# IMPROVEMENT AND STRENGTHENING OF MAIN RAVI CANAL AND ITS DISTRIBUTION NETWORK

- Estimated Cost : 571.83 Crores

PRESENTED BY:

JAL SHAKTI (RTIC) DEPARTMENT

JAMMU

# INTRODUCTION

# CANALS UNDER RAVI TAWI IRRIGATION DEPARTMENT

**TWO CANALS**

1. **MAIN RAVI CANAL**
2. **MAIN TAWI CANAL**

| Salient Features | Main Ravi Canal | Main Tawi Canal |
|---|---|---|
| ▪ Source | Ravi River | Tawi River |
| ▪ Designed Discharge | 1150 Cusecs | 300 Cusecs |
| ▪ Total Length<br>▪ Main Canal | 79.9 Kms | 28.4 Kms |
| ▪ Distributaries and Minors | 450 Kms | 180 Kms |
| ▪ CCA | Ravi = 24291Ha<br>Tawi = 7895 Ha<br>Total = 32186 Ha | 13500 Ha<br>(inclusive of 7895 Ha) |
| ▪ Ultimate Irrigation Potential | 54072 Ha | 23200 Ha |

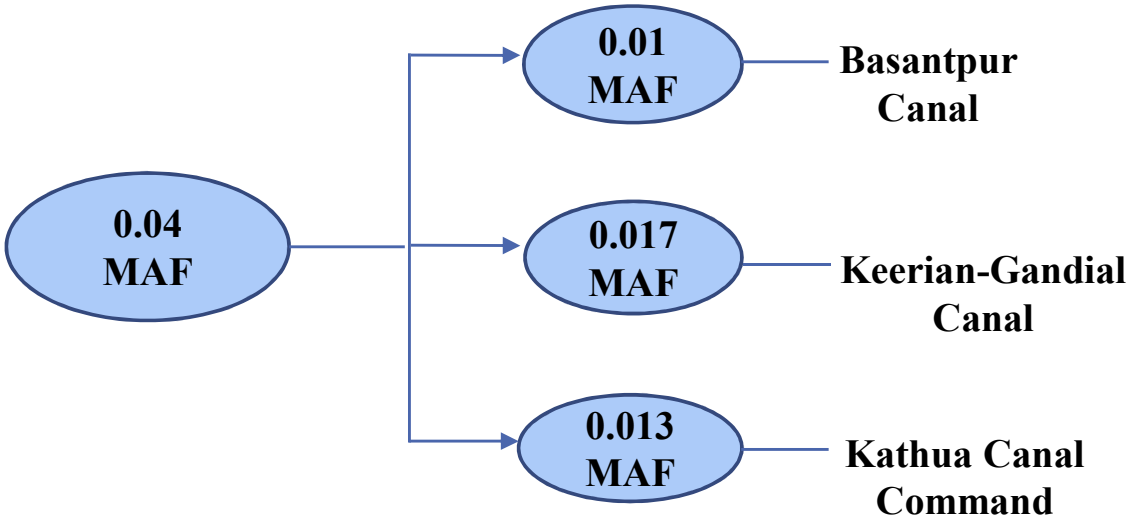
# HISTORICAL BACKGROUND OF RAVI CANAL PROJECT

# UTILISATION OF RAVI WATER

**1. PRE - PARTITION - 0.04 MAF**

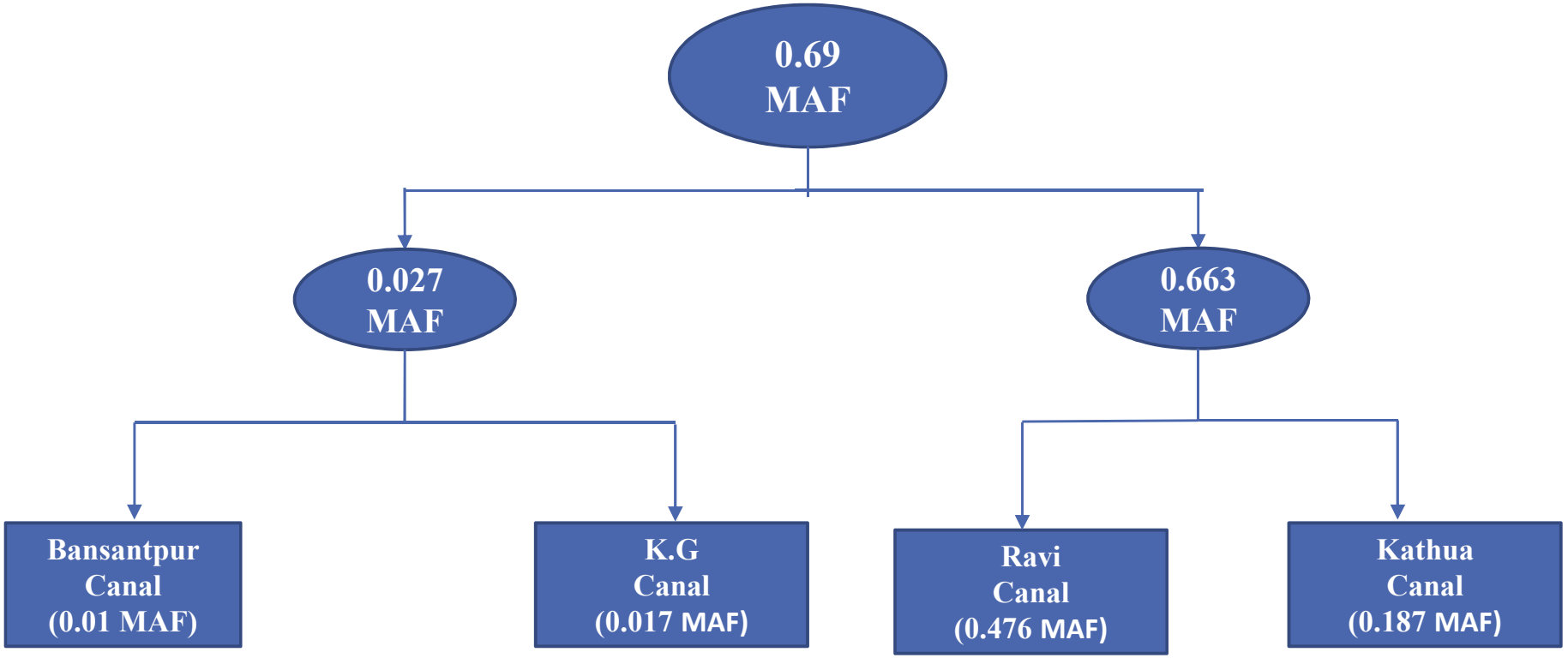
**2. POST-PARTITION - 0.69 MAF**

# 1. PRE-PARTITION UTILISATION OF RAVI WATER



# 2. POST-PARTITON UTILISATION

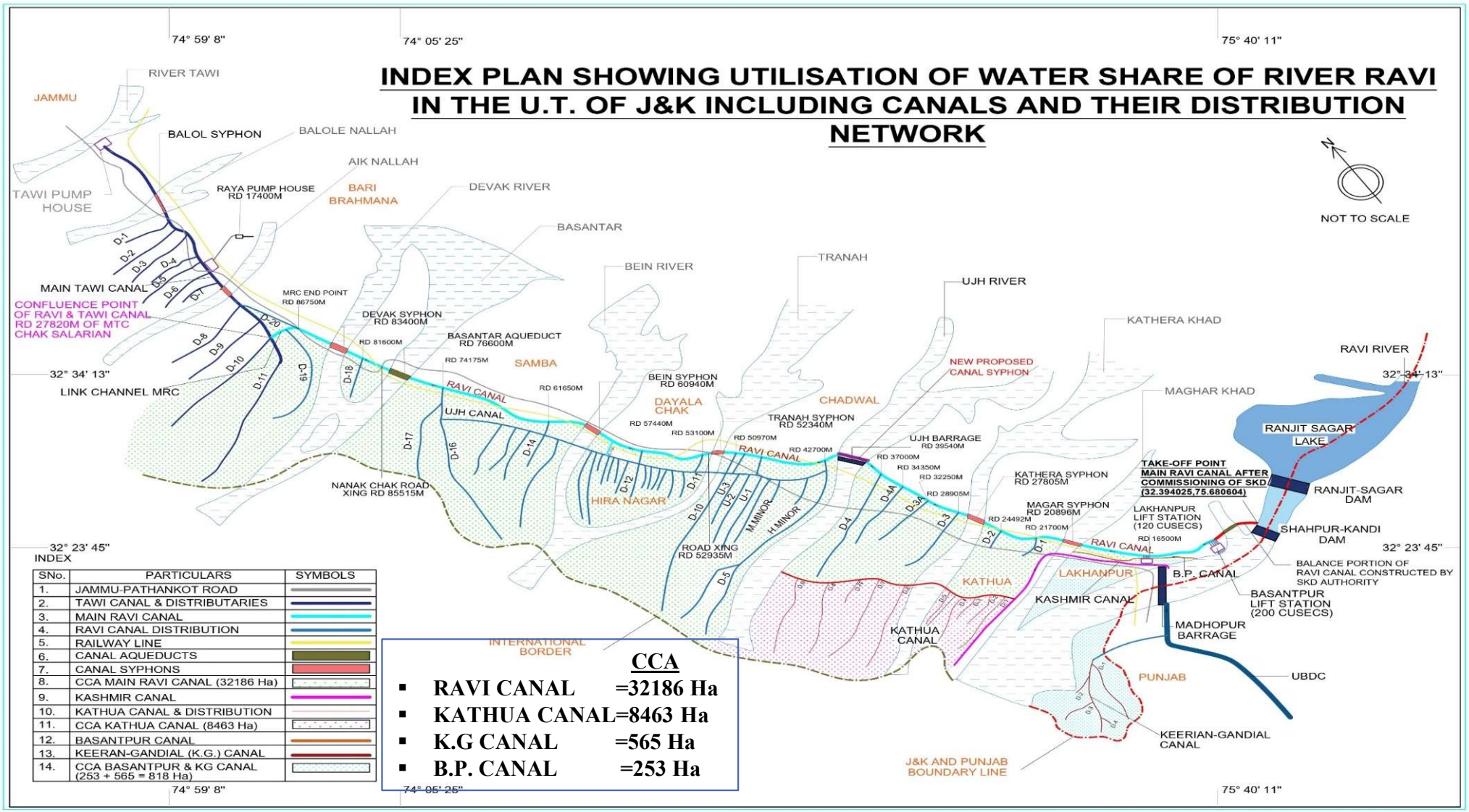
- **As per the Inter-State agreement, regarding Ravi- Beas river water utilization, a total of 0.69 MAF of Ravi river water including 0.04 MAF pre-partition utilization allocated to Jammu and Kashmir.**



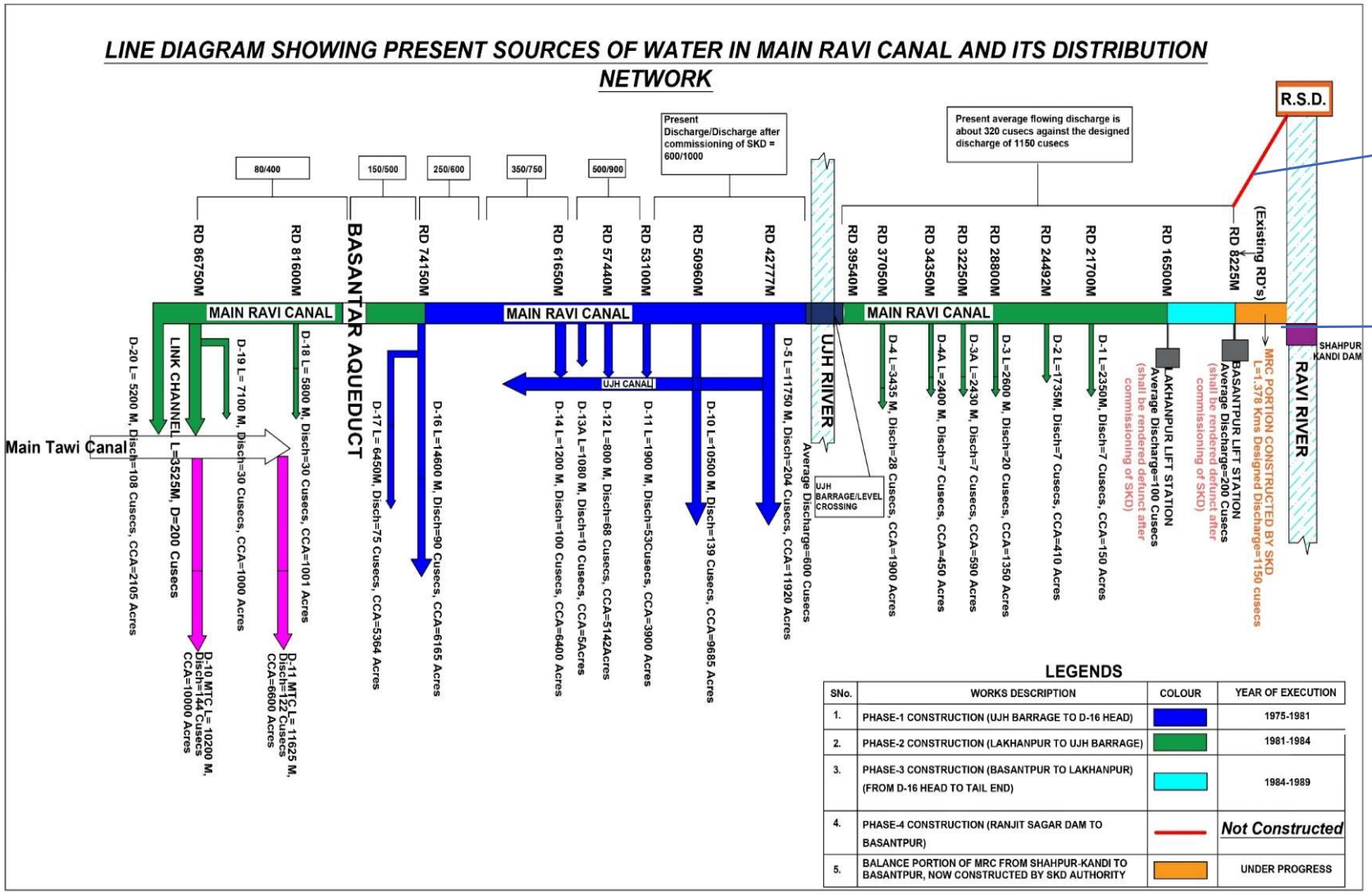
# PLANNED UTILISATION OF 0.69 MAF OF RAVI RIVER WATER IN VARIOUS CANALS (POST-PARTITION)

| Sl No | Name of the Canal | Water requirement | Headworks /Source of water | Year of commissioning | Remarks |
|---|---|---|---|---|---|
| 1. | Basantpur Canal | 0.01 MAF | Right bank of Ravi River | Pre-partition | |
| 2. | Keerian-Gandial Canal | 0.017 MAF | UBDC Canal on left bank of Ravi River | Pre-partition | |
| 3. | Kathua-Feeder Canal | 0.187 MAF | Kashmir Canal Chakundar Feeder (Right bank of Ravi river u/s Madhopur barrage) | 1962 | ▪ Pre-partition= 0.013 MAF<br>▪ Post-partition (additional)= 0.174 MAF<br>0.187 MAF |
| 4. | Ravi Canal | 0.476 MAF (at present 0.217 MAF is being utilized by lifting water-200 cusecs from Basantpur LIS and 100 cusecs from Lakhanpur LIS) | • Original envisaged take off point – tail race of power house on right bank d/s of Ranjit Sagar Dam.<br>• Present take off point-right bank upstream of Shahpur-Kandi Dam (likely to be commissioned shortly) | ▪ 1981- From Ujh Barrage to D-16 Head<br>▪ 1984- From Lakhanpur Lift station to Ujh Barrage and from D-16 head to Tail end.<br>▪ 1989- From Basantpur Lift station to Lakhanpur lift station. | • Due to termination of agreement by Punjab Govt. for supply of water from Ranjit Sagar Dam because of shifting of power house from right bank to left bank and pending construction of Shahpur-Kandi Dam. |

# INDEX PLAN SHOWING VARIOUS CANALS UTILISING RAVI WATER



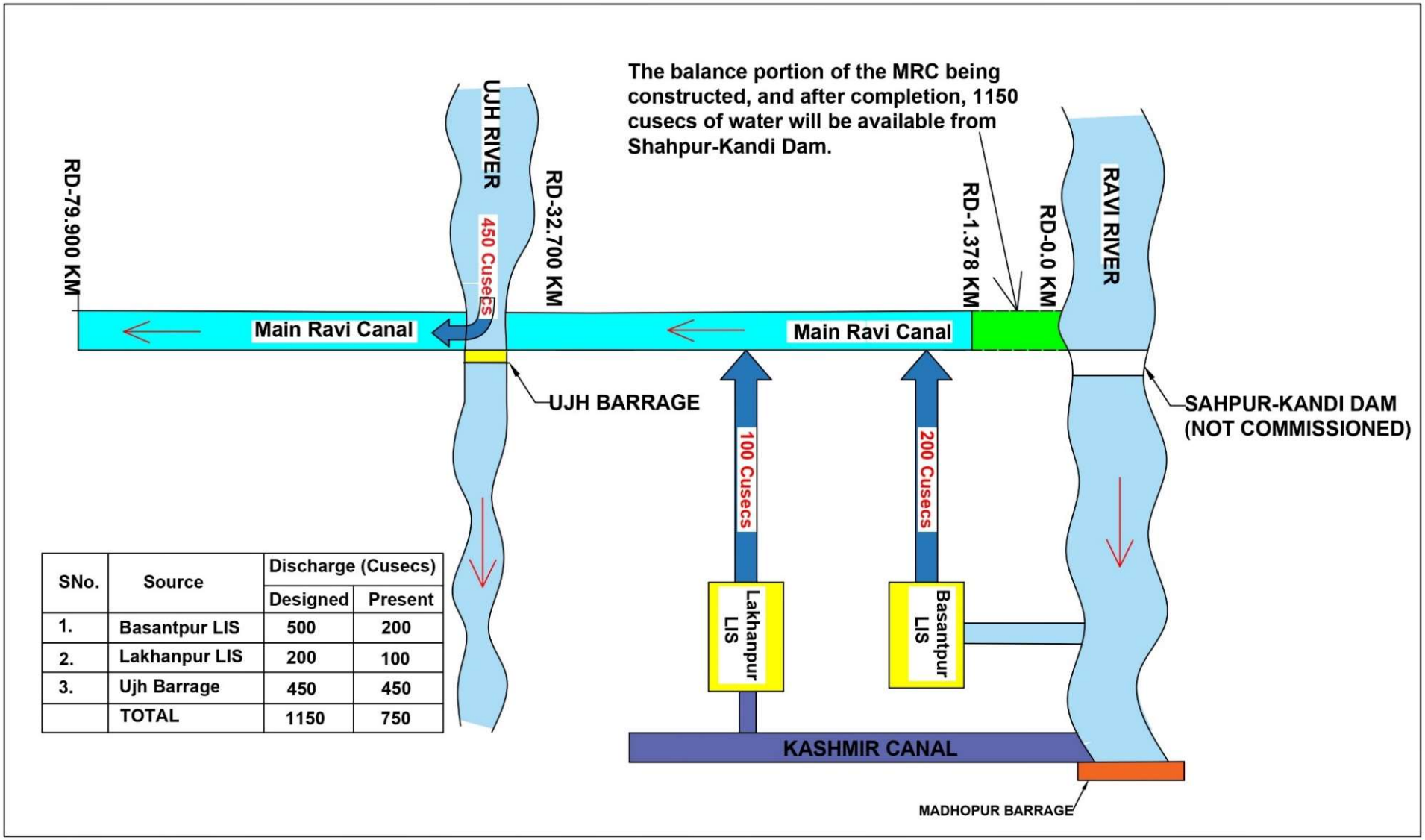
# LINE DIAGRAM SHOWING PHASE-WISE CONSTRUCTION OF EXISTING RAVI CANAL AND PRESENT SOURCES/PROPOSED SOURCE OF WATER IN RAVI CANAL AND ITS DISTRIBUTARIES




**Originally proposed from Ranjit Sagar Dam**

**Now, proposed from Shahpur-Kandi Dam as per agreement 1979**

# PRESENT SOURCES OF WATER IN RAVI CANAL IN ABSENCE OF NON AVAILABILITY OF WATER FROM RANJIT SAGAR DAM AND SHAHPUR-KANDI DAM

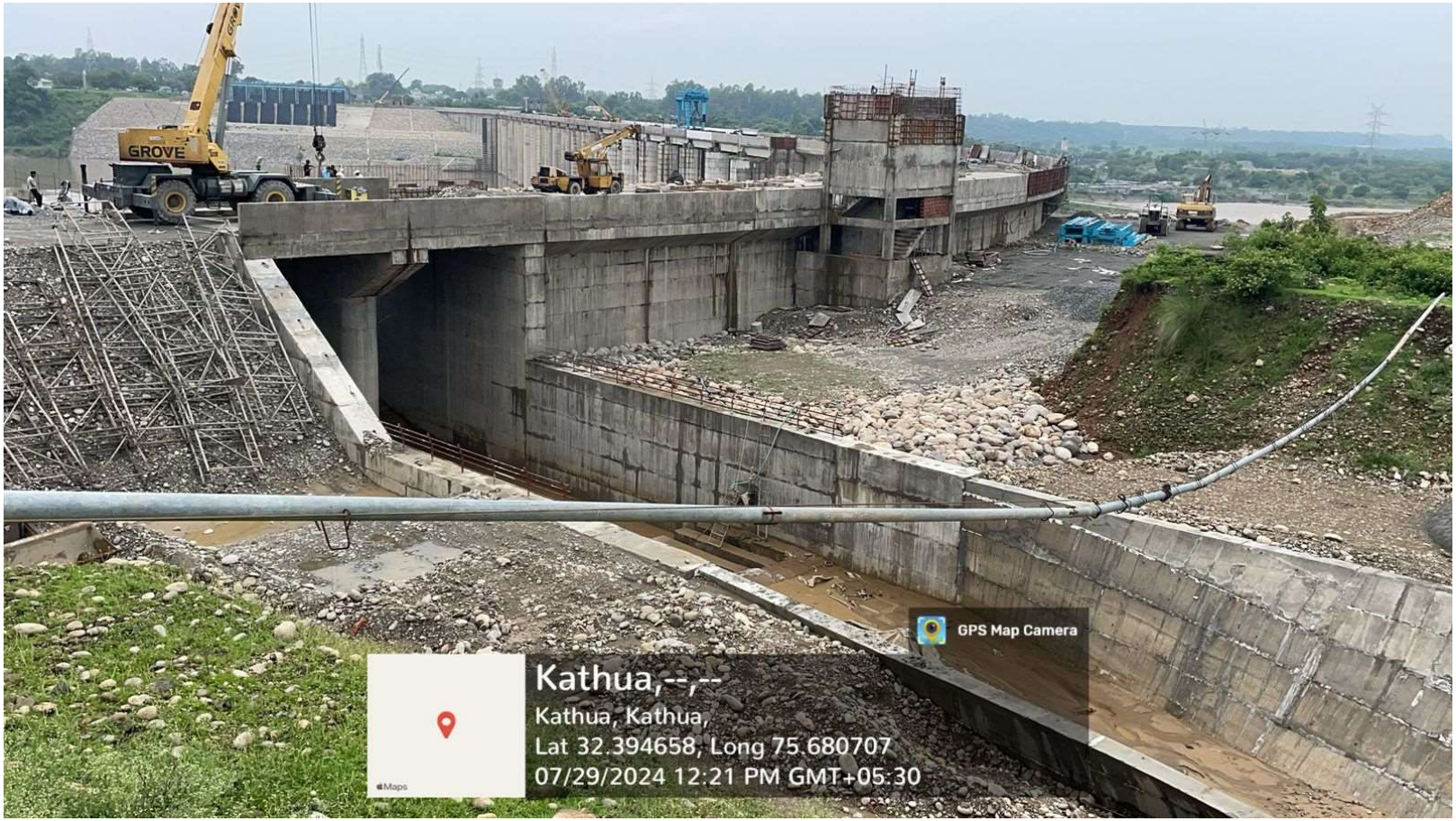



| SNo. | Source | Discharge (Cusecs) | |
|---|---|---|---|
| | | Designed | Present |
| 1. | Basantpur LIS | 500 | 200 |
| 2. | Lakhanpur LIS | 200 | 100 |
| 3. | Ujh Barrage | 450 | 450 |
| | TOTAL | 1150 | 750 |

# PRESENT STATUS OF ONGOING CONSTRUCTION OF BALANCE PORTION OF MAIN RAVI CANAL AND ITS COMPONENTS BEING CONSTRUCTED BY SHAHPUR-KANDI DAM AUTHORITY

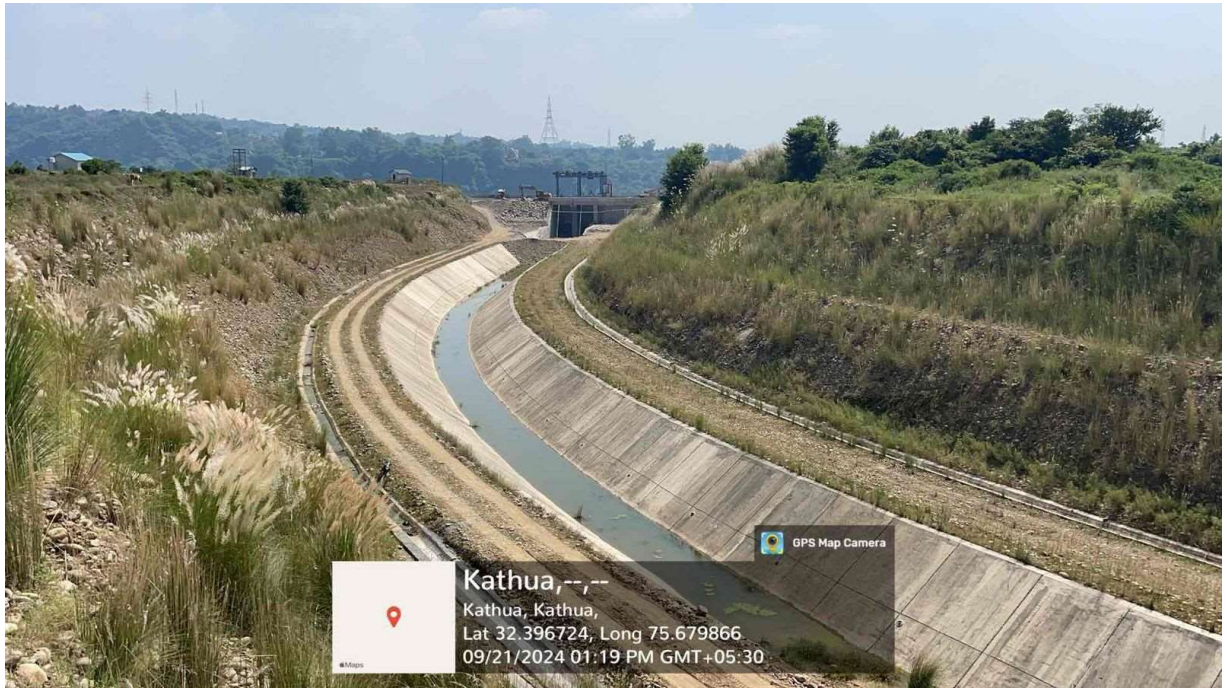
# SHAHPUR-KANDI DAM

# RAVI CANAL HEADWORKS-(COMPLETED)



# BALANCE PORTION OF MAIN RAVI CANAL FROM SHAHPUR-KANDI TO BASANTPUR

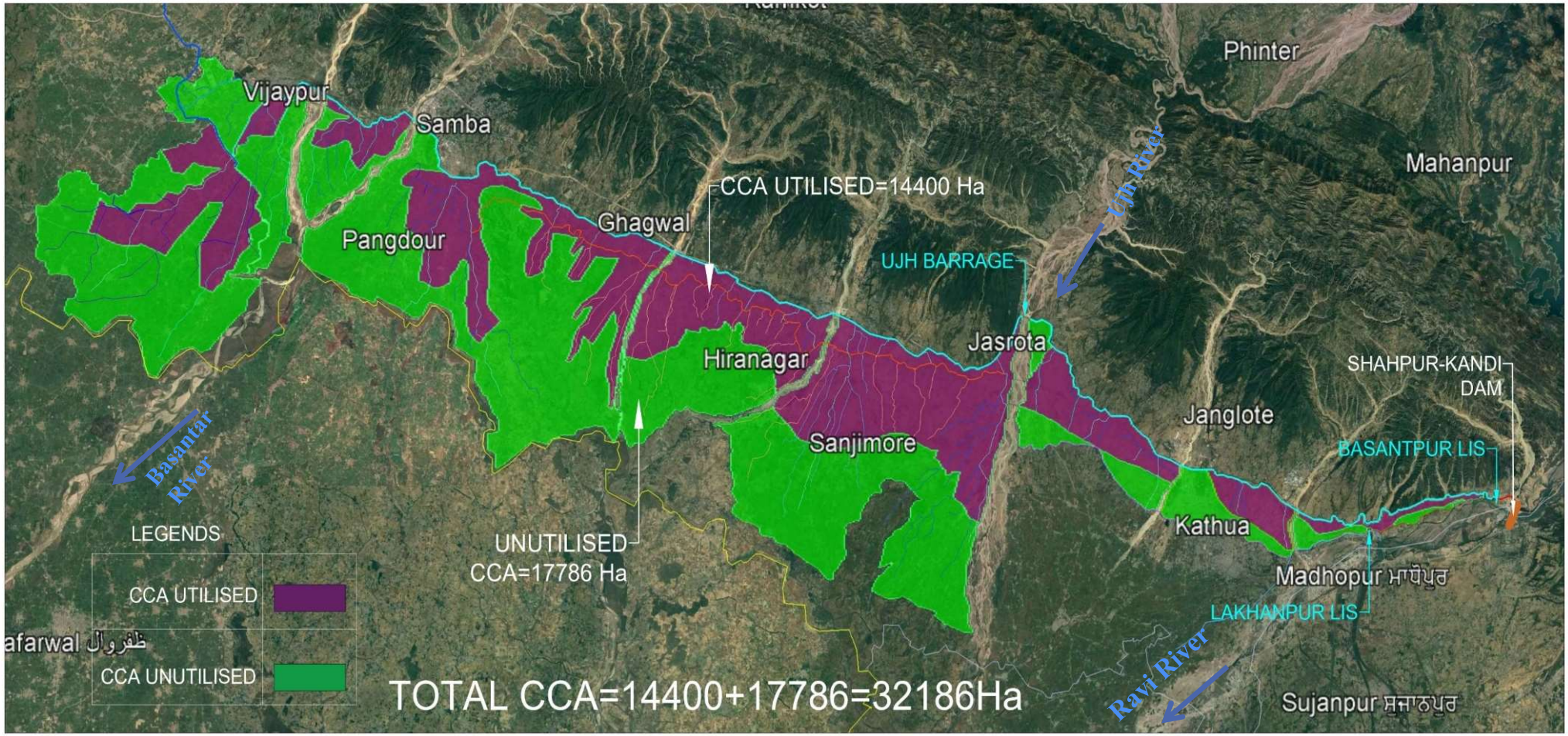
- **Total Length= 1.378 m**
  - **Main Canal=824.8m (Completed)**
  - **Aqueduct (In progress)**
    - **L1=304.20m**
    - **L2 (open trough) =72m**
    - **L3=177.00m**
- **Designed Discharge-1150 Cusecs**
- **Type of Canal- Lined Canal**



# CANAL AQUEDUCT-(IN PROGRESS)

# NECESSITY FOR IMPROVEMENT AND STRENGTHENING OF MAIN RAVI CANAL AND ITS DISTRIBUTION NETWORK

# PLAN SHOWING CCA AS PER ORIGINAL PROJECT AND CCA UTILISED



# PRESENT CONDITION AND DEFICIENCIES IN MAIN RAVI CANAL AND ITS DISTRIBUTION SYSTEM

## A. MAIN RAVI CANAL

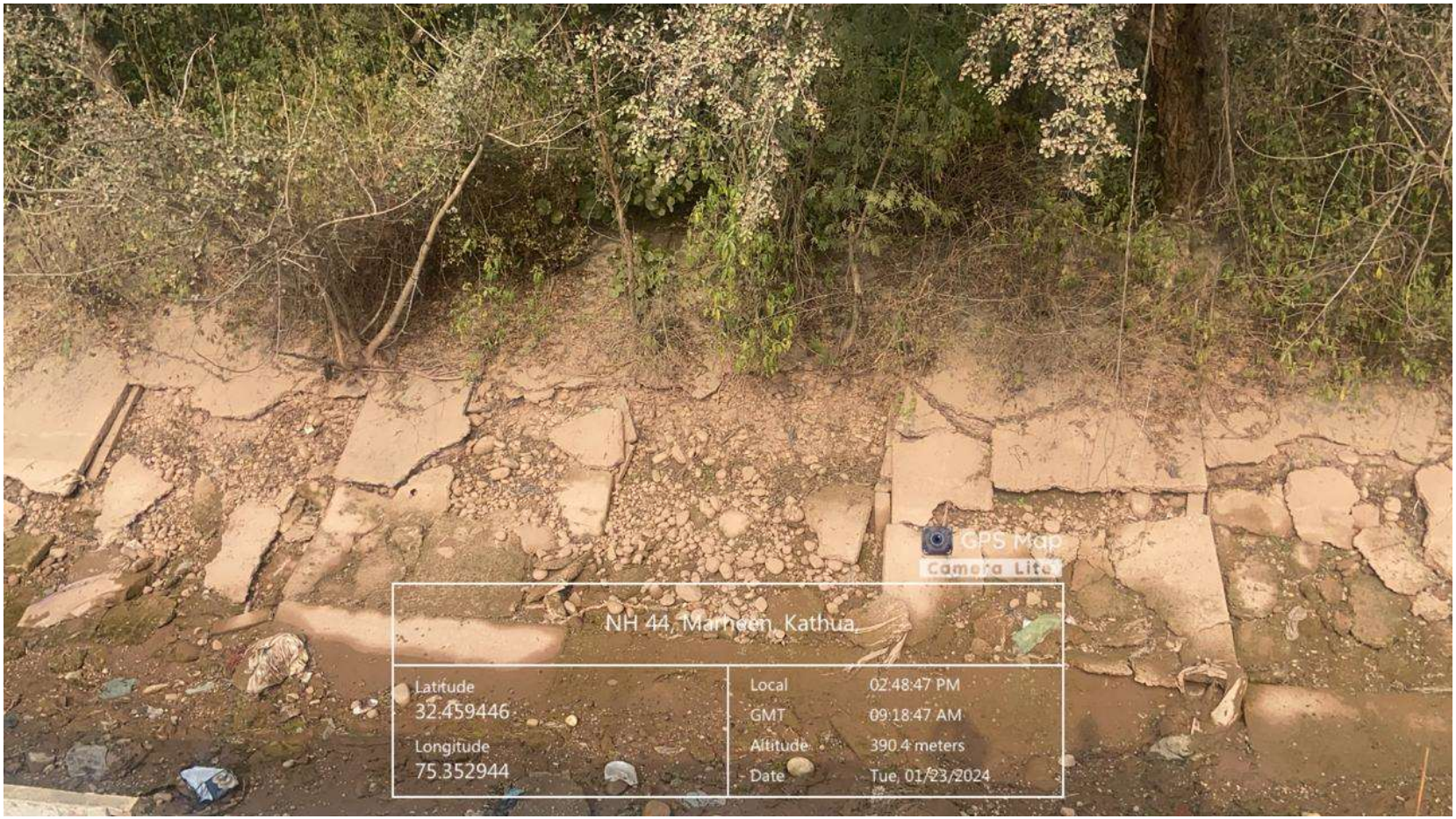
1. **Extensive growth of vegetation and plants inside the Canal**
2. **Damage to Canal Lining.**
3. **Damage of canal structures .**
4. **Approximately 12 km out of 31 km stretch of canal section from Basantpur to Ujh Barrage is in filling which is in bad shape and shall not be able to carry such a huge discharge of 1150 cusecs ( to be made available after commissioning of Shahpur-Kandi Dam) without its strengthening/improvement. *Pertinently, 31 km stretch of canal from Basantpur to Ujh, although designed for discharge of 1150 cusecs, has carried only 300-400 cusecs of discharge since its construction (during the year 1981-1989) due to non availability of desired quantity of water from Ranjit Sagar Dam and Shahpur-Kandi Dam and is being maintained accordingly.***
5. **As the water requirement in the command area of 2316 Ha falling between Basantpur and Ujh Barrage area is only 100 cusecs which is being carried through distributaries D-1 to D-4, it is as such imperative to construct a canal syphon to cross the river Ujh instead of the present system of level crossing so as to ensure uninterrupted supply of irrigation water to the extent of 1050 cusecs (1150–100) through the Main Ravi Canal downstream of the proposed syphon (even during floods in the river Ujh when the gates of barrage are opened which result in disruption of water supply in Ravi Canal) to cater huge CCA of 29870 ha(32186ha-2316ha ).**
6. **Requirement for extension of existing/ provision for additional distribution system of 10 Kms to cover left out command of Ravi Canal.**

**B. DISTRIBUTARIES AND MINORS**

1. **Extensive growth of vegetation and plants.**
2. **Damage to pitching and grouting**
3. **Distribution system is in bad shape resulting in reduction of its designed carrying capacity.**
4. **Due to limited water supply available from the present sources, most of the distributaries at tail end are lying defunct and therefore no maintenance work has been executed on them from the last so many years and in order to rejuvenate them, it is necessary to execute all the work in proposed ERM to ensure utilization of lost irrigation potential**
5. **Leakage of water due to poor condition of gates installed at take off point of various distributaries/minors which need replacement.**

# EXTENSIVE GROWTH OF VEGETATION AND PLANTS

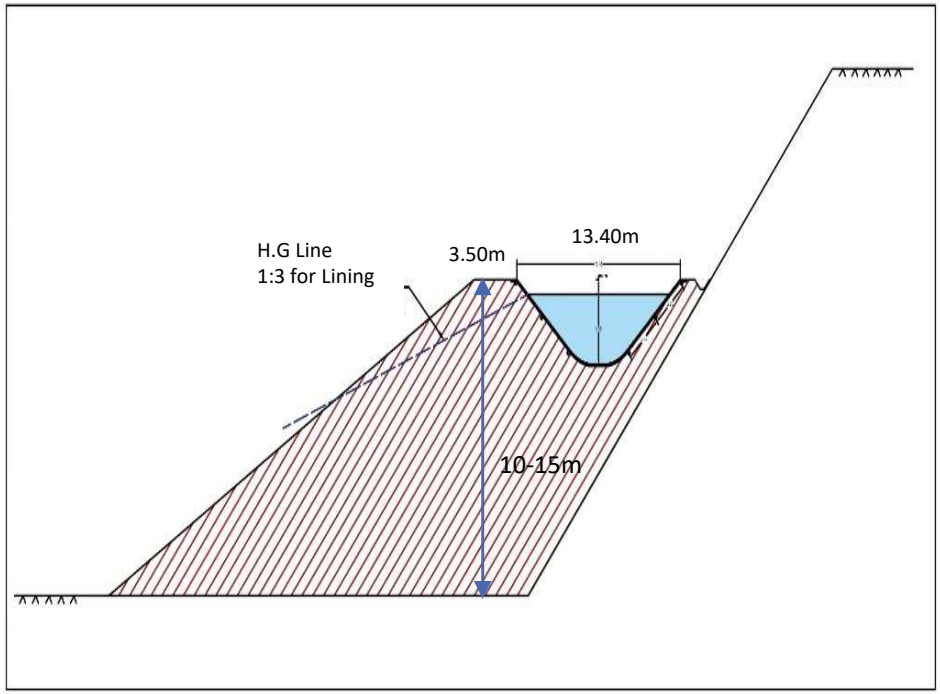
# DAMAGE TO CANAL LINING IN MRC



# RECURRENT BREACHES AND SLIPS

# MOST VULNERABLE CANAL SECTION OF MAIN RAVI CANAL FROM BASANTPUR-LAKHANPUR

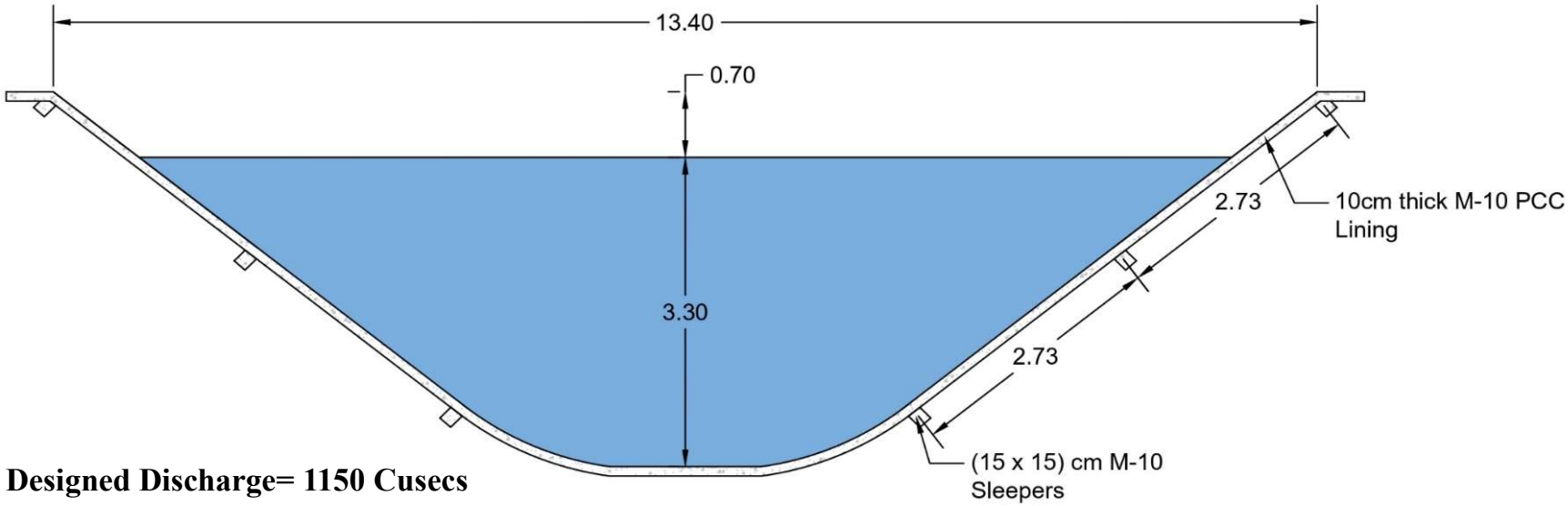
- **Main Ravi Canal from Basantpur to Ujh Barrage constructed in 1980's although designed for 1150 cusecs, has carried a maximum discharge of 300-400 cusecs since its construction and is therefore maintained accordingly.**
- **Approximately 12 km out of 31 km stretch of canal section from Basantpur is in high filling which is in extremely bad shape and shall not be able to carry full designed discharge of 1150 cusecs without strengthening and improvement.**



# POOR CONDITION OF DISTRIBUTARY SYSTEM



# CROSS-SECTION OF MAIN RAVI CANAL FOR DESIGNED DISCHARGE OF 1150 CUSECS




- **Designed Discharge= 1150 Cusecs**
- **Bed Grade=1 in 3300m**
- **Side Slope= 1 : 1.3**
- **Coeff of Rugosity= 0.018**

# DETAILED PROJECT REPORT
# FOR
# IMPROVEMENT AND STRENGTHENING OF MAIN RAVI CANAL AND ITS DISTRIBUTION NETWORK

# SALIENT FEATURES

| Name of the Project (DPR) | Improvement And Strengthening Of Main Ravi Canal And Its Distribution Network |
|---|---|
| Estimated Cost | Rs. 571.83 Cr |
| Benefit Cost Ratio | 2.40 |
| Districts Benefitted | 2 Nos (Kathua and Samba) |
| Tehsils Benefitted | 08 Nos (Kathua, Marheen, Hiranagar, Ghagwal, Rajpura, Samba, Vijaypur, Ramgarh) |
| Pre-project CCA utilized and Irrigation potential created | 14400 Ha (CCA)<br>23900 Ha (Irrigation Potential) |
| Post-project CCA utilized and Irrigation potential created | 32186 Ha (CCA)<br>54072 Ha (Ultimate Irrigation Potential) |
| Number of Beneficiaries | 7544 Farmers |

# GENERAL ABSTRACT OF WORK FOR VARIOUS COMPONENTS OF CANAL IN NEW ERM DPR

| Particulars | Total Length/ Nos | Length/ Nos to be modernized |
|---|---|---|
| **MAIN CANAL** | | |
| Main Ravi Canal | 79.800 Kms | 44.380 Kms |
| Syphons | 46 Nos | 27 Nos |
| Aqueducts | 09 Nos | 08 Nos |
| Escapes | 10 Nos | 06 Nos |
| Falls | 01 No | Nil |
| **DISTRIBUTION NETWORK** | | |
| Distributaries and minors | 520.00 Kms | 251.159 Kms |
| Syphons | 32 Nos | 25 Nos |
| Aqueducts | 32 Nos | 23 Nos |
| Escapes | 05 Nos | 03 Nos |
| Falls | 661 Nos | 405 Nos |

# GENERAL ABSTRACT OF COST OF THE DETAILED PROJECT REPORT

| S.No | Head of Classification/Name of Sub-Head Activity | Cost as per Estimates (Rs in lacs) |
|---|---|---|
| 1 | 2 | 3 |
| | A-DIRECT COST: | |
| | I-WORKS: | |
| 1 | A – PRELIMINARY | 104.00 |
| 2 | B – LAND | 2803.33 |
| 3 | C – HEAD WORKS | 0 |
| 4 | D – REGULATION & MEASURING DEVICES | 552.74 |
| 5 | E – FALLS | 0 |
| 6 | F – CROSS DRAINAGE WORKS | 6548.51 |
| 7 | G – BRIDGES | 429.52 |
| 8 | H – ESCAPES | 436.84 |
| 9 | I – NAVIGATION WORKS | 0 |
| 10 | J – POWER PLANT CIVIL WORKS | 0 |

# GENERAL ABSTRACT OF COST OF THE DETAILED PROJECT REPORT

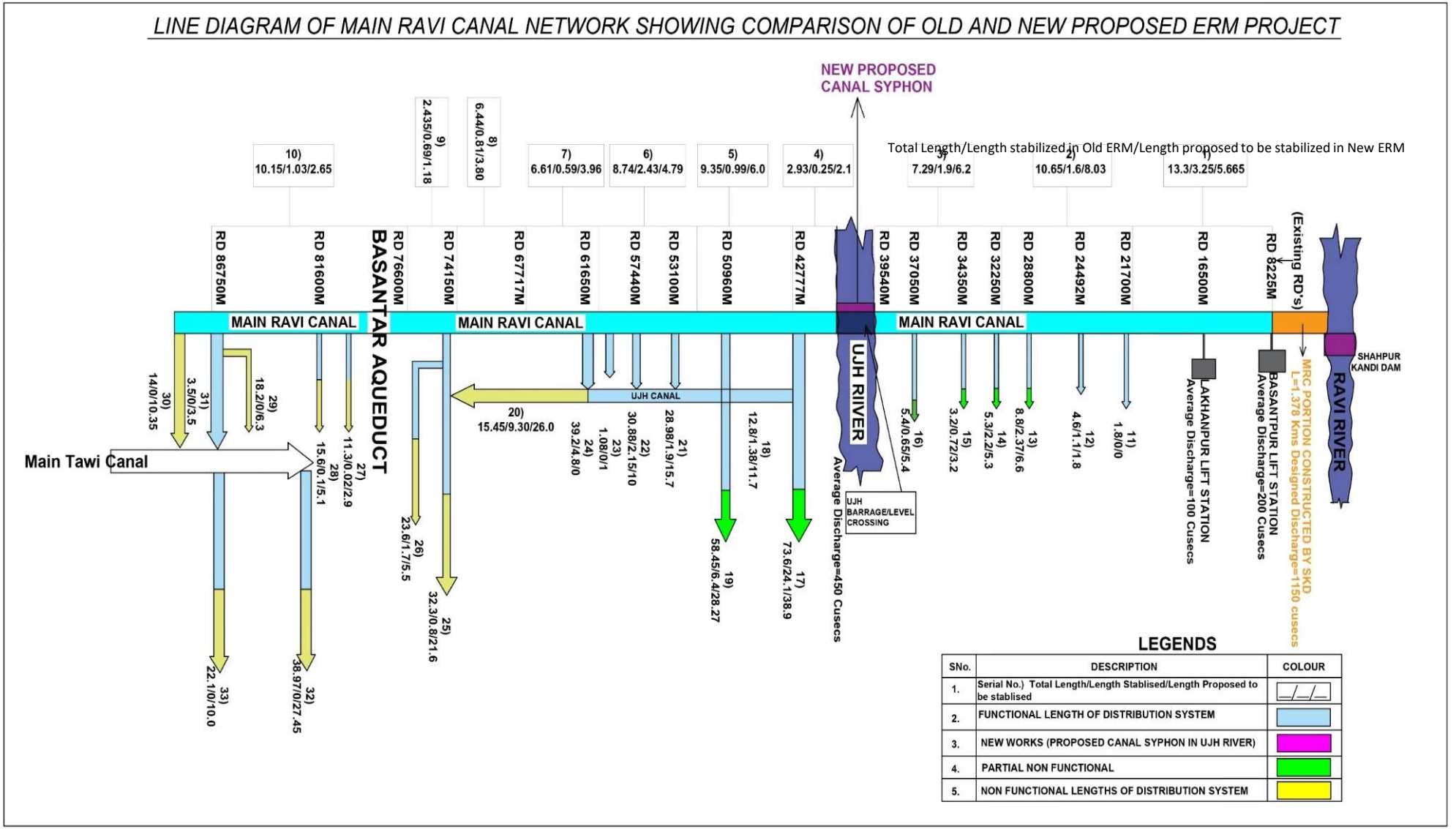
| | | |
|---|---|---|
| 11 | K – BUILDINGS | 808.44 |
| 12 | L – CANALS | 17232.86 |
| 13 | M – PLANTATION | 38.00 |
| 14 | N – TANKS AND RESERVOIRS | 0 |
| 15 | O – MISCELLENOUS | 541.60 |
| 16 | P – MANITENANCE DURING CONSTRUCTION | 414.100 |
| 17 | Q – SPECIAL TOOLS & PLANTS | 77.25 |
| 18 | R – COMMUNICATION | 3770.14 |
| 19 | S – POWER PLANT & ELECTRICAL SYSTEM | 0 |
| 20 | T – WATER SUPPLY WORKS | 0 |
| 21 | U – DISTRIBUTORY AND MINOR: | 11494.234 |
| | REMODELLING OF EXISTING DISTRIBUTORIES, MINORS & SUB-MINORS | |
| | (i) NEW WORKS | 0 |
| | V – WATER COURSE & FIELD CHANNELS | 98.87 |
| 22 | W – DRAINAGE (ANTI-WATER LOGGING CHANNELS) | 0 |

# GENERAL ABSTRACT OF COST OF THE DETAILED PROJECT REPORT

| | | |
|---|---|---|
| 23 | X – ENVIRONMENT AND ECOLOGY | 0 |
| 24 | Y – LOSSES ON STOCK & UNFORESEEN | 103.525 |
| 25 | MECHANICAL PART (MACHINERY) | 0 |
| | TOTAL (I-Works): | 45453.949 |
| | | |
| | II- ESTABLISHMENT | 4265.062 |
| | III- TOOLS & PLANTS (ORDINARY) | 454.539 |
| | IV- SUSPENSE | 0 |
| | V- RECEIPT AND RECOVERIES | -27.13 |
| | Total A = | 50146.421 |
| | B – INDIRECT COST: | 4.00 |
| | I- CAPITALISED VALUE OF ABATMENT OF LAND REVENUE | |
| | II- AUDIT & ACCOUNT CHARGES | 454.539 |
| | Total B = | 458.54 |
| | TOTAL (A+B): | 50604.96 |
| | Add (10%) for price escalation and 3% for physical contingencies | 6578.645 |
| | G.Total: | 57183.61 |
| | Say | 571.83 Cr |

# COMPARISON OF WORKS TAKEN UP IN OLD ERM (AIBP-2010) AND THOSE PROPOSED IN NEW ERM PROJECT

# LINE DIAGRAM SHOWING COMPARISON OF WORKS



# ABSTRACT OF LENGTHS OF MAIN CANAL/DISTRIBUTARIES COVERED IN OLD ERM (AIBP-2010) AND IN NEW ERM PROJECT

| Sno. | Name of the Canal | Original Length | Length Stabilized in ERM (AIBP)-2010 | Length Proposed to be stabilized in New ERM | Remarks |
|---|---|---|---|---|---|
| **MAIN RAVI CANAL** | | | | | |
| 1. | Main Ravi Canal RD 8225-86750M | 77.92 Kms | 13.55 Kms | 44.38 Kms | Mostly canal section in filling has been kept in the proposal for strengthening |
| **DISTRIBUTARIES AND MINORS** | | | | | |
| 2. | Distributaries and Minor | 515.280 Kms | 64.923 Kms | 251.691 Kms | Most network of distributaries and minors in tail reaches has been lying defunct due to non availability of adequate water |

# LENGHTS OF MAIN CANAL/DISTRIBUTARY/MINOR COVERED IN OLD ERM (AIBP-2010) AND IN NEW ERM PROJECT

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Main Ravi Canal RD 8225-21600M | 1150 | - | 13.3 | 3.25 | 5.665 | |
| 2 | Main Ravi Canal RD 21600-32250M | 1150 | - | 10.65 | 1.6 | 8.035 | |
| 3 | Main Ravi Canal RD 32250-39540M | 1150 | - | 7.29 | 1.9 | 6.2 | |
| 4 | Main Ravi Canal RD 40069-43000M | 1000 | - | 2.931 | 0.25 | 2.1 | |
| 5 | Main Ravi Canal RD 43000-52350M | 1000 | - | 9.35 | 0.992 | 6 | |
| 6 | Main Ravi Canal RD 52350-61104M | 900 | - | 8.754 | 2.434 | 4.79 | |
| 7 | Main Ravi Canal RD 61104-67717M | 750 | - | 6.613 | 0.593 | 3.96 | |
| 8 | Main Ravi Canal RD 67717-74165M | 750 | - | 6.448 | 0.813 | 3.8 | |
| 9 | Main Ravi Canal RD 74165-76600M | 500 | - | 2.435 | 0.69 | 1.175 | |
| 10 | Main Ravi Canal RD 76600-86750M | 400 | - | 10.15 | 1.027 | 2.65 | |
| | Total of Main Ravi Canal from Direct outlet | | 110 | 77.92 | 13.55 | 44.38 | 110 Acres CCA of Direct outlet |

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 11 | Distributary D-1 of MRC | 7 | 150 | 2.35 | 0.000 | 0 | |
| 12 | Distributary D-2 of MRC | 7 | 410 | 1.8 | 0 | 0 | |
| a | Minor 1st of D-2 | 2 | | 1.4 | 1.1 | 0.4 | |
| b | Minor 2nd of D-2 | 2 | | 1.4 | 0 | 1.4 | |
| | Total | | | 4.6 | 1.1 | 1.8 | |
| 13 | Distributary D-3 of MRC | 20 | 1350 | 2.6 | 0.87 | 2.6 | |
| a | Minor 1st of D-3 | 6 | | 2.4 | 1 | 2.4 | |
| b | Minor 2nd of D-3 | 6 | | 1 | 0.5 | 1 | |
| c | Minor 3rd of D-3 | 3 | | 0.6 | 0 | 0.6 | |
| d | S-M 1st of M-1 of D-3 | 3 | | 0.8 | 0 | 0 | |
| e | S-M 1st of M-2 of D-3 | 1 | | 0.7 | 0 | 0 | |
| f | S-M 2nd of M-2 of D-3 | 1 | | 0.7 | 0 | 0 | |
| | Total | | | 8.8 | 2.37 | 6.6 | |
| 14 | Distributary D-3A of MRC | 7 | 590 | 2.43 | 1 | 2.43 | |
| a | Minor 1st of D-3A | 2 | | 1.5 | 0.7 | 1.5 | |
| b | Minor 2nd of D-3A | 2.5 | | 0.875 | 0.3 | 0.875 | |
| c | Minor 3rd of D-3A | 1 | | 0.525 | 0.2 | 0.525 | |
| | Total | | | 5.33 | 2.2 | 5.33 | |

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 15 | Distributary D-4A of MRC | 7 | 450 | 2.4 | 0.42 | 2.4 | |
| a | Minor 1st of D-4A | 1 | | 0.875 | 0.3 | 0.8 | |
| | Total | | | 3.275 | 0.72 | 3.2 | |
| 16 | Distributary D-4 of MRC | 28 | 1900 | 5.4 | 0.65 | 5.4 | |
| 17 | Distributary D-5 of MRC | 204 | 11920 | 11.45 | 5 | 6.4 | |
| a | Minor 1st of D-5 | 16 | | 5.2 | 1.35 | 2.7 | |
| b | SM-1st of M-1 of D-5 | 6 | | 1.35 | 0.26 | 1.35 | |
| c | Minor 2nd of D-5 | 42 | | 9.25 | 3.5 | 6.25 | |
| d | SM-1 of M-2 of D-5 | 6.7 | | 4.11 | 1 | 1.1 | |
| e | SM-2 of M-2 of D-5 | 9 | | 6 | 2 | 1.5 | |
| f | SM-3 of M-2 of D-5 | 8.4 | | 4.6 | 1.9 | 4 | |
| g | Minor 3rd of D-5 | 47 | | 9.9 | 3 | 6.9 | |
| h | SM-1 of M-3 of D-5 | 8.82 | | 5 | 1.8 | 3 | |
| i | SM-2 of M-3 of D-5 | 8.4 | | 2.47 | 0.5 | 2.47 | |
| j | SM-3 of M-3 of D-5 | 8.5 | | 2.89 | 1.35 | 0.89 | |
| k | Minor 4th of D-5 | 8 | | 4.9 | 1.79 | 2.4 | |
| l | SM-1 of M-4 of D-5 | | | 2.5 | | | |
| m | Minor 5 of D-5 | | | 4 | | | |
| | Total | | | 73.62 | 24.1 | 38.96 | |

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 18 | Ujh Canal | | 550 | 4.2 | 0.37 | 4.2 | |
| a | Hamirpur Minor | 20 | | 4 | 0.58 | 3.5 | |
| b | Mangtian Minor | 12 | | 4.6 | 0.43 | 4 | |
| | Total | | | 12.8 | 1.38 | 11.7 | |
| | Total | | 17320 | 127.625 | 37.52 | 79.39 | |
| 19 | D-10 of MRC & its distribution network. | | | | | | |
| a | D-10 | 139 | 9685 | 10.50 | 1.919 | 7 | |
| b | Minor-1 of D-10 | 8 | | 1.50 | 0.7 | 0.34 | |
| c | SM-I of M-I | 7 | | 2.90 | 0.374 | 0.8 | |
| d | Minor-2 of D-10 | 23 | | 6.25 | 0.66 | 3.6 | |
| e | S.M-I of M-2 | 9 | | 6.21 | 0.807 | 2 | |
| g | Minor-3 of D-10 | 19 | | 5.97 | 0.303 | 0.85 | |
| h | S.M-1 of M-3 | 14 | | 3.25 | 0.6 | 1.02 | |
| i | S.M-2 of M-3 | 12 | | 3.00 | 0 | 0.79 | |
| j | Minor-4 of D-10 | 8 | | 1.37 | 0 | 1.37 | |
| k | Minor-5 of D-10 | 8 | | 3.00 | 0 | 3 | |
| l | U-5 of D-10 | 18 | 1524 | 8.80 | 1.05 | 5.15 | |
| m | SM-2 of U-5 | 6 | | 5.70 | 0 | 1.85 | |
| | Total | | 11209 | 58.45 | 6.413 | 27.77 | |
| 20 | Ujh Canal | | | | | | |
| i | RD 4200-9675 | | | 5.425 | 3.16 | 4.49 | |
| ii | RD 9675-12200 | | | 2.525 | 0.44 | | |
| iii | RD 12200-23900 | | | 11.7 | 2.4 | 4.388 | |

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| iv | RD 0-6200* start from 0 downstream Bein Nallah | | | 6.2 | 0.5 | 3.78 | |
| v | RD 6200-12200 | | | 6 | 0.5 | 4.388 | |
| b | U-I of Ujh Canal | 9 | 650 | 5.00 | 0.5 | 2.95 | |
| c | U-2 of ujh canal | 10 | 700 | 4.30 | 0.7 | 2.2 | |
| d | U-3 of Ujh Canal | 9 | 630 | 5.00 | 1.1 | 2.75 | |
| e | Seswan Link Channel | 14 | 0 | 1.15 | 0 | 1.1 | |
| | Total | | 1980 | 47.3 | 9.3 | 26.046 | |
| 21 | D-11 of MRC & Its Distribution network | | | | | | |
| a | D-11 | 3/53 | | 1.90 | 0.04 | 0.9 | |
| b | R/S Minor of D-11 | 2 | | 0.35 | 0 | 0 | |
| c | Pathwal Minor of D-11 | 2.50 | | 1.15 | 0 | 1 | |
| d | Rattan Chak-Ballian Disty of Ujh Canal. | 10 | | 6.65 | 0.3 | 5.5 | |
| e | Hiranagar Disty of Ujh Canal(U-6)and karara minor | 8 | | 4.20 | 0.292 | 3.86 | |
| f | Chejerth Disty of Ujh Canal. | 2 | | 1.10 | 0.112 | 1 | |
| g | Tarangoli Disty of Ujh Canal | 2.50 | 3900 | 1.32 | 0.12 | 0.5 | |
| h | Pheruchak Disty of Ujh Canal | 2 | | 1.00 | 0.364 | 0.5 | |
| i | Jawalachak Disty of Ujh Canal | 3 | | 2.00 | 0 | 0.5 | |
| j | Arjunchak-sanyal Disty of Ujh Canal and Thutha chak minor | 9 | | 4.20 | 0.328 | 2 | |
| k | D.O.lets on Main Ujh Canal RD 12200-19750m | 12 | | 3.11 | 0.05 | 0 | |
| j | Patyari D.O.let | 3 | | 2.00 | 0.318 | 0 | |
| | Total | | 3900 | 28.98 | 1.924 | 15.76 | |

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 22 | D-12 of MRC & its distribution Network. | | | | | | |
| a | D-12 | 3/68 | | 0.80 | 0 | 0 | |
| b | Gurah Mehtian-Bassi jamwal Disty of Ujh Canal | 4 | | 1.80 | 0 | 0.5 | |
| c | Chapper Disty of Ujh Canal | 2 | | 1.90 | 0.14 | 0.5 | |
| d | Chhan Moarian disty of Ujh Canal | 4 | | 1.80 | 0.221 | 0.5 | |
| F | Sukhuchak-Banechak Disty | 16 | 5142 | 5.50 | 0.112 | 3 | |
| g | Londi Disty (U-8) | 28 | | 7.50 | 1.365 | 3.5 | |
| h | R/S Minor of Londi disty | 7 | | 3.00 | 0 | 1 | |
| i | D.O.lets on Ujh canal | 4 | | 6.50 | 0 | 0 | |
| k | Paryani D.O.let | 8 | | 1.00 | 0.318 | 0 | |
| | Total | | | 29.80 | 2.156 | 9 | |
| 23 | D-13-A of MRC | | | 1.08 | 0 | 1 | |
| | Total (A) | | 22231 | 165.61 | 19.793 | 79.576 | |
| | DISTT. SAMBA | | | | | | |
| 24 | D-14 of MRC & its distribution Network. | | | | | | |
| a | D-14 of MRC | 100 | | 1.20 | 0 | 0 | |
| b | Raghuchak Disty of Ujh Canal | 29 | | 6.80 | 0.677 | 0 | |
| c | Rajpura Minor | 16 | | 5.86 | 1.271 | 0 | |
| d | Rakh Rajpura Sub-Minor | 3 | | 2.10 | 0.129 | 0 | |
| e | Jarian Minor | 10 | | 6.70 | 1.053 | 0 | |
| f | Malani Sub-Minor of jarian minor | 3 | 6400 | 2.10 | 0.312 | 0 | |
| g | Randwal Minor of Ujh Canal | 6 | | 0.76 | 0.04 | 0 | |
| h | Sanoora Disty of Ujh canal | 3 | | 2.80 | 0 | 0 | |
| i | Paloona Minor of Ujh Canal | 3 | | 1.40 | 0.2 | 0 | |
| j | Badyal Minor of Sanoora Disty | 6 | | 1.85 | 0.47 | 0 | |
| k | Naran Disty of Ujh Canal | 4 | | 2.70 | 0.195 | 0 | |
| l | Kharara Minor of Naran disty | 5 | | 5.00 | 0.534 | 0 | |
| | Total | | 6400 | 39.27 | 4.881 | 0 | |

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 25 | D-16 of MRC & its distribution Network. | | | | | | |
| a | D-16 of MRC | 90 | 6165 | 14.60 | 0.263 | 10.314 | |
| b | Panjtilla Minor-I | 14 | | 3.80 | 0.51 | 0.5 | |
| c | Minor-II | | | | | | |
| d | Sadho Minor of D-16 | 6 | | 3.50 | 0 | 3 | |
| e | Manguchak Minor | 23 | | 6.90 | 0.07 | 4.8 | |
| f | Regal Minor | 3 | | 3.50 | 0 | 3 | |
| | Total | | 6165 | 32.3 | 0.843 | 21.614 | |
| 26 | D-17 of MRC & its distribution Network. | | | | | | |
| a | D-17 | 75 | 5364 | 6.45 | 1.11 | 3.986 | |
| b | Minor-I of D-17 | 13.5 | | 6.45 | 0.236 | 0 | |
| c | S.M 1 of M-I of D-17 | 7 | | 0.50 | 0 | 0 | |
| d | S.M 1A of M-I of D-17 | 2.5 | | 0.60 | 0 | 0 | |
| e | S.M-2 of M-I of D-17 | 10 | | 1.25 | 0 | 0 | |
| f | Minor-2 of D-17 | 2 | | 1.50 | 0 | 0.5 | |
| g | Minor-3 of D-17 | 13 | | 5.40 | 0.335 | 0.5 | |
| h | Minor-4 of D-17 | 10 | | 1.50 | 0 | 0.5 | |
| | Total | | 5364 | 23.65 | 1.681 | 5.486 | |
| 9 | D.O.lets on MRC | | | | | | |
| a | Taryal D.O.let | 3 | | 0.9 | 0.08 | 0 | |
| b | Jasath D.O.let | 3 | | 0.9 | 0 | 0 | |
| c | Naran link Channel | 8 | | 1.2 | 0 | 0 | |
| d | Pump Sets | 10 | | | 0 | 0 | |
| | Total | | 0 | 3 | 0.08 | 0 | |
| | Total (B) | | 17929 | 98.22 | 7.485 | 27.1 | |
| | G.Total (A+B) | | 40160 | 263.83 | 27.278 | 106.676 | |

| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 27 | DOL MRC RD 76600-86750M | | | | | | |
| a | DOL Nanak Chak | 6 | 140 | 1.1 | 0 | 0.4 | |
| b | DOLBadheri | 5 | 90 | 0.585 | 0 | 0 | |
| c | DOL Bara | 6 | | 0.8 | 0 | 0 | |
| d | DOL Vijaypur | 6 | | 2 | 0 | 0 | |
| e | D-1 Old Basantar Canal | 10 | 415 | 3.325 | 0.025 | 1.5 | |
| f | D-2 Old Basantar Canal | 10 | 300 | 3.525 | 0 | 1 | |
| | Total | | | 11.335 | 0.025 | 2.9 | |
| 28 | D-18 of MRC | 30 | 1000 | 5.8 | 0.1 | 1.722 | |
| a | Minor 2nd of D-18 | 4.5 | | 2.4 | 0 | 0 | |
| b | Minor 3rd of D-18 | 5 | | 3.2 | 0 | 1.378 | |
| c | Minor 4th of D-18 | 3 | | 4.2 | 0 | 2 | |
| | Total | | | 15.6 | 0.1 | 5.1 | |
| 29 | D-19 of MRC | 30 | 1000 | 7.12 | 0 | 2 | |
| a | Minor 1st of D-19 | 5 | | 3.9 | 0 | 1.3 | |
| b | Minor 2nd of D-19 | 4 | | 3.2 | 0 | 1.5 | |
| c | Minor 3rd of D-19 | 3 | | 1.5 | 0 | 1.5 | |
| d | Minor 4th of D-19 | 4 | | 2.5 | 0 | 0 | |
| | Total | | | 18.22 | 0 | 6.3 | |
| 30 | D-20 of MRC | 108 | 1465 | 5.2 | 0 | 5.2 | |
| a | Gurwal Minor of D-20 | 10 | | 3.8 | 0 | 3.5 | |
| b | Kaka Dabuj Minor of D-20 | 3 | | 1.8 | 0 | 0.8 | |
| c | Dabuj Shehzada Minor of D-20 | 3 | | 2 | 0 | 0 | |
| d | Rarra Minor of D-20 | 6 | | 1.25 | 0 | 0.85 | |
| | Total | | | 14.05 | 0 | 10.35 | |
| 31 | Link Channel of MRC | 200 | 700 | 3.525 | 0 | 3.525 | |
| | Total | | 5110 | 62.73 | 0.125 | 28.175 | |

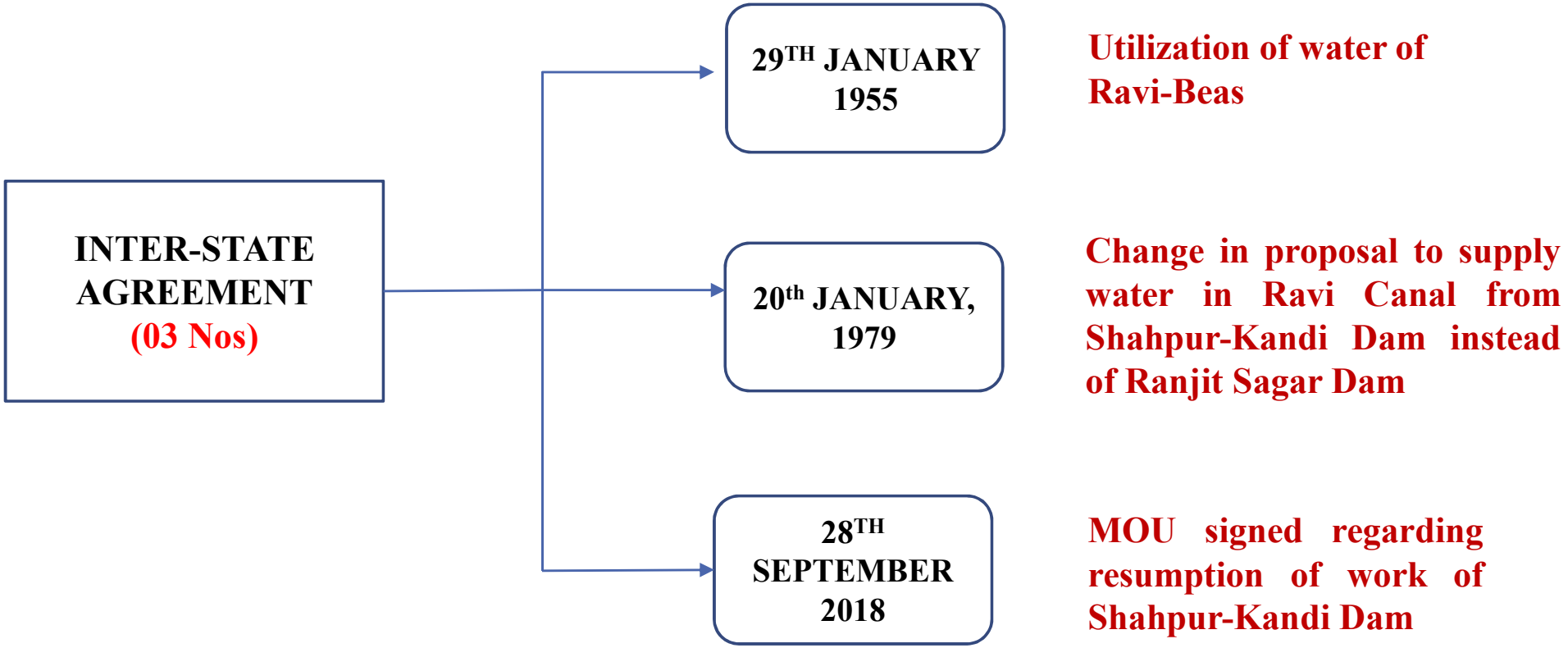
| Sno | Name of the Canal | Discharge in Cusecs | CCA in Acres | Total Length in Kms | Length Stablised in AIBP 2010-2021 | Length proposed to be stablised | Remarks |
|---|---|---|---|---|---|---|---|
| 32 | Distributary D-10 of MTC | 144 | 10200 | 11.2 | 0 | 6.7 | |
| | Jugwal Minor of D-10 | 30 | | 5.2 | 0 | 2 | |
| | Subminor of Jugwal Minor of D-10 | 9 | | 2 | 0 | 2 | |
| | Radwan Minor of D-10 | 6 | | 1.27 | 0 | 1.25 | |
| | Ramloo Minor of D-10 | 6 | | 1 | 0 | 1 | |
| | Balotra Chak Minor of D-10 | 8.3 | | 3 | 0 | 3 | |
| | Shama Chak Minor of D-10 | 60 | | 5 | 0 | 3 | |
| | Mehrajpur Minor of D-10 | 33 | | 4 | 0 | 2.5 | |
| | Zeerda Minor of D-10 | 23 | | 3 | 0 | 3 | |
| | Chataka Chak Minor of D-10 | 8.3 | | 3.3 | 0 | 3 | |
| | Total | | | 38.97 | 0 | 27.45 | |
| 33 | Distributary D-11 of MTC | 122 | 6600 | 11.625 | 0 | 4.8 | |
| | Bindral Minor of D-11 | 9.5 | | 2.85 | 0 | 1.8 | |
| | Barota Minor of D-10 | 19 | | 4 | 0 | 1.8 | |
| | Sheikhpur Minor of D-11 | 6 | | 3.65 | 0 | 1.6 | |
| | Total | | 16800 | 22.125 | 0 | 10 | |
| | Grand Total | | 79500.000 | 515.280 | 64.923 | 251.691 | |

# CHAPTER WISE DETAILS OF DPR UPLOADED ON THE E-PAMS PORTAL

- **HYDROLOGY**
- **INTER-STATE ASPECTS**
- **CROPPING PATTERN**
- **CROP WATER REQUIREMENT**
- **BENEFIT-COST ANALYSIS**

- **Jammu and Kashmir is entitled to receive 0.65 million acre-feet (MAF) of water from the Ravi River, regardless of any alterations or reductions in the river's discharge, as stipulated by the inter-state agreement dated January 29, 1955. Consequently, in alignment with the cropping pattern established in the original Ravi canal project, the same ten-day discharge requirement for the canal has been maintained in the new ERM project.**

# INTER-STATE ASPECTS



# CROPPING-PATTERN ADOPTED

| SNo. | Name of the crop | Area of crop in Hectares | Percentage of total CCA |
|---|---|---|---|
| KHARIF CROP | | | |
| 1. | China Paddy | 8700 | 27% |
| 2. | Basmati | 3900 | 12% |
| 3. | Maize Crop | 3900 | 12% |
| 4. | Bajra | 3700 | 11.5% |
| 5. | Vegetables | 1800 | 5.5% |
| | Total | 22000 | 68% |

| SNo. | Name of the crop | Area of crop in Hectares | Percentage of total CCA |
|---|---|---|---|
| RABI CROP | | | |
| 1. | Wheat | 26786 | 83% |
| 2. | Oilseeds | 1700 | 5.5% |
| 3. | Barseem | 1700 | 5.5% |
| 4. | Vegetables | 2000 | 6% |
| | Total | 32186 | 100% |

**Total CCA=32186 Ha**
**Irrigation Intensity= 168%**
**Ultimate Irrigation Potential= 54072 Ha**

# CROP WATER REQUIREMENT

# STATEMENT SHOWING CROP WISE 10 DAY WATER REQUIREMENT IN CUSECS OF RAVI CANAL (CCA 79500 ACRES/32186 HA)

| Sno. | Name of the Crop | Cropped Area in Acres | January | | | February | | | March | | | April | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-10 | 11-20 | 21-31 | 1-10 | 11-20 | 21-28 | 1-10 | 11-20 | 21-31 | 1-10 | 11-20 | 21-30 |
| 1 | China Paddy | 21500 | | | | | | | | | | | | |
| 2 | Basmati | 9600 | | | | | | | | | | | | |
| 4 | Maize Crop | 9600 | | | | | | | | | | | | |
| 5 | Bajra | 9100 | | | | | | | | | | | | |
| 6 | Wheat | 66100 | 277.71 | 277.71 | 252.47 | 277.71 | 277.71 | 347.14 | 555.42 | 555.42 | 504.93 | | | |
| 7 | Oilseeds | 4200 | | | | | | | | | | | | |
| 8 | Barseem | 4200 | 17.65 | 17.65 | 16.04 | 35.29 | 35.29 | 44.11 | 52.94 | 52.94 | 48.13 | 52.94 | 52.94 | 52.94 |
| 9 | Vegetable K | 4500 | | | | | | | | | | | | |
| | R | 4700 | 19.75 | 19.75 | 17.95 | 19.75 | 19.75 | 24.68 | 19.75 | 19.75 | 17.95 | 78.99 | 78.99 | 78.99 |
| | | 133500 | 315.10 | 315.10 | 286.46 | 332.75 | 332.75 | 415.94 | 628.11 | 628.11 | 571.01 | 131.92 | 131.92 | 131.92 |
| | Add 33% losses | | 103.98 | 103.98 | 94.53 | 109.81 | 109.81 | 137.26 | 207.28 | 207.28 | 188.43 | 43.53 | 43.53 | 43.53 |
| | Grand Total | | 419.09 | 419.09 | 380.99 | 442.56 | 442.56 | 553.20 | 835.38 | 835.38 | 759.44 | 175.46 | 175.46 | 175.46 |
| | Total Discharge | | 419 | 419 | 381 | 443 | 443 | 553 | 835 | 835 | 759 | 175 | 175 | 175 |
| | Total Water Requirement in MAF | | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |

| Sno. | Name of the Crop | | Cropped Area in Acres | May | | | June | | | July | | | August | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1-10 | 11-20 | 21-31 | 1-10 | 11-20 | 21-30 | 1-10 | 11-20 | 21-31 | 1-10 | 11-20 | 21-31 |
| 1 | China Paddy | | 21500 | 90.33 | 90.33 | 82.12 | 451.65 | 451.65 | 451.65 | 541.98 | 541.98 | 574.83 | 541.98 | 541.98 | 492.71 |
| 2 | Basmati | | 9600 | | | | 40.33 | 40.33 | 40.33 | 242.00 | 282.33 | 256.67 | 282.33 | 282.33 | 256.67 |
| 4 | Maize Crop | | 9600 | | | | 121.00 | 121.00 | 121.00 | | | | | | |
| 5 | Bajra | | 9100 | | | | 57.35 | 57.35 | | 114.70 | | | | | |
| 6 | Wheat | | 66100 | | | | | | | | | | | | |
| 7 | Oilseeds | | 4200 | | | | | | | | | | | | |
| 8 | Barseem | | 4200 | 17.65 | 17.65 | 16.04 | | | | | | | | | |
| 9 | Vegetable | K | 4500 | 94.53 | 94.53 | 85.94 | 94.53 | 37.81 | 37.81 | | | | | | |
| | | R | 4700 | | | | | | | | | | | | |
| | | | 133500 | 202.51 | 202.51 | 184.10 | 764.86 | 708.14 | 650.80 | 898.68 | 824.31 | 831.49 | 824.31 | 824.31 | 749.38 |
| | Add 33% losses | | | 66.83 | 66.83 | 60.75 | 252.40 | 233.69 | 214.76 | 296.56 | 272.02 | 274.39 | 272.02 | 272.02 | 247.29 |
| | Grand Total | | | 269.33 | 269.33 | 244.85 | 1017.27 | 941.83 | 865.56 | 1195.24 | 1096.34 | 1105.89 | 1096.34 | 1096.34 | 996.67 |
| | Total Discharge | | | 269 | 269 | 245 | 1017 | 942 | 866 | 1195 | 1096 | 1106 | 1096 | 1096 | 997 |
| | Total Water Requirement in MAF | | | 0.01 | 0.01 | 0.00 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |

| Sno. | Name of the Crop | Croppe d Area in Acres | September | | | Octber | | | November | | | December | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-10 | 11-20 | 21-30 | 1-10 | 11-20 | 21-31 | 1-10 | 11-20 | 21-30 | 1-10 | 11-20 | 21-31 |
| 1 | China Paddy | 21500 | | | | | | | | | | | | |
| 2 | Basmati | 9600 | 282.33 | 282.33 | 282.33 | | | | | | | | | |
| 4 | Maize Crop | 9600 | | | | | | | | | | | | |
| 5 | Bajra | 9100 | | | 114.70 | | | | | | | | | |
| 6 | Wheat | 66100 | | | | 277.71 | 277.71 | 252.47 | 277.71 | 277.71 | 277.71 | 277.71 | 277.71 | 252.47 |
| 7 | Oilseeds | 4200 | | | | 17.65 | 17.65 | 16.04 | 17.65 | 17.65 | 17.65 | 17.65 | 17.65 | 16.04 |
| 8 | Barseem | 4200 | | | | 35.29 | 35.29 | 32.08 | 35.29 | 35.29 | 35.29 | 35.29 | 35.29 | 32.08 |
| 9 | Vegetable K | 4500 | | | | | | | | | | | | |
| | R | 4700 | 19.75 | 19.75 | 19.75 | 19.75 | 19.75 | 17.95 | 19.75 | 19.75 | 19.75 | 19.75 | 19.75 | 17.95 |
| | | 133500 | 302.08 | 302.08 | 416.78 | 350.40 | 350.40 | 318.54 | 350.40 | 350.40 | 350.40 | 350.40 | 350.40 | 318.54 |
| | Add 33% | | 99.69 | 99.69 | 137.54 | 115.63 | 115.63 | 105.12 | 115.63 | 115.63 | 115.63 | 115.63 | 115.63 | 105.12 |
| | Grand Total | | 401.77 | 401.77 | 554.31 | 466.03 | 466.03 | 423.66 | 466.03 | 466.03 | 466.03 | 466.03 | 466.03 | 423.66 |
| | Total Discharg e | | 402 | 402 | 554 | 466 | 466 | 424 | 466 | 466 | 466 | 466 | 466 | 424 |
| | Total Water Requirement in MAF | | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |

# BENEFIT-COST ANALYSIS

# EXISTING CROP-PATTERN AND PRODUCTIVITY PRE-PROJECT

| Sr. No. | Crop | Area (Ha) | Yield (Qtl/ Ha) | Total yield (Qtl) | Price per Qtl. (Rs.) | Gross Income (in Rs. Lakh) | Breakup of Expenditure | | | | | | | Net income in Lakhs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Seed | | Fertilizers, Chemicals, Manure etc. | | Hired labour (Human,Animal & Machinery &Misc) | | Total Expenditure | |
| | | | | | | | Rate/ Ha (Rs.) | Amt. | Rate/ Ha (Rs.) | Amt. | Rate/ Ha (Rs.) | Amt. | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| | RAVICANAL | | | | | | | | | | | | | |
| | Kharif CROP | Hectares | | | | | | | | | | | | |
| | China Paddy | 3800 | 16 | 60,800 | 2,183 | 1,327.26 | 2000 | 7,600,000 | 15000 | 57,000,000 | 10000 | 38,000,000 | 102,600,000 | 301.26 |
| | Basmati | 1700 | 30 | 51,000 | 2,203 | 1,123.53 | 1800 | 3,060,000 | 22000 | 37,393,768 | 15000 | 25,495,751 | 65,949,518 | 464.03 |
| | Maize crop | 1600 | 37 | 59,200 | 2,090 | 1,237.28 | 5,000 | 8,000,000 | 28,000 | 44,800,000 | 16,000 | 25,600,000 | 78,400,000 | 453.28 |
| | Bajra | 1600 | 15 | 24,000 | 2,500 | 600.00 | 2,800 | 4,480,000 | 10,000 | 16,000,000 | 9,000 | 14,400,000 | 34,880,000 | 251.20 |
| | Vegetable | 1000 | 300 | 300,000 | 2,200 | 6,600 | 9,000 | 9,000,000 | 22,000 | 22,000,000 | 15,000 | 15,000,000 | 46,000,000 | 6,140.00 |
| | RABI CROP | | | | | | | | | | | | | |
| | Wheat | 12000 | 27 | 324,000 | 2,090 | 6,771.60 | 3,000 | 36,000,000 | 9,500 | 114,000,000 | 16,500 | 198,000,000 | 348,000,000 | 3,291.60 |
| | Oilseeds | 700 | 6 | 3,850 | 8,635 | 332.45 | 1,000 | 700,000 | 16,000 | 11,200,000 | 9,000 | 6,300,000 | 18,200,000 | 150.45 |
| | Barseem | 700 | 800 | 560,000 | 450 | 2,520.00 | 2,500 | 1,750,000 | 12,500 | 8,750,000 | 8,000 | 5,600,000 | 16,100,000 | 2,359.00 |
| | Vegetable | 800 | 320 | 256,000 | 2,200 | 5,632 | 9,000 | 7,200,000 | 22,000 | 17,600,000 | 15,000 | 12,000,000 | 36,800,000 | 5,264.00 |
| | Total | 23,900 | | | | 26,144.12 | | 77,790,000 | | 328,743,768 | | 340,395,751 | 746,929,518 | 18,674.82 |

# EXISTING/ PRE-PROJECT BENEFITS

| | | | | Amount (in Lakh) |
|---|---|---|---|---|
| A | Receipts | | | |
| (i) | Gross Value of Farm Produce | | = | 26,144.12 |
| (ii) | Add dung receipt @30 % of fodder expenditure | | = | 784.32 |
| | | Total | = | 26,928.44 |
| B | Expenditure | | | |
| (i) | Expenditure on seeds, material and manure inputs | | = | 778.00 |
| (ii) | Expenditure on manure etc | | = | 3,287.00 |
| (iii) | Expenditure on hired labour (human and Bullock) | | = | 3,404.00 |
| (iv) | Fodder expenses @ 10 % of gross value of produce | | = | 2,614.41 |
| (v) | Depriciation on implements @ 2.7% of gross value of farm produce | | = | 705.89 |
| (vi) | Share and Cash rent @ 3% of gross value of Farm produce | | = | 784.32 |
| (vii) | Land revenue @ 2% of gross value of farm produce | | = | 522.88 |
| | | Total | = | 12,096.50 |
| | Net agricultural benefits before | (A)-(B) | = | 14,831.94 |

# CROP-PATTERN AND PRODUCTIVITY POST-PROJECT

| Sr. No. | Crop | Area (Ha) | Yield (Qtl/ Ha) | Total yield (Qtl) | Price per Qtl. (Rs.) | Gross Income (in Rs. Lakh) | Breakup of Expenditure | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Seed | | Fertilizers, Chemicals, Manure etc. | | Hired labour (Human, Animal & Machinery &Misc) | | Total Expenditure | |
| | | | | | | | Rate/ Ha (Rs.) | Amt. | Rate/ Ha (Rs.) | Amt. | Rate/ Ha (Rs.) | Amt. | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | |
| | RAVI CANAL | | | | | | | | | | | | | |
| | Kharif CROP | Hectares | | | | | | | | | | | | |
| | China Paddy | 8700 | 16 | 139,200 | 2,183 | 3,038.74 | 2000 | 17,400,000 | 15000 | 130,500,000 | 10000 | 87,000,000 | 234,900,000 | 689.74 |
| | Basmati | 3900 | 30 | 117,000 | 2,203 | 2,577.51 | 1800 | 7,020,000 | 22000 | 85,800,000 | 15000 | 58,500,000 | 151,320,000 | 1,064.31 |
| | Maize crop | 3900 | 37 | 144,300 | 2,090 | 3,015.87 | 5,000 | 19,500,000 | 28,000 | 109,200,000 | 16,000 | 62,400,000 | 191,100,000 | 1,104.87 |
| | Bajra | 3700 | 15 | 55,500 | 2,500 | 1,387.50 | 2,800 | 10,360,000 | 10,000 | 37,000,000 | 9,000 | 33,300,000 | 80,660,000 | 580.90 |
| | Vegetable | 1800 | 300 | 540,000 | 2,200 | 11,880 | 9,000 | 16,200,000 | 22,000 | 39,600,000 | 15,000 | 27,000,000 | 82,800,000 | 11,052.00 |
| | RABI CROP | | | | | | | | | | | | | |
| | Wheat | 26750 | 27 | 722,258 | 2,090 | 15,095.20 | 3,000 | 80,250,911 | 9,500 | 254,127,883 | 16,500 | 441,380,008 | 775,758,802 | 7,337.61 |
| | Oilseeds | 1700 | 6 | 9,348 | 8,635 | 807.24 | 1,000 | 1,699,717 | 16,000 | 27,195,467 | 9,000 | 15,297,450 | 44,192,635 | 365.31 |
| | Barseem | 1700 | 800 | 1,359,773 | 450 | 6,118.98 | 2,500 | 4,249,292 | 12,500 | 21,246,459 | 8,000 | 13,597,734 | 39,093,484 | 5,728.05 |
| | Vegetable | 1900 | 320 | 608,000 | 2,200 | 13,376 | 9,000 | 17,100,000 | 22,000 | 41,800,000 | 15,000 | 28,500,000 | 87,400,000 | 12,502.00 |
| | Total | 54,050 | | | | 57,297.04 | | 173,779,919 | | 746,469,810 | | 766,975,192 | 1,687,224,921 | 40,424.79 |

# PRE-PROJECT BENEFITS

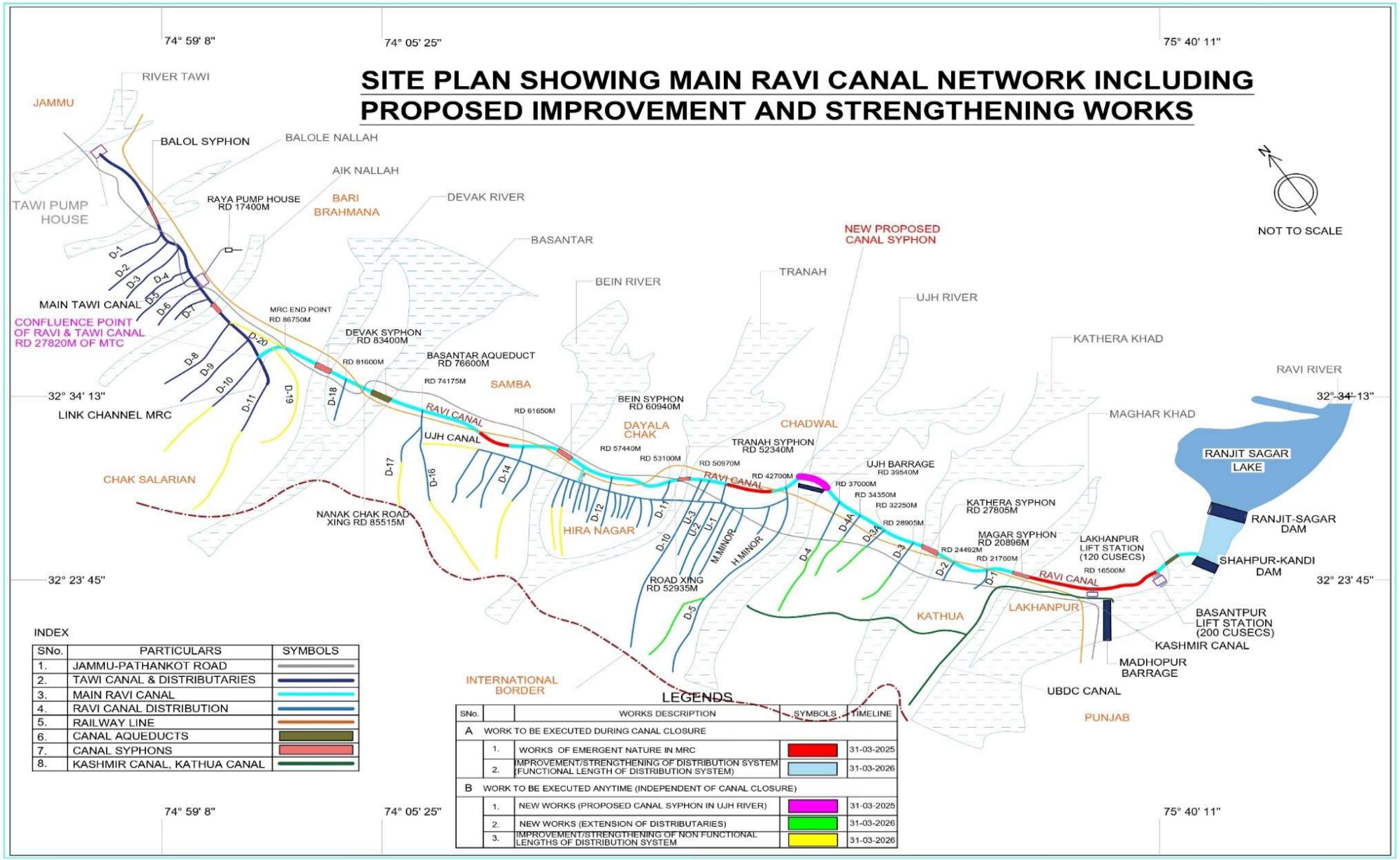
| | | | | Amount (in Lakh) |
|---|---|---|---|---|
| A | Receipts | | | |
| (i) | Gross Value of Farm Produce | | = | 57,297.04 |
| (ii) | Add dung receipt @30 % of fodder expenditure | | = | 1,718.91 |
| | | Total | = | 59,015.95 |
| B | Expenditure | | | |
| (i) | Expenditure on seeds, material and manure inputs | | = | 1,738.00 |
| (ii) | Expenditure on manure etc | | = | 7,465.00 |
| (iii) | Expenditure on hired labour (human and Bullock) | | = | 7,670.00 |
| (iv) | Fodder expenses @ 10 % of gross value of produce | | = | 5,729.70 |
| (v) | Depriciation on implements @ 2.7% of gross value of farm produce | | = | 1,547.02 |
| (vi) | Share and Cash rent @ 3% of gross value of Farm produce | | = | 1,718.91 |
| (vii) | Land revenue @ 2% of gross value of farm produce | | = | 1,145.94 |
| | | Total | = | 27,014.57 |
| | Net agricultural benefits after | (A)-(B) | = | 32,001.38 |

Net Agriculral Benefit because of Irrigation = Rs.17169 Lac

# COMPUTATION OF BCR

| Total Cost of the project | Rs. 57183.15 Lakhs |
|---|---|
| **ANNUAL COST** | |
| Interest on capital @10% of capital cost | Rs. 5718.31 Lakhs |
| Depreciation of the project @1% of capital cost for 100 years life of project | Rs. 571.83 Lakhs |
| Annual O&M charges of canal 54072 Ha @Rs 1500/Ha of CCA /Irrigated Area | Rs. 810.75 Lakhs |
| Depreciation @8.33% on mechanical and electrical works | Rs. 50.664 Lakhs |
| Total Annual Cost | Rs. 7151.55 Lakhs |
| Benefit-Cost Ratio = 17169/7151.55 | 2.40 |

# PROJECT MANAGEMENT AND SCHEDULING


SITE PLAN SHOWING MAIN RAVI CANAL NETWORK INCLUDING PROPOSED IMPROVEMENT AND STRENGTHENING WORKS
74° 59' 8"
74° 05' 25"
75° 40' 11"
32° 34' 13"
32° 23' 45"
NOT TO SCALE
RIVER TAWI
JAMMU
BALOL SYPHON
BALOLE NALLAH
AIK NALLAH
TAWI PUMP HOUSE
RAYA PUMP HOUSE RD 17400M
BARI BRAHMANA
DEVAK RIVER
BASANTAR
NEW PROPOSED CANAL SYPHON
BEIN RIVER
TRANAH
UJH RIVER
KATHERA KHAD
RAVI RIVER
MAGHAR KHAD
MAIN TAWI CANAL
CONFLUENCE POINT OF RAVI & TAWI CANAL RD 27820M OF MTC
MRC END POINT RD 86750M
DEVAK SYPHON RD 83400M
BASANTAR AQUEDUCT RD 76600M
SAMBA
LINK CHANNEL MRC
RAVI CANAL
UJH CANAL
BEIN SYPHON RD 60940M
DAYALA CHAK
CHADWAL
TRANAH SYPHON RD 52340M
UJH BARRAGE RD 39540M
KATHERA SYPHON RD 27805M
MAGAR SYPHON RD 20896M
LAKHANPUR LIFT STATION (120 CUSECS)
RANJIT SAGAR LAKE
RANJIT-SAGAR DAM
SHAHPUR-KANDI DAM
CHAK SALARIAN
NANAK CHAK ROAD XING RD 85515M
HIRA NAGAR
ROAD XING RD 52935M
M.MINOR
H.MINOR
KATHUA
LAKHANPUR
BASANTPUR LIFT STATION (200 CUSECS)
KASHMIR CANAL
MADHOPUR BARRAGE
UBDC CANAL
PUNJAB
INTERNATIONAL BORDER
INDEX
SNo. | PARTICULARS | SYMBOLS
1. JAMMU-PATHANKOT ROAD
2. TAWI CANAL & DISTRIBUTARIES
3. MAIN RAVI CANAL
4. RAVI CANAL DISTRIBUTION
5. RAILWAY LINE
6. CANAL AQUEDUCTS
7. CANAL SYPHONS
8. KASHMIR CANAL, KATHUA CANAL
LEGENDS
SNo. | WORKS DESCRIPTION | SYMBOLS | TIMELINE
A WORK TO BE EXECUTED DURING CANAL CLOSURE
1. WORKS OF EMERGENT NATURE IN MRC — 31-03-2025
2. IMPROVEMENT/STRENGTHENING OF DISTRIBUTION SYSTEM (FUNCTIONAL LENGTH OF DISTRIBUTION SYSTEM) — 31-03-2026
B WORK TO BE EXECUTED ANYTIME (INDEPENDENT OF CANAL CLOSURE)
1. NEW WORKS (PROPOSED CANAL SYPHON IN UJH RIVER) — 31-03-2025
2. NEW WORKS (EXTENSION OF DISTRIBUTARIES) — 31-03-2026
3. IMPROVEMENT/STRENGTHENING OF NON FUNCTIONAL LENGTHS OF DISTRIBUTION SYSTEM — 31-03-2026

## FUNDS REQUIREMENT/WORK SCHEDULE FOR IMPROVEMENT/STRENGTHENING OF MAIN RAVI CANAL AND ITS DISTRIBUTION SYSTEM

| SNo. | PARTICULARS | TOTAL EXISTING LENGTH | IMPROVEMENT/STRENTHENING WORKS | | | YEAR-WISE FUNDS REQUIREMENT (in Lacs) | | REMARKS |
|---|---|---|---|---|---|---|---|---|
| | | | LENGTH/Nos IN MODERNIZATION | SCHEDULED EXECUTION OF WORKS YEAR-WISE | | | | |
| | | | | 2024-2025 | 2025-2026 | 2024-2025 | 2025-2026 | |
| A | MAIN CANAL | - | - | - | - | - | - | |
| 1 | Main Ravi Canal | 79.8 Kms | 44.33 Kms | - | - | - | - | |
| | • Filling Length | 27.13 Kms | 22.00 Kms | 22 Kms | - | 10035 | - | 12 kms reach of Main Ravi Canal from Basantpur to Lakhanpur is vulnerable when charged with maximum discharge of 1150 cusecs water to be released after commissioning of Shahpur-Kandi Dam to and therefore requires to be immediately improved/strengthened. At present it is carrying only 300 cusecs of water (200 cusescs from Basantpur LIS and 100 cusecs from Lakhanpur LIS. |
| | • Cutting Length | 52.67 Kms | 22.33 Kms | - | 22.33 | - | 7300 | |
| 2 | Structures on Main Ravi Canal | - | - | - | - | - | - | |
| | • Canal syphon in river Ujh at RD 39540 M of MRC | 0 | 01 No | 01 No | - | 3500 | - | The proposed canal syphon in river Ujh shall ensure uniterupted water supply in Ravi Canal beyond Ujh river during floods. |
| | • Existing syphons and aqueducts | 55 Nos | 35 Nos | 25 Nos | 10 Nos | 2034 | 871 | |
| 3 | Escapes | 10 Nos | 06 Nos | 06 Nos | - | 437 | - | |
| 4 | Miscellaneous(Establishment, Regulation and measuring devices, building T&P, Communication, audits etc) | - | - | 50% | 50% | 5066 | 5066 | Works required in pre, during and post execution of project |

## FUNDS REQUIREMENT/WORK SCHEDULE FOR IMPROVEMENT/STRENGTHENING OF MAIN RAVI CANAL AND ITS DISTRIBUTION SYSTEM

| SNo. | PARTICULARS | TOTAL EXISTING LENGTH | IMPROVEMENT/STRENTHENING WORKS | | | YEAR-WISE FUNDS REQUIREMENT (in Lacs) | | |
|---|---|---|---|---|---|---|---|---|
| | | | LENGTH/Nos IN MODERNIZATION | SCHEDULED EXECUTION OF WORKS YEAR-WISE | | | | |
| B | DISTRIBUTARIES AND MINORS | - | - | - | - | - | - | |
| 1 | Distribution network | 520 Kms | 251.159 Kms | 130.00 Kms | 120.159Kms | 5300 | 5200 | 40% of the distribution network is lying defunct due to non availablity of water since the canal was commissioned and therefore needs improvement /strengthening. |
| 2 | New / extension of distributaries including land acquisition | - | 10.00 Kms | 10.00 Kms | - | 3087 | - | 10 km of new distribution network have been proposed to cover unirrigated CCA of original project. |
| 3 | Structures on Distribution system (Syphons/Aqueducts/escapes) | 69 Nos | 51 Nos | 24 Nos | 24 Nos | 263 | 263 | |
| 4 | Falls | 661 Nos | 405 Nos | 200 Nos | 205 Nos | 470 | 487 | |
| 5 | Bridges/tractor crossing | - | - | - | - | 172 | 172 | |
| | | | | | Total | 30364 | 19359 | |
| | | | | | Add 10% for price excalation and 5% for contingency | 4555 | 2904 | |
| | | | | | Grand Total | 34919 | 22263 | |

- Funds required for 2024-25 — 349.19 Cr
- Funds required for 2025-26 — 222.63 Cr

* Total Funds Required — 571.83 Cr

# PERT-CHART

| IMPROVEMENT/STRENGTHENING OF MAIN RAVI CANAL AND ITS DISTRIBUTION NETWORK | | | | | | | | | | | | | | | | | | | | | Funds Requires in 2024-25 | Funds Requires in 2025-26 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2025 | | | | | | | | | | | | 2026 | | | | |
| SNo. | Task | Days | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | | |
| 1 | Preliminary (Survey and investigation and tendering process) | 120 | | | | | | | | | | | | | | | | | | | 104 | - |
| 2 | Land Acquisition Work | 120 | | | | | | | | | | | | | | | | | | | 2803 | |
| 3 | Main Canal Lining (Filling Portion from Basantpur to Lakhanpur) | 88 | | | | | | | | | | | | | | | | | | | 10035 | 7300 |
| | •Lining Work in Balance portion | 241 | | | | | | | | | | | | | | | | | | | | |
| | •Strengthening work (Raising, construction of toe wall) | 455 | | | | | | | | | | | | | | | | | | | | |
| 4 | Main Canal Structure (New canal syphon on Ujh river) | 212 | | | | | | | | | | | | | | | | | | | 5534 | 871 |
| | • Syphon and aqueduct internal work | 241 | | | | | | | | | | | | | | | | | | | | |
| | • Structure Protection work | 455 | | | | | | | | | | | | | | | | | | | | |
| 5 | Distribution (New work) | 455 | | | | | | | | | | | | | | | | | | | 6317 | 5950 |
| | • Improvement works | 241 | | | | | | | | | | | | | | | | | | | | |
| 6 | Escapes | 88 | | | | | | | | | | | | | | | | | | | 437 | - |
| 7 | Regulation and Measuring Device | 241 | | | | | | | | | | | | | | | | | | | 204 | 391 |
| 8 | Buildings | 455 | | | | | | | | | | | | | | | | | | | 405 | 405 |
| 9 | Tools and Plant | 88 | | | | | | | | | | | | | | | | | | | 78 | - |
| 10 | Communication (Roads) | 455 | | | | | | | | | | | | | | | | | | | 1331 | 2640 |
| 11 | Miscellanous works | 455 | | | | | | | | | | | | | | | | | | | 2944 | 1198 |
| 12 | Water cources and field channels | 241 | | | | | | | | | | | | | | | | | | | - | 0 |
| 13 | Bridges | 182 | | | | | | | | | | | | | | | | | | | 172 | 604 |
| | | | | | | | | | | | | | | | | | | | | Total | 30364 | 19359 |
| | | | | | | | | | | | | | | | | | | | | Add 10% for price excalation and 5% for contingencies | 4555 | 2904 |
| | | | | | | | | | | | | | | | | | | | | Grand Total | 34919 | 22263 |
| | | | | | | | | | | | | | | | | | | | | * Total Funds Requirement for Project | 571.83 Cr | |

indicates work to be execute in closure period of canal

indiactes work to be execute independent of canal closure

# THANK YOU