



**SJVN Limited**  
(A joint venture of Govt. of India and Govt. of H.P.)  
A Mini Ratna & Schedule 'A' PSU  
**Sunni Dam Hydro Electric Project**  
(An IS/ISO 9001:2015 Certified Project)

No: SJVN/SDHEP/Env.-FCA/2021-10-12

Dated: 09/04/2021

To

- i. The Divisional Forest Officer,  
Forest Division Karsog,  
Distt.Mandi (H.P.).
- ii. The Divisional Forest Officer,  
Forest Division Shimla,  
Distt.Shimla (H.P.).
- iii. The Divisional Forest Officer,  
Forest Division Kotgarh,  
Distt.Shimla (H.P.).

**Sub: Diversion of 397-88-63 ha of forest land for the construction of Sunni Dam HEP on Satluj river in favour of SJVN Ltd. within the jurisdiction of Shimla, Kotgarh and Karsog Forest Divisions in Distt. Shimla and Mandi of H.P.-regarding observations raised by MoEF&CC, New Delhi".**

This has reference to observations raised by *MoEF&CC, New Delhi* vide letter No. File No. 8-07/2021-FC, dated 10/03/2021 addressed to the Addl. Chief Secretary (Forests), GoHP Shimla (**Annex-I**).

The point wise replies for the same (pertaining to this office) are as under:

Sr.No.	Observation	Remarks/updated Status (if any)
1	As per the DSS analysis report (Copy enclosed) many kml files of the areas proposed for compensatory Afforestation are either corrupt/missing or the area depicted by them is overlapping with each other. There is a need to re-look into the CA area and kml files.	Two kml files, which are missing/not downloading from the portal are being reloaded.  Issue of overlapping may please be looked into. New CA sites in lieu of overlapped areas is required, the same may please be identified and GPS coordinates of the same may be supplied for re-preparation of the digital maps/KML files.
2	The enumeration list of the trees mentions the presence of trees at FRL only and there are no trees mentioned at FRL-2 metre and FRL-4 metre level. The correct Species- wise local /Scientific names and girth wise enumeration of trees at FRL, FRL-2 metre and FRL-4 metre need submission.	It is submitted that as per Part-II of the application filled by all DFOs/DCFs, there are no trees present at FRL-2 and FRL-4.  The same may please be examined and necessary directions be issued. In case reconciliation/rechecking of the trees is to be done at FRL, FRL-2 metre and FRL-4 metre as desired, SJVN shall provide all necessary inputs for an early solution of this issue.

  
J.K. Mahajan



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3	Many of the documents uploaded on PARIVESH portal are not legible. In absence of legible copies, the proposal cannot be examined in totality.	As per letter No. RO/DDN/ADMN/01/ 2014/1969 dated 14.12.2020, w.e.f. 1 <sup>st</sup> Jan 2021, PDF files of the complete proposal folder under FCA, 1980 are to be sent online as additional document in Part-I, while ensuring size of the file does not exceed 20 MB. It is possible that in order to adhere to this condition, compression of such large document caused legibility to be compromised. The uncompressed soft copy has been emailed to Regional Office Dehradun on 18/02/2021, in compliance to above mentioned letter. However, complete proposal folder in PDF format, which are legible, will be provided through email to MoEF&CC.
4	The site inspection report of the proposed area by CF/CCF is to be submitted.	The Site inspection reports are placed in the file.
5	The copy of the approved Catchment Area treatment Plan (CAT plan) along with the cost estimate has not been submitted.	CAT plan has been approved by the Forest Deptt. and the same is being uploaded. The copy of the approved CAT Plan shall be provided through email.
6	The copy of Rehabilitation & Resettlement plan, approved by competent authority need submission.	The copy of the draft R&R Plan submitted to the Administrator is being uploaded.  It is also submitted that no forest land is proposed to provide housing to displaced families.
7	The site suitability certificate for all CA areas is required to be submitted.	All site suitability certificates are placed in the file.
8	In the part-II of the proposal, some of the proposed CA areas have been mentioned to be on non- forest land, which needs verification.	The status of the proposed CA land may be kindly be verified at your end.
9	The certificate for non-availability of non-forest land for CA is required to be signed/issued by Chief Secretary	The Certificates signed by the DFO/DCF Karsog, Kotgarh and Shimla; Deputy Commissioner Shimla and Mandi have been uploaded, who are the competent authority to issue certificate for non-availability of non-forest land for CA.
10	In the species-wise local /scientific names and girth-wise enumeration of trees the scientific names have been mentioned in the column of local names which needs correction.	Necessary correction has been made and uploaded. The same may be rectified at your end.
11	The cost benefit analysis given is highly skewed and benefits/costs are required to be revisited on actual basis as per the guidelines. The actual costs and benefits	The cost benefit analysis has been prepared as per guidelines.



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	as well as internal rate of return need submission.	Internal Rate of Return for the project is being provided with this reply.
12	A note on justification of locating project in forest area which will require minimum forest area need submission.	It is submitted that the location of the project components is selected based on the and geotechnical / power potential considerations. The justification is contained in the note already uploaded on the site.
13	The copy of the approved Detailed Project Report (DPR) of the instant project is required to be submitted.	The soft copy of the approved Detailed Project Report (DPR) of the project is being submitted in CD. It will be also be provided through email to MoEF&CC

With Regards,

DA: As Above.

Yours Faithfully,

  
(Er. R.D. Negi)  
CGM/HOP

  
SJVN Ltd., Bithal

Species-wise local/scientific names and girth-wise enumeration of trees at FRL:

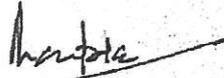
S.No.	Scientific Name	Local Name	(0 – 30) cm	(31 – 60 ) cm	(61 – 90) cm	(91 – 120) cm	(121 – 150 )cm	(> 150) cm
1	DalburgiaSisoo	Shisham	260	12	0	0	0	0
2	Bombax Ceiba	Semabal	12	20	0	0	0	0
3	Aegle Marmelos	Bil	93	0	0	0	0	0
4	FicusRacemosa	Fegra	6	1	0	0	0	0
5	FicusReligiosa	Pipal	9	0	0	0	0	0
6	Cassia Fistula	Amltash	779	11	0	0	0	0
7	Syzgium	Jamun	181	49	5	0	0	0
8	Melia	Dreak	21	0	0	0	0	0
9	Acacia Catechgu	Khair	211	4	0	0	0	0
10	Samanea	Sanan	390	53	0	0	0	0
11	Ehretialaevis)	Chamroda	259	0	0	0	0	0
12	Helicorsiaindica	Kangu	109	0	0	0	0	0
13	Anacradiumoccidentale	Pechka	4203	259	3	1	0	0
14	Pisteciaintegrifolia	Kakar	212	22	1	0	0	0
15	Celtisaustralis	Khirak	274	1	0	0	0	0
16	Mallotusphilippinensis	Kambal	605	5	0	0	0	0
17	Salix alba	Bad	903	323	14	9	0	0
18	Terminalia elliptica	Matirsh	64	1	0	0	0	0
19	Bauhinia variegata	Kachnar	151	0	0	0	0	0
20	Symplocoscrataegoldes	Ledra	208	6	0	0	0	0
21	Phyllanthus emblica	Ambala	273	1	0	0	0	0
22	Grewiaoptiva	Biwal	189	1	0	0	0	0
23	Fraxynusxanthzyloldes	Thua	16	2	0	0	0	0
24	Zizyphusmauritiana	Ber	104	0	0	0	0	0
25	Toona ciliate	Tuni	17	0	0	0	0	0
26	Prunus armeniaca	Chuli	31	0	0	0	0	0
27	Ficus auriculate	Trembal	25	0	0	0	0	0
28	Albizzia chinensis	Seersh	96	2	0	0	0	0
29	Pinus roxiburghii	Chil	2	0	0	0	0	0
30	Careyaarborea	Khumbi	1	0	0	0	0	0
31	Ilex diphyrena	Khardu	90	0	0	0	0	0
32	Nepatacillaris	Nurn	1	0	0	0	0	0
33	Zizyphusmauritiana	Besu	2	0	0	0	0	0
34	Punicagranatum	Daru	1	0	0	0	0	0
35	Grewia asiatica	Farsha	13	0	0	0	0	0
36	Lucaena lecocephela	Lesunia	27	0	0	0	0	0
37	Acacia modesta	Falah	5	0	0	0	0	0
38	Butea Monosperma	Palash	38	0	0	0	0	0
39	Salix	Willow	3	1	0	0	0	0
40	Robinia pseudoacacia	Roninia	4	0	0	0	0	0
41	Dendrocalamus strictus	Bamboo	531	0	0	0	0	0
42	Board Level Sepcies		529	22	0	2	0	0

*Arum*

Er. R.L. Negi  
CGM/Head of Project  
SJVN, LHEP, Bithal

## CERTIFICATE

This Catchment Area Treatment Plan (CAT Plan) document of 382 MW Sunni Dam Hydro Electric Project, being constructed with total project cost of Rs. 2475.35 Crore, falling in the jurisdiction of Karsog, Kotgarh, Shimla and Wild Life, Kullu Forest Divisions of Himachal Pradesh Forest Department is hereby approved for total CAT Plan Cost of Rs. 38.34 Crore (Rupees: Thirty Eight Crore and Thirty Four Lakh only).

  
Addl. Pr. CCF -cum-CEO, H.P.  
State Authority(CAMPA),  
Shimla

  
11/04/2021  
Principal CCF(HoFF)  
Himachal Pradesh, Shimla.

  
AZM(C)

  
Er. R. C. Negi  
CGM/Head of Project  
SJVN, LHEP, Bithal

एसजेवीएन लिमिटेड  
**SJVN Limited**  
(A Joint Venture of Govt. of India & Govt. of Himachal Pradesh)  
A Mini Ratna & Schedule "A" PSU  
CIN : L40101HP1988GOI008409  
लुहरी जलविद्युत परियोजना  
LUHRI HYDRO ELECTRIC PROJECT



HR DEPARTMENT

No: SJVN/LHEP/HR/R&R/301/2020-2120

Dated: 31.12.2020

To

Additional District Magistrate,  
Shimla,  
District Shimla (H.P.)

**Sub: Approval of R&R Plan for Sunni Dam HEP.**

Sir,

Kindly refer letter no. HPDOE/CEC(Energy)/Jashi HEP/2017-11213-215 dated 23.01.2017 from Director, Directorate of Energy, GoHP. GoHP has allotted Sunni Dam HEP (382 MW) to SJVN for development on BOOM basis. SJVN is a Public Sector Undertaking (formed as Joint Venture having share holding of Govt. of India and Govt. of Himachal Pradesh). Sunni Dam HEP is located in Khaira Village in Shimla Distt. on right bank and Bhoura village in Mandi Distt. on left bank of river Satluj. To develop Sunni Dam HEP, 59.0271 Ha Private land and 397.1692 Ha Forest land is required. SJVN has taken up for the acquisition of the private land as per RFCTLARR Act-2013 with GoHP.

The Govt. of Himachal Pradesh has accepted SIA report u/s 8(2) of RFCTLARR Act-2013 and recommended SJVN to acquire the land vide notification no. MPP-F(5)-8/2018 dated 21.10.2019.

To bring Sunni Dam in Construction Stage, all out efforts are being made. TEC has already been accorded by the CEA and other clearances are in pipeline. The Forest Clearance Stage-2 from MOEF&CC, Govt. of India is required approved R&R plan of Sunni Dam HEP from GoHP. Keeping in the view the provisions of RFCTLARR Act-2013 and other policies/notification of Govt. of HP, SJVN has formulated the R&R Plan.

The R&R Plan is hereby forwarding for necessary action at your end please.

Thanking you,

Yours sincerely,

(Baljeet Singh)  
Addl. Gen. Mgr. (HR)

परियोजना कार्यालय : एसजेवीएन, लुहरी जलविद्युत परियोजना, जिला शिमला - 172030

दूरभाष : 01782-222031, फैक्स : 01782-222034

[www.sjvn.nic.in](http://www.sjvn.nic.in)

कार्पोरेट मुख्यालय : शक्ति सदन शानान, शिमला - (171006 हि. प्र.)

Project office: SJVN, Luhri Hydro Electric Project, District Shimla - 172030

Tele: 01726-222031, Fax: 01782 - 222034

[www.sjvn.nic.in](http://www.sjvn.nic.in)

Corporate H. Q.: Shakti Sadan Shanan, Shimla - 171006 (H.P.)

अपने तथा राष्ट्र के हित में ऊर्जा की बचत करें

SAVE ENERGY FOR BENEFIT OF SELF AND NATION

Scanned with CamScanner

Er. R.L. Negi  
CGM/Head of Project  
SJVN, LHEP, Bithal

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CGM/Head of Project  
SJVN, LHEP, Bithal

  
ACM(CO)

## EXECUTIVE SUMMARY

Sunni Dam Hydroelectric Project (SDHEP)-382 MW is a run of river type scheme and a part of multistage development of Luhri HEP. Luhri HEP was conceived in the year 2008 and was subsequently planned to be constructed in three stages without constructing tunnels so as to avoid adverse impact on environment. The project contemplates construction of three dams in three stages viz. Luhri Hydroelectric Project Stage-I (210 MW), Luhri Hydroelectric Project Stage-II (172 MW) and Sunni Dam Hydroelectric Project (382 MW). The project is to harness the hydel potential of Satluj River between Rampur Hydro Electric Project of SJVN and Kol Dam Hydroelectric project of NTPC.

Government of Himachal Pradesh (GoHP) allocated Sunni Dam Hydroelectric Project (SDHEP)-382 MW to SJVN on 23.01.2017. Further, MOU between GoHP and SJVN for executing the project was signed on 25.09.2019.

Sunni Dam Hydro Electric Project is situated on the bank of river Satluj falling in Shimla and Mandi districts of Himachal Pradesh. The project envisages construction of a concrete gravity dam of  $\pm 83$  m high above deepest foundation level across river Satluj near Khaira village in district Shimla on left bank and village Bhaura, district Mandi on the right bank of river Satluj. The underground power house is to be constructed on the right bank near village Bhaura in district Mandi. The dam is to be located at longitude  $77^{\circ}12'39''$  E and Latitude  $31^{\circ}14'53''$  N. On the upstream of the project lies the 412 MW Rampur HPS, which utilizes water discharged from the further upstream 1500 MW Nathpa-Jhakri project. On the downstream of the project lies the 800 MW Kol Dam HPS of NTPC. The location map is given at Annexure-1.

The project site is located at about 145 Km from the nearest railhead at Kalka in Haryana and can be approached by NH-5 followed by SH-13 and MDR-22 via Shimla, Naldhera and Chaba. The nearest airport is at JubbarHati (Shimla) about 70 km from project site. The nearest international airport is located at Chandigarh at a distance of 170 km from the project site.

The private land for SDHEP falling under Distt. Shimla and Distt. Mandi (HP) has been acquired by the state govt, H.P (the appropriate govt.) invoking procedures laid under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCTLARR). The summary of private land, affected villages and affected land owners in both districts are as under:

  
AMC 1

  
Er. R. S. Negi  
CGM/Head of Project  
SJVN, LHEP, Bithal

S. N.	Description	Under District Shimla	Under District Mandi	Total
1	Private land ( ha)	46.4125	12.6146	59.0271
2	Number of affected panchayats	6	5	11
3	Number of affected villages	15	11	26
4	Number of affected land owners	1724	367	2091
5	Displaced families due to losing their land and houses	14	31	45

The Social Impact Assessment (SIA) study report for Sunni Dam HEP was duly recommended by expert group and approved by the GoHP. Further, invoking section 109 of the said Act the appropriate govt. i.e. GoHP has prepared Rehabilitation and Resettlement Plan for the Project Affected Families (PAFs).

The R&R plan at the cost of Rs.284.03 crore includes land compensation, house compensation, various R&R benefits etc. The plans also includes monitoring, procedure and manner for R&R implementation which are required to eliminate adverse social impacts or to reduce them to acceptable levels. The R&R may be implemented during pre-construction stage and construction stage of the project. The various R&R provisions are as under:

1. Provision for housing for displaced families.
2. Employment as per LARR Act provision or onetime payment of Rs. 5.00 Lakh in lieu thereof which can be offered in form of annuity also not less than Rs.2,000/- per month for a period of 20 years.
3. Subsistence Grant of Rs.3,000/- per month to the displaced families for one year.
4. Financial assistance of Rs.50,000/- for transportation to resettlement site.
5. Financial assistance of Rs.25,000/- for cattle shed.
6. Financial support of Rs.25,000/- to artisan and small traders to restart their business.
7. Fishing rights of the locals will be protected.
8. Resettlement allowance of Rs.50,000/- will be provided to each affected family.
9. Stamp Duty and Registration fee will be borne by SJVN.
10. Infrastructure facility in resettlement area.

  
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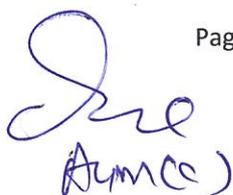
  
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SJVN, LHEP, Bithal

11. Various community development facilities like awarding of petty contracts, hiring of vehicles, vocational trainings, promotion of land based economy, 100 unit free power for ten years to the PAFs, education facility, promotion of culture etc.

For ensuring timely delivery of R&R benefits following officials will be notified and institutional mechanism will be set up:

1. R&R Administrator and R&R Commissioner
2. Rehabilitation and Resettlement Cell
3. Monitoring Mechanism
4. R&R Implementation Impact Evaluation

Beside above provision of LADF will also be implemented to ensure infrastructure development and the economic development of the families under project affected area.

  
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Page 3 of 14

  
Er. R.L. Negi  
CGM Head of Project  
SJVN, LHEP, Bithal

## 1. DEFINITIONS

- I. **Administrator** means an officer appointed for the purpose of rehabilitation and resettlement of affected families under sub-section (1) of section 43 of LARR Act.
- II. **Affected family** includes: -
- a. family whose land or other immovable property has been acquired;
  - b. family which does not own any land but a member or members of such family may be agricultural labourers, tenants including any form of tenancy or holding of usufruct right, share-croppers or artisans or who may be working in the affected area for three years prior to the acquisition of the land, whose primary source of livelihood stand affected by the acquisition of land;
  - c. the Scheduled Tribes and other traditional forest dwellers who have lost any of their forest rights recognised under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Right) Act, 2006 due to acquisition of land.
  - d. family whose primary source of livelihood for three years prior to the acquisition of the land is dependent on forests or water bodies and includes gatherers of forest produce, hunters, fisher folk and boatmen and such livelihood are affected due to acquisition of land
  - e. a member of the family who has been assigned land by the State Government or the Central Government under any of its schemes and such land is under acquisition;
  - f. a family residing on any land in the urban areas for preceding three years or more prior to the acquisition of the land or whose primary source of livelihood for three years prior to the acquisition of the land is affected by the acquisition of such land.
- III. **Agricultural land** means land used for the purpose of:
- a. agriculture or horticulture;
  - b. dairy farming, poultry farming, pisciculture, sericulture, seed farming breeding of livestock or nursery growing medicinal herbs;
  - c. raising of crops, trees, grass or garden produce; and
  - d. land used for the grazing of cattle.
- IV. **Collector** means the Collector of a revenue district, and includes a Deputy Commissioner and any officer specially designated by the appropriate

  
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Government to perform the functions of a Collector under this Act i.e., RFCTLARR Act, 2013

- V. **Commissioner** means the Commissioner for Rehabilitation and Resettlement appointed under sub-section (f) of section 44 of the Act i.e., RFCTLARR Act, 2013
- VI. **Cost of Acquisition** includes:-
- a. amount of compensation which includes solatium, any enhanced compensation ordered by the Land Acquisition and Rehabilitation and Resettlement Authority or the Court and interest payable thereon and any other amount determined as payable to the affected families by such Authority or Court.
  - b. Demurrage to be paid for damages caused to the land and standing crops in the process of acquisition.
  - c. Cost of acquisition of land and building for settlement of displaced or adversely affected families.
  - d. Cost of development of infrastructure and amenities at the resettlement areas.
  - e. Cost of rehabilitation and resettlement as determined in accordance with the provisions of this Act i.e., RFCTLARR Act, 2013
- VII. **Displaced family** means any family, who on account of acquisition of land has to be relocated and resettled from the affected area to the resettlement area.
- VIII. **Family** includes a person, his or her spouse, minor children, minor brothers and minor sister dependent on him. Provided that widows, divorcees and women deserted by families shall be considered separate families.
- f. Explanation: - An adult of either gender with or without spouse or children or dependents shall be considered as a separate family for the purposes of this Act i.e., RFCTLARR Act, 2013.
- IX. **Land** includes benefits to arise out of land, and things attached to the earth or permanently fastened to anything attached to the earth.
- X. **Landless** means such persons or class of persons who may be,
- a. considered or specified as such under any State law for the time being in force; or
  - b. in case of landless not being specified under sub-clause (i), as may be specified by the appropriate Government.
- XI. **Land owner:** includes any person;
- a. whose name is recorded as the owner of the land or building or part thereof, in the records of the authority concerned; or



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Er. R. Negi  
CGM/Head of Project  
SJVN, LHEP, Bithal

- b. any person who is granted forest rights under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 or under any other law for the time being in force; or
  - c. who is entitled to be granted Patta rights on the land under any law of the State including assigned lands; or
  - d. any person who has been declared as such by an order of the court or Authority.
- XII. **Project** means the Sunni Dam Hydro Electric Project (382 MW).
- XIII. **Requiring body** i.e. SJVN Limited.
- XIV. **Social Impact Management Plan** means the plan prepared as part of Social Impact Assessment Process under sub-section (1) of Section 4 of the Act i.e. RFCTLARR Act, 2013.
- XV. **State Government or "Government"** means the Government of Himachal Pradesh.
- XVI. **Resettlement Area** means an area where the affected families who have been displaced as a result of land acquisition are resettled by the appropriate Government.
- XVII. **Scheduled Areas** means the Scheduled Areas as defined in section 2 of the Provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 (40 of 1996).
- XVIII. **Project Affected Area (PAA)**

Project affected area means such area as may be notified by the appropriate Government for the purposes of land acquisition.

\*The other terms and expressions not defined in this chapter will have the same meaning as defined under RFCTLARR Act, 2013.

## 2. SOCIOECONOMIC PROFILE OF PROJECT AFFECTED VILLAGES (PAVs) IN SDHEP

The proposed SDHEP development will require total land of 459.4546 ha including forest land. Out of which 59.0271 ha private land is required from 21 villages in two districts of Shimla and Mandi for construction of project.

The summary of affected panchayats, villages, land owners and displaced families is given in Table 1 and the detail is at Appendix-1.

S. No	Description	Number
1	Number of affected panchayats	11

*[Handwritten Signature]*  
A. G. (1)

2	Number of affected villages	26
4	Number of affected land owners	2091
5	Displaced families due to losing their land and houses	45

The summary of forest land to be diverted and private land to be acquired is given in following table -2 and the detail is given at appendix-2

**Table-2**

District	Name of Division	Panchayat	Village	Forest Land (Ha)	Private Land (Ha)	Total (Ha)	Nos. of Land Owners	No. of Displaced Families	
Shimla	Shimla (Rural)	Chabri	Lunsu	4.5576	3.1672	7.3907	184	0	
			Khera	32.5388	9.9689	39.4393	329	0	
		Karyali	Jaishi	18.2007	3.9275	22.1282	306	0	
			Bharara	17.5203	6.1109	23.6312	229	7	
		Ogli	Talah	23.5863	3.2225	26.8088	54	1	
			Ogli	22.1604	4.7889	26.9493	112	2	
			Kothi	6.3146	0.5522	6.8668	33	0	
			Malgi	5.5998	8.565	14.1648	217	1	
		Bag	Bathora	7.2771	3.8662	11.1433	156	1	
			Pandhoa	15.0423	0.4448	15.4871	20	2	
			Grehna	6.5505	0.6941	7.2446	3	0	
		Kumarsain	Mogra	Jhunjan	13.3032	0.8678	14.171	64	0
	Majrog			11.8470	0.2365	12.0835	17	0	
	Banahar		Bhutt	2.7544	0	2.7544	0	0	
			Talah	9.4813	0	9.4813	0	0	
	<b>Total in Shimla Distt.</b>				<b>196.7343</b>	<b>46.4125</b>	<b>243.0026</b>	<b>1724</b>	<b>14</b>
	Mandi	Karsog	Bindla	Bhoura	37.9939	3.5359	51.0542	136	10
				Balog	13.6269	1.7213	14.7376	22	10
			Sartyola	Jakleen	10.6240	0.6748	10.7911	14	2
Mangan				22.2516	0.0898	20.7635	1	0	
Parlog			Fafan	18.2982	1.7954	18.4761	41	0	
			Khanouch	4.6117	0	4.116	0	0	
			Parlog	17.0455	1.4437	12.4939	26	4	
			Beludhank	39.2072	2.431	40.3521	66	5	
Shout			Kharyali	28.6676	0.9227	26.719	61	0	
Nanj			Choa	2.1234	0	2.1234	0	0	
			Tundol	5.9849	0	5.9849	0	0	

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Total in Mandi Distt.	200.4349	12.6146	207.6118	367	31
Grand total	397.1692	59.0271	456.1963	2091	45

### 3. NEED & OBJECTIVE OF REHABILITATION AND RESETTLEMENT

For developmental projects land acquisition is inevitable which causes involuntary resettlement. The involuntary resettlement often gives rise to severe economic, social, and environmental risks. Production systems are dismantled and people face hardship when their productive assets or income sources are lost. People are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. Therefore, need has been felt for a well-designed R&R Plan which includes safeguards to address and mitigate these impoverishment risks. An imperative need is felt to recognize rehabilitation and resettlement issues as intrinsic to the development process formulated with the active participation of affected persons and families. Additional benefits beyond statutory compensation are required to the affected families affected directly or indirectly by the construction of the project or involuntarily displaced by the project to restart their lost socio-economic lives. The approaches of R&R implementation must be aimed at improving the all-round living standards of the affected families leading to an improvement in their post-acquisition social and economic status.

The R&R plan of SDHEP based on RFCTLARR Act, 2013 comprehensively addresses the issue of PAFs, with following objectives:

- a. To ensure minimum displacement of people.
- b. To make provisions for adequate rehabilitation package and expeditious implementation of Rehabilitation and Resettlement Plan with active participation of PAFs and local community.
- c. To provide a standard of living, making concerted efforts for providing sustainable source of income to the affected families.
- d. To integrate rehabilitation concerns into development planning.
- e. To support social and cultural institutions of PAFs.

### 4. REHABILITATION AND RESETTLEMENT BENEFITS

The R&R plan will be implemented by R&R Administrator appointed by the appropriate govt. i.e. GOHP. The R&R Administrator will finalize and execute the R&R entitlements to the

  
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eligible PAFs as per benefits provided under schedule II of RFCTLARR Act, 2013 and execute the same. The major R&R benefits are outlined as below:

- I. **Provision of Housing in case of displacement:** Project affected family who lost house in rural area will be provided with a house as per Pradhan Mantri AwasYojna (erstwhile Indira AwasYojna) specification or the equivalent cost determined by appropriate govt. as per PMAY norms as per choice of displaced family.
- II. **Choice of Annuity or Employment:**
  - a. Where jobs are created through the project, one member per affected family will be provided employment as prescribed under the LARR Act, 2013; or
  - b. Onetime payment of Rs. Five lakh per affected family; or
  - c. Annuity policies that shall pay not less than two thousand rupees per month per affected family for twenty years with appropriate indexation to the CPI for agricultural labourers.
- III. **Subsistence grant for displaced families:** Each displaced family will be given a monthly subsistence allowance equivalent to Rs. 3000/- per month for a period of one year from the date of award. In addition to this amount, the SC and ST displaced family from scheduled area shall receive an amount equivalent to Rs. 50,000/-
- IV. **Transportation cost for displaced families:** Affected family who is displaced shall get a onetime financial assistance of Rs. 50000/- as transportation for shifting the family, building materials belongings and cattle.
- V. **Cattle shed/petty shops cost:** Affected family whose cattle-shed or petty shop is acquired, shall be provided Rs. 25000/-.
- VI. **One-time grant to artisan, small traders and certain others:** Each affected family of an artisan, small trader or self-employed person or an affected family which owned non-agricultural land or commercial, industrial or institutional structure in the affected area, and which has been involuntarily displaced from the affected area due to land acquisition, shall get one-time minimum financial assistance of Rs.25,000/-.
- VII. **Fishing rights:** The affected families may be allowed fishing rights in the reservoirs in such manner as may be prescribed by the appropriate govt.
- VIII. **Resettlement Allowance:** Each affected family shall be given a onetime resettlement allowance of Rs. 50,000/-.
- IX. **Stamp duty and registration fee:**
  - a. The stamp duty and other fees payable for registration of the land or house allotted to the affected families shall be borne by the Requiring Body.

  
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- b. The land for house allotted to the affected families shall be free from all encumbrances.
- c. The land for house allotted may be in the joint names of wife and husband of the affected family.

## **5. INFRASTRUCTURAL DEVELOPMENT FOR DISPLACED FAMILIES IN THE RESETTLEMENT COLONY /VILLAGES/AREA**

For the development of the SDHEP project, it has been estimated that 45 families will be displaced. For resettlement of these 45 displaced PAFs, the necessary infrastructural facilities and civic amenities will be provided in the resettlement colony/villages/area as per the facilities enumerated under schedule III of RFCTLARR Act, 2013 to secure reasonable standard of community life to the displaced PAFs. Such facilities may include roads, drainage drinking water, Panchayat ghars, cremation grounds, sanitation, electricity toilets, education facilities, health facilities etc.

## **6. COMMUNITY DEVELOPMENT WORKS FOR PROJECT AFFECTED AREA**

In addition to the statutory compensation and R & R budget for the project affected families, various community development activities will be carried out in the project affected area (PAA) including families residing in resettlement area for their all-round development

- a. **Awarding of petty contracts:** Project authorities will also consider to award petty contracts to the registered contractors among the project affected families on preferential basis.
- b. **Hiring of vehicles:** Project authorities will hire the vehicles for project use from project affected families on preferential basis.
- c. **Opening of small and medium sized market place/ shops:** SJVN may construct market for small/ medium size shops /kiosks in residential colony of Sunni Dam HEP. These shops /kiosks may be allotted to project affected families on preferential basis.
- d. **Water sports activity in reservoir:** The project authorities may allow to PAFs for promoting water sports /river rafting activities in the reservoir as an income generation activity.
- e. **Vocational Training to the youth for self-employment:** The local youth will be provided appropriate vocational training enabling them to get gainful employment opportunities.



  
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- f. **Support Services for land based economic activity:** The local farmers will be provided appropriate farm training in the areas of agricultural, horticulture and veterinary enabling them to improve their farm production.
- g. **Free Power Supply:** As per the Tariff policy of GOI and procedures notified by GOHP, 100 units free electricity power will be provided to each project affected family for 10 years after commissioning of the project.
- h. **Educational Facilities:** The project affected area school may be strengthened as per societal felt need. Further, the available educational institutions of SJVN will be opened for the local children and wards of PAFs.
- i. **Grant for marriage of daughter:** A grant of Rs. 20,000 will be provided to a PAF on the marriage of his/her daughter or sister provided the bride has attained the age of 18 years at the time of marriage.
- j. **Promotion of sports and cultural activities:** With a view to promotion of local sports and cultural activities, the local institutions will be strengthened as per societal felt need.
- k. **Protection of cultural heritage institutions:** The cultural heritage institutions will be strengthened.
- l. **Community Participation:** The local PAFs will be encourage to attend various national functions organized by SJVN such as Independence Day, Republic Day etc. for making harmonious social relationships.

## **7. LOCAL AREA DEVELOPMENT ACTIVITIES UNDER LOCAL AREA DEVELOPMENT FUND (LADF)**

The Local Area Development Fund Scheme as notified by GoHP on 05.10.2011 and subsequent amendments notified from time to time will be implemented in SDHEP. As per the LADF notification the objective of the scheme is to mitigate the impact caused by SDHEP.

## **8. INSTITUTIONAL ARRANGEMENT FOR IMPLEMENTATION OF REHABILITATION AND RESETTLEMENT PLAN**

### **8.1 R&R Administrator and R&R Commissioner**

- a. As per the RFCTLARR Act, 2013, the R&R plan will be formulated, executed and monitored by R&R Administrator. As such, the R&R benefits will be extended to the eligible

  
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PAFs based on the list of PAFs identified and certified by R&R Administrator as per the aforesaid Act.

b. As per the RFCTLARR Act, 2013, the R&R Commissioner will supervise the formulation and implementation of R&R Plan and will be responsible for post implementation social audit.

Both above officials will be appointed by appropriate govt i.e. GOHP.

## 8.2 Rehabilitation and Resettlement Cell

A dedicated R&R cell at Sunni Dam HEP will be created who in association with R&R Administrator will ensure timely delivery of R&R benefits and make constant consultations with PAFs and local communities for participation in the implementation and getting feedback for corrective measures. The R&R cell will keep all R&R records, prepare all reports and provide to Corporate office. They will also make necessary coordination with local government for R&R implementation.

## 8.3 Monitoring

The Rehabilitation and Resettlement committee will be constituted as per provisions envisaged under section 45 of the RFCTLARRR ACT, 2013 for R&R monitoring, review, corrective measures and social audits. The R&R committee under the chairmanship of collector will comprise, apart from officers of the appropriate govt., various members from women residing in the affected area, SC/ST families, voluntary organisations, bank, land acquisition office, panchayat, district planning committee, MLA, requiring body, and R&R Administrator.

Subject to above, the R&R implementation will be internally monitored by project authority also and if need be it will be monitored by deploying external agency also. The R&R implementation timeline along with gant chart is provided at Annexure-2.

## 8.4 Independent Evaluation

An external independent evaluation agency may be deployed for mid-term as well as end term evaluation of R&R implementation to evaluate whether R&R objectives have been achieved, specifically livelihoods and living standards have been restored and to make a comparison of living standards of the PAFs during the pre and post R&R implementation stages.

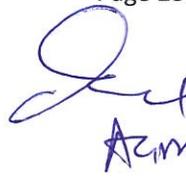
## 9. R&R BUDGET:

**9.1 Land Cost:** For acquisition of 59.02.71 ha of private land and 45houses, Rs.10494.30 lakhs budgeted for compensation.

**9.2 Rehabilitation & Resettlement Benefits:** For R&R benefits Rs.17908.74 lakh is budgeted. The details of costing of the R & R Benefits are given in following table 3:

**Table 3**

<b>A. Cost of R&amp;R Plan</b>			
Sr. No.	R&R Provisions under RFCTLARR Act	R&R Benefits proposed	Cost (in Rs. lakhs)
1.	Provision of Housing units	Provision of Housing for 45 houseless PAFs as per Pradhan Mantri AwasYojna specification which may approximately cost Rs. 5,00,000/ per house.	225.00
2.	Choice of annuity or employment	Either onetime payment of Rs. 5 Lakhs or Annuity @ Rs. 2000 /Month/ 2091 PAF	10455.00
3.	Monthly subsistence grant for project affected families	Subsistence grant for 45 displaced families for a period of one year @ Rs. 3,000/ month /PAF	16.20
4.	Additional Subsistence Grant to Displaced SC/ST Families	Additional amount to SC/ST displaced PAFs @ Rs. 50,000/PAF (40 PAF)	20.00
5.	Transportation cost for displaced families	Transportation cost for 45 displaced families @ Rs. 50,000 /PAF	22.50
6.	Cattle shed/petty shops cost	One-time financial assistance for Cattle shed /Petty Shops for 24 PAF @ Rs. 25,000 /PAF	6.00
7.	One time grant to artisans, small traders	30 no. artisans, small traders and certain others @ Rs. 25,000 /PAF	7.50
8.	One-time Resettlement Allowance	One-time Resettlement Allowance to 2091 PAFs @ Rs. 50,000 /PAF	1045.50
9.	Stamp duty and registration fees	Stamp duty and registration fees (Lump sum)	50.00
10	100 units free power supply per month to the PAFs for 10 years	2091 PAFs@ Rs.2.70/unit x 100 unitx 120 months	677.48
<b>Sub Total</b>			<b>12525.18</b>
<b>B. Other R&amp;R Benefits</b>			
Sr. No.	Provisions	Activities	Cost (in Rs. Lakh)
1	<b>Local Area Development Fund (LADF)</b>	Infrastructural development, community development works etc. under LADF (1.5 % of the total cost of the project i.e. 2555.71 Cr.)	3833.56
2.	<b>Indemnification</b>	Compensation in view of likely damage to private property due to blasting/ construction activities of project. (Lump sum)	1000.00

  
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3	<b>Miscellaneous</b>	Misc. R&R/ Community Development works, Social R&R Studies, unforeseen schemes, expenditure on Monitoring Committee etc.	550.00
<b>Sub Total</b>			<b>5383.56</b>
<b>Grand Total (A+B)</b>			<b>17908.74</b>

The summary of R&R budget is given in following table 4

Table:4

Sr. No.	Activities	Cost in Rs. Lakh
1.	Land Cost	10494.30
2.	Rehabilitation & Resettlement Benefits	12525.18
3.	Other R&R Benefits including LADF	5383.56
<b>Grand Total</b>		<b>28403.04</b>

**Note:** In case of any dispute arises regarding R&R benefits or words and expression mentioned under the above R&R Plan of SDHEP then the R&R benefits and words and expression mentioned under the RFCTLARR Act, 2013 will prevail.

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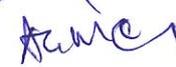
## Timeline for Implementation of R&amp;R activities

Sr. No.	Activity	Time as per Act	Date as per Act	Time Schedule (As per Ideal Timeline)	Date as per Ideal Timeline
1	Preliminary Notification under Section 11	Within 12 months from the date of submission of appraisal report on SIA u/s 7 by Expert Group	31/12/2020	-	31/12/2020
2	Survey & Census of Affected families by Administrator R&R on publication of Preliminary Notification u/s 11	-	-	60 Days	02/03/2021
3	Publicity of draft R&R Scheme	-	-	10 Days	13/03/2021
4	Publicity about date, time and venue for the public hearing	-	-	07 Days	21/03/2021
5	Conduct of public hearing in every Gram Sabha by the Administrator	-	-	27 Days	18/04/2021
6	Submission of Draft R&R scheme to the respective Collector by the Administrator.	-	-	10 Days	29/04/2021
7	Review of the R&R Scheme by Collector with R&R Committee at Project Level u/s 17 and further Submission of report to the Commissioner R&R i.e. DC Shimla & Mandi	-	-	30 days	30/05/2021
8	Approval of R&R Scheme by the respective Commissioner R&R and its Publicity u/s 18	-	-	30 Days	30/06/2021
9	Deposit of Cost of Acquisition	-	-	07 Days	08/07/2021
10	Issue of Declaration that land is required	-	-	07 Days	16/07/2021

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	for public purpose				
11	Publicity of Declaration u/s 19	Within 12 months from the date of Preliminary Notification	31/12/2021	07 Days	24/07/2021
12	Announcement of Award by Collector	Within 12 months from the date of publication of declaration u/s 19	31/12/2022	90 Days	23/10/2021
13	Payment of Full amount of compensation	Within 3 months from date of award	31/03/2023	Within 2 months from date of award	22/12/2021
14	Payment of Monetary part of R&R	Within 6 months from date of award	30/06/2023	Within 4 months from date of award	20/02/2022
15	Taking possession of land acquired	After payment of compensation and monetary part of R&R package has been completed	-	Within 2 months	23/03/2022
16	Infrastructural component of R&R package to be provided	Within 18 months from date of award	23/06/2024	Within 12 months from date of award	23/10/2022
17	In case of acquisition of land for hydel project, being a public purpose, the R&R shall be completed	6 months prior to submergence of the land proposed to be acquired as per RFCTLARR Act-2013	-	Subject to the work is awarded by July, 2021, the submergence will start after 4.5 Years i.e. December, 2025	6/30/2025

  
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**SUNNI DAM HEP (382 MW)**  
**Summary of Project Cost and Economic Evaluation**  
**PRICE LEVEL: July'2020 (CERC Guidelines 2019-24)**

Sr. No	Description	Amount (In Crores)	
1	Cost of civil works i/c HM works	1525.13	
2	Cost of Electro-Mechanical works	542.96	
	ATS Works	51.72	
	<b>Total</b>	<b>2119.81</b>	
3	Interest During Construction (IDC)	346.88	
4	Financial Charges (FC)	8.66	
	<b>Grand Total</b>	<b>2475.36</b>	
	<b>Tariff</b>		
	1st Year	4.07	Rs/Kwh
	Levelised	3.70	Rs/Kwh

  
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**SUNNI DAM HEP (382 MW)**  
**Abstract of Cost Estimates of Civil and HM Works (July'20 PL)**

Sr. No	Description		Amount (In Lakhs)
	<b>CIVIL AND HM WORKS</b>		
	<b>DIRECT CHARGES</b>		
<b>I</b>	<b>Works</b>		
1	A-Preliminary		2097.52
2	B-Land		29239.19
3	C-Civil Works		
	i) Cofferd Dams	517.04	
	ii) Diversion Tunnel, Inlet and Outfall	2496.51	
	iii) Intake	2730.71	
	iii) Concrete Dam	34900.29	
	iv) HM works	7447.99	
	<b>Sub-Total</b>		<b>48092.54</b>
4	J-Power Plant Civil Works		
	i) Power House Complex	18071.21	
	ii) Transformer Hall	3969.08	
	iii) Power House Adits	1984.05	
	iv) Tail Race Outfall	4844.36	
	v) HM Works	10598.83	
	<b>Sub-Total</b>		<b>39467.52</b>
5	K-Building		7220.19
6	M-Plantation		20.00
7	O-Miscellanoeous		2899.00
8	P-Maintenance during construction @1% of the total cost under the heads of C-Works, J-Power Plant Civil Works and K-Buildings		947.80
9	Q - Special T&P		68.50
10	R - Communications		1297.45
11	X - Environment and ecology		10711.60
12	Y- Losses on Stock @ 0.25% of C-Civil Works, J-Power Plant Civil Works & K-Buildings Works		236.95
	<b>Total ( I-Works)</b>		<b>142298.26</b>
II	Establishment		9402.95
III	Tools and Plants		200.00
IV	Suspense		0.00
V	Receipt and Recoveries		-18.72
	<b>Total (incl. Direct Charges)</b>		<b>151882.49</b>
	<b>INDIRECT CHARGES</b>		
a	Capitalisation of Abatement of Land Revenue (5% of Cost of Culturable Land)		274.47
b	Audit and Account Charges @0.25% of I- Works		355.75
	<b>Total (Indirect Charges)</b>		<b>630.22</b>
	<b>Total Civil and HM Works</b>		<b>152512.71</b>
	<b>INR Crores</b>		<b>1525.13</b>

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INR Crores  
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**Sunni dam HEP (382 MW)**

**Phasing of Expenditure in Rs Crores at July-2020 PL**

Year	Half Yearly	Cost			
		Civil & HM Works	EM Works	ATS works	Total Cost
1					
Expenditure to be incurred upto Zero date (Pre-Construction)		76.18	0	0	76.18
Balance Expenditure during Main construction		1448.95	542.96	51.72	2043.63
<b>Total Hard Cost</b>		<b>1525.13</b>	<b>542.96</b>	<b>51.72</b>	<b>2119.81</b>
Year -I	I	142.66	0.00	0.00	142.66
	II	162.05	0.00	0.00	162.05
<b>Sub Total</b>		<b>304.71</b>	<b>0.00</b>	<b>0.00</b>	<b>304.71</b>
Year - 2	I	164.16	15.30	0.00	179.46
	II	82.81	63.50	0.00	146.31
<b>Sub Total</b>		<b>246.97</b>	<b>78.80</b>	<b>0.00</b>	<b>325.77</b>
Year- 3	I	144.26	66.83	0.00	211.09
	II	181.14	84.59	2.59	268.32
<b>Sub Total</b>		<b>325.40</b>	<b>151.42</b>	<b>2.59</b>	<b>479.41</b>
Year- 4	I	143.29	82.85	10.34	236.48
	II	185.74	85.77	12.93	284.44
<b>Sub Total</b>		<b>329.03</b>	<b>168.62</b>	<b>23.27</b>	<b>520.92</b>
Year - 5	I	207.52	62.03	12.93	282.48
	II	35.19	55.03	10.34	100.56
<b>Sub Total</b>		<b>242.71</b>	<b>117.06</b>	<b>23.27</b>	<b>383.04</b>
Year - 6	I	0.13	27.06	2.59	29.78
<b>Sub Total</b>		<b>0.13</b>	<b>27.06</b>	<b>2.59</b>	<b>29.78</b>
<b>Total</b>		<b>1448.95</b>	<b>542.96</b>	<b>51.72</b>	<b>2043.63</b>

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**SJVN LIMITED**  
**Sunni dam HEP (382 MW)**  
**COST OF THE PROJECT INCLUDING IDC**  
**(At Power House Bus Bar )**

<b>Rate of interest</b>		<b>Equity/Loan (%)</b>
Equity	0.00%	30%
Loan	8.35%	70%
<b>Construction period =</b>	<b>5.17</b>	<b>years i.e. 10.33 half years</b>

**Note:- IDC calculated for Mean COD i.e 62 months from zero date**

(Amount in Rs. Crore)

Half Year No.	Phasing of Hard Cost	Equity (30%)	Equity Op. Bal.	Loan (70%)	Loan Op. Bal.	Months for IDC calc.	Interest	Financing Charges
1	2	3	4	5	6	7	8	9
1	Expenditure Upto zero date	76.18	76.18	0.00	0.00	0.00	0.00	0.00
2	H-1	142.66	5.45	76.18	145.87	0.00	6.00	3.05
3	H-2	162.05	35.23	82.55	126.82	148.00	6.00	8.83
4	H-3	179.46	53.84	120.42	125.62	281.00	6.00	14.35
5	H-4	146.31	43.89	178.57	102.42	416.67	6.00	19.53
6	H-5	211.09	63.33	228.32	147.76	532.76	6.00	25.33
7	H-6	268.32	80.50	299.24	187.82	698.26	6.00	33.07
8	H-7	236.48	70.94	389.66	165.54	909.23	6.00	41.42
9	H-8	284.44	85.33	473.03	199.11	1103.76	6.00	50.24
10	H-9	282.48	84.74	573.43	197.74	1338.03	6.00	59.99
11	H-10	100.56	30.17	676.18	70.39	1577.76	6.00	67.34
	H-11	29.78	8.93	726.55	20.85	1695.29	2.00	23.74
	<b>Total</b>	<b>2119.81</b>		<b>742.60</b>		<b>1732.76</b>		<b>346.88</b>

<b>Hard Cost =</b>	<b>2119.81</b>	<b>85.64%</b>	<b>Loan =</b>	<b>1732.76</b>	<b>70.000%</b>
<b>IDC =</b>	<b>346.88</b>	<b>14.01%</b>	<b>Equity =</b>	<b>742.60</b>	<b>30.000%</b>
<b>Fin Charges =</b>	<b>8.66</b>	<b>0.35%</b>	<b>Total =</b>	<b>2475.36</b>	<b>Crores</b>
<b>Total =</b>	<b>2475.36</b>	<b>Crores</b>			

\* 1. IDC has been calculated considering mean COD as 62 for months of commissioning as 61 & 63.

2. Equity Source is arranged from the SJVN internal accrual and the debt portion is arranged from the Banks, domestic/FII etc.

3. Financial Charges has been taken as 0.5% of the loan.

*(Handwritten Signature)*

*(Handwritten Signature)*  
**Er. P.L. Negi**  
**CGM/Head of Project**  
**SJVN, LHEP, Bithal**

## Sunni dam HEP(382 MW)

### Depreciation Rates

Computation of weighted average depreciation rates

Description	Cost (Rs Crores)	Depreciation(%)
Preliminary	20.98	5.28
Land (lease)+Submergance	62.22	3.34
C-Works	480.93	5.28
J- Works	394.68	3.34
Buildings	72.20	3.34
Plantation	0.20	5.28
Miscellaneous	28.99	5.28
Maintenance	9.48	5.28
Special tools and plants	0.69	5.28
Communication	12.97	3.34
Environment & Ecology	107.12	5.28
Losses on stock	2.37	5.28
Other direct charges	95.84	5.28
Total indirect charges	6.30	5.28
Electro-Mechanical works I/c ATS works	594.68	5.28
<b>Total</b>	<b>1889.64</b>	
<b>Weighted average</b>		<b>4.723</b>

Depreciation rate for first 12 Years in %

4.723

Depreciation rate for Next 28 Years in %

1.190

  
ACM (C)

  
Er. P.L. Negi  
CGM/Head of Project  
SJVN, LHEP, Bithal

**SJVN LIMITED**  
Summi diam HEP (382 MW)  
**CALCULATION OF TARRIF FOR 90% DEPENDABLE YEAR AT BUS BAR**

Aux. Cons. & transf. losses = 1.20%  
Depreciation = 4.723% for 12 years  
Depreciation for balance years = 1.190% for 28 years  
Depreciation Ceiling = 90.00%  
No. of years of operation = 40 Years  
Annual Escalation = 4.77%  
Free power = 13.00%

Loan Interest rate = 8.35%  
ROE = 16.50%  
Return on Equity (Corporate Tax is taken) = 22.05%  
O&M Charges = 3.50%  
Int. rate on Working Capital = 10.50%

Discounting Rate (r) = 8.83%  
Design Energy units (MU) = 1381.77  
R&R cost = 144.89 Crore  
IDC & FC = 355.55 Crore  
IEDC = 102.80 Crore

Loan = 1732.76  
Equity = 742.60  
Total Cost = 2475.36  
Cost of land = 230.17  
Depreciating = 2020.67

Corporate Tax to be included- YES  
Corporate Tax = 22.00  
Concession Period for Corporate Tax = 0 Years  
Corporate tax inclusive of cess = 25.17% Amount in crores

For 40 Years  
Total Annual Charges (2-4+5+6+7)  
Interest

Interest on working capital  
Receivables equivalent to 1.5 months of fixed cost

Interest on Loan  
Return on Equity

(1 if annual loan repayment is equal to depreciation and 2 for loan repayment in fixed tenure)  
Mode of loan repayment = 1  
Tenure for Loan repayment = 1

Operation Year (n)	2	3	4	5	6	7a	7b	7c	8	9a	9b	9	10	11	12
1	106.05	106.05	163.74	140.26	66.52	5.46	9.83	60.44	7.95	13.00%	177.47	1187.71	4.07	1.000	4.07
2	106.05	106.05	163.74	131.40	68.85	5.72	10.30	89.72	7.85	13.00%	177.47	1187.71	4.02	0.919	3.70
3	106.05	106.05	163.74	122.95	71.92	5.99	10.79	99.03	7.66	13.00%	177.47	1187.71	3.96	0.844	3.36
4	106.05	106.05	163.74	113.69	75.36	6.28	11.30	98.35	7.97	13.00%	177.47	1187.71	3.89	0.776	3.05
5	106.05	106.05	163.74	104.84	78.95	6.58	11.84	96.81	7.99	13.00%	177.47	1187.71	3.89	0.713	2.77
6	106.05	106.05	163.74	95.98	82.72	6.89	12.41	95.70	8.02	13.00%	177.47	1187.71	3.84	0.655	2.52
7	106.05	106.05	163.74	87.13	86.66	7.22	13.00	95.45	8.05	13.00%	177.47	1187.71	3.80	0.602	2.28
8	106.05	106.05	163.74	78.27	90.79	7.57	13.62	95.87	8.09	13.00%	177.47	1187.71	3.76	0.553	2.08
9	106.05	106.05	163.74	69.42	95.13	7.93	14.27	95.31	8.14	13.00%	177.47	1187.71	3.73	0.508	1.89
10	106.05	106.05	163.74	60.56	99.66	8.31	14.95	94.78	8.19	13.00%	177.47	1187.71	3.69	0.467	1.72
11	106.05	106.05	163.74	51.70	104.42	8.70	15.66	94.27	8.26	13.00%	177.47	1187.71	3.65	0.429	1.57
12	106.05	106.05	163.74	42.85	109.40	9.12	16.41	93.80	8.33	13.00%	177.47	1187.71	3.62	0.384	1.43
13	26.72	26.72	163.74	37.31	114.62	9.55	17.19	93.32	8.40	13.00%	177.47	1187.71	2.94	0.362	1.07
14	26.72	26.72	163.74	35.08	120.08	10.01	18.01	92.85	7.58	13.00%	177.47	1187.71	2.97	0.333	0.99
15	26.72	26.72	163.74	32.85	125.81	10.48	18.87	92.41	7.77	13.00%	177.47	1187.71	3.00	0.306	0.92
16	26.72	26.72	163.74	30.61	131.81	10.98	19.77	91.97	7.97	13.00%	177.47	1187.71	3.04	0.281	0.85
17	26.72	26.72	163.74	28.38	138.10	11.51	20.71	91.54	8.18	13.00%	177.47	1187.71	3.07	0.258	0.79
18	26.72	26.72	163.74	26.15	144.69	12.06	21.70	91.11	8.40	13.00%	177.47	1187.71	3.11	0.237	0.74
19	26.72	26.72	163.74	23.92	151.59	12.63	22.74	90.68	8.63	13.00%	177.47	1187.71	3.15	0.218	0.69
20	26.72	26.72	163.74	21.69	158.82	13.23	23.82	90.24	8.88	13.00%	177.47	1187.71	3.20	0.200	0.64
21	26.72	26.72	163.74	19.46	166.40	13.87	24.96	89.81	9.14	13.00%	177.47	1187.71	3.25	0.184	0.60
22	26.72	26.72	163.74	17.23	174.33	14.53	26.15	89.39	9.41	13.00%	177.47	1187.71	3.30	0.169	0.56
23	26.72	26.72	163.74	15.00	182.65	15.22	27.40	88.93	9.70	13.00%	177.47	1187.71	3.35	0.155	0.52
24	26.72	26.72	163.74	12.77	191.36	15.95	28.70	88.48	10.00	13.00%	177.47	1187.71	3.41	0.143	0.49
25	26.72	26.72	163.74	10.54	200.49	16.71	30.07	88.01	10.32	13.00%	177.47	1187.71	3.47	0.131	0.45
26	26.72	26.72	163.74	8.31	210.05	17.50	31.51	87.54	10.65	13.00%	177.47	1187.71	3.53	0.121	0.43
27	26.72	26.72	163.74	6.08	220.07	18.34	33.01	87.06	11.00	13.00%	177.47	1187.71	3.60	0.111	0.40
28	26.72	26.72	163.74	3.84	230.57	19.21	34.59	86.57	11.37	13.00%	177.47	1187.71	3.67	0.102	0.37
29	26.72	26.72	163.74	1.61	241.57	20.13	36.23	86.08	11.76	13.00%	177.47	1187.71	3.75	0.094	0.35
30	26.72	5.97	163.74	0.25	253.09	21.09	37.96	85.59	12.19	13.00%	177.47	1187.71	3.84	0.086	0.33
31	26.72	0.00	163.74	0.00	265.16	22.10	39.77	85.13	12.64	13.00%	177.47	1187.71	3.94	0.079	0.31
32	26.72	0.00	163.74	0.00	277.81	23.15	41.67	84.67	13.12	13.00%	177.47	1187.71	4.05	0.073	0.29
33	26.72	0.00	163.74	0.00	291.06	24.26	43.66	84.21	13.63	13.00%	177.47	1187.71	4.17	0.067	0.28
34	26.72	0.00	163.74	0.00	304.94	25.41	45.74	83.76	14.16	13.00%	177.47	1187.71	4.29	0.061	0.26
35	26.72	0.00	163.74	0.00	319.49	26.62	47.92	83.30	14.71	13.00%	177.47	1187.71	4.42	0.056	0.25
36	26.72	0.00	163.74	0.00	334.79	27.89	50.21	82.85	15.29	13.00%	177.47	1187.71	4.55	0.052	0.24
37	26.72	0.00	163.74	0.00	350.70	29.22	52.60	82.40	15.90	13.00%	177.47	1187.71	4.69	0.048	0.22
38	26.72	0.00	163.74	0.00	367.42	30.62	55.11	81.94	16.54	13.00%	177.47	1187.71	4.84	0.044	0.21
39	26.72	0.00	163.74	0.00	384.95	32.08	57.74	81.48	17.21	13.00%	177.47	1187.71	4.99	0.040	0.20
40	26.72	0.00	163.74	0.00	403.31	33.61	60.50	81.03	17.91	13.00%	177.47	1187.71	5.15	0.037	0.19
														11.91	44.09

Levelised Tariff (Rs)= 3.70 /unit

*[Signature]*  
Armedo

**Er. P.L. Negi**  
CGM/Head of Project  
SJVN, LHEP, Bihar

**Sunni dam HEP (382 MW)**

IEDC (Incidental expenditure during construction) for the purpose of tariff calculation has been considered as follows:

(A)	Salary, wages, allowances (i-Establishment) =	94.03 crore
(B)	Provision of construction Power	
	Electrification =	8.77 crore
	<b>Total Provision of IEDC =</b>	<b>102.80 crore</b>

*J. Anon*

*Er. R.L. Negi*  
CGM/Head of Project  
SJVN, LHEP, Bithal

**Sunni Dam HEP (382 MW)  
IRR CALCULATION**

Sr. No.	Year	Out flow ( Net Investment )					Inflow ( Energy Benefits )			Net Flow (Crores)
		Expend	O & M Expenses	Tax	Working Capital Interest	Total	Energy in MU	Tariff (Rs. / Kwh)	Amount (Crores)	
1	1.0	380.89				380.89			0.00	-380.89
2	2.0	325.77				325.77			0.00	-325.77
3	3.0	479.41				479.41			0.00	-479.41
4	4.0	520.92				520.92			0.00	-520.92
5	5.0	383.04				383.04			0.00	-383.04
6	6.0	29.78				29.78			0.00	-29.78
7	1		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
8	2		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
9	3		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
10	4		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
11	5		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
12	6		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
13	7		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
14	8		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
15	9		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
16	10		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
17	11		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
18	12		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
19	13		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
20	14		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
21	15		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
22	16		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
23	17		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
24	18		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
25	19		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
26	20		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
27	21		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
28	22		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
29	23		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
30	24		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
31	25		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
32	26		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
33	27		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
34	28		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
35	29		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
36	30		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
37	31		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
38	32		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
39	33		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
40	34		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
41	35		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
42	36		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
43	37		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
44	38		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
45	39		65.52	41.21	7.95	114.69	1187.71	4.07	483.52	368.84
46	40	-211.981	65.52	41.21	7.95	-97.30	1187.71	4.07	483.52	580.82
<b>Total :</b>		<b>1907.83</b>	<b>2620.97</b>		<b>318.06</b>	<b>6495.26</b>	<b>47508.57</b>		<b>19340.94</b>	<b>12845.68</b>

IRR: 12.23%

**Notes / Assumptions :**

- Energy considered for calculating total Energy benefits has been taken as the Energy available at bus bar after auxiliary consumption & transformation losses and free power to Government.
- Interest During Construction ( IDC ) & FC has not been considered.

*J. L. Negi*

**Er. R. L. Negi**  
CGM/Head of Project  
SJVN, LHEP, Bithal

**Sunni Dam HEP (382 MW)**

**ERR CALCULATION**

**ERR**

Sr No	Year	Out flow ( Net Investment )				Inflow ( Energy Benefits )			Net Flow (Crores)
		Expend	O & M Expenses	Working Capital Interest	Total	Energy in MU	Tariff (Rs. / Kwh)	Amount (Crores)	
1	1.00	322.79			322.79			0.00	-322.79
2	2.00	276.08			276.08			0.00	-276.08
3	3.00	406.28			406.28			0.00	-406.28
4	4.00	441.46			441.46			0.00	-441.46
5	5.00	324.61			324.61			0.00	-324.61
6	6.00	25.24			25.24			0.00	-25.24
6	1		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
7	2		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
8	3		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
9	4		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
10	5		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
11	6		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
12	7		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
13	8		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
14	9		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
15	10		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
16	11		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
17	12		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
18	13		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
19	14		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
20	15		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
21	16		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
22	17		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
23	18		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
24	19		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
25	20		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
26	21		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
27	22		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
28	23		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
29	24		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
30	25		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
31	26		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
32	27		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
33	28		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
34	29		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
35	30		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
36	31		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
37	32		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
38	33		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
39	34		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
40	35		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
41	36		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
42	37		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
43	38		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
44	39		65.52	7.95	73.48	1365.19	4.07	555.77	482.30
45	40	-179.64	65.52	7.95	-106.17	1365.19	4.07	555.77	661.94
<b>Total :</b>		<b>1591.57</b>	<b>2620.97</b>	<b>318.06</b>	<b>4555.84</b>	<b>54607.55</b>		<b>22230.96</b>	<b>17675.13</b>

**ERR: 16.78%**

**Notes / Assumptions :**

- Energy considered for calculating total energy benefits has been taken as the energy available at bus bar after auxiliary consumption and transformation losses.
- Interest During Construction ( IDC ) & FC has not been considered.

*Handwritten signature: Jay Arora*

**Er. R.L. Negi**  
**CGI Head of Project**