

## CHAPTER - 2

### SALIENT FEATURES

#### 1. LOCATION

- |       |                  |   |   |
|-------|------------------|---|---|
| (i)   | Location         |   | Diversion site: Near Village Chunni about 6 km from Guptkashi           |
|       |                  |   | Power Station: Near village Semi and about 1 km from Kund Chatti Bridge |
| (ii)  | District         | - | Rudraprayag   |
| (iii) | Diversion Site   |   |   |
|       | Latitude         | - | 30 <sup>0</sup> - 32' - 29" N   |
|       | Longitude        | - | 79 <sup>0</sup> - 05' - 48" E   |
|       | Power House Site |   |   |
|       | Latitude         | - | 30 <sup>0</sup> - 30' - 40" N   |
|       | Longitude        | - | 79 <sup>0</sup> - 05' - 17" E   |
| (iv)  | River            | - | Mandakini   |

#### 2. HYDROLOGY

- |      |                      |             |
|------|----------------------|-------------|
| (i)  | Total catchment area | 600 sq. km. |
| (ii) | Snow bound catchment | 294 sq. km. |

#### 3. DESIGN FLOOD DISCHARGE

- |      |  |             |
|------|--|-------------|
| (i)  | Design Flood Discharge<br>1 in 100 year frequency  | 1192 cumecs |
| (ii) | Design Flood Discharge<br>1 in 1000 year frequency | 1582 cumecs |

#### 4. BARRAGE

- |       |                                 |  |
|-------|---------------------------------|--|
| (i)   | River bed level at barrage site | 1060 m   |
| (ii)  | Type                            | Barrage with one sluice bay and three other bays |
| (iii) | Overall length                  | 40 m   |

## **5. SEDIMENTATION TANK**

- |      |                               |                 |
|------|-------------------------------|-----------------|
| (i)  | Size                          | 130m x 17m x 8m |
| (ii) | Design discharge for flushing | 3 cumecs.       |

## **6. POWER TUNNEL**

- |       |                  |                 |
|-------|------------------|-----------------|
| (i)   | Shape            | Horse shoe type |
| (ii)  | Diameter         | 3.50 m          |
| (iii) | Length           | 2.90 km         |
| (iv)  | Design discharge | 36 cumecs       |

## **7. SURGE TANK**

- |      |          |                    |
|------|----------|--------------------|
| (i)  | Type     | Restricted orifice |
| (ii) | Diameter | 12 m (approx.)     |

## **8. PENSTOCK**

- |      |                |                                       |
|------|----------------|---------------------------------------|
| (i)  | Main Penstock  | One no. 2.80 m dia.                   |
| (ii) | Unit Penstocks | 2 No. branching off the main penstock |

## **9. POWER HOUSE**

- |       |                    |   |
|-------|--------------------|---|
| (i)   | Location           | Near village Semi about 1 Km. from Kund Chatti Bridge |
| (ii)  | Type               | Surface   |
| (iii) | Gross Head         | 78.00 m   |
| (iv)  | Installed capacity | 24 MW (2x12 MW each)                                  |
| (v)   | Type of turbine    | Francis   |

## **10. TAIL RACE**

- |                 |                             |
|-----------------|-----------------------------|
| Type and length | Open trapezoidal 100 m long |
|-----------------|-----------------------------|

## **11. GROSS ANNUAL ENERGY GENERATION**

- |     |                               |           |
|-----|-------------------------------|-----------|
| (i) | During 90% dependability year | 126.85 MU |
|-----|-------------------------------|-----------|

(ii)	During 75% dependability year	133.81 MU
(iii)	During 60% dependability year	141.83 MU
(iv)	During 50% dependability year	144.10 MU