

## Water Resources

### Introduction →

There is 71% water and 29% land in Earth Surface.

#### • WATER →

- 97% Part of water is saline water which is found in form of Seas and oceans.
- Remaining 3% Water is used by us. out of this -
  - 69% is found in form of Glaciers.
  - 30% is found in form of underground water.

But only 1% part of water is used for drinking, irrigation and other economic activities.

- Most of the Rain water goes wasted into Seas through rivers. So we need to adopt water management to fulfill the demand of increasing population and protect us during drought and famine.
- Water management is the process of utilizing rain water by adopting appropriate management.
- Water management is the activity of planning, developing, distributing and managing the optimum use of water resources.
- Water is a basic necessity.

No living creature can live without water.

- There is a scarcity of water. To avoid this scarcity, water need to be saved and managed efficiently.

### Multipurpose Projects: Dams

Dams are called Multipurpose Projects because they are used for various purposes like.

- water supply
- Irrigation
- Electricity generation
- Inland transportation
- Flood Control
- Fisheries
- Drought Control
- Tourist spot etc.
- Pt. Jawahar Lal Nehru has called these multipurpose projects as "The Temple of modern india."
- Multipurpose Project were started under 5 year Planes.
- These are operated by central and State Govt.

### Why is it so called?

- Store water for irrigation, Electricity
- Control flood, Soil conservation.
- Provide drinking<sup>2</sup> water, Develop Pisciculture.

famine and drought resulting from the uncertainty and irregularity of the monsoon. Several multipurpose projects launched after independence in the Five Year Plans which resulted in solving the problems of flood and drought and supported the production of hydro-electricity, drinking water supply, irrigation, fisheries and environmental management. The first Prime Minister of India Pandit Jawaharlal Nehru called these multi purpose projects as "The temples of modern India".

In India, these projects are run by state and Central Government.

The execution of important projects such as Bhakra-Nangal, Rihand, Damodar HeeraKund,

Kosi, Tehri is being done by the Central Government.

The Chambal project in Rajasthan, Nagarjuna Sagar project( Andhra Pradesh), Tungabhadra project (Andhra Pradesh and Karnataka )Sardar Sarovar project (Gujarat, MP and Rajasthan) Mayoorkashi and Farakka project (West Bengal,) Mahi project (Gujarat and Rajasthan) Gandak project (Bihar and UP), Machhkunda Project ( Andhra Pradesh, Orissa ) etc. are being done by the state governments.

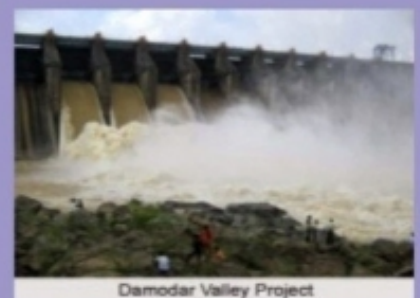
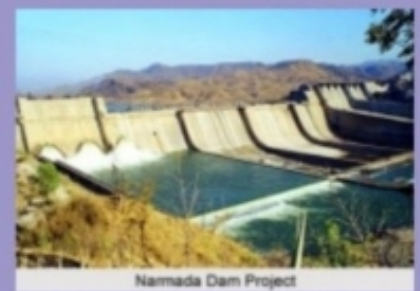
### **Bhakra Nangal Project-**

It is the biggest and the most important multipurpose project of the country, which had

## **Multipurpose Projects**

**In a multipurpose projects more then one objectives are fulfilled. For example :-**

- Supply of water for irrigation purpose**
- Production of hydroelectricity**
- Flood control and drought management**
- Supply of water for industrial use**
- Supply of drinking water**
- Fishing**
- Water sports and tourism**



**Fig. 8.1 : Multipurpose projects of the country**



## Other projects of Rajasthan-

### Rajasthan Canal or Indira Gandhi Canal Project-

It has been taken out from the Harike Barrage built at the confluence point of the Sutluj and Beas rivers with the purpose of water supply, utilisation of waste land and settlement of population at the international border. It is the biggest man made Canal not only in India but also in Asia, with a length of 649 km out of which 169 km is in Punjab, 14 km is in Haryana and the rest is in Rajasthan. Water is provided to 9 districts, 29 towns and 3461 villages of Rajasthan. This canal was completed in two stages, i.e. Rajasthan Feeder Canal and Main Canal. Rajasthan Feeder is a part from the starting point to Masitawali and the main Canal is a part from Masitawali to the end point of Mohangarh, which are 204 km and 445 km long respectively. Several branches and lift canals have been taken out of this canal in order to develop the irrigated land in the Thar Desert. 9 branches alike the droop on western international boarder and in the small canals by the lifts on eastern side due to the extra height, water is raised and shifted. By these canals drinking water is made available to several towns and cities. The total number of lift canals is seven. Lakes of hectare land is irrigated by this canal. This project has now been extended up to Gadra road in Barmer.



Fig. 8.4 : Indira Gandhi Canal

### Jakham Project-

Jakham Dam has been built in Anoopura across the river Jakham for irrigation of the tribal areas of Chittorgarh, Udaipur and Pratapgarh. Canal system has been developed by pick up technique in the village Nagaria at a distance of 13 km from this Dam.

### Som -Amba -Kamla Project-

A dam has been built across the river som in the village of Kamla Amba. Irrigation facilities will be given to the villages of Aaspur and Salumber block of Dungarpur and Udaipur districts respectively.

### Meja Dam-

Meja Dam has been built for irrigation purpose on the river Kothari, in village Meja of Mandalgarh Block in Bhilwara. Fisheries and Canal system have also been developed by the dam.

### Sidhmukh Project-

Under this project the surplus water of Ravi-Beas is utilised to irrigate 33000 hectare land of Nohar-Bhadra and Taranagar - Rajgarh blocks of Shriganganagar, Hanumangarh and Churu districts respectively.

### Narmada Project-

Drinking water supply is made to Barmer and Jalore by the water of Sardar Sarovar Dam.

### Jawai Dam Project-

Dam has been built in Arinpura (Pali) across the river Jawai, a tributary of the river Luni in Western Rajasthan. Irrigation is done in Pali and Jalore by a 176 km long canal taken out from this dam.

### Panchana Dam-

A dam of clay has been constructed on the confluence point of five rivers Barkhera, Bhadravati, Machi, Bhaisawat and Ata, near Gudla village of Karauli district. The villages of Todabhim, Hindaun and Gangapur are irrigated by

## Rajasthan Projects

### (1) Chambal Valley Projects

- Start → 1953
- States → Rajasthan & Madhya Pradesh
- Purpose → To stop soil erosion and flood
- River - Chambal
- Main Phase - 3, 3 Dams made

(i) Gandhi Sagar Dam (MP)

(ii) Rana Pratap Sagar Dam (Raj)

(iii) Jewahar Sagar Dam

- objects → To provide irrigation

### (2) Mahi Bajaj Sagar Projects

- Start - 1966
- States - Rajasthan & Gujarat
- River → Mahi - Vindhyaachal Mountain
- objects → To provide electricity and Economics development, irrigation in Dungarpur & Banswara District
- Dams - Borkhera (Banswara Raj.)
  - Kadana (Gujrat)
  - Kagdi Pick-up Dam (Electricity)

### 3 Bisalpur Project →

Start - 1997 to 1998

River - Banas (Tonk)

objects → Irrigation of Sawai Madhopur & drinking water supply for Jaipur city, Asmer, Kekri, Sawar, etc.

→ enroute villages and irrigation in 250 villages of Tonk district.

## Other Projects of Rajasthan

(i) Rajasthan Canal or Indira Gandhi Canal Projects

• Origin - Harrake Barrage → ~~Rand~~<sup>Beas</sup> & Satluj river

⇒ Asia's largest man-made Project

⇒ Length - 649 km. (169 km - Punjab, 14 km Hry. rest - Raj.)

⇒ Purpose → Drinking Water, Utilization of Waste land, Settlement of Population on inter-national Border.

⇒ Phase - 2 (i) Rajasthan Feeder Canal (ii) main Canal

⇒ 9 district, 29 Towns, 3461 villages of Raj Benefit.

⇒ 1st Phase start - Masitawali - end Point - ~~Station~~

⇒ Now Extended up to → gadra Road (Barme) Mohangarh

2. Takham Project → River - Takham

objects - Irrigation of Tribal areas Chittorgarh, Udaipur, Pratapgarh.

3. Som - Amba - Kamla Projects.

River - Som

Village - Kamla - Amba

object - Irrigation (Dungarpur & Udaipur)

(4) Meja Dam → River - Kothari

Village - Meja (Mandalgarh, Bhilwara)

object - irrigation, fisheries

(5) Narmada Project

## • Water conservation

### • Forms of Traditional water conservation in Rajasthan.

#### ① Bawri (Step wells)

- ⇒ Bundi is known as the "city of stepwells".
- ⇒ Chand Bawri of Abhaneri are famous.

#### 2 Ponds → for drinking water

Famous Ponds → Hemabas (Pali) Sareri & Meja in Bhilwara, Bankiya & Senapani (Chittorgarh)  
Gradisar & Gajroop Sagar (Jaisalmer)

#### 3 Lakes → Ana Sagar (Ajmer) Pichola & Fatehsagar (Udaipur) Tal Chhapar (Buru) Sardar Samand (Pali) Nawlekha (Bundi)

#### 4 Nadi → short form of Pond in western Raj.

#### 5 Taank →

#### 6 Johad → Rain water storage in Shekhawati Region.

#### 7 Beri → Jaisalmer & Badmer.

#### 8 Khadin → Adopted by Paliwal Brahmins in Jaisalmer during the medieval age.

## Water self-reliance

~~Chief~~ Chief Minister water self-reliance plan (Mukhyamantri Jal Suvaramban Yojana)





**Fig. 8.15 : Various forms of Water Conservation**