"EASTERN RAJASTHAN CANAL PROJECT"

BACKGROUND

Rajasthan is the largest state in India with geographical area of 342.52 Lac Ha spread over in between latitudes 23°30’ to 30°11’ North, longitudes 69°29’ to 78°17’ East. Rajasthan covers about 10.4% geographical area, 5.5% population, 19% livestock and 14% cultivable land of the country, whereas it holds only 1.16% of the country’s surface water and 1.72% of ground water.

Regarding ground water status there are 295 blocks and out of this only 50 blocks are safe, 38 semi critical, 10 critical and 194 over exploited & 3 saline. Regarding surface water Rajasthan has been divided into 15 River basins and one outside basin area. Total surface water availability at 50% dependability estimated about 25.38 BCM and another 17.88 BCM water is allocated as State’s shares from trans-boundary river waters under various inter-state agreements. It is estimated that out of fifteen river basins surplus water is available only in Chambal and Mahi basin. In rainy season Kunnu, Kul, Parbati, Kalisindh, Mez, and Chakan sub-basins are also having surplus yield, while Banas, Banganga, Ghambhiri and Parbwti sub-basins are deficit in yield.

In Rajasthan on the one side water is surplus in Chambal basin and on other side many districts are striving for drinking water need of habitation & livestock, but even in rainy season water flowing in Chambal River can not be tapped. D/S of Kota Barrage is declared as crocodile sanctuary in a width of 1.5 km both side from centre of the river, so excess monsoon water available in Chambal river cannot be tapped directly from Chambal river. Looking to this fact an idea of Intra Basin water transfer scheme (Conceptual idea of Parallel Canal) was conceived.

- **Eastern Rajasthan Canal Projects (ERCP)** is planned to harvest surplus yield available in the Southern Rajasthan rivers and transfer to deficit basins in South-Eastern Rajasthan.

- This scheme is planned to meet the Drinking / Irrigation and Industrial water needs of the thirteen districts of Southern & South Eastern Rajasthan.

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• As per the Hydrology report submitted in the CWC, yield from Rajasthan’s own catchment of Kunnu, Kul, Parbati, Kalisindh, Mez, Chakan and Banas river has been assessed as 5068 MCM at 50% dependability and 2993 MCM at 75% dependability, while 50% & 75% dependable yield including untapped water of Madhya Pradesh is assessed 9248 MCM & 4855 MCM respectively.

• Diversion of 5068 MCM water available (at 50% dependability) from Rajasthan’s own catchment is proposed in this scheme. The Project area covers 23.67% area and 41.13% population of Rajasthan.

• Future Water Demand to be covered under this Scheme; Projected drinking water demand of year 2051, DMIC requirement, Power sector requirement and Irrigation water requirement has been assessed as 5023 MCM by WAPCOS.

<table>
<thead>
<tr>
<th>Description</th>
<th>Demand in MCM</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking Water Demand</td>
<td>2535</td>
<td>50.0%</td>
</tr>
<tr>
<td>Reserved for Industries</td>
<td>674</td>
<td>14.0%</td>
</tr>
<tr>
<td>Reserved for Irrigation</td>
<td>1814</td>
<td>36.0%</td>
</tr>
</tbody>
</table>

**PRESENT STATUS :-**

• Central Water Commission (CWC) has approved the water study of project on 8.02.16.

• Rajasthan Government has taken initiative for preparation of Detailed Project Report (DPR) through WAPCOS Limited (a Government of India undertaking, Ministry of water resources). The detailed project report is to be received in month of May 2017.

• Topography survey carried by **LIDAR** technique (Ariel Photography) is completed.

• Detailed Geotechnical investigations/ Hydrographic survey is almost completed.

• Feasibility Report of ERCP prepared by WAPCOS had been submitted to CWC New Delhi for in principle approval.

• The CWC has approved the hydrology study at proposed project sites on Kunnu, Kul, Parwati, Kalisindh and Banas river subjected to interstate aspects on dated 02.05.17.
**PROJECT COMPONENT:-**

Phase wise Main components are as under:

**PHASE- I**

1) Diversion structure at kalisindh river  
2) 21.60 Km Gravity Link Channel upto Chambal crossing  
3) Chambal crossing and Pumping unit  
4) 15.0 km Gravity channel from Chambal crossing to junction point of Link channel and Trunk channel.  
5) Diversion structure and pumping Unit at Mez  
6) 19.0 Km Gravity Link Channel from Mez to Meet Gravity channel feeding Chakan Dam  
7) Trunk feeder 16.0 km long  
8) Pumping unit at Chakan  
9) 22.0 km Gravity channel up to Thikariya/Kumhariya dam  
10) renovation of Thikariya/Kumhariya dam  
11) 19.0 km Gravity channel Kumhariya to Mui Dam  
12) Resectioning of 61 km natural stream from Mui / Surwal to proposed Doongri dam on Banas River.  
13) Construction of Doongri dam and Head works  
14) Canal Distribution network for utilizing water of Doongri dam  
15) Pumping Unit at Doongri Dam to feed to Kalisil Dam  
16) 16.5 Km Gravity main from doongri dam to Kalisil dam  
17) Pumping Unit at Kalisil Dam to feed Khura Chainpura  
18) 48.0 km Gravity main from Kalisil dam to Khura Chainpura  
19) 34.0 km Gravity main from Khura Chainpura to Panchana Dam  
20) 41.0 km Gravity main from Panchana Dam to Baretha dam  
21) 3.0 km Tunnel for transferring water from Khura Chainpura to Parwati Dam  
22) 37.0 km Gravity main from Baretha dam to Parwati dam  
23) 28.0 Km Gravity channel from Parwati Dam to Ramsagar, 85.0 Km from Ramsagar to Talab Shahi and 9.3 km Talab Shahi to Urmila Sagar  
24) Resectioning 18.0 km Natural channel in down stream of Urmila Sagar dam.  
25) Construction of Dedicated Feeder & Power stations at defined locations

**PHASE - II**

1) Construction of diversion structure at Parwati River  
2) Construction of diversion structure at Kunnu River
3) Pumping main and Gravity channel from Kunnu river to proposed diversion structure at Kul river.
4) Construction of diversion structure at Kul tributary of Parwati River
5) Gravity channel from Parwati to proposed diversion structure at Kalisindh river.
6) Construction of Pumping main and feeder channel from Kumharia to Galwa
7) Construction of Pumping main and feeder channel from Galwa to Bisalpur
8) Construction of Gravity channel from Galwa to Isarda district Tonk.
9) Construction of Gravity channel from Isarda district Tonk to Morel district Dausa and Dheel, district Sawai Madhopur.
10) Construction of Pumping main at Morel and Gravity channel from Morel dam district Dausa to Alwar district for drinking water and DMIC water requirement.

PHASE - III
1) Construction of Pumping main and feeder channel from Isarda Dam to Ramgarh, Kalakh and Chaparwada Dam district Jaipur.
2) Construction of Gravity Channel from Bisalpur dam to Tordi Sagar dam and Manshi dam district Tonk.

TENTATIVE COST:-
• Total cost of this scheme is estimated about Rs 40451 crore and out of which about Rs 16099 crore would be saved by eliminating pipe line projects of PHED (12781 crore) and Water Resources Department (about 3318.0 crore).
• Cost breakup of this scheme is as under:

<table>
<thead>
<tr>
<th>S.No</th>
<th>Description</th>
<th>Total</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overall Cost</td>
<td>40451</td>
<td>18474</td>
<td>17941</td>
<td>4036</td>
</tr>
<tr>
<td>2</td>
<td>Saving of Irrigation projects under pipe line</td>
<td>3318</td>
<td>3318</td>
<td>NIL</td>
<td>NIL</td>
</tr>
<tr>
<td>3</td>
<td>Saving by eliminating under pipe lines Drinking water schemes</td>
<td>12781</td>
<td>2921</td>
<td>9300</td>
<td>560</td>
</tr>
<tr>
<td></td>
<td>Net Cost of Scheme after accounting cost of under pipe line projects of PHED &amp; WRD</td>
<td>24352</td>
<td>12235</td>
<td>8641</td>
<td>3476</td>
</tr>
</tbody>
</table>
**BENEFITS :-**

- This Intra basin water transfer scheme will ensure availability of water for drinking purpose in thirteen districts viz. **Jhalawar, Bara, Kota, Bundi, Sawaimadhopur, Ajmer, Tonk, Jaipur, Dausa, Karauli, Alwar, Bharatpur and Dholpur** of Rajasthan for Humans and Live stock for year 2051.
- This scheme will also take care of Flood/ Drought situation in the area.
- Present dependable yield of 26 enroute Existing major / medium Irrigation projects is about 30.0 % and by induction of this scheme, these 26 major and Medium Irrigation Projects would be bring back to their original status. This will stabilize and enhance the existing CCA **2.31 Lacs Ha** of these Irrigation Projects.
- Additional command area of about **2.0 Lacs Ha** would be created for Irrigation i.e total area that would be getting Irrigation facilities is about **4.31 Lacs Ha**.
- Provision of 150 MCM has been kept to fill the existing enroute panchyat tanks, that will improve ground water table of the rural area and it will also improve social and economical conditions of the villagers of the area.
- Provision of 674.0 MCM has been kept for industries including Delhi Mumbai Industrial Corridor (DMIC) requirement. Availability of sustainable water sources will create environment for Investment in the state. With the installation of Industries GDP of the state will increase and it will also improve employment opportunities to youth of the area.
- The project in its true sense will fulfill the objective of conjunctive use i.e. enhanced availability of surface water & Ground water.

**TIME SCHEDULE :-**

Total cost of the project is 40451 Cr and it is proposed to be completed in three phases in seven years from year 2017 to 2023. First Phase of about 18474.0 crore is proposed to be completed in five year from year 2017 to 2021.