

PRESENTATION ON FLOOD CONTROL BY DAMS,CANALS AND RIVER INTERLINKING

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INTRODUCTION OF FLOOD MANAGEMENT

A flood is when there is too much water in a place, usually because of heavy rain, rivers overflowing, or melting snow. This extra water spreads over land that is usually dry, covering roads, fields, and sometimes even houses. Floods can damage buildings, harm plants and animals, and make it difficult for people to move around safely.

***CAUSES OF FLOOD**

Heavy rainfall

River overflow

Dam breaks

Poor drainage systems

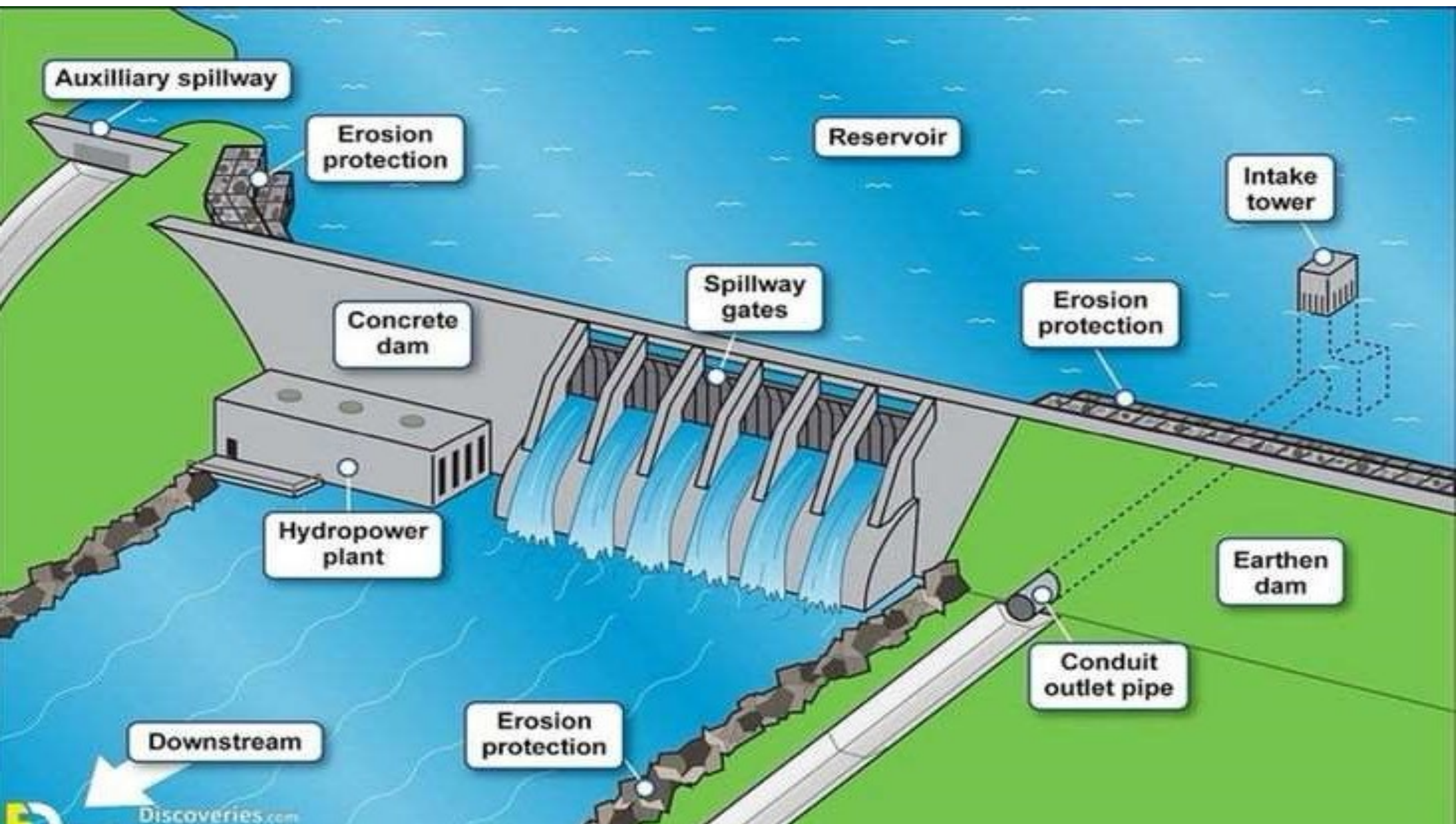
Climate changes



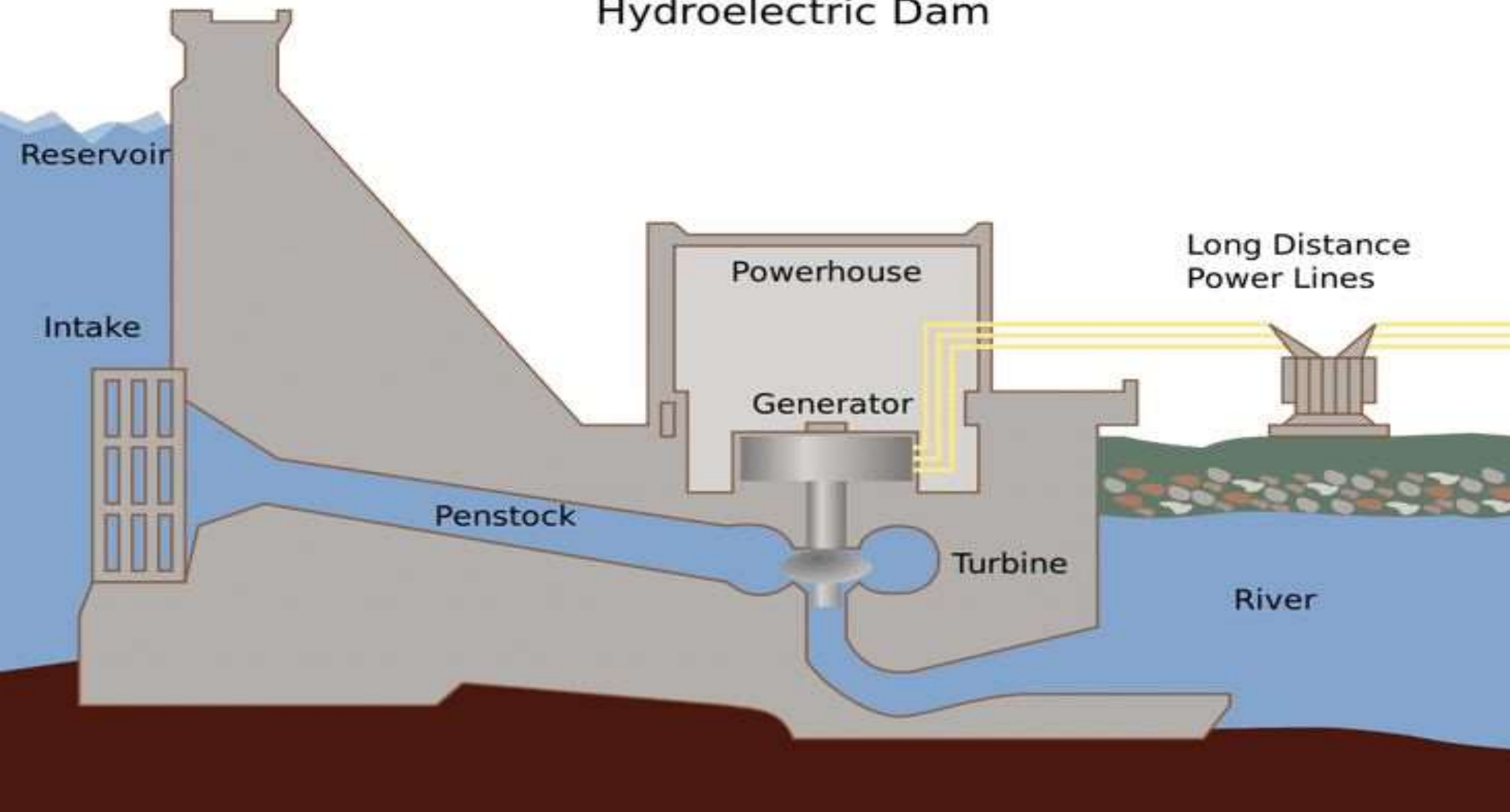


THE ROLE OF DAMS

Dams are structures built across rivers to hold back water. When there's heavy rain, dams can store extra water, which helps prevent flooding in areas downstream. By controlling how much water is released, they can make sure the river flows steadily instead of all at once. This gradual release lowers the risk of floods in areas further down the river. However, it's important to manage dams carefully to make sure they work safely and don't cause problems.

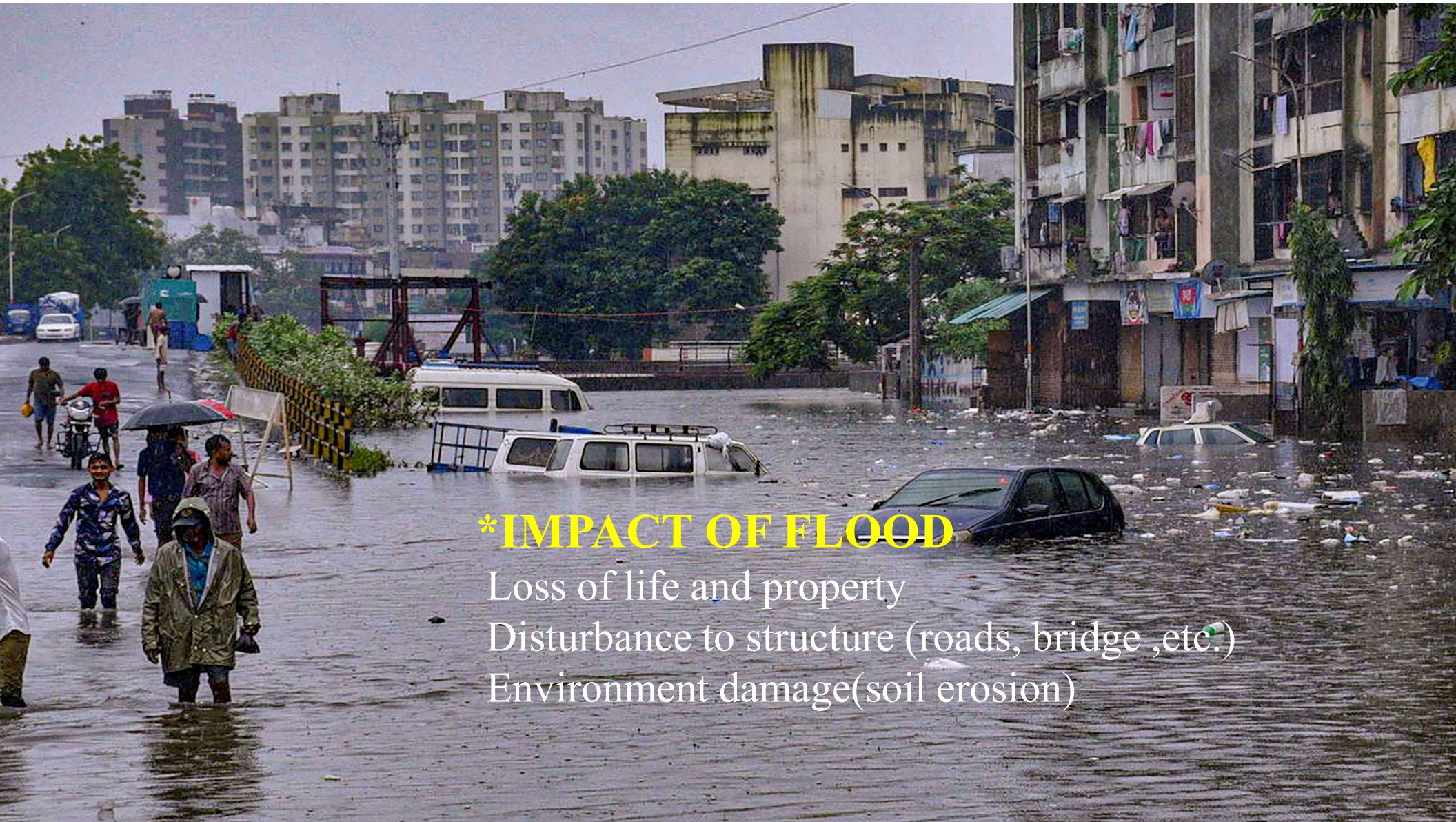


Hydroelectric Dam



CHALLENGES OF DAMS

- 1. Dam Breaks:** If a dam is old or not well-maintained, it might break during a flood, releasing huge amounts of water that can cause severe flooding downstream.
- 2. Poor Water management:** Dams control the flow of water, but if the water isn't released at the right time or in the right amount, it can lead to worse flooding. Sometimes, the warning about releasing water comes too late for people living downstream to prepare.
- 3. Loss of capacity:** Over time, dams fill up with dirt and debris, reducing the amount of water they can hold. This makes them less effective at preventing floods.
- 4. Impact of climate change:** Climate change is causing more intense storms and heavier rainfall, making it harder for dams to handle the extra water during floods.



***IMPACT OF FLOOD**

Loss of life and property

Disturbance to structure (roads, bridge ,etc.)

Environment damage(soil erosion)



FLOOD CONTROL BY CANALS

Canals play a significant role in flood management by helping to control and redirect excess water during heavy rainfall or snowmelt. Here are some key functions and benefits of using canals for flood management:

1. **Redirecting water:-**Canals can move excess water away from areas that might flood, keeping towns and farms safer.
2. **Holding water:-**They can store extra rainwater temporarily, so it doesn't rush into rivers and cause flooding
3. **Quick drainage:-**Canals help drain water from low areas quickly, reducing the time that floodwaters stick around.



PROBLEMS FLOOD CONTROL BY CANALS

Buildings damage: Flooding can damage canal banks, bridges, and nearby infrastructure, leading to costly repairs.

Ecosystem disturbance: Excess water can disrupt local ecosystems, harming wildlife and plant life.

Public Safety Risks: Flooded areas pose risks to residents, including potential drownings and property damage.

Economic impact: Flooding can disrupt local businesses, agriculture, and tourism, leading to economic losses.



SOLUTIONS FLOOD CONTROL BY CANALS

Improved drainage systems: Upgrading existing drainage systems to handle larger volumes of water can help mitigate flooding.

Canal maintenance: Regular maintenance of canals, including dredging and vegetation management, can ensure they operate efficiently.

Flood barriers: Constructing barriers or levees can protect vulnerable areas from flooding.

Public education and awareness: Informing residents about flood risks and preparedness can enhance community resilience.



RIVER INTERLINKING PROJECT

River interlinking projects involve connecting different rivers through canals and infrastructure to redistribute water resources.

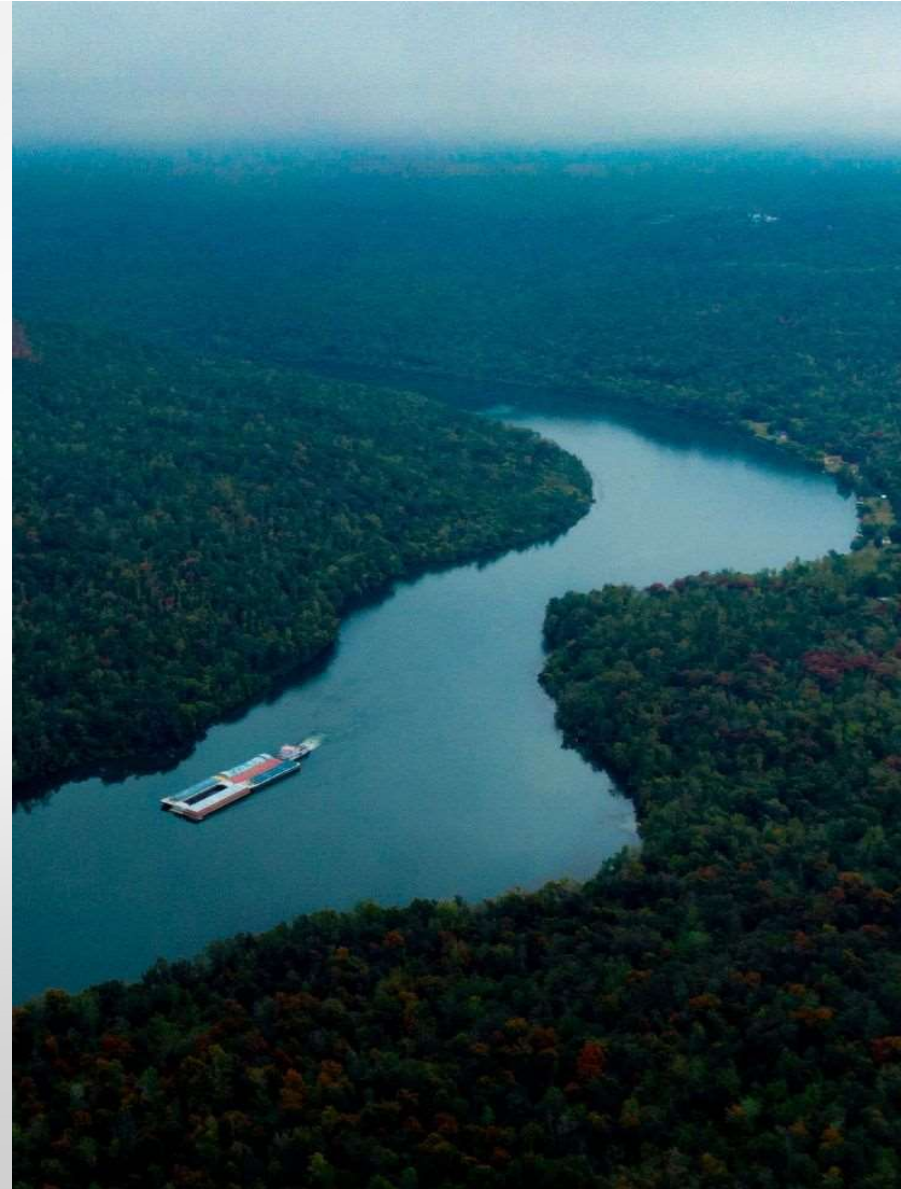
Water supply: Ensuring a stable supply of water for drinking, irrigation, and industry in areas facing water scarcity.

Irrigation improvement: Enhancing agricultural productivity by supplying water to arid regions.

Hydropower generation: Creating opportunities for renewable energy production through the movement of water.

CHALLENGES RIVER INTERLINKING

1. Climate change
2. Funding
3. Public awareness
4. Land use for planning
5. Maintenance



Case study

Several regions have successfully implemented integrated flood management strategies, including the Netherlands and India among others.



2013 North India flood

In June 2013, a mid-day **cloudburst** centered on the North Indian state of **Uttarakhand** caused devastating **floods** and **landslides**, becoming the country's worst natural disaster since **the 2004 tsunami**. The rainfall received that month was far greater than the rainfall the state usually received. Debris blocked the rivers, causing major overflow. The main day of the flood was **16th June 2013**.

Though some parts of **Himachal Pradesh, Haryana, Delhi and Uttar Pradesh** in India experienced the heavy **rainfall**, some regions of **Western Nepal** and some parts of **Western Tibet** also experienced heavy rainfall. Over 89% of the casualties occurred in Uttarakhand. As of **16th July 2013**, according to figures provided by the **Government of Uttarakhand**, more than **5,700 people** were "**presumed dead**". This total included **934 local residents**.

Destruction of bridges and roads left about **300,000 pilgrims and tourists trapped** in the valleys leading to three of the four Hindu Chota Char Dham pilgrimage sites. The **Indian Air Force**, the Indian Army and paramilitary troops evacuated more than **110,000 people** from the **flood-ravaged area**.



INDIA

Rank	Year	Flood Event	States Affected	Estimated Deaths
1	1954	North India Floods	Uttar Pradesh, Bihar	1,000+
2	1970	Assam Flood	Assam	700+
3	1978	North India Floods	Bihar, West Bengal	1,000+
4	1987	Bihar Flood	Bihar	1,390+
5	1998	Gujarat Flood	Gujarat	1,000+
6	2000	North-East India Flood	Assam, Arunachal Pradesh	30+
7	2005	Mumbai Flood	Maharashtra	1,094+
8	2008	Kosi Flood	Bihar, Nepal	527+
9	2013	North India Flood	Uttarakhand, Himachal Pradesh	5,700+
10	2018	Kerala Flood	Kerala	483+

OTHER COUNTRIES

Rank	Flood Event	Location	Year	Estimated Death Toll
1	1931 China floods	China	1931	1,000,000 – 4,000,000
2	1887 Yellow River (Huang He) flood	China	1887	900,000 – 2,000,000
3	1556 Banqiao Dam failure (part of a series)	China	1975	229,000
4	1938 Yellow River (Huang He) flood	China	1938	500,000 – 800,000
5	1970 Bhola cyclone	Bangladesh	1970	300,000 – 500,000
6	1642 Kaifeng flood	China	1642	300,000
7	1935 Yangtze River flood	China	1935	145,000
8	1911 Yangtze River flood	China	1911	100,000
9	1954 Yangtze River flood	China	1954	30,000 – 50,000
10	2010 Pakistan floods	Pakistan	2010	20,000



THANKS!

Do you have any questions?

List of reference

01

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