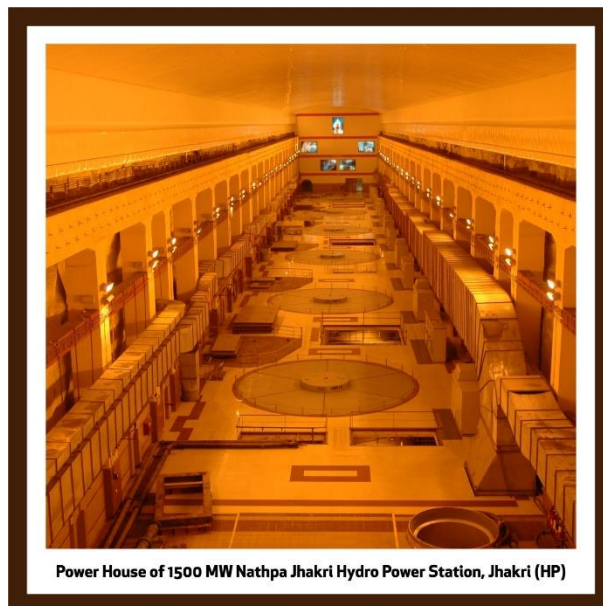


Additional Verification Report for Carbon Offset Units (CoUs) for Project (UCR ID Number: 113)

Title: “1500 MW Large Scale Nathpa Jhakri Hydroelectric Station by SJVN Limited (HCPL CREDUCE JV)”



Project Owner details:

SJVN Limited,

Shakti Sadan, Shanan, Shimla-171006, Himachal Pradesh, India.

Submitted by:

Arjun K Vyas

Approved Verifier, UCR

Contact No.: +91 8320809503

Email: arjun@thenaturelink.in

Additional Verification for Large Hydel Projects (> 15MW installed capacity)

| Scoring Criteria | |
|-------------------------|--|
| LEVEL 1 | There are significant gaps relative to basic good practice. |
| LEVEL 2 | Most relevant elements of basic good practice have been undertaken but there is one significant gap. |
| LEVEL 3 | Describes basic good practice on the sustainability topic. |
| LEVEL 4 | All elements of basic good practice have been undertaken and in one or more cases exceeded. |
| LEVEL 5 | Describes proven best practice on a particular sustainability issue that is demonstrable in multiple country contexts. |

Considering the UCR Program Additional Verification Guidance document for Large Hydel Projects (> 15MW installed capacity) version 1.0 dated Dec 2021, verification team have conducted independent research to search for objective evidence related to the project. Sufficient documented objective evidence has been found from the information available in the public domain. The overall project scoring is of **Level 4**; Below are the categorical findings and conclusion by the verification team.

A. Environmental and Social benefits

List of Documents Verified

1. Six monthly Monitoring report on compliance to Environmental Aspects No. SJVN/CHQ/ENV/F05/569.
2. Six monthly Monitoring report on compliance to Environmental Aspects No. SJVN/CHQ/ENV/F05/30.
3. Latest Test Certificate of Ambient Air quality, Noise level, Ground water, Effluent output of STP.
4. Best Environmental Practices in SJVN Projects Souvenir Booklet.
5. Annual Report 2020-21 of Ministry of Power, Chapter-27.
6. Case Study by International Hydropower Association weblink: <https://www.hydropower.org/sediment-management-case-studies/india-nathpa-jhakri>.

List of Observations

1. World Bank has specifically appreciated NJHPS for its Environment Management and R&R measures, and during one of its project reviews, has categorically stated that-“Nathpa Jhakri Project has several environmentally beneficial aspects. The environmental impacts of the project, considering its generation capacity are very low. The success of the resettlement activity undertaken in this project is quite rare for India, and can be considered as one of the best examples of resettlement implementation in bank assisted projects in India. It should be considered as an example for other projects. Reuse of muck in construction of a number of access roads and a school playground are also commendable initiatives. Avenue and other plantation in the township are also very satisfactory”.
2. The project was accorded Environment Clearance by the then Department of Science & Technology on June 26, 1980.
3. All the compliance stated by the Ministry of Environment and Climate Change are fully complied with all necessary provisions on time-to-time basis.
4. The project has built over 315 toilets in schools under ‘Swachh Bharat Mission’ and additional grant for construction of 53 toilets is also being provided.
5. SJVN is allocating a minimum of 2% of the average net profits made during the three immediately preceding financial years for CSR activities. However, the CSR &

Sustainability Plan for FY 2020-21 of SJVN was adopted with a budget outlay of Rs. 46.67 Crore against the statutory requirement of Rs. 36 Crore, considering the need to uplift and support the vulnerable groups of society; and the same is under implementation.

6. SJVN is providing free medical consultancy services and medicines at the door steps of local communities in its project areas.
7. Major CSR activities in the field of Health and Hygiene, Education and Skill Development, Preservation and Promotion of Culture and Sports, Empowering weaker sections of society, assistance to the victims of natural disasters/ calamities/ pandemic contributions towards Relief Funds.
8. SJVN being first public sector undertaking to reach CMMI institute's People Capability Maturity Model at Maturity Level 3.

Concluding Remarks and Level of Opinion

The SJVN meticulously implemented various mitigation and enhancement plans as follows:

- ❖ Compensatory Afforestation activity at Bhadrash, Ghaidharti and Old Jhakri.

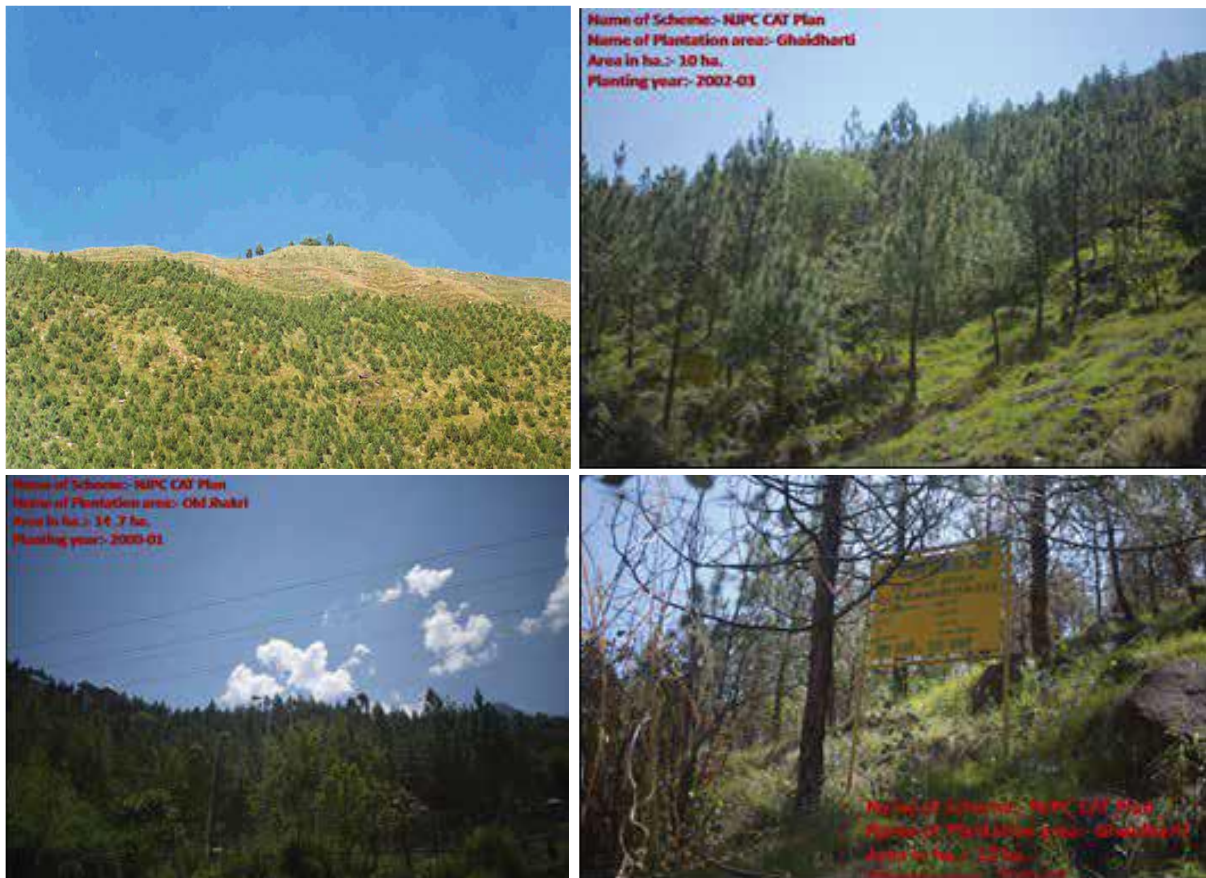


Figure 1 Compensatory Afforestation

❖ Muck disposal and restoration activities implementation

The details of muck utilization sites treated with geo-green erosion control blankets and landscaping works are as under:

| | |
|--------------------|---|
| Type-D, Jhakri | Restoration of muck utilization area near Type D quarters at Jhakri was carried out on an area of 5798 m ² . The work was completed on 6th March 2013 at the cost of Rs. 26.19 lacs (per m ² @ Rs. 452/-). |
| Duttanagar Area | About 4970 m ² area in the project colony of RHPS at Duttanagar and the area near left abutment of steel bridge was developed and restored through coir geo-green erosion control blanket. The work was completed on 31st March 2013 at the cost of Rs. 22.78 lacs (per m ² @ Rs. 458/-). |
| Bayal Area | In the Bayal area, the power house slope, located opposite to Duttanagar, on the right bank of River Satluj, was restored through coir geo green blanket on 3637 m ² area at the cost of Rs. 16.67 lacs (per m ² @ Rs. 458/-). |
| Auditorium, Jhakri | Restoration of muck disposal area near the Auditorium area at Jhakri was done on an area 2868.08 m ² at an estimated cost of Rs. 22.28 lacs (per m ² @ Rs. 777/-). |
| Left Bank Work | About 1992.92 m ² area, near the left bank diversion works, was restored through coir geo-green blanket at the cost of Rs. 9.13 lacs (per m ² @ Rs. 458/-). |
| Surge Shaft | About 2427.30 m ² area near the surge shaft was restored through coir geo green blanket at the cost of Rs. 9.9 lacs (per m ² @ Rs. 407.86/-). |
| Power House | Restoration of power house slope was done on an area of 14525 m ² . The work was completed on 10th September 2014 at the cost of Rs. 67 lacs (per m ² @ Rs. 460/-). |



Figure 2 Ground at DPS Jhakri



Figure 3 Muck Utilization

❖ Environmental Management



Figure 4 Environmental Laboratory



Figure 5 Internal monitoring of various Environment Management Plan activities

❖ Development of Nursery and plantation



Figure 6 Nursery at Jhakri

Level of Opinion: Level 4

B. Project benefits

List of Documents Verified

1. SJVN Website: <https://sjvn.nic.in/>
2. Citizen's Charter. Accessed on 04-04-2022 at:
https://sjvnindia.com/UploadFiles/FileUploadManagement/citizen_charter_hin_eng.pdf
3. Best Environmental Practices in SJVN Projects Souvenir Booklet.
4. Annual Report 2020-21 of Ministry of Power, Chapter-27.

List of Observations

1. The project benefits verified are over and above stated in the UCR general verification report.
2. Two villages namely, Jhakri and Bayal villages have been adopted by SJVN Ltd. under Adarsh Gaon Yojna.
3. At SJVN Employee Welfare initiatives focus on inclusive welfare of employees and addresses concerns like House Building, Children Higher Education, Health Care, Insurance and Routine Health Check-ups etc.
4. NJHPS has also supported local administration in maintaining hygiene by providing Sewerage Treatment Plant of 1.00 MLD capacity for entire Jhakri village as well as nearby area.
5. Bhima Kali Temple Complex at Sarahan, Shimla (HP) and Tara Devi Temple at Shimla (HP) have been adopted for protection and preservation of its rich cultural heritage. Besides these, repair and cleanliness drives have been undertaken in many other temples and public places.
6. SJVN is running "Women and Child Development scheme" under which the Below Poverty Line (BPL) women residing in Project Affected Areas of SJVN are eligible for a financial benefit of Rs. 10,000/- and in addition a gift pack worth Rs. 1000/- consisting of nutritional food items, soaps and other hygiene related items is also given.
7. SJVN Foundation is being extending financial support of Rs. 8.28 Crore to the School/ Home for speech, hearing and visually impaired children at Dhalli (HP).
8. SJVN Foundation is funding Indian Association of Muscular Dystrophy (IAMD) for construction of Manav Mandir at a cost of Rs.5.70 Crore.
9. SJVN has contribution of Rs. 25.00 Crore to PM CARES Fund, Rs. 50.00 Lakh to Uttarakhand State Disaster Management Authority and Rs. 30.00 Lakh to Corona Relief Fund / Local Administration (H.P.). A financial support of Rs. 13.28 Crore has been sanctioned for construction of fodder/wood storage sheds for the 3579 families in the four blocks namely Mori, Purola, Naugaon and Chinyalisaur (Uttarakhand).

Concluding Remarks and Level of Opinion

❖ Catchment Area Development Activities

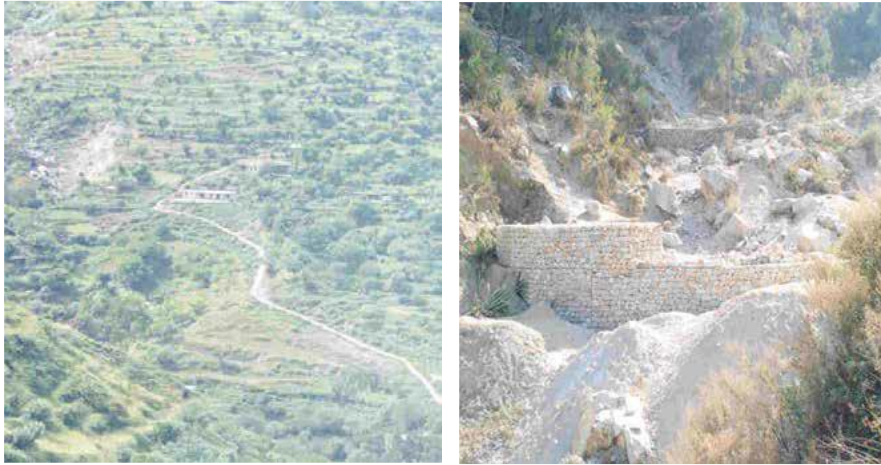


Figure 7 Village Road and Check Dams constructed



Figure 8 Stabilization of Nigulsari Area and Afforestation

❖ Maintenance of water quality



Figure 9 Sewage Treatment Facility at Jhakri Village



Figure 10 Sewage Treatment plant at Village Jhakri



Figure 11 Biogas Plant for Office Canteen, Jhakri

Level of Opinion: Level 4

C. Project affected communities and livelihood or Resettlement

List of Documents Verified

1. Impact Assessment of Resettlement Implementation Under Nathpa-Jhakri Hydro Electric Power Project study conducted by Agro-Economic Research Centre Himachal Pradesh University Summer Hill, Shimla.
2. Report on Remedial Action Plan for Department of Resettlement and Rehabilitation by Ms. Devjani Patra and Mr. Anup Khan, Independent Consultant.
3. Monitoring of Resettlement and Rehabilitation activities for the Project Affected families.
4. Best Environmental Practices in SJVN Projects Souvenir Booklet.
5. Annual Report 2020-21 of Ministry of Power, Chapter-27.

List of Observations

1. A Resettlement and Rehabilitation Scheme which is a part of the MOU signed between the State Govt. and SJVNL Management on 20th April 2004.
2. The World Bank Mission has monitored the R&R activities carried out in NJHPS time and again and has appreciated the efforts made for rehabilitation of the PAFs as under; "The success of the resettlement activity undertaken in this Project is quite rare for India, and can be considered as one of the best examples of resettlement implementation in Bank-Assisted Projects in India. It should be considered as an example for other projects."
3. The average annual household income (at 1996 prices) during the base line period was Rs.21,648 while in 2002 it is Rs.76,575. Proportion of families living below poverty line has decreased from 25.6 per cent to 16.8 per cent now. The average per capita monthly expenditure of Project Affected Families (PAFs) has increased from Rs.575 to Rs.674, showing an improvement in their consumption pattern and standard of living.
4. Under the employment programme of landless PAFs about 30 percent jobs in NJPC are taken by women. Encouraged by NJPC, the contractors working with it also employ local labour as much as possible.
5. Land allotted to landless PAFs under the land for land programme is of comparable quality. Compensation rates given to the PAFs were adequate. PAFs have received full compensation from NJPC. Many families were able to buy agricultural land elsewhere.

Concluding Remarks and Level of Opinion



Figure 12 Training Camp on Sustainable Agricultural Practices and Environment awareness camp

Level of Opinion: Level 4

D. Biodiversity and Invasive Species

List of Documents Verified

1. Best Environmental Practices in SJVN Projects Souvenir Booklet.
2. Annual Report 2020-21 of Ministry of Power, Chapter-27.

List of Observations

1. Under Fisheries Management of NJHPS, SJVN has funded INR 1.6 crore to the State Fisheries Department for development of Fisheries. Various components under the plan are as under:
 - a. To develop facilities to raise seed of Lake Trout (*Salvelinus namaycush*), Brown Trout (*Salmo trutta faria*) and Rainbow Trout (*Salmo gairdneri*) at Sangla.
 - b. To develop facilities to raise seed of Snow Trout (*Schizothorax richardsonii*) at Alsu (Mandi) for stocking in reservoir and main Satluj River.
 - c. Miscellaneous (Administrative expense for transportation of brooders, fish seed, etc.; farm and laboratory equipments; etc.).
 - d. Implementation of collaborative research project with scientists of Indian Council of Agriculture Research (ICAR) on breeding of Snow Trout (*Schizothorax richardsonii*).
2. The CAT Plan for the project was approved by Assistant Inspector General of Forests, Gol on January 09, 2003. It was formulated for a period of 10 years starting from 2002-03 to 2011-12 by taking into consideration various impacts of project activities and approach to be adopted for its mitigation. Total outlay for the CAT Plan was INR 29.57 Crores wherein INR 12.55 Crores was earmarked for Kinnaur Forest Division; INR 7.97 Crores for Rampur Forest Division and INR 9.05 Crores for Sarahan (Wildlife).
3. The CAT Plan was got re-casted by HP State Forest Department with an objective to prioritize the most cost-effective vegetative measures and bio-engineering methodology rather than the conventional approach of using civil structures. In addition, target oriented plantation to encourage moisture retention, reduced soil erodibility and improved soil and water conservation measures were also addressed.
4. In order to compensate for the diversion of 187.1456 ha of forest land, a Compensatory Afforestation Plan was prepared as per prevalent provisions under Forest (Conservation) Act, 1980. This involved plantation works over 256.2956 ha of degraded forest undertaken by State Forest Department of Himachal Pradesh and funds amounting to INR 3.67 Crores was deposited by SJVN with Compensatory Afforestation Management and Planning Authority (CAMPA). In addition to above, avenue plantation in and around the project area was also carried out through State Forest Department with funding from SJVN. More than 20,000 plants of selected species like Hibiscus, Bottle brush, Alstonia, Tecoma, etc. were planted by SJVN at various locations in Jhakri, Kotla & Nathpa as well as project sites like outfall & pothead yard, etc.

Concluding Remarks and Level of Opinion

❖ Fisheries management plan



Figure 13 Reinvigoration of fish at Nathpa Dam.

❖ Conservation of Biodiversity



Figure 14 Rufous Treepie (*Dendrocitta Vagabunda*)



Figure 15 Red-Vented Bulbul (*Pycnonotus Cafer*)



Figure 16 Black Drongo (*Dicrurus Macrocercus*)



Figure 17 Himalayan Griffon Vulture (*Gyps Himalayensis*)



Figure 18 House Sparrow (*Passer Domesticus*)



Figure 19 Green Bee-Eater (*Merops Orientalis*)



Figure 20 Spotted Dove (*Spilopelia Chinensis*)

Level of Opinion: Level 4

Attestation:

Arjun K Vyas

Lead Verifier (Print Name)



Lead Verifier (Signature)

06/04/2022

Date (DD/MM/YY)