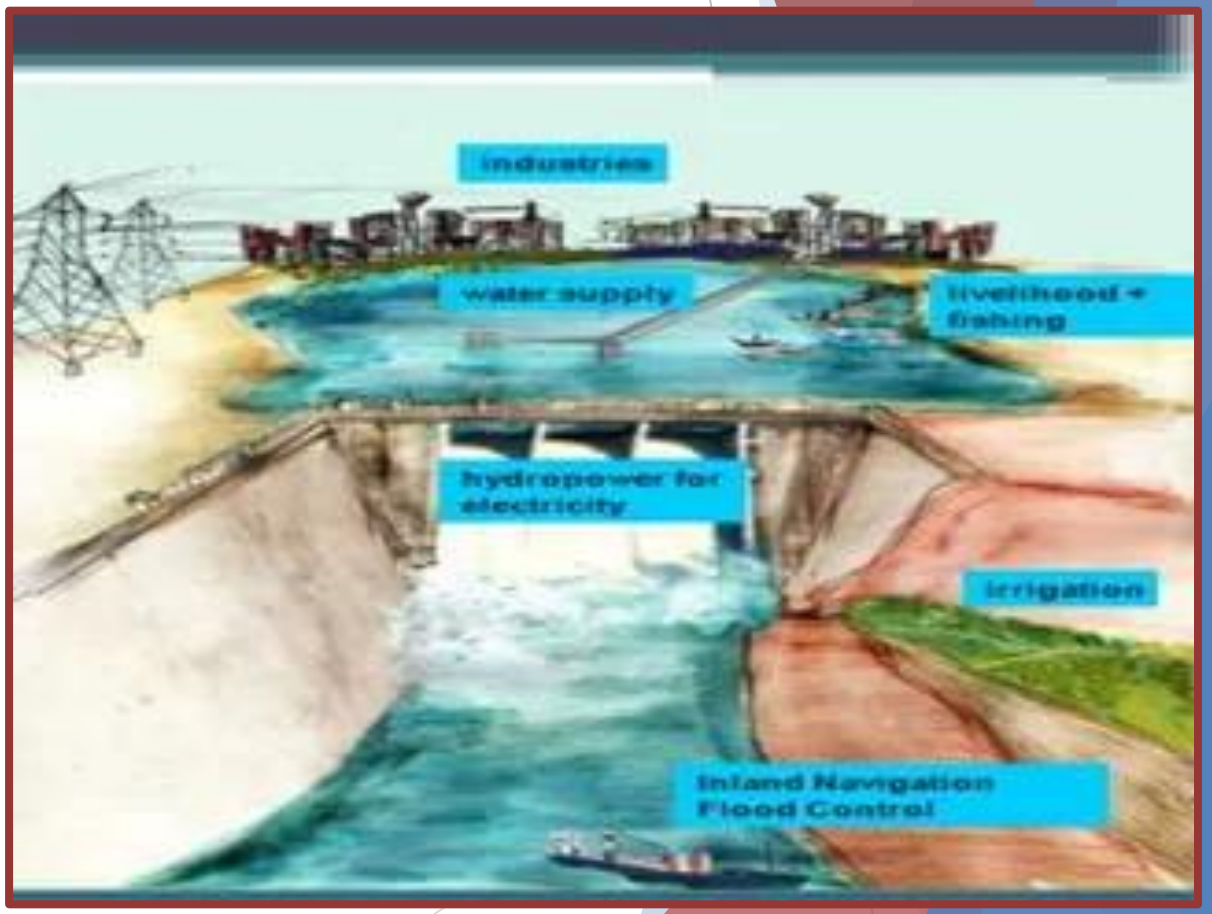
Multipurpose River-Valley Projects in India

What is a MRVP?

Multipurpose river valley projects are water resources projects planned for various purposes.

- Water supply for drinking
- Water supply for industrial purposes,
- Navigation.
- Flood Control- As water is stored in such projects, these projects help to control the flood.
- Generation of Power- It results in the generation of clean, pollution-free, and economical energy.
- Soil Conservation- It decreases the speed of the water, thus, conserving the soil.
- Irrigation- The water stored in the dams is utilized for irrigating dry areas.
- Fisheries- It creates an ideal condition for fish breeding of chosen variety.
- Tourist centers- since these projects are developed scientifically and cared for well, it becomes the center of attraction for tourists.



Problems and challenges of Multipurpose River Valley Project

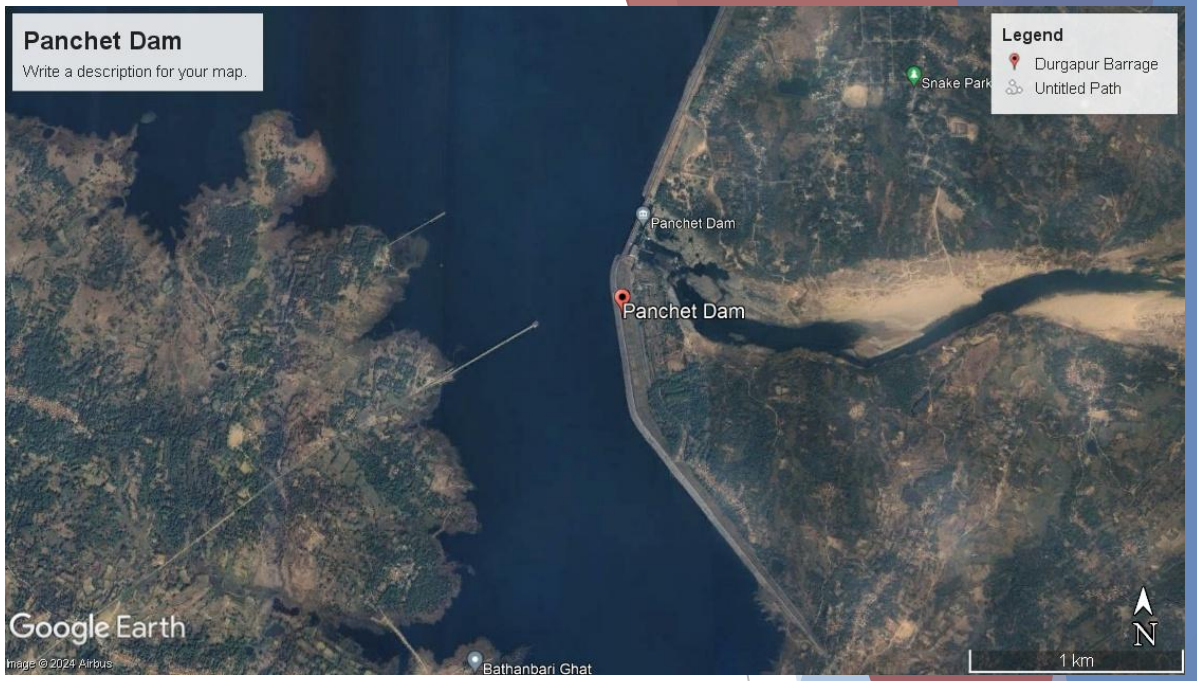
- Change in rainfall patterns in the catchment areas
- Excessive sedimentation at the bottom of the reservoir, resulting in rockier stream beds and poorer habitats for the aquatic life of rivers.
- Makes it difficult for aquatic fauna to migrate, especially for spawning, submersion of the existing vegetation and soil leading to its decomposition over a period of time.
- Multi-purpose projects and large dams have also been the cause of many new environmental disasters like dam failure (Chungthang dam) and movements like the Narmada Bachao Andolan and the Tehri Dam Andolan etc.

- Affect the natural flow of rivers causing poor sediment flow.
- Multi-purpose projects that were constructed to control floods have triggered floods which cause extensive soil erosion.
- Sedimentation also meant that the floodplains were deprived of silt, a natural fertilizer, thriller adding on to the problem of land degradation.
- Multi-purpose projects induced earthquakes, caused water borne diseases and pests and Pollution resulting from excessive use of water.

Difference between Dam and Barrage

According to the World Commission on Dams, a key difference between dam a and a barrage is that

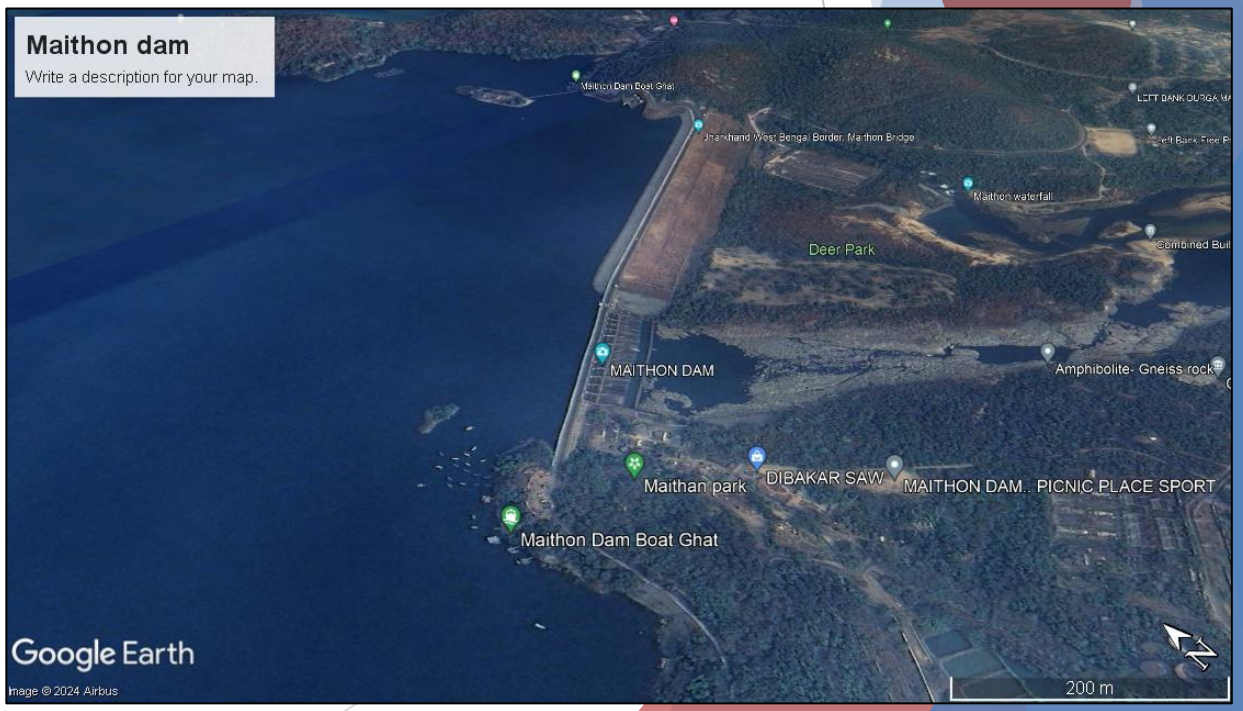
- A dam is built for water storage in a reservoir, which raises the level of water significantly.
- A barrage is built for diverting water, and raises the water level by only a few feet. The latter is generally built on flat terrain across wide, often meandering rivers.



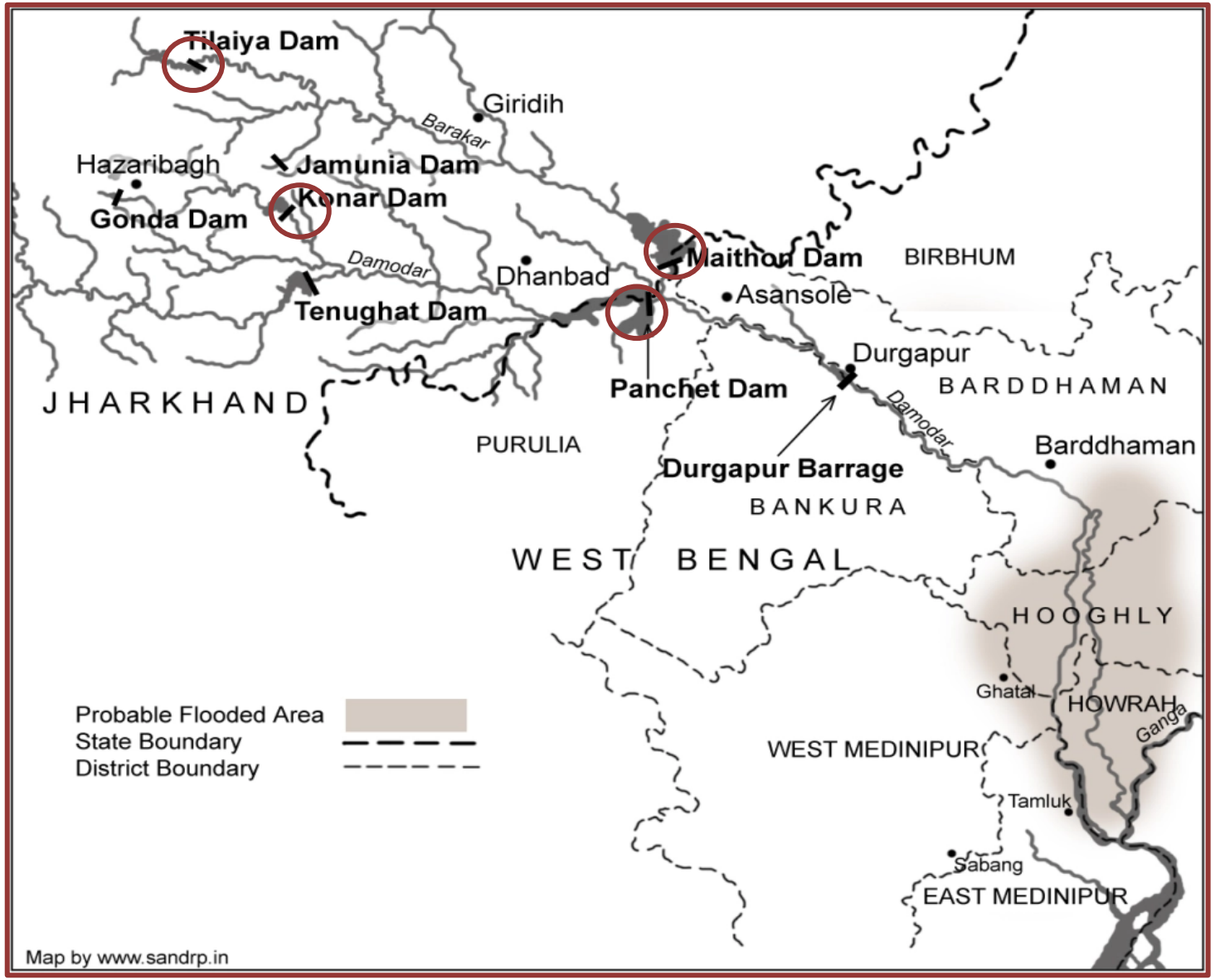
Damodar Valley Project

- • This project was conceived for the unified development of irrigation, flood control, and power generation in West Bengal and Jharkhand.
- • It is one of the earliest multipurpose projects in India, established in 1948, administered by the Damodar Valley Corporation.
- Damodar Valley Corporation is the first MRVP project of independent India.
- • The irrigation potential of the project is about 5.51 lakh hectares; its installed power generation capacity is 1181 MW.
- • It is designed on the lines of the Tennessee Valley Authority in the USA.
- DVC has a network of four dams - Tilaiya and Maithon on Barakar River, Panchet on Damodar river and Konar on Konar river.
- The Durgapur barrage on river Damodar was constructed in 1955 for the supply of irrigation water to the districts of Burdwan, Bankura & Hooghly.

****Indian Astrophysicist Meghnad Saha**, the former chief architect of river planning in India, prepared the original plan for the Damodar Valley Project.



Damodar Valley Project



HYDEL-POWER PLANT

1. Panchet (Damodar R.)
2. Maithon (Barakar R.)
3. Tilaiya (Barakar R.)
4. Konar (Konar R.)

THERMAL POWER PLANT

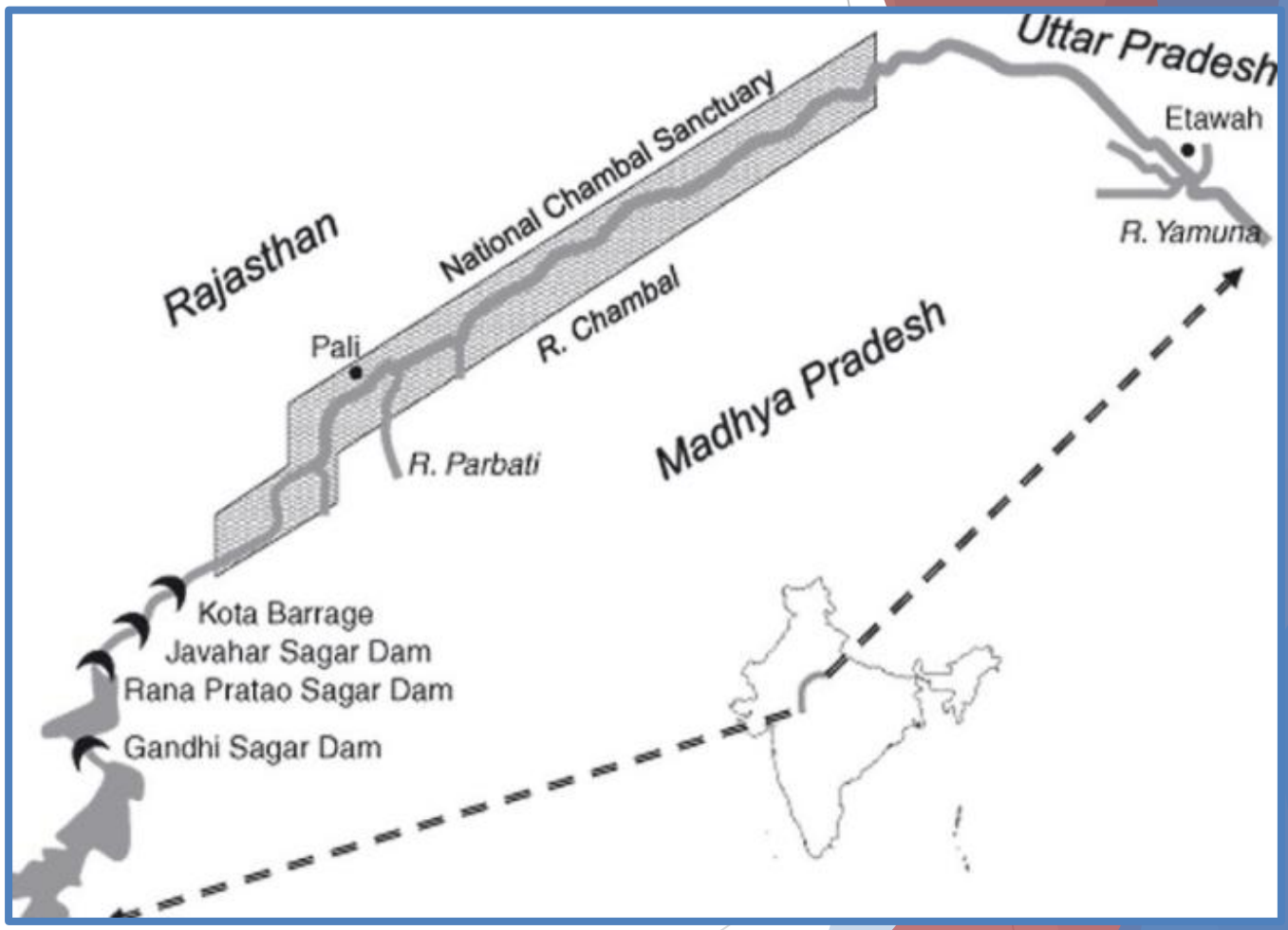
1. Mejia
2. Raghunathpur
3. Durgapur steel
4. Durgapur
5. Kodarma
6. Chandrapura
7. Bokaro

Bhakra Nangal Project

- Bhakra Dam is a concrete gravity dam on the Satluj River in Bhakra Village near Bilaspur in Bilaspur district, Himachal Pradesh in northern India. The dam forms the Gobind Sagar reservoir.
- Nangal Dam is another dam in Punjab downstream of Bhakra Dam. However, sometimes both the dams together are called Bhakra-Nangal Dam though they are two separate dams.
- In terms of storage of water, it is the third largest reservoir in India, the first being Indira Sagar dam in Madhya Pradesh with capacity of 12.22 billion cubic meters and the second being Nagarjunasagar Dam in Telangana.
- It is a joint venture of Punjab, Haryana, Rajasthan, Himachal.
- It is India's biggest multipurpose river valley project
- It consists of a straight gravity dam, 518 meters long, 226 meters high across the Sutlej at Bhakra.
- The canal system of the project is now irrigating 14.8 lakh hectares.
- It generates 1204 MW of electricity.

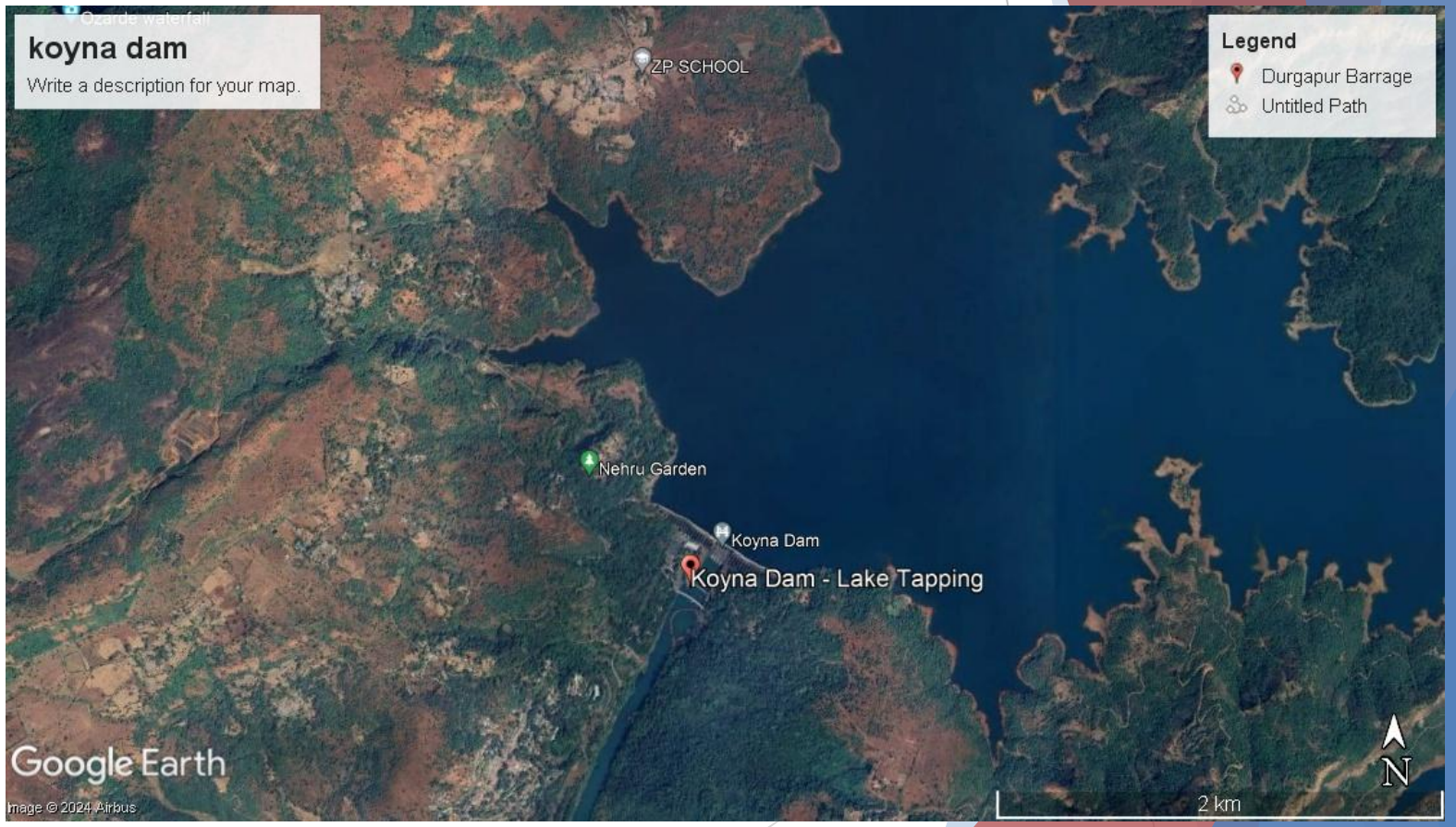
Chambal Project

- The Chambal project was jointly executed by Madhya Pradesh and Rajasthan.
  - In the **1st stage, the Gandhi Sagar Dam (MP)**, its 115 MW power station and the Kota barrage were completed.
  - The **Rana Pratap Sagar (Rajasthan)** dam with a powerhouse of 172 MW capacity was constructed in the **2nd stage**.
  - The **3rd stage** comprises the construction of the **Jawahar Sagar dam (Rajasthan)** and the 99 MW power station.
  - The Kota Barrage is also included in this project



Koyna Project

- • The Koyna project, run by the Maharashtra State Electricity Board, is the largest completed hydroelectric power plant in the country.
- • It has a total generation capacity of 1,960 MW.
- • It is a complex project with four dams, including the largest dam on the Koyna river.
- • It comprises the construction of a 208 ft. high dam.



Farakka Barrage

- •It consists of a barrage across the Ganga at Farakka, another barrage at Jangipur across the Bhagirathi.
- •It includes a 39 km long feeder canal taking off from the right bank of the Ganga, at Farakka, tailing into the Bhagirathi below the Jangipur Barrage.
- •Road-cum-rail bridge over the Farakka barrage is a major connectivity line.
- •The basic aim of the Farakka barrage is to preserve and maintain the Calcutta port.
- •It intends to improve the navigability of the Hooghly river.
- •Farakka also utilizes a large volume of water from its stored capacity to clear the silt deposits at Calcutta port.

1) Bhakra nangal project – it is largest and most important multipurpose project named after two dams built at bhakra and Nangal on satluj river.

States – Punjab , haryana and rajasthan.

Important dams – 1) bhakra dam 2) nangal dam

Problems – suffers from silting.

2) Damodar valley project – this was first river valley project of India after independence. Situated on river Damodar and its tributaries.

Total dams – 7.

Main dams – tilaiya , konar , maithan , panchet.

States – jharkhand and West Bengal.

3) Hirakud dam project- longest dam in world.
Constructed across river Mahanadi in Odisha.
Important dams – tikrapara and naraj.

4) Tungabhadra hydroelectric project – joint project of Andhra Pradesh and Karnataka.
Multipurpose dam for irrigation ,electricity and flood control. Also called pampa Sagar .
River – tungabhadra
Dams – tungabhadra

5) Narmada valley (sardar sarovar dam) – important and major river valley project.
State- Madhya Pradesh
Dams – 1) sardar sarovar dam 2) Narmada Sagar dam.
Going to be largest river valley project because it will have 30 major ,135 medium, 3000 minor dams.
River – Narmada.

6) Koyna valley project – largest dam in Maharashtra.
Location – Koyna nagar , satara district.
Help in controlling floods during monsoon.
River – Koyna river (tributary of Krishna river)

7) Rihand dam – uttar pradesh.

Consists of a powerhouse at pipri. Large reservoir called Gobind ballabh pant Sagar.

Supplies electricity to Uttar Pradesh, Bihar and Madhya Pradesh.