Indo- Nepal Cooperation in Hydro Power Sector

A. Basin-wise Theoretical Hydro Electric Potential of Nepal:

River Basin	Power Potential (MW)		TOTAL (MW)
	Major	Small	
Kosi	18750	3600	22530
Gandak	17950	2700	20650
Karnali (Ghagra)	28840	3170	32010
Mahakali (Sarda)	3840	0320	4160
Southern rivers	3070	1040	4110
Total:	72450	10830	83280

B. Institutional Mechanism

The matter relating to the development of Water Resources of Common Rivers with Nepal are under the purview of Nepal-India Joint Committee on Water Resources (JCWR) which is headed by Secretary, MOWR, Govt. of India from the Indian side. However, in pursuance of the decisions taken during the 3rd Meeting of JCWR held at Kathmandu on 29.9.2008 and during the 4th Meeting of JCWR held on 12-13th March, 2009, a three-tier bilateral mechanism as detailed has been recommended/ constituted:

a) ***Joint Ministerial level Commission on Water Resources (JMCWR)*** headed by the Ministers of Water Resources of India & Nepal, with Joint Secretary (Hydro), MOP and Chairperson, CEA being the Members amongst others.
b) ***Joint Committee on Water Resources (JCWR)*** headed by Secretary, MOWR, Govt. of India from the Indian side, Member (Hydro), CEA being one of the Members and
c) ***Joint Standing Technical Committee (JSTC)*** to rationalize technical committees and sub-committees under JCWR that are existing between India & Nepal related to flood management, inundation problems and flood forecasting activities besides project specific committees on hydro power, headed by Chairman(GFCC), Patna from the Indian side with Joint Secretary (Hydro), MOP and Chief Engineer (HP&I), CEA being the Members amongst others.

JCWR also decided to empower the Joint Committee on Koshi and Gandak Project (JCKGP) and to constitute a Joint Committee on Inundation and Flood Management (JCIFM), which will replace the earlier Bilateral Committees in this regard.

C. Indo-Nepal Cooperation in Hydro Power Development:

i) Projects Implemented with Indian Assistance:

Pokhra	*1 MW*
Trisuli	*21 MW*
Western Gandak	*15 MW*
Devighat	*14.1 MW*

In addition, 70 MU of energy is also being supplied to Nepal, free of cost, from Tanakpur Hydro Electric Project as per provisions of Mahakali Treaty.

ii) Mutual Interest Projects under Discussions:

Pancheshwar with Rupaligad	*4800 + 240 MW*
Sapta Kosi High Dam and Sunkosi Diversion cum Storage	*3300 MW*

Karnali	*10800 MW (Not being pursued at this stage)*
Naumure	*225 MW (MEA in June, 2013 has asked to drop this project from agenda of any bilateral discussion to be held in future with Nepal)*

Note: *Matter relating to the development of Water Resources of Common Rivers with Nepal (except Karnali Multipurpose Project) are being coordinated by MOWR.*

D. Brief Issues Involved:

1. Pancheshwar Multipurpose Project:

Pancheshwar Multipurpose Project is proposed on river Mahakali known as Sarda which forms international boundary between India and Nepal. Development of the project is covered under integrated *Mahakali Treaty* signed between HMG, Nepal and India in Feb., 1996.

In order to carry out additional investigations and studies required for finalisation of Detailed Project Report (DPR), a Joint Project Office (JPO) of HMG, Nepal and GOI was established in Kathmandu in Dec., 1999 (since closed w.e.f. July, 2002). Based on additional investigations and studies carried out by JPO, a draft DPR was prepared by Indian side in 2002 with following two alternative schemes for development of downstream re-regulating dam for Pancheshwar Multipurpose Project were considered:

i) Pancheshwar (5600 MW) with re-regulating dam at Rupaligad (240 MW) (Energy Benefits – 9304 MU)
ii) Pancheshwar (5600 MW) with re-regulating dam at Purnagiri (1020 MW) (Energy Benefits – 13609 MU)

The project would have two similar sized power houses each at Pancheshwar and Rupaligad to be located on the either side of the river.

However, the draft DPR for Pancheshwar prepared by Indian side in 2002, was not agreed to by HMG, Nepal pending resolution of issues like location of re-regulating structure i.e. Purnagiri or Rupaligad, water availability downstream of Pancheshwar, installation and unit size and assessment of power benefits, apportionment of cost between power and irrigation and between India and Nepal.

Present Status:

i) **Formation of Pancheshwar Development Authority (PDA):** The Terms of Reference (TOR) for establishment of PDA as per the Letters exchanged with the Mahakali Treaty for implementation of the project has since been finalized and PDA has been constituted in 2014.

The first meeting of the Governing body of the PDA was held in Kathmandu on September 22-23, 2014 for finalization and approval of the guidelines for establishment and functioning of the Authority, formation of the Governing Body, Executive Committee and appointment of the Chief Executive Officer (CEO) etc.

ii) **Revised/Updated DPR for Pancheshwar MPP (4800 + 240 MW):**

As decided in the 2nd meeting of Governing Body of PDA held during 18-19 Nov., 2014 & as per the approval of the Competent Authority of MoWR, RD & GR, the work of preparation/ updation of DPR and CEIA study of Pancheshwar was awarded to WAPCOS on 18.03.2015. The Draft final DPR of the project has been prepared by WAPCOS Ltd. in November, 2016 and submitted by PDA to Govt. of India & Govt. of Nepal.

According to the draft final DPR, the project envisages construction of 311 m high Rock fill dam (live storage-6038 $Mm^{3)}$ at Pancheshwar with two underground power houses (one on each bank), having a total installed capacity of 4800 MW (6 x 400 MW each on either side). In addition, a 95 m high concrete gravity dam with live storage of 56.45 Mm^3 has been envisaged at Rupaligad with two underground power stations, one on each bank of the river having a total installed capacity of 240 MW (2 x 60 MW on each side). The annual generation from combined Pancheshwar and Rupaligad has been estimated as 10055.6 MU in 90 % dependable year. The estimated cost for Pancheshwar and Rupaligad is INR 389002.0 Million and INR 32842.0 Million respectively at September, 2017 price level.

For resolution of the outstanding issues between India & Nepal and towards finalization of the DPR, a team of Experts/ Officials (Indian Side) has been constituted by MoWR in June, 2017, pursuant to decision taken during 5th meeting of Governing body of PDA. First meeting was held on 21st -22nd August 2017 in Kathmandu, Nepal, the Second meeting was held on 5th -6th Sep' 17 at New Delhi in which 5 sub-groups were constituted on various issues including Hydrology, E&M equipment and power evacuation, Environment etc. In the third meeting of the TOE held at Kathmandu on 27-28 Feb.' 2019, reports of sub-groups were discussed and broadly adopted by the TOE. Further, 4 additional sub-groups were also formed for 3rd ToE. Based on the deliberations in these meetings, there has been progress/convergence on many of the technical issues of Draft Final DPR. However, issues relating to Existing and Future use of water by India & Nepal, Dodhara-Chandani, Maximisation of total benefits and cost apportionment etc. are still under discussion between the two countries etc.

A bilateral meeting of Secretary Level delegation was held in New Delhi on 28 Dec' 2020 wherein both sides agreed to early finalization of the DPR.

2. Sapta Kosi High Dam Multipurpose Project (3300 MW) and Sun Kosi Storage cum Diversion Scheme

Sapta Kosi High Dam Multipurpose Project envisages a high dam on river Sapta Kosi at Barakshetra in Nepal. Based on the feasibility report for the project prepared by India in 1981, the project would afford irrigation and flood control benefits in Bihar and power generation (15730 MU) of which major portion would be available to India. In addition, development of Inland Waterways through Kosi and Ganga rivers is another important component of the project.

As per inception report agreed in the 4th meeting of India-Nepal Joint Team of Experts (JTE) held in Kathmandu in Oct., 2001, Sun Kosi Storage cum Diversion Scheme forms an integral part of the project. The project involves construction of a diversion structure across the river Sunkosi near Kurule to divert waters by means of a 16.6 km long diversion tunnel to a power house near Chisapani, upstream of the existing Kamala Barrage.

Present Status:

i. Formation of Joint Project Office:

A Joint Project Office has been established at Birat Nagar on 17.8.2004 for carrying out detailed investigations/ field works and preparation of DPR in a period of 30 months including 3 months for mobilization activities. However, due to prevailing law & order situation in Nepal, the progress of works has been affected and the tenure of the JPO was last extended upto 31.08.2019 by MoWR vide their office order dated 14.09.2018.

In the lnter-Ministerial Meeting taken by Secretary (WR) on continuation of lndia-Nepal Joint Project Office held at Shram Shakti Bhawan, New Delhi on 29.08.2019,

it has been decided to continue with the Joint Project Office for Saptakosi investigations till a decision in this regard is taken by JCWR.

ii. Status of Work:

For Sapta Kosi, works related to Topographical surveys, Construction Material Survey, Water quality survey, Inland Navigation studies, Hydrological studies, Seismological studies, Irrigation studies and command area survey in Indian side have been completed, whereas works related to Irrigation studies and command area survey in Nepali territory, Design flood studies and GLOF studies are going on. Works related to Flood control benefit studies, Balance drilling, entire drifting work, Finalization of Power Potential Studies, Power Stsem and evacuation studies, Environment Impact Assessment studies, Geophysical studies, Geo-mapping for Sisauli barrage are still to be taken up.

For Sun Kosi storage cum diversion scheme including Kamla Multipurpose project works related to Topographical surveys, Construction Material survey, Water Quality Studies, Seismological studies, Drilling for KMP & Sun Kosi, Communication survey have been completed, whereas works related to Irrigation studies and command area survey in Nepali territory, Design flood studies, GLOF studies are going on. Works related to Drilling and drifting at dam & Power house, Coarse & Fine Aggregate survey/testing for Kuruleghat Dam, Geophysical studies and Geo-mapping for Uttarayani Barrage are yet to be taken up.

During the 16th JTE meeting (held on 25th/26th July, 2019), Nepalese side informed about new developments in Kosi Basin and conceiving of new projects in the upstream of Saptakosi and stressed for further course of action as per decisions to be taken in the next JCWR meeting. Later, a meeting of the Joint Team of Experts (Indian Side) headed by Member (RM), CWC was held on 18.06.2020 to discuss way forward on various issues and considering various options to move ahead on various planning options including reduction in dam height etc., and also preparation of a strategy for further discussions during the next Joint Committee on Water Resources (JCWR) meeting.

3. Kamala and Bagmati Multipurpose Projects

JPO-SKSKI has also been entrusted to carry out the Feasibility Level Study of Kamala Dam Project and Preliminary Study of Bagmati Project, likely to be completed alongwith the preparation of DPR of Sapta Kosi High Dam Multipurpose Project and Sun Kosi Storage cum Diversion Scheme.

4. Arun - 3 HE Project (900 MW)

Arun-3 Project, proposed to be located in Sankku wasabha district of Nepal, is a run-of-river type development with pondage. The project was awarded by Govt. of Nepal to Sutlej Jal Vidyut Nigam Ltd. (SJVNL) on Build-Own-Operate-Transfer (BOOT) basis for a period of 30 years and a Memorandum of Understanding (MoU), in this regard, was signed on 2.3.2008. According to the MoU, the SJVNL would provide 21.9 % of power to Nepal free of any charge. Further, the SJVNL would pay 7.5 % of its total income as royalty to the Nepal Government. In addition, export tax @ 0.5 % of export sales revenue would also be payable.

The project has two components – generation component of 900 MW capacity situated on River Arun in Sankhuwasabha district and an associated 400 kV D/C transmission system of 217 km length from the powerhouse to Nepal-India border. The generation component envisages construction of a 70m high Concrete Gravity

Dam, water conductor system consisting of HRT 11.74 KM long, an underground Power House, to be located on the left bank of the river, with an installation of 900 MW (4X225 MW) operating under a net head of 308m with annual energy of 3924 MU. Total length of transmission line from Arun-3 HEP to India (Mujaffarpur) is 317 km and out of which, about 217 km lies in Nepal. As per the PDA signed by SJVN with Govt. of Nepal, the developer of Arun-3 is required to take up the construction of the second 400 kV DC transmission line in addition to existing 400kV Dhalkebar-Mujaffarpur DC transmission line up to Nepal border. Power Grid has agreed to complete consultancy work of the execution of Nepal Portion. The Indian portion of the transmission line would be constructed by Power Grid under Regulated Tariff Mechanism (RTM) on cost plus basis.

Chronology of Events & Status of the Project

i. MoU signed on 02.03.2008 with GoN for execution of Arun-3 project on BOOT basis with 21.9% free power with construction period of 5 years from the date of financial closure and operation period of 25 years.

ii. A separate company i.e. "SJVN Arun-3 Power Development Company Pvt. Ltd. (SAPDC)" was incorporated and registered in Nepal on 25.04.2013.

iii. Signing of Project Development Agreement with Govt. of Nepal: Project Development Agreement has been signed between Investment Board Nepal (IBN), Govt. of Nepal and SJVNL on 25.11.2014.

iv. Finalisation of DPR:

- CEA accepted the appraisal of DPR of Arun-3 H.E Project (900 MW) (submitted by SJVN Ltd.), at an estimated cost of Rs. 5667.59 Crs. including IDC & FC of Rs. 1250.77 Crores at July, 2013 Price Level on 09.06.2014.

v. The updated/revised estimated cost vetted by CEA for Rs.5723.72 crs incl. IDC & FC of Rs.1188.63 crores at May, 2015 price level on 04.11.2015 with levellised tariff @ INRs. of 3.30/unit at Bus-bar. CCEA approval was accorded on 22.02.2017 for and estimated cost of INR 5723.72 Crore at May, 2015 Price level, with a completion period of 5 years from date of financial closure.

vi. Foundation stone for the project was laid by Hon'ble PMs of India and Nepal jointly on 11.05.2018.

vii. Investment approval for the generation component was accorded by GoI on 22.03.2017 for Rs. 5723.72 Crores, Investment approval for the transmission component was accorded by GoI on 08.03.2019 for Rs. 1236.13 Crores.

viii. The Financial Closure for Rs. 6333.48 Crores for both generation and transmission component achieved on 06.02.2020. Which includes stand by line of credit facility of Rs. 1420.86 Crores.

ix. All four packages of Generation Component have been awarded between September 2017 to April 2018 with scheduled completion date of September 2022. However, there is delay of about 24 months. Acceleration plan amounting to Rs. 388 Crore, having an additional expenditure is being implemented to complete project by April, 2023.

x. All five packages of Transmission Component have been awarded by December, 2020. The transmission component is scheduled to be commissioned by October, 2022.

Completion Period:

The scheduled date of commissioning of project as per the investment approval and PDA, is 5 years from financial closure i.e. February 2025.

Other Status:

- SJVNL have established G&D sites and Silt Lab. in Nov., 08.
- EIA report has been approved by MoSTE, GON on 12.08.2015. Supplementary EIA for balance 26.25 Ha. Land was approved on 22.12.2017.
- Resettlement Action Plan for generation Project was approved on 22.02.2017.
- Approval of forest land has been accorded by GoN on 15.08.2017.
- The infrastructure works like construction of road & bridges are in progress. Further, Main works have been awarded in Mar'2018 to M/S Patel Energy while Hydro-mechanical & Electro-mechanical works are awarded to OM Metals & BHEL respectively in Apr'2018.

5. **Upper Karnali HE Project (900 MW)**

Upper Karnali, proposed to be located in Surkhet, Dailekh and Achham districts in Western part of Nepal, is a run-of-the river project (with pondage) with Installed capacity of 900 MW and will supply the power to Nepal, India and Bangladesh for a contracted period of 25 years from the date of commercial operation. Govt. of Nepal has awarded the project to GMR Upper Karnali Pvt. Ltd., an SPV promoted by GMR group India on build-own-operate-transfer basis and a Memorandum of Understanding (MoU) has been signed in this regard in Kathmandu on January 24, 2008. According to the MoU, the GMR, Energy would provide **12 percent of free power** to Nepal. In addition, GMR Energy would also pay **27 percent free equity** to the Nepal Government. The distribution of power from the project is envisioned as follows:

- 12% free power to GoN.
- 56% of the power will be sold to Bangladesh under a long term Power Purchase Agreement (PPA) under bilateral mechanism.
- 32% of the power will be sold to India under short term / mid-term / long-term bilateral PPA.

As per the projections given by developer for first 10 years of operation, the net revenue for the sale of power to India will be in the range of USM$75.83 to USM$79.31 for full year of operation. Further, net revenue from Bangladesh will be in the range of USM$201.86 to USM$218.74.

MoU has been signed with Bangladesh Power Development Board (BPDB), along with NVVN. Commercial Negotiations including Tariff has been completed. LOI has been issued by BDPB, (GoB) for 500 MW power in Jan'20. For balance power, discussions with Indian DISCOMs are underway. GMR has also requested Investment Board of Nepal (IBN) for extension of timeline for Financial Closure, the same is under review.

It is understood that GMR has submitted the Detailed Project Report (DPR) for the project with Installed Capacity as **900 MW** in May, 2010 and annual design energy of 3466 MU. **Project development agreement (PDA) has been signed on 19.09.2014**. The project is to be constructed at an estimated cost of USD 1,412 million. According to a report of Board Project Appraisal Committee of SAARC Development Fund, the project has been proposed to be funded by Asian Development Bank (ABD), Asian Infrastructure Investment Bank (AIIB), JICA, CDC and Nepal Investment Bank (NIBL).

6. **Upper Marsyangdi HE Project (600 MW)**

Consortium consisting of GMR Group companies and Italian-Thai Development Project Co of Thailand have also acquired development of Upper Marsyangdi (600 MW) in Nepal. The project, proposed to be located in Lamjung and Manang districts of Nepal, is a Run-of-River type development (with pondage). It envisages construction of 32m high Rock fill dam with gross storage of 2.75 MCM, water conductor system consisting of 9.2 km long HRT, installation of four generating units of 150 MW each, operating under a net head of 627.7m and design discharge of 110 m^3/s, with annual energy generation of 2282.0 MU.

The project is being undertaken through a Nepalese subsidiary of GMR Energy Limited, Himtal Hydropower Company Pvt. Ltd. Detailed Project Report and Environmental Impact Assessment have been completed. **Project development agreement (PDA) is yet to be signed.**

7. **Tamakoshi-3 HE Project (650 MW)**

Government of Nepal has also signed a Memorandum of Understanding (MoU) with Tata Power & SN Power, Norway on 6.3.2009 to develop **Tamakoshi-3 (650 MW)**. The project, proposed to be located in Dolakha and Ramechhap districts of Janakpur Zone, envisages construction of a 96m high dam with a live storage of 137 MCM, 17.3 km long HRT & TRT including pressure shaft, gross head of 333 m, design discharge of 222 m^3/s, with annual energy generation of 2340 MU.

Project development agreement (PDA) is yet to be signed. However, it is understood that the **Norwegian company Starkraft Holding Singapore Pvt. Ltd has announced its official exit in January 2016.**

8. Further, WAPCOS provided consultancy for Construction Supervision of Kulekhani III (14 MW) HEP and the project is under generation stage since November, 2019.

9. Naumure Storage cum Hydro Electric Project (225 MW)

Naumure (West Rapti) project is proposed to be located in Pyuthan distt. on West Rapti river, about 2 Kms. downstream from the confluence of its two main tributaries namely Jhimruk Khola and Mari Khola. As per pre-feasibility studies carried out by Nepal in 2001, the project comprises of a 169 m high earth rockfill dam with live storage capacity of 350.8 MCM and an underground power house with annual energy generation as 844.4 MU. The project is estimated to cost 324.42 million US$ at 2000 price level and the cost of energy is 5.43 US cents.

Subsequently, Pre-Feasibility Report (PFR) of Naumure project, prepared by India has been handed over to Nepalese side during the 2nd meeting of JSTC held on 30-31 Mar. 2010. During the 3rd meeting of JSTC held on 13-14 September, 2011, it was informed by Nepal that PFR of Naumure project did not meet the requirement of Nepal with respect to their demand for irrigation of Kapilvastu area.

During the **7th meeting of JCWR held on 24-25 January, 2013**, Nepalese side made it clear that PFR prepared by CWC is not acceptable in its present form as it does not cater to their demand for irrigation of Kapilvastu region by way of interbasin transfer. CWC had concluded in its report that Rapti Basin does not have sufficient water to meet all the projected demands of India & Nepal. *MoWR has been asked by MEA in June, 2013 to drop this project from agenda of any bilateral discussion to be held in future with Nepal.*

10. Karnali (Chisapani) Multipurpose Project (18 X 600 MW= 10,800 MW)

The Karnali basin in Nepal offers scope for large-scale hydro power development both storage and run-of-river type. Proposal for construction of high dam across the Karnali at Chisapani has been under investigation and study for the past many years.

Main Issues

Many of the parameters of the project as now proposed are extreme physical and technical limits such as dam height 270 m, unit size 600 MW cavern width 27.7 m etc. The construction of 270 m high dam would provide a live storage capacity of 16200 Mcum and gross capacity of 28200 Mcum. The storage capacity and the dam height would need to be optimised considering the overall river basin development.

The Probable Maximum Flood (PMF) assessed by M/s Himalayan Power Consultants as 63000 cumecs was considered very much on high side. On the basis of envelope curve, the value of PMF for Chisapani works out to 38000 cumecs including a base flow of 2000 cumecs. The value of PMF needs to be finalised in consultation with IMD.

The existing and committed irrigation utilisation in India furnished to HMG/Nepal have not been utilised in the studies for fixing the parameters of the project by the consultants. This would have bearing on the reservoir capacity and height of Karnali Dam.

The methodology for economic evaluation adopted by the Consultants in the Karnali Project preparation (not accepted by us) would result in estimating the cost of power to India at a higher level. The Indian side has suggested the principle of pricing the power from the project on cost plus basis.

As the releases from the Karnali Project would be utilised downstream in India for irrigation, it would be necessary to have participation in the implementation and operation and maintenance of the project.

Status

As per the arrangements agreed to between India and Nepal, there are two committees to look into various aspects of the feasibility study. Committee on Karnali (CK) on which Indian side is led by Secretary (Power), is to look into the various policy related matters. Another Committee consisting of technical officers from both Nepal and India known as Karnali Coordinating Committee (KCC) on which Indian side is led by Member (HE), Central Electricity authority was set up by Ministry of Power vide letter No. 4/1/83-NCP&UT dated 7th April,1983 inter alia, to oversee the technical work of the consultant and advise the CK on the various technical matters.

It was decided during the Indo-Nepal talks held in Kathmandu on October 13-14,1992 that KCC would resolve the difference and finalize the project parameters for submission to CK in January '93. There was no response from HMG/Nepal side to the proposal of Member (HE) sent in December' 92 and May' 93 for arranging the meeting of KCC. The matter was discussed during the visit of the Minister of Parliamentary Affairs and Water Resources in Nepal on December 26-28,1993. As per the Action Plan drawn during the meeting, the KCC was to meet in Kathmandu to resolve the difference and finalise the project parameters for submission to CK in May'94. The meeting of CK in New Delhi was planned to be held during Oct.'94. The dates for KCC meeting were suggested by the Indian side, but there was no response from Nepal side. The matter regarding fixing the date of KCC was taken up by CEA in December 96 with MEA.

HMG, Nepal explored the possibility to develop the project through M/s. Enron Renewable Energy Corpn. (EREC) and a proposal as given by M/s. EREC in a presentation to HMG Nepal was received in CEA in Nov'96. The project was proposed to be developed for 3000 MW in first phase. The proposal indicated export of power generated to India and China besides connecting to Nepal Grid. Details of the proposal were, however, not received in CEA.

M/s. EREC have since withdrawn from the project as per report published in the Indian Express edition of 15th April' 98.

During 2nd Meeting of the Nepal-India Joint Committee on Water Resources (JCWR) held in Oct., 2004, it was decided to initiate consultations between India and Nepal regarding development of Karnali Multipurpose Project. CEA took up the matter with MOP/ MEA for initiation of discussions on the project in Nov. 2004. However, Indian Embassy in Nepal, vide letters dated 22.3.2005 and 25.7.2005, has recommended against holding a meeting with Nepal at this stage in view of recent political developments in Nepal.

Subsequently, during the **Third Inter-Ministerial Meeting** taken by Secretary (WR) on 29.8.2008, JS (North) opined that we should concentrate at Pancheshwar and Saptakosi projects, first.

11. Rahughat Hydroelectric Project (RGHEP)

Rahughat Hydroelectric Project (RGHEP) (40MW=2x20MW) is a Peak RoR scheme located in Myagdi District, Gandaki Province of Nepal. This project is being developed by Raghuganga Hydropower Limited, NEA, Government of Nepal (GoN) which is utilizing the soft loan made available from the Government of India through the Line of Credit (LOC) from the Export Import Bank (EXIM Bank) of India. Construction of Main Civil works is awarded to M/s Jai Prakash Associates Limited, Noida, India in November 2017, earlier this was awarded to M/s IVRCL Limited in the month of November, 2010 but due to very slow progress of work at site, the Contract was terminated by the Employer on 18th June, 2015. The Electro-Mechanical Package was awarded to M/S BHEL on 15.10.19 while consultancy services for construction management and construction supervision of main Civil Works & for EM, HM, TL works of RGHEP to be provided by WAPCOS.

Power purchase agreement (PPA) of Rahughat HEP (40 MW) has been done with Nepal Electricity Authority (NEA) on 01.04.2019. The project is now scheduled to be completed by November, 2022.

12. Lower Arun Hydro Electric Project (669 MW)

The project is located in Nepal on river Arun downstream of Arun-3 HEP (900 MW) which is already under implementation by SAPDC. The water from Arun-3 HEP after generating power, is proposed to be diverted through further head race tunnel to Lower Arun HEP power house, thereby eliminating the requirement of dam for the project. The project is expected to generate 2970 MU energy per annum. Tentative cost of the project is Rs. 3617.26 Crore.

SJVN Limited was allotted the project through international competitive bidding by Government of Nepal (GoN) on 04.02.2021 for construction of the project on Build Own Operate and Transfer (BOOT) Basis. The concessional period of project is 25 years, excluding 5 years for construction and 2 years for pre-construction investigations, land acquisition, EIA study, etc.

SJVN prepared the DPR of the project in February, 2021 and submitted to Investment Board of Nepal (IBN) on 31st Oct 2021. IBN examined the DPR and has given their acceptance and approval. The DPR of Lower Arun H. E. Project is submitted to CEA for appraisal on 19.11.2021. DPR acceptance meeting of the project was held under the chairmanship of Member (Hydro), CEA on 23.12.2021 to access the adequacy/completeness of the DPR of Lower Arun HE Project (669 MW).

Power Sharing Arrangement:

21% free power to Govt. of Nepal for the entire concession period of 25 years. The remaining power generated from the project will be exported to India. The power from the project will be evacuated through the 400 kV double circuit transmission line via Dhalkebar (Nepal) to Sitamarhi (India) being constructed by SAPDC for evacuation of power of Arun-3 HEP.