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# Save Rivers

An interactive website for Betwa Utthan organization in Vidisha (M.P)

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## Feedback Page

## I. Acknowledgement

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## II. Introduction

In our present time the river pollution is one of the biggest problems in our world. It's mainly because of illegal dumping, industrialization and agriculture. Moreover, the people don't know how to treat their sewage waste and dispose of it in a safe way. Almost all rivers nowadays start to suffer from this problem.

Differences between the past, right now and the future may be big. If we compared our mind now with that of forty years ago we would see that they were more different than they are now. This is because urbanization and spreading of civilization has enabled us to obtain facilities which were not present in the past. Though these facilities have made life easier for us, there are some changes which are not positive because they have caused problems to our environment. It has been a problem for decades, but it has become more common as more people move closer to river sources. Water pollution occurs when harmful chemicals or substances such as oil, bacteria, or radiation enter water. If these contaminants are not removed from the water supply, they can cause serious health problems.

The main reason why we are polluting our rivers is lack of awareness. Our society is so much dependent on our rivers that they have become a part of our lifestyle, but we aren't aware of the fact that we need to take proper care and attention of these precious resources. There are many solutions to this problem such as educating people about this matter, setting up more recycling centers around big cities or near

rivers etc. These solutions may change people's attitudes towards water pollution if implemented well enough.

The Betwa river in Madhya Pradesh, India is one of the major tributaries of the Yamuna .The river was once clean and pure but it is no more so. The problem is that using the river in this manner has had a huge impact on the health of the river because instead of objects made largely of mud and stone, today we use ceramic, plaster of paris, and plastic which do not break down as easily in the river.



*Pollution in the Betwa river*

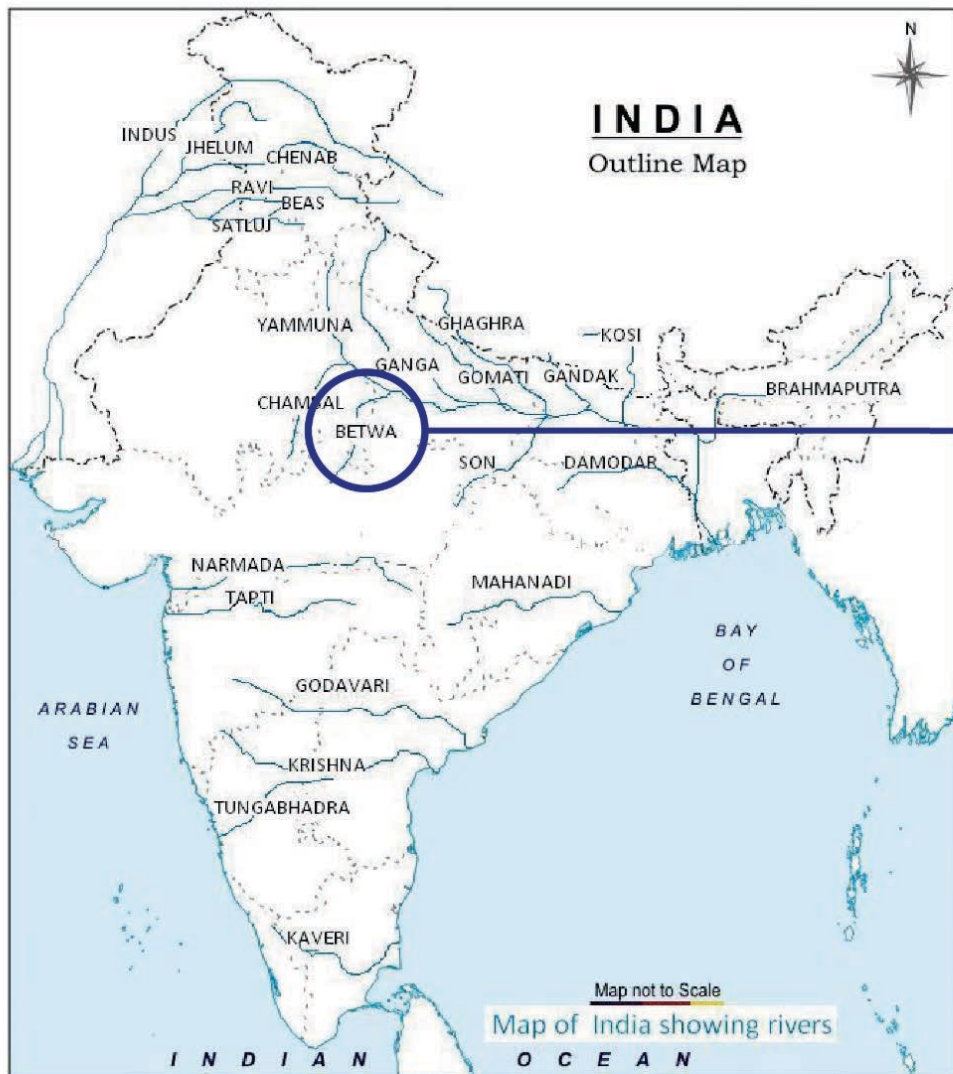


## II. i. River Betwa

Betwa River, Sanskrit Vetravati (“Containing Reeds”), river in northern India, rising in the Vindhya Range just north of Hoshangabad, Madhya Pradesh. It flows generally northeast through Madhya Pradesh and Uttar Pradesh states.

The Betwa basin is a river basin located in central North India. The basin covers an area of 43895 sq km out of which a major part lies in Madhya Pradesh and the rest in Uttar Pradesh. The catchment area spreads over a massive land which lies in between 22°54'N to 26°N and 77°10'E to 82°20'E longitude. From Barkhera in Madhya Pradesh to Bangawan in Uttar Pradesh, the river covers a distance of 590 km flowing in the north east direction before it meets the river Yamuna.

During its course, Betwa crosses the regions of Malwa Plateau where it is almost impossible to navigate. Thereafter it breaks into the upland of Bundelkhand and then joins the Yamuna. During its long journey, a number of smaller rivers join it before the river finally merges with the river Yamuna. On the right bank, Betwa is joined by Bina, Jamini, Dhasan and Birma while on the left bank Kaliasote, Bah, Saga, Narain, Halali and Kaithan meet it.



*Betwa river Map*

## II. ii. The pollution

Historically, this holy river was used to dispose of objects used for religious worship including godly idols, and flowers used in temples in addition to other waste such as raw sewage. Today, using the river in this way is causing a much greater impact on the health of the river because instead of objects made largely of mud and stone, today we use ceramic, plaster of paris, and plastic which do not break down as easily in the river. Also, with a larger population, the sewage being sent into the river is causing much greater pollution, which is also combined with industrial pollution and is easily noticeable from the smell that comes from the water. As sewage and debris build up in the river, and more people are taking water out for daily use, the river starts regularly drying up every year from March to the start of the rainy season. In order to survive during these dry periods, the town had to pay a lot of money to get water from another nearby irrigation project.

The River Betwa plays a significant role in the life of locals in Madhya Pradesh. It has become polluted at some places of Mandideep due to industrial activities and the confluence sewage, domestic wastes and industrial effluents of many big and small enterprises with various types of organic compounds and heavy metals deteriorated to human health and aquatic organisms. Urban areas, farms, factories and individual households – all contribute to the contamination of this river. The water quality in the stretch of the River Betwa extending

from its origin near Mandideep industrial area up to Bhojpur remains poor because of the regular inflow of domestic waste of the Bhopal city through the Kaliyasot River and industrial/domestic waters from Mandideep.

***Betwa stretch- Mandideep to Vidisha and sources of contamination***

The flow in Madhya Pradesh from origin up to Bhojpur is very meagre except for the monsoon season. Between Bhojpur and Vidisha again the river flow is noncontiguous in the non-monsoon season. The river demonstrates the perennial characteristics only beyond Vidisha after confluence of small tributaries. During its travel from origin the river caters the water needs of Mandideep, Bhojpuri, Vidisha, and at the same time it drains the waste-water of these areas. The waste water generated from north-eastern part of Bhopal city travels through patra nalla (joining river Halali) and collects in the Halali dam. Overflow of Halali Dam joins River Betwa on the down-stream of Vidisha.

Similarly, the waste-water from the central and southern part of Bhopal city is drained into River Kaliyasot which joins River Betwa before Bhojpur. Thus, the major wastewater streams / possible source of contamination mixing in the river are as follows:

Major drains / source of contamination in River Betwa

1. Nallah from Patel Nagar Mandideep near Railway bridge
2. Nallah from AKVN WTP back-wash and Maderi Village before Nayapura Road bridge
3. Nayapura Nallah under the Road bridge
4. Nallah from Rahul Nagar behind Satlapur Industrial Area

5. River Kaliyasot before Bhojpur (carrying waste-water from part of Bhopal City)
6. Pilia Nallah Vidisha. Only during monsoon period, rest of the time the nallah is dry.
7. Sewage Nallah of Vidisha city downstream of Vidisha near Charanteerth.

***Piliya Nallah Vidisha domestic sewage drains***

This drain runs through a distance of around 5.11 km. The maximum flow in this drain has been estimated around 25 MLD only during monsoon rest of the period the nallah remains dry. The drain carries the storm-water and domestic waste of part of Vidisha city and falls in river Betwa. There is only one water polluting industry, namely Satya Sai agro Industries (Solvent extraction & Oil refinery) established in this catchment area. The industry has commissioned ETP & STP for the treatment of the industrial effluent / Domestic waste-water. The treated waste-water is being re-utilized by the industry for horticulture and other auxiliary utilities. Zero-discharge from the industries is maintained.

Meeting at Betwa river		Meeting River Betwa on Left Bank	
Name of Regional Office of SPCB		MPPCB Regional Office, Bhopal Madhya Pradesh	
Source of Pollution Load		Storm Water	
Traceable Length of Drain (in km) before meeting river Betwa (through Google Earth/ Map)		About 5.11 Km	
Catchment area		Part of Vidisha city	
Co-ordinate of the confluence point (if not reachable indirect through Google Earth Map) (Decimal Units)	latitude	23°30'37.82"N	
	Longitude	77°47'20.08"E	
Distance of the sampling point from confluence point (May the find out over Google Earth/Map) km.		0.25 Km	
Co-ordinate of the sampling point (Decimal unit)	latitude	23°30'42.83"N	
	Longitude	77°47'22.47"E	
Landmarks/Address of the Locations			



*Piliya Nallah Vidisha domestic sewage drains*

***Sewage Nallah of Vidisha city downstream of Vidisha after Charanteerth (Chor Nallah)***

Currently, Vidisha city sewage is being drained through two major nallahs namely Chorghat nalla and Jatrapura nalla. Nagar Palika Vidisha has diverted these nallahs and the other small drains and the sewage from the entire drains is collected and treated through 'Karnal

'Technology' having a capacity of 7.02 MLD. Beside above the storm-water of the city is drained through Pillia Nalla.

### III. Formulation of the Problem Statement

#### Problem Statement 1:

I have observed that despite it already being in popular understanding and consciousness of people, there aren't enough measures being taken towards river pollution. It is a serious issue since decades. People are still polluting rivers; factories are still polluting water with chemical and other industrial effluents, recklessly dumping of non-biodegradable waste is further adding to water pollution. Since childhood we all have heard it, be it in school textbooks, campaigns etc. I have spoken to some people at river banks, friends and family and observed that most of them seem to think that they need to do nothing at an individual level. The river which I chose is "Betwa", which passes through my city, Vidisha, Madhya Pradesh.

As a communication designer, I want to research, document and find out-

1. Why is it that since having a lot of awareness already, people are still doing it?
2. Where is that gap of understanding taking place even after knowing the consequences of it?
3. Why is there a gap of understanding?
4. Most of the people are aware of water pollution, but lack awareness of causes and impact. Why?

When the river pollution topic for the project was frozen, I formulated this statement after discussions and the research and insights I had at that point of time. After discussing and submitting this statement, my professors asked me to go into more depth and find out a niche of the problem as it is very generic at the moment. I started researching more about the problem and started finding more links connected to Betwa river pollution.

**Problem Statement 2:**

**Although there has been a considerable amount of research and concern over the quality of water that will be available for the children of today, there has been little research to determine if these children are even aware of this problem. Water pollution is not only a current issue, but it is so vital that it is mandatory that tomorrow's citizens have the awareness necessary to enable them to make the crucial decisions affecting their future. The future of any nation depends largely upon the ideas children acquire when they are young.**

Current scenarios of what kids read about river pollution-

School text books

Children are aware about pollution till an academic level. They know the types of pollution, industries polluting nature. They are not being told what THEY can do to avoid it. In class 8th NCERT text

book, there is one chapter named “Pollution”, in which types, causes of air and water pollution have been discussed.

There is just a short note on what should be done about it, children memorize it for exams and forget about it the next day. They do not implement those in their daily lives.

Children are not communicated and made aware effectively of what they should do about it.

think?

**18.6 Water Pollution**

In Class VII you learnt that water is a precious resource. Think and list the various activities in which we need water. We saw that water is becoming scarce due to increase in population, industries and agricultural activities. You have also studied how water becomes “dirty” after we use it for washing clothes, bathing, etc. This means that we are adding some materials to the water, which spoil its quality and change its smell and colour.

Whenever harmful substances such as sewage, toxic chemicals, silt, etc., get mixed with water, the water becomes polluted. The substances that pollute water are called **water pollutants**.

the following Table.

Table 18.2			
	Smell	Acidity	Colour
Tap Water			
Pond Water			
River Water			
Well Water			
Lake Water			

**18.7 How does Water Get Polluted?**

**Case Study**

Ganga is one of the most famous rivers of India (Fig. 18.7). It sustains most of the northern, central and eastern Indian population. Millions of people depend on it for their daily needs and

**Fig. 18.7 : Course of the river Ganga**

POLLUTION OF AIR AND WATER 247



**Fig. 18.10 :** Water treatment plant

water used for washing vegetables may be used to water plants in the garden. Pollution is no longer a distant phenomenon. It is affecting the quality of our daily lives. Unless we all realise our responsibility and start using environment-friendly processes, the very survival of our planet is in danger.

*NCERT class 8 Science textbook*

After discussing the research and submitting this statement, I was told that the target audience is currently not clear. The problem seems to not have weight. I was not supposed to create a problem but to find a

gap, identify existing problems that are important to solve and then start from there.

Further discussions with my professors was, when talking about something like Betwa river pollution, it is a very long standing problem and it has been dealt with very seriously, particularly in Madhya Pradesh at Vidisha. The 'Betwa Utthan Samiti' was set up in 2003 as a people's movement. (discussion about Vidisha Betwa Uthhan Samiti) It is not just school children who can do it. School children can just be aware of it, they can control garbage, not use plastic and not throw it around anywhere. They cannot do anything else apart from these activities. There is a great potential in telling the story about Betwa Utthan Samiti, how it began, how they work. So that it inspires the subsequent generations about connecting with the Betwa river and saving it from pollution.



## IV. The Problem Statement

**The Betwa river is being polluted and Betwa Uthhan Samiti is doing their utmost best in spreading awareness and cleaning the river on a daily basis. But people are not much aware about this organization. Since they do not have any visual identity or a platform to make people aware about and inspire them. Also, in case someone wants to join the organization, there is no proper means or platform through which an individual could reach up to.**

The problem stated above states clearly what needs to be done, it has a clearly stated objective, why the objective is important and whom it is applicable to. The main objective is to enrich Betwa Utthan Samiti, make people aware about this organization that can fill the gap. Something should be done to enrich the Betwa Uthhan Samiti and tell their story to local people to create awareness and inspire them to take part in the Samiti and help them in controlling the pollution of Betwa river. Because as more people participate and join within it, (since Betwa Uthhan Samiti is the medium of it) the more pollution will be controlled.

## V. The Betwa Utthan organization

Betwa Utthan Samiti is a non-profit organization from Vidisha, Madhya Pradesh that aims to clean the Betwa River and improve its surrounding ecosystem. The organization was established in 2003 by then Collector, provided with a realistic solution for cleaning the Betwa River and managing waste. In addition to this cleanup, Betwa Utthan Samiti also works toward improving awareness of natural water sources and causes of pollution. The organization holds an annual tree plantation drive to add over 5,000 saplings to the environment each year. Due to this effort, they have increased the river's capacity by 1,00,000 cubic liters. This work was recognized by Bharat Vikas Sangam as one of the top 10 service activities in India.



*Betwa Utthan Samiti Organization*

## **VI. Research**

### **VI. i. Field Report 1 (Visiting Betwa Utthan organization)**

I read and researched about the Betwa Utthan Samiti. But I did not get much information about them on the internet. I got to know that Mr. Atul Shah is the President of the organization. And it took me a few days to search for his contact information. I got his number and talked to him about visiting his office and the organization. He gave me a time to visit him in his office the next day.

I traveled to Vidisha and visited the Betwa Utthan Samiti organization office which helped me in getting to know their story, nature of work and how school children are being made aware and inspired of this problem.

Mr. Atul Shah has been associated with this organization since 2003 along with Sudha Chaudhary. I got to interview him and he told me the story of the samiti, how they work, how they make children aware about the organization and inspire them to protect Betwa river from pollution.

### **a. Insights**

- Mr. Atul Shah (the founder) has been associated with this organization since 2003 along with Sudha Chaudhary IAS, who was at that time the Collector for the district of Vidisha.
- The objective of this organization is to clean the Betwa river, raise awareness of natural water sources, and also raise awareness of the causes of pollution.
  - The Betwa river is being polluted and Betwa Uthhan Samiti is doing their utmost best in spreading awareness and cleaning the river on a daily basis.
  - The group currently has 30-40 members who go to clean the filth of the river everyday at 7 am no matter what. Even in the covid-19 pandemic, they went to clean the river everyday.
  - The 'Betwa Uthhan Samiti' goes to schools and conducts certain activities to make them aware about the value of water and rivers. Ask them questions and Answers.
  - Also, activities such as distributing plants and making projects, going to school assemblies and delivering values and significance of water, plants and rivers as plants are the parents of water bodies.
  - The 'Betwa Uthhan Samiti' members planted approximately 4000-5000 plants on the banks of Betwa river and inspired local people for the same.
  - President Mr. Atul Shah is planning to form new groups of the Samiti in the following cities residing near the bank of Betwa to expand the mission of keeping the river clean as much as possible.

- The 'Betwa Uthhan Samiti', also fixed 200 faucets of govt. taps which prevent water wastage.
- There is no discrimination among the members in the group. It is open for anyone to join from a daily wage worker till a businessman. They do not care about their own health.
- They have been going every day at 7am in the morning for the past 18 years.

### **b. Constraints of the organization**

- The members of the "Betwa Uthhan Samiti" are working with utmost dedication and hard work, but very few people know about it.
- There is no such platform for the 'Betwa Uthhan Samiti' where they can talk about and tell people about their deeds.
- They do not have their own brand identity.

### **c. Current process of taking membership in the organization**

If someone wants to be a member of the organization, the current process of taking membership is that the individual physically has to go to the Secretary office, ask for a form and fill it up, and then deposit the required fee of the membership. In case the secretary is out of town or not available, there is inconvenience for the individual to take

a membership. If someone living out of Vidisha wants to take a membership, there is no such way as there is no medium for it and it makes it compulsory for the individual to go to the office to take membership.

Annual Membership: 100 Rs.

Lifetime Membership: 1000 Rs.

Patron Membership: 5000 Rs.

Institutional Membership: 10000 Rs.

There is no proper means or platform for the organization which could showcase its gist to the world or keep track of records such as memberships. There is no digital platform where anyone located overseas could refer to.



*President of "Betwa Uttban Samiti" - Mr. AtulShah*

## **VI. ii. Field Report 2 (Morning cleaning)**

After the delightful meeting with Mr. Atul Shah yesterday. I traveled back to Vidisha at 6 am to join, observe and participate in the morning cleaning session they do everyday. The mutual bonding between the members are really strong and has only one clear motive to keep our river clean no matter what. There is no discrimination among the members in the group. It is open for anyone to join from a daily wage worker till a businessman. They do not care about their own health. They have been going every day at 7am in the morning for the past 18 years.

After spending time with them and participating in the 'Shram daan' (selfless labor). I realized how unique this initiative is that has brought together the local community people to take up the challenge of cleaning up their own village and protecting their own river from pollution. All of the members have a good time over the field and work with unity and selflessness which really was delightful to observe. This meet-up is more than just a cleaning session. It's a moment of bonding and strengthening the relationship between everyone who took part in it.

The meet-up gave me an opportunity to work alongside people who come from different walks of life, with different education and skill sets but still come together to achieve a single goal. It's amazing to see

how inspiring these stories are and how they relate back to the Betwa river and help clean it up. I feel privileged to be a part of this initiative.



*Betwa Utthan Samiti morning river cleaning session*

### **VI. iii. Field Report 3 (Betwa pollution research during Durga effigy immersion on Dussehra festival)**

After visiting the Betwa Utthan Samiti and going on morning cleaning sessions, and spending a certain amount of time with the group, I went to Vidisha to do research on pollution of Betwa river during Durga effigy immersion on Dussehra festival.

Dussehra is one of the very big festivals celebrated in Vidisha region. There are more than 200 effigies immersed in the water every year after Nav Durga festival, which has 150-200 years of history. First I reached the Betwa river immersion spot where usually the 'Visarjans' are done. But when I got there, I saw very few people who were doing the effigy immersions. I was a bit confused and asked a local person about it. I got to know that all the effigies are being immersed in the 'Janki Visarjan Kund' nearby.





*Road map of Betwa immersion spot and Janki Visarjan Kund*

### a. Insights

After reaching the 'Janki Visarjan Kund', I was quite happy and overwhelmed to see the excellent arrangement done there:

- The Betwa Utthan Samiti took the initiative to immerse the effigies in the Kund to protect Betwa river from pollution for the last 5 years.

- They have been convincing local people to immerse the effigies in the Kund rather than the Betwa river since it leads to heavy pollution.
- The Municipal Corporation of Vidisha does all the arrangements under the supervision of the District Magistrate including District SP, Mayor and other top officers.
- Their main motto is to protect the Betwa river from pollution. There were many signage boards about saving river from pollution to spread awareness.
- The administration has their setup arranged through which they keep an eye and organize all the arrangements and help them out.
- There are cranes arranged to immerse the effigies and instant facility of a motor boat which was cleaning the remains and waste material from the kund to prevent ground pollution as soon as the immersion was done for each effigy.



*Banner and awareness boards at Janki Visarjan Kund , Nagar Palika Council supervision of the Kund immersion proced.*

*The Janki Devi kund*

I met and interviewed Mr. Ashok Rai, (Civil Engineer in Municipal Corporation Vidisha) and Mr. Anil Kumar Vippal, (Executive Engineer in Municipal Corporation Vidisha and Incharge of the Visarjan program). I got to know about how the Kund initiative was taken, and what was the procedure of it. How they brought local people together and created awareness among them to immerse the effigies in the Kund. The main objective is to protect Betwa river from getting polluted.

The procedure:

- The kund is filled by the water of Betwa river every year before the Visarjan.
- The effigies are immersed in the 'kund'.
- The effigies are taken out in a sophisticated manner.
- Every year the kund gets emptied by the team.

The NGT (National Green Tribunal) has provided certain guidelines to not immerse effigies in rivers. Hence, this initiative was taken. Comparatively looking, this year the administration was very strict on devotees to convince them not to immerse effigies in the river.

Despite trying their best to convince as many people as possible, there are some people who are reluctant to immerse effigies into the Kund due their beliefs and doubts about 'kund' containing sewer water. 1 out of 10 effigies get immersed in Betwa river, but the administration and

Betwa Uthhan Samiti is trying their best to create awareness. If this comes into wide practice then the river can be saved from pollution along with the religious sentiments of people get served.

Visiting the field and seeing all this was an immense pleasure and overwhelming for me. I was so happy to see such arrangements at this level which inspired me even more to do further research. The next morning I again went to Vidisha at 6am to join the 'Betwa Utthan Samiti' cleaning session and observe and participate in the cleaning of the river after the Dussehra festival. After talking with the people of the group, it was observed that there were comparatively less remains of the effigies this time. Since more people were immersing effigies in the Janki Visarjan Kund.



*Betwa Utthan Samiti Cleaning effigy remains from Betwa River*

## VII. Literature Review

The following literature was taken to help to understand the problem and situation the project is concerned with:

1. Article : “World Environment Day | 17 years and counting: When even a pandemic could not stop Betwa river’s cleaning”  
This article talks about how during the Covid-19 pandemic, the members of the organization did not give up the cleaning of the river for a single day. It talks about their emotions and dedication attached to this task and how they everyday consistently keep their best to keep their river clean.
2. News : Talks about the Shram daans done by the Betwa Utthan organization during people who came to bathe in the river and how they cleaned all the surroundings left by the locals.
3. Research document : “Impact of Industrial effluents on Water Quality of Betwa River near Mandideep, Raisen”  
This research document, there is detailed research of the quality of river water which deteriorates at several places due to inflow of sewage, industrial effluents, agricultural residues etc. from its adjacent catchment at many places. The major problem of Betwa river is the discharge of industrial effluents and sewage from the Mandideep Town besides other cities. The accrual of toxic elements from the discharge of effluent and nutrients from the eroded river

banks, agricultural fields have resulted in increasing levels of nutrients as well as certain heavy metals like Cr, Cd, Zn & Cr. Most of the water-spread area of the riverbed has also become shallow and subsequently almost three fourth part of the bed near the industrial area is covered with infestation of weeds making the water unfit for domestic uses.

4. Article : “Dead fish tell tales”

This article talks about the story of when on December 6, 1996, coinciding with a Vidisha bandh call, Subash Yadav, deputy chief minister of Madhya Pradesh, graced the town of Vidisha with his visit. Addressing a gathering at the SSLJ college, he exploded a bomb: the state government and the entire official machinery had 'sold out' to the 'liquor mafia' - referring, obviously, to the infamous Som distillery and its stranglehold over the state's administration. The people of Vidisha came together and rose as one. "Nobody has the right to pollute the Betwa river, our source of drinking water," was their war-cry; it was a pronouncement that shook the very foundations of a state government.

5. Research document : “Study of Water Quality and Water Born Diseases Through Betwa River in Vidisha District (M.P.)” by Aarti Patel and Dr. Manoj Datar, Research Assistant, Applied Chemistry Department, Head of Chemical Engineering Department, Samrat Ashok Technological Institute, Vidisha, Madhya Pradesh, India. This research document talks about

the water quality and the leading diseases which are spread through the pollution of river Betwa.

Though all these research and articles have been done before, there is no information on spreading awareness and enriching the medium which is the Betwa Utthan organization and how people can participate and get inspired to come together and save Betwa river from being polluted. Communication to the people needs to be conveyed in terms of not only the quality of water but also the impact and consequences which it can lead to. Also showcase the people (The Betwa Utthan organization) who are working towards the prevention of Betwa river being polluted.

## VIII. Medium and Form

I have found several reasons behind the lack of awareness to Betwa Utthan Samiti, their works towards saving river Betwa. There are several portals on the internet which address the latest news updates, events done by the organization, but none of them are brought into notice.

Awareness is the first step in solving this problem. Many people don't know about Betwa Utthan Samiti organization, their works, their story etc.. With the help of the internet, this information can easily be spread to all kinds of people by using social media channels. The youth are one of the groups most likely to get reach of this. Since they are the prominent users of the internet. The youth are the best group of people to start this campaign. They are technology friendly, and are already aware of how fragile our ecosystem is. The more we educate them on this, the more likely it will be for them to use their technology for good and spread information about this.

Also, children should be taught from a young age about the adverse effects of river pollution. Betwa Utthan Samiti is an organization that aims to teach children about the importance of keeping our rivers clean and help them understand it by taking part in activities related to monitoring and cleaning. We need to help people understand the problems faced by our rivers, how they directly impact our lives, and how we can work together to find solutions. You can get involved in the Betwa Utthan Samiti movement by spreading awareness among

your friends and family, organizing events or simply becoming a volunteer yourself.

After talking to Mr. Atul Shah (President of Betwa Utthan Samiti) it was brought to light that there is no official website for the organization. There are just some local portals on which there is some brief information about the organization which is not enough. Whenever an individual hears about a company, a brand, or any name, they immediately google its name to go on their website and know more about it. In case, an individual hears about this organization who lives outside of Vidisha or in any other country to know more about it, there is no such platform, which acts as an obstacle in spreading awareness and people knowing and understanding the nature of the organization. The organization requires a full-fledged website which would be dedicated to the organization which would consist of their history, work, the story, people, registration panel, etc. Designing a good website for the organization would lead to its branding as well. It will also make it easier for more people to join the organization. The website can incorporate a registration panel where new members can join the organization.

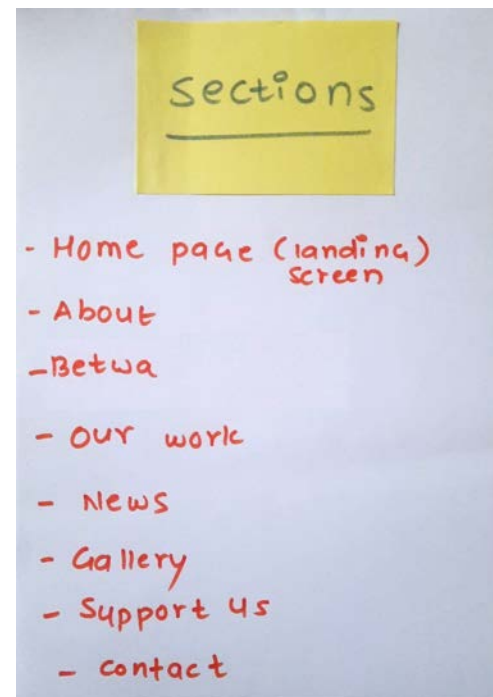
A website has a reach which is unmatched and can be accessed by every other person around the globe. It's easy to use, extremely user friendly and can be used by anyone. It brings us closer to people who are far away and helps us build relationships with them.

## IX. Design process

### IX.i. Cardsorting

To map and structure pieces of information in a website/document, Cardsorting helps to get a basic idea to organize the chunks of information by topic, section, subsection, order and combination of all other aspects that may be present in the site.

#### a. Main Sections





**HOME PAGE**  
(landing screen)

— Slogan —

- Intro (brief)
- Mission (infographic)
- Support us (CTA)  
Donate/Volun-  
-teer
- Gallery
- Latest News

**① ABOUT**

- About us
- History (our story)
- Mission & vision
  - proposed work
- Our team

**② BETWA**

- Pollution of betwa
- Water Quality Data

**③ OUR WORK**

- Projects
- Spreading awareness
- Shri Krishna Mahotsav

**④ NEWS**

**⑤ GALLERY**

- Photos/ Videos

**⑥ SUPPORT US**

- donate
- Take membership (form)

**⑦ CONTACT US**

- Phone no.
- email
- Address

Cardsorting helped me design and evaluate the Information Architecture of the site. This session made me understand in depth the navigation and the main features of the website.





## **IX.ii. User Persona**

Personas are created to describe a semi-fictional character that represents your target audience. The goal is to provide conceptual information about your customers and their goals, preferences and motivations.

Personas are made up, fictional representations of the customer. Personas help understand the needs and wants of the customers, as well as how they use the products, so one can make informed decisions about product/website design. User personas are created by analyzing current behavior, demographic and psychographic profile data and background information.

The purpose of this analysis is to identify and research the web visitors in order to find out their demands and needs, as well as to explore their needs for information. I made four user persona based upon a different profession. The user personas are irrespective of the location because this website is generic for all users since it's an informational website. I did interpreted few professions, scenarios, and built one user persona of the member of Betwa Utthan Samiti itself.



### Social Activist

- Internet ●●●●●●●●
- Environmental concern ●●●●●●●●
- Civic life involvemnt ●●●●●●●●
- River pollution awareness ●●●●●●●●

He is a socially and environmentally conscious activist. He has been involved in campaigns to save soil, promote tree plantation, and other activities that benefit the environment. A frequent user of internet forums, he often scans the web for new causes and organizations to help with as much time as possible.



### Graduate Student

- Internet ●●●●●●●●
- Environmental concern ●●●●●●●●
- Civic life involvemnt ●●●●●●●●
- River pollution awareness ●●●●●●●●

She is a very prominent user of the internet. She loves nature and cares deeply about the environment, but she is worried at the same time as our planet is in danger due to pollution and global warming. She wants to do something, find a way to join or help as a volunteer in campaigns or organizations dedicated to protecting earth's natural resources.



### Member of Betwa Utthan Samiti

- Internet ●●●●●●●●
- Environmental concern ●●●●●●●●
- Civic life involvemnt ●●●●●●●●
- River pollution awareness ●●●●●●●●

He is a member of Betwa Utthan Samiti. He wants to keep a track of all the updated news on a reliable platform related to Betwa Utthan Samiti. Also he wants to keep track of new memberships, volunteers, donations made and want people to know all the updates. He tries his best to spread awareness about river Betwa, its pollution and Betwa Utthan Samiti.



### Corporate employee

- Internet ●●●●●●●●
- Environmental concern ●●●●●●●●
- Civic life involvemnt ●●●●●●●●
- River pollution awareness ●●●●●●●●

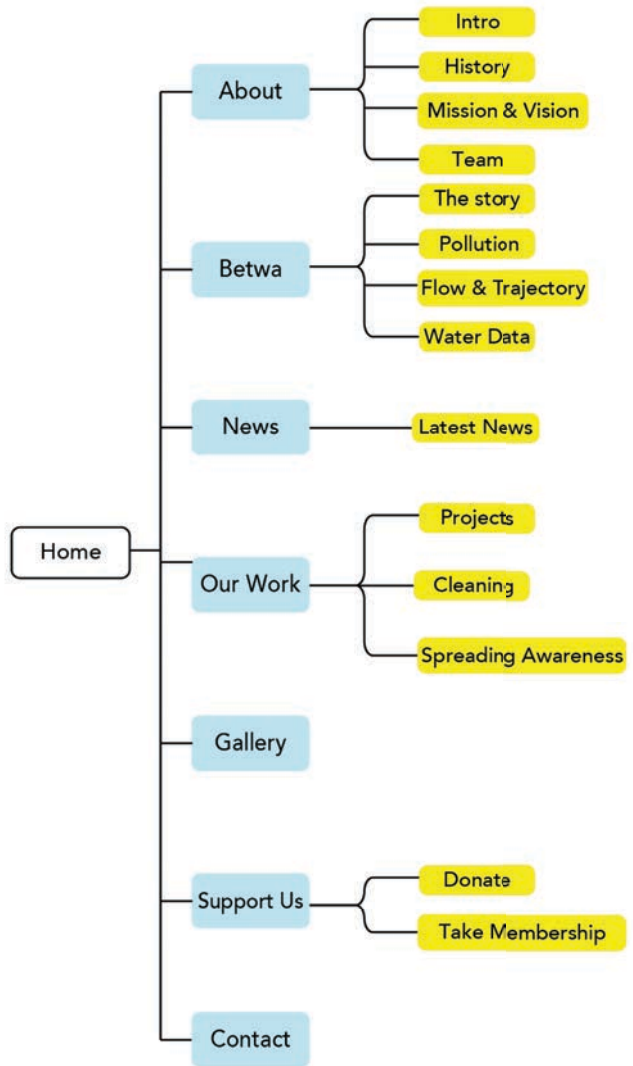
She has just been reading and learning about impacts of river pollution and would like to donate to organizations as she cannot physically go and volunteer at specific places due to her job. She wants to make a difference in the community by supporting organizations that are contributing to social change.

### **IX.iii. Information Architecture**

The information architecture depicts how easy and simple the navigation is for users when they come across the website. The user has different options of navigating through the platform depending on their needs. As with wireframes, information architecture has no visual design style attached to them, so they only present the general structure of how users might interact with your site or application.

Information architecture is an interactive diagram that allows to evaluate and optimize the user experience of a website or app. It begins with the viewer's entry point on the site, like an onboarding screen or landing homepage. Once designed, this process allows you to assess whether users can easily find what they need and convert.

As I was dividing the categories, I got an overview of how the sections will be arranged in the website, what topics are going to be included and where they are going to be located. Following that I incorporated all the sections in the information architecture .

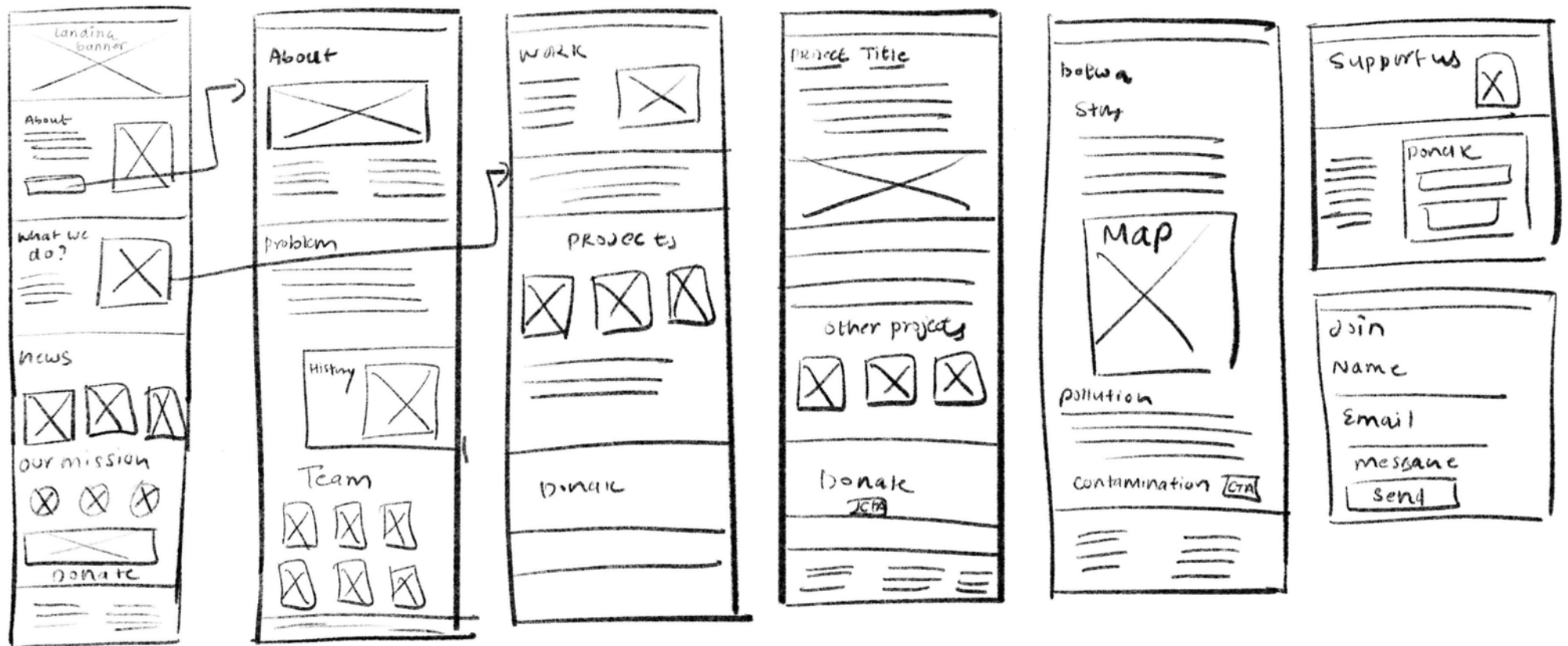


*Information Architecture of website*

## **IX.iv. Wireframe Formulation**

After the Information Architecture, the first concept of the wireframes was to get an idea of the layout of the website. I started sketching out the wireframe sketches. A wireframe sketch is a hand-drawn visual representation of the proposed look and feel of a website design. It's a very low-fidelity version where it doesn't consist of precise details such as color or graphics. A wireframe is simply a rough layout of the basic elements on a page.

After a couple of iterations, the website design started getting more clear as to what elements should be placed where and how. The homepage had brief details about the organization for example, who we are and what we do. The next step was to build the final wireframes of the website. For this, I designed wireframe screens from start to end, refining the design based on feedback before starting development.





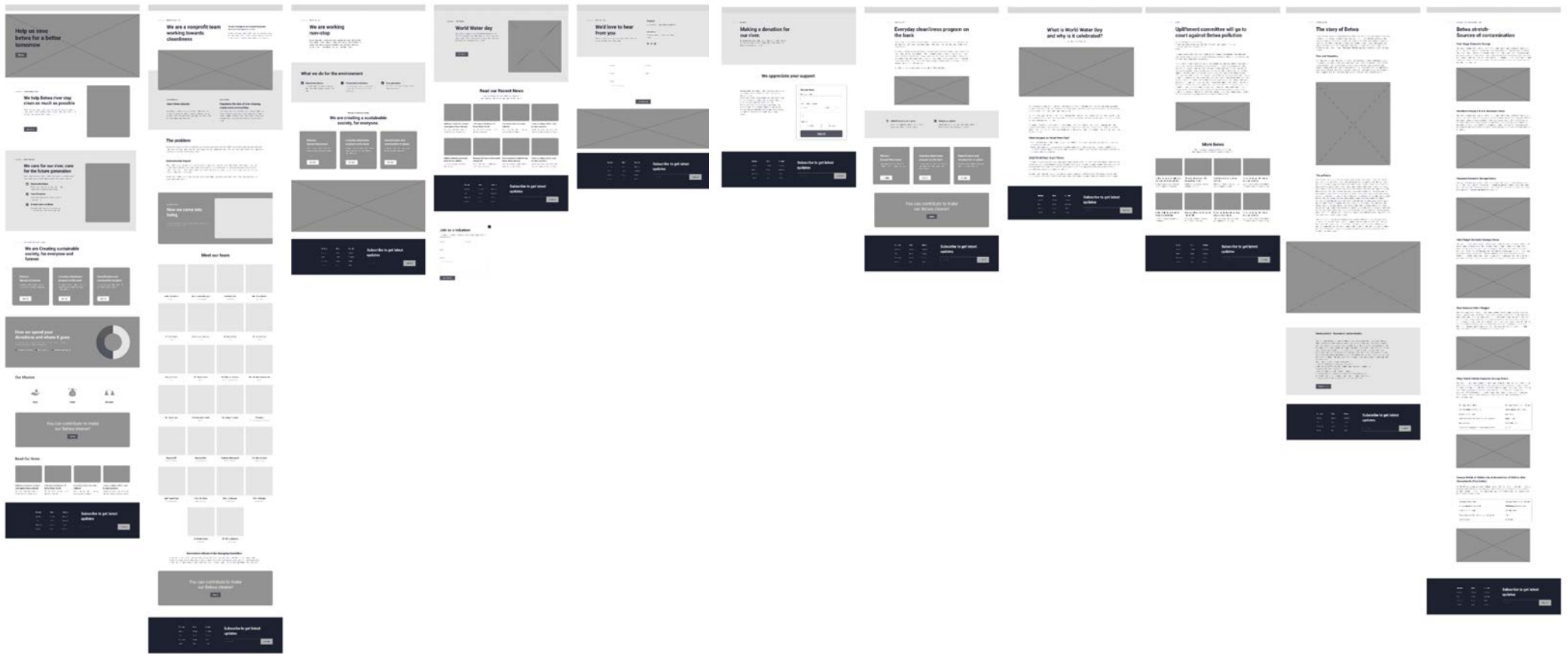
## **IX.v. Wireframes**

Wireframes are the skeleton of a website. They provide a framework that gives you a visual representation of what your site will look like, in terms of content and design.

This is a highly structured layout, with all the content and information placed in a systematic manner which is also called Hi-fidelity wireframes.

Wireframes help in visualizing the ideas before they turn into a website. High fidelity wireframes allow to focus on the user experience, layout and flow of a site before deciding on its final design..

The information architecture of this website is divided into various sections and pages. This allows me to create a better understanding of the wireframes and organization of ideas so that they can be expressed clearly. I divided the website according to the information architecture I made by separating each section and dedicating a page to every segment.



Wireframes of Website

## IX.vi. Style Guide

This style guide is a collection of the guidelines to help create an engaging UI/UX design experience for the users. The style guide is composed of several components that are essential for creating an effective, user-friendly and sustainable UI/UX design. It uses fonts and icons, color palette, button shapes, font size and colors etc.

The font used for this website was Roboto. It is a standard, clear font which is used in several websites and looks appealing on white backgrounds. The colors that were applied to it are - Orange that gives energy and optimism and the color of trust. Blue, which refers to health and nature, green that represents new beginnings and light grey tones which makes the interface more sophisticated. When you land on this site, it is supposed to give an eco-friendly feel which is why these colors were chosen.

The buttons on the screen are the must-haves for a great landing page experience. Each button has three functionalities (primary, secondary, and navigation bar). The orange button is the primary button, which will be used in calls to action, such as donate or so it raises attention to the viewer. Secondary buttons are in white and will also be used in other CTA's like “learn more” or “load more” etc. The navigation bar is below the main navigation buttons and provides shortcuts that assist your users with making their selections quickly.

## Styleguide

### Typography

Aa Roboto

**Home heading** Aa 64px

**Heading 1** Aa 56px

**Heading 2** Aa 48px

**Heading 3** Aa 28px

**Heading 4** Aa 24px

**Body Text** Aa 16px

**Heading 5** Aa 12px

#### Paragraph

Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia curae; Ut nec turpis tristique, egestas lacus at, cursus arcu

#### Paragraph (small)

Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia curae; Ut nec turpis tristique, egestas lacus at, cursus arcu

### Color Palette



### Buttons

Primary button

Secondary button

Navbar button

*Style Guide*

## **IX.vii. Website Domain**

The name of the website was pretty clear from the beginning and it was for the Betwa Uttant Samiti organization. It was important to make sure that the domain for Betwa Uttant Samiti was available and it had the required extensions. It was available in both .com and .in extensions.

Every website we visit belongs to a particular domain name. The website domain, or DNS.domain name, is the address of the domain. The website's domain will be the URL associated with the website name in search engines and social networks.

betwautthansamiti.com

Domains include free Privacy Protection forever.

**EXACT MATCH**

### betwautthansamiti.com

₹ 499.00 ~~₹ 1,000.00~~  
for the first year

Why it's great.: Uses the .com extension.

**POPULAR IN INDIA**

### betwautthansamiti.in

₹ 149.00 ~~₹ 600.00~~  
for the first year with a 2 year registration

Restrictions apply.

Why it's great.: This domain name contains popular keywords.

betwautthansamiti.org

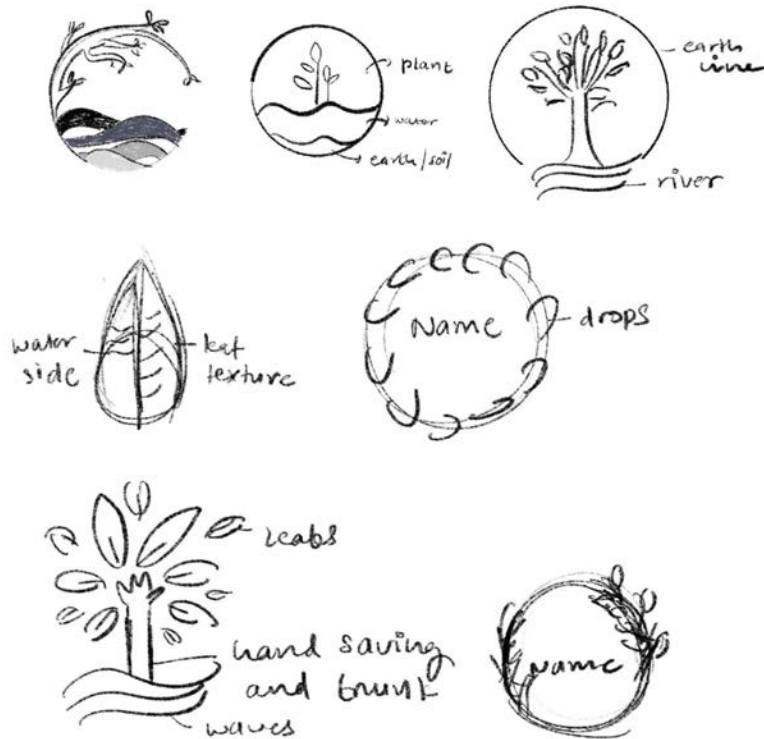
~~₹ 1,399.00~~ ₹ 299.00  
for the first year with a 2 year registration

Betwa Uttban Samiti Domain search

## IX.viii. Visual Identity Design

### a. Sketches explorations

The execution phase for the visual identity began with basic doodles. Various visual concepts for the logo were tried out through doodles.

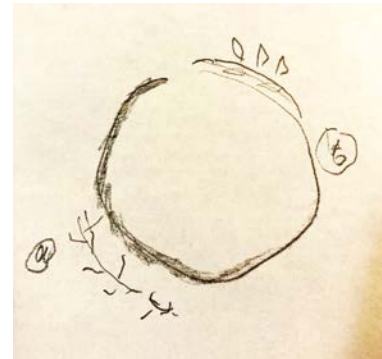


After completing the sketches I got a sense of ideas from feedback from my professors and started exploring forms digitally.



After sending the exploration ideas to my professors, The feedback I got was that it could be a little more creative and meaningful. If the idea is to convey the cleaning of a polluted river- and therefore to keep

the elements of the waves and greenery in it, they gave me a brief sketch in which the circular shape represents two faces of the river - one half in dark greyish tones and the other in clear blue. On the side of each half are 2 kinds of tree outlines, one just dry branches and on the other ones with green leaves.



*Form sketch*

## **b. Form finalization**

After receiving feedback, I started exploring this specific idea and form. I did some research to see what symbols could be used as an abstract version of the idea for a polluted river converting into a clean



and healthy one. Once I had a set of symbols to apply, I began rendering in different combinations for the multiple ways to show the idea. Each shape would have a different thing happening with and a deep meaning to it.



### Form explorations

First I explored in greyscale to see if the overall form works at all. After that I started applying colour according to the feedback I got.

### c. Color palette

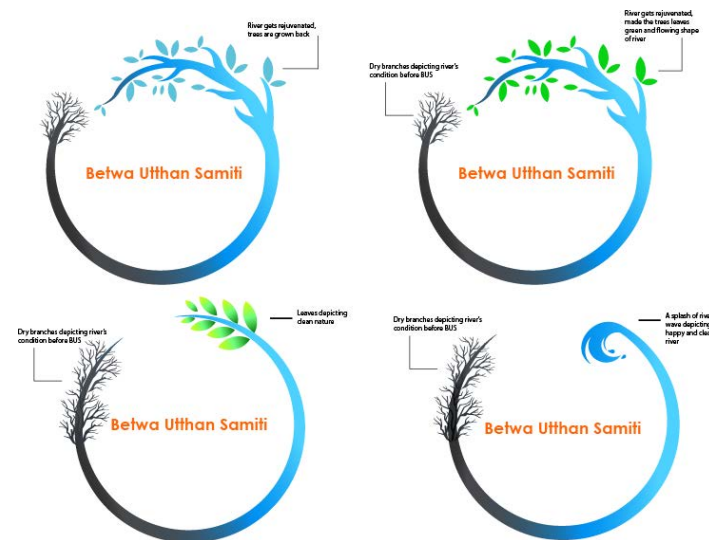
According to the feedback, the form had to be showing a polluted river with dry tree branches on the start of the ring to a clean and

healthy river. So, I used gradient for the color mixing in the logo starting from dark grey into blue and then green for the tree leaves.



Gradient used in logo

I made few versions with the idea in color to explore small details like leaf shapes, wave shape, how the dry tree branches will look etc. I tried to create a minimal but clean looking logo. After getting feedback from my professors, the bottom left was chosen to be final version for the logo with few more small changes.



#### **d. Final Visual Identity**

The final logo for the Betwa Utthan Samiti was decided to be a design that represents the identity of this organization and also make an impact on people. It has been designed in such a way that it can be used as a symbol for its work not only within the state but for awareness towards conservation efforts by the organization.



*Betwa Utthan Samiti logo*

## X. Website Design

### X.i. UI screens

#### a. Header

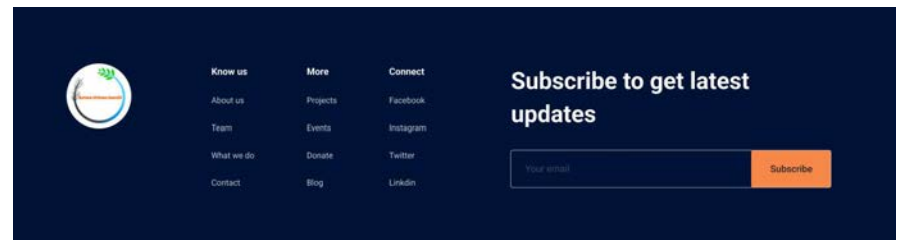
I designed the header with multiple navigation bars separating areas of content as well as making use of the space in the design. I used the header that was found to work the best while testing the wireframes in the final UI design with the logo on the left.



*Website Header*

#### b. Footer

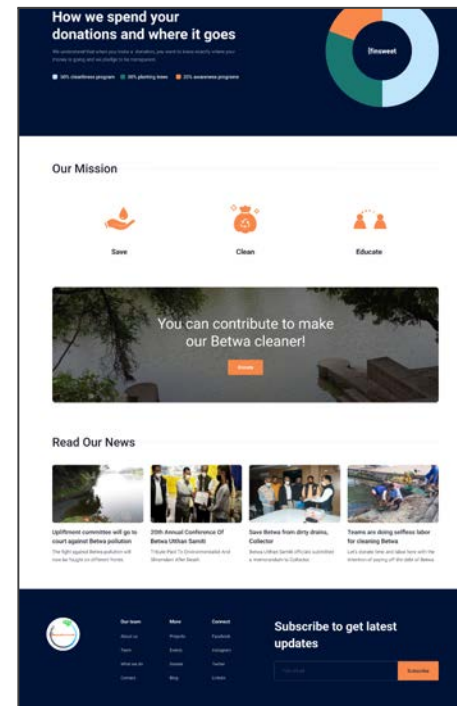
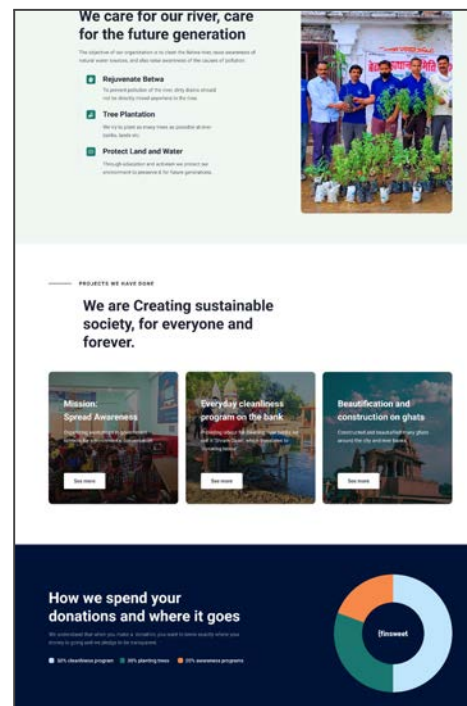
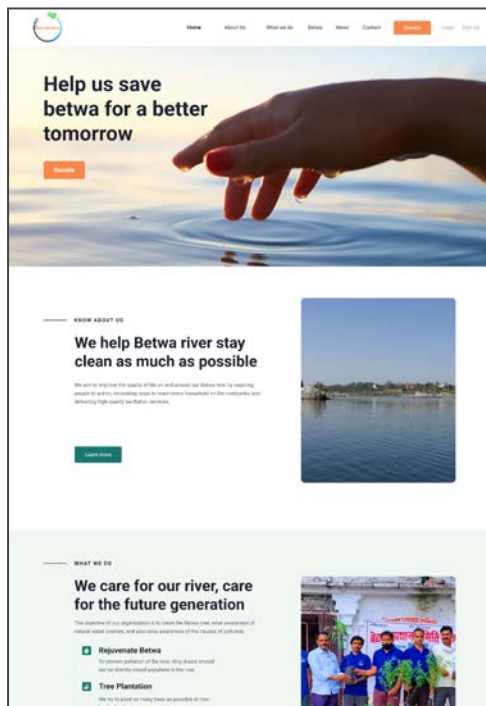
The footer of the website contains all the contact info. The footer also has links to all the main topics that are covered on the site and along with the logo and newsletter subscription.



*Website Footer*

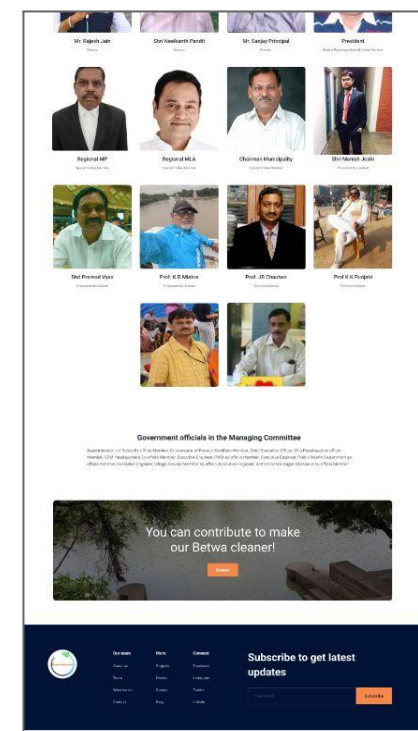
### c. Homepage

When the user lands on the homepage, the user sees the slider image with a donate option and the header. It consists brief information about the organization, their work, mission, etc.



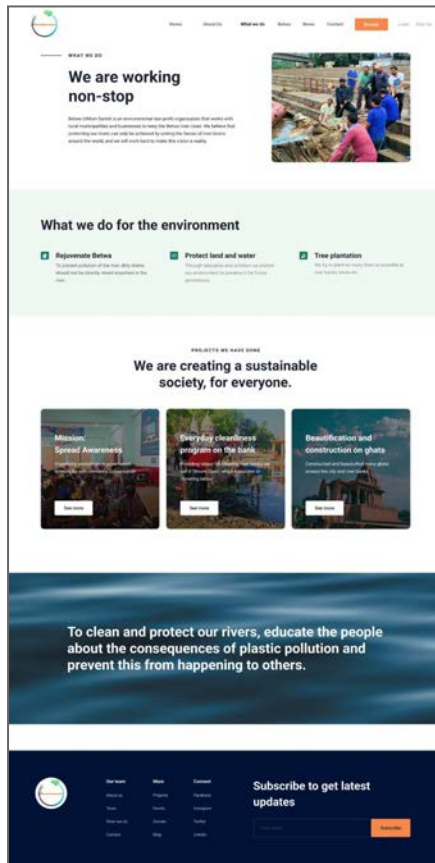
## d. About Us

The About Us page talks about what Betwa Utthan Samiti is all about, including their introduction, history, their mission and vision in detail, the problem with their environmental impacts and their team.



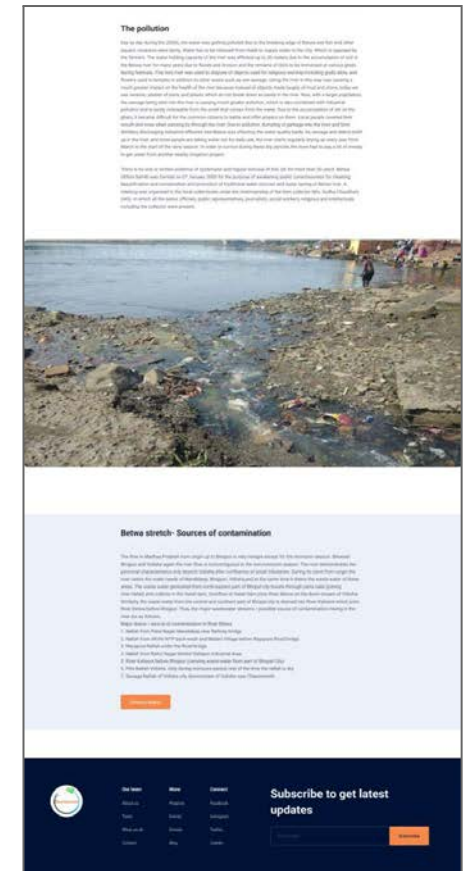
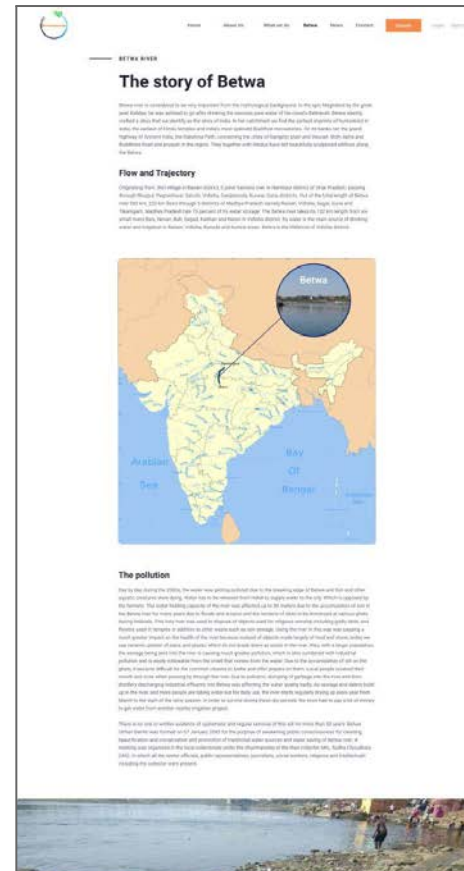
e. What we do (our work)

What we do (our work) page talks about the projects the organization has done so far, it has a brief introduction of their nature of work and the user clicks and see the projects they have done in detail.



f. Betwa Page

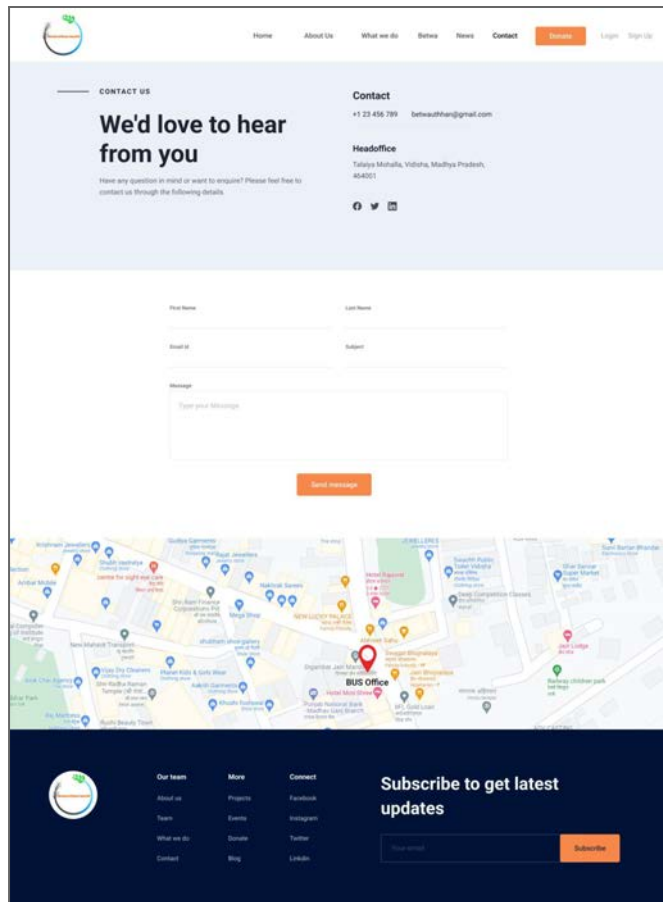
The Betwa consists of the story of Betwa, its flow and trajectory, it also shows the map of Betwa through infographics. It talks about its pollution and also has all the information of the sources of pollution.





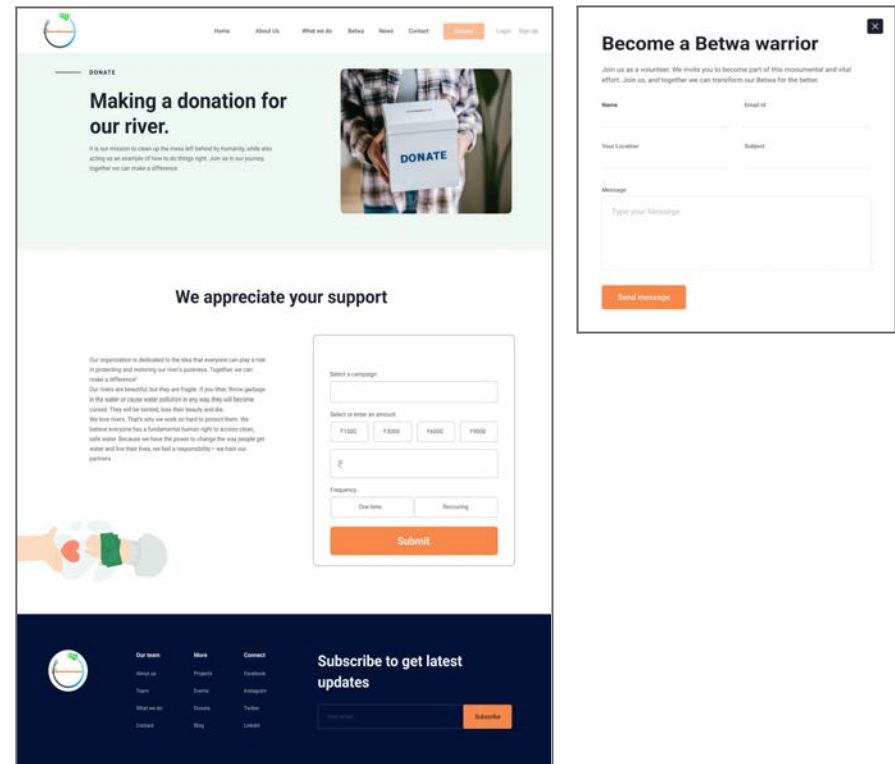
### i. Contact page

Contact us page will have all the contact details related to Betwa Utthan Samiti. It will consist of their contact number, email id, address, social media links, map of office, and a form for enquiry.



### j. Support Us

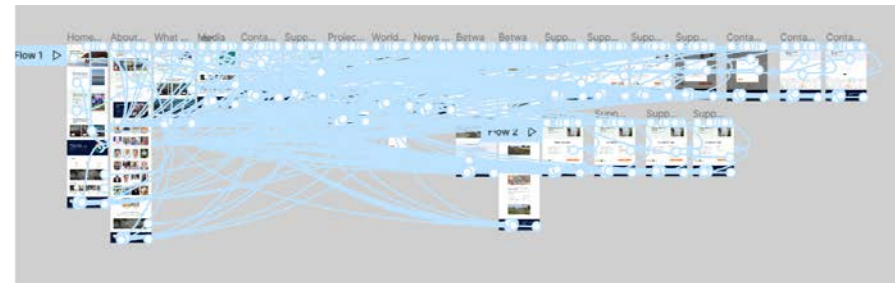
Support us page will have a donation option for those who want to help the organization by donating and a join us option to join as a volunteer.





## X.ii. Prototype

Website prototyping are interactive flows that work in a way which allows users to see how they may interact with the designs. The prototype was tested to observe how users were navigating the website. The navigation process of the website was easy for the user but there were confusions occurring while scrolling the homepage in the “Learn more” CTA button which was the same color of the donate button which was later changed to green color to segregate the difference. Orange color was only then dedicated to the donate button in the website. The prototyping of the Betwa Utthan Samiti website was done on Figma software.



*Website prototype links*

### **X.iii. Poster Design**

Posters are an effective way to educate and promote change. The initial designs of the posters were designed using illustrations and infographics with a message to the viewers. They're great for announcements, public events and demonstrations.

The posters will provide ideas of ways one can change their own behavior, and make it easier to educate other students and neighbors about how they can embrace cleaning rivers and taking initiatives towards it..

The poster design for offline marketing campaigns will be used to spread the word about pollution in river Betwa. We can print them in magazines, newspapers and on posters at schools and train stations to make people aware of what the organization is doing so they can help them take action.

I was constantly on the lookout for ideas and inspiration. The following are some of the first few trial designs I made for the posters, after taking the feedback from my professors, further brainstorming and alterations were done accordingly





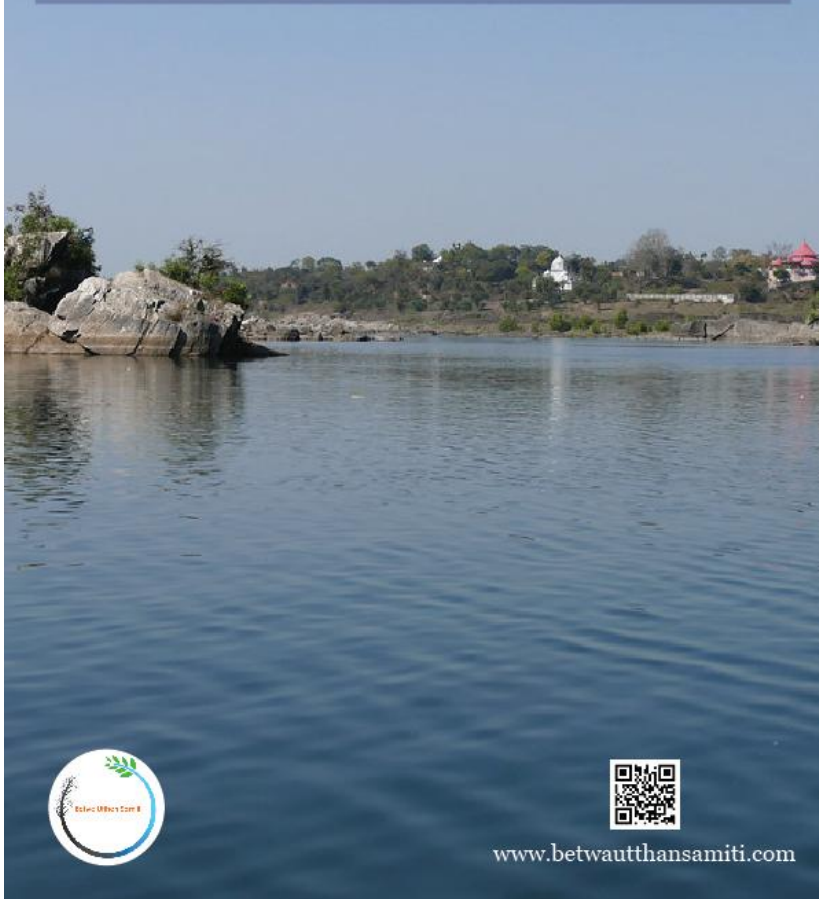
The posters will also be made in hindi (the local language) so that it is easily communicable to the viewers.

After designing the posters, I sent them to my professors for their thoughts and feedback, if they work. The feedback I got was, the posters were looking quite commercial. I was asked to use original pictures I had so that the locals can connect with people and make them support the initiative.

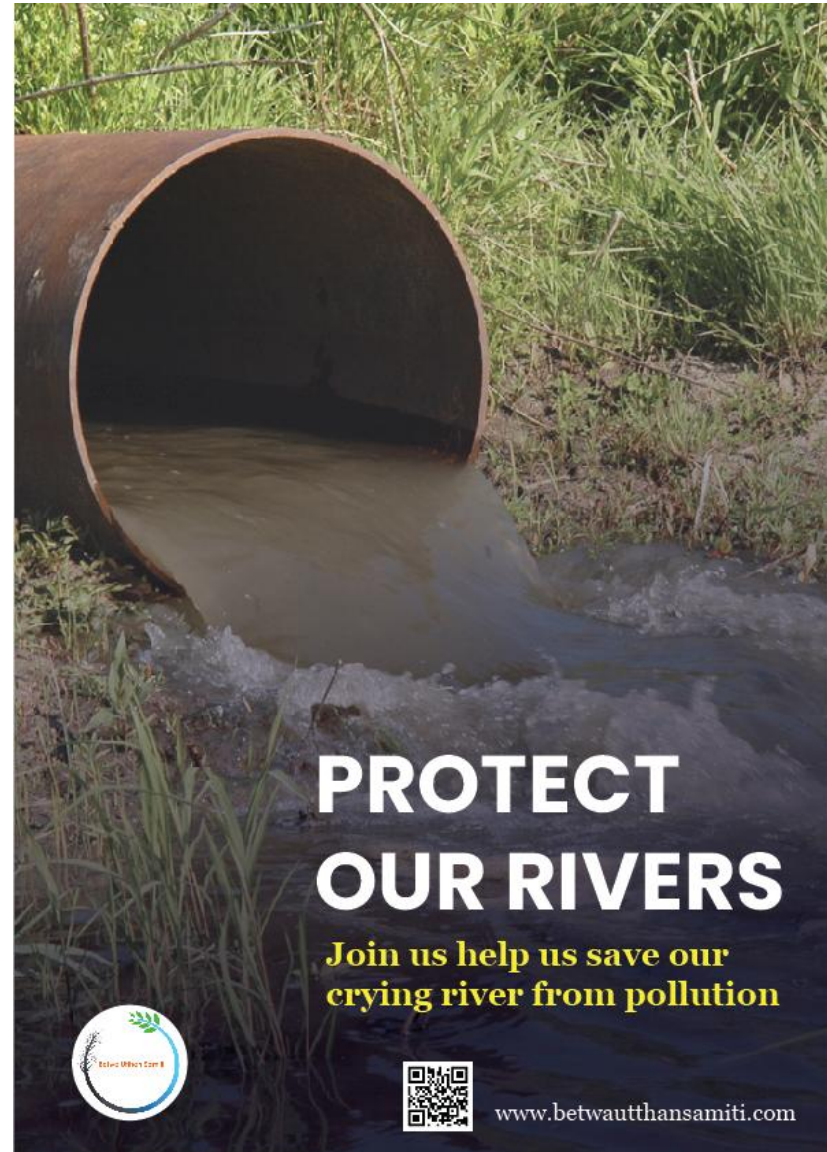
I then took the real pictures which I took during my field research and made the posters.

# OUR RIVER NEED OUR HELP

Join us help us save our crying river from pollution



[www.betwautthansamiti.com](http://www.betwautthansamiti.com)

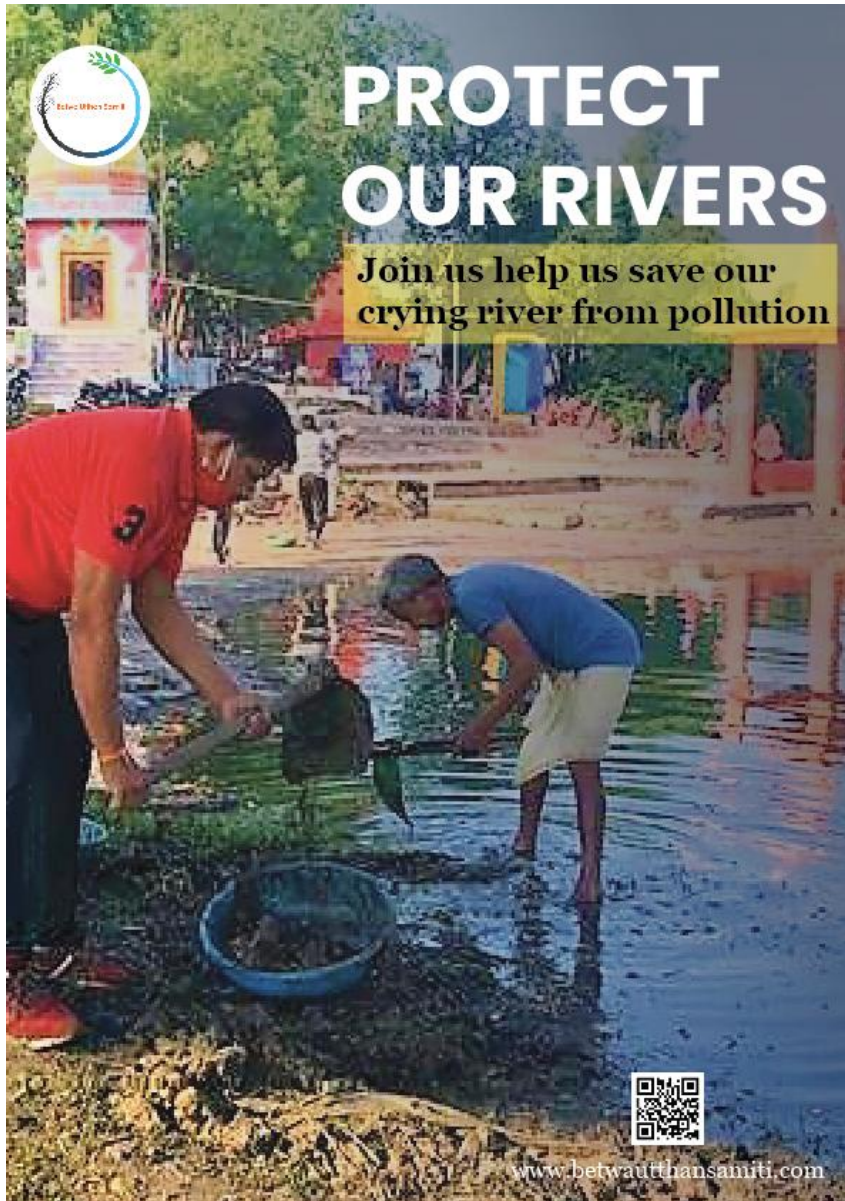


# PROTECT OUR RIVERS

Join us help us save our  
crying river from pollution



[www.betwautthansamiti.com](http://www.betwautthansamiti.com)



The same posters were made in Hindi as well.  
Sample:



## **XI. Learnings from the Project**

This project gave me a unique opportunity to undertake this project and allowed me to learn something completely new in my own locality. Visiting the Betwa Utthan Samiti organization, interacting with the team, taking part in their works just gave me a different kind of experience. The project was an eye-opening journey that helped me look at design as a tool for initiating changes and a chance to create awareness. When designing a product, one should have empathy to understand and consider requirements. This project helped me to be a better person than my former self. It taught me to be more compassionate about people and also nature, and step out of the box to become a designer for society.

Prof. Mazumdar helped me give my best through the processes like, providing me the best and valuable feedback and making appropriate design decisions. The best learning I got from her was how to think from users point of view and how to design the best which serves their needs rather than designing which we like. The brief we created was complex, but we managed to come closer to finding conclusions that could prove to be significant in this field.

This project also awakened my consciousness towards nature and the mistreatment happening with it. It also made me even more aware about the current scenarios, the behind the scenes which we never get to know in general.

## **XI. Conclusion & scope**

River pollution is a very serious issue that affects everyone. It causes several problems in the environment and can affect the quality of life. River pollution should not be taken lightly and it is therefore important that we take steps to control this problem as soon as possible. This can be achieved through regulation, improvement of environmental quality, prevention and treatment.

I am really glad and proud of the Betwa Utthan Samiti organization who took this step towards this disastrous problem and I am glad I was able to take part in this and give my best as a designer in helping them in whatever way I could.

The further step now is to purchase the domain name for the website. I was told by the President of the organization, Mr. Atul Shah that the organization will be paying the amount for the domain and further website development procedures. When the website goes live, I hope it makes an impact on the society and also helps the Betwa Utthan Samiti organization to progress in their constant efforts. I would like to be in touch with the organization, in case they need any help at all. After working and interacting with them, I've developed a great relationship with them, and I feel as if they are my family.



## XII. Bibliography

[https://academicjournals.org/article/article1379593031\\_Vishwakarma%20et%20al.pdf](https://academicjournals.org/article/article1379593031_Vishwakarma%20et%20al.pdf)

[http://www.mppcb.mp.gov.in/proc/Action\\_Plan-Rejuvenation\\_of\\_River\\_Betwa-2019.pdf](http://www.mppcb.mp.gov.in/proc/Action_Plan-Rejuvenation_of_River_Betwa-2019.pdf)

<https://betwautthansamiti.weebly.com/about-us.html>

<http://www.ijtrd.com/papers/IJTRD1377.pdf>

<https://www.downtoearth.org.in/coverage/dead-fish-tell-tales-23058>

<https://engineeringinterviewquestions.com/short-essay-on-betwa-river-pollution/>

[https://www.researchgate.net/publication/290227612\\_Effect\\_of\\_industrial\\_effluents\\_on\\_water\\_quality\\_of\\_betwa\\_river\\_in\\_and\\_around\\_Raisen\\_District\\_MP\\_India](https://www.researchgate.net/publication/290227612_Effect_of_industrial_effluents_on_water_quality_of_betwa_river_in_and_around_Raisen_District_MP_India)

[https://www.researchgate.net/publication/316000286\\_Ecological\\_Assessment\\_of\\_Water\\_Quality\\_of\\_Betwa\\_River\\_in\\_Jhansi\\_District](https://www.researchgate.net/publication/316000286_Ecological_Assessment_of_Water_Quality_of_Betwa_River_in_Jhansi_District)

<https://idup.gov.in/en/article/betwa>

<http://www.indiaenvironmentportal.org.in/category/446/thesaurus/betwa/>

<https://www.ncertbooks.guru/ncert-books-class-8-science/#:~:text=NCERT>

<https://hindi.indiawaterportal.org/content/betwa-utthan-samiti-vidisha/sangathana-jaoda-en/19756>

<https://indianexpress.com/article/cities/bhopal/world-environment-day-betwa-rivers-cleaning-6444057/>

<https://www.patrika.com/vidisha-news/students-said-the-responsibility-of-every-citizen-to-keep-betwa-clean-5613960/>

<https://www.naidunia.com/madhya-pradesh/vidisha-vidisha-news-7298644>

<https://www.patrika.com/vidisha-news/5-trolley-mud-and-garbage-removed-from-betwa-ghat-4646298/>

<https://www.naidunia.com/madhya-pradesh/vidisha-vidisha-news-7572615>

<https://www.bhaskar.com/local/mp/bhopal/vidisha/news/betwa-uttan-samiti-planted-saplings-in-medical-college-128670227.html>