

Threshold Spaces as Communal Anchoring Nodes in Super Diverse Communities Combating the Covid-19 Pandemic: The Case of Kumbharwada, India

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Abstract

It is important to understand how people perceive the world in which we live and imagine. In the Indian Cities, the organic slum settlement of Dharavi, Mumbai is a great example of spatialities created by people's needs and demands. It has coherence of low rise-high densities, and socio-economic & cultural diversities in shaping the physical setting. Successful urban patterns facilitate cohesiveness in the communities. However, the impact of COVID-19 has altered this cohesion. Therefore, practicing social distancing has remained a notional norm. It is important to understand how people have adhered to social distancing norms in the organic settlements uplifting the community.

The paper is divided into four parts. A theoretical premise is nurtured to understand the pre-requisite of space today which is the integration of threshold and cohesion. Threshold is defined as a "separation" while, cohesion is defined as "connection", resulting into the formation of cohesive threshold spaces. Such spaces involve the interpersonal dynamics and sense of connection among people. The idea is to decode cohesive threshold spaces, their character, types and significance. It also focuses on the types of spatial delimiters pulsating from micro, mesa to macro levels. The spatial delimiter is then supported to understand the spatial context of spaces in detail. It also examines the neighbourhood of Dharavi as a communal anchoring node. Cognitive perception is a method adopted to record, map and analyse such spaces. The paper evaluates a case of Kumbharwada model in Dharavi to understand the impact of the pandemic.

The paper highlights how community participation in Dharavi has emerged as a concrete prototype for social distancing and contact tracing to curtail the impact at a large scale. Lastly, the magnitude of cohesive threshold spaces is understood by virtue of community participation to combat such pandemic today and in future accelerating a successful model.

Keywords: Super-diverse community, cohesive spaces, threshold, cohesive thresholds, spatial delimiters, Dharavi, Mumbai, India.

Introduction

A city is not just a place in space, but it is a drama in time (Geddes 1912). Slums are the places where poor can dream, the weak can hope, the helpless can strive, the powerless can rise (Dhliwayo, 2019). As it suggests, despite being poor, weak, helpless and powerless, people of Dharavi themselves derive their own strategies to control the spread of virus during the pandemic clearly depicting what communities are. Plurality is seen in its geographical, demographical, historical, political, economic and socio-cultural base. The concept of community/social stratification in slum organic settlements of Dharavi began into a larger setting due to its variety in forms and functions in the built-fabric, which has always attracted various ethnic groups, social strata and age groups. It inculcates a multi-faceted structure of social organization, involving social institutions, groups and individuals configuring intense social relations into living. Such inclusiveness promotes cultural rights celebrating diversity. Intermixing of functions has governed livability including safety, comfort and convenience. The narrative of Dharavi is all about spatialities, highlighting land values and built densities creating a clear status of stratification in its setting. Although Dharavi is incredibly poor, its industrious and vibrancy is the beating heart of Mumbai. It's organic and incrementally developed urban form is pedestrianized and network-based, with mixed use, high density low-rise streetscapes having an ecosystem of community flourishing in the midst of environmental toxicity, highlighting the plight of Dharavi.

This dynamic system is ultimately about improving quality of life and allow the diversities to be united as a whole. Urban social studies therefore analyse community life in all its complexities and realities to maintain harmony even today. Perhaps, there are additional and unwanted forces, which disturb this communal harmony, when an urban crisis resulting into worldwide pandemic brings insecurity and health threats among people. It attracts stagnation and social cohesion that disturbs the order of work, eating, travel and interaction. There comes a shift from diversity to paucity. However, logic of space formation in Dharavi is based on people's needs and demands, more or less as a human phenomenon that it adopts to the space and use it in certain ways. Here, the space is also flexible, that it allows changes and patterns which deal with the environment of varied complexity. The aim of the study is to understand how *Kumbharwada*: a compact neighborhood of Dharavi, managed to practice social distancing.

Background

India is the second-most densely populated country in the world, with a less than adequate healthcare system aggravated by the fact that 21.9 per cent of the total population lives below the poverty line (Survey 2018). The novel corona virus disease (COVID-19) pandemic has infected over four million people in India as of September 1, 2020 and has killed over 65,000 people (COVID19india.org).

When India discovered its first cases on January 28th, it witnessed an exponential spike in late March that led to a nationwide lockdown on March 24th in order to stem the infection. The overcrowded slums like Dharavi, which is an organic slum settlement in the city of Mumbai, Maharashtra, spread over 2.1 square kilometers is considered to be the largest slum with a population of over one million (<https://en.wikipedia.org/wiki/Dharavi>). Therefore, practicing social distancing has remained a notional norm in these settlements. It will be very important to understand how people have adhered to social distancing norms in the slum settlements uplifting the community. Practicing social distancing and self-quarantine in such settlements remain far from implementation. However, the curve of COVID-19 positive cases in Dharavi slum has shown a declining trend with 102 active cases with over 2478 recoveries out of 2480 total infected people (Brihan Mumbai municipal corporation,2020).

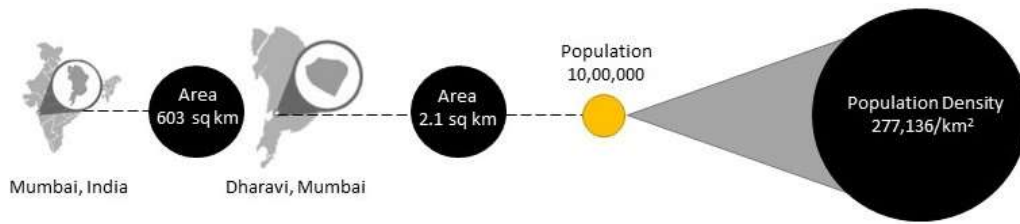


Fig. 1: Location, Demography, Population
Source: Author

Lack of space and over-crowding is a unique characteristic of social interaction and networking because no one has real privacy. The intra and cross network of cohesion (connection) has derived the stratification which is functional, conflicting and interacting at the same time. Living in a community is all about creating a sense of cohesion by virtue of spaces inhibiting both tangibles and intangible characteristics. The current pandemic has altered the cohesion leading to transformations at some level in the new normal where fear has come to drive society. The cramped communal toilets, each shared by thousands, lie dirty, further heightening their fears among the people. The symbiotic relationship has undergone a reset, driven by the imperatives of managing the crisis along with a sense of health security. It is very important to note here that while a lot has been already written, derived and documented in case of Dharavi and Kumbharwada, however nothing pertaining to cohesive threshold spaces as communal anchoring nodes has been talked in the past in order to study the impact of COVID19 pandemic

Literature: The Theoretical Premise

a) Cohesive Threshold spaces

Cohesive spaces involve the interpersonal dynamics and sense of connection among people. Cohesion is defined as “connection”, while thresholds is defined as "separation" resulting into spatial delimiting spaces. Both Threshold and Cohesion have been studied as an isolated entity in the understand spaces. Threshold spaces have been understood in terms of transitional, intermediate space or a barrier, in which one space separates itself from the other. It is a spatial ambivalence between opening and closing and at the same time creates the expectation of what is to come (Till Boettger, 2014). Every day, we cross a number of "thresholds" which start from coming out of our personal room and meeting other members of our family, then going out and making ourselves part of larger groups, urban environments and activities. Such line of action was a part of our normal life and routine. Georg Simmel’s on a theory of a space provides useful concepts to understand human ability to separate spaces-that is to establish a boundary between them and the need to then connect them (Boettgar 2014).

The concept of combining cohesion and threshold is a new idea to study how logic of space formation has played a vital role in connecting volumes and people by separating and differentiating them in context of Dharavi. Such an ideology will help us understand how people have maintained the social distancing in Dharavi, in such compact and tight settings.

Dharavi acts as a viable example selected for the study where threshold spaces are the zones of social coherence which is at the front of their houses, corridors and at times the entire fabric can be seen living its life in its thresholds. During pandemic such threshold spaces become the incubation points to hold danger of virus spread. The place where even today people live in inch of land, cohesion and threshold together forming a symbiotic relationship was the idea which shaped them. Cohesive thresholds can be encountered as the places of quick transitions, a space with no fixation in its physical limits of space but coheres strong knit of connections, to enter or

exit and many a times, tying of interior and exterior spatiality together are the spatial delimiters. In Dharavi, there is a thin line, which exists between cohesive spaces and thresholds. There is a blurred boundary, which exists between cohesion and threshold. Thresholds in many cases are the primary space for people. These thresholds are at times recognizable and not-recognizable too.

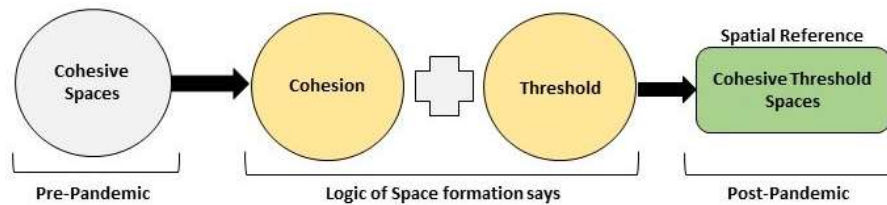


Fig. 2: Concept of Cohesive Thresholds

Source: Author

b) Cohesive thresholds with Spatial Delimiters (at Macro Detail)

There is a number of policy level delimiters like guidelines, nationwide lockdown, unlock criteria's, wearing of masks in public spaces, maintaining social distance and sanitization. The dilemma has made the people strangers living and working under a single shed. Exponential spread of disease in one particular area (neighborhood) has restricted movements and sealed the borders at the neighborhood level as prevention measures. Places with tangible physical boundaries like planned settlements can be easily demarcated and restricted contrary to unplanned settlements with blurred boundaries.

Although spatial characteristics of organic settlements have varied spatial delimiters in their cohesive threshold spaces, which provide a space with a clear status, it helped people to maintain human contact at the present times. Spatial delimiters are present at a variety of scales from the smallest to the largest divided into boundary, border and limits in spaces.

- **Boundary (Enclosure):** Creating a boundary in any space or place is drawing clear physical division which are not easily accessible is at private micro scale.
- **Border (Dividing element):** The exponential spread of disease in one particular area (neighbourhood) has controlled movements at the neighbourhood level as prevention measures is at the semi-public mesa level.
- **Limit (weak points):** People have started confining themselves within their own set limits at public macro level.

c) Spatial Context of Delimiting Spaces (at Micro detail)

Spatial delimiters as borders, boundaries and limits are about the macro level recognition of details to understand how the spaces have responded and changed the behavioural patterns with the need of time. Spatial context is the micro level integrities of these spatial delimiters. It is more inclined towards understanding the permeability and visibility. The space detail helps the users to determine spatial awareness, navigation and decision making in this case. These formal findings will combine to substantiate a number of observations, about the influence of spatial characteristics at the micro level. It also communicates how people have moulded spatial configuration, through visibility and permeability characteristics by means of mapping phases and recognition, sequence and spatial organization.

It has further played an important role in supporting and maintaining physical distances, thus realizing the idea that built -environments still encourage social interactions and may inhibit the formation of communities.

- **Phases and recognition:** The fundamental principle in the built-environment and context of space at micro level is to ensure that the occupants along with outsiders could recognize measures to avoid contacts, keeping health security as a primary concern by virtue of approach point, entries and exits. Although due to organic arrangement of spaces, it is difficult to differentiate, it is important for the occupants to provide clear discrimination either inside or outside a building. Means of egress is defined as a location of an exit via doors or any barrier element which ensures safe and controlled flow without any obstructions. It is influenced by a number of factors related to the characteristics of both the dwelling unit and the occupants who shaped the space. However, it was more of people's behavior related to the schemata in their minds that maps how different facilities are organized in specific situations.
- **Sequence:** By passing through a space, a path creates movement and points of rest within a space. A path can also terminate in a space like a meeting point, playing, interacting, thresholds and edges. Such spaces in context of Dharavi were the places that meant not only for movement but due to space constraints they also acted as their space to work. The path determines the sequential tracking of movement of people to commute from one place to another. The significance of such path was part of their economy generation, spill over and display their occupation. It will be very important here to understand how this logic of space formation has helped them to control movements at the same time maintain physical contacts in this path.
- **Spatial organisation:** Organization of space is fundamental to the composition of a built-environment. The spatial organization in a place like Dharavi is a mix of residential and economic activity of which the resultant space outcome is derived through. It is organized into patterns so that they relate to one another in a specific way. Spatial relationships between forms have helped to define interaction between people and their activities. The idea behind understanding spatial organization in time of pandemic will help in identifying how people have adopted to changing circumstance in the same space to isolate themselves and curtail down its spread.

Super Diverse Community: Dharavi as a Communal Anchoring Node



Fig. 3: Layout of Dharavi
Source: Author

Dharavi is in between busy train tracks and polluted Mithi River, which separates this organic slum from modern skyscrapers of Mumbai. It is a place where the history unfolds. It is a home to well-functioning organic spaces, and heterogeneous communities. It is an informal community where residential, commercial and productive activities are closely integrated with

diversity in people and place. There is a symbiotic relationship co-existing between living and working environments. Functioning of Dharavi pulsates with intense informal economic activities highlighting the reality of unprivileged facets. Despite these facts, it is a self-contained model of strong social dynamics with a symbol of informal urbanism leading to a conflicting process of producing, reproducing and manifesting. It is called as an industrious neighborhood with small producers and communal nodes alive with an infinite number of street and *galis*.

The network of coherence starts from their own dwelling units (private-micro level). The streets as collective spaces become nerve centers of multi-functional activities for interactions, through fares, ceremonial processions and festivities (semi-public level). Due to the high density of the fabric and the lack of defined open spaces and amenities, the narrow streets, small squares and nodes become points of interaction and participation. These strong layers of cohesive spaces for people which often act as open spatial bodies are experienced in motion, walked through and traversed till sharing toilets together (public macro level). However, the pre-requisite of space experience today is based on the amalgamation of both cohesion and threshold. Due to this, the intensity of interaction is derived out of both function and conflicts with the capacity to accommodate different profiles of users, which coexist due to negotiations between people, places and activities generating a pattern of living in spaces today.

The Framework: Spatial Delimiters and Existing Components of Cohesive Threshold Spaces

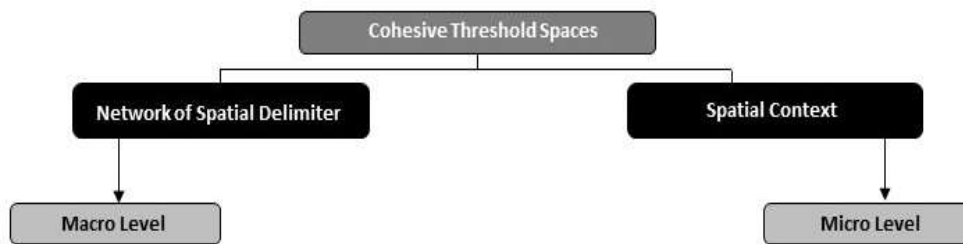


Fig. 4: Interpretation of Cohesive threshold spaces at different scale
Source: Author

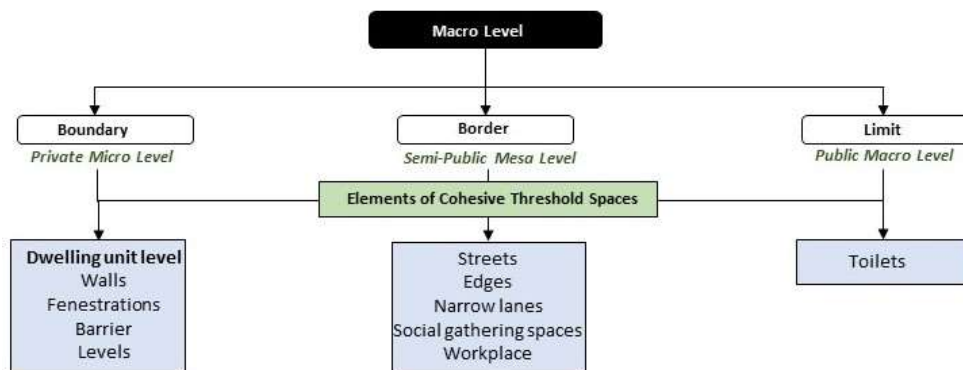


Figure 5: Framework to study cohesive threshold spaces at macro level
Source: Author

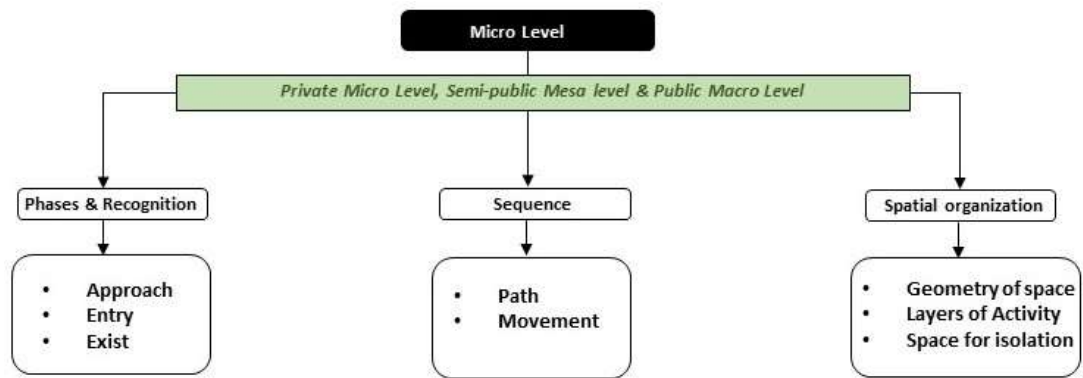


Fig. 6: Framework to study cohesive threshold spaces at micro level
Source: Author

Methodology

Given below is the research methodology (Fig. 7) which takes a case study approach. The research is developed through an in-depth process. This consisted of stages of study as follows: area selection, investigative approach and analysis through non-physical means by method of cognitive perception, while gaining discipline and knowledge in the process of examination.

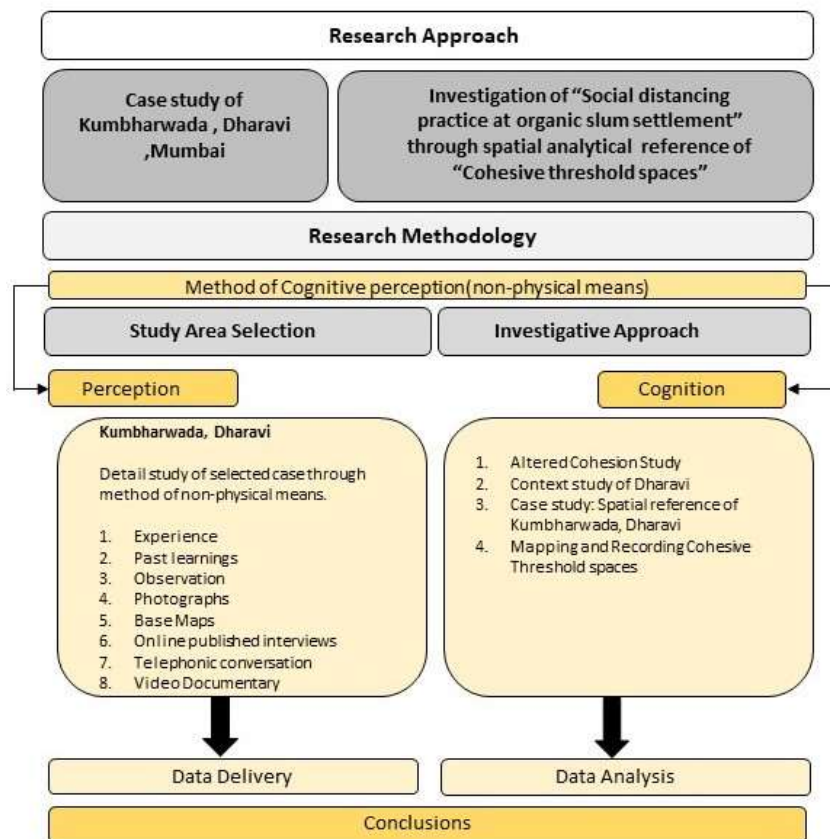


Fig. 7: Research methodology
Source: Author

Recording by means of cognitive perception here means sensory and memory approach, one of the ways in which one deals with information. Perception refers to ways of obtaining information from our environment, record and document whereas cognition describes processes such as remembering, learning, solving problems, analysis and orientation. This method is adapted in the process which has been deliberated, observed and experienced in the past by the authors and now being substantiated remotely to conduct the study.

Limitations

Examining the entire neighborhood of Dharavi would have been challenging. Hence, the study is restricted to the *Kumbharwada* settlement. The study is limited to mapping various strategies adopted in Dharavi to curtail the spread through community participation and analyzing specific areas on derived parameters based on theoretical orientation, which will be subjective and qualitative. This qualitative research will help to lay the foundation for further studies.

Analysis and Findings

a) Altered Cohesion: Towards Practicing Social Distancing

Dharavi has witnessed numerous epidemics and other disasters in the past, including a widespread plague in 1896 which killed more than half of the population of Mumbai (<https://en.wikipedia.org/wiki/Dharavi>). However, COVID 19 is continually reinventing newer definitions of what cities, its places and people are, resulting into community transformation at some level.

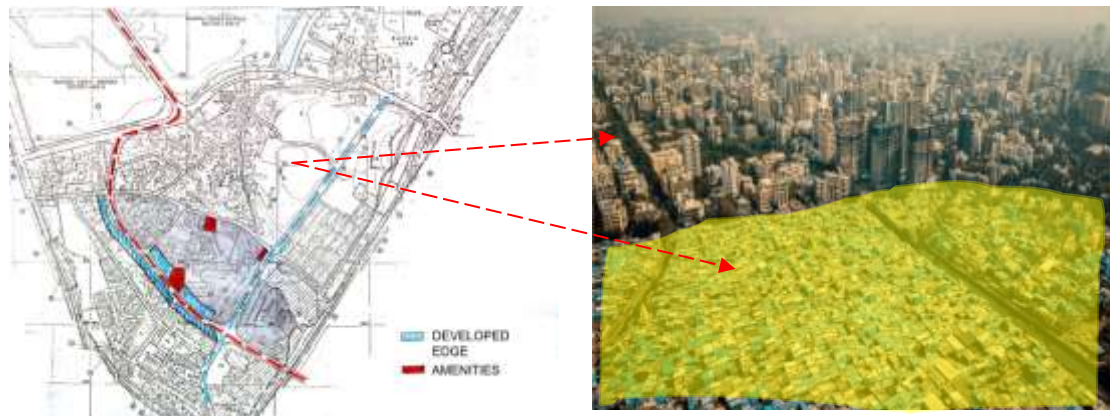


Fig.8 Image showing contrast between setting of Dharavi and Mumbai

Source : Mediapolis ,Author : Map

Table1: Statistical Data showing figures on overall average analysis

S.no	Description	Figures
1	Total Population of Dharavi	10,00,000 people
2	Number of Households in Dharavi	57,000 families in 280 ha
3	Number of households in Kumbharwada	2000 families in 5 ha
4	Daily Average COVID case in Dharavi	Less than 20
5	Total cases as of September 13	140 actives
6	Total Cases	2915
7	Recovered	2505
8	Average Age group impacted	21-60 years
9	Daily Average case in Kumbharwada	Less than 3-4 cases a day

Source: Author, daily Reports

There is a pool of stern instructions wherever we go, creating a new pattern of space-user and user to user engagement, a new political system, a new economic paradigm and a new social framework with new imaginations.

"Gole mein Rahiye." Stay in the circle
"Chalte Rahiye." Keep Moving
"Dur se baat kijiye." Stay away and talk
"Look up for the thermal scanner".
"Look down for the Sanitizer".

Source: Author

This appears as various verbal and visual delimiters, which we encounter today when we are into public places like retail shops, malls, markets, restaurants, airports and during travelling etc. It has altered the sense of cohesion amongst people. Practicing social distancing and enjoying social life in large and open parcel of land is easier.



Fig9: Precautionary measures
 Source: BBC news,
 may 21,2020



Fig10: Practicing Social Distance of 1m
 Source: Money control,
 may 13,2020



Fig 11: Altered cohesion due to health threats in Dharavi
 Source: Gulf news, April 20,2020

Gehl has talked about social distance: social distance (1.30 to 3.75 meters – 4½ to 12 ft.) is the distance for ordinary conversations among friends, acquaintances, neighbors, co-workers, and so. Such delimiters can never be practiced in Dharavi and maintained where their own personal space is not more than 1m x 1m (Gehl 1936).



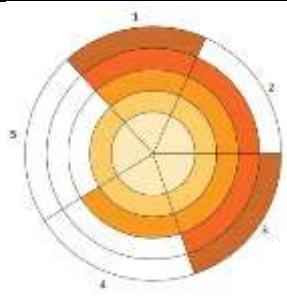
b) Context Study: Dharavi


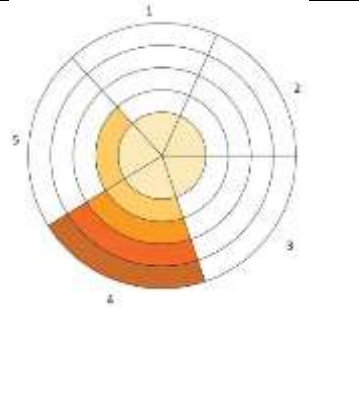

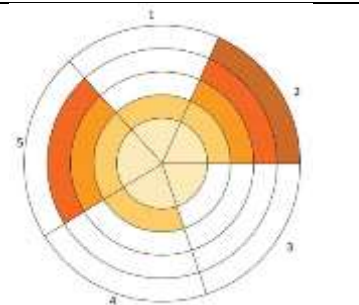

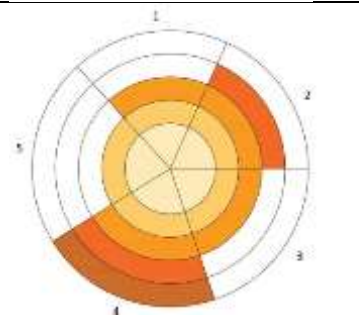

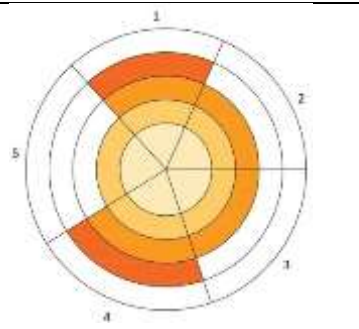
Dharavi has evolved over a period of time on needs and demands which we often quote as "an architecture without architects". These are the places in our urban built-fabric, which has benefited people by virtue of its strong social stratification and hierarchy in its composition.

There are Different Nagar’s (area/zones) in Dharavi (Fig 11) i.e., Kumbharwada, Chamda Bazaar, Social Nagar, Shahu Nagar and Shatabdi Nagar etc. The physical setting is multi-functional in terms of its community, as well as functional and economic productions. Its status is a clear outcome of cohesion, connectivity, community participation, density and infrastructure & amenities. The study in the later stage will represent a link between pre and post COVID scenarios.

Analysis: This part of study is an attempt to analyze different Nagar’s in Dharavi in order to understand cohesive threshold spaces at macro, mesa and micro level. There are different parameters selected on the basis of theoretical premise. The analysis shows zone description of all the Nagar’s, localization and analysis of different parameters on a rating basis from lower to higher band reflected in five quadrates of the circle. This analysis was conducted based on surveys on qualitative aspects done in the past and now represented through cognitive perception method particularly cognition to prepare the chart below.

Table 2: Analyzing Nagar's of Dharavi in terms of its Cohesion, connectivity, community participation, density and infrastructural & amenities

Parameters: 1. Cohesion 2. Connectivity 3. Community Participation 4. Density 5. Infrastructure & Amenities 		
Zone Description	Localization	Analysis
<p>1.Kumbharwada</p> <p><i>Kumbharwada</i> is the center of the pottery activity. The potters from a very compact community established in the area since 18th century and their income are relatively high. 1000-1500 families reside in <i>Kumbharwada</i>.</p>		

<p>2. Shatabdi Nagar</p> <p><i>Shatabdi Nagar</i> is a newer settlement, established in the 90s on a dump ground in a peripheral area of Dharavi. Hygienic conditions are extremely poor. Most of the population is Dalit and there is a large population of transient workers. Locals are marginalized within Dharavi and a sense of community is lacking.</p>		
<p>3. Shahu Nagar</p> <p>The neighborhood is peripheral to Dharavi, but close to the <i>Mahim</i> Train Station and is well connected to the rest of the city. There aren't strong social ties.</p>		
<p>4. Social Nagar</p> <p>Social Nagar is densely populated, which brings problem of overcrowding and infrastructure decay. Its community is cohesive and willing to engage actively in a project to change the current situation.</p>		
<p>5. Chamda Bazaar</p> <p><i>Chamda bazaar</i> is located in the very center and is home to the biggest market place in Dharavi. Population Density is very high and visitor's flow due to business is always high.</p>		

Source: Author, Observation

Inference

Kumbharwada shows the highest degree of cohesion in the spaces and amongst people. It has well defined connectivity in its organic setting due to the major thoroughfares and train routes. It is also a site of diverse and extensive activities. People are engaged solely in the business of pottery popularly and therefore the area is named as a potter's community. It is a place bustling with life at all the times and tries to spatially segregate the different kinds of activities that take

place in the *wada*. It has a hierarchy in open spaces which allows residents to spillover around themselves resulting into uniform densification. Although people of *Kumbharwada* do not have good infrastructure and amenities.

Case Study: Spatial Reference of Kumbharwada, Dharavi: At Small Scale level

Kumbharwada sits in the heart of Mumbai, in Dharavi. 'Kumbhar' means 'potter' and 'Wada' meaning 'colony'. It is home to a community of potters from Gujarat, India. Fig. 12 shows the spatial distribution of *Kumbharwada* which has a total land area of 12 acres and a population of about nine and half thousand people. The buildings are limited to Ground+2 mixed use building typology, while being spatially flexible. The setting of *Kumbharwada* is divided into 5 *galis*, with kilns dotted across. These *galis* function as open spaces: meeting points with thresholds acting as semi private spaces.



Fig. 12: Kumbharwada, Dharavi Map
Source: Author

During the Pandemic, people have moulded and carved their own niches to continue social participation in smaller groups of two or three by making spatial delimiters in these thresholds and cohesive spaces to practice social distancing. There is no such place with an enclosed boundary which will help people to isolate themselves but the space logic did allow them. The network of Cohesion in *Kumbharwada* pulsates from the micro level space (private dwelling units) to mesa level spaces (narrow lanes with kilns dotted across, workshops, shops selling pottery, social gathering area which are semi-public) swiftly moving towards the macro level (community toilets sharing). The chain binds together stronger cohesion which has place-specific and people-specific associations which has helped the community to grow and evolve. It is very important to understand the network in both the scenarios of pre and post pandemic in order to recognize the exact impact on the spaces.

Mapping Elements of Cohesive Threshold spaces: Considering Boundary

a) Network of Spatial Delimiter: macro

Elements Analysis

1. **Walls/Enclosure**-At private Micro level of dwelling unit, even though with high density. The units are designed in such a way that maximum residents have their living spaces at upper level.
2. **Barrier**-Due to work-home relationship, all the pottery activity is at the ground floor with a spillover of the same which has blocked the frontages and therefore acting as Barrier point.
3. **Fenestration**-The fenestration is placed at higher level for egress of smoke generated due to their pottery making activity.
4. **Levels**-Two floors are connected by level with an outer stair which has cut down the access from inner portion of the house, therefore splitting of occupants at different level without contact was manageable.



Fig. 13: Spatial Delimiters at dwelling unit level
Source: Google

b) Spatial Context: micro



Fig. 14: Phases & Recognition

The approach point is undefined with no separate entry & exit due to space constraints.

Source: Author



Fig. 15: Spatial Organization

Occupants mainly utilized mezzanine space to isolate themselves.

Source: Author



Figure 16: Sequence
Source: Author

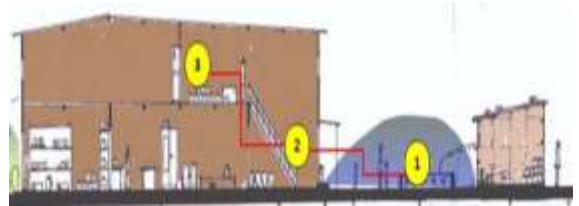


Figure 17: Spatial Organization
Source: Author

Fig. 16: Due to compact built-fabric, movement is highly pedestrianized, with a cohesive environment. However, impacts of pandemic has generated a controlled movement pattern.

Figure 17: Layer of Activity is an outcome of their need and demand. The factor of affordability has restrained the occupants to have separate working space. So, that's why kilns are at outside of the house with storage space followed by living space at the mezzanine floors. Such arrangement has brought multi-functionality with systemic division of activities.

Mapping Elements of Cohesive Threshold Spaces: Considering Border

a) Network of Spatial Delimiter: macro

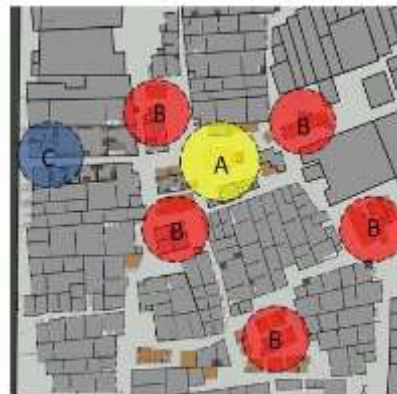


Figure 18: Component Analysis
MAP 1
Source: Author

- A, B, C indicates different types of activity generating point making network of cohesive threshold.
- **A**-Temple, generating community Interaction
- **B**-Traditional work of making pots & storage space.
- **C**-Commercial selling of the finished work in the same place.



Figure 19: Component Analysis

MAP 2

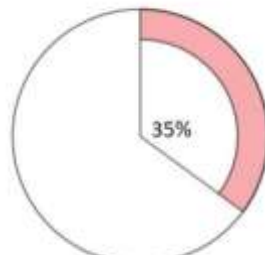
Source: Author

A-Community interaction spaces in the narrow lanes. A Spill over space.

1.Narrow Lanes



Before Pandemic: Crowded with people, activities, vibrant, highly active



Intermediate Stage (High Spike Rate) - Risk of Contact decreased number of people coming out.

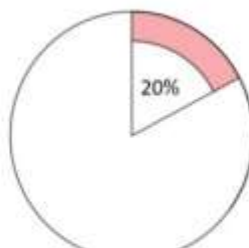


Under controlled Situation: Controlled participation in group of 2-3 people.

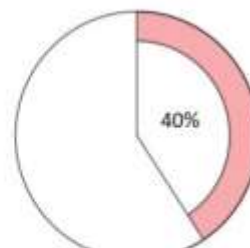
2.Social Gathering Spaces



Before Pandemic: Only open space for celebrations at large scale, highly crowded, Multiple purpose use.



Intermediate Stage (High Spike Rate) - All the celebration stopped and People avoided to go-out, small scale gatherings happened at dwelling unit level



Under controlled Situation: With granted permission and number of people restriction gathering activities started.

3. Workshops & Selling activity

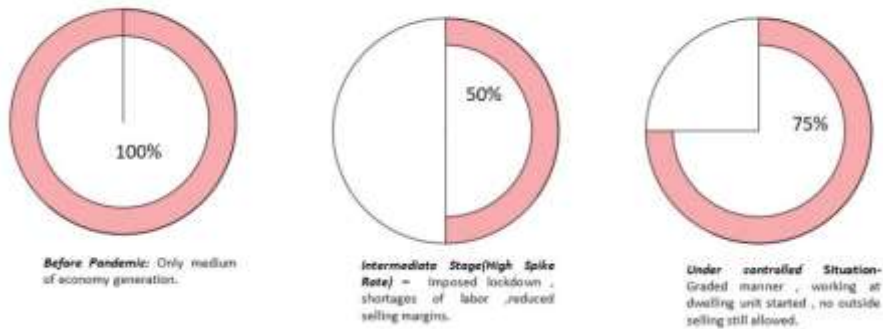


Figure 20: Analysis of Components in different phases
Source: Author



Fig. 21: Small scale industries & Spill over of activities on lanes reflecting community living during pandemic.
Source: Google images

b) **Spatial Context:** micro

Control at the intimate scale of dwellings was difficult. However, when it comes to controlling of people's participation at mesa scale it was challenging. People of dharavi enjoy their social life within semi-public spaces, majorly on streets. Due to pandemic, these places were left unattended and left greater impact at this scale. Such spaces not just upgrade their daily social life but are part of their economy generation.

• **Phases & Recognition**

The organic setting doesn't provide a clear distinguishing line of one space from the other. There are conflicts in recognising boundaries, borders and limits in terms of approachability and access to spaces at this level due to no land ownership. Apparently, over a period of time, people started connecting with space and recognising. The pandemic has brought stagnation in the initial stages to enter spaces which are occupied by multiple users due to health security.



Fig. 22: Minimal approach, social distance and restricted or no entry to commercial and social activity.

Source: Author

- **Sequence**

Controlled movement and practise of social distancing and maintaining social relations at mesa level was challenging. People themselves avoided clutter and chaos at any of the junctures. Initial stages restricted the movement completely by putting Bari gates and fences on containment. The later stage shows an improvement due to awareness among people and groups. Many forces of Public Private Partnership (PPP), community engagement and involvement of administration was a point of relief.

- **Spatial Organisation**

There was no isolation space at the mesa level. People themselves maintained the limit to curtail down contacts outside. However, the schools were converted into quarantine centres. Hierarchical nature of spaces and performing activities in a controlled manner in groups of two-three people has allowed them to keep community participation intact.

Mapping Elements of Cohesive Threshold Spaces: Considering Limits

Due to high population density and close-knit housing unit at *Kumbharwada* maintaining social distancing is challenging. Due to constrained spaces, individual toilets never existed in the settlement. Administration proposed and developed the common toilets, which were acting as anchor points for people’s interactions and gathering. Although during initial days almost 69 % of people (Fig.24) impacted and fear of community transmissions has made this place filthier and dirtier due to a lack of maintenance at policy level. However, Mobile toilet facilities to these localities were provided with proper surveillance and hygiene facilities to invite people back into sharing of amenities then the situation was under control (Fig.24).



Fig. 23: Toilet talk concept- a community anchor point
Source: Know your city

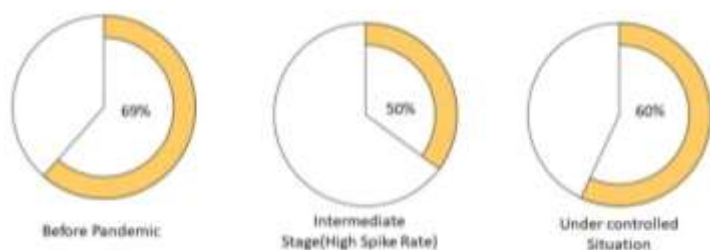


Fig. 24: Overall impact of pandemic using public toilets
Source: Author

Dharavi: A Role Model of Community Participation to Combat COVID-19

Dharavi is a place which has evolved based on community participation, which has now helped to overcome the spread of the virus. Looking at the geographical conditions, high population and dwelling unit densities, lack of health infrastructure and amenities posed fears to policy makers. The settlement of Dharavi was declared as the hotspot of COVID-19 transmission in India when it reported its first case on April 1, 2020 (Brihan Mumbai Municipal Corporation, 2020). It has basic issues of severe sanitation where 80% of the population depends on community toilets with a ratio of 1000 people: 1 toilet (Fig. 26). Water sources, amenities and sanitation facilities are shared by a large number of people (Fig. 26) which is against the mandate of social distancing and increasing health threats amongst people. Dharavi has many rental-based economies for people with no land holding. They migrated back to their villages during the lockdown. The concept of shared co-habitation due to space constraints, housing five to seven people each had an issue of managing distances and contact threats. The spread of disease in Dharavi has raised a concern of community transmission of the disease across the country. Although successful urban patterns of Dharavi have proven to facilitate cohesiveness in the community, the fear has altered the network of cohesion at some level. The close-knit associations between people with fusion of community has uplifted together to avoid collapse.

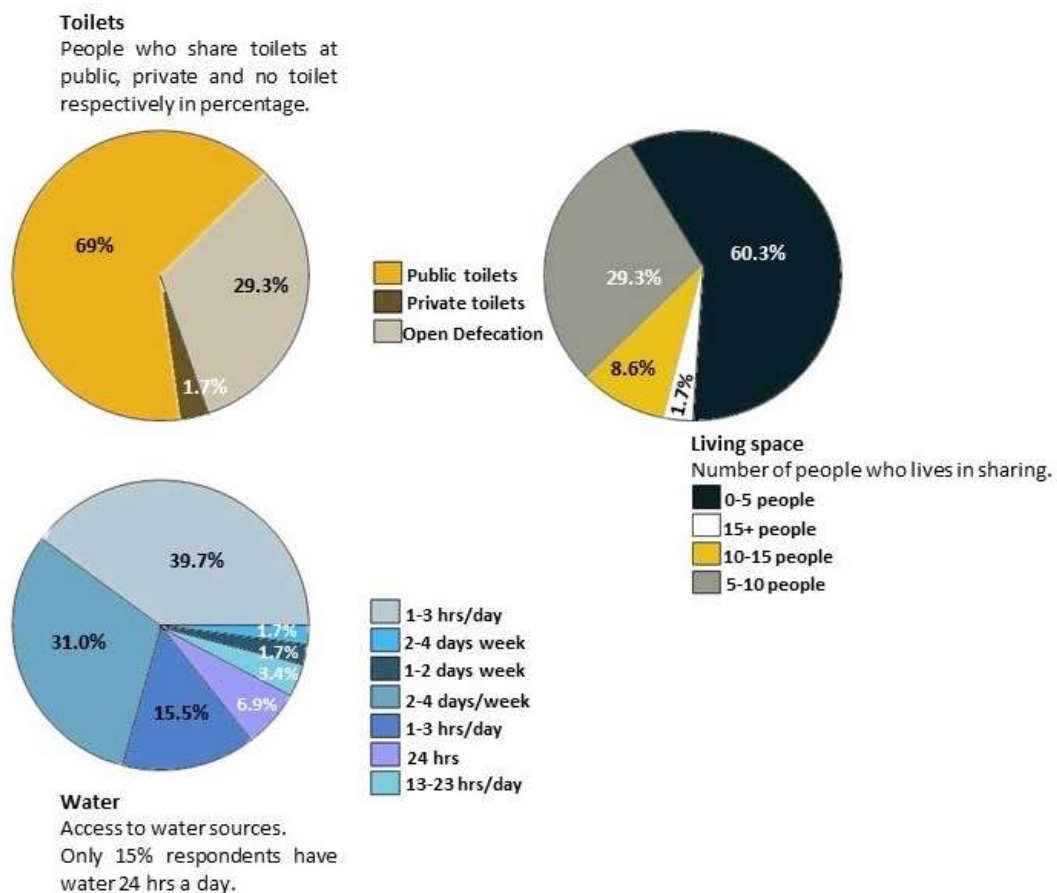


Fig. 25: Statistical Data of Shared amenities -From community to self-access.
Source: Author, Reports

Perhaps, the template of Dharavi model had successfully flattened the rising curve within 2 months breaking the chain of transmission in a densely packed settlement by varying means of communal incubators. Every layer of Dharavi, reveals something far more complex and organic-

*"One slum. Four layers. Four realities.
On the ground floor is misery.
One floor up is work.
Another floor up is politics.
And at the top is community"*

The legal, political, and physical chain of Dharavi with social capital of its residents, has determined community's participation as vulnerable to the pandemic and its engagement in response and recovery. Self-help Groups (SHGs) have emerged as an increasingly effective tool of collective empowerment of the community. Dharavi, by contrast is a self-created special economic zone by the people themselves. There are many factors that have played an important role in mobilizing the community's efforts during the crisis. Many slum leaders and residents in Dharavi have taken proactive steps and lead roles in providing basic services and social support. There was a high flux of comprehensive testing by virtue of testing, tracing, tracking and treating along with sharing COVID-19 prevention measures in the community of Dharavi (BMC).

Participation of private doctors, uninterrupted supply of essentials goods and quarantine facilities came from pro-activeness of communities themselves who identified their evolving needs in the face of the pandemic. Multi-fold needs and deprivations with voice and support of communities through various published interviews and articles helped to map, prioritize, and address needs.

It employed various steps both at community and policy level in curbing the pandemic. Dharavi in its provoking circumstances, reflected a considerable slow-down and pause the transmission by chasing it, with micro-mapping, robust surveillance, public-private partnership (PPP), community engagement, and proactive leadership (Fig. 26).

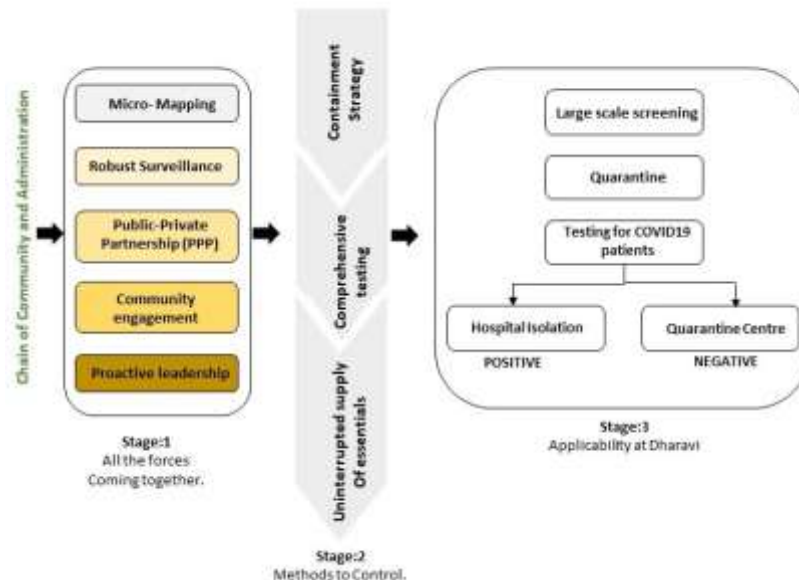


Figure 26: Mapping Role of Community Participation & Administration in curtailing the spread of virus.

Source: Author, BMC



Figure 27: Testing & Treating Centres at Neighbourhood level of Dharavi

Conclusions

COVID-19 has posed intimidating and unprecedented challenges in urban areas, and slums have been equally affected. The challenges have unfolded many layers which were not addressed in the past. It has brought positive changes like prioritizing of health concerns and mutual social support into living. There was a gap in studies previously in order to understand the prevalent models of community engagement to tackle and to build community as a key to fight the pandemic. People of Dharavi, administration, policy makers, urban planners, strategists and researchers have proven and could possibly be an asset in dealing with multifaceted challenges like these. The basic understanding of community engagement in Dharavi lied more into the narratives of spatialities created by people according to their needs and demands. It is a self-contained model of informal urbanism with a mix of function and conflicts co-existing due to negotiation between people, places and activities. There, the reflection of super-diversity of the community into living is the strengthening point achieved during the pandemic because of which the neighborhood could bounce back stronger and produce positive changes.

Dharavi as a neighborhood is a good example to break the chain with healthy responses while dealing with an un-imaginative urban crisis. The analysis of the literature presented in this paper clarifies the meanings and implications on the idea of cohesive threshold spaces. It was a paradigm shift in usability of existing space in a new manner to practice social distancing, as a sum of approach in handling spaces both with Cohesion and Threshold together. The definition of cohesive threshold spaces involved understanding interpersonal dynamics and sense of connection while maintaining distances. It is a capitalizing retrospection in the idea of dealing in terms of spatial (physical) and intangible factors.

Although, past research investigations provide some insight into the application of the sense of community living in neighborhoods like Dharavi. Also, many respectful approaches and planned interventions in empowering slum dwellers has made professionals like us unlearn our rigid ideas towards looking at participatory development in a newer way to fight against pandemic. Therefore, there is a need for continued research on the necessity of local communities, participatory approaches into planning and the idea of thresholds in the neighborhoods. There is still a need to facilitate future studies in the field of cohesive threshold spaces as a part of architecture and urban design practice keeping people at the heart of planning practices. We must bring back into society a deeper sense of understanding and resolving increasing urbanization of our time, where more than such pandemics in future, people themselves are becoming deprived of any contact with the urban environment which we are creating.

There was no invention in the field of design to deal with pandemic of this type. The framework worked out based on the theoretical premise sets up a base to study spaces corresponding with delimiting spatial elements in the neighborhood of Dharavi, is a dogged perspective in the entire approach. Further research can be carried out in detail for each parameter

in different context of organic settlements. The strategies keep evolving considering the changing trends in cities, its places and people as well as the way in which pandemic happens.

Nevertheless, such approaches could also be adopted and become part of key design strategies for designer and planners while planning future built environment. This study also lays a foundation for debate over the places with anchoring nodes in its setting to be vocal about local practices and communities not just in evolved settlement but in planned cities too.

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