

# RIVERSE



A shift from me to we



The rivers flow not past but through us

# Next World War may be on share of water

Make every drop of water count

More than 100 million people  
live in areas of poor water quality

The spinning wheel is  
as much a necessity of  
Indian life as air and water  
-Mahatma Gandhi

Water is the  
nature- L

We're all equal in  
our need for water

No

If there is magic  
on this planet, it  
is contained in  
water

-Loren Eiseley

We never know  
the worth of  
water till the well  
is dry.

Lovely thing to learn from water:  
Adjust yourself in every situation  
and in shape. But, most  
importantly, always find out your  
'own way to flow'

-Dr. A.P.J. Abdul Kalam

the driving force of all  
Leonardo da Vinci

THE MUMBAI BASIN OF RIVERS

water, no life



**WE the people  
WE are 80% water  
WE see  
WE sense  
WE feel  
WE hear  
WE talk  
WE smell  
WE use  
WE change  
WE build  
WE create  
WE are Water Environs**

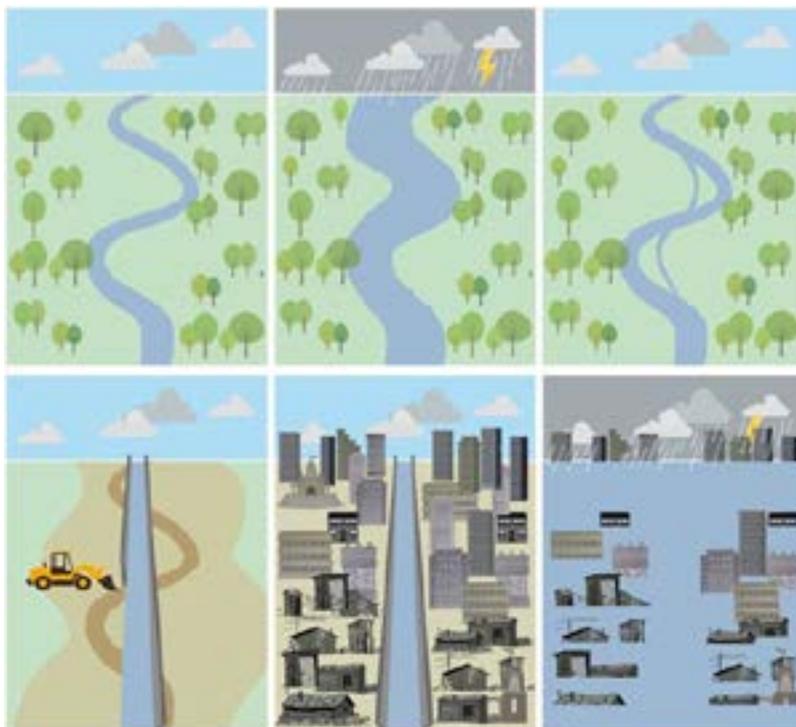
WE (Water Environs) is a group of Urban professionals working towards formulating a holistic approach to water ecologies since 2010. Supported by InHAF and having joined hands with River March since 2015, the flow of their work has been to partner with many fellow organisations and individuals to build the advocacy on the future of rivers and other natural ecosystems borne of water. Eight years of public engagement on this subject has convinced us about the technical, economic and political viability and enabled us to connect with individuals and organisations thus galvanising a community movement called 'River March'. In its fourth year, the voluntary citizen movement has reached out to more than a lakh individuals through its cleanup drives, art fest, community drives, campaigns, exhibitions and workshops, etc and many more through media coverage. It's at this opportune time that we seek to form a coalition and embed the varied aspects of a complex urbanity and incorporate it in the vision and narrative for the river. The narrative will be useful in all present and future discourses including political, legal, with civic bodies or the general public, as well as corporates, environment and social rights groups.

# The Mumbai Water Basin

Until about 210 years ago, the islands which would come to be known as Mumbai were a terrain dominated by a central mass of hills. These were surrounded by tidal flats with smaller islands lying to its western flank to be walked across at low tide or one that was called Dharavi, always with a boat. The highest of this formation was the conical peak of Kanheri (467 meters) in the northern reaches of the island which remains home to what is today the Sanjay Gandhi National Park and also the world's biggest within city limits. The park is also the point of origin of the four main riverine systems of the Mithi, Poisar, Oshiwara and Dahisar which navigate through the land masses. The islands over the next 150 years saw a bridging of the gaps not by access points but by reclamation as per the urban demands of time, space and people. This was not to be regretted by a nation that was to be born as it became the home of many dreams.

As the land mass changed, the rivers survived along with other water ecologies like lakes, wells, creeks and wetlands which fed them, were born of them or marked the end of their journeys. The industrial age brought what in urban terms came to be known as 'formality' where the pipelines with taps replaced the river as the direct source of fresh water except for the indigenous populations who maintained their relation with these natural sources. Over time, these natural channels became drainage canals, then waste dumping grounds and in time sewage outlets for the informal settlements which their edges became host to.

The front yards had become the backyards. With time densities increased and the river's flood banks were encroached and then came the monsoons. The rains, a boon to the city at the points of water collection became the bane at the points of its natural flow, as its channel to the sea was blocked by solid waste or its expansion edges encroached. The city fathers to save this annual tragedy decide to train the river flow with concrete walls for protection. In the meantime forgetting that the river was also the channel for the city's storm water, not just from the source but the city itself, the walls of safety became the dams of retention, making the flood situation worse.

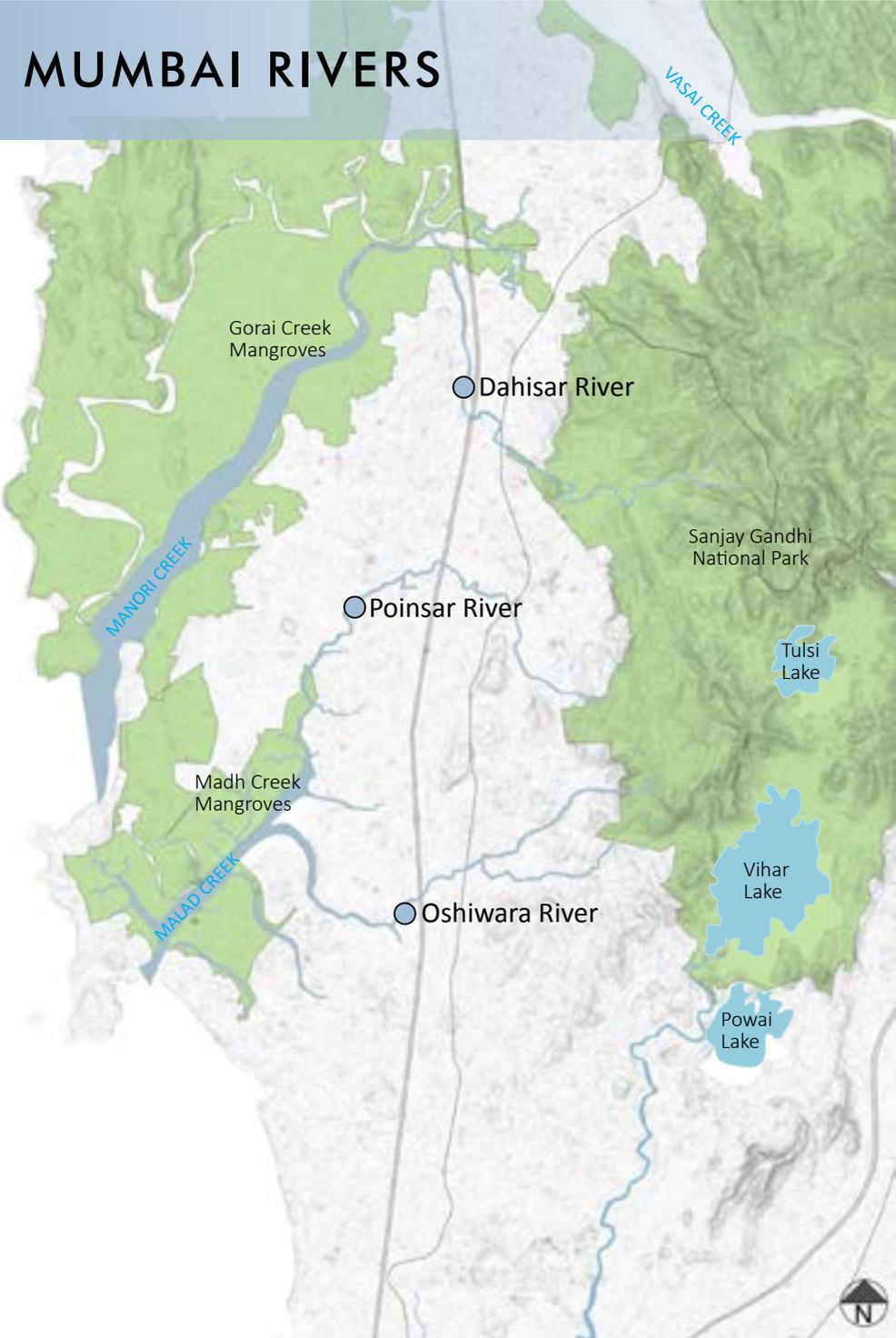


River training

Encroaching the river beds

Urban floods

# MUMBAI RIVERS

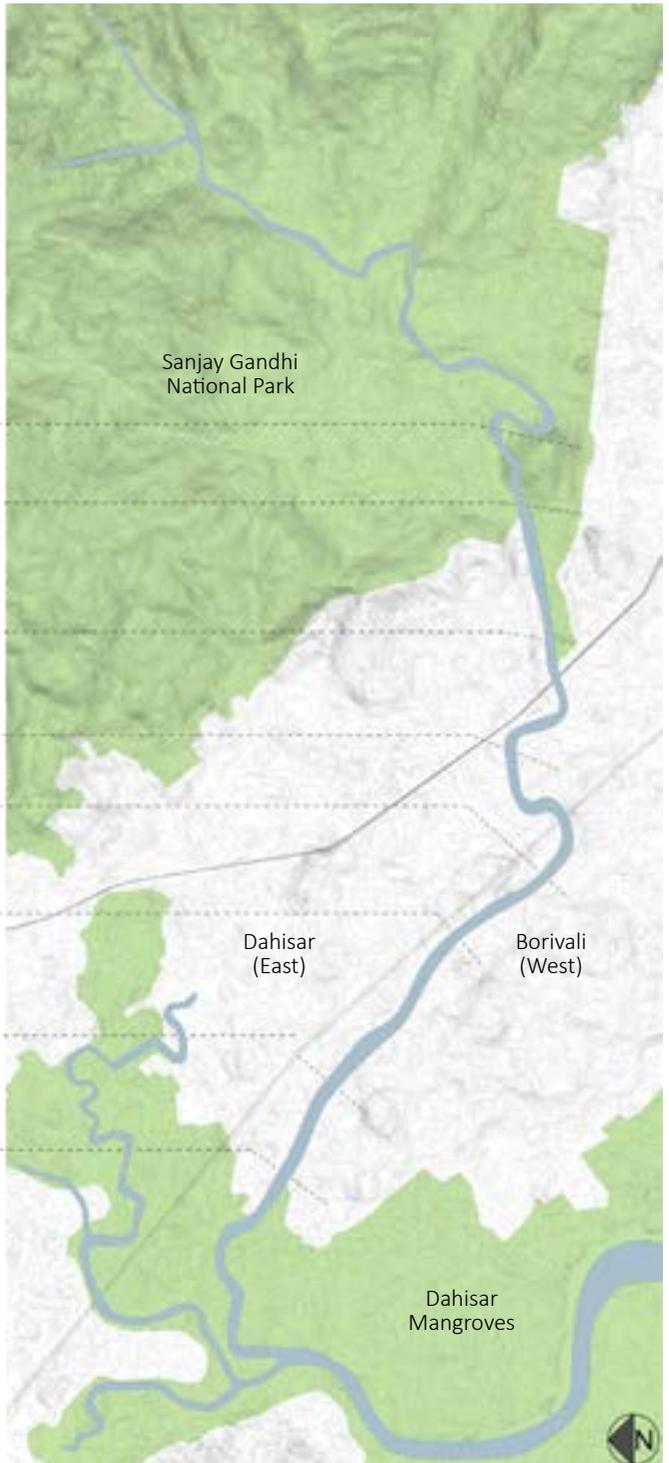


POTABLE  
WATER RESOURCE  
FOR  
**MUMBAI**



# Dahisar River

- 
- Shri Krishna Nagar
  - 
  - 
  - 
  - 
- S.B.I Colony & Tabela
  - 
- S.Phadke Flyover
- Chhota Dhobighat
  - 
  - 
- River Bank
  - 
- Gaathan
  - 
- Mangroves
  - 



Length: 13 Km

**Hilly area:** ~2.5 Km

**Developed area:** ~9.5 Km

**Creek:** ~ Creek area after this

**Avg. existing width:** 30m (Differs at various points within urban neighbourhoods)

**Avg. proposed width:** 45m (Differs at various points within urban neighbourhoods)

**Origin:** Spillway of Tulsi Lake in Sanjay Gandhi National Park

**Catchment area:** 3488 Hectares

**Connecting nallas:** V.H Desai Nalla, Yadav Nagar Nalla, Cosmos Nalla and MCGM Garden Nalla  
Bridges across river: 20

**Ends into:** Arabian Sea

**Total Carrying Capacity/Basin Scale:** 34.88 sq km

**Edge condition:**

CONCRETE EMBANKMENT

River within the city limit is been completely edged by concrete walls. Concretisation is going on within SGNP administrative limits

GABION WALL

No trace of gabion walls

LANDUSE

Mixed- Mainly residential and industrial and slum encroachment

**Buffer space: Upstream:** Immediate action: 15m buffer strip on either side

For prohibited Zone: Channel to be widened to accommodate 1:10 year flood +12m carriage way/ service road on either side.

For Restrictive Zone: Req'd channel width for 1:25 yr probability flood

For Risk Zone: Required channel width for 1:100 year probability flood

**Buffer Spaces: Tidal range**

Immediate action: 15m buffer strip on either side  
Channelization for 1:100 year probability flood + 12m carriageway/ service road (Sourced from MMRDA report on Rivers- pages 157-159)

**Check Dam:** One at the onset of river within urban context just after the boating area in SGNP  
Recently a check dam has been added at Dhobi Ghat area

**Flood Data:**

1974: No data available

2005: Level of water in certain areas was 2.5 metres

2017: Level of water in areas at Western Express highway and Sainath Nagar was 2.5 metres

**Risk areas as per MMRDA fact finding Report:** Dahisar River:

BRIMSTOWAD catchment number 203

**Demarcation of Floodlines:** In a research paper its been demarcated. Majorly, the area that falls under red, blue and grey line is 90% encroached and built

**High Flood risk Zone:** Shantivan and Sainath Nagar slums

**Return of 100 year time period:** No data available except Mithi River

**Water Quality:**

COD: 100mg/Ltr to 88mg/Ltr

BOD: 420 mg/ltr

**Sources and Type of Contamination:**

Drainage waste water, industrial waste water, surface run-off, garbage dumping, Animal carcass disposal and solid wastes

**Wells (If Exists):** Yes, total number approximate 07

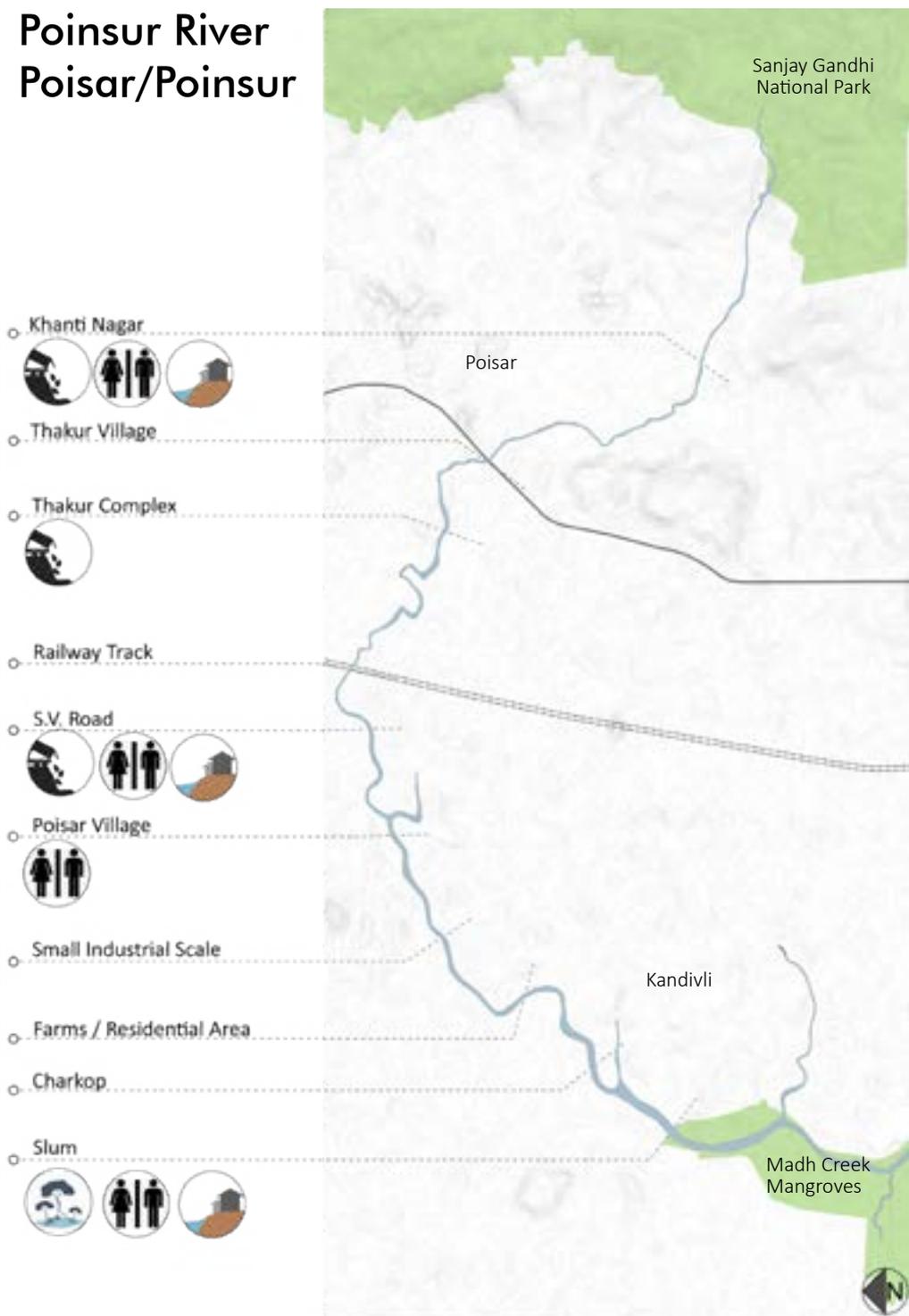
**Ground water table:** In 1930s, Tansa Dam added 200 MLD potable water supply through piped sources to the city of Mumbai

**Gaothans:** Dahisar Gaothan and 12 padas within Sanjay Gandhi National Park

**No of Outfalls: -**

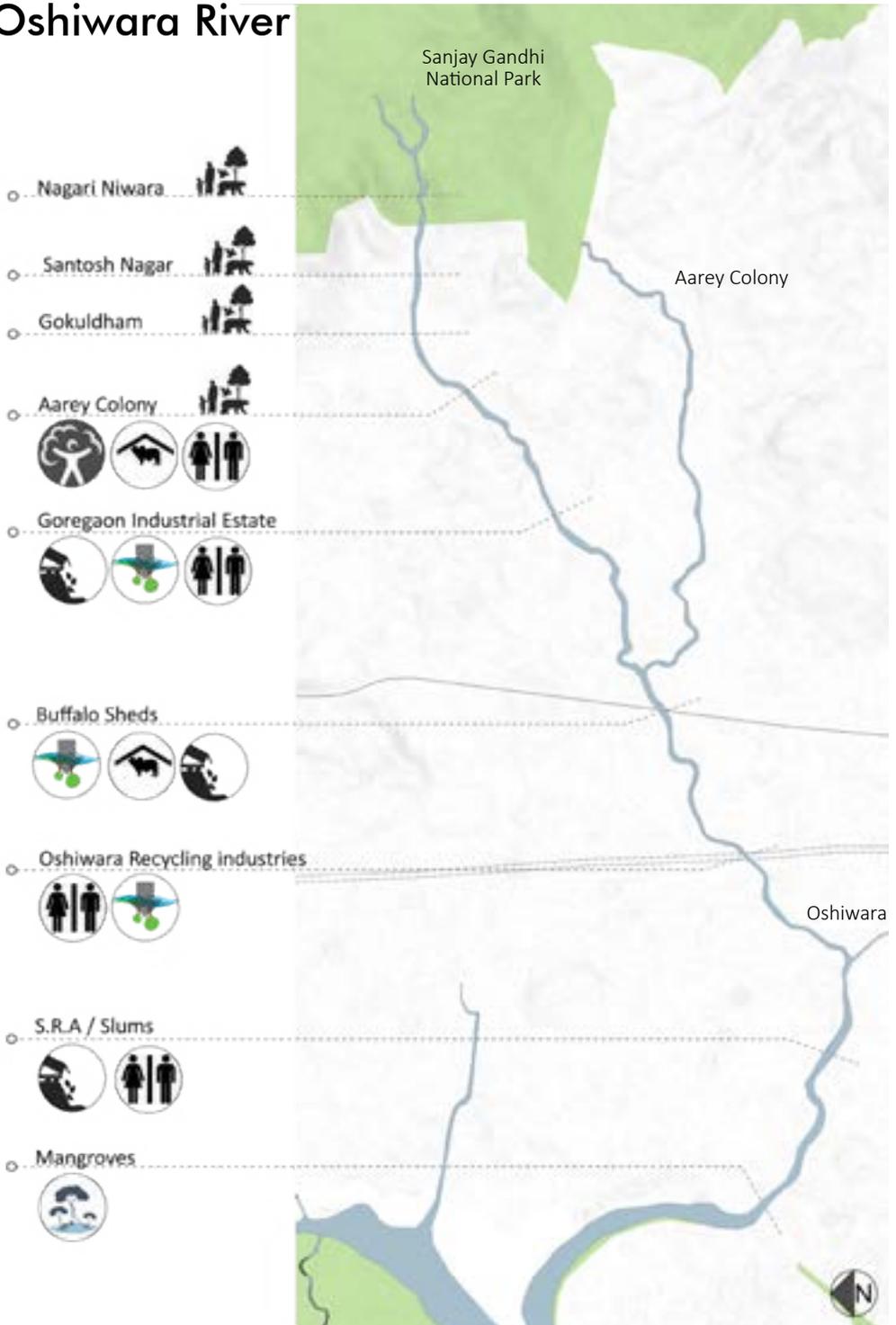
**Flow Measurement: -**

# Poinsur River Poisar/Poinsur



DATA - SHEET	Poisar River
Length	09 Km
Hilly area	~2.5 Km
Developed area	~6.0 Km
Creek	* Remaining Creek area
Avg Existing Width	10m (Differs at various points within Urban Neighbourhoods)
Avg Proposed Width	20m (Differs at various points within Urban Neighbourhoods)
Origin	Sanjay Gandhi National Park (SGNP)
Catchment area	2109 Hectares
Connecting Nallas	02 Nalla, Dhanukarwadi Bridge and S.V Road
Bridges on main flow	24
Flows into	Manni Creek
Total Carrying Capacity of Basin Scale	-
Edge condition	CONCRETE EMBANKMENT Approximately 3/4th of the length is concretised GABION WALL No trace of gabion walls LANDUSE Mixed residential, institutional and slum encroachment
Buffer space: Upstream	Immediate action: 15m buffer strip on either side For prohibited Zone: Channel to be widened to accommodate 1:100 year flood +12m carriage way/ service road on either side. For Restriictive Zone: Req'd channel width for 1:25 yr probability flood For Risk Zone: Required channel width for 1:100 year probability flood
Buffer Spaces: Total range	Immediate action: 15m buffer strip on either side Channelization for 1:100 year probability flood + 12m carriage way/ service road (Sourced from MMRDA report on Rivers- pages 157-158)
Check Dam	No Data Available No Data Available
Flood Data	1974: No Data Available 2005: No data Available 2017: No data Available
Risk areas as per MMRDA fact finding Report	Poisar River: BRIMSTOWAD catchment number 211
Demarcation of Floodlines	In a research paper it has been demarcated. Majority the areas that falls under red, blue and grey line is 90% encroached and built
High Flood risk Zone	No data Available
Return of 100 year time period	No Data available except Mithi River
No of Outfalls	
Flow Measurement	
Water Quality	COU: 100mg/ltr to 761.7 mg/ltr BOD: 414.73 mg /Ltr
Sources and Type of Contamination	Drainage waste water, industrial waste water, surface run-off, garbage dumping, Animal carcass disposal and solid wastes
Wells (if Exists)	No data Available
Ground water table and Status	In 1980's Tansa, uppervaitarna and Bhatsa collectively supplied 1500 MLD potable water in the MMR region
Goathans	Poisar Goathan

# Oshiwara River



DATA - SHEET	Walbhat (Oshiwara) River
Length	6.5 Km
Hilly area	~2.2 Km
Developed area	~1.3 Km
Creek	** Remaining Creek area
Avg Existing Width	20m (Ditches at various points within Urban Neighbourhoods)
Avg Proposed Width	25m (Ditches at various points within Urban Neighbourhoods)
Origin	Aany Milk Colony
Catchment area	2938 Hectares
Connecting Nallahs	Majas Nalla, Excel Nallah, Gogateswadi Nallah, Prem Nagar Nallah, Shastri Nagar, Bimbisar Nagar Nallah
Bridges across River	14
Ends into	Malad Creek
Total Carrying Capacity or Basin Scale	29.38 km <sup>2</sup>
Edge condition	CONCRETE EMBANKMENT Entire length and bed concretised
	GABION WALL No trace of gabion walls
	LANDUSE Mixed residential, institutional and alum encroachment
Buffer space: Upstream	Immediate action: 15m buffer strip on either side For prohibitive Zone: Channel to be widened to accommodate 1:10 year flood + 12m carriage way/ service road on either side. For Restrictive Zone: Regd channel width for 1:25 yr probability flood For Risk Zone: Required channel width for 1:100 year probability flood
Buffer Space: Tidal range:	Immediate action: 15m buffer strip on either side Channelization for 1:100 year flood + 12m carriage way/ service road (Sourced from MMWRDA report on River: pages 157-158)
Check Dam	No Data Available No Data Available
Flood Data	N/A: No Data Available
	2005: Level of Water in Few residential, industrial area and Tabela was 2 to 2.5 meters
	2017: Level of Water in Few residential, industrial area started filling up. The level of water was 1 to 1.5 meters
Risk areas as per MMWRDA fact finding Report	Oshiwara River: BIMBISARWAU catchment number 217
Demarcation of Floodlines	In a research paper its been demarcated. Majorly the area that falls under red, blue and grey line is 90% encroached and built
High Flood risk Zone	No data Available
Return of 100 year time period	No Data available except Mithi River
No of Outfalls	
Flow Measurement	
Water Quality	
Sources and Type of Contamination	Drainage waste water, industrial waste water, surface run-off, garbage dumping, Animal carcases disposal and solid wastes
Wells (If Edots)	No data Available
Ground water table and Status	In 2000 MMWR region sourced 2550 MLD piped sourced water from Ulhas, Upper Vaitarna, Dhule, Mumbai I, II, III
Soil types	No data Available

# NOTE OF PARTNERSHIP

## INDIA HABITAT FORUM (InHaF):

What is being done in Mumbai by a number of organisations and individuals— to revive Mumbai's four rivers is significant—not only what is being done, but also how it is being done. Also, its broader implications in terms of rivers and cities in general with a rapidly urbanising India. Are we going to neglect, abuse and destroy, and thereby convert our rivers, a rich natural asset, the ecological heritage that inspired, harboured, nourished and nurtured our cities into a liability through our acts of omission and commission as we urbanise, progress and develop more? Or, are we on a mend, recognising our folly, and correcting our ways of living, working, doing and developing? Mumbai is special being the wealth capital of India. The challenge before its 16 million inhabitants, its business houses, industries, professionals, civil society and citizens is this: can it save, revive and look after its rivers? If Mumbai fails, who will succeed?

If we see Mumbai's river rejuvenation as a test case, we see the challenge before the country. Despite efforts, investments, desire and commitment, the River Ganga with almost two billion eyes wanting to see it transformed, its religious and spiritual purity restored, and despite the formidable machinery of the government at work, on one hand, and Pro Agarwals and his ilk giving their soul and life, on the other, Ganga cleaning is nowhere near what it should be. In a way, Oshiwara/Mithi/Dahisar/Poisar and Ganga represent two ends of the challenge spectrum- One small, relatively simple and city owned, the other gigantic, hugely complex and national- both are asking questions. We as people, as a society and as a government must deliver answers. Failing is not an option.

Inhaf, a national network of professionals, civic groups, NGOs and concerned citizens engaged in human settlements development activities, especially trying to understand the challenges of growing and developing cities, saw both the challenge and the opportunity in the river rejuvenation work in Mumbai and found an entry point through three of its architect members, who are some of the lead actors in the act. What started some five years ago as a small support intervention has now developed into a deep commitment. Inhaf sees itself as a small but a committed partner in the river rejuvenation process that is unfolding in Mumbai.

What is interesting –and hopeful—about the Mumbai effort is its refreshing approach. No one is being blamed. They are open to engaging with all stakeholders. Convinced that a multidisciplinary approach is needed; that the technical solutions are not enough; that the effort to succeed needs to be a broad based partnership with local authorities, the state government and the citizens.; that professionals and subject experts must work hand in hand with local citizens. The effort needs to be people driven. Even if it sounds cliché, it has to have elements of a movement. People's energy, investment resources, professional skills and the political will are needed to do what is doable for the city, its health and spirit.

Inhaf is happy, and proud, to be a partner along with many others in this venture and contributing in some way to its forward march. We all know it has just started and has a long long way to go.



Habitat Forum  
**INHAF**

**FRIEDRICH  
EBERT  
STIFTUNG**



## **FRIEDRICH EBERT STIFTUNG (FES):**

Starting 2016, the Urban Transformation project of FES India, was envisaged to roll out in two mega cities of India. Delhi, the political capital, and Mumbai, the financial capital. The project was initially situated in the Economy of Tomorrow work line. As the theme suggests, these cities were chosen for their sheer potency to turn around the political economy of development in the country. More importantly, they provide the ground to strengthen the three Es of Just Urbanisation, i.e. Ecology, Economy and Equity, a concept aligned with FES values of Social justice and Equality. Whilst the Delhi group was initiated in 2016 itself, with quarterly meetings attended by urbanists and academia getting trained on the Transformative Change Making (TCM) methodology, the identification of prospective seed members in Mumbai began only in 2017.

Adding to the advantage, the project became part of the Socio-Ecological Transformation work line of the Regional Climate Change project in 2017, giving it a broader framework of operation. Both the case cities are congruous to the theme, for an array of reasons, ranging from the plethora of urban challenges arising out of environmental exigencies resulting in an economic burden to availability of already established network of organisations and Think Tanks working on those challenges. During the course of this project, other tier-two/tier-three cities are to be taken as case studies once the efficacy of the TCM method is tested on these two mega cities.

In the Delhi Seed Community Meeting for Urban Transformation held on 12th April 2017 in New Delhi, FES invited prospective members from the Mumbai group to experience TCM as an important tool towards Urban Transformation and network with the Delhi group. Amongst others, InHAF and Water Environs were invited to participate in this meeting, and ideas for transforming urban environments were invited to be tested using the TCM tool. An intensive project pitch by Water Environs on 'RIVERse- a holistic approach for healthier Rivers in Mumbai', opened up possibilities of collaboration between FES, InHAF and Water Environs. The project displays the potential to exemplify use of TCM tools in combining ecology, economy and equity for Just Urbanisation.

With a prospective catalytic project in hand, i.e. RIVERse, the grounds for launching the Mumbai Seed Community were laid and thus the first FES Roundtable on 'Shaping India's Urban Transformation – Making our Cities Greener, Smarter and Inclusive' was planned for July 2017 in Mumbai. Kamla Raheja Vidyanidhi Institute for Architecture and Environmental Studies (KRVI) came on board as a natural partner for this process, with keen interest in the method as well as the project, bringing in their valuable expertise

## **RIVER MARCH**

The River March team took up the challenge of creating awareness among the public on the importance of having clean flowing rivers and how it is very crucial for the environment to save the dying rivers. The Water Environs team joined us as Technical Advisors and by organising the 'RIVERse' Exhibition gave us a technical tool of communicating and sharing with our communities the need for change. They organised the thoughts and our agitation into a professional format which we could carry to schools and other institutions to create exhibits for awareness. The RIVERse journey helped us to understand the larger concerns like the damage to rivers due to concretisation of the river beds, the more practical and sensible alternatives available and the course of action we can take giving River March voice for action and a professional edge.

# The RIVERse Project

RIVERse is an effort by the citizens (represented by Water Environs, InHAF, River March and many other organisations and Individuals) to transform the neglected erstwhile rivers and streams (nullahs) of Mumbai which today are the backyards into much required people's health and well being spaces. Thus making them the front yards of our future cities. While the Supreme court of India in 2017 ruled that India's rivers are 'not living entities', We believe that whatever be the human view point, be it communal, scientific or social, the sheer nature of the ecosystems is that it supports every river, and water body must be viewed as an living entity.

Over the past two centuries, as human settlements have developed direct water lines to their homes, there seems to a gradual erosion of our deep rooted connect with the land and water resources. This has reached such an extent that for most citizens, the rivers have ceased to exist and at most are considered as storm water runoffs. During the non-monsoon seasons, these riverine systems also carry the sewerage of the informal city, not to mention being the local inhabitants' everyday dumpyard. The aspiration of the city is by very nature progressive. In the context of climate change, patterns of consumption and waste generation in cities have been representative of a lifestyle which needs reflection and a motivated change. RIVERse presents an opportunity to be developed as a catalytic urban transformer requiring participation from all stakeholders of the city. In Mumbai itself, it promises to positively transform the quality of life of its 18 million residents and it will prove to be a role model in the national context where majority of its 1.2 billion population living in cities and villages, are river dependent.

2011

**Water Environs**  
exploration of  
**Dahisar River**  
basin

2013

**Water Environs** collaboration  
with  
**River March**  
and hosting by **InHAF**

## ABOUT INHAF

**Habitat Forum (INHAF), a non-profit society, was set up in 1999. It serves as a national level 'synergy' platform for NGOs, individuals, groups and agencies to exchange information, share learning, debate, plan joint action, advocate causes, represent concerns, undertake capacity building, and network on issues shaping urban and rural development.**

Social and institutional development mentorship came through Inhaf who gave the movement visibility on various platforms.

The contemporary model of urbanisation based on GDP growth alone fails to acknowledge the role of a quality urban environment in the holistic development and productivity of a city. We need an alternate vision for our cities- a vision that emphasises on-

1. Significance of water bodies including rivers in urban spaces
2. Harmonious coexistence of people and nature especially in urban spaces
3. Economic and ecological sustainability while aspiring for cultural, spiritual and individual progress and well-being.
4. Building a community of emphatic and nurturing citizens who work towards happiness and fulfilment amongst themselves and others.

The RIVERse Journey has taken the form of public forums, weekly clean up drives, large festivals and marches across the city through its partner River March, giving voice to the four rivers that originate and run along the island. This led to it falling in the purview of the Friedrich-Ebert-Stiftung (FES), a non-profit German foundation, who saw the project as a potential seed project for their narrative building methodology. FES, in collaboration with Kamla Raheja Vidyaniidhi Institute for Architecture and Environmental Studies (KRVIA), hosted 'RIVERse' as a seed project in February 2018 under the program called Urban Transformative Change.

2017

Adopted by  
**FES URBAN  
TRANSFORMATION  
Narrative as a Seed  
project**

2016

**River March and Water  
Environs host the  
Riverse Exhibition at the  
Mahim Nature Park**

**River March is a  
Movement of  
active local  
residents who  
are concerned  
about the health  
of Rivers in the  
city and  
instrumental in  
galvanizing  
citizen support  
towards the  
cause.**

#### **ABOUT FES**

**The Friedrich-Ebert-Stiftung (FES) is a non-profit German foundation committed to the values of democracy and social justice. Widely acknowledged by the German and Indian governments for being an important actor in the promotion of dialogue (people-to-people contacts)**

# Water Environs : A Journey of Partnerships



Developing drawings and mapping the Dahisar River basin

Water **Environs**  
Exploration of Dahisar River basin

Developing technical documentation and mapping of the Dahisar River basin



October 2011  
Cycle Project in National Park - River March initiated the concept of cycles on rent.



10<sup>th</sup> December 2012  
Comfortably Sustainable - Public Talk at BMW - Guggenheim Lab (Urban Lab)



## InHAF Mentorship

Seed fund for logistical support and development of communication material like workshops, exhibitions and communication.

December 2014

Urban dialogues - A documentary of various stakeholders perceptions, fears and hopes for the river. An outcome of the KRVI annual workshop with Henrick Valeur.

Participated in  
2014  
**Holcim awards**  
for sustainable construction

NATCON 2014, IIT  
(Urban Transformations Paper publication)

Dec 2013-July 2014  
Documentary on Dahisar River and Environment Documentary was made by **Mr. Anand Udeshi** to show the current conditions of Dahisar River.



Dec 2014 Initiated River March as a Peoples Collective



## Presentation at Earth Mela, Sprouts

Visual Mapping of Dahisar River and its adoption as a pilot testing ground for activation.



Maharashtra Nature Park Exhibition



11<sup>th</sup> Feb -16<sup>th</sup> 2015

River March Team with gave details to Mr. Nana Chudasam and BJP Leader Mrs. Shaina NC along Mr. Nooruddin Sevwala.

Feb - 2015 Awareness at Rotary Club Awareness was done at Rotary Club Peninsula



10<sup>th</sup> May 2015  
RKB Show along with RiverMarch Team covered the conditions of dahisar river and telecasted on their TV channel.



Designing of Wish For River Installation Material, 2015



28<sup>th</sup> Feb 2015 - River clean-up drive (city level) supported and covered by Hindustan times



WaterEnvirons invited to curate HT Clean Mumbai

29<sup>th</sup> Jan 2016 Workshop cum Exhibition at  
Maharashtra Nature Park  
Water Environs, Inhaf, MNP, Jalbiradari, Khalsa  
College BMS

## THE EVENT AND EXHIBITION: A SMALL STEP TOWARDS A POSITIVE FUTURE

Our research and community activities over years has convinced us about the possibility of seeing the revival of Rivers. The exhibition addresses the shortfalls in our relationships with the riverine system and possible ways forward.



2<sup>nd</sup> - 9<sup>th</sup> October 2016  
Support Hamara Station  
Hamara Shaan - Dahisar  
Station theme of Dahisar river

10<sup>th</sup> February 2017:  
Participated at "Consultation  
on Availability of Clean Water  
and problems of waste water"  
in Gurgaon



Maharashtra Nature Park Exhibition



Dahisar River Water Test  
Under guidance of Water  
Environs, water sampling for  
done from 10 spots identified  
along the river based on  
segments previous studied  
through visual observations  
and activity profiles in the  
catchment of the the  
polluting 'streams'.

4<sup>th</sup> March 2017: River Utsav- River Art  
Fest, Interactive session with MLA's



River March :  
The Movement  
1<sup>st</sup> March 2015: First  
River March on  
Dahisar River - a 5 kms  
March. More than  
1600 people  
participated in the  
event.



13<sup>th</sup> April 2015: Dr. Anjana Pant  
surveyed Dahisar River and  
shared the microbiological  
approach to rehab Mumbai  
Rivers at a press conference at  
BMC Headquarters.

## WADING THROUGH WATER TO RESCUE DAHISAR RIVER

BY Correspondent  
• [correspondent@bmc.gov.in](mailto:correspondent@bmc.gov.in)

**MUMBAI** River has through decades  
suffered at the Dahisar river on the north  
and Pringon of Supply Council District  
Public Education Sunday Students  
last-visit, including Pringon Region  
College and BMS(BMC) College, other  
groups and NGOs such as Sanjivani  
Trust, River Utsav and residents of  
living services to the area (photo by  
BY Correspondent Mumbai campaign).



## Riverse Travelling Exhibition

May/June 2015 - ABP Mazga | Dahisar River Water Test | Tree Plantation Drive Launch | Commissioners Meeting

July 2015 - GS School River March | Street Play

Oct 2015 - International River Day MNP

Aug 2016 - Exhibition at R Ward Office | Vidyamandir | JBCN Church | Tree Plantation | Mary Immaculate | Sri Sri Ravishankar School | TCS Exhibition | River Run SGMP to Gateway

March 2016 - Second River March across all rivers

April 2016 - Clean-up Drive

July 2016 - Childrens & Public Awareness - SGMP | Mamrajaya Ramdas Kadam

Sep 2016 - NDTV Shubharaul, Sheetal Mhatre Interview | River Day River Run | GH School Exhibition

Oct 2016 - Dhobighat awareness through Art of Living - Himanshu | Felicitation of Rajendra Singh for Ahimsa Award at Raheja Club

2015 - Hindustan Times Kalaghoda Arts Festival



Consortium formed with **WAPCOS**  
in alliance with  
**EdEn+ Studio**  
**Architecture + RJBCPL**

to pitch for the RFP floated by MCGM for the clean up and beautification of 3 rivers - Dahisar, Gshiwara and Poinisar.

## FES Strategy Meets, 2018



## Water Story Studios, 2018



# 1

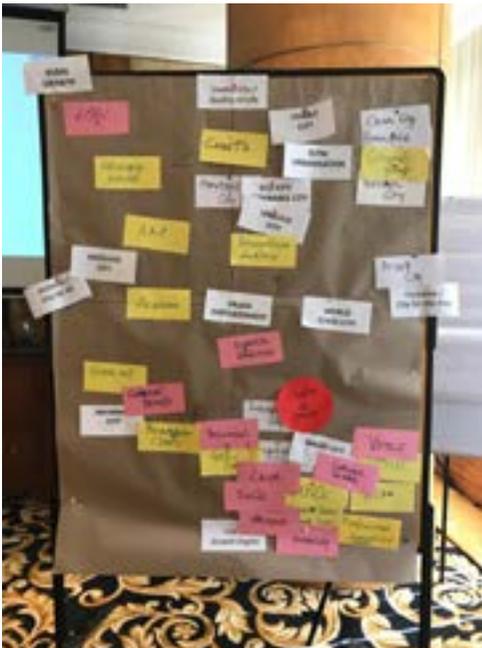
## Urban Transformation Seed Community Meeting

12<sup>th</sup> April 2017, New Delhi

In 2016, an FES initiated Indo-Europe Dialogue on Energy and Urban Transformation, that saw the deliberation of over forty experts on climate, energy and urban development from civil society, politics, administrations, academics, think tanks, and media to lead to an EU-India partnership through the challenges of transformation facilitating a sustainable development. Together, they have aimed to develop a strategic vision for two pressing issues of our time – energy and sustainable urbanisation. A follow up on the deliberations took place with experts present at the first Urban transformation seed community meeting of 2017, to discuss the complexities of urban transformation in India. Using the transformative change making method, the group identified prevalent urban discourses, actors and resources which could be employed to create a change narrative which could lead to a socially just urban transformation. The session which focused on New Delhi as a canvas also had participants from the western region to understand the transformation method.

### Using Transformative Change Making

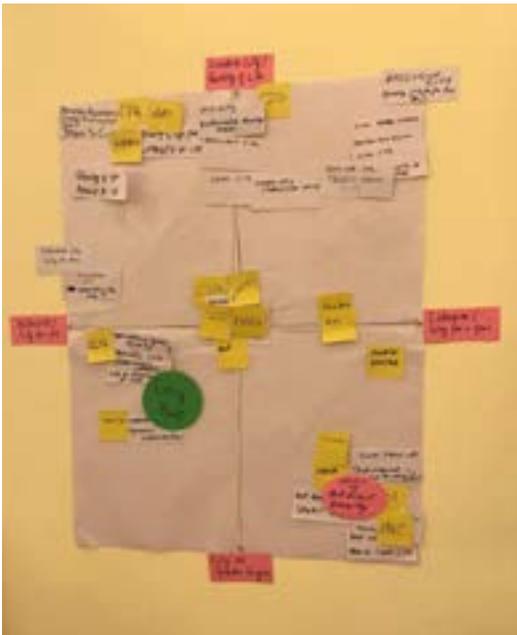
With expanding urbanisation; digitalisation, automation and urban transformation pose a complex economic and political challenge. The process of transformation is not a natural one, and is steered by withholders of power and resources. What is required is, a well guided, smart approach to create momentum for incremental change. This can be done by bringing together as many social groups as possible under a common agenda. However, it is difficult to build such a coalition as different social groups have different interests. A transformative alliance, on the other hand, binds different social groups through a common narrative. This is achieved by a) providing an alternative vision of the future, a better tomorrow to mobilise people b) creating a change narrative which connects people emotionally and morally c) converting a discourse into concrete action through a catalytic project.



25<sup>th</sup> July 2017, Mumbai

The FES-KRVIA Roundtable on 'Shaping India's Urban Transformation' brought together a variety of stakeholders including representatives of civil societies, activists, academics, journalists, solution providers, environmentalists, urban practitioners and students involved in different issues concerning urbanisation and growth in India. This was the first meeting of the group in Mumbai, intended to kick-start a process of Transformation Change Making through a dialogue between various actors in the city. Divided into two sessions this dialogue aimed at introducing the participants to the basics of the Transformative Change Making Process, and help them understand various discourses concerning the city and its development, and subsequently, help them find their own position with respect to the current lay of the land. To facilitate an informed strategy debate amongst stakeholders, Transformative Change Making method uses a set of visualisation techniques. These techniques aim at including knowledge from as many stakeholders as possible, bringing all discussants on the same page, enabling a bird's eye-view of the political playing field and facilitating strategic debates over the best entry points and way forward. The session 1 that pooled in different visions from within the group including parallel images from around the world, blanket terms like 'Smart Cities' or 'Digital India', and loss of consciousness of a unique Indian city. It was felt that a more 'human centric' vision was necessary. To create this, many of the presumptions of planning discourse themselves needed to be re-examined. This includes the idea of the 'Master Plan' as the tool for planning, and also the easy binaries that are often used to understand our cities- 'kinetic vs static', 'development vs heritage' or 'formal vs informal'. It created the storyline of the city addressing-

1. Governance and a breakdown of communication with the citizen bodies.
2. New as against the conformist, in the form of activism and opposition.
3. Housing and the need to address affordability in the city and the lines between formal and informal models, rehabilitation models and need for evolving new models.
4. A need to shift focus on the small town vs major metropolitan regions.
5. Sustainability: Environmental and ecological impact becoming the worst form of lip-service with no voice for non-human lives.
6. Resources and infrastructure- lack of good quality and affordable health and education institutions.



# RIVERse

## AS A SEED COMMUNITY PROJECT UNDER URBAN TRANSFORMATIVE CHANGE

### Session 1

The first Seed Community meeting was attended by 30 invited individuals from varied organisations. Mumbai's urban discourse landscape was briefly discussed and it formed the basis of creating a change narrative for the catalytic project. Invited participants were asked to propose catalytic projects for the city which they thought the group should take up for discussion. A project pitch for Energy Transformation was also discussed.

Water Environs and InHAF proposed RIVERse as the catalytic project for 'Urban Transformative Change Making'. The RIVERse project pitch was vetted against the parameters laid out in Transformative Change Making. It was decided by majority that the project had enough ingredients to be developed as a catalytic urban transformative change maker.

FES- KRVI accepted to facilitate the space and resources for conducting FGD's for sharpening the narrative and support the cause. Other participants too expressed interest in knowing about the project in the upcoming workshops in order to decide in what manner they will be able to contribute. It was further decided to organise a meeting in every quarter, starting from February 2018. It was further suggested that along with RIVERse, other project pitches too were prepared in the format discussed which could be taken up in the next meet.



## Session 2: *Dominant Narrative, Entry Points and Way Forward*

The second session began with an introduction to the 'Transformative Change Making' method as a way of understanding the scenario within which different stakeholders are operating. The tools introduced were to assist in allowing the participants to map the discourses concerning urban change happens in the city of Mumbai, to identify stakeholders on that map, and understand where the centre of political gravity lies. The axes were chosen to reflect the defining cultural and material cleavages in the Indian polity and society. The group observed that the vertical axes do not clearly project two polarising paradigms and needs revision. The group identified many discourses in all quadrants with least concentration being between Inclusive City and City as Growth Engine. While many other discourses came up including the image of Mumbai as a city of dreams for job seekers the notion of cultural and heritage was equally strong. Central to Mumbai's fluid socio-economic fabric is a very dominant narrative on 'Marathi Manooos City', where the Son of the Soil natives of Maharashtra state creating an ever-growing rift between the locals and the migrants. The current centre of political gravity lies in the bottom right quadrant. This implies that the paradigm influencing current political decision making is inclined towards city's predominant role as economic aggregator, at the same time, making them increasingly non-inclusive, catering to the needs-of-a-few. It is interesting to note that the key actors like service providers, knowledge expertise, political powers to be, and those involved in civic engagements are to be found at the cross-section of axes, portraying balanced outlook from these actors. It would seem, therefore, that this cross-section can be the Entry Point for creating a change narrative, catering to a broader societal coalition. Suggestions for way forward included more stakeholders into the group to make it more inclusive, especially members of the legislative assembly, corporators and bureaucrats to re-map discourse with revised axes. FES and KRVA set out to initiate the first seed community meeting in November 2018, where in the method will be introduced to the group with clarity on catalytic projects and



# 4

## WE Strategy Meet 1 -KRVIA

12<sup>th</sup> June 2018, Mumbai



RICH BIODIVERSITY

Campaigns and Movements

River March

Urban Technical Expert

Technology

Citizens Human Resource

MPCB/CPCB



AMPLE RAINFALL

Forest Department

Land

MCGM Env. Cell

Social Media Activists

Culture Partners



MANGROVES

Knowledge Partners

MCGM

Archaeological Department

Academia

**INCLUSIVE**



Civil Societies

Celebrities

Legitimacy

DP Department

Green Architects

Environmental Lawyers

Corporator

CSR Industry Corporates

MAP OF ACTORS AND INGREDIENTS FOR RIVERSE PROJECT FIELD

# LAND AS AN ECOSYSTEM



Ecologists

Native Inhabitants

Environmental Lawyers



NO POLLUTION

NEERI

Tribal (traditional) communities

MMREIS

Media (Digital) - Social

Regional Media



**EXCLUSIVE**

CM

MLA

Bureaucracy

ALMs

Guardian Minister

Development Lobby Group

Funders

Industry Lobby Group

Oppositions (Political Parties)

Builder Politician

Opportunist Architects

Industries along river

Airport AI

Tabelas

Land Mafia



# LAND AS A CAPITAL

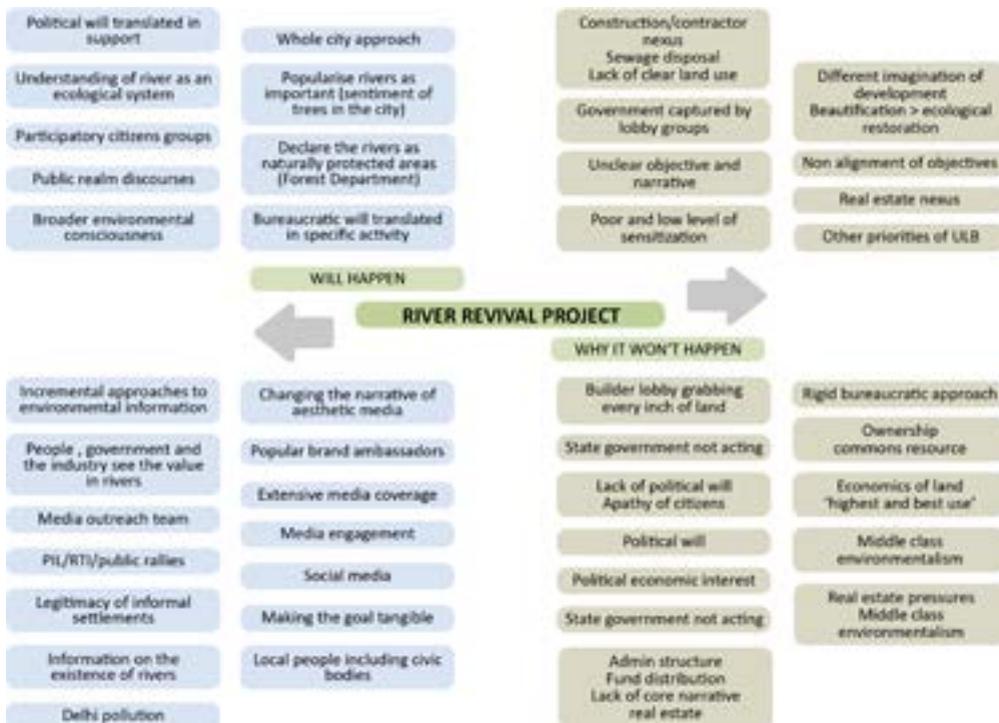
**Raising the 'RIVERse' debate?**

The Water Environs team shared the journey of the RIVERse project from technical concerns with InHAF and then the social activation journey with the River March Group at the end of which there were still hurdles to any change of momentum or approach to the river embankment training or the waste dumping. The FES team introduced the potentiality of their Urban Transformation Method which aimed to address the situation through the looking glass of the multiple and complex stakeholders that the city is home to, and the project must respond too for transformation to happen.

Not surprisingly, the diversity of the group that ranged from urban professionals to civil society members to everyday citizens, the starting point was questions.

Should we use river or land as the starting point considering the tangible area of interest? Rivers or water bodies don't register on the Mumbai psyche to drive home the huge challenge like land. Who are the Actors in this Narrative? ...institution as an actor, individual or NGO? Who will fund this transformation? Natural allies and transactional allies, transformative allies are mostly spoilers, how will we make the transformation if we can't meet them? What role does the government play? In terms of governance, presently, for the river project, they are transformative allies. The figure below is an output of a participatory exercise where participants listed out drivers who will work for the change and the drivers who will act as spoilers.

The figure below is an output of a participatory exercise where participants listed art drivers who are willing to work for the change and the drivers who will act as spoilers.



# Which stakeholders are inclusive and which are exclusive?

## TRIBALS/ TRADITIONAL COMMUNITIES

They are exclusive. They don't want other buildings and businesses to come. But they are very happy with the environment for themselves not for everybody. Tribals act for instance protects them so they don't allow any third party.

## MEDIA

Regional media is not aligned to a generally inclusive party, its more extremist. Social media activist potentially can be a big group but are also very big spoilers.

Can transactionally change them if you can but they are nuisance barriers. Social Media and its operators are the biggest influencers. They are good potential incase media goes viral. Online movements also emerged as actions oriented stuff.

We need to start identifying them and getting more specific as each of them have their own values. Need to identify technical players. RTI actors have great value and are also nuisance.. We need to move away from social media activist

## CELEBRITIES

If you look at celebrities they will be talking to the tunes of the State. There are hardly any of them which talk about the environment. Generalization doesn't help, to achieve an objective we need an ambassador. Rather than dismissing the word we need to come up with a break down so that it can be incorporated. For example when we looked at the politicians, we have already broken them down into identifiable agents.

## COMMUNITY BASED ORGANIZATIONS

### ENVIRONMENTALISTS

Environment as a lobby doesn't exist in Mumbai. If you have competing forces it is always better to generate new thoughts and ideas that can come out with a solution. Environmentalists have to be together when they have to pressurize the government. The objective is to build up a common narrative that binds everything together. While concerned about ecology they tend to be biased making them exclusive

### RELIGIOUS ORGANISATIONS.

Culture partners are like religious groups. Religious groups do worship of rivers but throw flowers and garlands into the same. They are like patrons and cant be inclusive.

### CMS , MLAS & POLITICIANS

Corporations have different ground agendas. From one end there is a call from local level, then appeasing the political party. This leads to compromises. The elective representatives need to be broken down into MP /MLA because not necessarily cooperator will get into real estate. He doesn't want to lose his vote banks. Politicians are going to behave in an opportunistic way.

## POLICY MAKERS

## FUNDERS/CSR

Funders are fence sitters. CSR is not necessarily towards saving the environment. Corporates align with self interest. The media and the citizens will be able to influence a lot in that manner

## ENVIRONMENT CELL (GOVERNMENT)

MCGM Environmental cell is responsible only for NOC. They say either you go to Storm Water Department or go to Waste management. If DP s were exclusive they would've been sanctioned by now. When there is opposition and the DP department go through the iterative process they automatically fall under inclusive.

## TABELAS

They have just retained their land as they are not going to get the same value for which it was sold to them. They are not interested in running a tabela. But they do so else if authorities come by and the land is not used to store animals, land will be confiscated.

## LAND MAFIA

## DEVELOPMENT LOBBY

### INFORMAL SETTLEMENTS

In an urban area low resource high transaction value, tabelas, grassland, slums, low informal settlements all that gets into one category. They can be easily bought off as they have really low power.

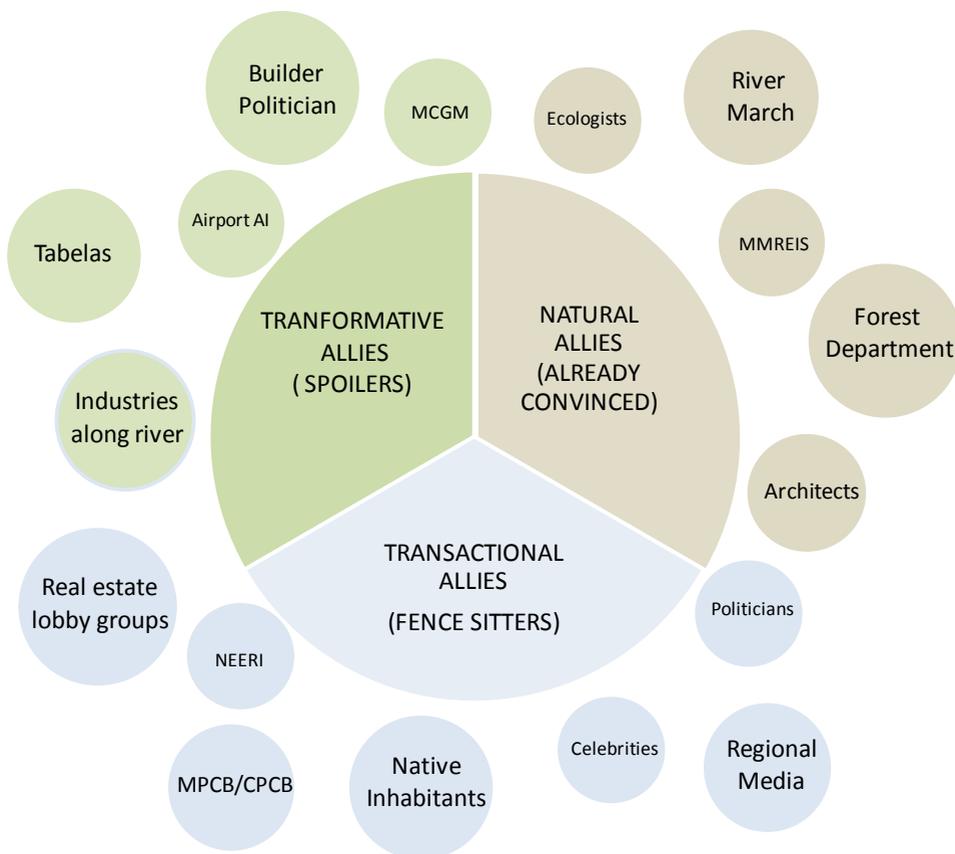
They have the power, that is why we need to convince them about the project but at the moment they are preferring the status quo. And we want to influence them or we want to be able to win over the side we are talking about. We need to enroll them to our way of philosophy as they are significant. They are the petition makers.. We need an alternate vision for our cities- a vision that emphasizes on Significance of water bodies including rivers in Urban spaces Harmonious Coexistence of People and Nature especially in Urban spaces Economic and Ecological sustainability while aspiring for cultural, spiritual and individual progress and well-being. Building a community of emphatic and nurturing citizens who work towards happiness and fulfillment amongst themselves and others.

# THE 'Z' AXIS

The viewpoint was biased that too many things are falling in the centre. The axes are not perfect, which also means that most people are not willing to take sides which also means that they are fence sitters. This exercise allows us to understand where they are positioned. In this whole graph, there is no point in which one can see that identity or social location or class become operative agents which is so important because if you don't consider those operative agents, visualising narratives of change becomes almost impossible and in a country like India, it's completely unthinkable. Suggestion is to break this down further. The Z axis could deal with identity, else it will be methodologically wrong. The classification should include –

- Language
- Religion
- Caste
- Origin of Place

For example, while doing a survey on defining poverty line, surprisingly nobody said that caste was a factor that determined poverty. Muslims don't reveal their caste in surveys because they don't have an advantage to it. That is either because the questionnaire didn't lead to it or they did not want to mention it. In the entire exercise, we are trying to map power. In our country, academically or practically, we see that power is mapped according to these four axes. That is the social science dimension. If you look at the outside world, that is not the only way of looking at the power structure.



## BUILDING TRANSFORMATIVE ALLIANCES

## HEALTHY CITIES

THREAT	CONFIDENCE	GAME CHANGER	MORALITY	HOPE
Polluted water as health hazard	Rajasthan	Rivers and health	Historical value	Water and civilization
Flooding	Tarun Bharat Sangh	Red and blue lines	Biodiversity	Backyard to frontyard
Water wars/class wars	Kondva Nullah	Rivers as Capital	Memories of association	River as ecosystem
Sanitized riverfronts (No slums)	Kalang, S'pore	Co-housing	Death of river as death of cities	Interaction with ecology
River as a life threat	Chinachong, Korea	Climate resilience		Watershed management
Water scarcity	River March Jivit Nadi	River trails and heritage walks		Education awareness tools
		Urban Sehat		Green banks
				Learning from the river and connecting to it

Having created a framework of viewpoints and ideas which would create a common narrative of interest, the WE team felt a focused session on the narrative thread as a round table would derive value. The Mumbai story would become a pilot to showcase the adoption of a people-driven habitat management program that will offer healthier, wealthier and nature-rich cities of the future where environment serves its economy and vice-versa. The sessions were not cohesive as were some statements of disregard to the process. Again, the issues of real time effort came up. Some felt that important imperatives would get partially addressed by the focus on narrative session. Many felt that realising and trusting the tremendous potential in mitigating urban floods and reduce the possibilities of frequent occurrence of flooding in various parts of the city would be enough. The group finally decided to divide in two groups- the first to understand the action plan and the second to work out the frame work of the narrative.

THE NARRATIVE APPROACH developed was following by consensus :

The following communication was developed mutually by stakeholder participants from different viewpoints to the rivers in city of Mumbai guided by the Urban transformation narrative method of FES .

## THREAT

If the city turns its back to nature, there is a threat to life and property of the community.

## HOPE

An ecologically driven growth approach will give social and economic benefits to all.

## GAME CHANGER

Innovations in habitat management will offer healthier, wealthier and nature-rich cities of the future where environment serves its economy and vice-versa.

## CONFIDENCE

The historic role of rivers in the life of prosperous civilizations along them become remarkable case studies for the future.

## ETHICAL IMPERATIVE

The saving of the cities rivers will give a new lease to life to its vibrant economy, quality of living and biodiversity, benefitting all it's citizens.

# THE VOICING NARRATIVES

Active and green frontyards:

Mumbai ki वसुंधरा - nature in totality / to revive river

जागरूकता- अभियान - Individuals responsible to do things/ lack of awareness/disconnected with anything around us

River as a life and lifestyle - in a modern context, can river be a lifestyle statement for me?

Flow like the river inspite of the highs and lows, accepting the joys and sorrows

पानी से पर्यावरण - Commit to an action plan - I solicit data to translating into ISC's which the people at community level will be able to connect with, you have to help us be technically and subject wise correct and we commit to a mass out reach through a community centre and through multiple volunteers.

Community presence in community areas and city wise presence / Work with all the corporations

We all live on earth and we have a responsibility to take care of it. Go green and blue with rivers.

Acknowledging differences > In terms of planning language

Communities should be at the centre of the change mechanism, both in terms of framing and execution. We have to move away from the current notion of green aesthetic and stopping criminalising the marginalised communities when it comes to the green environment

(We will provide ecological information on the rivers that we are managing)

Mumbai is becoming the cancer capital of India rather than the financial capital because of all the pollution.

गौरी कपडा मकान क्या ये कार्पस है? जल और स्वास्थ्य का क्या?  
Mumbai as a city always evokes people coming here for aspirations. Questions work better than statements.

Living (with) rivers  
could be the narrative / an awareness to action campaign to  
revive Mumbai's rivers into living entities.

Rivers: an ecologically sound and economically viable action  
plan - if we create a vision document as to what finally we want  
to have it look like then it should have economy and ecology  
both in it as a vision plan.

नदी पे नाला, नाला पे नदी - join to restore our rivers  
De-concretizing rivers to save rivers

नदी पत्र पाणी आणि सहजीवन

Building social cohesiveness through riverbank rejuvenation

River flowing into the sea is our heritage our requirement for a  
fulfilling life and the gift to pass on to Mumbai. Keep it Alive.

Civilisation started next to a river. Civilisation will end next to a  
river. सपना मुंबई की जीवित नदियों का?

The only unique city in the world where four rivers originating in  
the city flowing through the city and ending in city sea

# Case Building for a Narrative

## HOW WILL IT WORK?

### Building an Ethical Imperative:

The saving of the urban rivers and water bodies will give a new lease of life to its vibrant economy, quality of living and biodiversity, benefitting all its citizens.

Building hope and confidence amongst the individuals and the institutions monitoring or responsible for the ecological and environmental assets of the cities

An ecologically driven growth approach will give social and economic benefits to all.

Good governance and urban management leads to a healthier city.

The historic role of rivers in the life of prosperous civilizations along them become remarkable case studies for the future.

Working Idea: "Empathism" as against "Activism" for a shared future

Building a strong Environmental lobby and economic feasibility model for the case of rivers.

## TRANSFORMATIVE?

### •Economy of scale:

The road map up till now has the development of the "River March" group that involved lower, middle and upper class, industrial, and commercial consumers. Riding on the political campaign of Swachh Bharat Abhiyaan to embark on the idea of reviving the rivers of Mumbai which are now identified as "Nalla" (Waste water channel) and are part of city's drainage system. Activating the community has created a sense of ownership amongst the people and also made governmental bodies responsible to answer the citizens for the actions taken regarding rivers and water bodies of Mumbai. This needs to be moderated and the drive propelled further.

### •Unleash Structural game changers:

Access to clean fresh air, low city temperatures and open recreational space for social well-being. Lessons can be drawn from Seoul river front development and planning where major decisions of pulling down the flyover to revive the river and its ecology were taken.

### •Nucleus for social coalition:

Engagement of various stakeholders across the rivers of Mumbai and complex network of way of working requires actions at different levels. Identifying resource people and working with focused group discussions will help in creating smaller roadmaps to achieve the ultimate goal.

### •Platform for discourse alliance

The project idea takes into account several discourses such as need to move towards clean and sustainable growth using environment or ecology as key factors to increase city's GDP. It further aims to acquire and reclaim the lost idea of social open space within the city. Urban issue of unhealthy air quality and flooding which has crippled not just individual health but the lifelines of city leading to financial loss a thing of the past. Moreover, we threaten their existence and in return we are also threatening our existence on this planet.

## TECHNICALLY DOABLE?

•**Longevity:** Till life exists on earth water ecologies shall thrive and be responsible for nurturing life in every living organism and civilizations

•**Doing Away with land requirement:** There is no requirement of land, which is a scarce resource in the country. However, it is important to preserve the rivers and water bodies, with its biodiversity and ecology within the city. Failing to do so using manmade phenomenon like city floods nature will reclaim its land from us

- Reduced Environmental impacts:** Respecting the natural resources of the city and thus reducing the negative impact of increasing pollution, health aspect within the city and quality of life.
- Reduced System Congestion:** With higher self-consumption, the system congestion will reduce.
- Evolving Cleaning Technology:** Approaching alternative technologies to revive the rivers and water bodies in its pristine condition and build a self sustaining model for future performance

### COMMERCIALLY VIABLE?

- Technical Assistance by Government:** Placement of river and ecology cell in BRIMSTOWAD department where water engineering is not the only way of tackling floods within the city, but to create opportunities of inclusion of various stakeholders within one larger umbrella organisation.
- Reduced Maintenance cost of de silting and maintenance:** Concretisation of the river edges and the bed is not an answer to control flood. It's an added operational and maintenance cost to our economy which with time shall inflate exponentially and not increase load on well-being of a city
- Increased Self-Sufficiency:** It has the potential to absorb the man made disasters like urban flood, increase in air pollution and air temperatures.
- Reliable way of transport:** It offers a possibility to explore an alternative mode of transport.
- Enhanced Quality of Life:** The cost of generating open recreational spaces is more explanatory than pumping money into low standard infrastructure with recurring maintenance and operational cost.
- Low Operation and Maintenance Requirements:** Since this will be working on the principal of ecology and participatory approach the model will be self sustaining.

### POLITICALLY VIABLE?

- Transforms Political Will through Economies of Scale:** Political viability is dependent upon the political will, which is a function of the people's will at large. Once the people's will have been transformed by achieving the economies of scale, it will eventually translate into the priorities of the political leaders also.
- Local Area Development:** Builds links of social change between the environment and the health of neighborhoods. It also relates to tangible and intangible goals and gains for the stakeholders.

### ECOLOGICAL BALANCE?

- The timeless role of rivers in not just shaping human civilizations but also riverine ecologies of fauna and flora. Their offerings as living labs to the educational establishments in the region for young minds to relate to.
- Build a stronger allegiance between the ecological bodies/organisations/ institutions with the city's existing ecologies as their medium of study, scholastic reviews and more instead of looking at habitats outside. Thus allowing more value to the rivers' sustainable future.



The participants demanded for a more specific approach than just a narrative baseline. FES agreed to look at RIVERse as a unique complexity and the need to back it down further. The road maps discussed further are the result of the three consecutive strategy meets held till date. The road maps were charted on the basis of four essential and broader themes: Social Activation Outreach Youth Activation Legislation



The idea was to brainstorm in all aspects that play a crucial role in affecting the rivers and the ecology of the place and could act as game changers, on defining the strategy and position for accountability at individual and organisational level.

## SOCIAL ACTIVATION

Team: Kimaya Keluskar, Neeta Chalke, Col Unni

The working group listed down the categories or broad agencies involved under social activation while working with the rivers in the city of Mumbai. The listed categories are

### Mapping Catalytic Agents:

Informal Settlement	Small/Large Industries and commercials	Gated Communities	Social Infrastructure	Physical Infrastructure
NGO'S and CBO's	Federations and Associations, Unions	Alm's and CHS, Federations	Local political representative, Municipal corporations, Utility Providers	Political representative, Utility provider

### Using the TCM Method:

	Threat	Hope	Game Changer	Confidence	Ethical Imperative
<b>Informal Settlements</b>	Eviction Loss of Life	Re-establishing an economic connect with the river	Technical intervention and policy change	Bishan Park, Singapore	Insitu Development
<b>Small/Large Industries and commercials</b>	Encroaching riparian ecology, Waste water disposal	Buildings Green status quo	Forming a strong ALM federation	Godrej colony, Vikroli	Enlightened citizenship
<b>Gated Communities</b>	Lack of tenure ship Lack of legality	Sustained Economy	Interlinked Economy		Green Credit system to encourage green practices
<b>Social Infrastructure</b>	Absence of co-relation, disconnect	Knowledge dissemination Moulding younger minds	Impact through changed curriculum	Themed parks like MNP, BPT garden, EVS introduction by Gloria D'souza	Forming green Ambassadors
<b>Physical Infrastructure</b>	Design alienation	Technological innovations	Robust installation	OSHO - Pune	Cohesive Communities



## OUTREACH

*Team: Anand, Rutika, Sandeep, Neha, Shraddha*

### **SOCIAL MEDIA:**

Posting updates related to the movement, Activities taking place on the site, Information about parallel movements etc. to social media sites such as Facebook (Pages, Groups), Twitter, Instagram, YouTube (podcasts) Channel, blogs/vlogs, Whatsapp Groups, List Serves, website, etc.

### **ONLINE APPS, GAMES AND CALCULATORS APPS:**

A Google map for rivers that indicates the surrounding geographical features, historically significant spots, significant spots for tribal festivals and rituals, scenic spots etc. The above or a separate app could include a feature where people can update locations where they spotted species of birds, trees, insects, etc. At the same time, incentives to reduce unethical practices such as use of playback should be encouraged through the app © Green Humour- an interactive app that outlines that indicators of a sustainable river ecosystem, level of optimum water at different spots on the river in the different seasons, etc. Dilemma cards that allow users to choose between multiple contrasting options to understand for example- the impacts of different human activities on the environment. GAMES: Design online games. A game like Pokemon Go that encourages people to go out and explore their rivers (Riveropolis), Precautions will need to be taken to ensure that the wildlife/habitat is not disturbed by these activities, but actually improved with activities such as clean-ups, waste collection drives and tech hackathons.

### **CALCULATORS:**

Just like the online carbon footprint calculator indicates the impact our traveling choices have on our individual carbon emissions, we could consider developing a water calculator that tells us how much water we use every day and the impact it has on the riverine and marine ecosystem of Mumbai, depending upon where we use that water.

### **SOCIAL MEDIA CHALLENGES:**

Taking some inspiration from the viral #kiki challenges that's doing the rounds on social media, and #splogging (picking up garbage while jogging) that is hot on the South Delhi circuit.

### **ONLINE POLLS:**

Online opinion polls to measure public interest or understanding of a subject can help us shape future programs – these could run parallelly on the website, mobile and social media sites and at popular youth locations, such as pubs, discotheques and malls.

### **MAGAZINES AND PUBLICATIONS:**

Articles in Newspapers, Festive, Travel and Nature, School/College and Lifestyle Magazines; Columns in Newspapers; Comic strips; Blogs; Comic strips in particular were a topic of discussion. Many children have grown up reading Amar Chitra Katha, Tinkle and these have profoundly influenced the generation. The Speaking Tree is another example (River Speaks).

### **COLLEGE FESTIVALS/ LIT, ART, FILM FESTIVALS/DAYS OF NATIONAL IMPORTANCE/DAYS OF ENVIRONMENTAL IMPORTANCE:**

Festivals can be divided broadly into the following: Institutional festivals- college festivals, Themed (art/literature/film) festivals, Religious festivals



## YOUTH ACTION & ACTIVATION

Team: Ajay Nayak , Advaita, Sachin Marathe, Prashant Nanaware, Siddharth, Amruta , Rishi Valmiki School

### The Tabulation

The table identifies the youth segments that can be agents of change and looked upon as assets to the movement. The columns on influencers direct the case to develop the strategy of action and outreach possibilities.

Sr no	Classification (As per Age / Study) The age group, the area of study or future, places the target group frequents.	Sub Classification ( As per another area of consideration that affects their mindset)	Connect As per the status quo the target group finds alignments and cause to associate with the theme.	Asset (stands for the strengths brought to table by target group)	Influencers Identifies individuals or groups who influence the mindset of this target group and also who get influenced by their demand (e.g.. parents)	Strategy (Activation Potential)
<b>Zone 1:Urban</b>						<b>As per timelines</b>
1	Child	School -income group	Educational/ Cultural/Religious Recreational Consciousness	household/neighborhood Voice Future consumer	Influence Teachers Parents	<b>The following to be on a timeline of 30-60 and 90 days</b> 1. Need for surveys and creation of database of this target group. This should be physical and digital. 2. Need to create a campaign and content for creating IEC material 2. Material to be planned for dissemination as per colleges, corporate alignments 3.Funding to be sought as per campaign 4. Engagement /outreach team to be created which addresses Social Media, IEC material, events , workshops and Media Involvement. 4.Volunteers to be roped in 5.Partnerships to be created and responsibilities allocated-CRF, Yuva, Rishi Valmiki Eco School, Dadar SIES, IES, Radio Channels, TV Channels other media 7. Production & Processing of Material 8. Take advantage of events/festival themes to connect - Ganpati Sep-13 Reverse Session- 24th October Earthmela Nov 1st week Kalaghoda Feb first 2 weeks
2	Adolescent	Colleges + Disciplines Income groups Regional Influence –Sobo, Suburbs-Navi mum/ Thane		Energy (leg work) Social media New Ideas Research	Peers Celebs	
3	Youth	Youth groups Private/business / job Hangouts- 1-high. Income groups 2-low Income groups	Occupational, economic, Cultural/religious, Practical, Political, Recreational	- Technology - Funding (HIG) - Youth circles -Noticeability -Aspiration - Energy Talent Volunteering	Press/media Politician /Preacher Local heroes Event s Places Civil society Policy maker BMC Experts	



## TECHNO – LEGISLATIVE DELIBERATIONS

*Team: Vikram Pawar, Kedar Ghorpade, Ashish Mehta, Mandvi Kulshreshtha, Sudha, Suhana*

### THE KEY POINTS OF DELIBERATIONS:

- Rivers to be treated as living entities, thus the emphasis on ecological restoration.
- The socio-economic emphasis thus envisioning the role for Urban Rivers for betterment of the city environment and as learning repositories for children (the future generations).
- Delineation/ identification of Rivers and all associated natural features like Hills, tributaries, streams, catchment, creek, vegetation etc.
- The inadequacy of the storm water drainage department to maintain the river environments and the possibility of making the Irrigation and Forest Department contribute towards healthier Urban River environments.
- The governance and administration related circumstances leading to ecologically destructive and inaccessible river environments as well as illegal measures adopted by the very officials entrusted with its safeguard.

### POLLUTION RELATED ISSUES:

The poorly informed, deliberated and sanctioned, concretization/ training and dredging measures which do not address the increasing flooding concerns due to climate change.

Inefficient utilization of resources resulting in sterile city environments and waste of financial resources.

After the 2012 court ruling on Mithi established a status quo on concretization-all subsequent concretization akin to contempt.

### Actions required:

Citizens Draft Action Plan for Rivers of Mumbai with the revised narrative taking into account the socio-political & economic considerations along with the ecological ones.

Demand for the delineation/ identification of Rivers and all associated natural features like Hills, tributaries, streams, catchment, creek, High Tide Lines, Flood planes are on the DP.

Identifying other gaps in legislation and its implement ability on ground and develop strategies to mitigate them.

Enabling representation of civil society groups in the decision making and monitoring of River related activities of governance.

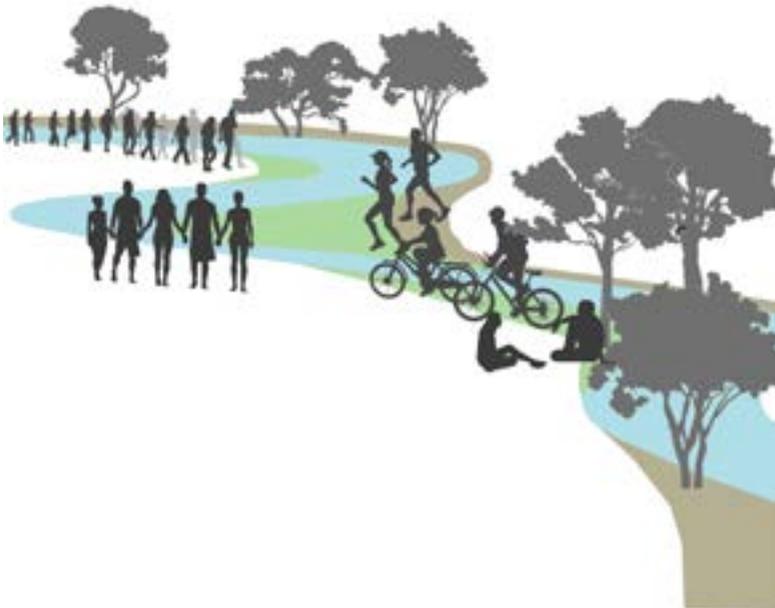
Building network of individuals and organisations working in this field and enable its potential towards 'RIVERse'.

Capacity building of government institutions towards 'RIVERse'.



The 24th October 2018 Summary meet of the year shall conclude with a presentation from Water Environs (WE) about their one year journey with FES. The presentation shall talk about the TCM method and how it helped Water Environs to build up a larger narrative. In the journey many more organisations jointly and voluntarily helped Water Environs. Owing to the scale of the project and its complexity, the team acknowledges that there has to be a collaborative effort to create impact and thus a consortium should be formed at the end of this year which will take up this urban transformative project to the next level of implementation. Water Environs proposes to send invites to the participant organisations and sign a Memorandum of Understanding to formulate the process and get all those interested in collaborating on board. The Memorandum of understanding shall include certain guidelines to be followed for certain decision making. This shall help all of us to be on same page and help us work smoothly. The second point was about creating a 3 month intense outreach program using all kinds of mediums like digital, social media, articles, newspapers, advertisement etc. This would be prepared and circulated under the consortium team. So work action plan for the same has to be created and necessary communication with respective people should initiate as soon as possible. Being climate change day, 24th October, 2018 is a suitable launch date for 'River Action Network/ Group' proposed name. The day would mark the launch of a focused outreach to connect with all the layers of society that catalyse the urban transformation to happen. The 24th Meet shall also have a small panel discussion of eminent experts in the field. (The idea was to get more coverage and launch the newly formed 'Network/group' and its 3 month detailed outreach action plan). This shall form the base for the larger stakeholder meeting which is to be held in February or March 2019. Press, influencers and other connections who are essential for this outreach will form the audience.

**Open to the idea on formation of the Consortium to make RIVERSE every individual's project**



# LIST OF PARTICIPANTS

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# RIVERse

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## **a WE (Water Environs) Production**

This book is a collaborative effort between EdEn(Educated Environments) & Studio Architecture



**FRIEDRICH  
EBERT  
STIFTUNG**



 **Habitat Forum  
INHAF**



**EdEn SA** ] [ **EC SPROUTS**

**DAHISAR RIVER**

<b>Length</b>	13 Km
<b>Hilly area</b>	~2.5 Km
<b>Developed area</b>	~9.5 Km
<b>Creek</b>	~ Creek area after this
<b>Avg Existing Width</b>	30m (Differs at various points within urban neighbourhoods)
<b>Avg Proposed Width</b>	45m (Differs at various points within urban neighbourhoods)
<b>Origin</b>	Spillway of Tulsi Lake in Sanjay Gandhi National Park
<b>Catchment area</b>	3488 Hectares
<b>Connecting Nallas</b>	V.H Desai Nalla, Yadav Nagar Nalla, Cosmos Nalla and MCGM Garden Nalla
<b>Bridges across river</b>	20
<b>Ends into</b>	Arabian Sea
<b>Total Carrying Capacity or Basin Scale</b>	34.88 sq km
<b>Edge condition</b>	CONCRETE EMBANKMENT River within the city limit is been completely edged by concrete walls. Concretisation is going on within SGNP administrative limits GABION WALL No trace of gabion walls LANDUSE Mixed- Mainly residential and industrial and slum encroachment
<b>Buffer space: Upstream</b>	Immediate action: 15m buffer strip on either side For prohibited Zone: Channel to be be widened to accommodate 1:10 year flood +12m carriage way/ service road on either side. For Restrictive Zone: Reqd channel width for 1:25 yr probability flood For Risk Zone: Required channel width for 1:100 year probability flood
<b>Buffer Spaces: Tidal range</b>	Immediate action: 15m buffer strip on either side Channelization for 1:100 year probability flood + 12m carriageway/ service road (Sourced from MMRDA report on Rivers- pages 157-159)
<b>Check Dam</b>	One at the onset of river within urban context just after the boating area in SGNP Recently a check dam has been added at Dhobi Ghat area
<b>Flood Data</b>	1974: No data available 2005: Level of water in certain areas was 2.5 metres 2017: Level of water in areas at Western Express highway and Sainath Nagar was 2.5 metres
<b>Risk areas as per MMRDA fact finding Report</b>	Dahisar River: BRIMSTOWAD catchment number 203
<b>Demarcation of Floodlines</b>	In a research paper its been demarcated. Majorly, the area that falls under red, blue and grey line is 90% encroached and built
<b>High Flood risk Zone</b>	Shantivan and Sainath Nagar slums
<b>Return of 100 year time period</b>	No Data available except Mithi River
<b>No of Outfalls</b>	-
<b>Flow Measurement</b>	-
<b>Water Quality</b>	COD: 100mg/Ltr to 88mg/Ltr BOD: 420 mg/ltr
<b>Sources and Type of Contamination</b>	Drainage waste water, industrial waste water, surface run-off, garbage dumping, Animal carcass disposal and solid wastes
<b>Wells (If Exists)</b>	Yes, total number approximate 07
<b>Ground water table</b>	In 1930s, Tansa Dam added 200 MLD potable water supply through piped sources to the city of Mumbai
<b>Gaothans</b>	Dahisar Gaothan and 12 padas within Sanjay Gandhi National Park