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Interlinking of Rivers can solve the water problem in Rajasthan

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ABSTRACT

Ajmer is located in the center of Rajasthan (India) between 25° 38' "and 26° 58' "north 75° 22' " east longitude covering a geographical area of about 8481sq km hemmed in all sides by Aravalli hills. About 7 miles from the city is Pushkar Lake created by the touch of Lord Brahma. The Dargah of Khawaja Moinuddin Chisti is the holiest shrine next to Mecca in the world. Ajmer is the abode of certain flora and fauna that are particularly endemic to semi-arid and are specially adapted to survive in the dry waterless region of the state. The water problem is a great problem of Rajasthan. Due to Scarcity of Rains Interlinking of Rivers like Indira Gandhi canal and Luni River and Banas River can solve the water scarcity problem of Rajasthan.

Keywords— Ajmer, Rajasthan, Aravallis, Water

1. INTRODUCTION

Ajmer is located in the center of Rajasthan (India) between 25° 38' "and 26° 58' "north 75° 22' " east longitude covering a geographical area of about 8481sq km hemmed in all sides by Aravalli hills. About 7 miles from the city is Pushkar Lake created by the touch of Lord Brahma. The Dargah of khawaja Moinuddin chisti is the holiest shrine next to Mecca in the world. Ajmer is the abode of certain flora and fauna that are particularly endemic to semi-arid and are specially adapted to survive in the dry waterless region of the state. The water problem is a great problem of Rajasthan. Due to the Scarcity of Rains. Interlinking of Rivers like Indira Gandhi canal and Luni River and Banas River can solve the water scarcity problem of Rajasthan. Rajasthan has 5 Rivers and one Indira Gandhi Canal, Five rivers of Rajasthan are Banganga, Banas, Ghaggar, Luni, Chambal, Mahi. Interlinking of these Rivers can solve the problem of Drought and flood both. The interlinking of rivers is a major venture to create additional storage facilities and transfer surplus water to drought areas. This is an integrated approach becomes necessary when dealing with water resource. This was issued in 1926 by Sir C.P. Ramaswamy, Aivarand, K.L. Rao and Capt. Dastur in 1970 and 1980 respectively. Benefits of interlinking rivers are in irrigation, flood prevention, hydropower generation, and navigation. This paper highlights the interlinking of rivers, ecological and economic benefits, leading to sustainable development.

2. STATUS OF WATER RESOURCES

Due to spatial variation in the rainfall pattern in Rajasthan, some regions become water surplus due to flood and other regions become water scarce due to drought. Interlinking of rivers brings a permanent solution to the negative impact of drought and flood. It brings the transfer of water from water surplus region to water-scarce regions. The availability of fresh water in Rajasthan is determined by the hydrological cycle. Some places desalination of sea water is also practiced. Due to rapid growth in population rapid growth in demand for fresh water is also there. Most of the rainfall in Rajasthan is from July to September. Large storage area of water is necessary. Maximum utilization of surface runoff. Regional variation in rainfall are extreme in western Rajasthan annual precipitation is below 100 mm. and in Meghalaya, it is above 11000mm. Due to global warming and climate change also rainfall pattern will change, more rains in wet areas and drought in dry areas. This will also affect water resources.

Average rainfall in India is 1170mm. By 2020 the global population will increase to 7.9 billion, water constitutes more than ¾ area of the earth so the earth is also called the blue planet. Of the total water 99 % is not utilizable 97.2% sea water, 2.15% in the form of ice, 0.3% is ground water, so less portion as surface water is available for consumption. So proper planning is essential for the utilization of limited surface water.

3. METHODS

Map of Rajasthan was studied with special references to rivers of Rajasthan and how they can be interlinked.

4. OBSERVATIONS AND RESULTS



Fig. 1: Rivers of Rajasthan

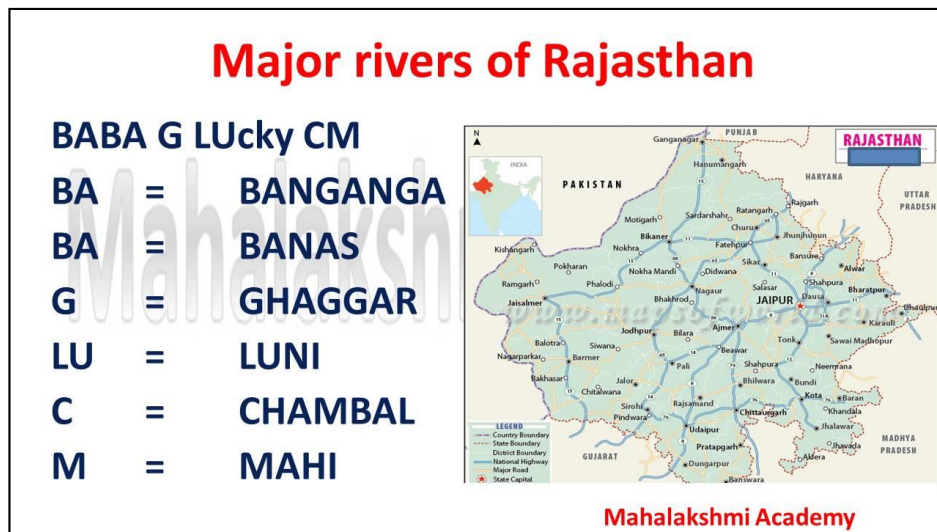


Fig. 2: Major rivers of Rajasthan

5. PREREQUISITE TO CONSERVE FRESH WATER

5.1 Agriculture

More than 90% of fresh water is used for irrigation to produce a plenteous amount of food.

5.2 Drinking water

The total population of Ajmer is 2180526 persons. The human body contains more than 70 % of water for the proper functioning of the body more than 7 liters of water is required per day. Ajmer has drinking water supply from Bisalpur dam and the water is further supplied to Jaipur district also Ajmer has a shortage of drinking water nowadays which is increased during summers because the demand of water increases in summer the problem can be solved by interlinking of rivers.

5.3 Washing

Water is also used for washing vegetables, fruits, clothes etc. Because it forms emulsions and solutions. Water is also used in the industrial process. Chemicals dissolve in water. For hygiene also water is used. Transportation of material through rivers and oceans (Shipping). Chemical use (Dyeing etc.) Water is also used in chemical reactions as a solvent.

5.4 Heat exchange

Water is also used as a heat exchange fluid due to its high heat capacity. Water is also used as a Neutron moderator.

5.5 Fire extinction

Water is used for fire annihilation. Water is inert and it has a high heat of vaporization.

5.6 Recreation

Humans use water for dalliances like swimming, sports, boating, surfing, diving, and ice skating water parks etc. water is also used in fountains. Aquarium also uses water. Power generation Water is also used in power generation. Electricity is produced from hydropower.

5.7 Industrial applications

Water is also used in Industries. Hydroelectricity is obtained from hydropower. Water is also used in industrial processes and also as a chemical solvent. But discharge untreated water from industries cause pollution. Purification techniques should be used to purify polluted water.

5.8 Food processing

Water is also used in cooking food, Food hydrolysis. Boiling, steaming and simmering. Water is also used as dishwashing. So we should safeguard water as much as possible to meet our future needs. The advantage of interlinking rivers is excess flood water is redirected to basins having meager rainfall. This has a twofold advantage it protects flood-prone areas from a large amount of water and supplies drought-prone areas with a source of water NWDA planned interlinking of rivers under late PM Indira Gandhi (1982).

6. SUCCESS OF INTERLINKING RIVER PROJECTS

There are many benefits of interlinking rivers like solving drought and flood problems, water available for irrigation, water is available for drinking, hydropower, more navigation, employment generation. Successful Interlinking river projects are:

Indira Gandhi Canal embarked in 1958. It utilizes 9,367 Mm³/yr of total 10,608 Mm³ /yr assigned to Rajasthan from surplus water of Ravi and Beas rivers. The project is divided into two stages:

- **Stage I:** 204 Km long feeder canal discharge capacity of 460 m³/sec. start from Harike Barrage. 170 Km feeder canal lies in Punjab and Haryana and 34 Km in Rajasthan. RSEB to install a total of 12.76 MW of mini hydroelectric power stations to utilize available waterfall in canal one such power station started in Suratgarh branch.
- **Stage II:** 256 Km long main canal and 5,606 Km lined distribution system. Utilising 4,930 Mm³/yr water. The canal in entire length completed in 1986. Colorado Big Thomson the USA

7. VINDICATION OF ILR

The interlinking is about linking surplus water rivers to water-deficient rivers. So that rivers that have a large amount of water can be transported to water-scarce regions. For example from Kashmir to Rajasthan. This will help inundation, commercial use, industries, drinking purpose, washing, cleaning to generate hydroelectricity etc.

7.1 Rainfall

Rajasthan is a western state of I and climate is arid or semiarid. Temp is extreme in summer temp reaches above 45-48 0 C. and in winters sometimes below 10 0 C. Rajasthan has hot desert. Receives low rainfall. The annual average rainfall is 14- 400 cm. summer is the longest season. Water availability is low. Strong dusty wind in summer known as loo. In winter the weather is pleasant. Water is scarce in Rajasthan and waited as the flood in northern and eastern states. So the interlinking of rivers can help.

7.2 Storage capacity

Rajasthan is not having storage formulations resulting in a dearth of water. The USA has per capita storage capacity 5961m³ per person and India 200m³ per person. Rajasthan is scarce in water so increasing storage capacity will be beneficial.

7.3 Food production

Food production will be improved if a good amount of water is present for irrigation. Grain demand for India by 2050 is 425 million tons. Rajasthan irrigation potential should also be increased to increase grain production.

7.4 Improving rural as well as urban life

More than 70 % of India's population lives in villages. And most population depend for livelihood on agriculture. If water resources are proper and manageable there will be good grain production and improve the life of the rural population. Hydropower 34000 will be generated. These will create employment also. But there are also adverse impacts of I L R. Danger of seismic hazard in Himalayas due to ILR transfer of river pollution will also be there.

8. TRADITIONAL WATER HARVESTING SYSTEMS

- Jhalara
- Talab
- Talai
- Bandhi
- Sagar
- Samand
- Tanka
- Ahar Pynes
- Johads
- Panam keni

- Khadin dhana
- Kund
- Baoli
- Nadi
- Bhandara
- Zings
- Kuhls
- Zabo
- Bamboo drip irrigation
- Ramtek network
- Jackwells
- Pat system
- Eri (Tank).

These are some traditional methods for conservation of water.

8.1 Rainwater harvesting

To stop extra water flow into the river or sewage systems.

8.2 Ground water and surface water techniques of irrigation desalination

Removal of salt from hard water is another solution for the problem but hard water is also not available in Ajmer. Desert is spreading rapidly due to the cutting of Aravallis and mining activities. Desert is spreading.

8.3 Cloud seeding

Intentional rains and weather changing amount and type of precipitation change. Orice nuclei cloud condensation. This is done to increase precipitation.

8.4 Criteria for interlinking rivers

Surplus water should be there in Donor Rivers. So Canal like Indira Gandhi Canal should be developed and interlinked to solve the water problem of Rajasthan.

9. CONCLUSION

This ILR are extremely useful for India and especially Rajasthan Reliable projects should be made for Interlinking Rivers. Each village and town should be made responsible for its own water conservation.

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