Ganga’s Dilemma

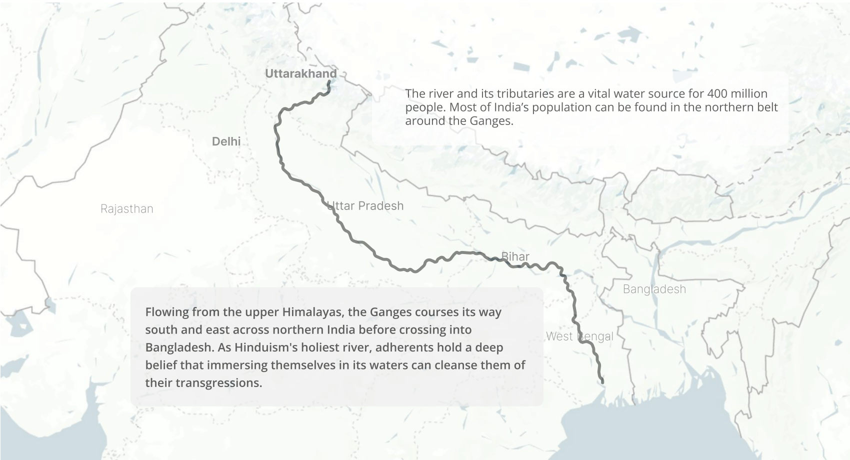
The Aviral Ganga, symbolising a continuous, unhindered flow, now grapples with a dilemma as developmental projects promise potential and at the same time challenge its unbroken journey.

The unfortunate truth persists: environmental concerns are often not accorded the same national priority as development and growth. This paradox is vividly illustrated by the River Ganga, a potent metaphor for the interplay between Environment and Development. The Ganges, India's holiest river, has seen its natural course disrupted by dams, hydropower projects, and irrigation systems driven by economic growth objectives. While pursuing development, these efforts have disrupted the river's flow, altering its ecology and affecting communities.

The poignant question emerges: Is the Ganga still the Aviral Ganga it once embodied, or has development fragmented its essential flow?

Ganga and what it means to India

What Ganga means to the 1.4 Billion people of India and how we depend on her

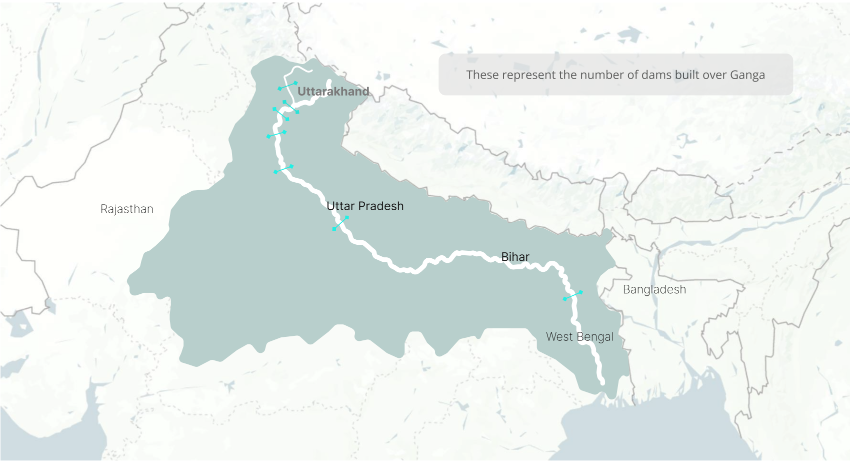


The river and its tributaries are a vital water source for 400 million people. Most of India’s population can be found in the northern belt around the Ganges.

Flowing from the upper Himalayas, the Ganges courses its way south and east across northern India before crossing into Bangladesh. As Hinduism's holiest river, adherents hold a deep belief that immersing themselves in its waters can cleanse them of their transgressions.

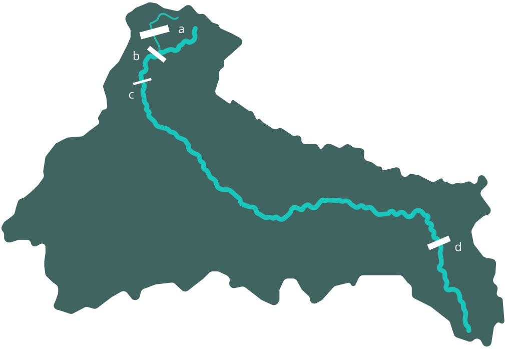
Where exactly development meets Ganga

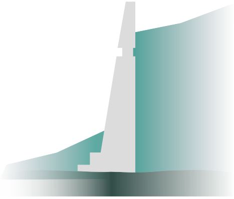
Where all the dams hinder Ganga’s flow



These represent the number of dams built over Ganga

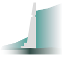
Biggest four Dams on Ganga





a

Tehri Dam



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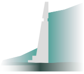
Bhimgoda Barrage



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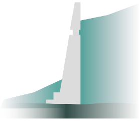
Narora Barrage



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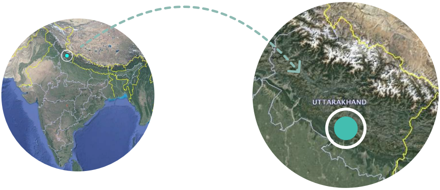
Farakka Barrage

WHY TEHRI DAM

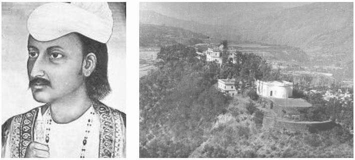
In the heart of the majestic Himalayas, an engineering marvel stands as a testament to human ambition and innovation—the Tehri Dam. Stretching across the Bhagirathi River, this colossal structure represents a pinnacle of development, its vast reservoir embodying the power to illuminate cities and irrigate fields



Tehri through the times

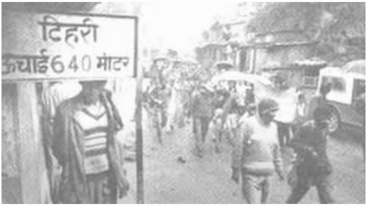
Understanding the evolution, formation, protest and impact of Indias’ tallest dam which on one hand was constructed for developmental reasons but it impacted the flow of Ganges

1817



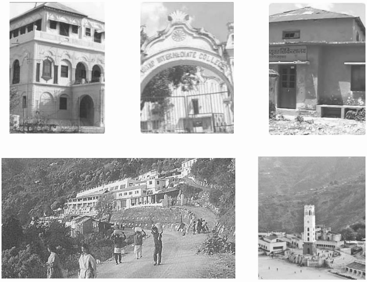
Sudarshan Shah chose Tehri as his capital due to its scenic, secure location surrounded by two rivers.

1956



Market of the city

1968



People can be seen in their day to day life

1970

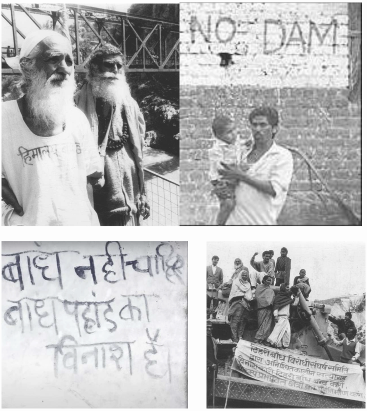
CONVENT SCHOOL

People can be seen in their day to day life

1978

Dam survey and proposal passed

1980 to 1998

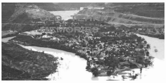


Continuous resistance and Protest by people and activists such as Sundar Lal Bahuguna

2002

Construction started and roads and bridges to fill

2003



Nainital Mania
SUBSCRIBE NOW

Submerging town

2006

Dam was functional by 2006

Lost village and its dependents

Interview excerpts of displaced community from Tehri who were at the forefront of effects of Tehri dam construction and will be in the front in case of probable unfortunate collapse

PARSHRAM BHATT

Resident Old Tehri

"The river is just left 20% only now and also,they took away our fruit trees, our lands and displaced us in a wildlife protected area again to be displaced soon after. No sense of community here in Khand. I am also scared of this dam breaking someday"

SUSHILA NEGI

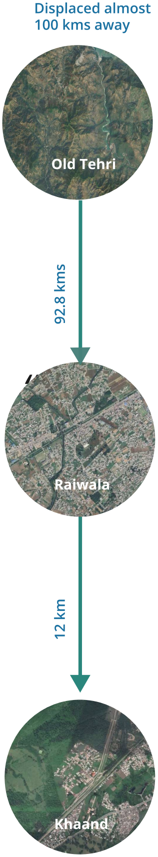
Pradhaan od Old Tehri Welfare Society,
first phase resident

"We were 1st phase residents to be moved from Tehri, survived with no electricity, meagre compensation and wandered from house to house. Where is the development I was promised?"

RAANI RAWAT

Resident Raiwala

"The dam did give opportunities to people but why were they not from Tehri. We were not compensated fairly and lost all ancestral lands. They are kaccha mountains which were bombed for the dam, causing erosion, one day the dam will collapse due to these bombings and landslides"



this fear of dam collapse was repeatedly quoted by our interviewees.

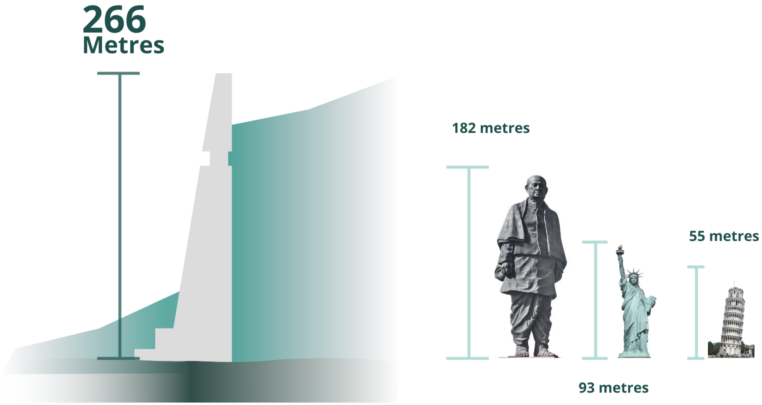
“ What if Tehri Dam breaks ? “

So we undertake a speculative journey into the realm of possibility, where it is envisioned the repercussions of such an event. It led to exploring what lies on the other side of the dam's towering presence.

But to first understand the repercussions, we need to look at the scale, size and expanse of Tehri dam

Height of Tehri Dam

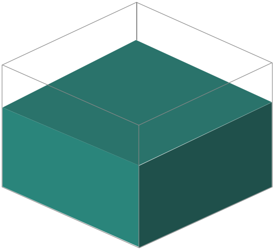
The Tehri Dam's stature reaches over 260 meters, a testament to human engineering ingenuity. It outstrips even the Statue of Unity, which stands at 182 meters, showcasing both technological achievement and the drive to harness nature's resources on a monumental scale.



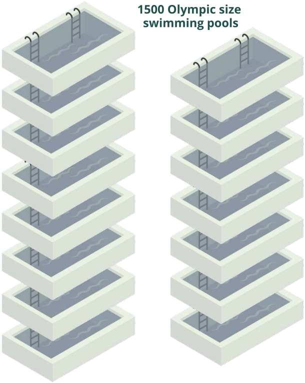
Volume of Tehri Dam

The dam's reservoir boasts a vast volume, measured in acre-feet—an equivalent of over 1500 Olympic-sized swimming pools combined. This comparison vividly illustrates the immense capacity of the reservoir, exceeding even the largest water bodies we're familiar with. This volume holds the potential for both development and devastation, underscoring the delicate balance between its promise and peril.

Volumetric Tehri Dam



2780
acre-ft

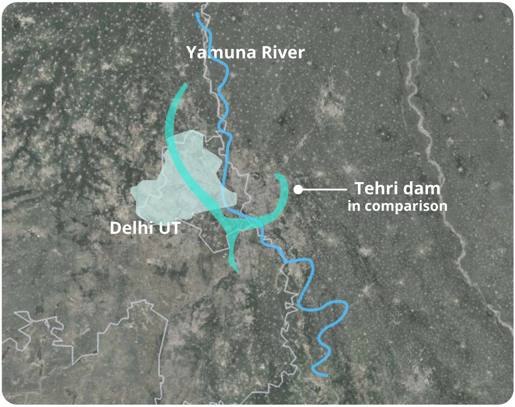


1500 Olympic size swimming pools

if 1 pool = 10 swimming pools

Expanse of Tehri Dam

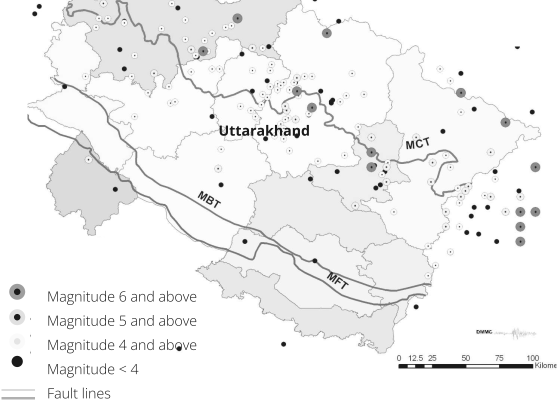
The dam if we compare it to the size of a metro city like Delhi for example can actually shadow the whole city with just its size and expanse.The map of Delhi juxtaposed with the Tehri dam and its size to show the extent of expanse of dam



Factors affecting Dams’ possible breakage

1. Seismic activity

The dam is threatened by the various fault lines and the probability of a high magnitude seismic earthquake owing to the past record of such quakes and even the vulnerability of the state of Uttarakhand being in zone 4 and 5



Map showing epicenters of earthquakes in Uttarakhand.

Major Earthquake timeline in the region

The dam is threatened by the various fault lines and the probability of a high magnitude seismic earthquake owing to the past record of such quakes and even the vulnerability of the state of Uttarakhand being in zone 4 and 5.

1803	1916	1945	1980	1991	2005
Epicenter: Garhwal	**Epicenter: Nepal**	**Epicenter: Nanda Devi**	**Epicenter: Bajhang**	**Epicenter: Pilang, UK**	**Epicenter: Kashmir**
7.5	**7.1**	**6.5**	**6.7**	**6.9**	**7.6**

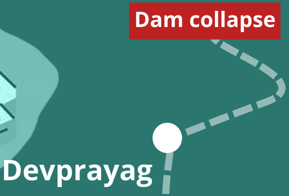
2. Landslides
soil erosion

3. War like
situations

4. Rapid silt
accumulation

What if Tehri collapses

If the Tehri Dam were to collapse, the potential consequences would be severe and widespread due to the massive volume of water stored in its reservoir. Showing the impacts visually on different cities and places if dam collapses



2.6 billion
cubic meters (bcm) of water will be released.

60 minute

time taken to reach Haridwar

Rishikesh

Haridwar

Roorkee

Bijnor

1.2 million

lives affected by
consequence
of flooding and
destruction

🧍 = 25000 people

What can be done to mitigate?

To mitigate the potential collapse of the Tehri Dam, a multi-pronged strategy is essential

Regular Inspections: Consistently assess the dam's structural health to identify and address weaknesses.
Early Warning Systems: Install sensors for timely detection and alerts to potential instability.
Emergency Plans: Develop evacuation strategies, educate communities, and conduct drills.
I**nfrastructure Strengthening**: Reinforce downstream infrastructure to endure floodwaters.
Contingency Plans: Create comprehensive steps to manage dam collapse scenarios.
Investment in Safety: Allocate resources for ongoing maintenance and upgrades.

These measures collectively enhance preparedness and response, minimising potential impacts.

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