# Anthropological Relationship of Water on an Urban Street

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## Abstract

Anthropological Relationship of water

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When we think of indicators of water, we think of natural elements like Rain, lakes, seas or oceans but how do we think about indicators of water as we walk through a busy city street?

Is it directly visible or indicated through some infrastructure or system? During COVID-19 the world became aware of the importance of hygiene, devoid of which we cannot imagine our public spaces today. Water thus became an important actor either as an aid for hygiene or simply as a utilitarian device.

The idea is to understand where we find water in the urban realm when we can't directly see it through such monumental infrastructure. The evolution of humans around water started right from rivers, lakes, wells, bavadis, then to Handpumps, Community Taps, Water ATMs and today has narrowed down to packaged drinking water bottle.

These older indicators were not simply a utility but an act of reverence to the huge resource that water is. It also served a larger purpose of societal upliftment. These Places of collection, storage and distribution of water in the earlier days were the social plugins of a city, and was fundamental to every settlement. The research is to find this relationship that water shares with its citizens in a contemporary era and in an urban bustling environment.

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# Acknowledgments

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# Dedication

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# **Introduction or Preface**

Architecture for water is a communion of various forms of reverence to this resource. As one of world's oldest civilizations, we have the fundamental mechanism required for providing our future generations with a healthy source of water. This creation of mechanism is fundamental to every settlement. It is governed by

- 1. Places of collection
- 2. Storage
- 3. Distribution of water

It also takes different forms depending on whether it plays a recreational, religious, cultural or a social role. Architecture is thus critical in connecting people to water as a tactile experience. These spatial relationships with water in a Urban landscape are means of pause, benevolence, frugality and celebration.

Water in its very basic form is a means of resource – comes to us in form of fresh fish from the lakes and oceans, as a means of amenity – in the form of public toilets and public drinking water system. As a social infrastructure in the forms of ghats and riverfronts, it meets us at different scales in a urban scenario from a *'pyaav'* in the middle of market to a plastic water bottle at a paid cost. All of these contemporary examples show us how we have evolved with water around us, anchored majorly by economic factors.

The architecture for water transcends time and space in its proliferation across geographies and cultures. These unique and diverse structures articulated the anthropogenic relationship to water, seamlessly weaving the utility with the city and its needs. It develops as a network of relations having spatial existence. This thi system contributes to the resilience and efficacy and space and embeds within it the tacit knowledge of a people whose comprehension of the relation between available resources and a way of life was deeply rooted in local conditions.

The intent is to analyze this dialogue that humans share with water and to establish opportunities to inhabit the space between land and water.



# **Chapter 1: Urban Metabolism**

Every living organism created mechanism for its survival. Homo Sapiens adhere to the same strategies. Older Civilizations grew in search of favorable factors such as availability of water, and its sustenance in that ecosystem.

Water is an indispensable tool for functioning of a city. Water is a brutal determinant of social power which has at various times worked to foster greater urban cohesion and contributes to the modes of social discipline. (Gandy, 2004)

Water infrastructure plays a pivotal role in the constitution of the "concrete city" not least because its expense and complexity preclude its effective substitution by alternative forms of service provision. For this reason water has become one of the focal points for new attempts to conceptualize the materiality of urban space and the evolving relationship between the human body and urban technological networks.

Water played a pivotal role in this reconstruction of urban space to produce what we would recognize as an archetypal modern city with its closely choreographed intersection between technology, space and society. Yet the connection between water infrastructure and the hygienist city was always ambiguous because water infrastructure lay hidden either beneath the city streets or relegated to those marginal spaces on the urban periphery.



Figure 1 : Collage Urban Metabolism, Author

There exists a dialectic relation between nature and culture in an urban space

It is an intrinsic link between socio-economy, nature, culture and hydrology. And the architecture for water has evolved with time and space across various geographies and culture.

In the early period, the relationship between water and urban space can be understood by the emergence of what we call the 'bacteriological city', defined by features such as new moral geographies and modes of social discipline based upon ideologies of cleanliness, a move away from laissez-faire policies towards a technocratic and rational model of municipal managerialism, and a connection between urban infrastructures and citizenship rights. (Gandy, 2004)

#### 1.1 Water: A Social Plugin

Water is not just the object of social relationships, or merely a natural resource on which claims are made, to which meanings are attached, and over which political conflicts erupt. We suggest that if we study how social and hydrological relationships are interconnected and mutually constitutive, a much deeper understanding of the role of water in human social lives can be gained, and significantly better management and policy can be designed. This collection is thus an argument for considering the hydrological and the social together: for thinking relationships through water.

## **1.2 Dynamics of Urban Infrastructure**

Rather than treating water as an object of social and cultural production—something produced through social relationships and imbued with meaning through cultural schemes—we consider water as a generative and agentive co-constituent of relationships and meanings in society. (Franz Krausea and Veronica Strangb)

# **Chapter 2: Water and Public Health**

How did the idea of bodily conduct extend from private bathrooms to public need of sanitation infrastructure?

the connection between water infrastructure and the hygienist city was always ambiguous because water infrastructure lay hidden either beneath the city streets or relegated to those marginal spaces on the urban periphery. Emerging ideologies of bodily conduct, from being that on an individual extended beyond private bathrooms to include development of municipal baths, public health campaigns and other aspects of everyday life in a city.

We explore the co-evolutionary dynamics between social and technological systems extending from the private spaces of the modern home to the largely hidden physical infrastructures which have enabled the modern city to function.





# **Chapter 3: Water and Equity**

# How can we ensure that the equitable access to water becomes a basic right transcending social and economic barrier?

Water held spiritual, religious and ritualistic significance in most cultures, and thus public drinking water fountains have been essential features of public space since pre-modern times, found tucked in street corners or placed prominently in large public squares.

There are to be found numerous public drinking water facilities that range in forms as modest as earthen pots in makeshift shelters on thresholds of eateries to highly elaborate architectural edifices, embodied in socio-cultural practices of our civilizations.

From its physical and visual presence in the form of water bodies it disintegrates into these smaller nuances of urban lifestyle. From a pyaav to water ATM it has opened access to every individual in the society. Not to be considered only from a utilitarian lens but also as an element of social value.



## 3.1 Mahad Satyagraha

#### A struggle that still continues



Figure 2 Source: Confluence Siddhesh Gautam

The Mahad satyagraha was a path breaking social awakening event in pre-Independent India which left its mark even in the Indian Freedom struggle. (Narratives, 2021)

Though the judgement has made clear what has been held sacred for a long time, this basic right has not been exercised by each and every citizen of Mumbai, and it seems to be a pipe dream for years to come. Access to water in the city has been disputed on the grounds of both community, caste and legality - for instance, who deserves to stay in this city, and therefore deserves a right to access water? Further how much water does one deserve?

Today in the city, there is only a specific category of people in the society who are bound to depend on the drinking water facility<sup>1</sup>. The drinking water infrastructure is no longer a social space. It is confined to a specific user group in a city and they rest just can afford to drink from mineral water bottles. We think we can drink water from any public space but they still have reserved opinions about equality and the right to water. Some are discriminatory on the basis of 'hygiene'. The untouchability has taken a modern form now. Our struggle is a continuous one. It was never about just water, it is about Human Rights.

## 3.2 Pyaavs of Mumbai

<sup>&</sup>lt;sup>1</sup> People who are economically backward or people who live on the streets.

How can the journey of water in the city be traced from architectural manifestations of sharing and abundance, to the current narrative of scarcity and inequity



Potable water is critical to the development of cities, particularly those like Bombay which was historically a centre of maritime trade and a bustling financial capital. Till the mid-19th century, most of Bombay's water needs were met by either private household wells, or public water tanks and fountains, several of which were constructed by notable philanthropists from all faiths.

Hydraulic engineering and notions of public hygiene, particularly in relation to the military, soon paved the way for the closure of several wells and tanks deemed unsanitary or malaria-infested. Piped water came to symbolise moral, social and scientific progress as Mumbai evolved, and today very few tanks, wells or public fountains remain in use.

This timeline explores the development of water systems and services in the city from the 1600s to the present, punctuated by key milestones of growth and disease which have defined the shape of potable water for residents.

# **Chapter 4: Use of Water in a Community**

Why is it important for community shared sanitation spaces to be social? Can community water infrastructure help evoke sense of citizenship?



## **Right to Water**

Water as a Right v/s water as a Commodity

#### Film Description: THIRST

Is water part of a shared "commons", a human right for all people? Or is it a commodity to be bought, sold, and traded in a global marketplace? Thirst tells the stories of communities in Bolivia, India, and the United States that are asking these fundamental questions, as water becomes the most valuable global resource of the 21st Century. A character-driven documentary with no narration, Thirst reveals how the debate over water rights between communities and corporations can serve as a catalyst for explosive and steadfast resistance to globalization.

Thirst shows that the individual struggles of these communities raise questions: Is water a human right for all people?

Or is it a commodity to be bought, sold, and traded in a global marketplace?

thinking relationships through water means understanding

drinking-water provision not predominantly as an allocation of a certain amount of water to a particular number of slum dwellers, but as a temporal process that critically intersects with people's personal and economic aspirations.

As revealed in **Thirst**, the world is poised on the brink of epochal changes in how water is stored, used, and valued. Will these changes provide clean water to the billions of people who need it? Or save the child who dies every eight seconds from contaminated water? Examining water conflicts on three continents, "Thirst" shows that popular opposition to the privatization of water sparks remarkable coalitions that cross partisan lines. When it comes to water, many people demand local control and fear the arrival of multinational corporations with large lobbying budgets and little local loyalty.

While the right to water has been included as a constitutional right in many domestic constitutions, in India, the "right to water" has been read into expressly enunciated fundamental or constitutional rights, namely, the right to life" through judicial interpretation. Despite extensive recognition of the "right to water" in both onstitutional and international law, the content of the right and its enforcement vary greatly across national contexts. Nevertheless, the recognition of the "right to water" as an international human right implies that every individual in every country of the world must have access to a

#### **PRIVATE WATER NETWORK**

Daily routines through which slum dwellers of Delhi, India, in particular women, procure drinking water. These routines entail waiting for a municipal water truck on the edge of the settlement, often for hours. Thinking through the metaphorical and material relations of affluence and stagnancy,

This brings in light the stagnant reality of immobility imposed by the condition of water supply nature.

#### Krishnanagar, Thane

Volunteering Project with Aamchi-a community led design, research and experimental practice

#### Survey conducted on WASH Mechanisms

Water and Sanitation spaces need to be social such that the community feels a sense of ownership towards it, which makes it functional.



Figure 6 : Division of Basti's in Krishnanagar

Figure 7 : Lanes of Krishnanagar

#### Is building more infrastructure the solution?

In case of community toilets, the ratio does play an important role, determining the availability time and hygienic conditions of the toilet. But building only more and more toilets was not going to solve these problems. In order to make it functional, they needed to feel a sense of ownership of the infrastructure that

the government was providing them with. The initiative thus focused on bringing people together where they contribute to the design and management of these entities. To imagine a toilet that is very much part of their everyday space, lifestyle and their social fabric.

# Chapter 5: Thane: A Dynamic city

The city of Thane is undergoing a complex social, economic, and political transition into an increasingly fragmentary and polarized metropolitan space. The tortuous flow of water through contemporary Mumbai presents one of the most striking indicators of persistent social inequalities within the postcolonial metropolis. We find that the city's dysfunctional water infrastructure has its roots within the

colonial era but these incipient weaknesses have been exacerbated in recent years by rapid urban growth, authoritarian forms of political mobilization, and the dominance of middle-class interests within a denuded public realm. It is argued that the water and sanitation crisis facing Mumbai needs to be understood in relation to the particularities of capitalist urbanization and state formation in an Indian context

Potable water is critical to the development of cities, particularly those like Bombay which was historically a center of maritime trade and a bustling financial capital. Till the mid-19th century, most of Bombay's water needs were met by either private household wells, or public water tanks and fountains, several of which were constructed by notable philanthropists from all faiths

Contemporary Mumbai faces massive inequalities in access to water: whilst most downtown districts receive water for at least short periods every day there are outlying parts of the city that remain largely connected to the city's water distribution network. These disparities in access to water are etched into the urban landscape: some of the slums with the worst service provision are traversed by giant water pipes that have been transformed into precarious networks of elevated walkways. The spatial interstices of the city's water infrastructure form ribbons of extreme deprivation that connect some of the poorest communities in the city. The situation is most acute at the urban fringe in districts such as Bhayandar, Mira Road, and Thane, where rapid growth has not been accompanied by adequate improvements in basic infrastructure (Zérah, 2007)



Thane thus became an ideal city to study water infrastructure in a non-static environment. The historic city which has one of Bombay's Oldest Railway station and Markets is a bustling premise. Thane which is on the outskirts of the MMR The Jambli Naka and Talao Pali deal with multiple user groups. It is an excellent example where we find water in smaller nuances every day, but still playing very important role in public health and hygiene.



## Street carts: Talao Pali

The very sustainability of cities and the practices of everyday life that constitute 'the urban' are predicated upon and conditioned by the supply, circulation, and elimination of water. (Gandy, 2004)

## Vendors



Understanding the role of street carts in a urban scenario:

Often looked upon as a mobile entity but in reality, has a bigger problem of water to deal with. With an absence of a reliable source, the vendors are bound to create make-shift arrangements of water every day. It gives so many opportunities of contamination that the basic act of supply circulation and evacuation of water can hardly function in this module.



The simple looking street-food *'thela'* is actually a complex architectural device which has to deal with multiple components of service providing right from washing hands to washing used utensils and drinking water as well. It is should also be responsible of the waste it generates on the site once the day's job is over.

It's a government body's duty to provide them with a reliable source of water but giving them a permanent tap is not a valid solution. Neither is providing them with a private water tank. For a a system that deals with about 500-700 customers every evening, availability of potable water is a huge problem. And needs to be addressed.

## **Carts and their Types**



All carts are not uniform in the way they deal with potable and waste water. Some use it directly to make soda drinks or in iced form to make popsicles, or some use the same water to cook something on a stove. That also governs the way these carts are constructed.

## Users of a street

## Who all are the users of a street?

People who are not linked to any institutions and spend most of the day outdoors are the ones who are primarily dependent on public infrastructure for their day to day needs. It could include

- 1. Auto/Taxi Drivers
- 2. Retail Shop Vendors
- 3. Roadside Vendors
- 4. Consumers

**Transient Footfall** 

# Water Infrastructure Today



#### Inferences:

Bringing water to the people is still a challenge. It cannot be simply utilitarian. Existing water infrastructure of the city is in a bad shape. It is not easily accessible and visible to the general public that uses the market. Map of Water infrastructure in the region:



Figure 10 : Provision for drinking by the local governing body

Figure 9 : Handwash provision outside an eatery

#### Rain Water in a public space

The indigenous market of Jambli Naka is a public space with smaller sets of shops owned by individual vendors. Even if all these shops don't require a water connection to function, they have a unique way of dealing with rooftop water. The rainwater tends to accumulate in the market. These individual shops collect this rooftop water and use it for different forms of cleaning.



# **Chapter 6: Case Study**

## 5.1 Water Kiosks in Namibia

German Development Cooperation (GDC) is supporting water sector reform processes in many countries in Sub-Saharan Africa. The approach taken typically includes the decentralization and commercialization of water supply and sanitation (WSS) services, taking into account the needs of the poor in particular. One example of best practice implementation is the case of Zambia. Now, with the support of German Development Cooperation, the successful concept of water kiosks is being adapted and transferred to other countries in Sub-Saharan Africa

Ils for achieving universal and equitable access to safe and affordable drinking water by 2030. It is estimated that 60% of residents in Nairobi, the capital of Kenya, live in areas interchangeably described as slums,

## 5.2 Water ATMs in a Nairobi slum



Many marginalized households in urban areas of developing countries lack municipal piped water supply in their premises and rely on shared standpipes and other alternative sources like rivers, private water vendors and wells, which may be illegal, exploitative and unsafe. The implications are not restricted to economics of accessing water; it accumulates to cause profound impact on people's productivity, longevity and dignity.

60% of residents in Nairobi, the capital of Kenya, reside in informal settlements (ISs) and low-income settlements (LISs), who do not have adequate access to affordable safe drinking water

Over the last two decades, privatization has been seen as one of the primary ways to infuse capital into the urban water sector to overcome some of the inefficiencies of municipal management (Bakker 2010). Examples of the private sector involvement in water sector is seen in growing water markets,

privatization of water supply utility companies, corporatization of water utilities, full-cost water pricing, bottled water and the abstraction of water by beverage companies (Davis 2005). Increasingly, investments in water infrastructure are being done in partnership with private investors, rather than purely through public ownership and operation (Bell 2015). Thus, infrastructure expansion and service delivery towards the goal of

universal provision is dependent on private sector participation replacing the older model of universal state funding, control and ownership.

#### Management of water

Existing facilities like previous (functioning and non-functioning) water kiosks were chosen for establishing water ATMs after inspection by the NCWSC officials. Since these machines were very expensive, they were housed in small rooms located on the main road of the slum. The ATM Water Utility Journal 22 (2019) 5 managers were allowed to run their business from these shops while taking care of the water ATMs whose main function was to sell and refill the ATM cards

#### **Conclusions:**

We need to have Ownership of our water infrastructure.

Water Vending Architecture has to be social (accessible) in order to function.

Why should only the sub-altern or marginalized use a water vending machine?

Vending machine is not the ultimate solution.

## 5.3 Ceramic water fountains for London by Zaha Hadid Architects + Studio Weave



the watering poles make tap water convenient, by extending London's existing drinking fountain network, originally established by the Victorians, into soho. their location is defined by the urban grain, and their height is defined by their context so that they can always be identified from afar. with the aim of re-appropriating an everyday, familiar object, we investigated the possibilities of a standardized tile product, rather than a custom design

(Stevens, 2014)

## 5.4 Paani Lari, the Public Water Cart





This is a response to the primary necessity of drinkable water within the community of New Faisalnagar (Eastern Ahmedabad, India) and aimed to function as light infrastructure. Our strategy has been to collaborate with a local NGO (Centre for Development) in order to concede ownership to a group of citizens in the community whom are willing to drive this device and cater to approximately 40 families per day.

Additionally – and given that this is also a community space- we foresee different elements that encourage exchange and dialogue, not only by a generous cover and a deployable staircase to sit on, but also a series of panels where different sets of information can be displayed (especially in relation to the use, treatment and health implications of water).

Therefore, the lari not only caters to a very pragmatic need of water consumption, but in a parallel manner offers the possibility of implementing different forms of urban pedagogy.



If we look at the social structure of water today, it still is evolving. Public Water systems are no longer for the 'public' but only remain in the peripherals and dark parts of a city made accessible only by the needy. It no more has a public value. It no more brings people together and doesn't get called as a safe space of a city. These indicators of water have lost their social value critically impacting the citizens' linkage with the urban metabolism.

water reticulation and its relationship mean understanding drinking-water provision not predominantly as an allocation of a certain amount of water to a particular number of users, but as a temporal process that critically intersects with people's personal and economic and social aspirations. (Franz Krausea and Veronica Strangb)



# **Chapter 8: Interventions**

Water infrastructure cannot be limited to particular plots. It had to be spread throughout the city establishing connection with the existing city infrastructure and considering the urban circulation.



## 01: Urban Blue Space

**STATIC SPACE**: Space is precious. People have overtaken the city in every possible way. The congregational space outside the Thane railway station is a potential space where water can be rejuvenated with people. Linked with pedestrian edge and 2 vehicular pathways, this triangular space formed is an ideal space of providing drinking water to the public.

The thane station acts as a suitable point of confluence for different transit routes.

## Proposal 02: Blue Urban Space 02

**EPHEMERAL SPACE** : The dynamicity of the city is one of its crucial qualities, that is what makes cities and it spaces unique. Talao Pali and its associaltion with the public idea of 'leisure' is inevitable. The adjacent plot that adheres to city's chaging requirements right from hosting Pulic marches to a fairs and melas, is a potential site to respond to a city's water requirement



## Proposal 03: Drinking water linked to existing infrastructure: Police Booth

Considering the scarcity of space, water which is to be provided in the market cannot be floor mounted. It had to independent of the floor and perhaps be attached to an existing reliable infrastructure. These traffic Police booths at multiple spots in the vicinity which are an addition to the existing urban fabric of the market can respond to this requirement.



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