary development of systems and actors. Being located on muddy fields, the settlement

adapted a reactive approach first to cope up with the water penetration into the floors and then subsequently a proactive approach while building new houses or extension of houses.

6 Actors and Network

The figure 4 explains the nature of complex intervention in sensitive eco system of the city for informal housing, livelihood and formal economic network with the city. The center axis represents the various component of that makes

the Gazdhar Bandh settlement with strong interdependencies. The network on top of the bar represents the eco-system interdependencies and nature of vulnerabilities that are created in interacting with the physical settlement. The lower portion of axis represents the community, their livelihood and nature of interdependencies with ecology. Once such interactions are in place it demonstrates the nature of vulnerabilities that are inflicted on ecology and settlement itself.

Gazdhar bandh's location itself generates its own ecological problems such as degradation of estuary (because of partial solid waste and sewage disposal directly into it), soil (moisture). Though residents have been responding to the problem of flood and rain water entering into house by increasing the height of plinth as well as by employing mechanical measures such as electrical pump to take the water out from low-lying areas. But these kinds of measures are of equilibrium nature and they also incur a financial cost on household. The vulnerability is high when it comes to structural stability of houses which is severely affected by continuous exposure to moisture and dampness.

7 Community and City

Over the years, Gazdhar Bandh also evolved as a self-sustaining neighborhood unit where

residents themselves started engaging in various businesses and commerce essential for a local community such as groceries, cloths, food etc. This development not only made the community more self-dependent but also extended its influence on formal housing colonies in the nearby vicinities. By looking at the current dynamics of development, it can be observed that economic resilience of the Gazdhar Bandh community is deeply dependent on the surrounding formal housing colonies, activities

and also the livelihood of the residents which is linked with the larger city parts.

With congestion also comes the issues of limited or no ventilation, which in turn affects the quality of light and air inside the small tenements. While doing the field study it was observed that many people within the community mentioned the frequent occurrence of vector-borne diseases especially in the monsoon months. Children are also affected by these densities as it limits the open and community spaces for playing and other activities. The figure 5 explains the larger situation of the settlement in estuary conditions and the way in which the geographic location can inflict flooding risk and other related vulnerabilities within the site context and its surrounding context.

The typical unit shown in figure 6 is a household in Gazdhar Bandh which houses 8-10 persons. Due to limitations in space, the expansion has been vertical with narrow approach staircases to the upper floors therefore limiting the number of windows and other measures of optimal ventilation. Gazdhar Bandh also needs to be seen from the perspective of how community has achieved the ability to cope with the constant challenges generated because of environmental, social and urban changes in their vicinity and the city itself. Analyzing from the various viewpoints of men, women and children, we can observe that the Gazdhar Bandh shows very complex network of actors. These actors are individuals, community leaders, women, ecology, economics, development plan policies and local authorities. Though as the study indicates that community is aware of the drastic change in frequency of floods, settlement drainage, density of population, often shortening of access to open spaces and infrastructure but, it is not aware of how it will affect them in longer period and how it will shape their future. The study generated a matrix (fig. 7) which illustrates the interrelationship between the actors who are

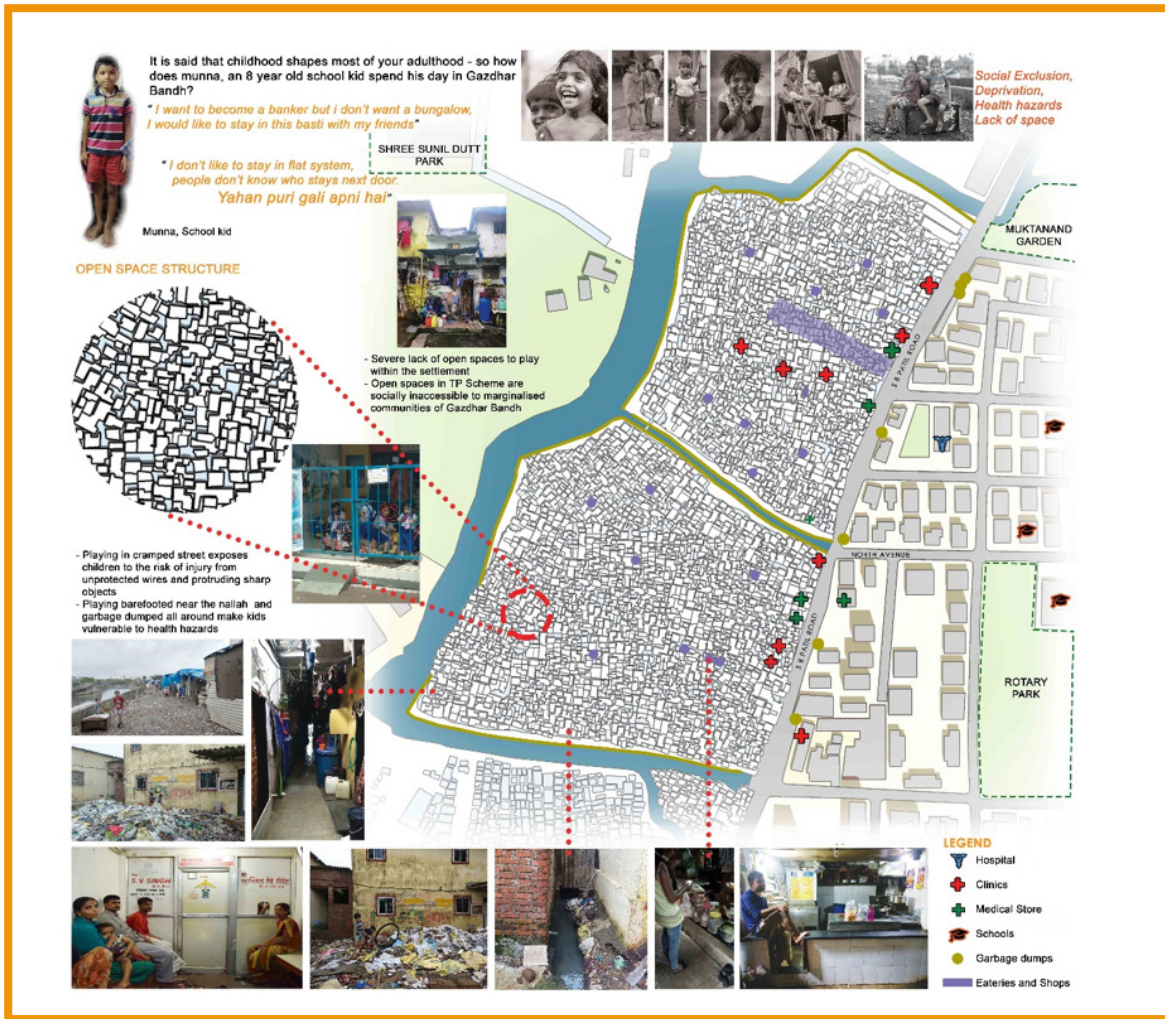


Figure 5 Gazdhar Bandh and its environs

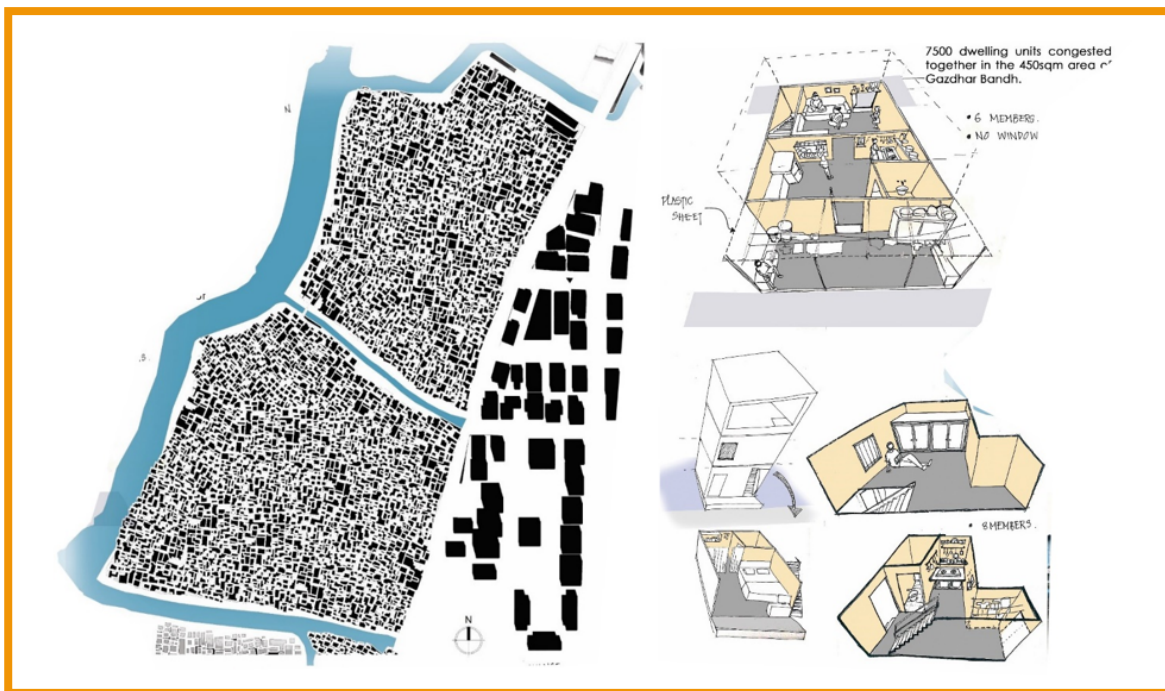


Figure 7 Household units and typologies in Gazdhar Bandh

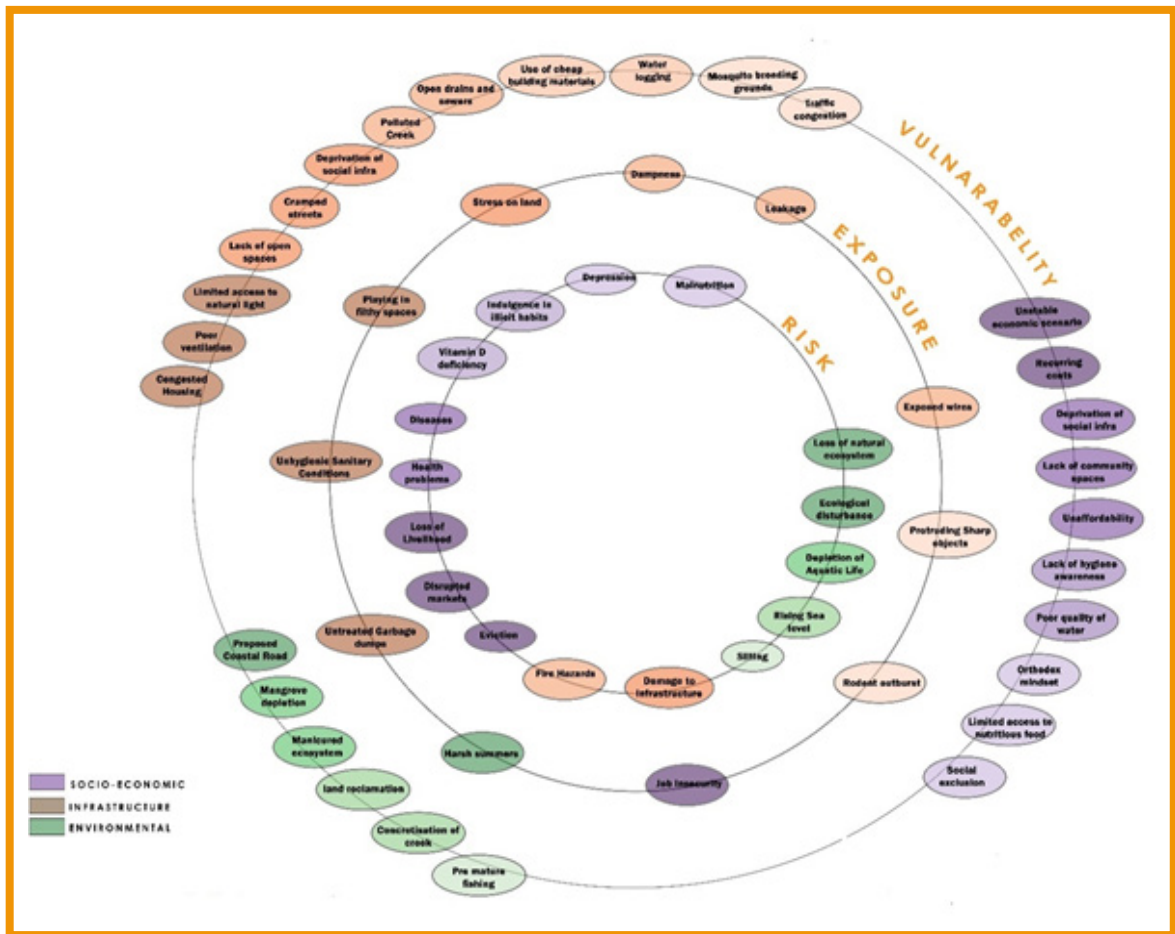


Figure 8

constantly interacting in changed environments. The three important components of resilience namely risk, vulnerability, exposure are mapped to understand the issues in larger perspectives of community through social, economic, environmental aspects. As the color spectrum changes from dark (high concern) to light (moderate concern), it brings out the critical components such as loss of livelihood (risk), unhygienic sanitary conditions (exposure), recurring costs (vulnerability) shows how multiplicity of issues can lead to more increased scale of disaster if issue based interventions are not addressed through spatial and policy design. Similarly many observations can be arrived at by looking at permutations and combinations of risk, vulnerability and exposure of community with regards to spatial and non-spatial issues.

8 Conclusion

In 2006, floods in Mumbai exposed the city’s vulnerability, crumbling infrastructure, lack of coordination among government departments, and lack of preparedness to deal with disasters. Existing literature establishes that coastal megacities like Mumbai will be exposed to risks associated with climate changes like rising sea level, heat waves, tropical cyclones and storm surges besides changes in rainfall (Hallegate, S. et al, 2010, Stacey and Barber, 2007). Therefore climate is becoming an increasingly important challenge as it starts to eat into India’s high economic growth rates and seriously impact the lives and livelihoods of millions of people (Revi,2008: 207). Post 2005,

the Municipal Corporation of Greater Mumbai (MCGM) established a Disaster Management department, prepared a special plan for the monsoons, and planned for better departmental coordination during rescue operations. The existing program in Mumbai focuses on post disaster operations and largely ignores disaster risk mitigation strategies to reduce vulnerabilities that are inextricably connected with the everyday lives of residents living and working in informal settlements (fig. 8) dotting the city. The most crucial of these include poor solid waste management practices, unsanitary garbage disposals into streams and estuaries that have been reduced to nullas (adapted from Hind word meaning watercourse) especially as witnessed in the slum site chosen for this study, open drains, resulting in clogging of drains and eventual flooding. What is also missing in the existing disaster management program is the lack of integration of city residents, especially slum communities into the design, planning and governance processes of city as stakeholders.

9 Way Forward

This case study intends to find systemic viewpoint of what is called as resilience in marginalized communities with regard to climate change. The study also finds out determinants of how resilience is imagined by communities as well as governing authorities. Determinants in this study can be qualitatively mapped in different context of region and climate to further finetune the understanding of risks, exposures and vulnerabilities in marginalized settlements. By establishing systemic viewpoint of the resilience, this study opens up the possibilities of developing a framework for analysis of settlement which are occupied by vulnerable communities where complexity dominates the

every course of action. Authorities as well as citizens can use this framework to look at their settlement from the resilience perspective.

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