PROJECT WORK

Thakur Sen Negi Government College

Reckong Peo

KASHANG HYDRO ELECTRIC PROJECT

Session – 2024 – 2025

Submitted By :

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Submitted To:

Dr. Mohit Parkash

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CERTIFICATE

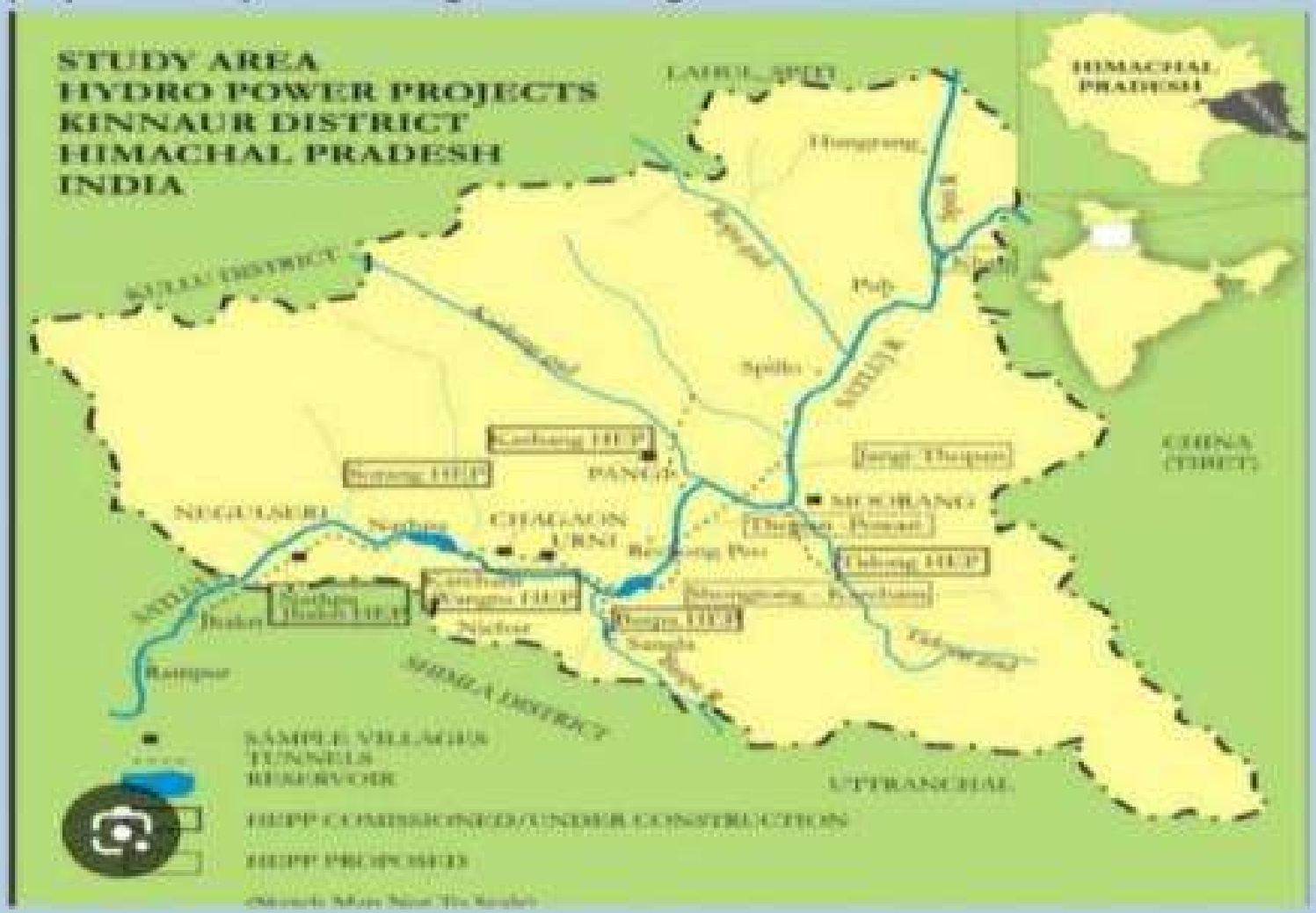
This is to certify that"Sneha,Sheetal,Tamanna,Poonam, Soni" students of B.com 3rd year has successfully completed their project on **"Kashang hydro electric power project"** under the guidance of "Dr. Mohit Parkash" .

Dr. Mohit Parkash

INDEX

INTRODUCTION

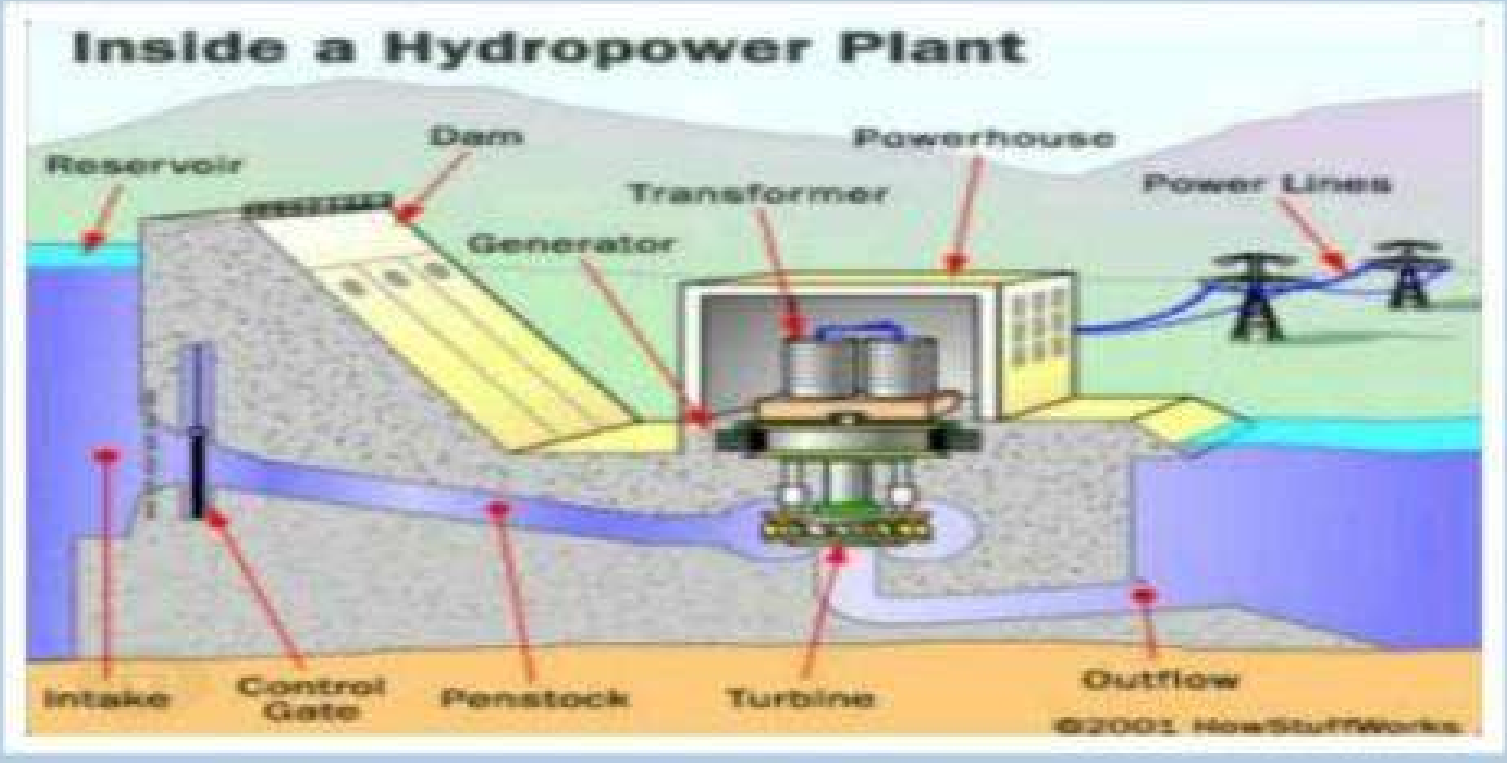
The 243 MW integrated Kashang Hydro Electric Project is proposed on the Kashang and Kerang streams – the right bank tributaries of Satluj River in Tehsil Moorang of District Kinnaur is a schedule V area under the Indian constitution (with high percentage of population). The origin of integrated.



Kashang goes back to 2002 when a 65 MW hydro electricity project was conceptualized under Himachal Pradesh state Electricity Board(HPSEB).

STAGES

The project is being developed in four stages:



STAGES 1:

Comprising of diversion of the Kashang stream, at El. 2829 m, to an underground powerhouse located on the

right bank of Satluj near Powari village , developing a head of approximately 830 m.

STAGES 2:

Comprising of diversion of kashang stream, at El. 2870 m, into an underground water conductor system leading the upstream end of stage -1 water conductor system.

STAGE 3:

Consisting of augmenting the generating capacity of stage -1 powerhouse using kerang waters over the 280 m head available in kashang stage-1 powerhouse.

STAGE 4:

Comprising of more or less independent scheme harnessing the power potential of kerang stream upstream of the diversion site of stage-11.

BACKGROUND

The catchment area treatment (CAT) plan of Kashang Hydro Electric Project was prepared by HP forest department during the year 1999- 2000. The plan was prepared for a period of 10 years starting from 2001- 2002 with total financial outlay of Rs. 3.03 crores . The actual implementation of the CAT plan was started in the year 2005- 2006. As per stipulation imposed by the GOL MOEF the user agency started depositing the funds with the state government as prescribed in the approved CAT plan. The user agency deposited some funds with the state and balance in the Ad- hoc CAMPA (compensatory afforestation fund management and planning authority). Later on, after the constitution of state CAMPA, the funds are now being released since 2009 on words gradually to the state CAMPA, enabling the implementation of CAT plans.

SCOPE

As per guideline issued from the H.P. Forest department , the scope of work and task involving the recasting of balance (unspent) amount of the kashang Hydro Electic Project CAT plan is as under:

1) *Preparation of GIS baseline data available from the comprehensive CAT plan satluj River basin after proper delineation of sub catchment falling in kashang Hydro Electric Project CAT plan*

2) *To enhance the base the base layer data of comprehensive CAT plan by creation of new layers like:*

   . Nurseries

   . Forest roads

   . Forest buildings , Rest houses

. Treatment already done / existing

. Future treatment proposed

All the above details will be sub catchment specific.

3) Field reconnaissance

a) NERIL has carried out systematic field reconnaissance of each sub catchment for existing works by recording their GPS coordinates along suggested.

b) Scope for further improvement through Bio-engineering techniques which has been prescribed on site specific recommendations under future management / treatment plan accordingly.

c) After that, the works proposed have been prioritized and suitably spread spatially sub catchment wise over the next 10 years.

d) More emphasis has been given to the cost effective Bio-engineering methodology and less to civil / stone structures.

e) Further no civil works has been proposed beyond 30*-35* stopper .

BENEFITS

Economic Benefits :

1) *Electricity Generation: 330MWof power generation, supplying electricity to Himachal Pradesh and neighboring states.*

2) *Revenue Generation: The Project generates revenue for the government.*

3) *Employment opportunities: Job creation during construction and operation.*

Environmental Benefits :

1) *Renewable energy source: Hydroelectric power reduces carbon emissions.*

2) *Reduced greenhouse gas emissions: Lower*

greenhouse gas emissions.

3) Water conservation: Water conservation facilities.

Social Benefits:

1) Improved power supply: Enhanced power supply to nearby areas.
2) Increased economic activity: Local economic growth.
3) Job opportunities: Employment for local people.

Infrastructure Development:

1) Road connectivity : Improved road connectivity.
2) Telecommunication: Enhanced telecommunication facilities.
3) Local infrastructure: upgraded local infrastructure.

Other Benefits

1) Flood Control : Flood control measures.
2) Irrigation : Irrigation facilities for nearby areas.
3) Tourism : Increased tourism potential.

The kashang Hydro Electric Project benefits Himachal

Pradesh through :

.Clean energy generation

.Economic growth

. 30b creation

. Infrastructure development

. Environmental conservation

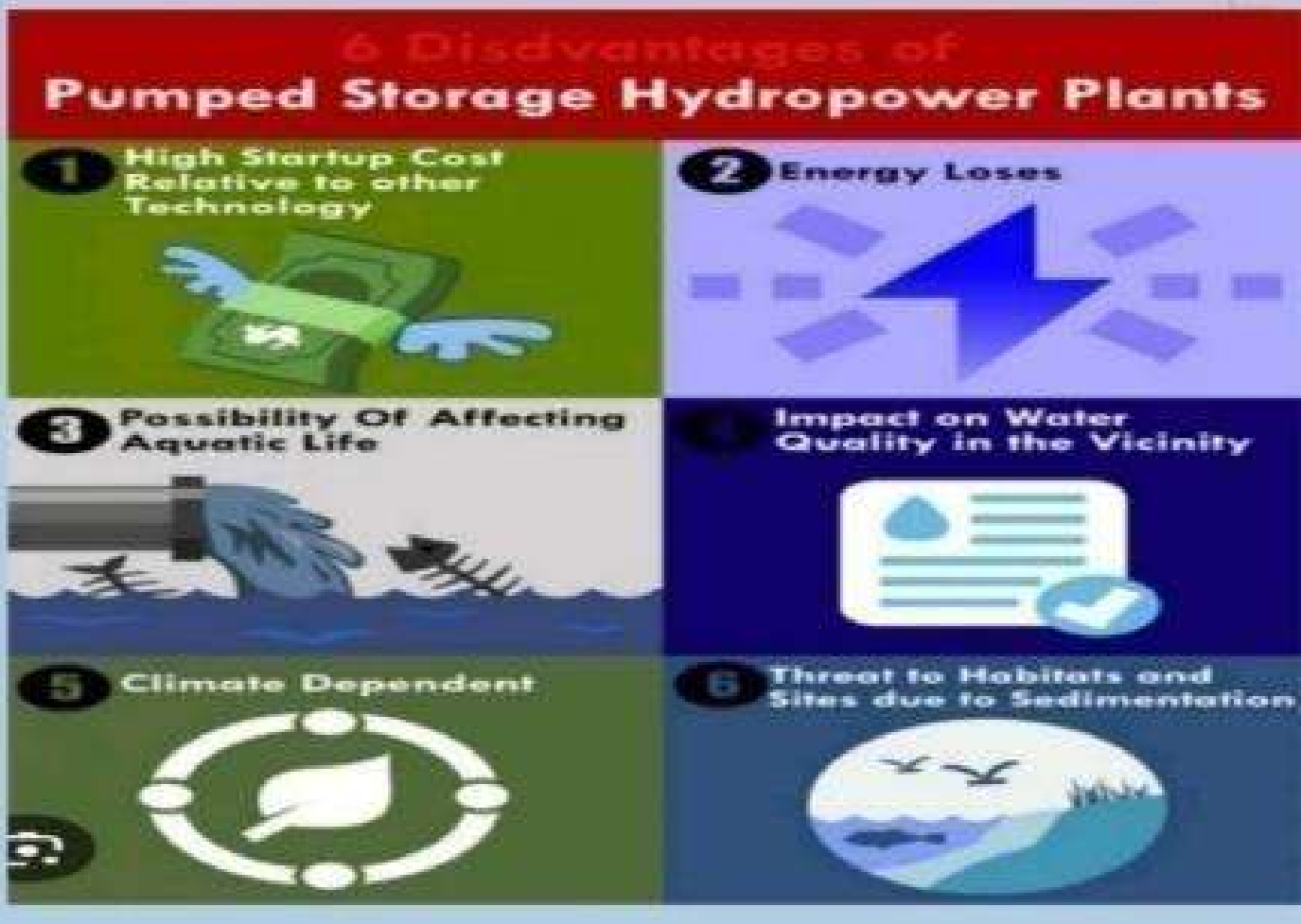
. Social welfare

This project plays a vital role in meeting India's renewable energy targets and supporting sustainable development .

LOSSES

Environmental losses

1) *Deforestation : Large – scale tree cutting affected local ecosystems*
2) *Habitat Disruption : Alterations to the river's natural flow impacted aquatic life*



3) *Soil Erosion : construction activities led to soil erosion and landslides .*

4) *Water pollution : Increased sedimentation and chemical contamination .*

Social Losses

1)Displacement : Relocation of local Communities and villages

2)Loss of livelihood : impacts on agriculture , fishing , and Traditional occupations.

3)Cultural Heritage : Damage to historical and cultural sites .

4)Health impacts : Increased risk of Water-borne diseases .

Economic Losses

1) High construction costs : Delays and cost overruns .
2) Maintenance challenges : High maintenance expenses due to geographical constraints .
3) Revenue shortfalls : Lower-then-expected power generation and revenue .
4) Opportunity costs : Alternative development opportunities foregone .

Technical losses

1) Geological Risks : Seismic activity and geological instability .
2) Equipment failure : Technical issues with turbines and transmission lines.
3) Water leakage : Seepage and leakage from the dam.

4) *Sedimentation : Reduced dam lifespan due to sediment accumulation .*

Other Losses

1) *Impact on local biodiversity : Losses of endemic species.*
2) *Increased risk of floods : Alterations to natural river flow.*
3) *Community Resistance : Social unrest and opposition from affected communities.*
4) *Regulatory Delays : Compliance issues and regulatory hurdles.*

IMPACTS

Positive impacts :

1) *Renewable energy source : Hydroelectric power reduces greenhouse emissions.*
2) *Reduced carbon footprint : Clean energy generation.*
3) *Water conservation : Regulated water flow.*

Negative impacts :

Water environment :

1) *Altered river flow : Changes in water flow patterns.*
2) *Increased sedimentation : Reduced dam lifespan.*
3) *Water pollution : Chemical contamination.*
4) *Aquatic habitat disruption : Impacts on fish migration.*

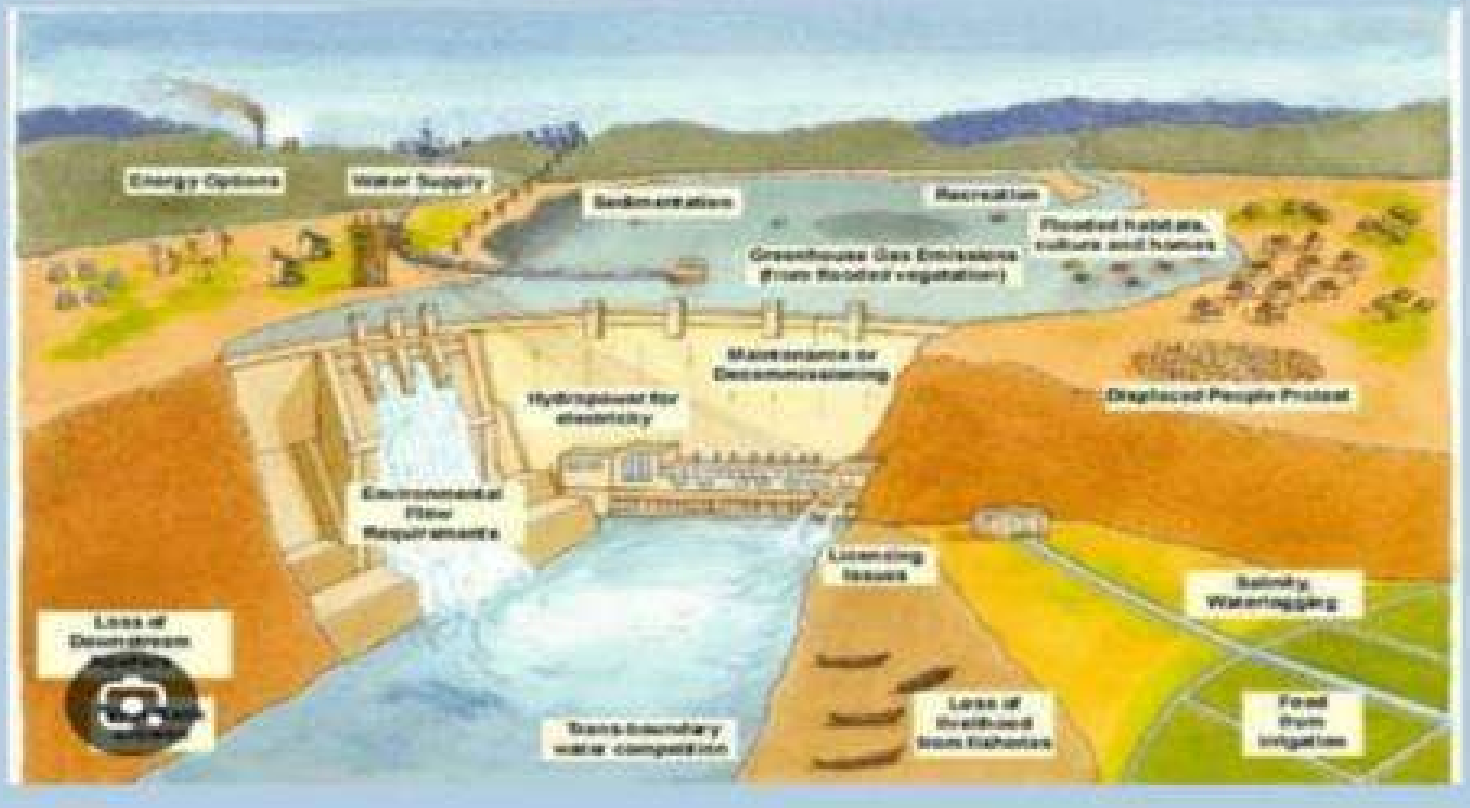
Land environment :

1) *Deforestation : Loss of biodiversity*
2) *Soil erosion : Landslides and sedimentation.*
3) *Habitat fragmentation : Disrupted wildlife corridors.*

4) *Increased landslides : Geographical instability.*

Air environment :

1) *Dust pollution : Construction*
2) *Noise pollution : Increased noise levels.*



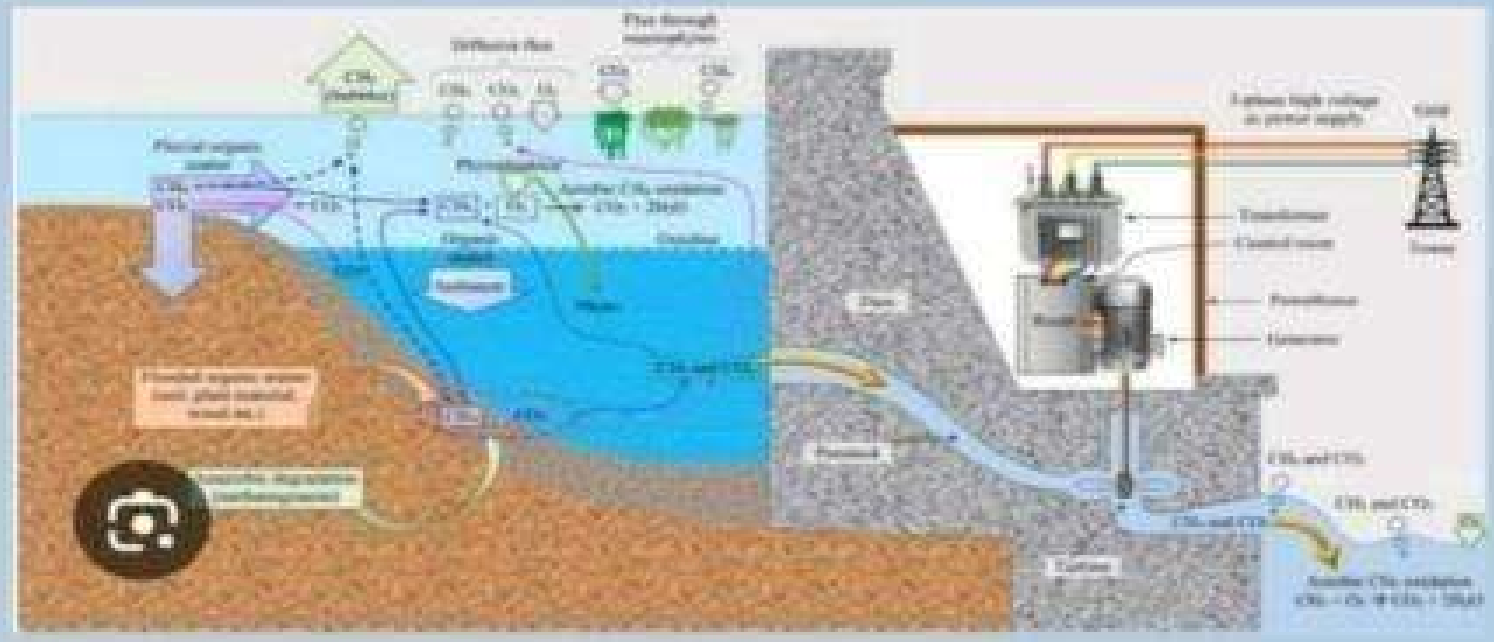
Biodiversity :

1) *Loss of endemic species : Impacts on local flora and fauna.*
2) *Disrupted migration patterns : Impacts on wildlife.*

3) *Habitat loss : Reduced natural habitats.*

Social environment :

1) *Community displacement : Relocation of local communities.*
2) *Cultural heritages loss : Damage to historical sites.*
3) *Health impacts : Increased risk of water-borne diseases.*



Mitigation Measures

1) *Environmental Monitoring*
2) *Afforestation*
3) *Sedimentation Management*

footprint .

2) Economic benefits through revenue and employment .

3) Environmental concerns : deforestation , habital disruption ,water pollution .

4) Social impacts : displacement , cultural heritage loss , health risks .

5) Technical challenges : risks , sedimentation , equipment failure.

Recommendations

1) Environmental monitoring and mitigation measures .

2) Sustainable development practices.

3) Community engagement and relocation support .

4) Regular maintenance and inspection .

5) Continuous evaluation of project impacts .

Future Directions

1) Enhance renewable energy share in india's energy mix .

2) Implement sustainable hydroelectric projects.

3) *Develop environmental and social impact assessment frameworks .*

4) *Promote community-led development initiatives.*

5) *Foster public – private partnerships for infrastructure development .*

Refernces

1) *Government reports*

2) *Environmental impact assessments*

3) *Research papers*

4) *Local community feedback*

5) *Industry reports .*